

Obsnap

the professional

Discover True Precision



accurate, repeatable, reliable

Company Introduction



Obsnap Instruments established in 1997, through continuous effort in innovation and positioning, Obsnap has become the leader in offering total solution for measuring and testing instruments in this region.

Our vision is to become the world leading measuring and testing solution provider. Over the years, we have accumulated in-depth understanding and experience in many demanding testing requirement and at the same time we have also established goodwill as a trusted partner with our clients and vendors around the world.

Obsnap Instruments office in Malaysia located in Subang Jaya, Selangor. It is a 3-storey building that house teams of sales & marketing, technical support and admin department. It is strategically planned to serve Malaysia market and other S.E.A. countries' representatives.



Obsnap Instruments Showroom



300 ton compression tester was being lifted and dismantled for repair.



Calibration of the 300 ton compression tester was being carried out.



Compression tester was being assembled back after repair was completed.



Ensuring the highest accuracy is achieved with a precision calibrator.

Customer service +

Before sales service:

Obsnap provide laboratory planning and technical consultation, testing method evaluation, recommendation of equipment and solutions.

After sales service:

Equipment operation and maintenance training, Routine preventive maintenance service, repair and calibration of equipment.

Obsnap operates a calibration lab that is pursuing ISO 17025 standard. We offer both in-the- lab and on-site calibration services.

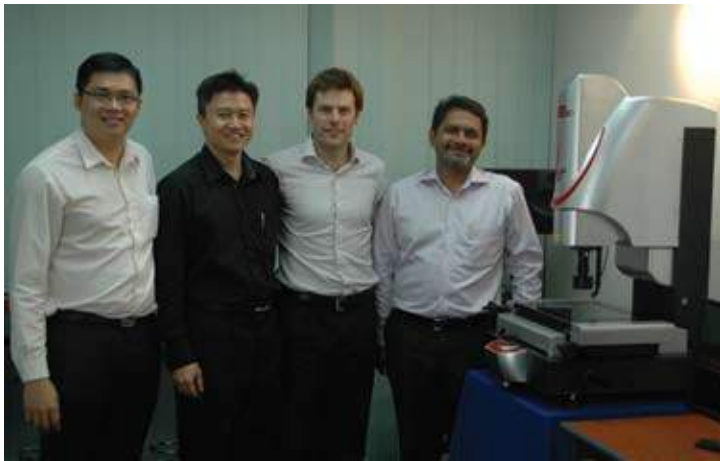
Company Introduction



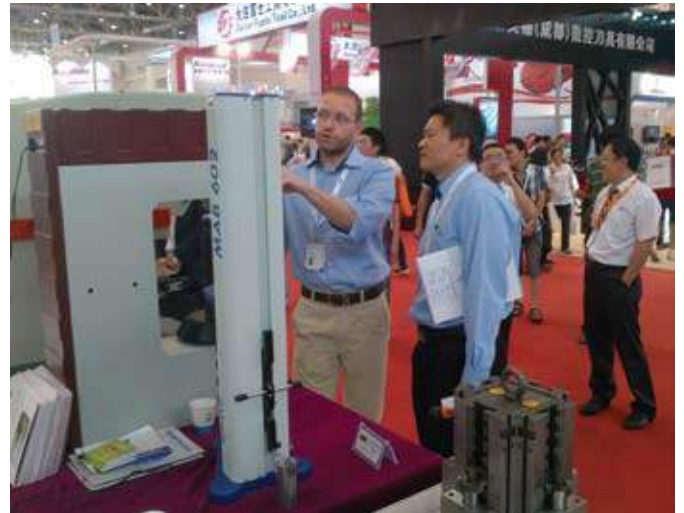
ISO 9001 standard applied at our OEM factory processes that create and control the products quality and services

Through the final one week of testing and fine tuning at factory, this Meridian Programmable Temperature & Humidity Chamber is ensured for its high performance, stability and complying to its technical specification.

Regular systematic technical knowledge improvement activities to ensure that the needs and expectations of customers are met



Visit and seminar by Mr. Barth Jacquot from Switzerland – Product Manager of StandardGage. Mr. Firoz Khader from Singapore – Director of Business of Hexagon Metrology Asia Pacific,



Mr Rag. Alberto Serra, Export Manager from LTF, Italy was giving briefing on Universal Hardness Tester in Beijing in occasion of CIMA Exhibition



Product Launching and Training by Elektrophysik , Mr. Uwe Zahl from Germany at Obsnap Instruments



Take part in a number of exhibitions yearly for marketing purpose and to announce new product launch.

Company Introduction

Customers

We have nearly 10,000 customers from various industries. Many are loyal long term customers with recurring purchases as well as our center of references. Some are fortune 500 companies. Some of the customers we serve regularly are



Automotive and related industries like metal, plastic and rubber.

Daimler Chrysler, Toyota, Nissan, Honda, Kia, Proton, Perodua, Naza, Aluminium Alloy Casting, Autoliv Hiroto, Delloyd Industries, Hicom Diecasting, Enkei, Armstrong Auto Parts, APM, Oriental Metal Industries, Sapura Automotive Industries, EP Polymer, KYB-UMW, Azman Hamzah Plastic, Teck See Plastics, HIL Industries, Clariant Master Batches, Marutech Elastomer Ind, Denso, WSA Engineering ...



Engineering and related fields like fabrication, maintenance, shipyard, oil & gas.

Petronas , Shell, KNM, Kencana HL, Air Asia, Malaysia Airline KLIA, SGS, SIRIM, YTL Power, Sarawak Energy, Aker Kvaerner, Dialog, BHP Steel, Bluescope, Peninsular Steel Galvanising, Megasteel, Equator Engineering, Boustead Shipyard, Labuan Shipyard & Engineering , Penang Shipbuilding & Construction, Chiyoda, , Hicom Petro Pipe, Samudra Timur Engineering, MMC Engineering, Muhibbah Engineering, SME Aerospace,



Electronics & semiconductor

Intel, Samsung, Apple, Panasonic, Seagate, Hitachi, Motorola, Robert Bosch, Brother, Sony, Flextronics, Vista Point Technologies, Yamaha Electronics, Canon, Alpha, Carrier International, Epson, Haier, TNB, Freescale Semiconductor, , Khind-Mistral, National Semiconductor, Siemens, Trane,



Chemical, Pharmaceutical and Food industries

Akzo Nobel, Nippon paint, PPG Coating, KCC, Sime Kansai Paint, Jotun, ICI, Dupont, Rovski, Dow Chemical, BASF, Titan, Pharmaniaga, Taisho Pharmaceutical, Medipro, Nestle, Macfood Services, Mamee-Double Decker, KFC , Cadbury Confectionery, Everlasting Food Industries, Dutch Lady,



Testimonial

I am using Elektrophysik coating thickness gauge MiniTest series daily for the past 6 years. The gauge is great for its ease of use, reliable and accurate. Most important of all I am content with Obsnap team service. They are knowledgeable, helpful and always provide timely excellent service.

Mr. Zee Chin Tack

Project manager of Kencana Painting

Company Introduction

Examples of equipment application



100 Ton Universal testing machine installed at a college



Measuring Melt flow index of plastic raw material by our customer in plastic industries



Pipe and cable locator for Petronas site in Bintulu



Temperature measurement with an Infrared thermometer



Programmable temperature & humidity chamber and a Xenon test chamber for an industrial customer.



XRF spectrometer is used by our customer from electronic industries for RoSH detection and element analysis



Product director, Keene Chai was sharing measuring functions of a StandardGage Video Measuring System that is complete with precision laser guide.



Training for Microtecnica Profile Projector with advanced touch screen control panel from Italy.

12 Testing & Measurement System

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Obsnap product is expanding and improving continuously, please check our website **www.obsnap.com** regularly for the latest information such as detailed technical specification, manuals, application hints and array of videos for instrument operation guide. You are invited to register for newsletter that keep you informed of useful quality tips, tricks and resources.



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Business and JV partners wanted in Asia

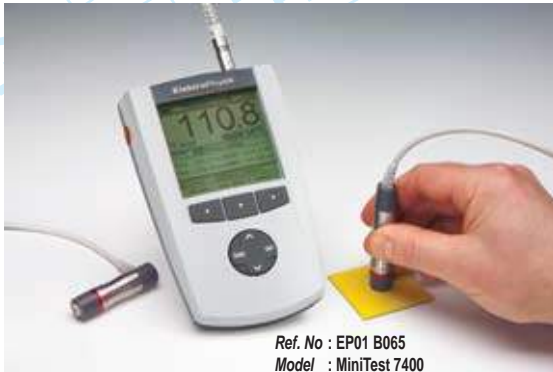
1st stage are countries in S.E.A

Please send in inquiry to CEO,

ngshonefone@obsnap.com

1. Coating & Surface Testing

High-precision Coating Thickness Gauge



Ref. No : EP01 B065
Model : MiniTest 7400

Specification

Max. number of batches	500
Max. number of storable readings	approx. 250,000 readings in total
Statistics (per batch)	number of readings, minimum, maximum, average, standard deviation, coefficient of variation, block statistics (norm-conforming / free configurable), process capability indices Cp and Cpk, histogram, trend
Calibration	up to 5 points, user adjustable offset value
Monitoring of limits	visual and audible alarm to indicate deviations from set limits
Data port	IrDA® 1.0, USB and RS232 with optional adapter

MiniPrint 7000 portable data printer



Technical Data for MiniTest 7400 Sensors

	HD sensors	Measuring range	Accuracy (of reading)	Repeatability (standard deviation of reading)	Low range resolution	Minimum curvature radius convex	Minimum curvature radius concave	Minimum measuring area without measuring stand	Minimum measuring area with measuring stand	Minimum substrate thickness	Measuring rate in continuous mode	Max. measuring rate in single readings mode
F 0.5	F 05 HD	0...0.5 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.02 µm	1.0mm	7.5mm	Ø 14mm	Ø 5mm	0.3mm	20 readings per second	70 readings per minute ⁴
F 1.5	F 1.5 HD	0...1.5 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.05 µm	1.0mm	7.5mm	Ø 14mm	Ø 5mm	0.3mm		
F 1.5-90		0...1.5 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.05 µm		5mm	Ø 10mm	Ø 5mm	0.3mm		
	F 2 HD	0...2 mm	+/- (1.5 µm + 0.75%)	+/- (0.8 µm + 0.5%)	0.1 µm	1.5mm	10mm	Ø 14mm	-	0.5mm		
F 5	F 5 HD	0...5 mm	+/- (1.5 µm + 0.75%)	+/- (0.8 µm + 0.5%)	0.1 µm	1.5mm	10mm	Ø 14mm	Ø 10mm	0.5mm		
F 15		0...15 mm	+/- (5 µm + 0.75%)	+/- (2.5 µm + 0.5%)	1 µm	5mm	25mm	Ø 25mm	Ø 25mm	1.0mm		
F 35		0...35 mm	+/- (20 µm + 0.75%)	+/- (10 µm + 0.5%)	5 µm	50mm	50mm	Ø 100mm	-	1.5mm		
N 0.2	N 0.2 HD	0...0.2 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.02 µm	1.0mm	7.5mm	Ø 14mm	Ø 5mm	40µm		
N 0.7	N 0.7 HD	0...0.7 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.05 µm	1.0mm	7.5mm	Ø 14mm	Ø 5mm	40µm		
N 0.7-90		0...0.7 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.05 µm		5mm	Ø 10mm	Ø 5mm	40µm		
N 2.5	N 2.5 HD	0...2.5 mm	+/- (1.5 µm + 0.75%)	+/- (0.8 µm + 0.5%)	0.1 µm	1.5mm	10mm	Ø 14mm	Ø 10mm	40µm		
N 7		0...7 mm	+/- (5 µm + 0.75%)	+/- (2.5 µm + 0.5%)	1 µm	15mm	25mm	Ø 23mm	Ø 20mm	40µm		
FN 1.5	FN 1.5 HD	F: 0...1.5 mm N: 0...0.7 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.05 µm	1.0mm	7.5mm	Ø 14mm	Ø 5mm	F:0.3mm N:40µm		
FN 1.5-90		F: 0...1.5 mm N: 0...0.7 mm	+/- (1 µm + 0.75%)	+/- (0.5 µm + 0.5%)	0.05 µm	-	5mm	Ø 10mm	Ø 5mm	F:0.3mm N:40µm		
FN 5	FN 5 HD	F: 0...5 mm N: 0...2.5 mm	+/- (1.5 µm + 0.75%)	+/- (0.8 µm + 0.5%)	0.1 µm	1.5mm	10mm	Ø 14mm	Ø 10mm	F:0.5mm N:40µm		

1. Coating & Surface Testing

Intelligent Digital coating thickness gauge

The new MiniTest 700 gauges are the solution to all your coating thickness problems where a reliable finish and perfect product appearance play a major role for long-term value and success, e.g. in the automotive and shipbuilding industry, in steel and bridge construction or in the electroplating industry, to name but a few industries. In general its applications are for.

Non-destructive coating thickness measurement of:

- non-magnetic coatings, e.g. paint, enamel, chrome on steel
- insulating coatings, e.g. paint and anodizing coatings on non-ferrous metals

Features

- High precision coating thickness measurement up to 15mm / 600mils
- Increased accuracy and reproducibility achieved by sensor integrated digital signal processing (SIDSP)
- Universal probe with automatic substrate detection allows fast measurement on steel and non ferrous metals
- Wear resistant probes of practically unlimited lifetime
- Optimized temperature compensation
- High precision characteristic curves with up to 50 data points
- Storage for up to 100000 values
- Statistical evaluation of readings
- Infrared data transmission (IrDA) to PC and printer

Models

- MiniTest 720 ~ Integrated sensor, 10 data memories, storage for up to 10000 values
- MiniTest 730 ~ External probe, 10 data memories, storage for up to 100000 values
- MiniTest 740 ~ External or integrated probe, 100 data memories, storage for up to 100000 values

Ref. No	Model
EP01 B046	MiniTest720 (F2)
EP01 B048	MiniTest720 (N2.5)
EP01 B049	MiniTest720 (FN5)
EP01 B054	MiniTest730 (F2)
EP01 B056	MiniTest730 (N2.5)
EP01 B057	MiniTest730 (FN5)

Properties	F1.5, NO.7, FN1.5		F2	F5, N2.5, FN5		F15
	F	N	F	F	N	F
Measuring range	0... 1.5mm	0... 0.7mm	0... 2mm	0... 5mm	0... 2.5mm	0... 15mm
Typical field of application	small samples, thin coatings, use with measuring stand		rough surfaces	standard sensors for a wide field of applications		thick coatings
Measuring principle	magnetic induction	eddy currents	magnetic induction	eddy currents	eddy currents	magnetic induction
Signal processing	Sensors integrated 32 bits signal processing (SIDSP®)					
Accuracy	± (1 µm + 0.75% of reading)		± (1.5 µm + 0.75% of reading)		± (5 µm + 0.75% of reading)	
Repeatability (Standard deviation)	± (0.5 µm + 0.5% of reading)		± (0.8 µm + 0.5% of reading)		± (2.5 µm + 0.5% of reading)	
Low range resolution	0.05 µm		0.1 µm		1 µm	
Minimum curvature radius convex	1.0mm		1.5mm		5mm	

1. Coating & Surface Testing

Rugged Coating Thickness Gauge



Ref. No	Model
EP01 B060	MiniTest 650 F
EP01 B061	MiniTest 650 N
EP01 B062	MiniTest 650 FN

This rugged coating thickness gauge MiniTest 650 follows its long-time proven predecessor model MiniTest 600 in the line of gauges with a fixed external probe offering measurement of all non-magnetic coatings on steel and all insulating coatings on non-ferrous metals. It was especially designed to work in rough environments as well as on abrasive surfaces, e.g. shot-blasted steel, plasma spray coated surfaces.

- Ram and impact protected through rubber rimmed casing
- Universal probe offering automatic identification of the substrate for quick measurements on steel and non-ferrous metals.
- Newly developed wear-resistant probe tips with practically unlimited durability

Specification

Measuring Range	- Type F (steel)	0...3000µm
	- Type N (NF metal)	0...2000µm
	- Type FN (dual probe)	0...2000µm
Tolerance	-	±(2% of reading +2µm)
Calibration	-	Standard, one-point, two-point
Interface	-	USB

Pocket Coating Thickness Gauge



Ref. No	Model
EP01 B063	MiniTest 70 F
EP01 B064	MiniTest 70 FN

Versatile and accurate coating thickness gauge with built-in sensor. Especially designed for easy operation, this gauge is the ideal tool to measure any non-magnetic coating on steel and /or any insulating layer on non-ferrous metals.

Features

- Built-in sensor
- Dual sensor for automatic identification of the substrate (FN model)
- Quick statistics mode to calculate the number of readings, average, standard deviation and min., max. value
- light weight: 80 grams only

Specification

Measuring Range	- Type F	0...3mm
	- Type FN	N-0...2.5mm
Accuracy	-	±(1.5µm + 3% of reading) with 1- point ±(1.5µm + 2% of reading) with 2- point
Resolution	-	0.5µm (low range)
Calibration	-	1-point calibration, 2-point calibration

Magnetic Coating Thickness Gauge



A mechanical coating thickness gauge for quick and non-destructive measurement of electroplating, nickel coating, phosphating, paint, plastic, enamel etc. on steel. The measurement of coating thickness is based on magnetic attraction.

Remark

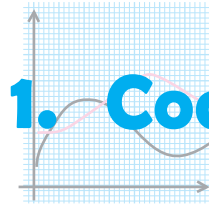
NiFe50 = Measurement of electroplated nickel on steel

Features

- No power supply or battery required
- No calibration required-factory preset
- Measurement at any angle
- Fully automatic (Type 6)

Specification

Ref. No	Model	Range	Tolerance
EP01 B021	MikroTest 5 G	0... 100µm	± 1µm or 5% of reading
EP01 B022	MikroTest 5 F	0... 1000µm	± 5µm or 5% of reading
EP01 B023	MikroTest 6 G	0... 100µm	± 1µm or 5% of reading
EP01 B024	MikroTest 6 F	0... 1000µm	± 5µm or 5% of reading
EP01 B025	MikroTest 6 S3	0.2... 3mm	± 5% of reading
EP01 B026	MikroTest 6 S5	0.5... 5mm	± 5% of reading
EP01 B027	MikroTest 6 S10	2.5... 10mm	± 5% of reading
EP01 B028	MikroTest 6 NiFe 50	0... 50µm	± 2µm or 8% of reading



1. Coating & Surface Testing

Pull-off Magnetic Coating Thickness Gauge



It uses the Magnetic Attraction principle to measure the thickness of paint and powder coating, applied over ferrous substrates. The MiniPen is an extremely economical alternative for quick spot measurements. The gauge fits in your shirt pocket so it's always available for spot measurements.

Features

- Low-cost
- Magnetic attraction principle
- Permanent magnet never losing its power
- Coloured zones for quick go/ no-go quality assessment
- For open and recessed measuring areas

Specification

Ref. No	Model	Measuring Range	Accuracy
EP01 B029	PenTest	27... 700µm	± 10% of reading
EP01 B030	MiniPen	50... 500µm	± 15% of reading

Ultrasonic Coating Thickness Gauge



Ref. No : EP01 B031
Model : Quintsonic

Ultrasonic Coating Thickness Gauge is used to measure paint, plastics, enamel and other insulating coating on the base of wood, plastic glass, ceramics and metal. This non-destructive coating thickness gauge has been developed for the easy and quick measurement of coatings on non-metalic materials which up to now could only be done destructively. The gauge will also measure paint coatings on a metal base.

Features

- Capable of measuring polymer single & multi layers etc
- 10,000 memory capacity
- Statistic n, x, s, kvar, max, min
- Limit setting
- RS232C interface
- Rechargeable batteries

Specification

Measuring Range	- Single layer, 10µm - 500µm Multi layer, max 500µm (total coating thickness)
Resolution	- 1µm
Wall Thickness Measurement	- metals, 0.1mm - 8mm Plastics, 0.2mm - 3mm
Measuring Uncertainty <100µm	- ± (2µm + 3% of reading)
Measuring Uncertainty >100µm	- ± (2µm + 2% of reading)

Paint Inspection Gauge (PIG)



Ref. No Model
TQ01 B041 SP 1000
TQ01 B032 SP 1200

Optional Knives

Knife number	Cut angle (°)	D x Factor	Range (µm)
1.	45	20	20 - 2000
2.	26.6	10	10 - 1000
3.	14	5	5 - 500
4.	5.7	2	2 - 200

Paint Inspection Gauge is a destructive precision tool for inspection and thickness measurement on single or multiple coats on virtually all substrates, including wood, plastics, metals etc. Also observes and measures substrate and film defects. Applies a small incision in the layer of paint, and uses an integrated microscope with measuring reticle.

Features

- Made of Titanium anodised aluminum
- Three knife sizes and one crosscut knife in one holder
- Ergonomic design: revolving-system to change knife (SP 1000)
- Bright white LED lights ensure clear vision through the Microscope
- Small size eases use in corners
- Engraved scaling (D-factor) for easy calculations
- Measurement supporting wheel for smooth movement (SP 1000)

Specification

Range	- 2 - 2000 microns
Scale Range	- 0.00 - 2.00mm (rectilinear measured)

1. Coating & Surface Testing

Wet Film Thickness Gauge

Surfa Test

Surfa Test is for quick and easy thickness measurement of freshly applied wet coating. It is made of stainless steel, wear resistant and is a measuring comb according to ISO 2808.

Graduations are as follow

In μm				In mils			
25	50	75	100	1	2	3	4
125	150	175	200	5	6	7	8
250	300	350	400	10	12	14	16
500	600	700	800	20	24	28	32



Ref. No : EP01 B033
Model : Surfa Test

Hexagonal

The Wet Film Thickness Gauge WG is a hexagonal / octagonal measuring comb made of heavy stainless steel. The high-grade stainless steel will not be affected by acid or base elements. Models are available for several different applications.

Features

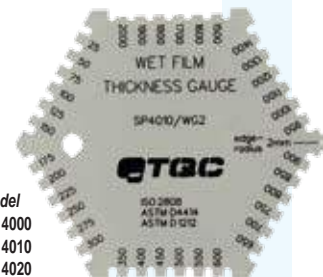
Models available for several different applications

- 20 - 370 microns for decorative paints & primers
- 25 - 2000 microns for protective coating & high solids
- 50 - 10,000 microns for extremely thick films such as floor coatings, filler, fire proofing, plasters, adhesives etc

SP 4000 WG-I 20 - 370 μm in 24 steps (6x4)

SP 4010 WG-II 2000 μm in 36 steps (6x6) with edge radius check (2mm)

SP 4020 WG-III 50 - 10,000 μm in 72 steps (8x9)



Ref. No Model
TQ01 B034 SP 4000
TQ01 B035 SP 4010
TQ01 B036 SP 4020

Aluminium

Aluminium wet film thickness gauge is for measuring wet film thickness of paints, enamels, lacquers, adhesives & many other wet coatings that are sprayed, dipped or brushed on a smooth surface.

Features

- Material ~ Aluminium
- Low cost
- Range : 25 - 2032 μm



Ref. No : PG01 B035
Model : Aluminium

Plastic Wet Film Comb

The TQC Wet Film Comb is designed as a disposable thickness gauge. It can be kept as a record of wet film thickness measurement for ISO or customer requirements.

LD2020

TQC Plastic Wet Film Comb, 500 pieces

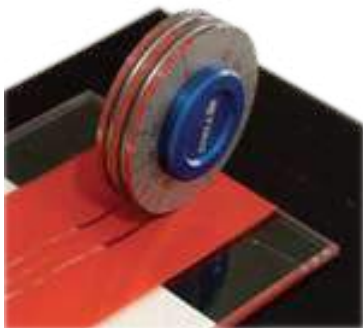
25-900 μm in 30 steps; 1-35 mils



Ref. No : TQ01 B042
Model : LP 2020

1. Coating & Surface Testing

Wheel Wet Film Thickness Gauge



Specially developed for use on wet lacquers, paint and oil coated surfaces. It is made of stainless steel. The centre disc features a precision ground eccentric groove to pick up the coated medium, to be measured after rolling the gauge onto the surface, beginning with the deepest groove.

Range	Ref. No	Model
Type: NS 100 0 - 100µm	TQ01 B037	VF 2255
Type: NS 300 0 - 300µm	TQ01 B038	VF 2256
Type: NS 600 0 - 600µm	TQ01 B039	VF 2257

Coulometric Coating Thickness Gauges

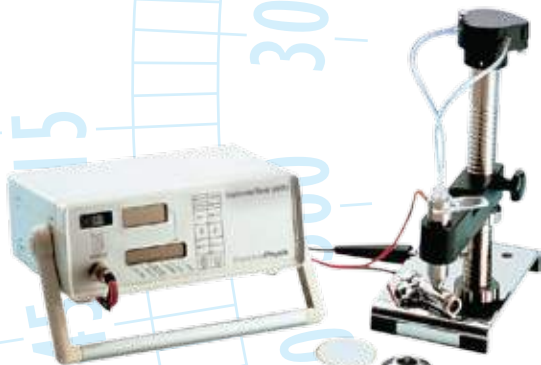
Coulometric Coating Thickness Gauge is used to measure the thickness of electroplated coating on practically all substrates, i.e. on steel, on non-ferrous and also on insulating material; such as nickel on steel. Zinc on steel, tin on copper, silver on copper and copper on epoxy. This measuring technique simply involves the removal of a small, almost invisible area of coating material whereas the substrate is unaffected.

Features

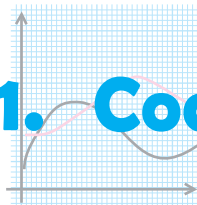
- Measuring practically all electroplated coating on all substrate
- Capable to measure on single and multi-layer coating
- Statistical evaluation: n, kvar, mean, max, min
- Memory 2000 data
- RS232C interface to MiniPrint printer or computer

Specification

Ref. No	EP01 B041	EP01 B042
Model	GalvanoTest 2000	GalvanoTest 3000
Range	0.05 - 75µm	0.05 - 75µm
Accuracy	± 5%	± 5%
Measuring Cell	All pulsator	Circulation pump
Measuring Surface Gasket / Mask	8, 4, 1mm²	8, 4, 1 & 0.25mm²
Electrolyte Cup	For measurement on wires & odd shaped small pieces	



1. Coating & Surface Testing



XRF Spectrometer



Ref. No : JS01 B080
Model : Thick 800A

Plating is a surface covering in which a metal is deposited on a conductive surface. Plating is used to decorate objects, for corrosion inhibition, to improve solderability, to harden, to improve wearability, to reduce friction, to improve paint adhesion, to alter conductivity, for radiation shielding, and for other purposes. Thick 800A is specially designed for rapid and non-destructive detection of plating thickness, element categories and contents.

Features

- | | |
|-----------------------------------|---------------------------------------|
| 1. Top lighting | 2. Up-and-down platform |
| 3. High-accuracy movable platform | 4. Small-aperture collimator |
| 5. High-resolution detector | 6. Visual operation |
| 7. Auto height positioning | 8. Auto spot search |
| 9. Mouse positions the test point | 10. Excellent ray shielding |
| 11. Super large chamber design | 12. Safe protection of test interface |

Performance and Characteristics

- Measurement of samples with different thicknesses and irregular shapes
 - $\varnothing 0.1$ micro collimator can test the point
 - Positioning laser can precisely locate the facula to ensure the test point aligns to it
 - High-resolution detector can improve the analysis accuracy
-
- Simultaneously test 24 elements and 5-layer plating
 - Analysis detection limit reaches 2ppm, mini layer is $0.005\mu\text{m}$
 - Analysis range: 2ppm to 99.9%
 - Plating thickness is generally within $50\mu\text{m}$ (depend on different materials)
 - Power supply: AC 220V \pm 5V, AC purified stabilized
 - Power is suggested

Technical Specifications

- Measurable elements: From S to U
- Multi-variable non-linear regression procedure
- Excellent repeatability: 0.1%
- Long-time working stability: 0.1%
- Arbitrary optional analysis and identification models
- Independent matrix effect correction models

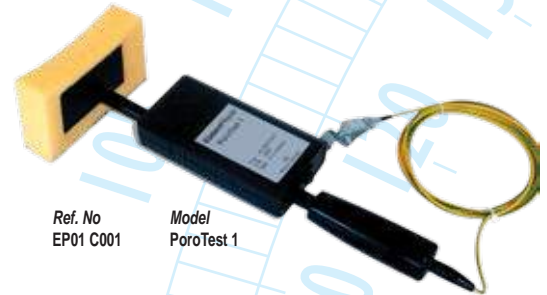
1. Coating & Surface Testing

Wet Sponge Porosity Detector

Light-weight & easy to use, the battery powered PoroTest 1 wet sponge porosity detector is suitable for inspection non-conductive layers on metallic substrate. Operating 9V direct current which is completely risk-free to the operator, an electrical signal is created as soon as the electrical resistance of the water filled pore falls below 100kOhm. With PoroTest 1 coatings down to 300 microns can be tested for porosity.

Features

- Pinhole detection on all metals
- Mains-independent
- Low voltage without spark discharge



Ref. No
EP01 C001

Model
PoroTest 1

Specification

Sensitivity : Acoustic signal if test resistance is less than approx. 100kOhm

Range : 0 - 300µm

High Voltage Porosity Detection - DC Holiday Detector



Ref. No
EP01 C002

Model
PoroTest 7



Flaws in protective coating such as pores, cracks and fissures, if undetected, may impair the corrosion resistance of a product. The PoroTest 7 has been specifically designed for non-destructive porosity testing of such coatings. Reliable porosity detection for all insulating coatings on metal such as:

- Coatings on oil, gas or water pipelines
- Linings of tubes, vessels or storage tanks
- Enamel, epoxy & plastics coatings
- Protective coatings on hulls, oil tanks, vessels, pipelines including fittings

Features

- Powerful & versatile gauge with new ergonomic design making it ideal for on-site testing
- User-friendly key-pad layout with menu driven operation
- 15 sensitivity settings
- Pre-set test voltages specific to material thickness
- Residual voltage indicator - safety feature
- Backlit display to indicate current test voltage, number of pores & material thickness
- High voltage probe with equipment-on & pore indicator (red LED)
- Alarm signal when exceeding pore limit setting (Limit)
- Electrical safety provisions according to VDE 0411, Part 1
- Power supply: AC operated or battery operated via integrated storage battery (C-cells)
- Optimum test voltage setting ensures safe testing without damaging the material being tested
- Precise & stable test voltage setting achieved through electronic control, High voltage crest meter is not required
- High voltage probe model P7: 0.5 - 7kV
- High voltage probe model P30: 3 - 30kV
- High voltage probe model P35: 6 - 35kV

Specification

Ref. No	EP01 C003	EP01 C004	EP01 C005
High Voltage Probe	P7	P35	P30
Operating Range	0.5-7kV	6-35kV	3-30kV
Coating Thickness	0.03mm-1.7mm	1.4mm-11.3mm	0.5-9mm
Voltage	DC		
Test Voltage Indications	LC Display, 3-digit		
Accuracy of Voltage Setting	± (0.1kV + 3% of readings)		
Alarm Signal	90dB, 0.1 s/Pore, Continuous tone in case of short-circuit		
Storage Battery	4C-cells, IEC LR 14, 3.5 Ah, NiMH, replaceable		

1. Coating & Surface Testing

Colour Assessment Cabinets



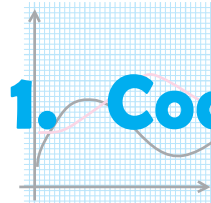
This compact visual color evaluation system provides the closest fluorescent daylight simulation available today in a construction that will meet your needs. It combines exceptional versatility and quality and offers the best value where space is an important consideration when evaluating color quality and uniformity

Features

- Up to six (6) programmable light sources for hands-free viewing
- Spacious interior
- User-adjustable color temperature
- SmartLogic extends lamp life
- Elapsed time meter indicates lamp replacement
- Meet or exceeds all major international standard including ASTM D1729, ISO 3664, SAEJ361, DIN, ANSI and BSI
- Available in overhead luminaire

Specifications

Ref No	XR02 B017	XR02 B023	
Model	The Judge II	Spectralight III	
		Each Booth	Each Luminaire
Cabinet Color	Munsell N7	Munsell N7	
Dimensions	Height: 21.85 in (55.5cm) Width: 26.5 in (67.3cm) Depth: 20.5 in (52.1cm)	Height: 27.5 in (69.9cm) Width: 37 in (94cm) Depth: 24.4 in (62cm)	Height: 9.5 in (24.1cm) Width: 37.1 in (94.2cm) Depth: 25.7 in (65.3cm)
Weight	50 lbs (22.7kg)	154 lbs (70kg) / 181 lbs (82kg) (including luminaire)	92 lbs (42kg) / 115 lbs (52kg)
Illuminant Sources			
Daylight Options*	7500K, CIE D75 North Sky Daylight 6500K, CIE D65 Average North Sky Daylight 5000K, CIE D50 Noon Sky Daylight	7500K, CIE D75 North Sky Daylight 6500K, CIE D65 Average North Sky Daylight 5000K, CIE D50 Noon Sky Daylight	
Fluorescent Options*	Cool White (4150K), U30 (3000K), U35 (3500K), TL84 Typical Store / Office Lighting	Cool White (4150K), U30 (3000K), U35 (3500K), TL84 Typical Store / Office Lighting	
Horizon		500 watt Tungsten Halogen Simulates early morning sunrise and late afternoon sunset	
Illuminant "A"	2856K, Typical incandescent Home Lighting	2856K, Typical incandescent Home Lighting	
Ultraviolet	Filtered Near UV	Filtered Near UV	



1. Coating & Surface Testing

Portable Sphere Spectrophotometer



Ref. No	Model
XR02 B001	SP 60
XR02 B002	SP 62
XR02 B003	SP 64

Technical Specifications

Measuring Geometrics	: d/8°, DRS spectral engine, choice of optical aperture, 4mm measurement area (SP62), 6.5mm target window, 8mm measurement area (SP60/SP62), 13mm target window, 14mm measurement area (SP62), 20mm target window. Switchable 4mm/8mm measurement area (SP64)
Light Source	: Gas-filled tungsten lamp
Illuminant Types	: C, D50, D65, D75, A, F2, F7, F11 & F12
Standard Observers	: 2° & 10°
Receiver	: Blue-enhanced silicon photodiodes
Spectral Range	: 400 nm - 700 nm
Spectral Interval	: 10 nm - measured, 10 nm - output
Storage	: 1,024 standard with tolerances, 2,000 samples
Lamp Life	: Approx. 500,000 measurements
Short-term Repeatability	: 0.05ΔE _{ab} on white ceramic

The SP 60 series provide absolute and difference measurements for the following colorimetric systems. These value can be obtained from any of nine illuminants with 2° or 10° observer angle: L^*a^*b , $\Delta L^* \Delta a^* \Delta b^*$, $L^*C^*H^*$, $\Delta L^* \Delta C^* \Delta H^*$, ΔE^*_{ab} , $\Delta ECMC$, ΔE CIE94 and XYZ.

Whiteness and yellowness per ASTM E313-98, Metamerism Index and DIN 6172

Features

- Diffuse/ 8° sphere optical geometry
- Flip-back target shoe for flexible use
- Large, easy-to-read graphical LCD display
- Opacity and color strength measurement & shade sorting
- Simultaneous measurement of both specular component included SPIN & specular component excluded SPEX
- Pass / Fail mode
- Quick color compare
- Special project mode (SP62, SP64)
- Job mode (SP64)

Color i QC

Color Quality Control Software

This job-oriented software solution removes the guesswork from evaluating colors. It is easy adaptability allows analysis of lab dips, production samples, finished goods - any types of color control option - at a user-specified rate that accommodates each operation's work flow. Available in a choice of three levels for specific industry and color communication requirements.

Color i Match

Color Formulation Software

An intelligent solution for formulating paint, plastic, or textiles. This package enables quick, accurate color analysis and the capability to optimize every formula for cost and color accuracy. Available in four levels for specific formulation requirements.

Portable Imaging Spectrocolorimeter



Color QC program for Appliances & Housewares, Soft & Hard Home Products, Building Materials, Toys, Consumer Electronics, Accessories, Food & Baker Products, Plastics, Apparel / Textiles, Paints & Coatings, allows you to:

- Achieve stable color quality throughout your manufacturing process
- Manage suppliers efficiently, each adhering to a single standard
- Control variations between lab formulation, production, and final goods
- Control batch variations
- Eliminate issues related to staff experience; everyone uses the same device
- Enhance accuracy by combining the technology with custom or off-the-shelf color standards from Pantone and Munsell

Specifications

Measuring geometrics	45/0 image capture
Light source	Independent tri-directional 25 LED (8* visible wavelengths; 1* UV)
Illuminant / Observer	D65/10 and A/10
Standard / Sample storage	20/350
Measuring area	4 & 8mm
Short term repeatability	Typical 0.10 DE 94 on white (D65/10)
Data interface	USB (Mass Storage Device)



RM200QC provides accurate $L^*a^*b^*C^*H^*$ standard, sample and color difference values.



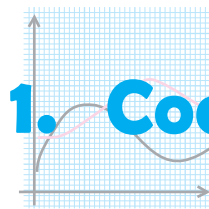
Verbal color descriptions help to understand and describe the direction of color difference.



Gray Scale and Strength functions are included for textile assessment. RM200QC offers superior ergonomics for this application and improved performance (compared to visual evaluation).



On board Opacity measurement provides accurate and flexible functionality for coatings and plastics.



1. Coating & Surface Testing

Multi-Angle Spectrophotometer



MA 9x series is the next generation and improve versions of X-Rite's MA6811 spectrophotometer. The new MA94/96/98 offers a wider range of solutions so customers can tailor their investment by selecting the instruments that best suit their applications, measuring anything from the most basic paints to sophisticated interference pigment coatings. The new spectrophotometers offer improvements such as better data repeatability robust method for measuring flexible or curved surface.

The MA 9x series instruments all feature

- X-Rite's proprietary JOBS workflow routine with both text and visual cues that instructs the user where measurements need to be collected and records data for analysis using the bundled X-ColorQC (R) software
- Data collection via USB2.0 or wireless data collection via Bluetooth
- Solid-state pressure sensors and indicator L.E.D.'s that signal when the instrument is applied properly against the best surface to improve measurement repeatability
- Lamp modules can be replaced without affecting the measurement performance or result of the instrument
- Compatibility with previous generations of X-Rite instrument, allowing continued use of existing database
- A large color display screen that is backlit for easy viewing under varying light conditions
- Software that instructs the operator on the proper techniques of measurement with both text and visual cues

Specifications

Ref No	XR02 B014	XR02 B020	XR02 B016
Model	MA94	MA96	MA98
Measuring Geometrics	Illumination 45° Aspecular Viewing 15°, 25°, 45°, 75°, 110°	Illumination 45° Aspecular Viewing -15°, 15°, 25°, 45°, 75°, 110°	Illumination 45° Aspecular Viewing -15°, 15°, 25°, 45°, 75°, 110° Out-of-plane 25°az90, 25°az-90, 60°az125.3, 60°az-125.3 Secondary Illumination 15° Aspecular Viewing -15°, 15°
Angular Accuracy	±0.15°. Fiber Optic pick up coupled with DRS technology	±0.15°. Fiber Optic pick up coupled with DRS technology	±0.15°. Fiber Optic pick up coupled with DRS technology
Measurement Area	Approx. 12mm (0.5 inch)	Approx. 12mm (0.5 inch)	Approx. 12mm (0.5 inch)
Light Source	Gas filled tungsten lamp	Gas filled tungsten lamp	Gas filled tungsten lamp
Spectral Range	400 nm - 700 nm	400 nm - 700 nm	400 nm - 700 nm
Spectral Interval	10 nm (31 measured points)	10 nm (31 measured points)	10 nm (31 measured points)
Colorimetric Illuminants	A, C, D50, D65, F2, F7, F11 & F12	A, C, D50, D65, F2, F7, F11 & F12	A, C, D50, D65, F2, F7, F11 & F12
Colorimetric Standard Observers	2° & 10°	2° & 10°	2° & 10°
Colorimetric Scales	L*a*b*, L*C*h°, ΔE*, ΔECMC, ΔE DIN6175, ΔE ₂₀₀₀	L*a*b*, L*C*h°, ΔE*, ΔECMC, ΔE DIN6175, ΔE ₂₀₀₀	L*a*b*, L*C*h°, ΔE*, ΔECMC, ΔE DIN6175, ΔE ₂₀₀₀
Repeatability	0.03avg. ΔE* on white cal plaque (20 measurements at 5 sec intervals)	0.03avg. ΔE* on white cal plaque (20 measurements at 5 sec intervals)	0.02 ΔE* max on white cal plaque (20 measurements at 5 sec intervals)

MA94

An intelligent, hand-held tool with the power to provide reliable data on coatings for a wide range of industries

MA96

Including data from a - 15 degree angle, the MA96 is an intelligent, hand-held tool with the power to provide precise, reliable data on special effect coatings

MA98

By using dual illuminators and sensors that measure more in-plane and out-of-plane angles than any instrument in its class, the MA98 is the only device that meets the ASTM standard (E2539) for measuring interference pigments

1. Coating & Surface Testing

Portable Multi-Angle Spectrophotometer



Ref. No : XR02 B007
Model : MA 6811

Features

- Easy to use
- Efficient. Measuring time per sample within 2 seconds
- Dynamic Rotation Sampling (DRS). Exclusive optical technology that provides for simultaneous measurement of all angles
- Rechargeable battery
- Accessible long-term data
- Quality assurance software included

A rugged, compact design for fast, precise color measurement information on metallic, pearlescent, and special effect finishes. Its full range of angular viewing ensures complete, accurate that reduce downtime and wasted material.

Technical Specifications

Measuring Geometric	: 45° illumination, 15°, 25°, 45°, 75°, 110° specular viewing, Angular accuracy $\pm 0.15^\circ$. Fiber optic pick-up, coupled with DRS technology
Measuring Area	: 0.5 in. diameter (12mm)
Light Source	: Gas-filled tungsten lamp, color corrected to approx. 40000°K
Illuminant Types	: C ₁ , D ₆₅ , D ₅₀ , A, F2, F7, F11 & F12
Standard Observers	: 2° & 10°
Receiver	: Blue-enhanced silicon photodiodes
Spectral Range	: 400 nm - 700 nm
Lamp Life	: Approx. 500,000 measurements
Short-term Repeatability	: 0.01 ΔE^*_{ab} on white ceramic

High Performance Benchtop Spectrophotometer



A full-featured reference instrument for reliable digital workflow and error-free measurement of textile, plastic, coated, liquid, and brightened samples.

Features

- Premium reference grade. Unables a reliable, global digital workflow
- Simultaneously measure SCI/SCE and calibrated UV control
- Complete auto-configuration simplifies setup and eliminates measurement errors
- Reflectance and transmittance
- Remote standard, trial, and preview buttons
- LED status panel uniquely warns you when you are at risk

Specifications

Ref No	<i>XR02 B021</i>	<i>XR02 B022</i>
Model	<i>i5</i>	<i>i7</i>
Repeatability (white tile)*	0.03 RMS ΔE_{CIE} lab	0.01 RMS ΔE_{CIE} lab
Inter-instrument Agreement*	Avg E CIE lab* 0.15 ΔE_{CIE} lab	0.08 Avg ΔE_{CIE} lab
Illumination	Plused Xenon, D65 Calibrated	Plused Xenon, D65 Calibrated
Spectral Range	360 nm - 750 nm	360 nm - 750 nm
Wavelength Interval	10 nm	10 nm
Reflectance Apertures	25mm, 10mm, 6mm	25mm, 17mm, 10mm, 6mm
Total Transmittance Apertures	22mm, 10mm, 6mm	22mm, 17mm, 10mm, 6mm
Special Features	Simultaneous SCI/SCE automated UV and lens control	Simultaneous SCI/SCE automated UV and lens control, digital signature, embedded NetProfiler, horizontal or vertical measurement orientation

1. Coating & Surface Testing

Professional Gloss Meters for Industry and Laboratory

The professional gloss meter allows the user to measure fast and simple accurate gloss levels on any flat surface. Whether it be paper, paint, plastic, wood or any other material. Template option can also provide the flexibility for use with curved surface or small test areas.



Specifications

Ref. No:	TQ02 C031	TQ02 C032	TQ02 C033
Model:	SoloGloss 60°	DuoGloss 20°/60°	PolyGloss 20°/60°/85°
Calibration standard	Integrated tile in dust cover		
Display	High contrast OLED display		
Light source	Extreme low drift LED light source		
Batches	max 8 with max 500 reading per batch		
Security	Password protection		
Orifice size	10 x 50mm / 0.4 x 2.0"		
Spot size	$\pm 5 \times 5\text{mm} / 0.2 \times 0.2"$ @ 20° $\pm 20 \times 9\text{mm} / 0.8 \times 0.35"$ @ 60° $\pm 40 \times 9\text{mm} / 1.5 \times 0.35"$ @ 85°		
Range	0-2000GU	0-2000GU	0-2000GU
Repeatability r*	0.4GU	0.2GU	0.2GU
Reproducibility R*	1.7GU	1.6GU	1.9GU
Bias*	1.2GU	0.6GU	1.6GU
*Acc. ISO 2813 (range 0-100GU)			
Standard	ISO 2813; ASTM D523; ASTM D2457; ASTM C584; AS 1580 (602.2); BS 3900 DS; DIN 67530; JIS Z 8741; ISO 7668; MFT 30064 (exception 45° angle)		



Data logging Memory of max. 2000 measurements and can be downloaded to your PC via USB interface.



Statistic Shows minimum and maximum values, average and standard deviation.



Limits / Thresholds An audible and visual alarm indicates when measurements are off limits operating as a pass / fail option.



Scan mode Measure continuously at a rate of approximately 70 readings per minute.

Portable Gloss Meter

Ref. No : TC02 C001
Model : TMS 724



A gloss meter that uses near-infrared-rays, almost impervious to ambient light and unaffected by colours, are pulse-emitted and projected on the measuring surface. The light reflected converges at the detector and signal received are converted to gloss value.

Features

- Dual Angle 20° / 60°
- Small separate measurement probe

Technical Specifications

Measuring range : 0 - 100 / 0 - 199 (display)
Resolution : 1
Reproducibility : $\pm 5\%$ F.S. ± 1 digit

Gloss Meter

The MG Series are designed and manufactured according to ISO 2813 and GB9754. They meet the following standards: ASTM D2457, ASTM D523, GB/T13891, GB7706 and GB8807.

Ref. No : KSJ02 C021
Model : MG268-F2



Ref. No : KSJ02 C022
Model : MG6-F2



Ref. No : KSJ02 C023
Model : MG6-F1



MG268-F2 is an intelligent glossmeter with memory, RS232 and software. It has autodiagnosis, auto-calibrate, indicating number of readings taken and average of the results.

MG6-F1 is a small, basic, stable, precise glossmeter. It's easy to use and convenient to carry.

Technical Specifications

Model MG268-F2
Reading range 0 ~ 199.9 ~ 2000 GU
Deviation ± 1.5 GU or $\pm 1.5\%$ whichever is greater
Measuring area 9x10 / 9x16 / 5x39 mm²
Incidence Angle 20 / 60 / 85 degree

Model MG6-F2
Reading range 0 ~ 1000 GU
Deviation ± 1.5 GU or $\pm 1.5\%$ whichever is greater
Measuring area 9x16 mm²
Incidence Angle 60 degree

Model MG6-F1
Reading range 0.0 ~ 199.9 GU
Deviation ± 1.2 GU
Measuring area 20x10 mm²
Incidence Angle 60 degree

1. Coating & Surface Testing

Portable Surface Roughness Tester



Features

- Pocket-size & economical price
- Large measuring range suitable for most materials
- Measures flat, outer cylinder and sloping surface
- Both Ra and Rz parameters in one instrument
- Simple calibration at keyboard
- Standard conform to ISO and DIN
- Rechargeable batteries, work while charging
- TR 110 is equipped with Li-ion battery and backlight

Technical Specification

Ref. No	TM01 D001	TM01 D002
Model	TR 100	TR 110
Roughness parameter		Ra, Rz
Tracing length		6mm
Tracing speed		1.0mm / sec
Cut-off length		0.25mm / 0.8mm / 2.5mm
Evaluation length		1.25mm / 4.0mm / 5.0mm
Measuring range		Ra: 0.05-10.0µm Rz: 0.1-50µm
Tolerance		≤ ± 15%
Repeatability		< 12%
Filter		RC analogue
Pick-up		Piezoelectric
Radius and angle of the stylus point		Diamond, Radius: 10 ± 2.5µm Angle: 90° (+5° or -10°)

Pocket Roughness Test

Range of Application

- On-site surface roughness measurement
- Measurement in the production process
- Universal use on processing machinery
- For incoming goods inspection

Features

- Error-free operation thanks to an integrated roughness standard
- Automatic cutoff selection (patented) so that even non-specialists are ensured correct measuring results
- 24 parameters offer the same range of functions as a laboratory instrument



Model: Pocket Surf PS1

Specification

Measuring range	: 350µm / 180µm / 90µm (changes automatically)
Pick-up	: Inductive skidded pick-up, 2µm (80µm) stylus tip, measuring force approx. 0.7mN
Unit of measurement	: Metric, inch
Standard	: DIN / ISO / JIS / ASME
Traversing length Lt*	: 1.75mm, 5.6mm, 17.5mm; automatic
Traversing length (acc. to MOTIF)	: 1mm, 2mm, 4mm, 8mm, 12mm, 16mm
Cutoff lc*	: 0.25mm, 0.8mm, 2.5mm; automatic
Number of cutoffs selectable	: 1 to 5
Filter*	: Phase-correct profile filter (Gaussian filter) acc. to DIN EN ISO 11562, Special filter acc. to DIN EN ISO 13565-1, is filter acc. to DIN EN ISO 3274
Parameters 24 (with tolerance limits)	: Ra, Rq, Rz equiv, to Ry (JIS), Rz (JIS), Rmax, Rp, Rp (ASME), Rpm (ASME), Rpk, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPl, Rmr equiv. to tp (JIS, ASME), RSm, R, Ar, Rx
Memory capacity	: Max. 15 profiles, max. 20,000 results

*acc. to ISO / JIS

1. Coating & Surface Testing

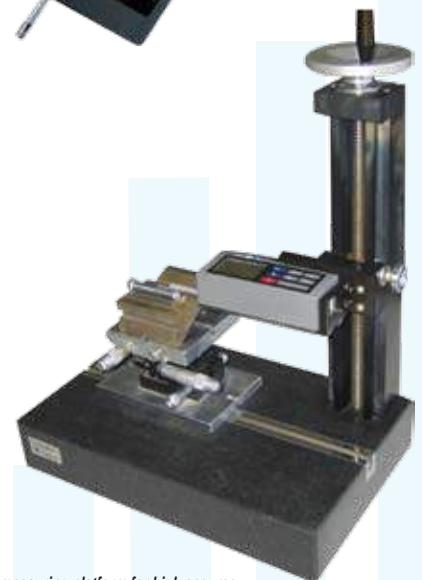
Surface Roughness Tester

Features

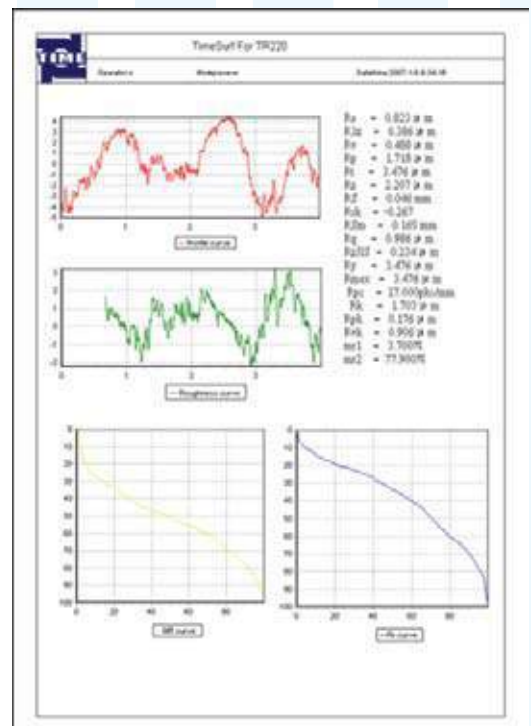
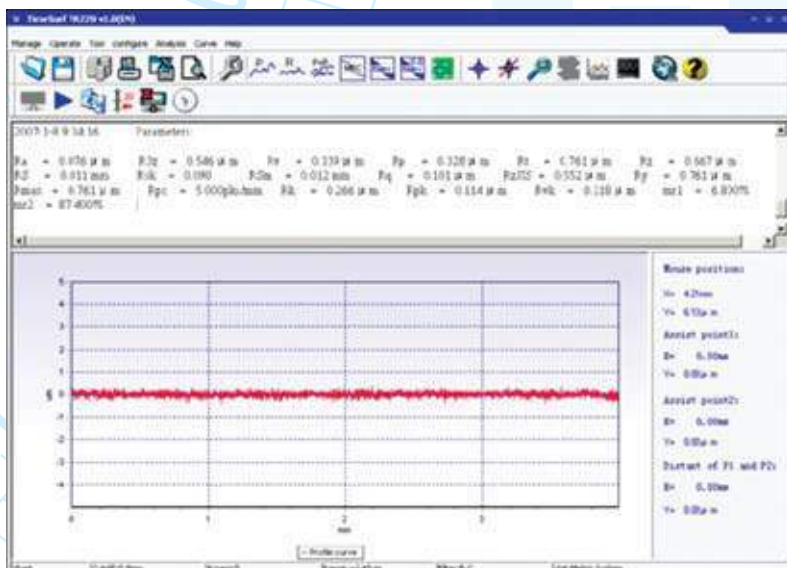
- Applicable in production site, laboratory and workshop in factory
- Graphical display of surface profile on large LCD
- Easy operation menu with backlight
- Pickup position indicator
- Conform to ISO standard, Compatible with DIN, ANSI and JIS standard
- Advanced analysis software for TR200 and TR220 is available
- Lots of delicate optional accessories are supplied making user's measurement more efficient and easier
- Li-ion rechargeable battery
- Data output RS232 to printer or PC

Technical Specification

Ref. No	TM01 D004	TM01 D005	TM01 D003
Model	TR 200	TR 210	TR 220
Roughness parameter	Ra, Rz, Ry, Rq, Rt Rp, Rmax, Rv, R3z Rs, RSm, RSk, Rmr	Ra, Rz, Rt, Rq	Ra, Rz, Ry, Rq, Rt, Rp Rmax, Rv, R3z, Rs RSm, RSk, Rmr, Rpc, Rk, Rpk, Rvk, Mr1, Mr2
Assessed profiles	Primary profile (P)	Roughness Profile (R)	Primary profile (P)
Display resolution		0.001 μ m	
Pickup measuring range		$\pm 20\mu$ m, $\pm 40\mu$ m, $\pm 80\mu$ m	
Cutoff length (L)		0.25mm / 0.8mm / 2.5mm / Auto	
Evaluation length	1-5L (selectable)	5L	1-5L (selectable)
Tracing length	(1-5)L + 2L (selectable)	5L + 2L	(1-5)L + 2L (selectable)
Digital filter		RC, PC-RC, Gauss, D-P	
Max. tracing length		17.5mm	
Min. tracing length	1.3mm	1.8mm	1.3mm
Pick-up	Standard pickup TS100, inductive, Diamond stylus radius 5 μ m, angle of stylus 90°		
Tolerance		$\pm 10\%$	
Repeability		< 6%	



Operation with measuring platform for high accuracy



1. Coating & Surface Testing

Portable Roughness Tester with Bluetooth



Model: MarSurf M 300

Application Examples

- On Shafts, large machines
- Automotive engineering
- On big workpieces
- On milling and turning parts
- On grinding and honing parts
- In the production area to check the roughness of your workpiece

Features

- The Bluetooth interface between evaluation unit and drive unit is unique
- A large, illuminated color display to read the parameters and the profiles
- Meets the requirements for DIN / ISO / JIS available for the evaluation of the profile
- Integrated memory for up to 40,000 results or 30 profiles

Specification

- Measuring range of up to 350µm
- Units µm / pinch selectable
- Standard: ISO / ASME / JIS and MOTIF selectable
- Traversing length as per DIN EN ISO 4288 / ASME B46.1 : 1.75mm, 5.6mm, 17.5mm
as per EN ISO 12085 : 1mm, 2mm, 4mm, 8mm, 12mm, 16mm
- Number of sampling lengths selectable from 1 to 5
- Automatic selection of filter and traversing length conforming to standards
- Phase-correct profile filter as per DIN EN ISO 11562
- Cutoff 0.25mm, 0.80mm, 2.50mm
- Short cutoff selectable
- Parameters as per DIN/ISO : Ra, Rq, Rz, Rmax, Rp, Rpk, Rk, Rvk, Rv, Mr1, Mr2, A1, A2, Vo, Rt, R3z, R_{Pc}, Rmr, RSm, Rsk
JIS : Ra, Rz, RzJIS, Sm, S, tp
ASME : Rp, Rpm
MOTIF : R, Ar, Rx, W, CR, CL, CF
- Tolerance monitoring in display and measuring record
- Automatic or adjustable scaling
- Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record



1. Coating & Surface Testing

Surface Form Tester

Features

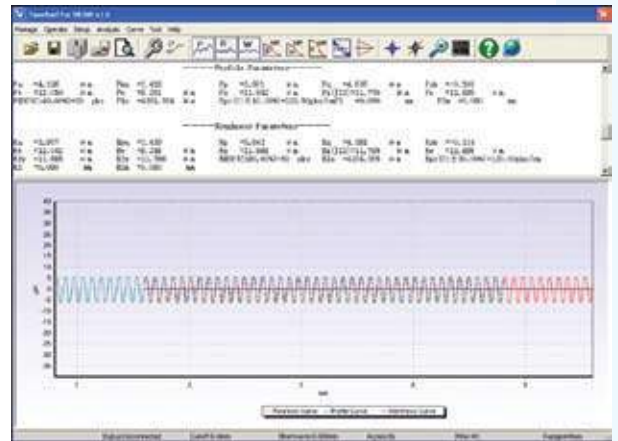
- Equipped with 55 kinds of parameters that conform to ISO/DIN/ANSI/JIS standard
- Measurement of roughness, waviness and primary profile with a wide measuring range
- Integrated design for convenient use
- LCD, digital / graphic display
- Skidded / skidless pickup makes it so efficient to evaluate curved surface roughness
- Equipped with advanced Windows software
- Outputting of data to PC by using RS232 or USB cable is available as well as printing out by printer

Specification

Assessed profile	R (Roughness), W (Waviness), P (Primary profile)
Measuring Range	$\pm 400\mu\text{m}$, $\pm 40\mu\text{m}$, $\pm 4\mu\text{m}$
Filtering	RC, PCRC, Gauss, D-P, ISO 13565
Parameters	<p>R : Ra, Rp, Rv, Rt, Rz, Rq, Rsk, Rku, Rc, RS, RSm, Rlo, RHSC, Rpc, Rmr (c), RzJIS, R3y, R3z</p> <p>W : Wa, Wp, Wv, Wt, Wz, Wq, Wsk, Wku, Wc, WS, WSm, Wlo, WHSC, Wpc, Wmr (c), WzJIS</p> <p>P : Pa, Pp, Pv, Pt, Pz, Pq, Psk, Pku, Pc, PS, PSm, Plo, PHSC, Ppc, Pmr (c), PzJIS</p> <p>Rk : Rk, Rpk, Rvk, Mr1, Mr2</p>
Tolerance	$\leq \pm 5\%$
Cutoff length	0.08mm, 0.25mm, 0.8mm, 2.5mm, 8mm
Max. tracing length	40mm
Analysis graphs	ADC, BAC
Evaluation length	1L - 5L
Max. resolution	0.0001 μm
Memory	10 groups of primary data
Data output	RS232, USB



Ref. No : TM01 D006
Model : TR 300



Laser Roughness Tester

Features

- High-speed, non-contact measurement, suitable for online detection of Ra value or the quality control of workpiece
- Built-in high-sensitivity photoelectric sensor
- 3.2 inches TFT_LCD display screen with a resolution of 320 x 240
- Apply DSP chips for data processing, enjoys the merits of high speed and low power consumption
- Communicate with PC through RS232 interface, achieve data upload and model parameters download
- 64 groups of models and 88 sets measured data can be stored
- Comparative method is applied to facilitate identifying the quality of workpiece, widely used in quality control
- With calibration software to rectify the measured value

Specification

Measuring parameters	Ra
Measuring range	$10\text{nm} \leq \text{Ra} \leq 1.0\mu\text{m}$
Error	$10\text{nm} \leq \text{Ra} \leq 0.2\mu\text{m} \leq 0.03\mu\text{m}$ $0.2\mu\text{m} \leq \text{Ra} \leq 1.0\mu\text{m} \leq 10\%$
Repeatability	$\geq 90\%$
Display	TFT color matrix liquid screen



Ref. No : TM01 D007
Model : TRL 400

1. Coating & Surface Testing

Surface Profile Gauge



Ref. No : TQ01 D019
Model : SP 1560

Surface Profile Gauge is a simple instrument to measure the point peak-to-valley height of a surface and to measure coatings thickness. This model contains two different tips, one for roughness and one for coating thickness. This means you can change the instrument from measuring surface roughness to coating thickness easily.

Specifications

Range : 0 ~ 3.4mm
Resolution : 1µm
Accuracy : ± 5µm
ISO 2808-4B, ASTM D 4417-B, JIS K 5600-1-7, BS 3900-C5

Film Thickness Gauge



Ref. No : TQ01 D011
Model : SP 1570

High precision film thickness gauge, especially developed for measuring so-called "replica tapes" as Testex®, used mainly to measure the surface profile. ISO 8503-5

Specifications

Range : 0 -1000 micron
Resolution : 1 micron
Accuracy : ± 5 micron

Keane-Tator Surface Profile Comparator



Reference discs designed to visually determine the surface profile of blast cleaned surfaces. Three versions: sand, shot and grit blast discs with five roughness grades in each discs. Conform to ASTM D4417.

Technical Specifications

Keane-Tator Surface Profile Comparator (One Flash Magnifier + one Discs)*	Ref. No	Model
Sand Blast Discs	KT01 D011	372/1
Grit / Slag Blast Discs	KT01 D012	372/S
Shot Blast Discs	KT01 D013	372/G
Flash Magnifier Only	KT01 D014	372/SH
	KT01 D015	372

* Please specify Sand, Grit / Slag or shot type upon order or else Grit / Slag discs is supplied as standard

Testex Press-O-Film Replica Tape



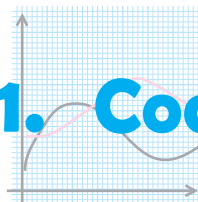
Testex tape allows the user to measure the average peak-to-valley height of a surface profile. It consists of foam with a non-compressible backing. The foam is rubbed on to a surface providing a permanent replica impression of the surface profile. A film thickness gauge is then used to measure the surface profile.

Technical Specifications

Ref. No	TT01 D010	TT01 D007	TT01 D008	TT01 D011
Model	Coarse Minus	Coarse	X-Coarse	X-Coarse
Plus				
Range	12-25µm	20-50µm	40-115µm	116-127µm
Number of Tests	50 per roll	50 per roll	50 per roll	50 per roll

* High temperature (HT) version is available for X-Coarse tape that is able to prevent softening of tape

1. Coating & Surface Testing



ISO 8501-1 : 2007 The Rust Grade

In 2007 updated version of the standard measure for the visual evaluation of rust and purity levels of non-coated steel. Also known as the "Swedish steel blasting grades" SS 05 59 00 (Sa). Contains high-quality colour photographs for estimating the rust levels and purity levels after cleaning manually or by machine (also with blasting).

Target users : Blasting and painting companies and their clients, paint technicians, advice bureaux and industrial coating businesses.



Ref. No: SS01 D016
Model: Illustrated Book ISO 8501-1

The Paint Inspector's Field Guide

The Inspection of protective coating systems for corrosion control includes a wide range of test methods and techniques. In the Paint Inspector's Field Guide (PIFG) a wide range of these inspection methods are covered in an effort to aid individuals with the basic fundamentals of protective coating inspection whilst in the field.



Ref. No : TQ01 D030
Model : L 030

Bresle Kit - Chloride Kit



Ref. No: TQ01 D018
Model: Bresle Kit

Chloride Test Kit complies with the ISO 8502-6 and ISO 8502-9 standards that describe the Bresle Method to assess the level of soluble salts using a patch, distilled water and a conductivity gauge. The conductivity is mainly directly proportional to the concentration of dissolved chloride ions in the solution. The kit includes all the necessary equipment to execute a bresle test that will indicate the contamination of soluble salts on blast-cleaned surfaces prior to coating.

Chloride Test Kit is also suitable to determine the contamination of blast-media in use. This important test described in the ISO 11127-6 and ISO 11127-7 standards helps to prevent that the dissolved salts in the recycled abrasive media or water will not re-contaminate the surface being cleaned.

Dust Test Kit

Dust Test Kit according to ISO 8502-3 allows assessment of the quantity and size of dust particle on surfaces prepared for painting. Dust on blast cleaned surfaces can reduce coating adhesion, leading to premature coating failure and sub-standard coating finish. The dust test kit can be used in accordance with the recommendations of BS EN ISO 8502-3 either as a pass/fail test or as a permanent record of the presence of dust.



Ref. No: TQ01 D020
Model: SP 3200

2. Paint & Ink Testing

Cross Cut Adhesion Test

Features

- Self-adjusting knife-holder ensures equal pressure on the cutting knife
- Easy to change cutting knife, no extra key needed
- Wide range of knife sizes available for different coating thicknesses and substrates and according to different standards

The **CC2000** (Tester only) Cross Cut Adhesion Test Cutter is used to test the adhesion of dry coats of paint on their substrate by means of a series of cuts through the coating. Two series of parallel cuts cross angled to each other to obtain a pattern of 25 or 100 similar squares. The ruled area is evaluated by using a table chart after a short treatment with a stiff brush, and adhesive tape.



					Blades	Cutting Distance	For Use On Coatings
<i>acc. to DIN - ISO</i>							
Type	CC2000	CC2000 Kit	CC1000 Kit	CC3000 Kit			
Model	SP1660	SP1690	VF1839	SP1680	6	1mm	up to 60µm.
	SP1661	SP1691	VF1842	SP1681	6	2mm	from 61 to 120µm.
	SP1662	SP1692	VF1844	SP1682	6	3mm	from 121µm to 250µm.
<i>acc. to ASTM</i>							
Model	SP1663	SP1699	VF1846	SP1683	11	1mm	up to 50µm.
	SP1664	SP1700	VF1847	SP1684	11	1.5mm	from 50 to 125µm

CC1000 Kit

The round cutting knife of the Cross Cut Adhesion Test KIT CC1000 has eight cutting edges that can be changed easily by rotating the knife bracket.

CC3000 Kit

The cutting depth of the Cross Cut Adhesion Test KIT CC3000 can be adjusted while the cutter is guided by two ball bearings to ensure reproducible results.

The **Test Kit** contains a soft grip handle, a hardened steel cutter, a nylon brush, an illuminated magnifier and adhesive tape (adhesion to steel 4.3N/cm).

Multi-purpose Cross Cut Adhesion Test

The Multi-purpose Cross Cut Adhesion Test KIT (Master Paint Plate) is a stainless steel measuring tool that features: a 1mm, 1.5mm, 2mm and 3mm cross cut adhesion test according NEN-EN-ISO 2409:2003 and ASTM D 3359 (X-cut) andreas cross, wet film thickness gauge from 50 up to 160 microns, edge grind checker for correct roundness of edges, wet film applicator ranging from 0 to 180µm as well as levelling test providing an indication of the viscosity of the coating. Delivery includes cutting tool and tape.



Ref. No : TQ01 H008
Model : SP3000

Tape For Adhesion Test according ISO 2409 : 2003 can be ordered separately

2. Paint & Ink Testing

Pull-off Adhesion Tester - PAT Handy 6.3kN



Features

- Palm-held, light alloy pull-off tester
- Case fits easily in the hand luggage (size of an A4 paper and only to minimise 80mm thick)
- DFD® technology for true recording of coating strength
- All types of coatings on all substrates
- Any coating thickness
- Internal and external curved surface
- No test operator bias
- Precision gauge for accurate measurements
- Built-in hydraulic safety devices for smooth and drift-proof accuracy

Testing Range

Test element size		Full scale	Certified test range
cm ²	mmØ	MPa (N/mm ²)	MPa (N/mm ²)
0.52	8.16	120	102
1.57	14.2	40	34
3.14	20	20	17
6.28	28.2	10	8.5
12.56	40	5	4.25
19.64	50	3.2	2.7

Technical Data

Maximum pull force	6.3kN
Accuracy	± 1% of full scale
Weight of tester	1.25kg
Weight complete in case	1.9kg
Case Dimensions (WxLxH)	330 x 260 x 80mm
Complies with	ISO 4624, EN 24624, ASTM D4541, etc.

Pull-off Adhesion Testers - PosiTest

Both Kits include

Adhesion tester with digital display, 20mm aluminium test dollies (20), Abrasive pad, Cutting tool, Adhesive with mixing sticks and palettes, Cotton swabs, Instruction booklet and video, Certificate of Calibration traceable to NIST, Instructional Video, and Sturdy, lightweight carrying case.

Technical Specifications

Adhesion Strength

Dolly size	Max Pull-Off Pressure	
	psi	MPa
10	10000	70
14	6000	40
20*	3000	20
50**	500	3.5

*supplied with PosiTest AT **requires 50mm kit

Resolution	1psi (0.01MPa)
Accuracy	± 1% full scale
Weight of Kit (with case)	2lbs / 5.5kg



The PosiTest Pull-Off Adhesion Tester measures the force required to pull a specified test diameter of coating applied to metal, wood, concrete and other rigid substrates away from its substrate using hydraulic pressure. Conforms to national and international standards including ASTM D4541 / D7234, ISO 4624 / 16276-1, AS / NZS 1580.408.5 and others.

Features

PosiTest Pull-Off Adhesion Tester comes with an environmentally sealed metal enclosure, heavy duty hydraulic pump and a hi-grade industrial pressure sensor. Both the manual and automatic adhesion testers are built to last and can be used indoors and outdoors in all types of weather. The automatic unit has an unique revolutionary "self-alignment feature" and pull rate indicator.

2. Paint & Ink Testing

Cylindrical Bend Test



Ref. No : TQ01 H013
Model : SP 1820

The Cylindrical Bend Test is a very robust yet elegant testing instrument to indicate the elasticity, elongation and adhesion of a paint film at bending stress. It is designed to perform tests according to the latest ISO standards.

Features

- Sturdy apparatus made of a combination of anodized aluminium and stainless steel
- Ergonomic clamping device for test panels and large knob on bending arm easy and smooth bending
- Large test panel size : max. 150 x 100mm
- Luxurious wall mounted / desktop mandrel holder

Holder with set of 14 mandrels with a diameter of 2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 19, 20, 25 and 32mm

Conical Mandrel Test

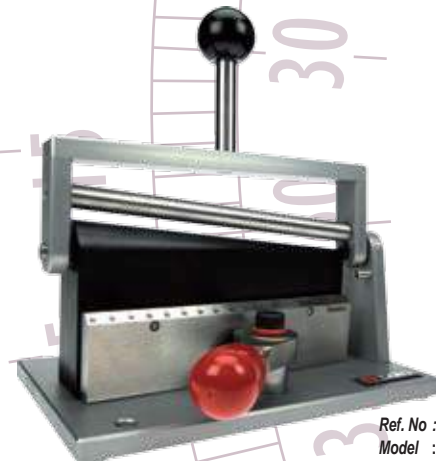
Laboratory apparatus to bend coated test panels over a conical shaped mandrel in order to assess the resistance of a coating, paint or varnish to cracking and / or detachment from a metal test panel under standard conditions.

Features

Sturdy apparatus made of a combination of anodized aluminium and stainless steel. Ergonomic clamping device for test panels and large knob on bending arm for easy and smooth bending

Technical Data

Mandrel range	3.1 to 38mm. dia.
Test panel size	100 x 180mm
Max. panel thickness	0.8mm
Apparatus dimensions	110 x 250 x 150mm
Weight	4200 grams



Ref. No : TQ01 H028
Model : SP 1830

Impact Test



Specifications

Ref No: TQ01 H029

Model: SP1880

Impact tester according to ISO 6272-2 / ASTM D2794. Impact tester with which indirect impact tests can be performed according to ISO 6272-2 / ASTM D2794. Content : base plate assembly, guide tube, release collar, punch Ø 12.7mm, punch Ø15.9mm, weight 1kg, die Ø 16.3mm

Ref No: TQ01 H030

Model: SP1890

Impact test according to ISO 6272-1. Impact tester with which direct impact tests can be performed according to ISO 6272-1. Content : base plate assembly, guide tube, release collar, clamp device, ball Ø 20mm, die 27mm, weight 1000gram

Ref No: TQ01 H031

Model: SP1891

Impact test according to ISO 6272-1 / ASTM D2794 (before 1993) Impact tester with which direct impact tests can be performed according to ISO 6272-1 and ASTM D2794 (before 1993). Content : base plate assembly, guide tube, release collar, clamp device, ball Ø 20mm, die 27mm, weight 1000gram, ball Ø 15.9mm, die 16.3mm, weight 900gram.

Test to determine the impact resistivity and flexibility of coatings. The dual scale instrument is equipped with a special guidance which assures that the distance between each impact is always according to the standard. For correct positioning a spirit-level is built-in. Standards : ISO 6271-1, ISO 6272-2, ASTM D2794.

2. Paint & Ink Testing

Automatic Cupping Tester

Automatic Cupping Tester to perform a cupping (Erichsen / Dent) test on coated steel panels to define the resistance of paint, varnish or related products to cracking and / or detachment from a metal substrate when subjected to gradual deformation by indentation under standard conditions.

The test is either used as a "pass / fail" test by testing to a specified depth or defining the minimum depth at which a coating fails by gradually increasing the indentation.

Standard: ISO 1520, DIN EN NF 1520, DIN 53232, BS 3900-E4, NBN T22-104, NFT 30019.

Features

- Easy-to-use
- User calibration possible
- Integrated multi colour led lighting
- Manual and preset mode
- Multiple languages
- Panel holder adjustable in angle

Specifications

>Technical Data

Indenter speed	0.01 ~ 0.70mm/s
Stroke length	0 ~ 12mm
Max. panel width	Max. 100mm
Max. panel thickness steel	Max. 0.8mm
Max. panel thickness aluminium	Max. 1.2mm

>Accuracy

Indenter speed accuracy	+/- 1% of set speed
Stroke length accuracy	+/- 0.01mm



Ref. No : TQ01 H032
Model : SP4300

Ref. No : TQ01 H033
Model : SP4305

Wolff-Wilborn Scratch Hardness Tester

The Wolff-Wilborn Scratch Hardness Test provides a simple method to test the scratch hardness of coating. In this test, pencils in a range of grades are used, each being moved over the surface under a 45° angle with a constant pressure of 7.5 newton. An optical assessment is then carried out to see whether the surface is damaged.

Standards : ISO 15184, ASTM D3363, JIS K-5600, ECCA-T4-1, BS 3900-E19, SNV 37113, SIS 184187, NEN 5350, MIL C 27 227, JIS K-5400

Specifications

VF2391

Stainless steel body with rubber sealed wheels, water level and fixture for pencil. Standard weight of 750 gram.

VF2380

JIS Standard with 2 additional weights up to 1000 gram.

Pencils vary from 8B to 10H. (8B, 7B, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H)



Ref. No : TQ01 E001
Model : VF2391

Ref. No : TQ01 E007
Model : VF2380

2. Paint & Ink Testing

Buchholz Indentation Test



Ref. No : TQ01 E004
Model : SP1900

Buchholz Indentation Test is the standard test for measuring the hardness of coatings. Applicable for automotive, coating industry, galvanize, laboratory & paint industries.

The calibrated slip-on weight with special cutter is positioned on the test specimen for a set period of time. The length of the indentation left on the coating is an indication of the hardness of the surface. Mandatory test in Qualicoat, QIB and GSB accredited laboratories.

Standards : EN ISO NF 2815-2003, BS 3900 E9, ECCA T12-1985, NF T 30-052

Features

- Buchholz indenter is equipped with functional grips allowing gentle placing and lifting of the instrument
- Pins and cutting part of indenter are made of hardened steel preventing wear
- High quality microscope with precision glass optical lenses and strong illuminator allows a clear visibility of the "often hard to see" indentation mark
- Dual timer can be pre-set for both "in-position" time and "recovering" time
- Separate level gauge allows checking the correct level of the test panel before the test is performed

Pocket Hardness Tester



Ref. No : TQ01 E008
Model : SP0010

The Pocket Hardness tester is an instrument for testing the hardness and wear / scratch resistance of materials such as coatings, lacquers, plastics or related products.

A tungsten carbide tip is drawn over the surface with a defined constant pressure. The pressure on the tip can be changed using the slide or by changing the spring. A visual mark on the surface indicates a fail of the surface hardness or wear / scratch resistance. It can be used on flat and curved surface and applicable in Coating, Automotive, Flooring, Plastics & Laminates industries

Features

- Ergonomic design with anti-slip texture on the holding point
- The laser-engraved scale is clearly visible on the gray background
- Made of maintenance-free anodised aluminium, tips in tungsten carbide

Specifications

The standard diameter of the tip is Ø1mm

Range of springs	0 ~ 3N (300g ~ 0.671lbF)	Graduation	10g	(Blank)
	0 ~ 10N (1000g ~ 2.248lbF)	Graduation	50g	(Blue)
	0 ~ 30N (3000g ~ 6.74lbF)	Graduation	150g	(Red)

Dimensions : Ø14 to 19mm, length 175mm

Weight : 60g

Pendulum Hardness Tester



Features

- The Pendulum hardness tester is suitable for both Persoz and König Tests. Switching between the methods only takes a push of a button
- Easy menu-driven interface with jog-dial
- The automated electronic counting mechanism is not affected by reflections from the surrounding area
- The gas-spring supported transparent draft cover allows easy access to all parts
- Once the instrument leveled further calibration is not required
- The pendulum is positioned fully automatically by means of a stepper motor. The release of the pendulum is automated through an electro-magnetic system. This eliminates human errors

Specifications

Ref. No
Model

Weight

Pivot balls

Distance between pivot balls

Oscillation period

Deflections

Damping time (on glass)

Persoz method

TQ01 E003
SP0510

500 grams

8mm

50mm

1 second

From 12° to 4°

Minimum 430 +/- 15 seconds

König method

TQ01 E002
SP0505

200 grams

5mm

30mm

1.4 seconds

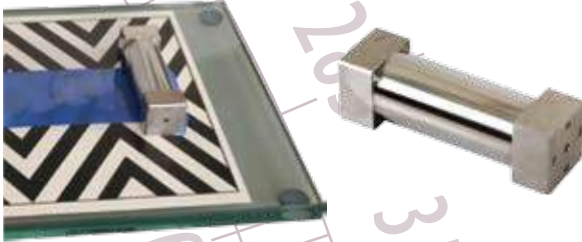
From 6° to 3°

250 +/- 10 seconds

The pendulum hardness tester is based on the principle that the damping time of a pendulum oscillating on a sample indicates hardness. As the pendulum touching a surface decreases more rapidly the softer the surface. Applicable for Automotive coating, laboratory & paint industry.

2. Paint & Ink Testing

Baker Film Applicator



Cylindrical film applicator with 4 application sides for applying paint-films of 4 different pre-defined thicknesses. Available in film width 60mm and 80mm and are suitable for applying a host of different products onto flat and relatively solid substrates. The high grade stainless steel of the Baker Film Applicator will not be affected by acid or base elements.

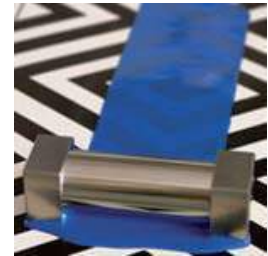
Technical Data

Accuracy better than 3 micron
Outer dimensions 100 x 22 x 22mm / 120 x 22 x 22mm

VF2145	Width 60mm, 15/30/60/90µm
VF2146	Width 60mm, 30/60/90/120µm
VF2147	Width 60mm, 50/100/150/200µm
VF1500	Width 80mm, 15/30/60/90µm
VF1501	Width 80mm, 30/60/90/120µm
VF1502	Width 80mm, 50/100/150/200µm

Bird Film Applicator

Prismatic film applicator with 4 application sides for applying paint-films of 4 different pre-defined thickness. The Bird applicator's are available in film width 50mm, 75mm and 100mm and are suitable for applying a host of different products onto flat and relatively solid substrates.



Standards ASTM D 3022 ASTM D 823

Technical Data

Material : high grade stainless steel
Accuracy : Better than 3 micron
Outer dimensions : 90 x 22 x 22mm / 115 x 22 x 22mm / 140 x 22 x 22mm

VF2161	Width 50mm, gaps 50/100/150/200µm
VF1837	Width 50mm, with 4 gaps as desired
VF2162	Width 75mm, gaps 50/100/150/200µm
VF1530	Width 75mm, with 4 gaps as desired
VF2163	Width 100mm, gaps 50/100/150/200µm
VF1535	Width 100mm, with 4 gaps as desired

Quadruplex Film Applicator

Multifunctional film applicator has 4 application sides for applying paint-films of 4 different pre-defined thicknesses. The high grade stainless steel of Quadruplex will not be affected by acid or alkalic elements. One side of the applicator is supplied with a lateral stop guide plate for easy handling, which can be removed as well.

Standard ASTM D 823

Technical Data

Material High grade stainless steel
Accuracy better than 3 micron
Outer dimensions 75 x 20 x 25mm / 115 x 20 x 20mm

VF2167	Width 60mm, with 4 gaps as desired
VF2168	Width 60mm, with 4 gaps: 15/30/60/90µm
VF2169	Width 60mm, with 4 gaps: 30/60/90/120µm
VF2170	Width 60mm, with 4 gaps: 50/100/150/200µm
VF2172	Width 80mm, with 4 gaps as desired
VF2173	Width 80mm, with 4 gaps: 15/30/60/90µm
VF2174	Width 80mm, with 4 gaps: 30/60/90/120µm
VF2175	Width 80mm, with 4 gaps: 50/100/150/200µm



2. Paint & Ink Testing

Octoplex Film Applicator



Multifunctional film applicator with 8 application sides for applying paint-films of 8 different pre-defined thicknesses. The high grade stainless steel. The Optoplex will not be affected by acid or base elements.

Standards ASTM D 3022, ASTM D 823,
FMTS 141a / 2161 / 2162 / 4255 / 6226

Technical Data

Material : high grade stainless steel
Accuracy : better than 3 micron
Outer dimensions : 85 x 85 x 11mm
Clearance width : 60mm
Clearance heights / gaps : 25, 50, 75, 100, 125, 150, 175, 200 micron

Micrometer Film Applicator



Adjustable Micrometer Film Applicator with stainless steel blade, aluminum frame and chrome thimbles and barrels.

The detachable blade makes cleaning easy. Also, this Micrometer Film Applicator isn't supplied with springs which can break, rust or get clogged.

LD3570

Micrometric film applicator 75mm wide

LD3571

Micrometric film applicator 100mm wide

LD3573

Micrometric film applicator 150mm wide

LD3572

Micrometric film applicator 200mm wide

Sag and Leveling Applicator

The Sag and Leveling Film Applicator is a special film applicator with dual function. One side with 10 gaps from 75 to 300 micron to test the tendency to sag in relation to the film thickness. At the counter side 5 pairs of notches of increasing depth are made to create sets of two film stripes. The merging of the stripes can be evaluated to define the leveling ability. Applicable for Automotive, Laboratory, Paint & Pharmaceutical Industry

Features

- High grade stainless steel will not be affected by acid or base elements
- Dual function: both sag - and leveling

Specifications

Accuracy : better than 3 micron
Outer dimensions : 100 x 31 x 15mm
Sag gaps : 75, 100, 125, 150, 175, 200, 225, 250, 275, 300µm
Sag gaps width : 6mm
Leveling gaps : 0.25, 0.5, 1, 2, 4mm
Leveling gap width : 1.8mm



Ref. No : TQ01 F083
Model : VF 2246

2. Paint & Ink Testing

Spiral Bar Coater



Spiral applicators with a film width of 250mm, are round bars, tightly wound with stainless steel wire.

The diameter of the wire, in the wound form, regulates the thickness of the coating. The Spiral applicator is ideal for application of (thin) film of thin materials such as sheet of paper or plastic. Also to be used with automatic film applicators.

Features

Inexpensive method of making samples to determine hiding power, bond strength, substrate penetration, fluid compatibility. Bar-coaters enable the technician to perform these tests with minimal effort

Specifications

AB 3050	Spiral Applicator, 320mm, 4μm
AB 3051	Spiral Applicator, 320mm, 6μm
AB 3052	Spiral Applicator, 320mm, 8μm
AB 3053	Spiral Applicator, 320mm, 10μm
AB 3054	Spiral Applicator, 320mm, 12μm
AB 3055	Spiral Applicator, 320mm, 14μm
AB 3056	Spiral Applicator, 320mm, 15μm
AB 3057	Spiral Applicator, 320mm, 20μm
AB 3058	Spiral Applicator, 320mm, 24μm
AB 3059	Spiral Applicator, 320mm, 30μm
AB 3060	Spiral Applicator, 320mm, 34μm
AB 3061	Spiral Applicator, 320mm, 38μm
AB 3062	Spiral Applicator, 320mm, 40μm
AB 3063	Spiral Applicator, 320mm, 50μm
AB 3064	Spiral Applicator, 320mm, 56μm
AB 3065	Spiral Applicator, 320mm, 60μm
AB 3066	Spiral Applicator, 320mm, 76μm
AB 3067	Spiral Applicator, 320mm, 100μm
AB 3068	Spiral Applicator, 320mm, 120μm
AB 3069	Spiral Applicator, 320mm, 200μm
AB 3070	Spiral Applicator, 320mm, polished flat
AB 3071	Spiral Applicator, Wet film thickness as desired

Technical Data

Material	:	Stainless steel
Total width	:	440mm
Film width	:	320mm
Available in sizes from 4 to 200μm		

Glass Film Application Table

A series of ultra-flat Glass Application Tables, designed to draw down sample coating on test charts with a high degree of reproducibility.

The glass application tables are equipped with a strong clamp to hold down the charts and four rubber feet at the bottom to prevent the glass application table from slipping.

VF1602

Glass Film Application Table, 230 x 160mm
Weight : 1.6kg

VF1603

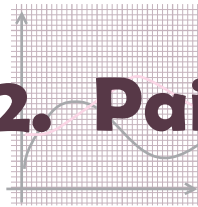
Glass Film Application Table, 300 x 100mm
Weight : 1.3kg

VF1601

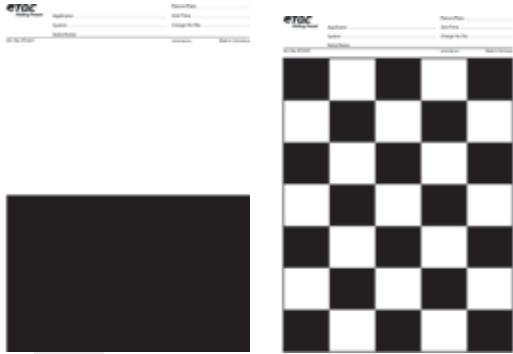
Glass Film Application Table, 380 x 230mm
Weight : 3.8kg



2. Paint & Ink Testing



Test Charts DIN ASTM ISO FTMS



A wide range of consistent test charts for testing physical properties of coating, lacquers and inks. Suitable for determining hiding power, opacity and spreading rate. They come in a variety of dimensions from DIN A6 up to and including DIN A4. All charts are film laminated for an excellent solvent and chemical resistance and an even film spread. On each chart there is a section for filling out the date, time and test number.

Special designs are possible with quantities over 10,000 pieces per chart.

Specifications

VF2343

Test charts DIN / ASTM / ISO / FTMS, 200-16A 105 x 148mm A6
White / Black B+ with optical brightener. Supplied in sturdy box of 250 pieces

VF2344

Test charts DIN / ASTM / ISO / FTMS, 201-15A 148 x 210mm A5
White / Black B+ with optical brightener. Supplied in sturdy box of 250 pieces

VF2345

Test charts DIN / ASTM / ISO / FTMS, 202-14A 210 x 297mm A4
White / Black B+ with optical brightener. Supplied in sturdy box of 250 pieces

VF2325

Test charts DIN / ASTM / ISO / FTMS, 211-14 210 x 297mm A4
White / Black chequered B- without optical brightener. Supplied in sturdy box of 250 pieces

VF2346

Test charts DIN / ASTM / ISO / FTMS, 210-15A 148 x 210mm A5
White / Black chequered B+ with optical brightener. Supplied in sturdy box of 250 pieces

VF2347

Test charts DIN / ASTM / ISO / FTMS, 211-14A 210 x 297mm A4
White / Black chequered B+ with optical brightener. Supplied in sturdy box of 250 pieces

VF2321

Test charts DIN / ASTM / ISO / FTMS, 202-14 210 x 297mm A4
White / Black B- without optical brightener. Supplied in sturdy box of 250 pieces

VF2354

Test charts DIN / ASTM / ISO / FTMS, 210-15 297x420mm A3
White / Black chequered. Supplied 250 pieces sealed

Standard Test Panels

Using reproducible Standard Test Panels of consistent quality the variable of the "Test Specimen" can be excluded from the process.

Applicable for Automotive, Laboratory, Paint & Pharmaceutical Industry

Advantages of a Standard Test Panel

- Relatively low cost due to large production batches of standard types
- Consistent and reproducible quality
- Sophisticated finishing, no burrs or sharp edges
- Hole included in standard panels for convenient handling
- Available in various types and dimensions
- Conveniently packed
- Fast delivery

Specifications

The Materials

- Cold rolled steel
- Cold rolled harmonica steel
- Aluminum, alloy 3105 H14
- Mild cold rolled steel
- Aluminum, alloy 5005 H24
- Aluminum, alloy 1050 H18

Dimensions

TQC Panels are available in large variety of dimensions and thicknesses. Special dimensions to customers specifications are possible as well.



2. Paint & Ink Testing

Fineness of Grind Gauges - Grindometers



Precision instruments to determine particle size and fineness of grind of many materials such as paints, pigments, inks, coatings, chocolates or other similar products.

The gauge and its scraper are made of hardened stainless steel and have, dependent on the model, one or two grooves with a graded slope.

Standard ASTM D1210, ASTM D1316, IN 53203, DIN EN ISO NF21524, FTMS 141a M.4411.1 ISO1524, NFT 30 046

Features

- Precision instrument
- Ergonomic shaped scraper, for an easy grip

Specifications

Base

Dimensions : 175 x 60 x 12mm
Grove length : 120mm
Tolerance : $\pm 2\mu\text{m}$

Scraper

Dimensions : 75 x 38 x 8mm

Ref No.	TQ01 F095	TQ01 F092	TQ01 F093
Model	VF2110	VF2111	VF2112
Grindometer	FM15/2 Din-Iso	FM25/2 Din-Iso	FM50/2 Din-Iso
Range	0 ~ 15 micron	0 ~ 25 micron	0 ~ 50 micron
Graduation	1.5 micron	2.5 micron	5 micron
Groove	Double	Double	Double

Ref No.	TQ01 F094
Model	VF2113
Grindometer	FM100/2 Din-Iso
Range	0 ~ 100 micron
Graduation	10 micron
Groove	Double

Pyknometers



Pyknometer for determining the specific gravity weight per unit volume of coating, pastes or similar liquids at a given temperature. This instruments consists of a cylindrical container and cover with an outlet for exhaust of excess liquid.

Standard ISO2811, DIN 53 217, ASTM D 1475

Specifications

	Aluminum	Stainless steel
Pyknometer 50ml	VF2098	VF2100
Pyknometer 100ml	VF2097	VF2099

Densimeter H-300S



Cost efficient instrument for calculating the specific gravity with a superior resolution of 0.001. The value is displayed automatically after the elapsed time.

Ref. No : AD07 MD300S
Model : H-300S

Features

- Automatic calculation of density
- Compensation of water temperature
- Able to measure floating sample in water
- The volume of solid sample can be measured
- Standard accessories: weighing tower, plastic water tank, support, holder, 200g weight, thermometer, tweezers, adapter, steel angle

Specifications

Density resolution : 0.001g/cm³
Scale capacity : 0.01300g
Measuring time : air / under water <0sec. / 0sec.>, <0sec. / 2sec.>, <2sec. / 4sec.>, <4sec. / 8sec.>, <8sec. / 16sec.>

2. Paint & Ink Testing

Viscosity Cup



Viscosity Cup Zahn - ASTM D1084, D4212

Cup : Stainless steel, 44.0cm³
Nozzle : Stainless steel, fixed
Handle : Stainless steel

Article No.	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)	Type of materials
VF2226	No 1	2.0	max. 60	35 ~ 80	Very thin liquids
VF2227	No 2	2.7	20 ~ 250	20 ~ 80	Thin oils, mixed paints, lacquers
VF2228	No 3	3.8	100 ~ 800	20 ~ 80	Medium oils, mixed paints, enamels
VF2229	No 4	4.3	200 ~ 1200	20 ~ 80	Viscous liquids and mixtures
VF2230	No 5	5.3	400 ~ 1800	20 ~ 80	Extr. Viscous liquids and mixtures

* For information purposes only; all approximate values at 25°C

Viscosity Cups - DIN 53211

Cup : Titanium anodized aluminum (Type TA); stainless steel (Type TFR) 100cc
Nozzle : Stainless steel, fixed
Handle : Stainless steel

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2071	No 2	2		
VF2072	No 3	3		
VF2073	No 4	4	96 ~ 683	25 ~ 150
VF2074	No 5	5		
VF2075	No 6	6		
VF2077	No 8	8		

* For information purposes only; all approximate values at 25°C

The process of flow through an orifice can often be used as a relative measurement and classification of viscosity. This measured kinematic viscosity is generally expressed in seconds of flow time which can be converted into Centistokes using a viscosity disc calculator.

Immersion Viscosity Cup

Dip cups can be used to provide a quick viscosity measurement on the shop floor or on site.

Features

- Each cup has a long handle to allow the cup to be dipped by hand into a liquid container, which makes it easy to quickly check and adjust the viscosity of many different type of liquids
- The design of the cup and orifice eliminate hard to clean recesses

Viscosity Cup Ford - ASTM D1200

Cup : Titanium anodized aluminum, Type TF 103.5cm³
Nozzle : Stainless steel Type TFR, fixed
Handle : Stainless steel

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2084	No 1	2.1	10 ~ 35	55 ~ 100
VF2085	No 2	2.8	25 ~ 120	40 ~ 100
VF2086	No 3	3.4	49 ~ 220	30 ~ 100
VF2087	No 4	4.1	70 ~ 370	30 ~ 100
VF2088	No 5	5.8	200 ~ 1200	30 ~ 100

* For information purposes only; all approximate values at 25°C

Viscosity Cups - ISO 2431

Cup : Titanium anodized aluminum (Type TI); Stainless steel (Type TFR)
Nozzle : Stainless steel, fixed
Handle : Stainless steel

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2089	No 2	2		
VF2090	No 3	3	7 ~ 42	30 ~ 100
VF2091	No 4	4	34 ~ 135	30 ~ 100
VF2185	No 5	5	91 ~ 326	30 ~ 100
VF2092	No 6	6	188 ~ 684	30 ~ 100
VF2093	No 8	8	600 ~ 2000	30 ~ 100

* For information purposes only; all approximate values at 25°C

2. Paint & Ink Testing

Viscosity Flow Cups

Viscosity Flow Cups are used for measuring the viscosity consistency of paints, varnishes and other similar products.

Features

- A relatively deep well surrounding the top of the cup serves to catch any overflow
- The design of the orifice eliminate hard to clean recesses
- The outside dimensions have been chosen to support the TQC stands
- Under the continuing quality control procedures

Viscosity Cup Ford - ASTM D1200

Cup : Titanium anodized aluminum (Type FB10)

Nozzle : Stainless steel, fixed

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2030	No 2	2.8	25 ~ 120	40 ~ 100
VF2031	No 3	3.4	49 ~ 220	30 ~ 100
VF2032	No 4	4.1	70 ~ 370	30 ~ 100
VF2033	No 5	5.8	200 ~ 1200	30 ~ 100

* For information purposes only; all approximate values at 25°C

Cup : Stainless steel (Type FR10)

Nozzle : Stainless steel, fixed

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2041	No 1	2.1	10 ~ 35	55 ~ 100
VF2042	No 2	2.8	25 ~ 120	40 ~ 100
VF2043	No 3	3.4	49 ~ 220	30 ~ 100
VF2044	No 4	4.1	70 ~ 370	30 ~ 100
VF2045	No 5	5.8	200 ~ 1200	30 ~ 100

* For information purposes only; all approximate values at 25°C

Viscosity Cups - DIN 53211

Cup : Titanium anodized aluminum (Type DE10); 100cc

Stainless steel (Type DR10), 100cc

Nozzle : Stainless steel, fixed

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2000	No 2	2		
VF2001	No 3	3		
VF1999	No 4	4	96 ~ 683	25 ~ 150
VF2002	No 5	5		
VF2003	No 6	6		
VF2004	No 8	8		

* For information purposes only; all approximate values at 25°C

Cup : Titanium anodized aluminum VF 2020 (Type DA10); 100cc

Stainless steel VF 2021 (Type DR12), 100cc

Nozzle retainer : Stainless steel, fixed

Nozzle : Interchangeable (not incl.)

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2181	No 1	1		
VF2022	No 2	2		
VF2023	No 3	3		
VF2024	No 4	4	96 ~ 683**	25 ~ 150
VF2025	No 5	5		
VF2026	No 6	6		
VF2027	No 7	7		
VF2028	No 8	8		

* For information purposes only; all approximate values at 25°C

** Combined with cup type DA10 or DA12



ASTM D1200



DIN 53211



DIN EN ISO 2431



DIN 53211

Viscosity Cups - DIN EN ISO 2431

Cup : Titanium anodized aluminum or stainless steel

Nozzle : Stainless steel, fixed

Model	Cup No	Ø Orifice (mm)	*Viscosity Range (cSt)	*Flow times (sec)
VF2047	No 2	2		
VF2048	No 3	3	7 ~ 42	30 ~ 100
VF2049	No 4	4	34 ~ 135	30 ~ 100
VF2183	No 5	5	91 ~ 326	30 ~ 100
VF2050	No 6	6	188 ~ 684	30 ~ 100
VF2051	No 8	8	600 ~ 2000	30 ~ 100

* For information purposes only; all approximate values at 25°C

Viscosity Disc



The Viscosity Disc is an indicative conversion table relating viscosity (in cSt) to flow time of different cups. Printed on the front is the No.4 complying with BS-NF-ASTM-Din and Zahn 2, on the back ISO no.'s 3-4-5-6 and Zahn 3 as well as the Gardner viscosimeter.

VF2053

Viscosity Disc

3. Material Testing

Portable Hardness Testers



Ref. No: TM10 H006
Model : TH 160



Optional Accessories

- Special Impact Devices
- Support rings
- Dataview software



Ref. No: TM10 H023
Model : TH 110

Optional Accessories

- Special impact device
- Support rings

The Advanced TH 160 and entry-level TH 110 form part of the unbeatable series of Leeb type dynamic hardness testers offer both affordable and accurate hardness testing solution for on-site testing in workshops and in field operation.

Features

- According to ASTM and DIN standard
- Large LCD with back-light, showing all functions and parameters
- Integrated thermal printer, print all test results and histogram
- Statistics function Average / Max / Min value calculation
- Upper / lower limits settings and sound alarm
- Memory 240-1000 readings (Impact times: 32-1) (TH160)
- Software to connect with PC for data storage (TH160)

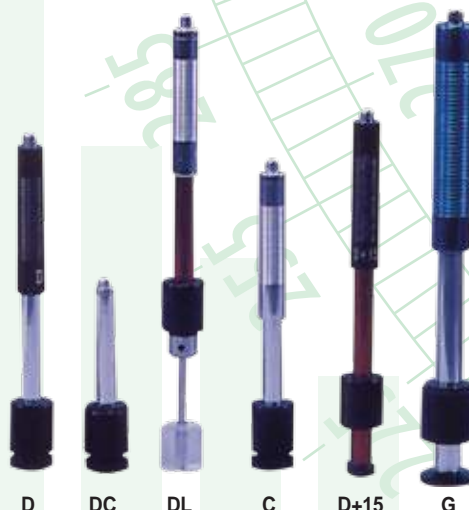
Technical Specification

Hardness scale	HL, HRC, HRB, HRA, HV, HB, HS
Measuring range	**see measuring range of TIME Leeb hardness tester table
Accuracy	Tensile strength U.T.S. range 374-2652MPa Within $\pm 0.5\%$ at 800HLD, $\pm 6\text{HLD}$ (760 \pm 30HLD) - Conversion to tensile strength (U.T.S.) for all metallic materials - Seven Impact Devices are available for special applications)
Min. Radius of Workpiece	Rmin = 50mm (with support ring Rmin = 10mm)

Impact device	D/DC/DL	D+15	C	G	E
Max measuring range	940/940/950HV	940HV	1000HV	650HB	1200HV
Min. weight of test piece					
Direct/Stable support/coupling	5kg/2kg/0.1kg	5kg/2kg/0.1kg	1.5kg/0.5kg/0.02kg	15kg/5kg/0.5kg	5kg/2kg/0.1kg
Min. Thickness of test piece					
Compact coupling	3mm	3mm	1mm	10mm	3mm

Application of impact devices

D/DC/DL	D type for measuring general pieces DC type for hole or cylinder DL type for long and narrow channel or hole
D+15	D+15 type for measuring in grooves or recessed surfaces
C	C type for measuring light and small pieces and surface hardened layer
G	G type for measuring heavy and rough cast and forged piece
E	E type for very hard material



3. Material Testing

Portable Hardness Tester

The world famous IMPAct series, very affordable and accurate hardness testing solution for on-site testing in workshops and in field operation.

Features

- Conform to ASTM A 956 and DIN 50156
- Dynamic rapid hardness test procedure
- High accuracy $\pm 0.5\%$
- Automatic gravity compensation for testing at any angle
- Clear LCD display showing all functions and parameters
- Memory of 270 average data in 9 group files
- Upper and lower limit setting
- Backlight for convenient use in darkness
- USB communication interface



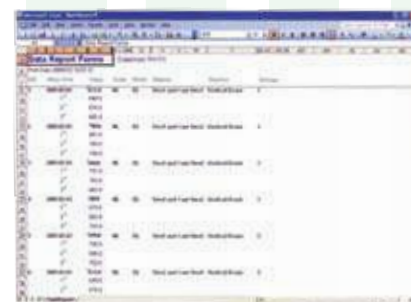
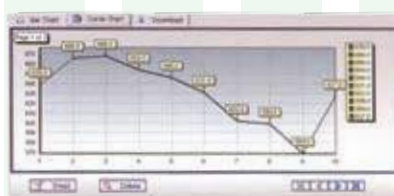
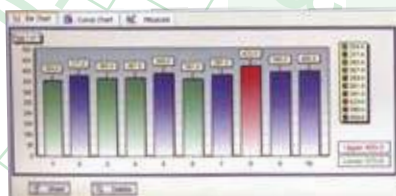
Technical Specification

Ref No:	TM10 H007	TM10 H024	TM10 H025
Model:	TH170	TH172	TH174
Impact Device	D integrated	C integrated	DL integrated
Hardness scales	HLD, HB, HRC, HRB, HV, HS	HLC, HB, HRC, HRB, HV, HS	HLDL, HB, HRC, HRB, HV, HS
Accuracy	$\pm 6\text{HLD}$ ($760 \pm 30\text{HLD}$)	$\pm 12\text{HLC}$	$\pm 12\text{HLDL}$
Memory	270 average reading in 9 group files		
Output	USB 2.0 to computer		
Average Surface Roughness of Work piece	1.6 μm (Ra)	0.4 μm (Ra)	1.6 μm (Ra)
Max. Work piece Hardness	900HLD	960HLC	950HLDL
Min. radius of Work piece (convex / concave)	Rmin=50mm (with support ring) Rmin=10mm	Rmin=11mm (with support ring)	Rmin=10mm (with support ring) Rmin=10mm
Min. Work piece weight	2~5kg on stable support 0.05~2kg with compact coupling	0.5~1.5kg on stable support 0.02~0.5kg with compact coupling	2~5kg on stable support 0.05~2kg with compact coupling
Min. Work piece thickness coupled	5mm	1mm	5mm
Min. Thickness of hardened layers	0.8mm	0.2mm	0.8mm
Indentation depth	Impact Devices data		
Continuous working time	150h		

TH170/172/174 Software

DataView TH17X is a special software for TH17X series Hardness Tester.

The data stored in the Hardness Tester TH17X series can be downloaded to the PC for further analysis.



3. Material Testing

Portable Hardness Testers



Ref. No: TM10 H026
Model : TH 1101

Conversion Table

Material	Hardness Scale	Range
Steel and Cast Steel	HB	90 ~ 646
	HRB	47.7 ~ 99.9
Grey Cast Iron	HB	92 ~ 326
Modular cast Iron	HRB	127 ~ 364
Cast Aluminum Alloys	HB	32 ~ 168
	HRB	23.8 ~ 85.5

Technical Specification

Impact device	G type
Impact energy	90mJ
Work mode	Used single or system mode (Can be connected to TH180, as a slave unit).
Display	OLED screen, 320 x 240 dot matrix, brightness adjustable
Measuring range	200 ~ 750HLG
Error	±12HLG
Transmission distance	10m
Dimension	254 x 50 x 40mm

Features

- Can work stand-alone mode or system mode of operation with TH 180
- Automatic impact direction identification function
- Store 200 test reading, and automatically saving the average
- Material, hardness scales, testing direction and measurement times can be selected
- Conversion between three hardness scales HLG, HB and HRB
- Easily review, delete, clear current measured data and calculate average value
- Measured data is transferred to computer via USB interface

Hardness Testing System

Features

- The main system can be equipped with different kinds of sub Impacter, such as Slave D unit, C unit, DL unit
- Data of sub Impacter is transferred to the system via wireless communication

Main System

- With touch screen and, large Colour screen display
- The upper or lower limits of hardness values can be preset, it will sound alarm when exceeding the range
- With backlight display for convenient use in dark environment
- Integrated with thermal printer, print all test data of main unit and sub Impacter
- Seven impact devices are available for special application, no need calibration when impact device is replaced

Technical Specification

Measuring range	170 ~ 960HLD
Testing direction	360°C
Hardness scale	HL, HRB, HB, HRC, HV, HS
Memory	2500 group data of main unit, 500 group data of sub Impact tester
Wireless transmission distance	10m



Ref. No: TM10 H027
Model : TH180 Testing System (Host)

Ref. No: TM10 AH33
Model : TH180 Sub Impacter (Slave)

3. Material Testing

Sub Impacter (TH 180 Slave) Type D/C/DL



Ref. No: TM10 AH33
Model : TH180 Sub Impacter (Slave)

Features

- By the host set the hardness value, the upper & lower limit, out of range indicator prompts, user-friendly batch testing
- Automatically identify common impact direction
- Type D/C/DL can be selected as slave unit for TH180 Hardness Test System
- Transfer the data to the main unit through wireless
- Type D : for normal hardness testing
- Type C : for hardness testing on the thin, light and face-hardened workpiece
- Type DL : for hardness testing of deep grooves and mould-face such as tooth surface workpieces

Model

Measuring range

Tolerance

Surface roughness of workpiece (Ra)

Min. workpiece weight

Min. workpiece thickness with coupling

Min. thickness of hardened layers

Scales

Type D

170 ~ 960HLD

± 6HLD

≤ 1.6 μm

2 ~ 5kg on stable support

0.05 ~ 2kg with compact coupling

5mm

0.8mm

HL, HB, HRB, HRC, HV, HS

Webster Hardness Tester



Webster Hardness Tester is available in three models for testing material such as aluminum, brass, copper and mild steel.

Ref. No

WS 10 H009

WS 10 H010

WS 10 H011

Model

B

B75

BB75

Barber Colman Impressor



Impressor Hardness Tester is intended for the testing of aluminum, soft metals, plastics, fiberglass, rubber and leather.

Ref. No

BC 10 H012

BC 10 H013

BC 10 H014

Model

GYZJ934-1 (25-50 Brinell)

GYZJ935 (softer plastic)

GYZJ936 (very soft items)

3. Material Testing

Shore D Hardness Tester



Ref. No: TM10 J003
Model : TH210

Digital durometer for Shore D hardness testing of hard rubber, plastic and such substances.

Features

- Pocket size model with integrated probe
- Bright & clear LCD display

Technical Specification

Standards	DIN53505, ASTM D2240, ISO 7619, JIS K7215
Display	Hardness result, Average value, Max. value (Peak value hold), Battery indication
Measuring range	0 ~ 100HD
Measurement deviation	Within 20 ~ 90HD, error $\leq \pm 1$ HD
Display resolution	0.2HD

Shore A Hardness Tester



Optional Accessories

- RS232 communication cable
- Operating stand TH200FJ

Ref. No: TM10 J001
Model : TH 200

Digital durometer for Shore A hardness testing of soft rubber, plastic and such substances

Features

- RS232 data output
- Bright & clear LCD display

Technical Specification

Standards	DIN 53505, ASTM D2240, ISO 7619, JIS K7215
Display	Hardness result, Average value, Max. value (Peak value hold), Battery indication
Measuring range	0 ~ 100HA
Tolerance	± 1 HA
Display resolution	0.2HA

Operating Stand for Shore Hardness Tester

Features

- With the operating stand, user can get good measurement accuracy and repetitiveness
- Constant measurement force eliminate the errors caused by artificially applied varying force
- The operation handle applies the force to the sample; adjust the testing height to meet the measurement of different sample thickness

Technical Specification

Ref. No	TM10 AH34	TM10 AH29
Model	TH200FJ	TH210FJ
Max. thickness of sample(mm)	80	
Max. diameter of working table (mm)	Ø116	
The Max. lifting displacement (mm)	24	



TH200FJ



TH210FJ

3. Material Testing

Ultrasonic Thickness Gauge



Features

- Portable size and easy operation
- Auto zero point calibration
- 5 pre-set sound velocities for repeating applications
- Suitable for all homogeneous metallic and non-metallic materials
- Self-compensating of nonlinearity function
- TT120 : High-temperature model with range up to 300°C

Ref.No:	TM10 N001 TT100	TM10 N003 TT120	TM10 N004 TT130	TM10 N031 TT150
Model				
Measuring range		0.75 - 300.00mm (steel) (depends on probe)		
Measuring range for steel pipes		Min. 3.0mm thickness xØ20mm diameter		
Diameter of transducer		Ø10 (standard), Ø6 (optional), Ø20 (optional)		
Display resolution	0.1mm	0.1mm	0.01mm	0.1mm
Memory	10	10	10	100
Calibration		4.0mm steel base plate integrated		
Tolerance		± (1%H+0.1)mm (H means the thickness of tested piece)		
Measuring units		mm/inch		
Sound velocity range	1000 ~ 9999m/s	5900m/s	1000 ~ 9999m/s	1000 ~ 9999m/s

Ultrasonic Thickness Gauge

Features

- Advanced handheld ultrasonic thickness gauge
- Large LCD display with adjustable backlight
- Auto calibration of zero point and correction of system error
- Suitable for most homogeneous metallic and non-metallic materials
- Upper and lower limits setting and sound alarm
- Two point calibration for high accuracy
- Memory of 500 readings
- Display resolution 0.1mm/0.01mm selectable
- TT300A : Can be equipped with low frequency transducer for thickness testing of thin workpiece

TT320 : High-temperature model with range up to 300°C

TT340 : Equipped with TSTU32 transducer for casting iron

TT360 : Echo to echo mode for through paint steel thickness measurement



Technical Specification

Ref. No:	TM10 N007 TT300A	TM10 N008 TT320	TM10 N032 TT340	TM10 N033 TT360
Model				
Measuring range	0.75mm - 225.0mm (steel) (Depend on probe)	1.2mm - 225.0mm (steel) 5.0mm - 80.0mm (steel high-temp)	1.2mm - 225.0mm (steel)	1.2mm - 225.0mm (steel) T-E mode 3 ~ 20mm (Steel) E-E mode
Measuring accuracy	± 0.5%rdg + 0.01mm	± 1%rdg + 0.1mm	± 1%rdg + 0.1mm	± 0.1%rdg + 0.1mm
Lower limit of steel pipes	Ø15mm x 2.0mm (For 7MHz transducer) Ø20mm x 3.0mm (For 5MHz transducer)	Ø20mm x 3.0mm	Ø20mm x 3.0mm	Ø20mm x 3.0mm
Display resolution	0.01mm or 0.001inch	0.1mm or 0.01inch	0.1mm or 0.01inch	0.001 / 0.01mm
Data output	RS232	-	-	-
Sound velocity	1000m/s ~ 9999m/s	1000m/s ~ 9999m/s	1000m/s ~ 9999m/s	1000m/s ~ 9999m/s
Battery life	100 hours without backlight			
Surface temperature	-10°C ~ +300°C	-10°C ~ +300°C	-10°C ~ +60°C	-10°C ~ +60°C

3. Material Testing

Ultrasonic Thickness Gauge

Features

- A scan thickness measuring, easy for users to identify the measuring errors by analyzing the signal waveform on screen
- Function of echo-echo measurement is available. It is used for measuring the distance between echo to echo, and thus users will get to know the thickness of steel plate even though it is covered by coating, such as inspection of oil tanks
- Min. and Max. mode function is supplied for users to find out the Min. (or Max.) value from a group of measuring results. It is very useful for inspecting the wall thickness of pipes and pressure vessels
- D-value mode function. It comprises normal D-value mode and percentage D-values mode. It will enhance operator's working efficiency greatly

Ref. No : TM10 N034
Model : TT500



Technical Specification

Measuring range	0.75 ~ 508.00mm
Sound speed	1000 ~ 9999m/s
Scanning mode	A scan
Gain range	20 ~ 70db step: 1db
Rectification	Positive half wave, negative wave, full wave, and RF
Testing mode	Standard mode : Testing from primary pulse to the first echo Testing between two echoes
Resolution	Standard : 0.01 low : 0.1
Memory	100 A scan graphs and 10000 thickness values in 100 groups
Communication	RS232 port to PC or printer
Tolerance (steel)	1. When resolution is 0.01mm and thickness H < 10mm, the tolerance is $\pm 0.05\text{mm}$ 2. When resolution is 0.01mm and thickness H $\geq 10\text{mm}$, the tolerance is $\pm(0.5\%H + 0.01\text{mm})$
Pulse frequency	1KHz

Precision Ultrasonic Thickness Gauge



Ref. No : TM10 N035
Model : TT700

Features

- Especially suitable for testing the thin work pieces
- I-E testing mode and E-E testing mode
- Sound velocity testing and single point calibration
- Sound alarm and differential mode are available
- Memory of 500 data store, view and delete
- Result can be printed out and transferred to PC

Technical Specification

Measuring range	0.15 ~ 20mm
Display resolution	0.001mm and 0.01mm selectable
Sound velocity range	1000m/s ~ 9999m/s

Ultrasonic Probes



5PØ10 for TT1 series, TT3 series and TT900



5PØ10 / 90° for TT1 series



5PØ10 / 90° for TT3 series



7PØ6 for TT1 series, TT300A and TT900



SZ2.5P for TT1 series



ZW5P for TT120, TT300A, TT320 and TT900

Optional Transducers

5PØ10	Straight	1.2 ~ 225.0mm (steel)	10mm	5MHz	-10°C ~ +60°C
5PØ10/90°	Angle	1.2 ~ 225.0mm (steel)	10mm	5MHz	-10°C ~ +60°C
7PØ6	Small diameter	0.75 ~ 60mm Ø15 x 2.0mm (steel)	6mm	7MHz	-10°C ~ +60°C
DHT537	High-temperature	1.0 ~ 508.0mm (steel)	10mm	5MHz	-20°C ~ +500°C
ZW5P	High-temperature	5.0 ~ 80.0mm (steel)	12mm	5MHz	-10°C ~ +300°C
TSTU32	High penetration	5.0 ~ 40.0mm (cast iron)	22mm	2MHz	-10°C ~ +60°C

Ultrasonic Thickness Gauge



Ref. No : TM10 N025
Model : TT900

Features

- With function of echo-echo (E-E) measurement and auto gain control (AGC), users get to know the thickness of substrate, even though it is covered by coating
- Measurement units inch, mm and microsecond
- Measurement result holding
- Superior waterproof and dustproof plastic shell

Technical Specification

Measurement range	0.75 ~ 508mm
Velocity range	508 ~ 18699m/s
Measurement rate	4/s and 20/s in fast mode
Bandwidth	0.5MHz ~ 20MHz (-3dB)
Velocity calibration range	0.508mm/μs ~ 18.699mm/μs
Battery life	Up to 200 hours (without backlight)
Measuring temperature	-20°C ~ +500°C (according to the probes)

3. Material Testing

Handy AC Magnetic Particle Inspection Yoke



Ref. No : KY10 M002
Model : MP-A2



Technical Specification

Power supply	AC 220V / 50 / 60Hz
Related current	2.8amps
Distance between magnetic core center	130.0mm
Lifting power	5.44kg over
Magnetizing current	AC only
Weight	2.8kg
Dimension	195 (L) x 182(H) x 48(W)mm

Yoke Method, to magnetize with some or all of test flaws placed between magnet electrodes and detect flaw of the object to be tested by inducing partial linear magnetic field to the test piece. This method enables us easily and rapidly detect surface flaw of forged products or welding, part, etc.

- △ Excellent durability by using a molding type of rubber material with strong water-proof, shock resistance

Low-Frequency Magnetic Flaw Detector



Low-frequency current is a pulsating current, it makes a slight vibration of the magnetic flux particles, and contribute to the smooth arrangement of the magnetic powder flux lines and the formation of material defect marks.

Features

- Completely portable single-handed operation
- Reliable location of defects in ferrous metals
- The deeper penetrating depth by the magnetic field
- No need to demagnetize after flaw detection
- Detection directly without any process on the surface

Technical Specification

Ref. No:	TM10 M007	TM10 M008
Model	TCLF-J50D	TCLF-Z12D
Power supply mode	AC + low frequency	DC + low frequency
Max. power	400W	50W
Output voltage	AC : 220V Low frequency : 70 ~ 140V	DC : 12V Low frequency : 7 ~ 36V
Probe span	50 ~ 300mm (Adjustable)	50 ~ 200mm (Adjustable)
Lifting force	≥ 4.5kg in AC	≥ 18kg in DC
Detecting depth	3 ~ 6mm (Low frequency)	
Power	220V AC	Rechargeable
Dimension	Probe 200 x 50 x 150mm Main unit 130 x 112 x 46mm	208 x 48 x 148mm 260 x 220 x 100mm
Weight	Probe 3.6kg Total 6.0kg	3.2kg 7.5kg

X-Rays Generator

Features

- Detect the inner defects of spare parts and welding lines, make quality assessment of the products
- NDT detecting methods and widely used in the industries such as machine manufacture, aviation, railway, pressure vessel, boiler, chemical industry
- The controller adopts photoelectric isolated microcomputer control system to protect voltage, current and temperature. The control operation is reliable, automatic and intelligence
- Ceramic X-ray tube is made of superior oxygen free copper, high density ceramic, super high vacuum, enjoys the merits of high temperature resistance and good anti-seismic
- Available for both directional and panoramic radiation

Technical Specification

Ref. No:	TM10 P031	TM10 P032	TM10 P033
Model	TXG200	TXG250	TXG300
Power capacity (kW)	> 2.0	> 2.0	> 3.0
Tube voltage (KVp)	80 ~ 200	130 ~ 250	150 ~ 300
Max. tube current (mA)	5	5	5
Focus size (mm x mm)	1.5 x 1.5	2.0 x 2.0	2.5 x 2.5
Penetration A (mm)	29	40	50
Weight (Kg)	Generator 17 Controller 9	21	28



3. Material Testing

Ultrasonic Flaw Detector

TUD300 series ultrasonic flaw detector is a newly designed, fully digital ultrasonic flaw detector with many innovation, high speed, high precision and stable waveform. Equivalent sampling frequency up to 320MHz, the detection rate of small defects; the ultrasonic echo signal using DSP processing technology enable fast signal recognition for targeting flaw, improved signal to noise smoothing filter technology is best for inspecting coarse-grained metal.

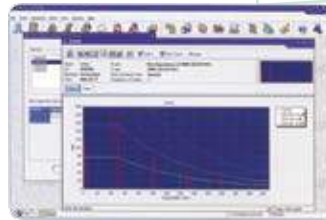
- Peak reading memory function
- Automatic gain adjustment
- Fast knob adjustment, convenient operation
- Waveform envelope with echo display
- A, B scan mode display
- Repeating emission rate as high as 1KHZ
- Large EL high brightness graphical dot matrix display(TUD310)
- Colour TFT LCD display (TUD 360)
- 32 independent flaw detection channel with memory
- USB1.1, high speed communications interface
- Ultra-high sampling rate, that can capture the smallest details of the RF waveform
- Automatic generation of DAC curve by using a standard testblock
- Independent double-gate settings and alarm function
- Print function through USB printer for test reports
- Locking function of system parameters
- The screen refresh rate up to 60Hz, no delay, no ghosting, fast waveform capture
- Screen freezing function to capture fluctuating signal details
- Probe damping resistance through the menu selection to switch between 50,150,400
- Graphics memory storage and playback capabilities
- Linear suppression, inhibit the screen height from 0% to 80%, step: 1%
- The probe auto calibration function
- Storage 1024 A-scan graphics and parameters and 64,000 thickness readings
- Two input methods either probe angle or K value
- Four rectifier ways: positive & negative half wave, full wave and RF
- Communication with a PC, a powerful Windows data processing software
- Equivalent defects calculation
- Single probe, double probe and transmission, three kinds of flaw detection methods
- Rugged casing and water resistance
- High-capacity lithium-ion battery, no memory, continuous working time of up to 8 hours



TUD310



TUD360



Technical Specification

Ref. No:	TM10 M004	TM10 M005
Model	TUD310	TUD360
Scanning Range	2.5mm ~ 9999mm	
Scanning Resolution	0.1mm (2.5mm ~ 100mm) 1mm (100mm ~ 5000mm)	
Gain Range	0dB ~ 110dB	
D-Delay	-20µs ~ +3400µs	
P-Delay	0µs ~ 99.99µs, resolution 0.01µs	
Bandwidth	0.2MHz ~ 15MHz	0.1MHz ~ 25MHz
Vertical linearity error	≤3%	
Horizontal linearity error	≤0.2%	
Sensitivity leavings	≥60dB	
Test mode	Pulse-echo, dual and through transmission	
Unit	Metric / inch	
Interface	RS232 / USB	
Power supply	Li battery 4 x 3.6V 4000mAh	

3. Material Testing

Ultrasonic Flaw Detector

A portable industrial non-destructive flaw detector, it can quickly, easily, accurately detect work piece internal defects (cracks, inclusions, pores, etc.). Suitable for both laboratory and project site.

Ref. No : TM10 M006
Model : TUD500



Technical Specification

Weight (kg)	< 2.0
Dimensions (mm)	300 x 180 x 57
Battery (mAh)	2 x 3.7V 5000mAh
Battery working time	> 8h
Charging time (h)	< 8h
Measuring unit	mm, inch, μ s
Scanning range (mm)	2.5 ~ 10000
P-Delay (μ s)	0.000 ~ 750.000
D-Delay (μ s)	-20 ~ +3400
Test mode	Pulse-echo, dual and through transmission
Gain (dB)	0 ~ 110
Bandwidth (MHz)	0.1 ~ 15 (-3dB)
Vertical linearity error	\pm 2%
Data management and communication	50 channels
Data storage	1000 wave images (including 980 A scan images and 20 B scan images) 4 x 2000 dynamic wave image

Features

- Large, 5.7" full VGA (640 x 480) TFT LCD with 60Hz update
- Has most of TUD 300 series advanced features, accuracy and reliability
- High resolution, extra fine graphic, selectable screen colours combination and brightness
- High Performance Square Wave Pulsar with tuning option
- Unique gray scale B-scan can be used for a simple application of the TOFD
- Dynamic DAC : Calculates signal amplitudes as a percentage or dB level as compared to a DAC curve
- DGS / AVG : Flaw sizing technique that permits echo signals to be evaluated by using a DGS / AVG diagram associated with a particular
- Correction feature for curved surface, according to the AWS D1.1
- Continuous dynamic waveform and reading memory storage
- USB 2.0, RS232 interface
- Conforms to Europe En 12668-1 standards

iFlaw Digital Ultrasonic Flaw Detector

The iFlaw is a portable ultrasonic flaw detector that will meet your every demand. From an angle beam inspection with built-in trig function or dual thickness test with fast 60Hz display update rate and on-board datalogging to interfacing with encoders and TOFD (Time Of Flight Diffraction) applications, the iFlaw has it all.

The iFlaw features a simple user interface with click and drag gate start, gate width, gate level for each gate. Gain, delay and range are also intuitive, simple click and drag features. The text editing box can be dragged to any location in the waveform and remembered where it was last positioned.

Features:

- True square wave pulse, band width up to 30MHz
- The large 7" full touch screen, 800X480; image VGA output to an external monitor
- Built-in gyroscope, the image will self-flip to be in vertical orientation automatically
- In addition to sound, light, and vibration alarm for noisy environments defects prompting
- High impact resistance engineering ABS casing comply IP67
- Two independent gates, each measurement data
- 20 channels. Scalable to 32G storage
- A scan, B scan, thickness values can be stored and playback, and communication with PC

Ref. No : DF01 M031
Model : iFlaw



Specifications

Dimensions	8.2" x 6.8" x 2.1"
Weight	2.5 - 3.0 lbs (depends on 1 battery or 2)
Battery	Lithium Ion - 7.2V, 5.8 AH
Operating time	8 - 10 hours with 2 battery, 4 to 5 hours with 1 battery
Charging time	2 hr 30 min
Display	Color TFT Liquid Crystal Display with 60Hz update with touch screen, user-selectable, color schemes and brightness, split screen and full screen models
Pixels	800 x 480 WVGA
Backlight	Exterior light based auto or manual adjustable LED backlight
Thickness / Angle beam resolution	Selectable from .001" or .01" in either straight beam, dual or angle beam. Angle beam includes trigger functions of sound path, surface distance and depth. X-value correction for angle beam can also be entered and calculated. (Pipe curvature calculations available as an option)
Gain	0 to 110dB -0.1dB increments with \pm 6, 12, 14dB steps or custom steps
Total instrument bandwidth	0.2 - 30MHz @ -3dB

3. Material Testing

Rebar Locator



Ref. No : TM10 N026
Model : TC110

Brief Introduction

Rebar locator is used to detect the thickness of concrete covering layer and rebar diameter.

Features

- Locate rebars to avoid them when drilling holes
- Provide essential data (location, cover, diameter of rebars) for strength calculations of reinforced concrete structures
- Measuring concrete cover thickness
- Measuring the thickness of concrete over steel reinforcement and metal pipes
- Auto calibration, correct the system error
- Three scan modes for TC100 : grid pattern, profile scan and large area scan
- For TC110 : direct display grid and profile image of rebars

Technical Specification

Covering layer thickness measuring range	Range I : 6mm ~ 90mm; Range II : 7mm ~ 180mm	
Rebar diameter measuring range	Ø 6mm ~ Ø 50mm	
Tolerance of covering layer thickness	Range I	Range II
± 1mm	6mm ~ 59mm	7mm ~ 79mm
± 2mm	60mm ~ 69mm	80mm ~ 119mm
± 4mm	70mm ~ 90mm	120mm ~ 180mm
Display	Large graphic display with backlight	

Crack Depth Gauge



Ref. No : TM10 N027
Model : TC210

Brief Introduction

TC210 accomplishes the fast measurements of crack depth by means of analyzing geometry relationships between the diffraction angle and the crack depth.

Features

- Battery life can be greatly extended by low-power design
- Manage the measured data, print and generate report with software
- Work in wet environment available by waterproof and moisture-proof design

Technical Specification

Measuring range	10 ~ 500mm
Tolerance	± 5%
Operating mode	Automatic and manual
Interface	USB
Memory	More than 10000 test data
Power	10Ah Li battery continuous working more than 30 hours

Crack Depth Gauge



Ref. No : TM10 N022
Model : TC200

Brief Introduction

Crack depth gauge is used to measure concrete crack depth by applying principle of acoustic diffraction. It also can be used to measure propagation velocity of ultrasonic wave in concrete.

Features

- Direct digital read out of the crack depth
- Use special bracket to ensure the accuracy of two testing point
- Data base is set up to store and manage completed test data for analysis reporting

Technical Specification

Testing range	4mm ~ 500mm
Tolerance	≤ 5mm (when crack depth is less than 50mm) ≤ 10% of reading when depth is more than 50mm
Memory	25000 test data
Power	AA batteries (LR6) x 6
Display	Large graphic display

Concrete Thickness Gauge



Ref. No : TM10 N021
Model : TC300

Brief Introduction

Concrete thickness gauge is used for measuring the thickness of non-metallic plate directly, especially for concrete slab.

Features

- Measuring the thickness of concrete, rock, glass and other nonmetallic plates
- Signal strength bar indication, data analysis, data storage
- RS232 and USB interface to PC

Technical Specification

Measuring range	50 ~ 350mm
Accuracy	± 1mm [When thickness=(50~260mm)]; ± 2mm [When thickness=(261~350mm)]
Memory	32000 test data and 4000 components
Power	AA batteries (LR6) x 6
Display	Large graphic display

3. Material Testing

Crack Width Gauge

Ref. No : TM10 N023
Model : TC410

Brief Introduction

Crack width gauge is widely used for non-destructive testing of the crack width of bridges, tunnels, constructions and such concrete structures.

Features

- The PDA design with data acquisition probe
- Automatic image recognition and intelligent width calculation technique
- Powerful processing software able to save and analyses image and data

Technical Specification

Main probe	Specialized CMOS camera
Controller	PDA
Measuring range	0.0 ~ 3.0mm
Accuracy	0.02mm
Magnification	60x
Memory	Internal memory
Interface	USB 2.0
Power	Lithium battery



Concrete Test Hammer

Ref. No : TM10 N028
Model : TC500N

Brief Introduction

Concrete test hammer is a portable instrument to test the compressive strength of concrete structures or rock in non-destructive testing field.

Features

- Suitable for testing a wide variety of concrete, rock and bricks

Technical Specification

Measuring range	10 to 70N/mm ²
Impact energy	2.207Nm
Spring extension	75 ± 0.3mm
Friction of pointer system	0.65 ± 0.15N
Length of pointer	20.0 ± 0.2mm
Radius of spherical tip	25 ± 1.0mm
Working length of the spring	61.5 ± 0.3mm
Mean value of steel-anvil rating	80 ± 2
Flip tension spring rigidity	785.0 ± 40.0N/m



Digital Concrete Test Hammer

Ref. No : TM10 N029
Model : HT225-V

Brief Introduction

Digital concrete test hammer is a portable instrument to test the compressive strength of concrete structures or rock in non-destructive testing field.

Features

- True color LCD screen, high resolution of 176*220 mechanical hammers
- Non-contact grating sensor with high precision
- Possibility to store, display and transfer data to PC with USB interface

Technical Specification

Measuring range	10 ~ 60MPa
Impact energy	2.207J
Spring extension	75mm
Display	16-bit true color, 176 * 220 resolution
Data storage	480000 testing results
Mean value of steel anvil rating	80 ± 2
Flip tension spring rigidity	785N/m



Rebar Corrosion Detector

Ref. No : TM10 N030
Model : TC600

Brief Introduction

Rebar corrosion detector is designed for assessing the corrosion of the reinforced concrete structure and components by half-cell potential method.

Features

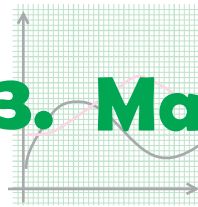
- Possibility to store, view, delete data and transfer all readings to PC with USB interface and serial port
- Display of measurement values in 9 grey-s cale or colorful graphics

Technical Specification

Measuring method	Potential measurement
Measuring range	± 1000mv
Resolution	1mv
Memory	Mass storage
Space between testing points	1 ~ 100cm adjustable
Interface	RS232 and USB
Power supply	AA batteries (LR6) x 6



3. Material Testing



Esaport & Metal Test Portable Optical Spectrometer

Portable optical spectrometer for analysis on site, equipped with arc and/or spark excitation source.

It may operate in three different ways: sorting (go / non go for comparison), analysis and identification grade.

Using the argon gas flushed pistol the results are comparable with the ones obtained with a Lab instrument, according to sample's preparation.

Technical Data

Optics: Multi - CCD digital electronics detector, wide spectral field, optical chamber sealed against light and dust, thermal insulation Shock resistant

Spark source: HEPS technic (High Energy Pre Spark) up to 500Hz

Arc source: DC arc source, voltage 35V, up to 5A. Lightweight optical fiber pistol body (Aluminium/Teflon) with ergonomic design. Start/Reset. Tungsten electrode for Spark mode. Copper electrode for Arc mode. 1.5Mt. (Esaport) / 3.0Mt. (Metal Test) fiber optic mechanically protected. Sorting mode. Identification grade. Quantitative analysis. Alloy identification according to international norms. Calculation of Carbon equivalence or any other parameter consequent to the analysis. Data filling.

Dimension: (P45 x H20 x L51) cm

Weight: 18kg bag and probe included



XRF Spectrometer

An Introduction to RoHS

RoHS directive is also known as green directive, which covers a wide range of products: electronic, electrical, medical, communication, toys and safety protection equipments. They include not only the ready made machine products, but also the related spare parts, raw materials and packing materials.

RoHS directive restricts the amount of Pb, Hg, Cr, PBB and PBDE contained in the related products to be less than 0.1% (1000ppm) and Cd 0.01% (100ppm). These restriction values are the legislative basis for determining whether the products comply with the directive or not.

What are RoHS and WEEE Directives?

The European Union has adopted Directive 2002/95/EC on the restriction of certain hazardous substances (RoHS) and Directive 2002/95/EC on waste electrical and electronic equipment (WEEE) with their publication in the Official Journal of the European Union on February 13, 2003, which stipulates that the producer compliance responsibility of WEEE comes into effect on August 13, 2005, and six hazardous substances are restricted to use in new electrical and electronic equipments put on market from July 1, 2006.

Technical specification

- Measurable elements: S to U
- Detection limit reaches 1ppm
- Element content: 1ppm to 99.9%
- Arbitrary optional analysis and identification models
- Independent matrix effect correction models
- Multi-variable non-linear regression procedure
- Excellent repeatability: 0.1%
- Long-time working stability: 0.1%
- Ambient temperature: 15°C to 30°C
- Power supply: AC 220V \pm 5V, AC stabilized voltage power supply

Application field

- o RoHS detection
- o Precious Metal testing
- o Detection for plating thickness of metal
- o Full-element analysis for minerals and other resources



Ref. No : JS10 P013
Model : EDX 1800B

3. Material Testing

Handheld Alloy Analyzer



The System utilizes a 7.2Vdc Li-ion battery. Under normal circumstances, it has an operating time of 8 hours before charging is required. This analyzer operates at a high voltage of 40kV but can be set for up to 50Kv, and has a detectable range of CI to U. The light element option has a detectable range from Mg to U. This model operates under control of the HP iPAQ PDA with 4-inches high resolution touch-screen display, providing high flexibility and usability of the system.

On-site instant analysis

- Ferrous and nonferrous alloys sorting
- RoHS
- Mining and geology

Basic user specifications

Standard element detection range	From CI (Z=17) to U (Z=92)
Optional light elements	From Mg (Z=12) to S (Z=16)
Dimensions	242mm(L) x 230mm(H) x 78mm(W)
Weight (with battery)	1230g (1440g)

Technical Characteristics

X-ray tube	W anode, 40kV max(50kV max optional, 100μAmp max optional Ag anode for light element analysis 5 filter positions
X-ray detector	
Detector type	Solid state Si-pin-diode with thermo-electrical cooling (optional SDD)
Active area	6mm ² (optional 25mm ²)
Software	
Supported operating systems	Windows CE/Mobile for PDA Windows XP / Vista / 7 for PC
Quantitative analysis algorithms	Fundamental parameters, empirical calibrations

Handheld Alloy Analyzer



These are Handheld X-ray Fluorescence Spectrometer specifically developed for on-site analysis. Depending on analysis software installed, the spectrometer are RoHS Analyzers, Alloy Analyzers, Scrap Metals Analyzers, Recycling Analyzers, Mineral Analyzers, Precious Metals Analyzers and Soil Analyzers. They are the smallest, rapidest, most functional and most accurate XRF analyzers available on the market.

An Introduction to Alloy Analysis

Steels are alloys in which Iron is mixed with Carbon (major elements) and other elements such as Silicon, Manganese, Sulphur and Phosphorus. Other elements are added to produce the chemical specifications for the desired steel grade. By determining the concentration of these elements, we know the properties and types of steels.

Handheld X-ray Fluorescence Spectrometer can analyze all kinds of high and low alloy steel, stainless steel, tool steel, Chrome-Molybdenum Steel, Nickle alloy, Nickle-Cobalt heat-resistant alloy, Titanium alloy, Copper alloy, Bronze, Zinc alloy and Tungsten alloy.

Specification

Working principle	: XRF analysis exploiting X-ray Fluorescence Spectrometry
Measurable elements	: S - U (JS10 P011) Mg-U (JS10 P012)
Detector	: Si-pin (JS10 P011) SDD (JS10 P012)
Power supply	: Operating time of two fully-charged Lithium batteries is no less than 8 hours
Testing time	: Within 15 seconds for precision detection and take 1-2 seconds for rapid detection (JS10 P012)
Operation	: Control by using PDA and remote control is available (JS10 P011)

4. Dimensional Metrology

Electronic Caliper



Features

- Stainless steel beam and slider
- Direct metric/inch conversion
- Precision to 0.02mm (models 150mm) or 0.04mm (models 200mm and 300mm)
- Resolution 0.01mm / 0.0005in
- Large LC display
- Supplied in a suited case with inspection report

Specification

Order No	Measuring Range		Precision	Resolution	Measuring Jaws
	mm	in			
SG03 534020	0 ÷ 150	0 ÷ 6	0.02	0.01 / 0.005	40
SG03 534021	0 ÷ 200	0 ÷ 8	0.04	0.01 / 0.005	50
SG03 534022	0 ÷ 300	0 ÷ 12	0.04	0.01 / 0.005	60

The new Electronic Caliper has high level of protection against foreign matter in hostile work shop environments.

Vernier Precision Caliper

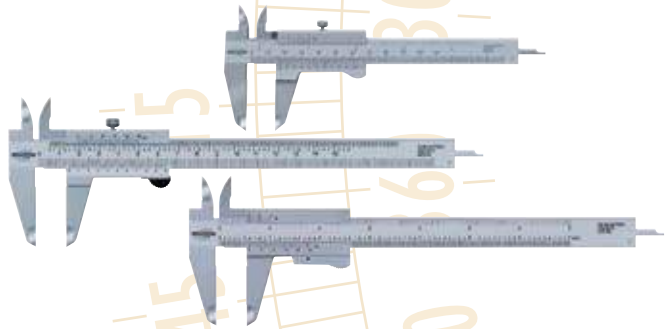
The precision instrument that can be used to measure internal and external distances accurately. Measurements are interpreted from the scale by the user, and has both imperial and metric scale.

Features

- Finely graduated for precise measurement
- Stainless steel
- Satin-chrome scale and vernier backgrounds
- Supplied in a suited case with inspection report

Specification

Order No	Measuring Range (mm/in)		Reading (mm/in)		Jaw Length
	upper	lower	upper	lower	
SG03 534012	0-150	0-6	0.02	0.001	40
SG03 534014	0-200	0-8	0.02	0.001	50
SG03 534015	0-300	0-12	0.02	0.001	60



Shockproof Dial Caliper

Features

- Made to measure internal, external and depth dimensions besides shoulders.
- Solid stainless steel construction
- Silky smooth sliding throughout the entire range
- Supplied in a suited case with inspection report



Specification

Order No	Measuring Range	Reading	Travel per Revolution	Jaw Length
Metric models	mm	mm	mm	mm
SG03 514018	0 ÷ 150	0.01	1	40
SG03 514019	0 ÷ 150	0.02	2	40
SG03 514020	0 ÷ 200	0.02	2	50
SG03 534021	0 ÷ 300	0.02	2	60

Shockproof Dial Caliper with thumbroller. These calipers have robust construction in stainless steel.

4. Dimensional Metrology



Electronic Outside Micrometer IP54

Quick, accurate, easy-to-use and coolant, water and oil resistant to IP54 standard, Robust enough to perform in almost all situations.

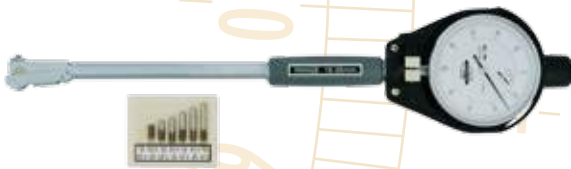
Features

- Automatic shut-on/off
- Metric/inch conversion
- Zero setting / Origin
- SR44 battery type
- Setting standard for sizes over 25mm / 1 in
- Ratchet friction thimble and locking nut
- Delivered in a suited case with inspection report
- Absolute measurement
- Carbide-tipped measuring faces
- Resolution to 0.001mm / 0.00005 in
- Micrometer head resolution to 0.01mm / 0.0001 in

Specification

Order No	Measuring Range	Resolution	Precision	Setting Standards	
<i>Numerical Micrometer</i>					
<i>Indication Head</i>					
Metric models	mm	mm	mm	mm	mm
SG03 00134001	0 ÷ 25	0.001	0.01	0.004	-
SG03 00134002	25 ÷ 50	0.001	0.01	0.004	25
SG03 00134003	50 ÷ 75	0.001	0.01	0.005	50
SG03 00134004	75 ÷ 100	0.001	0.01	0.005	75

Dial Bore Gauges, Metric



Dial bore gauges are useful in checking for taper or out-of-round conditions in a cylinder bore as well as many other inside machinists measurements.

Features

- Chrome plated handle
- Insulated grip
- Carbide anvils
- Includes extension holder and fitted case

Specification

Order No	Measuring Range	Reading	Accuracy	Repeatability
SG03 05714001	18 ÷ 35 mm	0.01mm	0.02mm	0.01mm
SG03 05714002	35 ÷ 160 mm	0.01mm	0.02mm	0.01mm
SG03 05714003	50 ÷ 160 mm	0.01mm	0.02mm	0.01mm
SG03 05714004	100 ÷ 300 mm	0.01mm	0.02mm	0.01mm

Dial Bore Gauge, Metric, Perpendicular



It is for measuring difficult-to-reach bores.

Features

- Chrome plated handle
- Insulated grip
- Carbide anvils
- Includes extension holder and fitted case

Specification

Order No	Measuring Range	Reading	Accuracy	Repeatability
SG03 05714010	50 ÷ 150 mm	0.01mm	0.02mm	0.01mm

4. Dimensional Metrology

Outside Caliper Gauge



Quick thickness gage for external measurements, wall thickness and external grooves.

Features

- Hardened stainless steel
- Direct metric / inch / fraction conversion
- Resolution 0.1mm / 0.01 in, fractions by 1/64ths increments
- Delivered with a fitted case

Specification

Order No	Measuring Range	
	mm	in
SG03 07934200	0 ÷ 150	0 ÷ 6

Inside Caliper Gauge



Caliper for measuring inside dimensions or diameter. e.g. the size of a cavity or hole.

Features

- Hardened stainless steel
- Direct metric / inch / fraction conversion
- Resolution 0.1mm / 0.01 in, fractions by 1/64ths increments
- Delivered with a fitted case

Specification

Order No	Measuring Range	
	mm	in
SG03 07934201	12 ÷ 150	0.5 ÷ 6

Electronic Levels with Laser



Push-button laser projects a crosshair pattern horizontally on the level plain to aid in leveling, marking and installation tasks anywhere in the room.

Features

- Embedded magnet to provide stability on the measuring surface
- 90° laser cross hair for levelling at-a-distance
- Reversible reading for inverted use
- Precision: $\pm 0.2^\circ$
- Repeatability: $\pm 0.05^\circ$
- Standard 9V battery

Specification

Order No	Measuring Range	Reading	Dimensions (L x W x H)
SG03 05334001	4 x 90°	0.05°	9 x 1 x 2-1/4"

Electronic Inclinometer



Digital display readout to indicate the angle or gradient being measured.

Features

- Embedded magnet on both sides and the bottom
- Hold feature
- Reversible reading for inverted use
- Precision: $\pm 0.2^\circ$
- Repeatability: $\pm 0.05^\circ$
- Standard 9V battery

Specification

Order No	Measuring Range	Reading	Dimensions (L x W x H)
SG03 05334002	4 x 90°	0.05°	2.375 x 1.375 x 2.375"

Pocket Electronic Inclinometer



Handy digital level and angle gauge.

Features

- Aluminium base with built-in magnet
- Display of angle in degrees and in %
- Hold function
- Precision: $\pm 0.2^\circ$
- 2 x CR2032 batteries

Specification

Order No	Measuring Range	Reading	Length
SG03 05334010	4 x 90°	0.1°	100mm

4. Dimensional Metrology

Universal Bevel Protractor with Vernier

It is designed for precision measuring and layout of obtuse as well as acute angles.

Features

- Made from stainless steel
- Laser stamped scales, satin-chrome backgrounds
- Parallax-free readout
- Magnifying glass for easy reading
- Adjustable beam to any position within the entire range

Specification

Order No	Measuring Range	Scriber	Blades Length
SG03 00634001	4 x 90°	5'	300 mm / 12 in



Universal Angle Protractor with Dial



Precise reading is achieved by reading directly to 5 minutes of angle on the dial.

Features

- Made from stainless steel
- Dial with wide spaced graduations
- Supplied in a fitted case

Specification

Order No	Measuring Range	Scriber	Blades Length
SG03 00634002	0 ÷ 360°	5'	6 in / 12 in

Electronic Angle Protractor



This Electronic Angle Protractor measures inside, outside angles and simplifies angle layout work with absolute precision.

Features

- Made from stainless steel
- Fine adjustment
- Range selection: 1 x 360°, 2 x 180°, 4 x 90°
- Accuracy: $\pm 5'$
- Preset function
- Dual reading LC display arc-minutes and decimal degrees
- Supplied in a fitted case

Specification

Order No	Measuring Range	Scriber	Blades Length
SG03 00634003	0 ÷ 360°	5'	6 in / 12 in

4. Dimensional Metrology

Dial Scribing Gauge / Height Gauge

Standard scriber with carbide-tipped for long lasting and easy, error free reading with a robust construction dial.

Features

- Solid stainless steel construction
- Smooth movement throughout the entire range
- Supplied in a suited case with inspection report



Specification

Order No	Measuring Range	Scale Division	Travel per Revolution
Metric models	mm	mm	mm
SG03 7714001	300	0.01	1.0
SG03 7714002	600	0.02	2.0

Electronic Scribing Gauge / Height Gauge

Perfect for height measurement and scribing work and suitable for all kinds of workshop conditions.

Features

- Direct metric / inch conversion
- Large high contrast LC display
- Hold function
- ABS / INC measurement
- Direct RS232 data output
- Floating zero
- Locking screw, carbide scriber
- Supplied in a resistant case with inspection report



Specification

Product Code	Range	Resolution	Precision
SG03 07734003	0-300mm / 0-12"	0.01mm / 0.0005"	± 0.04mm
SG03 07734004	0-600mm / 0-24"	0.01mm / 0.0005"	± 0.05mm

Wall Thickness Gauge

Measuring method:

The instrument uses a small steel ball. A magnetic probe is placed on one side of the material to be measured and the target steel ball follows the probe on the other side. The distance between the two is the material thickness. Continuous measurement is possible by sliding the probe across the surface and the target ball will follow the line, e.g. in order to find the thinnest spot.



Wall Thickness Gauge that measures thickness of:

- All non-magnetic materials e.g. plastic, glass, ceramics, non-ferrous metals and etc.
- Hollow parts of various kinds e.g. bottles, cups, cans, bowls and etc.
- Plates, car body parts, glass panels and etc.

Measuring range

- FH 4 probe : 0mm ~ 1.5mm with 1.5mm reference ball
- FH 4 probe : 0mm ~ 2.5mm with 2.5mm reference ball
- FH 4 probe : 0mm ~ 4.0mm with 4.0mm reference ball
- FH 10 probe : 0mm ~ 2.5mm with 2.5mm reference ball
- FH 10 probe : 0mm ~ 4.0mm with 4.0mm reference ball
- FH 10 probe : 0mm ~ 10.0mm with 6.0mm reference ball
- FH 10 probe : 0mm ~ 10.0mm with 9.0mm reference ball

Low range resolution

0.1µm (FH 4) / 0.2µm (FH 10)

Repeatability

Better than ± (1µm + 0.5% of reading)

Measuring principle

Magnetostatic

Logging rate

1, 2, 5, 10, 20 readings per second (selectable)

Data memory

240,000 values (limited to 100,000 values on MiniTest 7200 FH)

Statistical charting

Numeric, trend, and histogram (with MiniTest 7400 FH only)

Interfaces

RS232 TTL + IrDA 1.0 and USB (via connection box)

5. Electrical Testing

4-20mA Loop Calibrator



Ref. No : TS04 B034
Model : Prova 100

It generate electrical signals.

Features

- 4~20mA (1kΩ load, 24V Loop Supply)
- 0~24V output
- Easy key-pad operation
- Auto step and auto ramp function
- 0~20mA, 0~24mA selectable
- 0~100% Input, step up and down
- Beeper warning when output is open

Specification

Range	Resolution	Accuracy
0 ~ 4mA	1μA	± 0.025% + 10μA
4 ~ 24mA	1μA	± 0.025% + 5μA
Beeper warning when output is open and specified output > 1mA		
Range	Resolution	Accuracy
0 ~ 4V	1mV	± 0.05% + 10mV
4 ~ 24V	1mV	± 0.05% + 5mV
Beeper warning when output is short and specified output > 100mV		

Thermocouple Calibrator



Ref. No : TS04 B036
Model : EE - Prova 125

Sourcing and simulating temperature.

Features

- 11 types of thermocouples (K, J, E, T, R, S, N, L, U, B, C) and mV
- °C, °F, high accuracy
- 0.1°C, 0.1°F resolution
- Δ T function, easy Increment & Decrement
- Ideal for: R&D laboratory, production line and service & calibration

Specification

Range	Typical Accuracy
K: -200 ~ 1,370°C / -328 ~ 2,498°F	± 0.4°C / ± 0.7°F
J: -200 ~ 1,050°C / -328 ~ 1,922°F	± 0.4°C / ± 0.7°F
E: -150 ~ 800°C / -238 ~ 1,472°F	± 0.4°C / ± 0.7°F
T: -200 ~ 400°C / -328 ~ 752°F	± 0.4°C / ± 0.7°F
R: 0 ~ 1,760°C / 32 ~ 3,200°F	± 0.5°C / ± 0.9°F
S: 0 ~ 1,760°C / 32 ~ 3,200°F	± 0.5°C / ± 1.0°F
N: -200 ~ 1,300°C / -328 ~ 2,372°F	± 0.4°C / ± 0.7°F
L: -200 ~ 900°C / -328 ~ 1,652°F	± 0.4°C / ± 0.7°F
U: -200 ~ 600°C / -328 ~ 1,112°F	± 0.4°C / ± 0.7°F
B: 600 ~ 1,820°C / 1,112 ~ 3,308°F	± 0.5°C / ± 0.9°F
C: 0 ~ 2,310°C / 32 ~ 4,190°F	± 0.4°C / ± 0.8°F

Prova 123 Multifunction Calibrator

Sourcing & simulating temperature and electrical signal

Specification

mA DC Current (1kΩ Max. load, 24v Loop Supply)

Range	Resolution	Accuracy
0 ~ 24mA	1μA	± 0.025% + 3μA
Beeper warning when output is open and specified output > 1mA		

mV, V DC Voltage (1mA Supply Current)

Range	Resolution	Accuracy
0 ~ 100.00mV	10μV	± 0.05% ± 30μV
0 ~ 10.000V	1mV	± 0.05% ± 3mV
0 ~ 1.0000V	100μV	± 0.05% ± 300μV
Beeper warning when output is short and specified output > 10mA		

K, J, E, T Type (1°C, 1°F Resolution, 1kΩ load Min.)

Range	Typical Accuracy
K: -200 ~ 1370°C / -328 ~ 2400°F	± 0.8°C / ± 1.5°F
J: -100 ~ 760°C / -148 ~ 1400°F	± 0.7°C / ± 1.2°F
E: -100 ~ 700°C / -148 ~ 1292°F	± 0.7°C / ± 1.2°F
T: -200 ~ 400°C / -328 ~ 752°F	± 0.8°C / ± 1.5°F



Ref. No : TS04 B035
Model : Prova 123

Features

- 4~20mA (1kΩ load, 24V Loop Supply)
- 0~100.00mV, 0~1.0000V, 0~12.00V
- K.J.E.T. Thermocouples (°C & °F)
- Frequency 1~62,500Hz
- 0.025% basic accuracy
- Easy key-pad operation
- Easy step & auto ramp functions
- 0~20mA, 0~24mA selectable
- 0~100% input (mA, mV, V)
- Beeper warning when output is open (mA) or short (mV, V)

5. Electrical Testing

Prova iCal Documenting Multifunction Calibrator

Applications

- Calibration of 4 to 20mA transmitters and panel meters
- Temperature calibration of panel meters or instruments for 11 types of thermocouple
- Calibration of valve opening by changing duty cycle of a PWM signal
- Generation of selected test frequency and waveform for electronic device
- Pre-stored 1/3 octave audition, white noise, and pink noise for MP3, MD, speaker and audio driver tests
- Audio Frequency Synthesizer: Programmable frequency and phase synthesis of single tone, DTMF (Double Tone, Multi-Frequency) for audio products such as MP3, MD and telephone line
- Function generation for transistor DC bias characteristics test, amplifier overload and transient characteristics
- Function generation for vibration testing
- Calibration of a chart recorder with different waveforms (sine, square, or triangular wave)
- Simulation of PLC

Features

- Unique mapping function let you calibrate temperature (300°C) or voltage (220V) directly (instead of 4 ~ 20mA indirectly)
- iCal is a multifunction calibrator and an arbitrary function generator
- Source: mA (4 ~ 20mA, V (0 ~ 15V, 0 ~ 70mV), Hz, sine wave, square wave, triangle wave, truncated sine wave, user programmable waveform and temperature for 11 types of thermocouples
- Measure: Current (mA), Voltage (V, mV) and temperature in °C or °F
- Programmable cold junction compensation allows users to fine tune temperature output and measurement
- Programmable 0% and 100% value for easy 25% step function
- Output error warning when output is shorted or open
- Short circuit protection for voltage output
- Clear and easy user interface (Numerical key pad, sliding switch and dot matrix LCM with backlight)
- Voltage, frequency, PWM duty-cycle (square wave and triangular wave), and offset are programmable in the Hz function
- Frequency range (0.3Hz ~ 20KHz) covers application of audio band (speaker, MP3, MD etc.)
- DTMF (Dual Tone multi-Frequency) can perform professional testing for telephone line and audio product (MP3 or MD)
- Auto-step and auto-ramp functions can quickly perform linear test
- PC can program calibrator through USB port
- iCal can perform data logging with programmable sampling time (0 ~ 255 seconds) and memory of 4000 records
- Rechargeable Lithium battery (1600MAH) with built-in charging circuit
- Calibration results (source and measure) can be saved in memory (2000 records). Then users download them to a PC for documentation. No need to transcribe calibration data manually
- To distinguish calibration data at different locations, data can be saved under different file names



Ref. No : TS04 B037
Model : Prova iCal

Specification (23 +/- 5°C)

mA (source, Vopen > 15V)

Range	Resolution	Accuracy of Reading
-4mA ~ 0.005mA	1µA	+/- 0.03% +/- 5dgt
0.005mA ~ 4mA	1µA	+/- 0.03% +/- 5dgt
4mA ~ 20mA	1µA	+/- 0.03% +/- 3dgt
20mA ~ 24mA	1µA	+/- 0.03% +/- 5dgt

V (source, maximum load 1mA, short circuit protection < 100mA)

Range	Resolution	Accuracy of Reading
-3V ~ 0.005V	0.001V	+/- 0.03% +/- 5dgt
0.005V ~ 10V	0.001V	+/- 0.03% +/- 5dgt
10V ~ 15V	0.001V	+/- 0.03% +/- 5dgt

mA (measure)

Range	Resolution	Accuracy of Reading
-4mA ~ 0.005mA	1µA	+/- 0.03% +/- 5dgt
0.005mA ~ 4mA	1µA	+/- 0.03% +/- 5dgt
4mA ~ 20mA	1µA	+/- 0.03% +/- 3dgt
20mA ~ 24mA	1µA	+/- 0.03% +/- 5dgt

V (measure)

Range	Resolution	Accuracy of Reading
-3V ~ 0.005V	0.001V	+/- 0.03% +/- 5dgt
0.005V ~ 10V	0.001V	+/- 0.03% +/- 5dgt
10V ~ 24V	0.001V	+/- 0.03% +/- 5dgt

If reading of mA (measure) and V (measure) is less than 5 digits, it is displayed as 0

Frequency (source, 10Vpp, 0V offset, square wave, duty cycle = 50%)

Range (Hz)	Input Resolution	Accuracy
0.3 ~ 99.999	0.1Hz	0.002Hz
10.0 ~ 999.99	0.1Hz	0.02Hz
1000.0 ~ 9999.9	0.1Hz	0.2Hz
10000 ~ 20000	1Hz	2Hz

Temperature, Thermocouple Type K, J, E, T, R, S, N, L, U, B, C (source and measure, 0.1°C, 0.1°F resolution, internal cold junction compensation, thermocouple accuracy not included))

	Range	Accuracy
K	-200°C ~ 0°C	1.2°C
	0°C ~ 1000°C	0.8°C
	1000°C ~ 1370°C	1.2°C
mV	-10mV ~ 70mV	0.05mV

5. Electrical Testing

ConST 316 Multifunction Temperature, 317 Multifunction Process Calibrator & 318 Intelligent Process Calibrator

A highly integrated multifunction calibrator featuring several patented technology, an ultra-compact, rugged, and easy-to-use hand-held device. Its smartphone-like menu and interface make the operation simpler and easier, ideal for calibrating, maintaining, and troubleshooting process instruments.

Applications

Multifunction calibrator is a process tool for

> Electrical

- Resistance measurement / simulation
- Voltage measurement / generation
- Current measurement / generation
- Frequency measurement / generation
- Pulse counting / generation
- 24 VDC loop supply
- Switch sensing

> Temperature

- RTD measurement / simulation
- TC measurement / simulation

> Pressure (ConST 317, 318)

- Gauge pressure measurement
- Absolute pressure measurement
- Pressure module -1 bar ~ 700 bar

Features

>Sourcing, simulation and measuring pressure, temperature and electrical signals

- Source and measure mV, mA, ohms, RTDs, TCs, Hz, and pulses
- Simulate and measure 8 TCs, 4 RTDs and pressure (ConST 317 & 318) to calibrate transmitters
- Measure and source pressure using Pressure Modules from -1 bar ~ 700 bar (ConST 317 & 318)
- 24V loop power supply
- Simultaneous dual reading capability
- Automatic switch test
- Pressure leak test (ConST317 & 318)
- Support square root transmitter
- Pulse frequency output for the calibration of flow totalizer

>Built-in temperature readout

- CVD coefficients of a calibrated PRT can be input into the calibrator for accurate temperature measurement

>Hart communication capability (ConST 318)

>Documenting and automated procedure capability

- Set up automated calibration procedures, performs the test, calculates the errors, displays and / or stores the results in the memory, and highlights the tolerance points

>HDisplay: 3.5 inch TFT color screen

>Rugged design for harsh environments, passed a 1-meter drop test

>Misuse protection

- Up to 30V voltage on any two sockets and up to 1A current on current sockets will not damage the calibrator

>Rechargeable and replaceable battery



Ref. No	Model
C110 B007	ConST 316
C110 B008	ConST 317
C110 B009	ConST 318

Specification

>Electrical signals measurement

Signal	Range	Resolution	Accuracy
mV	(-75.0000 ~ 75.0000)mV	0.1μV	0.01%RD + 0.005%FS
V	(-30.0000 ~ 30.0000)V	0.1mV	0.01%RD + 0.005%FS
mA	(-30.0000 ~ 30.0000)mA	0.1μA	0.01%RD + 0.005%FS
R-2W	(0 ~ 400.000)Ω	1mΩ	0.02%RD + 0.005%FS
R-3W	(0 ~ 400.000)Ω	1mΩ	0.02%RD + 0.005%FS
R-4W	(0 ~ 400.000)Ω	1mΩ	0.01%RD + 0.005%FS
Hz	(1 ~ 50000.0)Hz	0.1Hz	0.005%RD + 0.002%FS
Pulse	0 ~ 999999	1	N/A
Switch	The Switch detective voltage range is from +3V ~ +24V		

>Electrical signals sourcing

Signal	Range	Resolution	Accuracy
mV	(-10.0000 ~ 75.0000)mV	1μV	0.02%RD + 0.005%FS
V	(0 ~ 12.0000)V	0.1mV	0.02%RD + 0.005%FS
mA	(0 ~ 22.000)mA	1μA	0.02%RD + 0.005%FS
R	(1 ~ 400.00)Ω	10mΩ	0.02%RD + 0.005%FS
Hz	(0 ~ 50000.0)Hz	0.1Hz	0.005%RD + 0.002%FS
Pulse	0 ~ 999999	1	N/A
DC24V	N/A	N/A	0.5V

>The Accuracy of Thermal Couple (TC)

Type	Standard	Temperature Range (°C)		Accuracy (°C)	
				Measure	Source
K	IEC584	-270 ~ 1372	-250 ~ -200	1.0	1.1
			-200 ~ -100	0.4	0.5
			-100 ~ 600	0.3	0.3
			600 ~ 1372	0.4	0.5

Also measure / source TC type S, R, B, N, E, J, T

>RTD Measurement and Source Accuracy

Measure/ Simulate	Standard	Temperature Range (°C)		Accuracy (°C)		
				Measure 2W / 3W	Measure 4W	Source
Pt10(385)	IEC 751	-200 ~ 850	-100 ~ 200	0.65	0.60	0.65
			200 ~ 600	0.82	0.72	0.82
			600 ~ 850	0.96	0.82	0.96
Pt100(385)	IEC 751	-200 ~ 850	-100 ~ 200	0.15	0.1	0.15
			200 ~ 600	0.26	0.16	0.26
			600 ~ 850	0.34	0.20	0.34
Cu50(385)	IEC 751	-50 ~ 150	-50 ~ 150	0.17	0.13	0.17
Cu100(385)	IEC 751	-50 ~ 150	-50 ~ 150	0.12	0.09	0.12

5. Electrical Testing

Auto Ranging / LCR Multimeter

TES-2700 Auto Ranging Multimeter

Features

- Autoranging and Auto-power-off
- 3200 count LCD with analog bar-graph
- Data-hold mode available at ohms
- Overload protection up to 600 Vrms

TES-2712 LCR Multimeter

Features

- 3 2/1 LCD
- Data-hold and peak-hold function available
- Inductance, Capacitance & ohm measurement



Ref. No : TS04 B009
Model : TES-2700

TS04 B008
TES-2712

Specifications

TES-2700

Voltage (AC/DC)

Range	320m / 3.2 / 32 / 600VDC 3.2 / 32 / 320 / 600VAC
Accuracy	DC - 0.5% rdg + 2 dgts AC - 1.2% rdg + 4 dgts (40 - 400Hz)
Resolution	100µV (DC) / 1mV (AC)

Current (AC/DC)

Range	320µ / 3.2m / 32m / 320m / 20A
Accuracy	DC - 1% rdg + 2 dgts AC - 1.5% rdg + 5 dgts (40 - 400Hz)
Resolution	0.1µA

Resistance

Range	320 / 3.2K / 32K / 320K / 3.2M / 30MΩ
Accuracy	0.8% rdg + 2 dgts
Resolution	0.1Ω

TES-2712

Voltage (AC/DC)

Range	200m / 2 / 20 / 200 / 600V
Accuracy	DC (0.5% rdg + 1 dgts) AC (1% rdg + 5 dgts)
Resolution	0.1mV

Current

Range	200m / 2m / 20m / 200m / 20A
Accuracy	DC (1% rdg + 1 dgts) AC (1.2% rdg + 3 dgts) (50 - 500Hz)
Resolution	0.1mA

Inductance

Range	20m / 200m / 2 / 20H
Accuracy	5% rdg + 10 dgts
Resolution	10mH

Capacitance

Range	2000P/200n/2m/20mF
Accuracy	3% rdg + 10 dgts
Resolution	1PF

Resistance (W)

Range	200 / 2K / 20K / 200K / 2M / 20M
Accuracy	0.8% rdg + 2 dgts
Resolution	0.1Ω

Datalogger Multimeter (RS-232)

Features

- DMM talks with P.C. via RS-232 interface
- Data Logger function
- Direct input of V, A, Ohm, Hz, Cx & °C / °F without any further signal modification



Ref. No : TS04 B006
Model : TES-2732A



Specifications

Voltage (AC/DC)

Test Range	
Range	200m/2/20/200/750V(AC)/1000V(DC)
Accuracy	DC (0.5% rdg + 1 dgts) AC (1.0% rdg + 5 dgts)
Resolution	0.1m

Resistance (Ω)

Range	200/2K/20K/200K/2M/20M
Accuracy	0.8% rdg + 2 dgts
Resolution	0.1Ω

Capacitance (F)

Range	2000p/200n/2m/20mF
Accuracy	3% rdg + 10 dgts

Frequency (Hz)

Range	10Hz to 20MHz (Auto Range)
Accuracy	2K/20K/200K/2M/20MHz 0.5% rdg + 2 dgts
Resolution	1Hz

Current (AC/DC)

Range	200µ/2m/20m/200m/20A (AC/DC)
Accuracy	DC (1.0% rdg + 1 dgts) AC (1.2% rdg + 3 dgts)
Resolution	0.1µA

5. Electrical Testing

Precision Multimeter (Mobile Bench-top) DMM Digital Multimeter

Features

- 60,000 Counts dual channels
- 0.04% DC basic accuracy, 0.2% AC basic accuracy
- 10KHz (max.) bandwidth
- Fast ACV, ACA response
- Built-in calendar clock
- File structure data logging max. 245 file with max. 15800 records
- Programmable auto-power-off timing (0 to 15 minutes)
- Programmable AD average samples per reading (2 to 200 samples per reading)
- Study of relationship of voltage and current with one DMM
- Dual display of frequency and duty cycle
- Record data of both channels using a PC through the RS-232C interface
- DCV / ACV : 60.000mV ~ 1000.0V
- DCA / ACA : 600.00μA ~ 10.000A
- Resistance : 999.99Ω ~ 40.000mΩ
- Capacitance : 60.00nF ~ 600.0μF
- Frequency : 1.000Hz ~ 2MHz
- Duty-cycle and diode-test



IEC 61010-1
CAT III 1000V
CAT IV 600V
Ref. No : TS04 B004
Model : Prova 803

Digital Multimeter



Ref. No : TS04 B001 TS04 B002
Model : Prova 901 Prova 903

Features

- 0.02% DC and 0.1% AC basic accuracy
- 60,000 counts resolution
- 200KHz (max.) bandwidth
- True RMS with fast ACV/ACA response
- Dual channels measurement similar to a dual channels DSO (V+V, V+A)
- RS-232C ASCII interface
- Data logging (model 903 with 10,708 records for both channels)
- Capacitance measurement
- Free software (901, 903)
- 1/3 the cost
- Programmable Auto-power-off timing (0 to 15 minutes)
- Programmable AD average samples per reading (2 to 200 samples per reading)
- Study of relationship of voltage and current with one DMM
- Dual display of frequency and duty cycle

Specification

DCV/ACV : 60.000mV ~ 1000.0V
Resistance : 999.99Ω ~ 40.000mΩ
Frequency : 1.000Hz ~ 2MHz

DCA/ACA : 600.00μA ~ 10.000A
Capacitance : 60.00nF ~ 600μF
Duty-cycle and diode-test

Capacitance Meter



Ref. No : TS04 N009
Model : TES-1500

Features

- 0.5% accuracy
- Overload fuse protection
- Test clips / direct insert jack for easy measurement
- Range : 200pF(0.1pF) / 2nF(1pF) / 20nF / 10pF / 200nF(100pF) / 2mF(1nF) / 20mF(10nF) / 200mF(100nF) / 2000mF(1mF) / 20000mF(10mF)
- Test Frequency : 8Hz / 800Hz
- pF=10⁻¹²F, nF=10⁻⁹F, μF=10⁻⁶F
- Measurement voltage : 4.5V max.
- Input protection : The capacitance meter is protected by a 0.25A / 250V fast blow type fuse to avoid damage

5. Electrical Testing

CM-01 DC/AC Clamp Meter



Ref. No : TS04 C018
Model : CM-01

Features

- High resolution DC/AC 10mA
- 23mm large jaw diameter
- One touch zero for DCA adjustment
- Large 3 3/4 digit LCD (4000 counts)
- Fast analog bargraph display
- Max / min, data hold
- 600Vrms overload protection for Ohm measurement

Specification

AC/DC current : 40A/0 ~ 150A/150 ~ 200A
AC/DC voltage : 400V
Resistance : 40 ~ 400Ω (beep if < 40.0Ω)
Frequency : 0 ~ 1000kHz

CM-03 Leakage Current Tester



Ref. No : TS04 C010
Model : CM-03

Features

- 10mA ultra high resolution
- Large conductor diameter (30mm)
- ACA 5 ranges (40mA, 400mA, 4A, 40A, 100A)

Specification

AC current : 40mA/400mA/4A/40A/100A
AC voltage : 0~ 400V
Resistance : 0 ~ 400Ω (beep if < 40.0Ω)

CM-02 AC/DC Clamp Meter Automotive Clamp



Ref. No : TS04 C014
Model : CM-02

Features

- DC/AC 0.01A resolution
- 23mm jaw diameter
- Temperature and capacitance
- Auto range V, A, Ω, F and temperature
- AC/DC 0.01 ~ 200A
- One touch zero
- 3 3/4 digits (4000 counts)

Specification

AC/DC current : 40/200A
AC/DC voltage : 400mV/40/400/600V
Resistance : 400/4K/40K/400K/4M/40MΩ
Frequency : 100 ~ 1000kHz

CM-05 AC/DC Current Probe



Ref. No : TS04 C011
Model : CM-05

Features

- Accurate DC/AC current probe
- 10mA DC, 1mA AC high resolution
- 23mm jaw diameter
- One touch zero for DCA adjustment
- Easy single rotary switch for any function selection

Specification

AC/DC current : 4A/40A/150A/200A
Sensitivity : 0.1mV/1mA
0.1mV/10mA
0.1mV/100mA

5. Electrical Testing

CM-07 TRMS AC/DC Clamp Meter



Ref. No : TS04 C016
Model : CM-07

Features

- High resolution DC 10mA, AC 1mA
- True RMS reading
- Non-contact current frequency measurement
- 23mm large jaw diameter
- One touch zero for DCA adjustment
- Large 3 3/4 digits LCD (4000 counts)
- Fast analog bargraph display
- Max / min, data hold

Specification

AC/DC current : 40A/150A/200A/400A (DC)
4A/40A/100A/200A/400A (AC)
Frequency : 0Hz ~ 1000kHz

Prova 11 AC/DC mA TRMS Clamp Meter



Ref. No : TS04 C017
Model : Prova 11

Features

- Super high resolution - DC / 1mA, AC / 0.1mA
- True RMS
- One touch zero for DCA

Specification

AC/DC current : 0 ~ 4A/30A (DC)
400mA/4000mA/30A(AC)
AC/DC voltage : 400V

Prova 15 AC/DC mA Current Probe



Ref. No : TS04 C012
Model : Prova 15

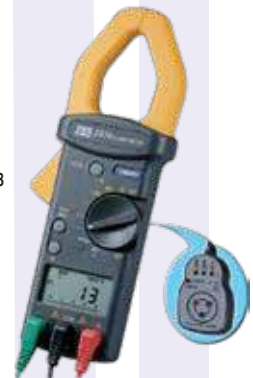
Features

- High resolution DC 1mA, AC 0.1mA
- Connect to an Oscilloscopes to observe current waveform
- Connect to chart recorder / datalogger / DMM to record current data
- One touch zero for DCA adjustment

Specification

AC/DC current : 400mA/4A/30A
Sensitivity : 0.1mV/0.1mA
0.1mV/1mA
0.1mV/10mA

TES-3074 AC 1000A Clamp Meter



Ref. No : TS04 C008
Model : TES-3074

Features

- Phase rotation indicator
- 1000A AC & 600V AC
- Max / min / data hold
- Pos. peak hold & neg. peak hold
- 4000 count reading with bargraph
- Capacitance check (400μF)
- Frequency check (4KHz)

Specification

AC current : $\pm (2\% \text{rdg} + 5 \text{ dgts})$
40A/400A/1000A
AC voltage : 400V - $\pm (1.2\% \text{rdg} + 5 \text{ dgts})$
600V - $\pm (3\% \text{rdg} + 5 \text{ dgts})$
Phase : 80V ~ 480V
Frequency : 4KHz
Peak Hold Measurement
Range : 40A/400A/1000A
Resolution : 0.01A/0.1A/1A
Resistance : 40kΩ (1% + 1)

5. Electrical Testing

TES-3091N AC Clamp Meter (Non-Contact Voltage Detection)



Ref. No : TS04 C030
Model : TES-3091N

Features

- NCV function (Non-contact voltage detection)
- 3 - 3/4 digital LCD, 4000 count
- Data hold function
- Auto power off (15 minutes)
- Auto ranging

Specification

AC current	Range	: 40A, 400A
	Resolution	: 0.01A, 0.1A
	Accuracy	: $\pm (2\% \text{ rdg} + 10 \text{ dgts})$
AC/DC voltage	Range	: 400V, 600V
	Resolution	: 0.1V, 1V
	Accuracy	: DC - $\pm (1\% \text{ rdg} + 5 \text{ dgts})$ AC - $\pm (1.5\% + 10) - 50 \sim 60\text{Hz}$ $\pm (3\% + 15) - 400\text{Hz}$
Ohms		: 400 Ω
	Resolution	: 0.1 Ω
	Accuracy	: $\pm (1\% \text{ rdg} + 5 \text{ dgts})$
Continuity beeper : $\leq 60\Omega$		

TES-3082 TRMS AC/DC Clamp Meter



Ref. No : TS04 C001
Model : TES-3082

Features

- True RMS reading
- 4000 count reading
- DCA one-touch-zero
- Peak / data hold mode
- Auto ranging frequency measurements

Specification

AC/DC current	: $(\pm 1.9\% \text{ rdg} \pm 5 \text{ dgts})$
	400A/600A
AC/DC voltage	: 600V (DC); 400V/600V (AC)
Resistance	: (Ohms) 4K Ω
Frequency	: (Aurorance) 4KHz/20KHz

AFLEX-3001/3002 Flexible AC Current Clamp

Ref. No
TS04 C028
TS04 C029

Model
AFLEX-3001
AFLEX-3002



Features

- Up to 3000A, True RMS
- Direct reading, no DMM required
- True RMS measurement of A with 1% of scale basic accuracy
- True RMS measurement of V with 0.5% basic accuracy (model 3002 only)
- Fast peak function (39 μ s for 50Hz, 33 μ s for 60Hz)
- Max, min and data hold functions
- Auto power off function in 15 minutes

Flexible probe, different from normal clamp meter, can pass through obstacles at will and wind many conducting wires simultaneously, max. diameter 170mm

Specification

	Range	Resolution	Accuracy of Readings
AC Current	0 ~ 300A	0.1A	$\pm 1\%$ of range
	100.0 ~ 999.9A	0.1A	$\pm 1\%$ of range
	1000 ~ 3000A	1A	$\pm 1\%$ of range
AC Voltage (AFLEX 3002 only)	3V ~ 600.0V	0.1V	$\pm 0.5\% \pm 5 \text{ dgts}$
Frequency (RMS value > 10V) or ACA (RMS value > 30A)	45 ~ 65Hz	0.1Hz	$\pm 0.2\text{Hz}$

TES-3092 AC/DC Clamp Meter (700A AC/DC)



Ref. No : TS04 C009
Model : TES-3092

Features

- Compact & pocket size
- One touch DCA zero
- Max hold / data hold function
- 3 - 1/2 digital LCD, 2000 count

Specification

AC/DC current	: 200A/700A
AC/DC Voltage	: 600V
Ohms	: 2K Ω
Resolution	: 0.1A/1A, 0.1V/1V

5. Electrical Testing

Prova 2000/2003 Clamp Meter

Ref. No : TS04 C005
Model : Prova 2000

TS04 C006
Prova 2003



Features

- DC 2500A, AC 2100A
- Ø55mm, Bus bar 65mm x 24mm
- True RMS (Prova 2000); average sensing (Prova 2003)
- Auto range A, V, Ω , Hz
- DCA one touch zero
- Continuity; max/min hold
- Relative measurement

Specification

AC/DC current : 400A/2500A (DC); 400A/2100A (AC)
Current analog output : 400A/2500A (1mV/A)
AC/DC Voltage : 400mV/4V/40V/400V/600V (DC)
4V/40V/400V/600V (AC)
Frequency : (Hz) 100 ~ 1000KHz
Resistance : 400 Ω /4k Ω /40k Ω /400k Ω /4M Ω /40M Ω

TES-3050 TRMS AC/DC Clamp Meter

Ref. No : TS04 C003
Model : TES-3050



Features

- 3 - 3/4 digital LCD with bar-graph
- Auto-ranging / auto-off / data hold / peak hold
- Max / min mode
- Zero adjustment / relative reading

Specification

AC/DC current : 400/1000A
AC/DC voltage : 400mV/4V/40V/400V/600V (DC)
4V/40V/400V/750V (AC)
Frequency : (Hz) 100Hz/1KHz/10KHz/100KHz/800KHz
Ohms (Resistance) : 400 Ω /4K Ω /40K Ω /400K Ω /4M Ω /40M Ω

Prova 2009 AC/DC True RMS Watt Clamp

Features

- AC + DC 1200KW
- DC/AC 2000A & analog output
- Cable Ø 55mm
- True RMS
- Temperature (°C or °F)
- 0.1°C / °F resolution

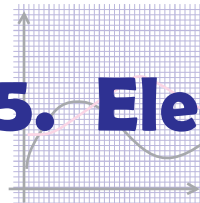
Specification

AC/DC current : 400A/2500A (DC)
400A/2100A (AC)
Current analog output : 400A/2500A
AC/DC voltage : 400mV/4V/40V/400V/600V (DC)
4V/40V/400V/600V (AC)
Temperature K type : -40°C ~ 0°C; 0°C ~ 400°C;
400°C ~ 1000°C
AC + DC 250V power - 40KW/400KW
AC + DC 600V power - 400KW/1200KW

Ref. No : TS04 E004
Model : Prova 2009



5. Electrical Testing



TES-3079 HVAC TRMS Clamp Meter, TES-3079K Power Clamp Meter

HVAC Application

- Check current drawn in motors and compressors
- Use max / min / recording in the temperature mode to assess efficiency
- Test run / start capacitors
- Confirm low voltage control signals
- Measure flame safeguard device current drawn
- Confirm power sources
- Analyze temperature and power data with the aid of the time stamp
- Insulation test up to 100MΩ

Electrical Application

- 1Ø / 3Ø (3P3W / 3P4W) power analyzer (TES-3079K)
- Check for energized circuits
- Balance loads
- Evaluate electrical contacts
- Capture motor in-rush current readings
- Determine peak power demand periods
- Verify line voltage stability
- Monitor motors and other loads for excess heat
- Check motor run / start capacitor values

Ref. No : TS04 C007
Model : TES-3079



Specification

AC current : 99.99A/999.99A)
AC/DC Voltage : 999mV/9.999V/99.99V/600.0V
Resistance : 999.9Ω/9.999KΩ/99.99KΩ/600.0KΩ
Frequency : 40Hz/1KHz
Temperature (k-type) : -50°C to 900°C
Resistance : 9.999MΩ/99.99MΩ
Capacitance : 10.000μF/100.00μF/1000.0μF/7000μF
Phase angle : -60° ~ +60° (TES-3079K)
True power : 60.00KW / 600.0KW (TES-3079K)
Apparent power : 60.00KVA / 600.0KVA (TES-3079K)

Prova 6600 - 3 phase/1phase Power Clamp



Ref. No : TS04 E003
Model : Prova 6600

Features

- 3Ø4W, 3Ø3W, 3Ø Balanced, 1Ø2W, 1Ø3W
- AC+DC 2000KW (3Ø), 1200KW (1Ø)
- Dual display KW+PF, KVA+KVAR, A+Hz
- Phase angle, phase sequence indication
- AC+DC 600V, 2000A, power factor
- AC/DC auto detection
- Ø55mm, Bas bar 65mm x 24mm

Specification

AC+DC TruePower ($\pm 2\%$ rdg $\pm 0.05KW$)

0 ~ 99.9/100 ~ 999.9/1000 ~ 1200KW

AC+DC Voltage

0 ~ 200/200 ~ 500/500 ~ 600VAC, 500 ~ 800VDC

AC+DC Current ($\pm 1.5\%$ rdg ± 5 dgts)

0 ~ 200/200 ~ 500/500 ~ 2000A

Prova 6601 - 3 phase PF Power Clamp



Ref. No : TS04 E004
Model : Prova 6601

Features

- PF (3Ø4W, 3Ø3W, 1Ø2W)
- AC+DC 2000KW (3Ø), AC+DC 1200KW (1Ø)
- Dual display KW+PF, KVA+KVAR, A+V, V+Hz
- AC+DC 600V, 2000A, power factor
- AC+DC auto detection
- Ø55mm, Bas bar 65mm x 24mm

Specification

AC+DC TruePower ($\pm 2\%$ rdg $\pm 0.05KW$)

0 ~ 99.9/100 ~ 999.9/1000 ~ 1200KW

AC+DC Voltage

0 ~ 200/200 ~ 500/500 ~ 600VAC, 500 ~ 800VDC

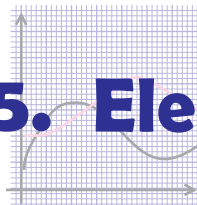
AC+DC Current ($\pm 1.5\%$ rdg ± 5 dgts)

0 ~ 200/200 ~ 500/500 ~ 2000A

AC+DC KVAR (3Ø3W, 3Ø4W)

0 ~ 99.9/100 ~ 999.9/1000 ~ 1200KVAR

5. Electrical Testing



TES-3063 / TES-3064 - Datalogging Power AC/DC Clamp Meter

Ref. No : TS04 E002
Model : TES-3063



Features

- 1Ø2W, 1Ø3W, 3Ø3W, 3Ø4W
- RS-232 Interface (3064)
- Data logging capacity (4,000 continuous reading, 25 single reading)
- Peak hold mode / Diode continuity measurement
- Dual display: KW+PF, KVA+PF, V+A
- Dual display: A+Hz, V+Hz
- Peak / Max / Min function
- True power (KW) / Apparent power (KVA) / Power factor (PF)
- Designed to meet EN-61010-1, IEC 1010-2-32 safety standard

Technical Specifications

	Range	Resolutionm	Accuracy
DC current (DCA)	1000A	0.1A	± (1.5% + 5)
DC voltage (DCV)	600V	0.1V	± (1.5% + 5)
Frequency test (Hz)	1KHz	0.1KHz	± (0.5% + 5)
	5KHz	1KHz	± (0.5% + 5)
AC current (ACA)	1000A	0.1A	± (1.5% + 5)
AC voltage (ACV)	600V	0.1V	± (1.5% + 5)
Resistance (Ω)	10KΩ	1Ω	± (1% + 5)

True Power (KW) / Apparent Power (KVA)

Range	Resolution	Accuracy
V < 130V, A < 150A	0.01	± (2% + 5)
V > 130V, A < 150A	0.01	± (2% + 5)
V < 130V, A > 150A	0.01	± (2% + 5)
V > 130V, A > 150A	0.1	± (2% + 1)

TES-3095T TRMS KW Clamp Meter

Ref. No : TS04 E025
Model : TES-3095T



Features

- 3 - 3/4 digital LCD, 4000 count, autoranging
- Trms KW, Current, Voltage measurement
- AC current 0.1A to 700A
- Resistance and continuity test
- Data hold & MAX function
- Pocket size with overload 600Vrms protection
- Auto power off
- Ø27mm cables diameter

Specification

AC KW	: 40.00KW / 250.0KW
AC current	: 400.0A / 700A
AC Voltage	: 400.0V / 600V
Resistance	: 400.0Ω / 4000Ω

TES-3096T DC/AC Clamp Meter

Ref. No : TS04 E026
Model : TES-3096T



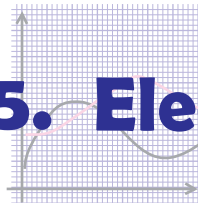
Features

- Compact size
- Trms KW measurement
- AC/DC current measurement
- Continuity Beeper
- One touch DCA zero
- AC current / voltage Trms

Technical Specifications

DC KW	40.00KW / 250.0KW
AC (Trms) KW	40.00KW / 250.0KW
DC current	400A / 800A
AC current	400A / 700A
DC voltage	400V / 600V
AC voltage	400V / 600V
Ohms	400Ω / 4000Ω
Continuity beeper	≤ 38Ω

5. Electrical Testing



Prova 6200 Graphic Power Quality Analyzer

Features

- Analysis for single phase and balanced 3 phase system
- True RMS value (V and I)
- Active power (W, KW, MW, GW)
- Apparent and reactive power (VA, KVA, MVA)
- Reactive power (VAR, KVAR, MVAR)
- Power factor (PF), phase angle (Φ)
- Energy (WH, KWH, KVARH, PFH)
- Programmable PT (1 to 3000) ratios
- Display of overlapped voltage and current waveform
- Maximum demand (MD in W, KW, MW) with programmable period
- Harmonic analysis (V and I) to the 50th order
- Display of 25 harmonics in one screen
- Datalogging of 32, 64, 128 or 256 points/cycles
- Analysis of total harmonic distortion (%THD-F)
- Graphic phasor diagram
- Capture 128 transient events (Time + Cycles + Faults) with programmable threshold (%), also can be reviewed in LCD
- 50,000 records with programmable interval (1 to 6,000 seconds)
- Real-time output of waveform, power parameters and harmonics at command
- Large dot matrix LCD display with backlight
- Optical isolated RS-232C interface
- Smart datalogging to save battery power for long-term monitoring
- Built-in calendar clock for data logging



Ref. No : TS04 E021
Model : Prova 6200

- AC current : 4.0A ~ 1500.0A
- AC Voltage : 4.0V ~ 600.0V
- AC Watt : 999.9W/ 9.999KW/99.99KW/
999.9KW/9999KW

Prova 19/21/23 Leakage and Harmonics Tester

Features

- True RMS value (V and A)
- Leakage current measurement at 10 μ A resolution
- Harmonic analysis (V and A) to the 99th order
- Better understanding of high frequency harmonic analysis (up to 5/6 KHz)
- Analysis of total harmonic distortion (THD-F)
- Analysis of crest factor (C.F.)
- Fast peak function (33 μ s and 39 μ s)

Prova 21 (30A) and Prova 23 (100A)

- W, KW, H.P.
- VA, KVA, VAR, KVAR
- PF, phase angle (Φ)
- Energy (mWH, WH, KWH)
- Analysis of standby power consumption
- Balanced 3 Φ power quality and sequence

Measuring Range

AC watt (Prova 21/23)	0.001W ~ 9.999KW
AC current (50 or 60Hz, True RMS)	0.30 ~ 30.00A (19.21), 0.30 ~ 99.99A (23)
AC voltage (50 or 60Hz, True RMS)	0.1V ~ 600V
Harmonics of AC voltage in % and magnitude (1 ~ 99th order)	50V ~ 600V
Harmonics of ACA in % percentage and magnitude (1 ~ 99th order)	10.00mA ~ 30.00A (19,21) 10.00mA ~ 99.99A (23)
Power factor and phase angle (21 & 23)	(PF) 0.000 ~ 1.000 (Φ) -180° ~ 180° (0° ~ 360°)
Total harmonic distortion (THD-F, 1 ~ 99th order)	0.0 ~ 999.9%
Crest factor (C.F. accuracy of readings)	1.00 ~ 99.99



EN 61010-2-032
CAT III 300V

Ref. No : TS04 E018
Model : Prova 19

Ref. No : TS04 E019
Model : Prova 21

Ref. No : TS04 E020
Model : Prova 23

5. Electrical Testing

Prova 6603/6605 Power and Harmonics Tester

Features

- Active (W, KW, HP), reactive (VAR, KVAR) and apparent (VA, KVA) power
- Power factor (PF), phase angle (Φ), and energy (WH, KWH)
- Non-interrupted AC current harmonic analysis
- 1 to 99th order of harmonics at 1.0% basic accuracy
- Total harmonic distortion (%THD-F) and crest factor (CF)
- True RMS measurement of V and A at 0.5% basic accuracy
- Fast peak function (39 μ s for 50Hz, 33 μ s for 60Hz)
- Resistance and continuity with beeper
- Measurement of balanced 3 Φ power
- Measurement of balanced 3 Φ sequence
- Programmable CT ratio from 1 ~ 250
- Max, min and data hold functions
- Active power in H.P.
- Auto power off function in 30 minutes



Ref. No : TS04 E022
Model : Prova 6603

TS04 E023
Prova 6605

Measuring Range

	Range	Accuracy
Prova 6603	0 ~ 750A	
Prova 6605	0 ~ 1500A	
AC watt	10.0W ~ 9999KW	$\pm 1\% \pm 2KW$
AC current	4.0 ~ 750.0A (6603)	$\pm 0.5\% \pm 5$ dgts
	4.0 ~ 1500.0A (6605)	$\pm 0.5\% \pm 5$ dgts
AC voltage	4.0V ~ 600.0V	$\pm 0.5\% \pm 5$ dgts
Harmonics of AC voltage in percentage	1st ~ 99th	$\pm 2\%$
Harmonics of AC current in percentage	1st ~ 99th	$\pm 2\%$
Power factor (PF)	0.000 ~ 1.000	± 0.04
Phase angle (Φ)	-180° ~ 180°/0° ~ 360°	$\pm 1^\circ$
Total harmonic distortion	0.0 ~ 999.9%	$\pm 2\%$

AFLEX 3003 Flexible VA Harmonics Tester AFLEX 3005 Flexible Power Quality Tester

Features

Power Analysis (3005)

- W, KW, H.P.
- VA, KVA, VAR, KVAR
- PF, Phase angle (Φ)
- Energy (WH, KWH)
- Dual displays (W+PF, VA+KVAR)
- Balanced 3 Φ power quality
- Balanced 3 Φ sequence

Harmonics Analysis (3003, 3005)

- True RMS (V and A)
- 3000A
- Non-interrupted harmonic analysis (V and A) to the 50th order in % and magnitude
- Harmonic analysis
- Fast peak function (33 μ s and 39 μ s)
- Programmable VT (1 to 250) ratios
- Auto-power-off : 15 minutes
- Analysis of %THD-F and C.F.



Ref. No : TS04 E015
Model : AFLEX 3003

TS04 E016
AFLEX 3005

- AC Watt : 100.0W ~ 9999KW (3005 only)
- AC Voltage : 4.0V ~ 600V
- AC Current : 300A/999.9A/3000A

5. Electrical Testing

TES-3600 3 Phase Power Analyzer

Ref. No : TS04 E001
Model : TES-3600



Ref. No : TS04 E006
Model : TES-3602

Features

- 10 display Easy-to-View LCD screen
- Super high contrast backlight TFT-LCD Colour display (TES 3602)
- Connectors for 4 current clamp probes
- 1P2W, 1P3W, 3P3W2M, 3P4W power measurement
- True RMS sensing
- Power KW, KVAR, KVA, PF, θ , Hz & Energy KWh, KVARh, KVAh measurement
- Manual data memory and read (99 sets)
- Datalogging (504KB memory, 20,000 sets)
- Programmable Trigger-points and Start/Stop time
- RS-232 optical interface with three phase voltage/ current
- Waveform display and Harmonic analysis
- USB direct communication with PC (TES 3602)
- Monitor for: IEC flicker, K factor, Voltage unbalanced factor, Max/Min/Ave of Time series (TES 3602)

Range

- V : 999.9V ($\pm 0.3\%$ rdg ± 10 dgts)
- A : 999.9A ($\pm 0.5\%$ rdg ± 15 dgts)
- KW : 999.9KW ($\pm 1\%$ rdg ± 20 dgts)
- KVA : 999.9KVA ($\pm 1\%$ rdg ± 20 dgts)
- KVAR : 999.9KVAR ($\pm 2.5\%$ rdg ± 20 dgts)
- Power factor : $-1 \sim 0 \sim +1$ ($\pm 1\%$ rdg ± 40 dgts)
- Phase angle : $0 \sim \pm 15^\circ$ ($\pm 6.0^\circ$)
 $\pm 15^\circ \sim \pm 75^\circ$ ($\pm 3.0^\circ$)
 $\pm 75^\circ \sim \pm 90^\circ$ ($\pm 6.0^\circ$)
- Hz : 0.01 ~ 60Hz ($\pm 0.1\%$ rdg ± 2 dgts)
- Three phase sequence detection : 3P > 50V
- Power energy measurement (Wh, VAh, VARh) : 119.3M
- Wh : $\pm 1\%$ rdg ± 20 dgts
- VAh : $\pm 1\%$ rdg ± 20 dgts
- VARh : $\pm 1\%$ rdg ± 20 dgts
- Harmonic measurement : 1 ~ 31 ($\pm 3\%$ THD)

Prova 6830+6801/6830+6802/6830+6803 Power and Harmonic Analyzer

Features

- Analysis for 3P4W, 3P3W, 1P2W, 1P3W
- True RMS value (V123 and I123)
- Active power (W, KW, MW, GW)
- Apparent and reactive power (KVA, KVAR)
- Power factor (PF), phase angle (Φ)
- Energy (WH, KWH, KVARH, PFH)
- Current measurement: 6830+6801 : 0.04A ~ 100A
6830+6802 : 0.4A ~ 1000A
6830+6803 : 4A ~ 3000A
- Display of 35 parameters in one screen (3P4W)
- Voltage and current waveform
- Average demand (AD in W, KW, MW)
- Maximum demand (MD in W, KW, MW) with programmable period
- Harmonic analysis to the 99th order
- Display of waveform with peak values (1024 samples/ period)
- Analysis of total harmonic distortion (%THD-F)
- Graphic phasor diagram with 3 phase system parameters
- Capture 28 transient events (Time + Cycles) with programmable threshold (%)
- DIP, SWELL, and OUTAGE are included in transient events
- Calculate unbalanced current through Neutral Line (In)
- 512K memory with programmable interval (Sampling time from 2 to 3000 seconds, 17,000 records for 3P4W system)
- Large dot matrix LCD display with backlight
- Optical isolated RS232C to USB interface
- Built-in timer and calendar for data logging
- Option : 300XP Portable Thermal Printer

Ref. No : TS04 E011
Model : Prova 6830



- 3 phase Voltage unbalance Ratio (VUR)
- 3 phase Voltage unbalance Factor (d0%, d2%)
- AC watt : 999.9W/9.999KW/99.99KW/
999.9KW/9999KW/9.999MW
- AC Voltage : 4.0V ~ 500.0V

5. Electrical Testing

AFLEX 6300 Graphic Power Quality Analyzer

Features

- Analysis for single phase and balanced 3 phase system
- True RMS value (V and I)
- Active power (KW), apparent (KVA) and reactive power (KVAR)
- Power factor (PF), phase angle (Φ)
- Energy (WH, KWH, KVARH, PFH)
- Display of overlapped voltage and current waveform
- Maximum demand (MD in W, KW, MW) with programmable period
- Harmonic analysis (V and I) to the 50th order
- Display of 25 harmonics in one screen with waveform
- Display of waveform with peak-values (512 samples/period), datalogging of 32, 64, 128 or 256 points/cycles
- Analysis of total harmonic distortion (%THD-F)
- Graphic phasor diagram
- Capture 128 transient events (Time + Cycles + Faults) with programmable threshold (%), can also be reviewed in LCD
- 50,000 records with programmable interval (1 to 6,000 seconds)
- Output of waveform, power parameters and 50 harmonics at command
- Large dot matrix LCD display with backlight

Ref. No : TS04 E017
Model : AFLEX 6300



- AC watt : 100.0W ~ 9999KW
- AC current : 30 ~ 300A/999.9A/3000A
- AC voltage : 3 ~ 600V

Prova 8500 Electric Energy-Saving Tester



Ref. No : TS04 F026
Model : Prova 8500

Features

- AC power supply + AC power meter
- Standby power measurement of note book, desktop PC, LCD TV
- Two measurement terminals:
 - a. Programmable nominal output : 85V ~ 250V, 45Hz ~ 65Hz
 - b. External power input : max. 2000W
- High resolution (10mW, 0.1mA), high stability and low drift
- Power quality measurement (W, PF, V, A, harmonics)
- PC programmable through RS-232C interface (Optional RS-232C to USB bridge)
- Programmable over current protection (OCP)
- Memory of 99 preset voltage and frequency
- LCD display for monitoring output V, A, W
- Cost calculation based on a Day, a Month or a Year
- 230V/115V selectable by switch

Specifications for Front Panel

(AC Sine Wave Output)

Resolution	Range	Accuracy
85V ~ 250V	0.1V	±1%
45Hz ~ 65Hz	0.01Hz	± 0.1Hz
0.001W ~ 100W	0.001W	± 1% ± 0.1W
0.5A ~ 1.5A	0.001A	± 1% ± 0.05A
PF (0 ~ 1)	0.001PF	± 0.04

Specifications for Rear Panel

(Max. 2000W, AC Measurement)

Range	Resolution	Accuracy
0.001W ~ 2000W	0.001W/0.01W/0.1W/1W	± 1% ± 0.1W
85V ~ 250V	0.1V	± 1%
0.01A ~ 10A	0.001A/0.01A	± 1% ± 0.05A
PF (0 ~ 1)	0.001PF	± 0.04
45Hz ~ 65Hz	0.01Hz	± 0.1Hz
THD	0.1%	±0.1%
Hn	0.1%	±0.1%

5. Electrical Testing

WM-01/02 Power Analyzer



Ref. No : TS04 E008
Model : WM-01

TS04 E009
WM-02

Features

- Solution for better PF
- 4 LCD display with W, PF, V, A
- Easy plug-in and test
- RS-232 computer interface
- Software for : Phase angle, Apparent power, Reactive power, Kilo-Watt hour, Estimated kilo-watt per day/month/year, Energy cost/Kwh, Serial number/record print out of your appliance measured

Technical Specifications

Watt	: (Auto range, AC+DC) 200/2000 ($\pm 0.9\%$ rdg ± 5 dgt)
Voltage	: (True RMS, Auto range, AC+DC) 200/750 ($\pm 0.5\%$ rdg ± 3 dgt)
Current	: 20A
Frequency	: 2K/20K/200K/2M/20MHz

TES-1800 Loop/PSC Tester



IEC 61010-1
CAT III 300V

Ref. No : TS04 F009
Model : TES-1800

Features

- Auto lock out if test resistor overheats
- Measure low loop with 0.01 resolution
- High loop range permit measurement of ground spikes
- 1800A 230V; 1800B 110V

Technical Specifications

Range	: 20/200/2000 Ω
Accuracy	: $\pm (2\% + 2 \text{ digit})$ at 1 Ω on 20 Ω range
Lowest resolution	: 0.01 Ω
Voltage display	: $\pm 2\% + 1 \text{ digit}$
AC test current	: 25A nominal at 20 range
AC test period	: 20ms
PSC range	: 200A/2000A/20KA
Operation voltage	: 230V $\pm 10\%$, 50Hz $\pm 1\%$
Fuse protection	: HRC ceramic fuse

Prova 8000 Programmable Power Supply



Features

- Switching technology, analog quality
- 1+2 output 200W
- One programmable output 0 ~ 40V/5A, 0 ~ 60V/3.3A
- Two fixed outputs 5V/2A, 3.3V/3A
- 1mV, 1mA high resolution
- 3mVrms, 3mA rms low-noise
- High stability, low drift
- Over-voltage, over-current protection
- OCP with programmable timer
- Built-in buzzer alarm
- 200 sets memory
- Easy RECALL & STORE function
- AUTO-STEP function with programmable interval
- Stand by / Operate button
- Bi-direction RS-232C interface

5. Electrical Testing

Prova 200 Solar Module Analyzer



Ref. No : TS04 F027
Model : Prova 200

Features

- I-V curve test for solar cell
- Single point I-V test
- Maximum solar power (Pmax) search by auto-scan (60V, 6A)
- Maximum voltage (Vmaxp) at Pmax
- Maximum current (Imaxp) at Pmax
- Voltage at open circuit (Vopen)
- Current at short circuit (Ishort)
- I-V curve with cursor
- Efficiency (%) calculation of solar panel
- Scan delay (parameter) setting (0 ~ 9999mS)
- Real time data logging
- Solar panel dimension (parameter) setting (0.001m² ~ 9999m²)
- Standard light source (parameter) setting (10W/m² ~ 1000W/m²)
- Min. power (parameter) setting and alarm (1.000mW ~ 100.0W)
- Rechargeable batteries; LCD display low battery
- RS232C (to USB bridge) cable for PC
- Option : portable thermal printer (model : 300XP) to print (hardcopy) the LCD displays of solar module analyzer

Prova 210 Solar Module Analyzer



Ref. No : TS04 F029
Model : Prova 210

Features

- I-V curve test for solar module
- 60V and 12A capability
- Maximum solar power (Pmax) search by auto-scan
- Maximum voltage (Vmaxp) at Pmax
- Maximum current (Imaxp) at Pmax
- Voltage at open circuit (Vopen)
- Current at short circuit (Ishort)
- I-V curve with cursor
- Data logging function to analyze solar power characteristics over a period of time
- Efficiency (%) calculation of solar panel
- Scan delay setting (0 ~ 3000mS)
- Solar panel area setting (0.001m² ~ 9999m²)
- Standard light source setting (10W/m² ~ 1000W/m²)
- Min. power setting for alarm function
- Built-in calendar clock
- Rechargeable lithium battery with built-in charging circuit
- Optical USB cable for PC
- Option : portable thermal printer (model : 310XP or 300XP) to print (hardcopy) the LCD displays of solar module analyzer

TES-SS1 Solar Power Development System

Includes

- Prova 200 solar module analyzer
- Prova 800 multi-input thermometer / datalogger
- Prova 8300 light radiation controller
- Solar cell / module table

Features

- Control halogen lamp (or other light source) to emulate sunlight irradiance
- Low cost for educational purpose
- Standard pyranometer (sunlight sensor) to show true irradiance
- User friendly interface

Specifications

Dimension : 300(L) x 300(W) x 420(H)mm / 11.8" x 11.8" x 16.5"

Height from Halogen Lamps to table base : Adjustable from 90mm to 30cm
Standard : 150mm

Solar cell / module for measurement : max. 300 x 250mm / 11.8" x 9.8"

Light sensor : 0 ~ 1500m/w²

With K-type thermocouple

With Halogen Lamp (Simulation of Sun Light) : DC 12V, 50W x 3 pcs

Input voltage (for Halogen Lamps) : DC 0V ~ 40V



Ref. No : TS04 F030
Model : TES SS1

5. Electrical Testing

TES-1600 Insulation Tester



Ref. No : TS04 F001
Model : TES-1600

Features

- 2000MΩ / 1000V, 200MΩ / 500V, 200MΩ / 250V
- Power Lock for 3 minutes (Auto Power off)
- Auto-Zero adjustment
- 1mA Test Current
- Data-hold-function / continuity beeper

Technical Specifications

AC voltage	600V
OHMS	200Ω
MEG OHM	200MΩ / 250V,
(± 3% rdg ± 3dpts)	200MΩ / 500V,
	2000MΩ / 1000V

TES-1604 Datalogging Insulation Tester (RS-232)

IEC 1010
CAT III 800V
CAT II 1000V

Ref. No : TS04 F005
Model : TES-1604



Features

- Auto range for mega ohm range
- 200mA short circuit continuity current
- Via RS-232 interface to talk with PC
- 7000 record data logging capacity

Technical Specifications

AC voltage	600V ACV (1.5% rdg + 3 dpts)
Continuity	40 Ohm (Ish > 200mA)(1% rdg + 30 dpts)
Mega OHM	(± 3% rdg ± 5Ct)
	4000MΩ / 250V w/auto-range
	4000MΩ / 500V w/auto-range
	4000MΩ / 1,000V w/auto-range
	Auto-range : 4000MΩ / 400MΩ / 40MΩ / 4MΩ

TES-1601 Auto Ranging Insulation Tester



IEC 61010
CAT III 300V
CAT II 600V

Ref. No : TS04 F003
Model : TES-1601

Features

- 200mA short circuit continuity current
- "Test Hold" function
- Backlight illumination
- 1mA test current
- 4000MΩ / V reading / 10,000MΩ analog indication

Technical Specifications

AC voltage	600V ACV
Continuity	400 Ohm (Ish > 200mA)
MEG OHM	(± 3% rdg ± 5 Ct)
	4000MΩ / 250V w/auto-range
	4000MΩ / 500V w/auto-range
	4000MΩ / 1000V w/auto-range
	Auto-range : 4000MΩ / 400MΩ / 40MΩ / 4MΩ

TES-3660 Autoranging Insulation Tester

Features

- Large LCD with analog bar graph and digital display
- 10GΩ insulation testing with automatically switch to voltage measurement
- Lo Ω function for testing connections
- Last reading HOLD display
- Auto discharge of capacitive voltage charges
- Manual data memory and read function (9 sets)



CAT III 1000V
Ref. No : TS04 F002
Model : TES-3660

Technical Specifications

Mega OHM	(± 3% rdg ± 5Ct < 1GΩ; ± 5% rdg ± 5Ct > 1GΩ)
	10GΩ / 250V, 10GΩ / 500V, 10GΩ / 1000V
	W / auto range (4MΩ / 40MΩ / 400MΩ / 4000MΩ / 10GΩ)
Lo Ω	40.00Ω (± 2% rdg ± 2 dpts)
AC voltage (50~400Hz)	999V (± 2% rdg + 2 dpts)
DC voltage	999V (± 1% rdg + 2 dpts)
Resistance	9999 Ohm (± 1% rdg + 3 dpts)

5. Electrical Testing

Prova 5601/5637 Clamp-on Ground Resistance Tester

Features

- Non-contact ground resistance measurement
- No auxiliary electrode needed
- 116 sets of memory
- Programmable high and low alarm
- Programmable data logging

Technical Specifications

Ground Resistance : 0.025 ~ 0.250 / 0.250 ~ 1.000 / 1.001 ~ 9.999 / 10.00 ~ 50.00 / 50.01 ~ 100.0 / 100.1 ~ 200.0 / 200.1 ~ 400.0 / 400.0 ~ 600.0 / 600.1 ~ 1500Ω

Ground / Leakage Current : (Autorange, 50/60Hz, True RMS, Crest factor < 3.5)

0.200 ~ 1.000 / 1.00 ~ 10.00 / 10.0 ~ 100.0 / 100.0 ~ 1000mA

0.20 ~ 15.00A / 15.00 ~ 30.00A (5601)

0.20 ~ 35.00A (5637)

Jaw Diameter : φ 23mm (5601); φ 35mm (5637)

0.2mA ~ 30A (5601); 0.2mA ~ 35A (5637)



Ref. No : TS04 F024
Model : Prova 5601

TS04 F025
Prova 5637

CAT II 600V
CAT III 300V
EN 61010-2-032

TES-1700 Earth Resistance Tester



Ref. No : TS04 F007
Model : TES-1700

Features

- Auto power off function
- 2mA measuring current permits earth resistance tests with tripping earth leakage current breakers in the circuit under test

Technical Specifications

Measuring range : 0 ~ 399.9V (50Hz, 60Hz) ± (1% rdg + 4 dgts)

Resistance : 0 ~ 39.99Ω / 0 ~ 399.9Ω / 0 ~ 3999Ω ± (2% rdg + 3 dgts)

Overload protection: Earth voltage: 400Vrms / 1 minute
Earth resistance : 250Vrms / 1 seconds

Current consumption: Range On
40Ω / 400Ω / 4000Ω 42mA
Earth V 22mA

TES-1605 Digital Earth Tester



Ref. No : TS04 F006
Model : TES-1605

Features

- Zero ohm adjustment
- Capable of measuring earth voltage
- Data hold function
- Auto power off function

Technical Specifications

Earth voltage : 0.1V, ± (1% + 4)

Earth resistance : 20Ω / ± (2% + 0.1Ω)
200Ω / 2000Ω ± (2% + 3 dgts)

Current consumption : Earth V : 22mA
20Ω / 200Ω / 2000Ω : 42mA

Overload protection : Earth voltage : 300Vrms / 1min
Earth resistance : 200Vrms / 10 sec.

5. Electrical Testing

TES-32 Battery Capacity Tester

Features

- Right device to know the "True Life" of your battery capacity (Resistive / Voltage)
- On-line testing without shutting down battery
- Built in comparator
- RS-232 interface & software
- Datalogging function

Technical Specifications

Battery types tested : Compact storage battery, Alkaline and lead-acid batteries

Frequency : 1KHz

Accuracy : $\pm 10\%$

	Ω	V
Range	40m Ω , 400m Ω , 4 Ω , 40 Ω	4V, 40V
Resolution	10 $\mu\Omega$, 100 $\mu\Omega$, 1m Ω , 10m Ω	1mV, 10mV
Accuracy	$\pm (1\% + 8 \text{ dgts})$	$\pm (0.1\% + 6 \text{ dgts})$



Ref. No : TS04 F020
Model : TES-32

TES-33 Battery Capacity Tester

Features

- Test condition without shutting down battery
- Simultaneously measure battery resistance, voltage, current & temperature
- Auto-hold and auto-data storage
- Rates conditions as Pass, Warning, or Fail
- Memory and read function
- Datalogging function
- Compact and light weight
- Manual data memory : 999 sets
- Continuous data memory : 6000 sets
- RS-232 interface / software

Technical Specifications

Battery types tested : Compact storage battery, Alkaline and lead-acid batteries

Battery capacity : 0 to 1200AH

Resistance : 4m Ω , 40m Ω , 400m Ω , 4 Ω , 40 Ω , 400 Ω

Measurement condition : Current : Approx. 40mA, 4mA, 400 μ A, 40 μ A, 4 μ A
Frequency : 1KHz \pm 30Hz

DC voltage : 6V, 60V

Temperature : -20°C ~ 60°C (-4°F ~ 140°F)

DC current : 600A

Open circuit voltage : 5V max



Ref. No : TS04 F023
Model : TES-33

5. Electrical Testing

Prova 700/710 Milli / Micro-Ohmmeter



Ref. No : TS04
Model : Prova 700

Features

- Max. test current : 5A (Prova 700), 10A (Prova 710)
- Four terminal kelvin measurement
- Best resolution $1\mu\Omega$
- Basic accuracy 0.25%
- Manual or auto range
- Measurement of resistive and inductive materials
- Cable length measurement
- Large LCD (5-digit) with backlight
- Low battery (voltage) alarm
- Low power consumption
- Rechargeable batteries and AC adaptor
- Prova 700: Rechargeable batteries
- Prova 710: Rechargeable lithium battery
- RS232C (to USB bridge) cable
- Built-in calendar clock and batteries charging circuit

Application

- Coil resistance of Electric motor
- Contact resistance of switch and relay
- Resistance of Bus bar, breaker, fuse, inductance and shunt

Prova 830 Portable Paperless Recorder



Ref. No : TS04 H021
Model : Prova 830

Features

- 5.7" color TFT LCD (320 x 240)
- 8 input temperature measurement / logging ($^{\circ}\text{C}$ / $^{\circ}\text{F}$)
- Color graphic display of 8 curves
- Digital and analog (bargraph) data display
- Selection of 11 types of thermocouple
- Basic accuracy $0.05\% \pm 1^{\circ}\text{C}$ (K type)
- Statistics data (Histogram) for easy analysis
- Programmable Hi-Lo alarm with timers
- Hide or display selected curves
- Display of max and min values for each input
- Sampling rate 8 inputs / 1 second
- 28 hours recording with lithium battery of 3400mAh
- Standard 2G SD memory card
- SD card directly read by PC
- Read & delete data files directly
- Built-in calendar clock
- Accept analog output from instruments
- Screen hardcopy for easy documentation

Prova 300XP / 310XP Portable Thermal Printer

Features

- Portable field printing for certificate
- Text and graphics
- Two selectable fonts (5 x 7 and 8 x 16)
- Programmable text header and footer
- Battery and AC power adaptor
- RS-232C interface (300XP : Optional RS-232C to USB bridge)
- Fixed interval continuous printing (5, 30, 60, 300 seconds)
- Ready for *Agilent 34401A multimeter
- User programmable printing
- With calendar clock (310XP)



Ref. No : TS04 APH001
Model : Prova 300XP

TS04 APH002
Prova 310XP

6. Environment / Air Quality Testing

Air Flow Meter (Anemometer)



Ref. No
TS18 E003
TS18 E004

Model
AVM-05
AVM-07

AVM05/AVM07 anemometer is a device used for measuring air velocity that can track the maximum and minimum values along with current reading. The unit relies upon a low friction ball bearing mounted wheel design to provide high accuracy and better performance.

Features

- Air Flow (CFM, CMM)
- Instant, Ave, 2/3max flow measurement
- Air velocity m/s, ft/min, knots, Km/hr, mph
- Memory of 2000 records (AWM - 07)
- Data transfer RS-232 (AWM - 07)

Specification

Range of wind velocity	: 0.0 - 45.0 m/s
Threshold	: 0.3m/s
Resolution	: 0.1
Accuracy	: $\pm 3\%$ reading ± 0.1
Wind temperature	: 0 - 45°C

Hot-Wire Anemometer



Ref. No
T118 E020
T118 E021

Model
TES1340
TES1341

TES1340 / TES1341 hot wire anemometer with special designed fast response telescopic probe. By this special design probe allows us to measure air flow for special applications. It is easy and safe for smaller area application like piping area or flow hood.

Features

- Fast response probe
- Air flow volume (CFM, CMM)
- Instant, Avg, 2/3Vmax flow measurement
- Velocity m/s, ft/min, knots, km/hr, mph
- Relative humidity measurement, DEW point & Wet bulb function (TES1341)
- Data hold & maximum / minimum with time stamp
- Manual data memory and read function (99 sets)
- Auto datalogging capacity (20,000 sets) (TES1341)
- LCD five display
- Backlight function
- USB PC interface function (TES1341)

Specification

	Measuring Range	Resolution	Accuracy
Air Flow	0.1 to 30.0m/s	0.01m/s	$\pm 3\%$ of reading $\pm 1\%$ FS
Air Flow Volume	0 to 999900 CFM	0.001 CFM	
	0 to 999900 CMM	0.001 CMM	
Temperature	-20°C to +60°C	0.1°C	$\pm 0.5^\circ\text{C}$
Humidity	0 to 100% RH	0.1% RH	$\pm 3\%$ RH

Highly Accurate Anemometer



Ref. No
TS18 E005
TS18 E006
TS18 E007

Model
AVM-301
AVM-303
AVM-305

AVM301 / AVM303 / AVM305 models with ergonomic design are easy to use for monitoring air properties. They are more sensitive and provide more accurate measurement with lower power consumption.

Features

- Large 4 digits LCD (Liquid Crystal Display)
- 1.8 meters coiled cable and mounting nut for long extension
- Hold / Max / Min / Ave functions
- Build-in low battery indicator
- Smart auto-power-off (10 minutes)
- RS-232C interface with PC (AVM-303 / AVM-305)
- Optional thermal printer PROVA 300XP (AVM-303 / AVM-305)
- Air temperature measurement (AVM-305)

Specification

Range of wind velocity	: 0.0 - 45.0m/s
Threshold	: 0.3m/s
Resolution	: 0.01
Accuracy	: $\pm 3\% \pm 0.2$
Range of wind temperature (AVM-305)	
<i>Unit</i>	<i>Range</i>
$^{\circ}\text{C}$	0.0 - 40.0
	40.0 - 60.0

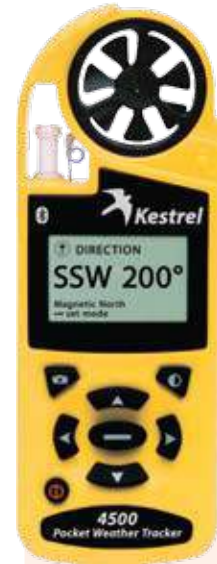
6. Environment / Air Quality Testing

Kestrel 1000 / 2000 / 3000 / 4000 Series

The Kestrel Pocket Anemometer is a small electronic rotating vane type of anemometer that can be easily carried in a pocket. It uses high precision jewel bearing and a light weight impeller to provide accurate wind and air flow measurements even at low speeds.

Features

- Small, robust design, rugged, drop tested
- Data hold function / maximum and minimum values
- Large easy to read display (K2000 / 3000 / 4000 with backlight)
- Waterproof and floats
- High precision jewel mounted impeller
- Replaceable impeller assembly
- Patented impeller and sensor technology
- Fast response external temperature sensor
- Temperature corrected humidity sensor
- Long life lithium battery
- Low cost
- Includes protective cover, lanyard and battery



Specifications

	Range / Accuracy	Kestrel 1000	Kestrel 2000	Kestrel 3000	Kestrel 4000
Current wind speed	0.4 ~ 60.0m/s / $\pm 3\%$	✓	✓	✓	✓
Max wind gust		✓	✓	✓	✓
Average wind speed		✓	✓	✓	✓
Temperature	-45 ~ +125°C / 1.0°C (Operational Temperature -10°C ~ +55°C)		✓	✓	✓
Wind chill			✓	✓	✓
Relative humidity	0.0 ~ 100.0%RH / 3.0%RH			✓	✓
Heat stress index				✓	✓
Dewpoint temp				✓	✓
Wet bulb temp					✓
Barometric pressure					✓
Altitude					✓
Backlit display			✓	✓	✓

6. Environment / Air Quality Testing

TES-1390/1391/1392 EMF Tester (Single axis)

Ref. No	Model
TS09 C004	TES-1390
TS09 C005	TES-1391
TS09 C006	TES-1392



Features

- Measures EMF (Electro Magnetic Field) strength
- Data hold / peak hold function to capture the highest EMF strength automatically
- RS-232 interface / software for TES-1391 / TES-1392
- Stand-alone datalogging function for TES-1392 (15,750 points)

Specification

Display	3 - 1/2 digits, max. indication 1999
Range	200/2000 milli Gauss; 20/200 micro Tesla
Resolution	0.1/1 milli Gauss; 0.01/0.1 micro Tesla
Accuracy	± (3% + 3d) at 50Hz / 60Hz
Number of axis	Single axis
Band width	30Hz ~ 300Hz
Datalogging capacity (TES-1392)	: 16,000 points
Sampling time	Approx. 0.4 second

TES-1393/1394 EMF Tester (Three axis)

Ref. No	Model
TS09 C007	TES-1393
TS09 C008	TES-1394



Features

- Triple LCD display to show X, Y, Z, axis each EMF reading and plus average reading X+Y+Z/3
- Max / Min / AVG reading
- Stand-alone datalogging function
- RS-232 interface / software for TES-1394

Specification

Display	3 - 1/2 digits, max. indication 1999
Range	20/200/2000 milli Gauss; 2/20/200 micro Tesla
Resolution	0.01/0.1/1 milli Gauss; 0.001/0.01/0.1 micro Tesla
Accuracy	± (3% + 3d) at 50Hz / 60Hz ± (5% + 3d) at 40Hz ~ 200Hz
Number of axis	Three axis
Band width	30Hz ~ 2000Hz
Datalogging capacity	: 999 points
Sampling time	Approx. 0.5 second

Features

- 50MHz to 3.5GHz frequency range (TES-92 only)
- Frequency range 10MHz to 8.0GHz (TES-593 only)
- For isotropic measurements of electromagnetic fields
- Non-directional (isotropic) measurement with three-channel measurement probe
- High dynamic range due to three-channel digital results processing
- Configurable alarm threshold and memory function
- Easy & safe to use

Applications

- High frequency (RF) electromagnetic wave field strength measurement
- Mobile phone base station antenna radiation power density measurement
- Wireless communication application (CW, TDMA, GSM, DECT)
- RF power measurement for transmitters
- Wireless LAN (Wi-Fi) detection, installation
- SPY camera, wireless bug finder
- Cellular / cordless phone radiation safety level
- Microwave oven leakage detection
- Personal living environment EMF safety

TES-92 Electro Smog Meter TES-593 Electro SMOG Meter (3 axis)



Ref. No : TS09 C009
Model : TES-92

Ref. No : TS09
Model : TES-593



6. Environment / Air Quality Testing

4180 / 4190 ELF Meter



Lightweight and completely self contained, the easy to use 4100 Series ELF meters are for commercial or home use. The 4100 series accurately measures Extremely Low Frequency Magnetic Fields generated by electrical equipment. Applications include detecting magnetic field emission from a wide variety of sources, including video display terminals, AC power lines, office equipment, household appliances, and all types of electronic equipment.

Features

X-Switchable Single Axis Mode - This 4190 / 4180 feature allows users to display the vector components of the magnetic field. This option should be specified in applications that require the direction of the magnetic field be known as well as the level (User activated through sequence of key strokes)

F20-Extended Bandwidth - This feature extends the -3dB frequency response of the instrument from 20 to 2,000Hz and is included with all 4180 and 4190 ELF meters. This is useful if the measurements are required for sources with high harmonic content. Standard calibration frequency of 55Hz covers both 50Hz and 60Hz with a 2% variation

Specification

Ref. No	SY09 C005	SY09 C004
Model	4180	4190
Measuring Ranges	0.1 to 599mG 0.01 to 59.9μT	0.1 to 1999mG 0.01 to 199.9μT
Basic Accuracy	± (2% + 1 digit) typical	± (1% + 1 digit) typical
Frequency Range ± 5%	30 - 2kHz	30 - 2kHz
Operating Temperature	-10°C to +50°C	-10°C to +50°C
Data Logging	No	Yes, including software

5170 / 5180 Hall Effect Gaussmeter



This 5100 series Hall effect portable gaussmeters represent the most recent design from the world leader in magnetic measuring equipment. This new design incorporates the use of digital signal processing technology making it the world's first hand-held gaussmeter to have a digital signal processor (DSP) on board. Readings in Gauss, Tesla, Amps / meter.

Specification

Model	5170	5180
Basic DC Accuracy	2%	1.1%
Frequency Bandwidth	DC-20kHz	DC-25kHz
Update Rates		
Display	4 reading / sec	4 reading / sec
Analog Output	None	100K samples/sec
Ranges		
Ultra low range (low-field probe only)	1G	1G
Low range	200G	300G
Mid range	2kG	3kG
High range	20kG	30kG
Resolution		
Ultra low range (low-field probe only)	1mG	1mG
Low range	0.1G	0.1G
Mid range	1.0G	1.0G
High range	10G	10G

Features

Ref. No	SY09 B007	SY09 B008
Model	5170	5180
Probe Included	✓	✓
Auto Zero	✓	✓
Min / Max Hold	✓	✓
True RMS	✓	✓
Auto Range	✓	✓
True Peak Hold	✓	✓
Relative Mode	✓	✓
Outputs (analog)	✓	✓
USB Communication Port	✓	✓

6. Environment / Air Quality Testing

Gauss / Tesla Meter 8000 series

Available for the single-channel and three-channel with high accuracy instruments fully equipped to meet most all magnetic measuring applications.



Features

- WVGA, TFT colour LCD
- Fully menu-driven for easy operation
- Auto zero and auto calibration
- Over 40 standard probes available
- Automatic probe coefficient correction
- Displays in Gauss, Tesla, Amps / meter or Oe
- Peak / valley capture
- Relative mode
- IEEE-488, RS-232 interface and USB 1.1

Specification

Range	: 300mG - 300kG(30T)
Accuracy	: DC - $\pm 0.05\%$ of reading AC mode - $\pm 2\%$ of reading
Resolution	: 1 μ G (0.1nT) to 1G (0.1mT)

FW Bell 6010 Gaussmeter

The Model 6010 hall-effect gaussmeter represents the latest innovations and state of the art designs from the world leader in magnetic measuring equipment. F.W. Bell's exclusive *Dynamic Probe Correction* feature, along with temperature compensation, allows measurements up to 300kG with a basic accuracy of 0.25%. Applications for the Model 6010 range from most sensitive laboratory environments to rugged industrial settings.



Specification

Range	: 1mG (0.1 μ T) to 300kG (30T)
Accuracy	: DC mode $\pm 0.25\%$ of reading AC mode $\pm 1.0\%$ of reading
Temperature Measurement Range	: -40°C to 85°C
Resolution	: 1mG (0.1 μ T) to 100G (10mT)

Features

- Large format LCD display
- Dual 3 $\frac{3}{4}$ digit readouts
- Temperature measurement
- Displays in Gauss, Tesla or Ampere / Meters
- Peak hold
- Corrected analog output
- Auto range
- Temperature compensated probes
- Auto zero / auto calibration
- RS-232 interface

Eikon



Disposable / Recyclable Personal Gas Monitor

Eikon is an easy to use entry level gas detector designed without compromise on robustness or safety performance. Featuring loud audible and bright visible alarms, the unit is permanently "on" after activation and requires minimal training making it ideal for contractor or mass workforce use. Self test, lifetime and bump station functionality complete its appeal.

- No set up; minimal training
- H₂S, CO, Cl₂, NH₃, O₂ or H₂S+CO dual gas versions
- Loud and bright alarms
- Rugged and tough to IP65
- Two year guaranteed life

Typical ranges and alarms

Gas	Range	Standard Alarm (UK)
H ₂ S	0-50ppm	5ppm
CO	0-500ppm	30ppm
O ₂	0-25% VOL	19% VOL
NH ₃	0-50ppm	25ppm
Cl ₂	0-5ppm	0.5ppm

Eikon is also available in a dual CO/H₂S version

Specification

Approval Codes

Europe ATEX II 1G Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +50°C)

BASEEFA09ATEX0247

IECEX BAS 09.01 14

International Class 1, Div 1 Groups A, B, C, D

N. America

Safety Standard

Europe & EN50014, EN50022, prEn50271

International UL913 & CSA22.2

N. America

Gasman



Single Gas Personal Monitor

Gasman is a full function personal single gas monitor which is compact and lightweight yet fully ruggedised for the toughest of industrial environments. All Gasman units feature the same simple functionality in the same package, no matter which gas. Straight forward, one button operation minimises training while an easy to read display and clear alarms maximise protection.

- Simple, one button operation and large easy to read display
- Smallest flammable gas personal monitor on the market
- Wide range of toxic gases, oxygen and flammable gas models all in the same package
- Rugged and tough to IP65 yet lightweight
- High specification audible, red / blue visual and vibrating alarms
- Data logging as standard

Typical ranges and alarms

Gas	Range	Standard Alarm (UK)
Flammable	0-100% LEL	20% LEL
Oxygen	0-25%	19 / 23%
Hydroden sulphide	0-100ppm	5ppm
Carbon monoxide	0-500ppm	30ppm
Sulphur dioxide	0-20ppm	1ppm
Chlorine	0-20ppm	0.5ppm
Nitrogen dioxide	0-20ppm	1ppm
Ammonia	0-100ppm	25ppm
Ozone	0-1ppm	0.1ppm
Hydrogen	0-1000ppm	N/A
Hydrogen cyanide	0-25ppm	5ppm
Hydrogen fluoride	0-10ppm	1ppm
Phospine	0-5ppm	0.2ppm
Fluorine	0-1ppm	0.1ppm
Phosgene	0-1ppm	0.1ppm
Nitric oxide	0-100ppm	25ppm
Carbon dioxide	0-5%	0.5%

Specification

Approval Codes

Europe Toxic/O₂: ATEX II 1G Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +65°C)

BASEEFA04ATEX0384

Flammable: ATEX II 2G Ex ia d IIC T4 Gb (-20°C ≤ Ta ≤ +65°C)

BASEEFA04ATEX0383

International

Toxic/O₂: IECEx BAS05.0039

Flammable: IECEx BAS05.0038

N. America

CSA Class 1 Groups A, B, C, D Division 1

Standards Safety

Europe

EN60079-0, EN60079-11, EN60079-1, 94/9/EC

N. America

CSA22.2, 152

Operation Standards

EN50270, EN50271, IEC61508, EN61779, EN45544

6. Environment / Air Quality Testing



Ref. No : TS06 B042
Model : TES 1370A

TES-1370 NDIR CO₂ Meter

This is a diffusion sampling CO₂ meter that is based on maintenance free NDIR infrared sensor.

Features

- Three LCD display for CO₂, %RH Humidity and air temperature
- Data hold & maximum / minimum with time stamp
- Data memory and read function
- Alarm and time setting
- RS-232 function / software
- Backlight display function
- Simple and safe to use

Specification

Measuring Range	CO ₂	: 0 - 6,000ppm
	Temperature	: -20°C - 60°C
	Humidity	: 10%RH - 95%RH
Resolution	CO ₂	: 1ppm, 0.1°C / 0.1%RH
Accuracy	CO ₂	: ± 3% of reading or ± 50ppm
	Temperature	: ± 0.5°C
	Humidity	: ± 3%RH
Manual Data Memory	99 sets (Direct reading from LCD display)	
Auto Memory Capacity	Approx. 20,000 sets	



Ref. No
TS06 B043
TS06 B044

Model
TES 1372
TES 1372R

TES-1372 / 1372R CO Analyzer

CO analyzer is a device that detects the presence of the carbon monoxide gas produced by incomplete combustion and sound an alarm before dangerous levels of CO accumulate in an environment.

Features

- CO range : 0 - 999ppm (CO)
- Max hold with time stamp / STEL, TWA
- Alarm level setting
- Replaceable sensor extends meter life
- Stabilized electrochemical CO sensor
- Automatic sensor zeroing upon start-up
- Auto power-off time setting
- Typical three year sensor life, one year calibration cycle
- Manual data memory (999 sets)
- Auto datalogger (10,000 sets) (1372R)

Specification

Range	: 0 - 999ppm
Resolution	: 1ppm
Accuracy	: ± 5% of reading or 2ppm, which ever is greater
Sensor Type / Life	: Stabilized electrochemical Gas-specific / 3 years
Manual Data Memory Capacity	: 999 sets (Direct reading from LCD display)
Auto Data Memory Capacity	: 10,000 sets (Only downloaded by PC) (1372R)

Tetra 3



Compact Multi-Gas Personal Monitor

Tetra 3 is the leading top-display multi-gas monitor on the market. Compact and simple to use, but packed with functionality such as data logging and twin colour alarms, the unit has earned an enviable reputation for robust performance in confined space entry and other demanding industrial applications.

- Up to 4 simultaneous gas measurements in a small lightweight design, Gases include: CO, H₂S, LEL, O₂, O₃, SO₂, CO₂, & NH₃
- Single button operation for all functions, even with gloved hands
- Water and dust resistant to IP65/67, can be submerged in water
- Top mounted, backlit display of all gas readings, diagnostics and battery life
- Rugged impact resistant design provides extra shock and vibration protection
- Complete with audible visible and vibrating alarm

Typical ranges and alarms

Gas	Range	Standard Alarm (UK)
Flam	0-100% LEL	20%
O ₂	0-25%	19/23.5%
H ₂ S	0-100ppm	5ppm
CO	0-500ppm	30ppm
SO ₂	0-20ppm	1ppm
O ₃	0-1ppm	0.1ppm
NH ₃	0-100ppm	25ppm
*CO ₂	0-5%	0.5%

Specification

Approval Codes

Europe ATEX II 2G Ex ia IIC T4 Gb (-20°C ≤ Ta ≤ +55°C)
BASEEFA05ATEX0187

International IECEx Ex ia d IIC T4 Gb (-20°C ≤ Ta ≤ +55°C) BAS05.0059

N. America CSA Class 1, Division 1 Groups A, B, C, D

Safety Standard

Europe EN60079-0, EN60079-11, EN60079-1, 94/9/EC

N. America CSA22.2, 152

Operation Standards EN50270, EN50271, EN50104, EN45544, EN60079, IEC61508

Tetra



Pumped Multi-gas Personal Monitor

Tetra is a multi-gas monitor for the detection of oxygen and a wide range of flammable and toxic gases. Available with or without an internal pump and powered by either rechargeable or disposable batteries Tetra offers flexibility, assurance and robustness.

- Built-in extractive sample pump option
- Up to four gases measured including a wide range of flammables and toxics
- Unique red / blue visual alarm, audible and vibrating alarms as standard
- Single button operation for all functions, even with gloved hands
- Rugged and robust, IP65 ingress protection
- Threshold, data and event logging as standard

Typical ranges and alarms

Gas	Range	Standard Alarm (UK)
Flammable	0-100% LEL	20% LEL
Oxygen	0-25%	19 / 23%
Hydrogen sulphide	0-100ppm	5ppm
Carbon monoxide	0-500ppm	30ppm
Sulphur dioxide	0-20ppm	1ppm
Chlorine	0-20ppm	0.5ppm
Nitrogen dioxide	0-20ppm	1ppm
Ammonia	0-100ppm	25ppm
Ozone*	0-1ppm	0.1ppm
Hydrogen	0-1000ppm	N/A
Hydrogen cyanide	0-25ppm	5ppm
Hydrogen fluoride	0-10ppm	1ppm
Phosphine	0-5ppm	0.2ppm
Fluorine	0-1ppm	0.1ppm
Phosgene	0-1ppm	0.1ppm
Carbon dioxide	0-5%	0.5%

Specification

Approval Codes

Europe ATEX II 2G Ex ia IIC T4 Gb (-20°C ≤ Ta ≤ 55°C)
BASEEFA 03ATEX0193

International IECEx Ex ia d IIC T4 Gb (-20°C ≤ Ta ≤ 55°C) BAS04.0024

N. America CSA UL/cUL Class 1 Division 1 Groups A, B, C, D

Safety Standards

Europe EN60079-0, EN60079-11, EN60079-1, 94/9/EC

N. America UL913, CSA22.2, 152

Operation Standards EN50270, EN50271, IEC61508, EN61779, EN45544

Gas-Pro



Designed with confined space workers and fleet managers in mind, Gas-Pro offers detection of up to 5 gases in a compact, rugged solution capable of withstanding harsh environments and everyday use.

Confined Space Solution

- Easy to see top mount display, dual (green / red) backlight
- Internal pump (option)
- Automatic fail safe flow plate recognition
- Specific and unique Pre-Entry mode
- +ve Safety™ (Positive Safety) tri-colour status indicator
- Integral over moulded anti-shock case
- Simple single button operation
- Portable, wall and desk mount gas test solutions

Flexible

- Tailor +ve Safety™ to organisational requirements
- Monitor 5 gases from many different options
- Multipurpose; pumped and diffusion solutions offering multiple uses within one compact detector

Typical ranges and alarms

Gas	Range	Typical Alarm	Resolution
Dual toxic	H ₂ S 0-100ppm	5ppm	1ppm
	CO 0-500ppm	30ppm	1ppm
Oxygen	0-25% VOL	19/23% VOL	0.1% VOL
Flammable*	0-100% LEL	20% LEL	1% LEL
Carbon dioxide	0-5% VOL	0.5% VOL	0.01% VOL
<i>Scheduled for release (contact Crowcon for timescales)</i>			
Ammonia	0-100ppm	25ppm	1ppm
Sulphur dioxide	0-20ppm	1ppm	0.1ppm
Ozone	0-1ppm	0.1ppm	0.01ppm
Chlorine	0-5ppm	0.5ppm	0.1ppm
Chlorine dioxide	0-1ppm	0.1ppm	0.1ppm
Nitric Oxide	0-100ppm	25ppm	1ppm
Nitrogen dioxide	0-20ppm	1ppm	0.5ppm

Specification

Alarms	audible > 95dB @ 30cm, Visual - all angle dual red/blue LEDs, vibrating alert
Display	Top mount for easy of view, with dual colour backlight (green/red)
Data Logging	125hrs @ 10 sec. intervals (45,000 logs)
Event Logging	Alarm, over range, calibration, pump, on/off, TWA, 1000 events
Battery	Rechargeable Li-ion, >14 hrs (13 hrs pumped operation)
Sampling	Internal pump as option
Ingress Protection	Independently tested to IP65 & IP67
Approvals	IECEX: Ex d ia IIC T4 Gb Tamb -20°C to 55°C
	ATEX: Ex II 2G Ex d ia IIC T4 Gb Tamb -20°C to 55°C
	UL: Gas detector use in hazardous locations Class 1 Division 1 Groups A, B, C & D only as to intrinsic safety
Compliance	FCC and CE, complies with EMC directive 2004/108/EC EN50270 and ICES-003

Triple Plus+ & Triple Plus+ IR



Multi-gas and Purge Monitor

Triple Plus+ has earned the respect of users across the globe for providing rugged, easy to use protection with maximum sensor flexibility. The Triple Plus+ IR adds even more options, using infrared sensors for the detection and measurement of flammable hydrocarbons and carbon dioxide. IR technology enables use in high flammable gas concentrations that would damage pellistors, and in inert backgrounds such as purge applications.

- Ideal for purging applications
- Event, user and site names logging
- Loud and bright audible and visual alarms
- Internal pump option for remote sampling
- Dual or single range IR sensor in combination
- Most popular multi gas detector ever, over 60,000 units supplied worldwide
- IP65 ingress protection

Typical ranges and alarms

Gas	Range	Typical Alarm (UK)
Flam	0-100% LEL	20% LEL
Flam	0-100% vol	No alarm (Triple Plus+ IR only)
CO ₂	0-2%	0.5/1.5% (Triple Plus+ IR only)
O ₂	0-25%	19/23%
H ₂ S	0-50ppm	5ppm
CO	0-500ppm	30ppm
SO ₂	0-10ppm	1ppm
Cl ₂	0-5ppm	0.5ppm
NO ₂	0-10ppm	1ppm
PH ₃	0-2ppm	0.1ppm
NH ₃	0-50ppm	25ppm
H ₂ (non-Flammable)	0-2000ppm	N/A
HCN	0-25ppm	10ppm
HCI	0-10ppm	1ppm
F ₂	0-10ppm	1ppm (Triple Plus+ only)
HF	0-10ppm	2ppm (Triple Plus+ only)
ETO	0-10ppm	5ppm (Triple Plus+ only)
CIO	0-1ppm	0.1ppm (Triple Plus+ only)
NO	0-100ppm	25ppm (Triple Plus+ only)

Specification

Approval Codes

Europe	ATEX II 2G: Ex ib d IIC T4 Gb
N. America	Class 1, Division 1 Groups A, B, C, D

Safety Standard

Europe	EN50014, EN50020, 94/9/EC, EN50081-2, EN50270, EN50082-2, SFA3009
N. America	UL 913, CSA22.2 157

6. Environment / Air Quality Testing

Detective+



Transportable Area Gas Monitor

Detective+ is ideally suited to provide safety perimeter or area monitoring. Able to be quickly and securely linked together, loud and clear alarms can be transmitted between Detective+ units with high integrity, while fixed or folding leg options allow stacking for convenient storage. An internal pump option further extends use to include remote sampling.

- Wide range of gases and sensors, including infrared
- Rugged, easy to set up, convenient to store design
- 104dBA audible and multiple LED cluster visual alarms
- Long battery life
- Raised detectors and IP65 specification provide excellent sensor protection

Typical measuring ranges and alarm settings

(up to four gas measurement channels)

Gas	Standard Range	Typical Alarm Level
Flammable	0-100% LEL	20% LEL
Oxygen	0-25%	19% & 23%
Hydrogen sulphide	0-50ppm	10ppm
Carbon monoxide	0-500ppm	35ppm
Sulphur dioxide	0-10ppm	2ppm
Chlorine	0-5ppm	0.5ppm
Nitrogen dioxide	0-10ppm	2ppm
Phosphine	0-5ppm	0.5ppm
Ammonia	0-50ppm	25ppm
	0-1000ppm	N/A
Hydrogen	0-2000ppm	N/A
(non-flammable levels)		
Hydrogen cyanide	0-25ppm	10ppm
Hydrogen chloride	0-10ppm	5ppm
Chlorine dioxide	0-1ppm	0.1ppm
Hydrogen fluoride	0-10ppm	1ppm
Ethylene oxide	0-10ppm	5ppm
Volatile organic	0-100ppm	N/A
Infrared Sensors		
Flammable	0-100% LEL	20% LEL
	0-100% v/v	None
	available for methane, propane, butane or ethylene	
CO ₂	0-5.0% v/v	0.5 / 1.5% v/v

Specification

Approvals	Europe: ATEX II 2G EEx ib d IIC T4 USA and Canada: Class 1 Division 1 Groups A, B, C, D (Pending)
Standards	EN50014, EN50018, EN50020, EN50104, EN45544, UL913 (Pending)
EMC	EN50270, FCC CFR47 Part 15, IC ICES03

Spygas Leak Detector



The Spygas range combines sensitive high capacity sensors with an easy to use one-button operation. Designed to provide easy access for hard to reach areas whilst fitting into work clothes and tool pouches.

Regged

- Robust splash proof design
- Tough plastic enclosure
- Slim enough to fit into overall and tool pouches
- Easy to reach around pipework and other inaccessible areas

Alarms

- Both audible and LCD visual indicators
- Crescendo alarm, rising with concentration levels

Reliable

- Battery level indicator
- Automatic backlight
- Powered by commonly available AA alkaline or rechargeable batteries (X2)

Applications

Spygas CO	CO emissions from boilers CO emissions for hot air furnaces Combustion checks on fires, grills and hobs Ambient CO room levels
Spygas Gas	Checking of tightness of pipe joints Replacement of spray leak fluids Hard to reach / dark test points
Spygas Freon	Checking of tightness of pipe joints Location of Freon leaks Hard to reach / dark test points

Specification

	Spygas Gas	Spygas CO	Spygas Freon
Detects	Flammable gas (methane)	Carbon monoxide	R134A, R22, R407A, R410C
Maximum range	10,000ppm	10,000ppm	10,000ppm
Display type	LCD with three bar display and automatic backlight	LCD with numeric display to 1ppm and automatic backlight	LCD with three bar display and automatic backlight
Display range	100, 1,000 and 10,000ppm	0-999ppm above 999ppm display reads "Hi"	100, 1,000 and 10,000ppm

6. Environment / Air Quality Testing



LaserMethane® mini Gen2

Methane Detection at a Distance

Utilising laser technology, LaserMethane® mini Gen2 (LMm) allows users to reliably and accurately detect methane, at a safe distance. Get results in seconds by simply pointing the laser beam towards the suspected leak, or along the survey line. This removes the need to access fenced-off, high level or other hard to reach areas.

Specifications

Target Gas	Methane (CH ₄)
Detection distance	30m standard mode, up to 100m with reflector
Measuring range	1-50,000ppm.m
Measuring Accuracy	± 10% @ 100ppm.m (2m) ± 10% @ 1000ppm.m (2m)
Detection speed	0.1 seconds (approx)



Multifunction Flue Gas Analysers

Reflecting over 30 years experience in flue gas analysis, the Sprint V range is designed to assist heating engineers in the safe installation, commissioning and servicing of boilers and other combustion systems.

Specifications

Parameters	Range	Resolution	Accuracy
Oxygen	0-25%	0.1%	± 0.2%
Carbon monoxide (H ₂ compatible)	0-4000ppm	1ppm	<100ppm ±3ppm, >100ppm, ± 3% of rdg.
Nitric oxide	0-1000ppm	1ppm	± 1ppm
Carbon dioxide (calculated)	0-25%	0.1%	± 0.2%
Pressure (mbar, PSI etc.)	±200mBar	0.01mBar	± 0.5mBar
Temperature	-50° - 1100°C	± 1°C	± 1°C or 0.3% of reading
CO/CO ₂ ratio	0-0.9999	0.0001	
Excess air	0-250%	1%	
Efficiency	0-120%	0.1%	
Gas escape probe	0-10,000ppm natural gas		

Function	Functionality	V2	V3	V4	V5
Standard fuels selectable from menu	Natural gas, LPG, heavy oil, light oil, coal, bagasse, biomass, wood, coke and wood pellets (others on request)	✓	✓	✓	✓
Menu	Easy menu navigation and simple soft key operation	✓	✓	✓	✓
Function buttons/key pad	5 button keypad	✓	✓	✓	✓
Alarm	Carbon monoxide audible and screen alarm for danger levels	✓	✓	✓	✓
Smart purge	Intelligent pump speed control. Built-in flow fail and blockage indication	✓	✓	✓	✓
Carry case	Handy and durable kit hold-all supplied as standard	✓	✓	✓	✓
Water trap / filter	Combined twin chamber high capacity water trap and particular filter, protects instrument from damage	✓	✓	✓	✓
Standards	BS7967	✓	✓	✓	✓
Calibration due	2 week calibration due warning provided by instrument	✓	✓	✓	✓
Data logging reports	Up to 200 reports, depending on type. Log recall on-screen. Output log to PC	✓	✓	✓	✓
Bluetooth™	Communication to PDA and PC	✓		✓	
Flue gas measurement	CO, CO ₂ , CO/CO ₂ ratio, efficiency (gross, net or net condensing), oxygen, XSAir, temperature (°C or °F) NO and NOx flue gas capacity	✓	✓	✓	✓
Pressure and differential pressure	Differential pressure & dedicated, gas leakage pressure tests	✓	✓	✓	✓
Differential temperature	Differential temperature with single or twin probes	✓	✓	✓	✓
Carbon monoxide room test	Dedicated carbon monoxide room build up test or BS7967 CO room safety tests	✓	✓	✓	✓
Gas escape test	Via gooseneck sensor probe fitted with ultra-bright white LED searchlight				option



Tempest

Flue Gas Analysers

The Tempest range offers a rugged and reliable solution for monitoring combustion performance and carrying out emissions analysis. Fast and effective monitoring and logging of a range of gases which can be used to meet specific monitoring requirements, reduce service costs and ensure the safe operation and efficiency of appliances.

Measures

- Tempest 50 provides determination of CO, CO₂, O₂ and NO
- Tempest 100 enables up to 7 gases to be analysed by addition of NO, SO₂ and H₂S sensors
- Calculates CO₂, boiler CO₂ / CO ratio and efficiency reading
- Positive and negative pressure with differential measurement
- Differential temperature measurement with two thermocouples
- Gross or net efficiency selection

Professional standard

- Robust, splash proof design
- High quality stainless steel probe

Reporting

- Built-in printer for easy report keeping
- Data output to printer or PC
- Storage log of flue gas analysis reports

Specifications

Draught / Pressure measurement

Range	+/- 150mBar (+/- 61inWG)
Resolution	0.01mBar (0.4inWG)
Accuracy	+/- 0.5% fsd

Probe

Construction	Pistol grip, 250mm (10") stainless steel probe with depth gauge and 2.5m (8.2") hose
Max Temperature	800°C
K-type Thermocouple	+/- 0.3%; +/- 1°C



Gases	Range	Resolution
Oxygen	0-25%	0.1%
Carbon Monoxide	0-10,000ppm	+/- 1ppm
Nitric oxide	0-1,000ppm	+/- 1ppm
Carbon dioxide (calculated)	0-25%	
CO / CO ₂ ratio	0-0.9999	
Combustion efficiency	0-100%	
Optional Sensors (Tempest 100 only)		
Nitrogen dioxide	0-200ppm	+/- 1ppm
Sulphur dioxide	0-2,000ppm	+/- 1ppm
Hydrogen sulphide	0-200ppm	+/- 1ppm
High capacity carbon monoxide	0-100,000ppm	+/- 1ppm
H ₂ compensated carbon monoxide	0-100,000ppm	+/- 1ppm

Gas-Tec

Hydrocarbon Gas Detector for leak survey and localisation

Gas-Tec is a portable gas detector for rapid survey and leak localisation. GPS, data and event logging allow survey teams to track progress and pinpoint areas of significant interest. Flame Ionisation Detector offering ppm level indication.



Specifications

Sensor	Flame Ionisation Detection (FID)
Gas	Calibrated to Methane (CH ₄) Other correction factors available
Range	0 - 100ppm 0 - 1000ppm 0 - 10,000ppm
Accuracy	+/- 10%
Response time	< 2 seconds
Ingress protection	IP54
Data / Event / GPS logging	21 million log entries giving over 700 days logging activity
GPS	Accurate to within 10m with 5 satellite lock

Autofim II

Portable Flame Ionisation Detector

Autofim II and Autofim II GC give you the flexibility and confidence you need to detect, measure and analyse hydrocarbon gases in virtually any hazardous location from petrochemical plants and gas works to landfill sites. These versatile products cover a wide range of applications including: volatile organic compound monitoring, fugitive emissions, process control, gas leak surveying, contaminated land and landfill sites.

Sophisticated datalogging system, capable of storing 200,000 individual readings.

Autofim II GC, with in-built gas chromatography, can not only detect gas with all the benefits of Autofim II but can also determine its composition on-site.

Detailed analysis

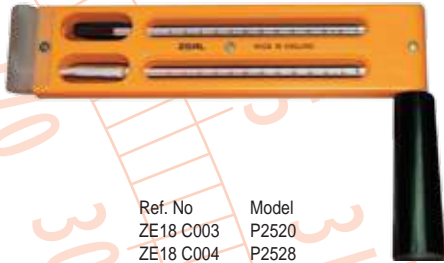
Data can be downloaded to an external PC for further analysis and presentation. The Integrat software package, specifically designed for Autofim, analyses the data and displays a range of parameters including: retention times, peak identification, peak areas, methane / ethane ratios and relative concentrations. Graphical and tabular formats are available.

Specifications

Range	0 - 10,000ppm (methane)
Detection limit	0.1ppm (methane)
Approvals	EEx ib IIC T4, EEx d IIC T4
Standards	EN50014, EN50018, EN50020
RF radiation	EN50081-1
RF immunity	EN50082-1

6. Environment / Air Quality Testing

Whirling Hygrometer



Ref. No Model
ZE18 C003 P2520
ZE18 C004 P2528

P2520 - Mercury, P2528 - Red Spirit

Whirling Hygrometer is housed in a robust plastic frame with folding handle the instrument incorporates a water cistern linked to 'wet' bulb by a means of a cotton sleeve. It produces wet and dry bulbs readings that will be used to tabulate value of relative humidity by using a conversion chart.

Technical Specifications

Range R.H. : 1 to 99% RH
 Temp. : -5 to +50°C

Dewpoint Calculator



Ref. No : TQ18 C016
Model : Dewpoint calculator

Simple calculator for determining the dew point and relative humidity using the measurements carried out with a sling psychrometer measured in the wet / dry bulb principle or an electronic temperature and relative humidity meter.

Features

- Provides Accurate Values of dew point and Relative Humidity from wet and dry bulb temperatures measured by sling psychrometer or whirling Hygrometer
- Portable easy to use and read

Specifications

Temperature Range : -10 to +50°C

Hygro-thermometer / Data Logging Humidity Temperature Meter



Ref. No Model
TS18 C007 TES1364
TS18 C008 TES1365

TES1364 / TES1365 are common device used in measuring surrounding air humidity and temperature.

Model TES1365 with RS232 output and special software allow the saved data to be transfer to PC for further analysis as well as for real time data analysis.

Features

- Detachable sensing probe
- Data hold, MIN / MAX function
- Dual LCD display with Bargraph indication
- Datalogging capacity 15,000 dual reading (%RH & Temp.) (TES1365)
- Dew point reading, wet bulb reading
- RS232 interface & window software (TES1365)

Specifications

Range Temperature : -20°C ~ 60°C
 Humidity : 1%RH ~ 99%RH

Resolution 0.1°C / 0.1%RH

Accuracy Temperature : ± 0.5°C
 Humidity : ± 3%RH

Manual recording : 99 data sets

Datalogging / continuous recording : 15,000 data set (TES 1365)

6. Environment / Air Quality Testing

Robust Dewpoint Meter

Extremely versatile tool for measuring and recording all climate parameters required for treating surfaces. Dewcheck 4 measures air temperature, air humidity and dewpoint as well as calculate the difference between the surface and dew point temperature, indicating optimum climate conditions for painting. Dewcheck 4 is complies with standard: ISO 8502-4, ASTM D3276-05, BS7079-B4, NACE RP prop 97. Application areas: coating / paint industry, galvanise, construction / building maintenance, shipping industry, steel protection.

Features

- Large illuminated graphic display
- One-hand operation
- Simple menu-driven user interface
- Extensive data-logging capabilities, readings are time and date stamped stored on the gauge
- USB-interface connects the unit to the PC for programming and downloading data
- To be used as "on the spot" inspectors tool or "stand-alone" data logger
- Heavy duty ergonomic case
- Set limits for each parameter
- Acoustic and visual alarms
- Select °C / °F
- Automatic trend indicator shows the trend of climatic conditions (rising, falling, stable)
- High-end industrial sensors and built-in probes
- Integrated "back-up" LED flashlight
- DewLog temperature and humidity monitoring software included

Ref. No : TQ18 C015
Model : Dewcheck 4



Specifications

Humidity	Measurement range	0...100%RH
	Accuracy (0...80°C)	± 3%RH
Temperature		
Temperature Ta (Air)	Measurement range	-20...+80°C
	Accuracy	± 0.5°C
Temperature Ts (Surface)	Measurement range	-30...+60°C
	Accuracy	± 0.5°C
Temperature TS (Surface External)	Measurement range	-30...+60°C
	Accuracy	± 0.5°C

Printing Humidity / Temperature Meter

Features

- Triple LCD display for RH% humidity, T1 for air temperature and T2 type K thermometer (-200°C ~ 1333°C)
- Dew point reading
- Max / min / data hold
- Real time stamp
- Periodically print out from Pre-Set time interval

Specifications

Measuring range	T1 : Air temperature	-20°C ~ 60°C
	Humidity	10%RH ~ 95%RH
Resolution	T2 : Type K	-200°C ~ 1333°C
		0.1°C / 0.1%RH
Accuracy	T1 : Air temperature	± 0.8°C
	Humidity	± 3%RH at 25°C
Sampling rate	T2 : Type K	-200°C ~ 500°C, ± (0.1%rdg + 0.8°C)
		500°C ~ 1333°C, ± (0.2%rdg + 1.8°C)
		1 time / sec



Ref. No : TS18 C009
Model : TES1362

TES1362 with triple LCD display of %RH air humidity, T1 for air temperature and T2 is K type thermometer (Bead, Immersion, and Surface type thermometer). TES1362 with special built in printer feature where we can directly print out the result from the main unit.

Solar Module Analyzer

Professional analyzer for testing, maintenance, troubleshooting and efficiency of solar panels. The analyzer is used in the installation of solar panels to determine the proper inverter size, optimum power output position of panels and identifies broken or worn-out cells.



Features

- I-V curve test for solar cell
- Maximum solar power (Pmax) search by auto-scan (60V, 6A/12A)
- Maximum voltage (Vmaxp) at Pmax
- Maximum current (Imaxp) at Pmax
- Calculation of efficiency (%)
- Data Logging Memory : 99 records (Prova 210)

Ref. No	Model
TS04 F027	Prova 200
TS04 F029	Prova 210
TS04 F031	Prova 218

◆ Prova 200 (60V, 6A)

DC Voltage Measurement

Range	Resolution	Accuracy
0 - 6V	0.001V	$\pm 1\% \pm (1\% \text{ of } V_{open} \pm 9\text{mV})$
6 - 10V	0.001V	$\pm 1\% \pm (1\% \text{ of } V_{open} \pm 0.09\text{V})$
10 - 60V	0.01V	$\pm 1\% \pm (1\% \text{ of } V_{open} \pm 0.09\text{V})$

DC Current Measurement

Range	Resolution	Accuracy
0.01 - 0.6A	0.1mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 0.9\text{mA})$
0.6 - 1A	0.1mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 9\text{mA})$
1 - 6A	1mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 9\text{mA})$

DC Current Simulation

Range	Resolution	Accuracy
0.01 - 1A	0.1mA	$\pm 1\% \pm 0.9\text{mA}$
1 - 6A	1mA	$\pm 1\% \pm 9\text{mA}$

◆ Prova 210 (60V, 12A)

DC Voltage Measurement

Range	Resolution	Accuracy
0 - 10V	0.001V	$\pm 1\% \pm (1\% \text{ of } V_{open} \pm 0.1\text{V})$
10 - 60V	0.01V	$\pm 1\% \pm (1\% \text{ of } V_{open} \pm 0.1\text{V})$

DC Current Measurement

Range	Resolution	Accuracy
0.01 - 10A	1mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 9\text{mA})$
10 - 12A	10mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 0.09\text{A})$

DC Current Simulation

Range	Resolution	Accuracy
0.01 - 10A	0.1mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 0.9\text{mA})$
0.6 - 1A	0.1mA	$\pm 1\% \pm (1\% \text{ of } I_{short} \pm 9\text{mA})$

Solar Power Meter



Ref. No	Model
TS04 F028	TES 1333R
TS04 F032	TES 132
TS04 F033	TES 1333

The digital "Solar Power Meter" measures the power per unit area if incident solar radiation reach the meter's sensing area. The meter uses a state of the art light sensor coupled with microprocessor control to measure the solar characteristics of glass, film or other transparent materials. It is also suitable for Meteorology, agriculture, solar radiation measurement, solar power research, physics and optical laboratories.

Features

- Wide spectral range, excellent long term stability
- Cosine corrected, automatic transmission measurements
- Solar energy power or transmission measurement selection
- Current time, user calibration factor setting function
- Select either W / m² or Btu / (ft²*h) units
- Data hold / max / AVG modes
- Data memory and read function (99 sets)
- Auto data memory (TES1333), RS232 interface (TES 1333R)
- Datalogging memory SD card 2G (TES 132)

Specifications

Measuring range : 2000w/m², 634Btu/(ft²*h)

Accuracy : Typically within $\pm 10\text{W/m}^2$ [$\pm 3\text{Btu/(ft}^2\text{*h)}$] or $\pm 5\%$, whichever is greater in sunlight; Additional temperature induced error $\pm 0.38\text{W/m}^2 / ^\circ\text{C}$ [$\pm 0.12\text{Btu/(ft}^2\text{*h)/}^\circ\text{C}$ from 25°C

Resolution : 0.1W/m², 1Btu/(ft²*h)

6. Environment / Air Quality Testing

Luminous Flux Meter

The light meter TES 133 uses special optic filters to reconstruct the exact response of the human eye to light intensity. A light measuring cell in the meter (photo diode) converts incident light into an electronic signal that is read and displayed on the meter's LCD.



Ref. No : TS08 B009
Model : TES 133

Features

- 4-digit LCD reading
- Spectral sensitive close to CIE photopic curve
- Auto ranging from 0.05 to 7000 lumens
- Accurate and instant response
- Data hold, data memory and read function
- Zero, ratio, sort and comparator function
- Best for measuring: LEDs, Small lamps, Fiber illuminators
- Adapters kit : 2, 3, 4, 5, 8, 10mm
- RS 232 interface with software

Specifications

Measuring Range : 9.999, 99.99, 999.9, 7000 lumens, Auto ranging (4step)
Accuracy : 0.05 to 0.1 \pm 7%, 0.1 to 1000 \pm 1%, 1000 to 7000 \pm 3%
Resolution : 0.001 lumens
Data Logger Capacity : 40,000 sets

Professional Light Meter

One of the markets most advanced handheld data logging Light Meter. It is very easy to use and provide wide measuring range, with double display for both LUX & fc range.



Ref. No : TS08 B007
Model : TES 1339
TS08 B008
TES 1339R

Features

- Dual display, 4-digit LCD reading
- Spectral sensitivity close to CIE photopic curve
- Accurate and instant response
- Integral illuminance & luminous intensity measurement
- Data hold, data memory 99 sets and read function
- Reference value setting for relative or percentage deviation measurement
- Ripple measurement for STRAY + LIGHT function
- Time-hold, point - average, comparator & auto power off function
- Data logging 40,000 reading with RS232 & software (TES 1339R)

Specifications

Measuring Range : 99.99, 999.9, 9999, 99990, 999900 Lux Auto ranging (5step)
Accuracy : \pm 3% rdg \pm 5dgt
Resolution : 0.01 Lux, 0.001 fc

Light Meter



Ref. No : TS08 B004
Model : TES 1335

The versatile light meter which has high accuracy and quick reaction rate to display a clear reading in wide LCD display.

Features

- Accurate and instant response
- Data hold, max / min, peak hold and relative function
- Cosine angular corrected
- Auto-power-off function

Specifications

Measuring Range : 40, 400, 4000, 40000, 400000 Lux
40, 400, 4000, 40000 fc
(1 fc = 10.76 Lux)
Accuracy : \pm 3% rdg \pm 0.5% f.s.
Resolution : 0.01 Lux

Datalogging Light Meter



Ref. No : TS08 B005
Model : TES 1336A

The data logging light meter is ideal for fast, easy and non-disruptive measurement and documentation of light quality in the workplace, hospital, offices, school and homes.

Features

- Spectrum of photo sensor meets C.I.E. photopic curve V(λ)
- 16000 records data logging capacity
- RS232 interface (software included)
- Measurement of luminous intensity (PC software)

Specifications

Measuring Range : 20, 200, 2000, 20000 Lux
Accuracy : \pm 3% rdg \pm 0.5% f.s.
Resolution : 0.01 Lux

6. Environment / Air Quality Testing

Inductive Wood Moisture Meter

Make inductive measurement of the moisture content of wood using the high-frequency electromagnetic waves. 10 grades of wood density available. It has the functions of setting the moisture upper limit and warning. Automatic compensation for environmental temperature.

Specifications

Measuring range : 4% ~ 80%
Resolution : 0.5%



Ref. No : AM18 D004
Model : MD 918

Inductive Paper Moisture Meter

Make inductive measurement of the moisture content of paper using the high-frequency electromagnetic waves. 4 grades of paper density available. It has the functions of setting the moisture upper limit and warning. Automatic compensation for environmental temperature. Can indicate the environmental moisture

Specifications

Measuring range : 4% ~ 40%RH
Resolution : 0.5%



Ref. No : AM18 D005
Model : MD 919

Wood Moisture Meter

The most popular model for wood moisture measurement. MD-2G is the ideal pin-type moisture meter for measuring wood moisture.

Features

- Large LCD display
- Quick response
- Low battery display
- With Data-hold button

Specifications

Range : 5% ~ 40%
Resolution : 1%
Accuracy : +/- 1%



Ref. No : AM18 D006
Model : MD 2G+

Wood Moisture Meter for Timber Industry

The TQC wood moisture meter specifically designed for the timber industry. Available with eight calibration scales, enabling the user to take accurate moisture measurements in 150 wood species. Moisture measurement can be taken using the integral pin electrodes, or using the heavy duty moisture probe. When used with the temperature probe, the moisture measurements are automatically corrected with respect to temperature.



Ref. No : TQ18 D004
Model : LI 9050

Specifications

Measuring principle : Electrical resistance
Electrode length : 8mm
Electrodes : Integrated, replaceable
Measuring range : Wood : 6 - 99%
Accuracy : Wood : 1%

Concrete Moisture Meter

The TQC concrete moisture meter is a non-destructive moisture meter. The moisture content of concrete can easily be determined by just pressing the instrument against the concrete surface. It is ideal to quickly test large concrete floors which have to be painted or where (wooden) flooring are being installed.



Ref. No : TQ18 D005
Model : LI 9200

Features

- Non-destructive
- Normal and max. hold-mode
- Concrete 0 ~ 6% H₂O
- Carbide method 0 ~ 4% H₂O
- Relative scale 0 ~ 100%
- 15 scale 0.3 ~ 15.3m

Specifications

Average working time on one battery set : 20 hours
Display : Monochrome 128 x 64 pixels, size 61 x 33mm with backlight
Accuracy : ± 0.5%
Scales : Concrete, carbide method, relative scale, 15. scale

Handheld Particle Counter

GT-321 is completely self-contained with its own internal battery and sample pump, and is programmable, allowing you to choose your particle size of interest from five size : 0.3, 0.5, 1.0, 2.0, or 5.0 microns.

Performance	GT 321	GT 521
Particle size range	>0.3, >0.5, >1.0, >2.0 and >5.0µm (selectable)	Two channels - from 0.3 to 5.0µm (selectable in 0.1µm increments)
Operating principle	Counts individual particles using scattered laser light	
Concentration range	0 - 3,000,000 particles per cubic foot (105,900 particles / L)	
Accuracy	± 10%, to calibration aerosol	
Sensitivity	0.3µm	
Flow rate	0.1cfm (2.83lpm)	
Memory	-	4000
RS232	√	√



Ref. No : ME05 B001
Model : GT 321

Ref. No : ME05 B002
Model : GT 521

Particle Counter



Ref. No : TSD5 B006
Model : TES 5110

Application

- Monitoring cleanrooms
- Indoor air quality investigations
- Monitoring growing rooms
- Testing filter seals
- Locating particle contamination sources
- Monitoring particle size distributions

Specifications

- Six particle size channels: ≥0.3µm, ≥0.5µm, ≥0.7µm, ≥1.0µm, ≥2.0µm, ≥5.0µm
- Temperature and humidity reading: 10° to 40° (± 3°C), 20%RH to 90%RH (± 7%RH)
- Flow rate 2.83 L/minute (0.1CF / minute)
- Rechargeable battery provides up to 4 hours of continuous operation (charge time 2 hours)
- Buffer function allows storing and redisplay of up to 500 measurement data sets
- Supplied utility software for easy data download
- Password protection for measurement settings

Laser product class : Class 1, IEC 60825-1 / EN 60825-1

Bench-Top Particle Counter



Ref. No : ME05 B004
Model : BT 637

The BT-637 is a full-featured unit suitable for continuous monitoring at a 0.1cfm flow rate. this unit is volumetric flow controlled and the internal temperature sensor will continually monitor and correct the flow. An audible alarm alerts the user when the flow rate varies more than ± 5%.

Performance

Particle size range	6 channels - 0.3µm, 0.5µm, 0.7µm, 1.0µm, 2.0µm and 5.0µm
Concentration range	0 - 3,000,000 particles per cubic foot (105,900 particle/L)
Sensitivity	0.3µm
Flow rate	0.1cfm (2.83lpm) / automatic volumetric flow controlled
Sample time	Adjustable : 1 to 999 seconds
Hold time	Adjustable : 0 to 999 seconds
Communications	RS-232, RS-485, Analog (0 - 5V) and USB

6. Environment / Air Quality Testing

Aerosol Mass Monitor

Four Mass Ranges (PM1, PM2.5, PM4, PM10)

Handled and Simple Operation : Survey the environment with this extremely portable, size selective mass monitor.

View sample history easily on the display or export data via the USB port using the included software. Unit stores up to 2500 sample events.

Operating principle	Particle count to mass conversion
Sample duration	1 minute
Data storage	2,500 records
PM ranges	PM1, PM2.5, PM4 and PM10
Concentration range	0 ~ 1000µg/m ³
Resolution	0.1µg/m ³ (display / serial output)
Sensitivity	0.5µm
Accuracy	± 10% to calibration aerosol
Flow rate	0.1 CFM (2.83 lpm)
Light source	Laser Diode, 780nm, 40mW typical



Ref. No : ME05 B005
Model : 831

Radiation Survey Meter

Inspector+



Inspector Exp + (with External Probe)



Operating Range

mR/hr - 0.001 (1µR) to 100
µSv / hr - 0.01 to 1000
CPM - 0 to 350,000
CPS - 0 to 5000
Total / Timer - 1 to 9,999,000 counts

Inspector is a small, handheld, microprocessor-based instrument which offers excellent sensitivity to low levels of alpha, beta, gamma, and x-rays. The digital readout is displayed with a red count light and a beeper sounds with each count detected. Other features include an adjustable timer, external calibration controls and adjustable alert.

Radiation Detected : Alpha, Beta, Gamma, X-ray

Its applications include :
• Detecting and measuring surface contamination
• Screening for environmental contamination

• Monitoring possible radiation exposure while working with radionuclides
• Detecting noble gases and other low energy radionuclides

Inspector+ and Inspector Xtreme Detector

Internal Halogen-quenched, uncompensated GM tube with thin mica window, 1.4-2.0 mg/cm² areal density. Effective diameter of window is 45 mm

Inspector Exp + Detector

RAP-RS1 Probe - External Halogen-quenched, uncompensated GM tube with thin mica window, 1.4-2.0 mg/cm² areal density. Effective diameter of window is 45 mm

Energy Sensitivity : Detects Alpha down to 2 MeV. Detects Beta down to .16 MeV; typical detection efficiency at 1 MeV is approx. 25%. Detects Gamma down to 10 KeV through the end window.

Accuracy : 15% of full scale, referenced to Cs-137

Alert Set Range : mR/hr .001 - 50 and CPM 1 - 160,000. 70db @ 1m.

Anti-Saturation : Meter will hold at full scale in fields as high as 100 times the maximum reading.

Inspector Xtreme
(with Rugged Shock-resistance Casing)



The Inspector Xtreme offers maximum performance in a lightweight, rugged solution for using your survey meter in the field. The Inspector Xtreme is designed specifically for individuals operating in tough environments such as miners.

6. Environment / Air Quality Testing

Monitor 4 & 4EC Handheld Radiation Alert® Detector



The M4 and M4EC are compact, ergonomic, general purpose survey meters capable of detecting alpha, beta, gamma, and x-rays over 3 selectable ranges. A red count light flashes and a beep sounds with each event detected. The Monitor 4EC offers a more linear reading for gamma and x-rays (above 40keV).

Operating Range

mR/hr - 0 - .5, 0 - 5, 0 - 50
CPM - 0 - 500, 0 - 5,000, 0 - 50,000
μSv / hr - 0 - 5, 0 - 50, 0 - 500

Range Switch

x1, x10, x100, Battery Check

Accuracy

Typically ±15% of reading (Cs-137)

Pen Dosimeters



The advanced PEN direct reading dosimeters are rugged, precision instruments. They are higher quality and have greater reliability than other dosimeters of this type. They measure and directly read, at any time, accumulated dose (quantity of gamma and x-ray exposure). PEN dosimeters are designed to satisfy military specifications for the RADIAC METER IM-264/PD and ANSI N 13.5 and N322 requirements. A sturdy metal clip attaches the dosimeter to a pocket or any object to monitor total radiation exposure. They are hermetically sealed and immersion proof.

Accuracy

±10% of true dose for Cs-137 or Co-60 gamma

MC1K Handheld Radiation Alert® Detector



The new ergonomic MC1K is a handheld survey meter using a built-in energy compensated GM detector. It detects gamma and x-ray up to 1000 mR / hr over 4 selectable ranges.

Operating Range

x1 position - 0 - 1 mR / hr or 0 - .01 mSv / hr
x10 position - 1 - 10 mR / hr or 0 - .1 mSv / hr
x100 position - 5 - 100 mR / hr or 0 - 1 mSv / hr
x1000 position - 50 - 1000 mR / hr or 0 - 10 mSv / hr

Range Switch

x1, x10, x100, x1000

Accuracy

Typically ±15% of reading (Cs¹³⁷)

The Charger for Pen Dosimeters



The patented, handheld Charger can charge a variety of direct-reading dosimeters by simply squeezing the lever of a generator. The Charger requires no batteries. By pulling a trigger, a dosimeter is easily placed in or removed from the charger. The clamping action holds the dosimeter for you.

Power : 15,000 volt piezoelectric generator

Discharge bulb : Flashes to indicate the instrument is operational

6. Environment / Air Quality Testing

The Sentry EC-Personal Alarming Dosimeter and Rate Meter



The Radiation Alert® Sentry EC is a Personal Alarming Dosimeter / Ratemeter designed to ensure the safety of personnel that work in occupations with potential x-ray or gamma exposure.

The pocket sized unit has an energy compensated GM tube for a linear response to gamma and built in memory for recording data points for tracking accumulated exposure. The Sentry-Com Software option enables you to generate incident reconstruction for analysis. The software also permits you to easily set the vibrating and audio alert to your desired levels for dose and dose rate.

Dose Rate Linearity

Better than $\pm 15\%$ up to 15R

Accuracy

Typically $\pm 15\%$ of reading (Cs137)

Energy response : Down to 20KeV

Gamma Sensitivity

1.5 cps / mR / hr (Co60)

Operating Range

Dose Rate: 0.1 mR / hr - 15 R / hr

Accumulated Dose: 0.1 mR - 65 R

Outputs

Mini-USB

RAD-60 Personal Alarming Dosimeter and Rate Meter



The RADOS RAD-60 Personal Alarm Dosimeter is a precise and reliable instrument for ensuring the personal safety of the user. Ideally, the RAD-60 is used in everyday radiation monitoring, in stand-alone conditions. If your needs grow for a more sophisticated system, the versatile RAD-60 can also be integrated into an Access Control System. The RAD-60 can be switched into System Mode, for the purpose of tracking Personnel Dose records and generating compliance reports.

Detector

Energy compensated Si-Diode

Measurement Range

Dose: 1 μ Sv - 9.99 Sv or 0.1 mrem - 999 rem

Dose Rate

5 μ Sv / h - 3 Sv / h or 0.5 mrem / h - 300 rem / h

Dose Rate Linearity

Better than + or - 15% up to 3 Sv / h (300 rem / h)

6. Environment / Air Quality Testing

Sound Level Meter



IEC 60672 Class 2
Ref. No : TS15 B002
Model : TES 1351B

TES 1351B is a basic sound level meter measures sound pressure level and is commonly used in noise evaluation studies for the quantification of almost any noise, especially for industrial, environmental. It offers "A" weighting to have the meter simulate the response of the human ear and "C" weighting for flat response measurement suitable for the operational maintenance and analysis of machinery, motors, pump, engines, etc.

Features

- A&C frequency weighting
- Fast / slow time weighting
- Easy calibration with built-in internal oscillator
- Standard IEC 60651 type 2
- Maximum hold function
- AUX output jacks

Specifications

Range	: A LO (Low) weighting : 35 ~ 90dB
	A HI (High) weighting : 65 ~ 130dB
	C LO (Low) weighting : 35 ~ 90dB
	C HI (High) weighting : 65 ~ 130dB
Resolution	: 0.1dB
Frequency	: 20Hz ~ 8KHz
Accuracy	: ± 1.4 dB (ref 94dB @ 1KHz)

Sound Level Meter



Ref. No : TS15 B010
Model : TES 52A

Features

- 60dB dynamic range
- A&C frequency weighting
- Fast / slow time weighting
- Maximum / minimum readings with elapsed time
- Standard IEC 60651 type 2, ANSI S1.4 type 2
- Manual data memory and read 99 sets

Specifications

Measurement level range

6 ranges in 10dB step : 25 ~ 80dB, 30 ~ 90dB, 40 ~ 100dB,
50 ~ 110dB, 60 ~ 120dB, 70 ~ 130dB

Measurement frequency range : 31.5Hz to 8KHz

Resolution : 0.1dB

Dynamic : 60dB

Programmable Sound Level Meter



Ref. No : TS15 B004
Model : TES 1352H

TES 1352H is programmable for data logging purpose in order to continuously monitor the sound level of an environment or analysis of machinery

Features

- 16,000 datalogging measurements, with date / time stamp and user selectable sample intervals
- Fast response analog bargraph
- Max hold function
- A or C frequency weightings
- Fast / slow response
- Analog 10mV/dB output
- RS232 port with software and cable
- Standard IEC 60651 type 2, ANSI S1.4 type 2

Specifications

Frequency : 31.5Hz ~ 8KHz

Level A/C weighting : 30dB ~ 130dB

Six Range

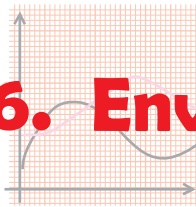
6 ranges in 10dB step : 30 ~ 80dB, 40 ~ 90dB, 50 ~ 100dB,
60 ~ 110dB, 70 ~ 120dB, 80 ~ 130dB

Auto Range : 30 ~ 130dB

Dynamic Range: 50dB

Accuracy : ± 1.5 dB

6. Environment / Air Quality Testing



Integrating Sound Level Meter

Ref. No: TS15 B005
Model: TES 1353H



Features

- Measure SPL, Leq, SEL, MaxL, MinL
- 32,000 datalogging measurement, with date / time stamp and user selectable sample intervals
- Fast response analog bargraph
- Max hold function
- A or C frequency weightings
- Fast or slow response
- Analog 10mVdB output
- RS232 port with software and cable
- Standard IEC 60651 type 2, ANSI S1.4 type 2, IEC 804 type 2

Specifications

Frequency : 31.5Hz ~ 8KHz

Level A/C weighting : 30dB ~ 130dB

Display : 4 digit LCD, 0.1dB resolution, updated every 0.5s

Accuracy : ± 1.5 dB

TES 1353H integrated measurement of sound exposure level, SEL the total noise energy produced from a single noise event. Leq, "Equivalent Continuous Noise Level" and Ln, Percentile levels to evaluate background noise and fluctuating noise that which may pollute the environment.

Noise Dose Meter

Ref. No: TS14 B006
Model: TES 1354



Ref. No: TS15 B007
Model: TES 1355



A noise dosimeter is a specialized sound level meter specifically to measure the noise exposure of a person integrated over a period of time; usually to comply with Health and Safety regulation such as the Occupational Safety and Health (OSHA). This is normally intended to be a body-worn instrument and usually provide reading averaged over an 8 hour Time Weighted Average (TWA).

Features

- Measures % Noise Dose / Exposure Time / Sound Level
- Real time clock with calendar, RS232 interface (1355)
- Standard ANSI S1.25-1991 A weighting

Specifications

Range : 70 ~ 140dB (± 1.5 dB)
Digital display : 0.01 ~ 99.99% dose
Criterion level : 80, 84, 85, 90dB
Threshold level : 70 ~ 90dB (1dB step)
Exchange rate : 3dB, 4dB, 5dB or 6dB
High level detector : 115dB
Peak flag : 140dB

Sound Level Calibrator

Ref. No: TS 15 B009
Model: TES 1356



Features

- 94dB and 114dB sound calibration at 1KHz
- Fits 1", 1/2" or 1/4" diameter microphone
- Conforms to ANSI S1.40 - 1984 and IEC942 1988 Class 2
- Standard ANSI S1.40-1984 and IEC942 1988 Class 2

Technical Specifications

Output sound-pressure levels : 114dB and 94dB re 20 uPa under reference conditions

Output frequency : 1000Hz $\pm 4\%$

Reference condition : Temperature - $> 20^{\circ}\text{C}$ (68°F)

Atmospheric pressure : 1013 mbar (760mm par Hg)

Relative humidity : 65%

Accuracy : ± 0.5 dB

Sound Analyzer



Ref. No	Model
TS15 B008	TES 1358A
TS15 B011	TES 1358C

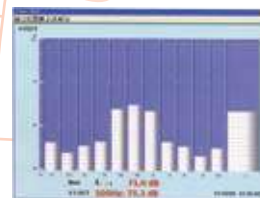
TES 1358 is for delicate sound improvement e.g. sound effect or sound environment. It includes advanced Hand Held Sound Level Meters and Real-Time Frequency Analyzers. Where you can simply and reliably perform your advanced sound Spectrum analysis to decomposing a complex signal into simpler parts.

Features

- Real-time 1/1-Octave and 1/3-Octave analysis
- Large display with backlighting
- Memory max. 12280 records of Lp data
- Wide Linearity range of 100dB
- Real time clock with calendar
- RS232 interface (1358A)
- USB interface (1358C)
- TFT LCD display with backlight (1358C)

Specifications (TES 1358A Sound Analyzer)

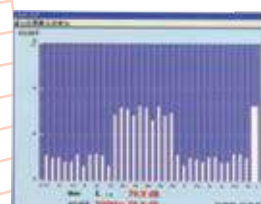
Range	30dB - 130dB
Measurement range	Lp, Leq, LE, Lmax, Lmin
Frequency	25Hz ~ 10KHz
Frequency weighting	A, C, Flat
Time weighting	Fast, slow. 1/1.1/3 Analyzer level range 20 ~ 90dB / 30 ~ 100dB / 40 ~ 110dB / 50 ~ 120dB / 60 ~ 130dB
Memory capacity	12280 data (Sound Level Meter mode), 1024 data (1/1 or 1/3 oct. analysis)



1/1 Octave band center frequencies : (11 bands)

Specifications (TES 1358C Sound Analyzer)

Applicable standards	IEC61672-1 - 2002 Class 2, ANSI S1.4 -1983 type 2, ANSI S1.11 - 2004 Class 2, IEC61260 - 1995 Class 2, ANSI S1.43 - 1997 Class 2
Microphone	1/2-inch electret condenser microphone
Measurement range	30dB to 130dB
Measurement function	Lp, Leq, LE, Lmax, Lmin
Frequency range	12.5HZ to 20KHz
Frequency weighting	A, C and Z
Time weighting	Fast, slow
Sound level meter range	5 ranges in 10 - dB step, 40 - 130dB / 30 - 120dB / 20 - 110dB / 10 - 100dB / 0 - 90dB
1/1.1/3 Analyzer level range	5 ranges in 10 - dB step, 40 - 130dB / 30 - 120dB / 20 - 110dB / 10 - 100dB / 0 - 90dB
1/1 Octave and 1/3 Octave band filters	1/1 Octave band center frequencies : (11 bands) 16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz and 16KHz 1/3 Octave band center frequencies : (33 bands) 12.5Hz, 16Hz, 20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1KHz, 1.25KHz, 1.6KHz, 2KHz, 2.5KHz, 3.15KHz, 4KHz, 5KHz, 6.3KHz, 8KHz, 10KHz, 12.5KHz, 16KHz, 20KHz
Extension cable	Available in lengths of 5m (TL-F47/5M) and 10m(TL-F47/10M)
Memory capacity	10000 data (Sound level meter mode)



1/3 Octave band center frequencies : (33 bands)

6. Environment / Air Quality Testing

Digital Thermometer



Ref. No: TS18 B001
Model: TES 1319A

TES 1319 A thermometer is simple and easy to use, which has one input K-type thermocouple. The data can be directly read from the large LCD display and can be saved in the unit up to 150 sets of data.

Features

- Switchable resolution 0.1°C / 1°C
- With °C & °F switching
- Max / min / data hold function
- Flip-up stand
- Data memory capacity 150 sets (Direct reading from LCD display)

Specifications

Measuring range	: -50°C ~ 1300°C
Resolution	: -50°C ~ 199.9°C 0.1°C (Others 1°C)
Accuracy	: -50°C ~ 0°C ... +/- (0.5%rdg + 1°C) 0°C ~ 1000°C ... +/- (0.3%rdg + 1°C) 1000°C ~ 1300°C ... +/- (0.5%rdg + 1°C)
Sampling rate	: 2.5 times / sec

Datalogging Thermometer



Ref. No Model
TS18 B007 TES1315
TS18 B008 TES1316

The datalogging digital thermometer can connect with many type thermocouples: K, J, E, T, R, S and N. The data can be directly read from the LCD display (real time data) or later download to PC for further analysis.

Features

- Highly accurate thermometer with thermocouple K, J, E, T, R, S, N type
- Dual input function T1 / T2 temperature display (TES-1316)
- 7500 datalogging capacity (Direct reading from LCD display or later PC download)
- Single channel (TES-1315) & dual channel (TES-1316)
- Warning beeper with HI/LO setting
- Max / min with time, max-min AVG, hold function
- °C / °F / K user-selective

Specifications

Range	: K-type: -200°C to +1372°C
Resolution	: 0.1°C < 200°C, 1.0°C ≥ 200°C
Accuracy	: K-type: ± (0.5% of reading + 0.3°C)

Dual Channel Thermometer



Ref. No: TS18 B004
Model: TES 1312A

TES 1312A has dual inputs for type K thermocouple. This allows us to observe the comparison of two temperature readings at the same time.

Features

- Type "K" thermocouple input
- Switchable resolution 0.1° / 1.0°
- With °C & °F switching
- Max / min, data hold function
- Room temperature compensated
- T1 & T2 dual points display
- T1 - T2 differential measurement

Technical Specifications

Measuring range	: -200°C ~ 1370°C
Resolution	: -200°C ~ 199.9°C 0.1°C (Others 1°C / 1°F)
Accuracy	: TES-1312 -200°C ~ 1000°C ... +/- (0.3%rdg + 1°C) 1000°C ~ 1370°C ... +/- (0.5%rdg + 1°C)

Platinum RTD Thermometer



Ref. No Model
TS18 B009 TES1317
TS18 B010 TES1318
TS18 B014 TES1317R

This is high accuracy platinum RTD input thermometer with a powerful datalogger function.

Features

- 4 1/2 dgt highly accurate thermometer with platinum RTD input (PT3916 / 3926 / 385)
- 4200 datalogging capacity (TES1317R) (Direct reading from LCD display or later PC download)
- Data memory 97 sets (TES1317), 40 sets (TES1318)
- High / low alarm setting
- Max / min reading with time indication
- Max / min / AVG data hold function
- Single channel (TES1317) & dual channels (TES1318)
- Dual input function T1/T2 temperature display (TES1318)

Specifications

Range	: -200°C ~ 800°C
Resolution	: 0.1°C
Accuracy	: ± (0.05% of reading + 0.2°C)

6. Environment / Air Quality Testing

4 Channels Datalogger Digital Thermometer



Ref. No : TS18 B028
Model : TES 1384

TES 1384 is highly accurate thermometer with 0.05% accuracy. It has 4 input function for T1 / T2 / T3 / T4 temperature display.

Features

- Isolated input protection of 350Vp-p between any two inputs
- Highly accurate thermometer with thermocouple K, J, E, T, R, S, N, L, U, B, C types
- 4 input function T1 / T2 / T3 / T4 temperature display
- Programmable Hi-Lo alarm for 4 inputs
- Display of MAX, MIN, MAX-MIN and AVG values of 4 inputs
- Memory and read function (99sets)
- 512kB datalogging 4 input : 36000 sets data
1 input : 100,000 sets data
- Software with USB cable

Specifications

Type K	Range	Accuracy
	-200 ~ -150	± 3.0°C
	-150 ~ -100	± 2.0°C
	-100 ~ 999.9	± 0.05% ± 1.0°C
	1000 ~ 1370	± 0.2% ± 1.0°C

8 Channel Datalogger Digital Thermometer



Ref. No : TS18 B027
Model : Prova 800

Prove 800 is the perfect temperature datalogger with 8 channels, and ideal for use in many industrial applications. The result can be easily analyzed by graphic display or save in memory card to direct read by PC.

Features

- 8 input temperature measurement / logging
- 11 types of thermocouple (K, J, E, T, R, S, N, L, U, B, C) mini connector
- Graphic display of each input
- Sampling rate : 1 sec. / 8 input
- Programmable Hi-Lo alarm for 8 inputs
- Display of max and min values of 8 inputs
- Standard 2G SD memory card (Stores 3.8 year data)
- Optional 8G SDHC memory card
- SD card directly read by PC
- Independent input setup (type of thermocouple, Hi-Lo alarm values, name of Engineering Unit)
- Isolated Input Protection of 350V p-p between any two inputs
- Read and delete functions, built in calendar clock

Specifications

Type K	Range	Accuracy
	-200 ~ -150	± 3.0°C
	-150 ~ -100	± 2.0°C
	-100 ~ 999.9	± 0.05% ± 1.0°C
	1000 ~ 1370	± 0.2% ± 1.0°C

Printing Thermometer



Ref. No : TS18 B011
Model : TES 1304

TES 1304 with dual channels with multi functions. TES 1304 with special built in printer allows us to directly print out the result from the main unit.

Features

- Type K, J, E, T thermocouple input
- Dual channels with multi-functions (T1, T2, & T1-T2)
- Built-in thermo printer with programmable time interval setting

Specifications

Range	: Type K : -200°C ~ 1333°C
Resolution	: 0.1°C
Accuracy	: Type K : ± (0.1%rdg + 0.8°C) / 0 ~ 1333°C

6. Environment / Air Quality Testing

K-Type Thermocouple Probe



These k-type thermocouples are connected to k-type interface of thermometer, and provide a quick and convenient method for measuring temperature. There are different probes with different shapes depend on the application.

Specifications

Probes	Ref. No	Model	Range
I General Purpose	SJ18 AT01	NR-30	-50°C ~ +700°C
II Penetration Probe	SJ18 AT02	NR-41	-50°C ~ +800°C
III Straight Surface Probe	SJ18 AT03	NR-32A	-50°C ~ +500°C
IV Right-Angle Surface Probe	SJ18 AT04	NR-33B	-50°C ~ +400°C
V High Temperature Surface Probe	SJ18 AT05	NR-37	-50°C ~ +800°C
VI Short Stem Surface Probe	SJ18 AT06	NR-31A	-50°C ~ +500°C
VII Roller Surface Probe	SJ18 AT07	NR-35A	-50°C ~ +400°C

Magnetic Surface Thermometer



Ref. No: TQ18 B027
Model: TM0015

TQC Magnetic Thermometer for measuring the surface temperature of steel objects. With the strong magnet at the backside of the instrument it's easy to attach the thermometer on the ferrous surface. The surface temperature is read in °C and °F.

Features

- Various types of goods
- Competitive price
- High quality, high-accuracy measurement
- Comes standard in a genuine leather protective pouch with belt-clip

Technical Specifications

Measuring range : -10°C ... +70°C
Size : Diameter 65mm, Height 25mm, magnetic area 35mm
Unit : °C and °F

Non-Contact Infrared Thermometer

The high performance, handheld thermometer is a non-contact (with laser sighting, 12:1 field of view) surface temperature measurement instrument.

Specifications

- Built-in laser targeting (Backlight LCD display)
- Data memory capacity 50 sets (TES1326S / TES1327); 99 sets (TES1327K)
- Audible and visible alarm (TES1327 / TES1327K)
- Max / min reading
- Emissivity adjustable (TES1327 / TES1327K)
- Fixed emissivity (TES1326)
- K-type connection (TES1327K)

Specifications

Measuring range	:	-35°C ~ 500°C
Resolution	:	0.1°C
Accuracy	:	±2% reading or ±2°C



Ref. No Model
TS18 B017 TES1326
TS18 B018 TES1327
TS18 B020 TES1327K

6. Environment / Air Quality Testing

Cost Effective Temperature & Humidity Logger (indoor application)



Tinytag Ultra 2s are housed in a lightweight, splashproof case (IP54). Tinytag Ultra 2s are designed primarily for indoor use, but can be outdoors if appropriately protected with, for example a Stevenson Screen.

Units are available to measure temperature, temperature & humidity and temperature with an external thermistor probe.

Features

- High accuracy and reading resolution
- Fast data offload, Splashproof case
- Low battery monitor, user-replaceable battery
- USB or serial download cables
- User-programmable alarms, 32000 reading capacity

Specifications

TGU-4017	Tinytag Ultra 2 temperature (-40°C ~ +85°C)
TGU-4020	Tinytag Ultra 2 temperature for probe (-40°C ~ +125°C)
TGU-4500	Tinytag Ultra 2 temperature / relative humidity (-25°C ~ +85°C / 0 to 95%RH)
TGU-4510	Tinytag Ultra 2 temperature / temperature for probe (-40°C ~ +85°C / -40 ~ +125°C)

Robust & Waterproof Temperature & Humidity Logger



Tinytag Plus 2 are available with built in sensors and thermistor PT100 and PT1000 probes. There is also a logger that will measure temperature and humidity. The units are waterproof to IP68 and are pressure tested to a depth of 15mm. The units are more reliable and better ruggedness.

Features

- 32,000 readings capacity, high accuracy and reading resolution
- Fast data offload, robust, waterproof case
- Low battery monitor, user replaceable battery
- USB or serial download cables, user-programmable alarms

Specifications

TGP-4017	Tinytag Plus 2 temperature (-40°C ~ +85°C)
TGP-4020	Tinytag Plus 2 temperature for probe (-40°C ~ +125°C)
TGP-4204	Tinytag Plus 2 temperature for PT1000 probe (-200°C ~ +100°C)
TGP-4500	Tinytag Plus 2 temperature / relative humidity (-25°C ~ +85°C / 0 to 100%)
TGP-4510	Tinytag Plus 2 temperature / temperature for probe (-40°C ~ +85°C / -40°C ~ +125°C)

Temperature and Humidity Loggers with A Display



Tinytag View 2S are all housed in an attractive IP65 case and have an integral display. All feature high reading accuracy and resolution, 30,000 readings capacity, a fast offload speed and a low battery monitor.

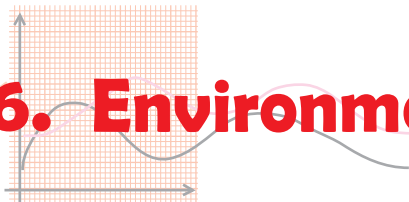
Versions are available to measure temperature, temperature & humidity and temperature with external thermistor, PT100 or PT1000 probes. Uniquely there is a unit that measures temperature and humidity with an external 1m probe.

Features

- LCD display of current readings, 30,000 readings capacity
- High accuracy and reading resolution
- Fast data offload, splashproof case
- Low battery monitor and battery low indicator
- Programmable alarms, USB and serial download cables

Specifications

TV-4020	Tinytag Plus 2 temperature for probe (-40°C ~ +125°C)
TV-4050	Tinytag Plus 2 temperature (-30°C ~ +50°C)
TV-4104	Tinytag Plus 2 temperature for 3-wire PT100 probe (-50°C ~ +300/600°C)
TV-4500	Tinytag Plus 2 temperature / relative humidity (-25°C ~ +50°C / 0 to 100%RH)
TV-4505	Tinytag Plus 2 temperature / relative humidity with external probe (-25°C ~ +85°C / 0 to 100%RH)



Oven Temperature Datalogger

The Curve-X2 USB offers easy-to-use, high quality temperature datalogging for paint curing ovens. Measurements, analysis level and report options are fully customizable to provide you with tailor-made information on the quality of your curing processes. The Ideal Finish data analysis software allows you to analyse the logged data and create detailed reports. Curve-X2 is a profitable investment in the quality of products because it save on production time, energy, rework and scrap costs.

Features

- Large display for easy menu-driven operation
- Start and stop logging at a pre-set time, date and temperature
- Programmable (via PC) for up to 15 paint-types, for accurate calculation of the cure-index
- If a paint-type is not available in the library, it can be entered in the logger on site
- Display the results of every stored batch, including cure-index
- Extended memory stores 10 batches of 25,000 measurements each
- Extendable: optional add-on to convert the 6 channel datalogger into a 12-channel systems

Flexible Evaluation

- Quick display** : The logger display shows maximum temperature and cure-index figure, percentage and pass/fail sign, or graphic per probe
- Extensive Analysis** : For extensive analysis, comprehensive calculations and fully customizable reports every system is supplied with powerful "ideal finish" data analysis software
- Wireless print** : The option TQC irp portable infrared printer can print (wireless) a brief report including cure-index, maximum temperature and graphs
- Logger to printer** : A complete, full-colour report can be printed directly to any HP-Deskjet printer using the optional printer-link.
No computer required

Flexible Software

- Create and store oven-layout and oven settings
- Create your own paint-library, complete with cure specifications
- Choose from more then 30 different calculations
- Set your own parameters to create an "Ideal Cure Window"
- Send your reports by e-mail with a single mouse-click
- Insert a picture of your product and have your probe position calculated automatically
- Complete with automatic position-lag compensation
- Create professional reports and documentation in your own style



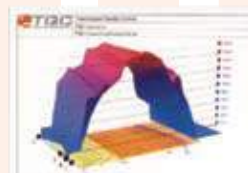
Ref. No: TQ18 B020
Model: Curve-X2

A complete range of probes

- Magnet surface probe
- Clamp-type surface probe
- Ring-type surface probe
Universal probe with aluminium ring at the tip for fast response
- Air probes
Available with either clamp or magnet
- Wire-type probe
Universal probes that can be used for either air or surface temperature measurements, attached by adhesive tape or other mechanical means
- Infrared probes
The infrared probes are designed to profile the IR-radiance inside an oven

Specifications

- Range : -50° ~ 1200°C
- Accuracy : ± 0.3°C
- Resolution : 0.1°C
- Interval : from 1 sec to 1 hour
- Memory : 10 batches of 2500 readings each, or one large batch of 250,000 readings



7. Chemical & Water Analysis



Free and Total Chlorine Handheld Colorimeters

Chlorine is the most common water disinfectant. The monitoring of chlorine is crucial in applications such as swimming pools and spas, fruit and vegetable sanitation, disinfection and drinking water.

HI 701 & HI 711 Checker®HC is supplied with sample cuvettes with caps (2), powder reagents for Free Chlorine (6), battery and instructions.

The Checker® HC easily fits into the palm of your hand or pocket.

Use for quick and accurate on the spot analysis.

Single button operation: zero and measure.

Specifications

	HI 701 (Free Chlorine)	HI 711 (Total Chlorine)
Range	0.00 to 2.50ppm (mg / L)	0.00 to 3.50ppm (mg/L)
Resolution	0.01ppm (mg / L)	
Accuracy @ 25°C / 77°F	± 0.03ppm ± 3% of reading	

COD Meter and Multiparameter Photometer

- Easy COD measurement
- Outstanding measurement quality
- PC compatible
- 47 methods

Chemical Oxygen Demand (COD) test is commonly used to indirectly measure the amount of organic compounds in water. It is to determine the amount of organic pollutants found in surface water. COD is often measured as a rapid indicator of organic pollutant in water and is normally used by both municipal and industrial waste water treatment plants and gives an indication of the efficiency of the treatment process.

COD is measured on both influent and effluent water. The efficiency of the treatment process is normally expressed as COD Removal, measured as a percentage of the organic matter purified during the cycle.

HI 83099 most versatile photometers on the market, measures up to 47 of the most important water quality parameters using liquid or powder reagents. The amount of reagent is precisely dosed to ensure maximum reproducibility. HI 83099 bench photometer can be connected to a PC via a USB cable.

Specifications

Light source	Tungsten lamps with narrow-band interference filters
Light detector	Silicon photocell

HI 83099-01 (115V) and HI 83099-02 (230V) is supplied with glass cuvettes (3), cell protective cap, batteries, 12 VDC adapter and instructions.



7. Chemical & Water Analysis

Conductivity Meters

- Manual calibration
- Analog output (EC 215R)
- Automatic temperature compensation

Conductivity is measured in micro siemens or micro mhos and is an indicator of the number of ions present in solution and is a measurement of their build up in water and liquid systems. Conductivity meter is use in rinse water, DI water, cooling towers, horticulture, waste water systems, swimming pools, aquaculture, drinking water, food process and facility water.

These instruments utilize a four ring potentiometric probe with platinum sensor that offers greater versatility over typical amperometric designs. A potentiometric probe works on the principal of induction which eliminates the effects of polarization.

By utilizing the 4-ring method, it is possible to measure very low or high conductivity levels (up to 200mS/cm) without changing probes.

Specifications

EC 215

Range	0.0 ~ 199.9 μ S/cm; 0 ~ 1999 μ S/cm; 0.00 ~ 19.99mS/cm; 0.0 ~ 199.9mS/cm
Resolution	0.1 μ S/cm
Accuracy (@20°C/68°F)	± 1% F.S. (excluding probe error)
Calibration	manual, one point

EC 215-01 (115V), EC 215-02 (230V), EC 215-03 (AUS plug) are supplied with HI 76303 conductivity probe, 12 VDC adapter and instruction manual.



Multi-range EC Meters

- Four ring potentiometric probe
- Multiple scales cover a wide range
- On-screen operation guide
- Automatic temperature compensation (HI 8733)

HI 8733 conductivity meters have been designed for use in areas of production and quality control.

HI 8733's conductivity measurements can be automatically temperature compensated by using the HI 76302W probe with built-in temperature sensor.

HI 8733 is supplied with HI 76302W conductivity probe, 12880 μ S/cm HI 70030 calibration solution sachets (5), battery, instructions and rugged carrying case.

Solutions

HI 7030L	12880 μ S/cm calibration solution, 500mL
HI 7031L	1413 μ S/cm calibration solution, 500mL
HI 7033L	84 μ S/cm calibration solution, 500mL

Specifications

HI 8733

Range	0.0 ~ 199.9 μ S/cm; 0 ~ 1999 μ S/cm; 0.00 ~ 19.99mS/cm; 0.0 ~ 199.9mS/cm
Resolution	0.1 μ S/cm; 1 μ S/cm; 0.01mS/cm; 0.1mS/cm
Accuracy (@20°C / 68°F)	± 1% F.S. (excluding probe error)



7. Chemical & Water Analysis

Dissolved Oxygen Meter



- On-screen tutorial messages
- Two point calibration
- Automatic calibration in air

HI 9146 is a water-resistant, dissolved oxygen meter that measures up to 300% saturation or 45ppm (mg/L) with temperature compensation and automatic calibration. It has been developed for DO and temperature measurement in water, wastewater, and applications such as fish farming.

HI 9146-04 is supplied complete with HI 76407/4F probe with 4m (13.1') cable, HI 76407A membranes (2), HI 7041S electrolyte solution (30mL), batteries, instructions and rugged carrying case.

Solutions

HI 7040L Zero oxygen solution, 500mL

HI 7041L Refilling electrolyte solution (500mL)

Specifications

		HI 9146
Range	O ₂	0.00 ~ 45.00mg/L (ppm)
	% Saturation O ₂	0.0 ~ 300.0%
	Temperature	0.0 ~ 50.0°C
Resolution	O ₂	0.01mg/L (ppm)
	% Saturation O ₂	0.1%
	Temperature	0.1°C
Accuracy (@20°C / 68°F)	O ₂	± 1.5%F.S.
	% Saturation O ₂	± 1.5%F.S.
	Temperature	±0.2°C (excluding probe error)

pH / Conductivity / TDS Testers



Solutions

HI 70004P

pH 4.01 buffer solution, 20mL sachets (25)

HI 70007P

pH 7.01 buffer solution, 20mL sachets (25)

HI 70010P

pH 10.01 buffer solution, 20mL sachets (25)

HI 70030P

12.88mS/cm buffer solution, 20mL sachets (25)

HI 70031P

1413µS/cm buffer solution, 20mL sachets (25)

HI 70032P

1382mg/L(ppm) buffer solution, 20mL sachets (25)

HI 70300M

Electrode storage solution, 250mL

HI 7061M

Electrode cleaning solution, 250mL

- Waterproof and designed to float
- Cloth, renewable junction
- Close proximity temperature probe
- Automatic Temperature Compensation
- Automatic 1 or 2 point pH calibration
- Efficient two button operation

HI 98129 are waterproof testers that offer high accuracy pH, EC / TDS and temperature measurements in a single tester.

Specifications

		HI 98129
Range	pH	0.00 ~ 14.00pH
	EC	0 ~ 3999µS / cm
	TDS	0 ~ 2000mg / L (ppm)
	Temperature	0.0 ~ 60.0°C / 32.0 ~ 140.0°F
Resolution	pH	0.01pH
	EC	1µS / cm
	TDS	1mg / L (ppm)
	Temperature	0.1°C / 0.1°F
Accuracy (@20°C)	pH	± 0.05pH
	EC / TDS	± 2% F.S.
	Temperature	± 0.5°C / ± 1°F

HI 98129 supplied with HI 73127 pH electrode and HI 73128 electrode removal tool, batteries and instructions.

7. Chemical & Water Analysis

pH /Temperature Testers

- Waterproof and designed to float
- Automatic Temperature Compensation
- Automatic calibration
- Efficient two button operation

The pHep®4 tester is for users that require the greatest accuracy and features while staying economical. The pHep®4 has a 0.1pH resolution. pHep®5 reads up to 0.01pH.

Specifications

		HI 98127 (pHep®4)	HI 98128 (pHep®5)
Range	pH	-2.0 ~ 16.0pH	-2.00 ~ 16.00pH
	Temperature	-5.0 ~ 60.0°C / 23.0 ~ 140.0°F	
Resolution	pH	0.1pH	0.01pH
	Temperature	0.1°C / 0.1°F	
Accuracy (@20°C)	pH	± 0.1pH	± 0.05pH
	Temperature	± 0.5°C / ± 1°F	

HI 98127 (pHep®4) & pHep®5 are supplied with HI 73127 pH electrode, HI 73128 electrode removal tool, batteries and instructions.

Solutions

HI 70004P	pH 4.01 buffer solution, 20mL sachets (25)
HI 70007P	pH 7.01 buffer solution, 20mL sachets (25)
HI 70010P	pH 10.01 buffer solution, 20mL sachets (25)



EC and TDS Testers

- Graphite electrodes
- Simple one point calibration
- ATC

DiST's are rugged and reliable pocket-sized testers that offer quick and accurate readings of conductivity or TDS. The DiST® family of testers is widely used for monitoring EC/TDS in drinking water, water conditioning, reverse osmosis, cooling towers, wastewater, laboratories, agriculture, aquaculture and aquariums, hydroponics and the printing industry.

Specifications

	HI 98300/ HI 98301 (DiST®1)	HI 98302 (DiST®2)	HI 98303 (DiST®3)	HI 98304 (DiST®4)
Range	1999 mg/L (ppm)	10.00 g/L (ppt)	1999 µS/cm	19.99 mS/cm
Resolution	1 mg/L (ppm)	0.01 g/L (ppt)	1 µS/cm	0.01 mS/cm
Accuracy (@20°C / 68°F)	± 2% F.S.	± 2% F.S.	± 2% F.S.	± 2% F.S.
TDS factor	0.65 / 0.5	0.5	-	-

(DiST®) family of testers are supplied with protective cap, screwdriver, batteries and instructions.

Solutions

HI 70030P	12.88mS/cm calibration solution, 20mL sachets (25)
HI 70031P	1413µS/cm calibration solution, 20mL sachets (25)
HI 70032P	1382mg/L (ppm) calibration solution, 20mL sachets (25)



7. Chemical & Water Analysis

Basic pH Benchtop Meters

- Automatic Temperature Compensation
- Automatic calibration
- Calibration expiration reminder
- ORP range

A benchtop pH Meter is an electronic instrument used to measure the acidity and alkalinity of liquid or semi-solid samples across many industries with applications in wastewater, drinking water, food and beverage, chemical and pharmaceutical testing.

HI 2211 adds measurement for ion concentration (ISE) and Oxidation Reduction Potential (ORP) in the mV range.

pH measurement are compensated for the temperature effect manually or automatically with the HI 7662 temperature probe, with an easy-to-read LCD which shows both the primary reading and °C.

Specifications

Range	pH	-2.00 ~ 16.00pH
	mV	± 399.9mV; ± 2000mV
	Temperature	-20 ~ 120.0°C
pH Calibration	automatic, one or two points with five memorized buffer values (pH 4.01, 6.86, 7.01, 9.18, 10.01)	



pH / pH-mV / ORP and Temperature Meters

- pH Sensor Check™
- Multi-level LCD display
- On-screen tutorial messages
- Automatic Temperature Compensation
- Automatic one or two point calibration
- Compact, heavy-duty, and waterproof

HI 991002/3 are ideal for plating baths, wastewater, swimming pool and spa water quality and environmental applications.

HI 991002/3 is a portable pH/pH-mV/ORP/temperature meter with our unique Sensor Check™ feature that allows the user to determine the electrode status at any time.

Specifications

HI 991002 / HI 991003		
Range	pH	-2.00 ~ 16.00pH
	pH-mV	±825mV (pH-mV)
	ORP	± 1999mV
	Temperature	-5.0 ~ 105.0°C; 23.0 ~ 221.0°F
Resolution	pH	0.01pH
	pH-mV	1mV
	ORP	1mV
	Temperature	0.1°C / 0.1°F
Accuracy (@20°C)	pH	± 0.02pH
	pH-mV	± 1mV
	ORP	± 2mV
	Temperature	± 0.5°C up to 60°C; ± 1.0°C outside; ± 1.0°F up to 140°F; ± 2.0°F (outside)

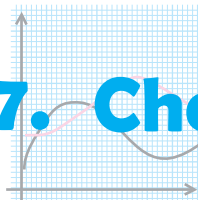


Solutions

HI 5004L	pH 4.01 buffer solution, 500mL
HI 5007L	pH 7.01 buffer solution, 500mL
HI 5010L	pH 10.01 buffer solution, 500mL
HI 7020L	ORP test solution @200/275mV, 500mL
HI 7061L	Electrode cleaning solution, 500mL
HI 70300L	Electrode storage solution, 500mL

HI 991002/3 supplied with HI 1297D pH/ORP probe with internal temperature sensor, HI 70004 pH 4.01 buffer sachet, HI 70007 pH 7.01 buffer sachet, HI 700661 electrode cleaning solution sachet (2), batteries, instructions and rugged carrying case.

7. Chemical & Water Analysis



Direct Soil pH Measurement Kit

- Dedicated to soil pH measurement
- Specialized soil pH electrode
- Multi-level LCD display
- User friendly operation using only 2 buttons
- On-screen tutorial messages
- Automatic Temperature Compensation
- Automatic one or two point calibration
- Compact, heavy-duty, and waterproof

With the HI 99121 and HI 1292D direct soil pre-amplified pH and temperature probe, users can test both the pH of soil directly or after preparation of a diluted sample.

HI 99121 is supplied with HI 1292D pH electrode, HI 721319 soil auger, HI 7051M soil preparation solution, HI 70004 pH 4.01 buffer solution sachet, HI 70007 pH 7.01 buffer solution sachet, HI 700663 cleaning solution sachet for inorganic soil deposits, HI 700664 cleaning solution sachet for organic soil deposits, 100mL plastic beaker, batteries, instructions and a hard carrying case.

Specifications

HI 99121

Range	pH	-2.00 ~ 16.00pH
	Temperature	-5.0 ~ 105.0°C / 23.0 ~ 221.0°F
Resolution	pH	0.01pH
	Temperature	0.1°C / 0.1°F
Accuracy (@20°C)	pH	± 0.02pH
	Temperature	± 0.5°C (up to 60°C), ± 1.0°C (outside) / ± 1.0°F (up to 140°F); ± 2.0°F (outside)



Solution

HI 5004L	pH 4.01 buffer solution, 500mL
HI 5007L	pH 7.01 buffer solution, 500mL
HI 7051M	Soil preparation solution, 230mL
HI 700661P	Electrode cleaning solution for agriculture, 20mL sachets (25)
HI 700663P	Electrode cleaning solution for inorganic soil deposits, 20mL sachets (25)
HI 700664P	Electrode cleaning solution for organic soil deposits, 20mL sachets (25)
HI 70300L	Electrode storage solution, 500mL

pH / ORP Meter

- Automatic calibration
- Automatic buffer recognition
- Hold function
- Automatic Temperature Compensation
- Calibration tags on LCD

HI 8424 is one of the most popular pH meters on the market. This instrument is able to perform pH, ORP and temperature measurements with a high degree of accuracy and fast response.

HI 8424 is supplied with HI 1230B pH electrode, HI 7662 temperature probe, HI 70004 pH 4.01 buffer solution sachet, HI 70007 pH 7.01 buffer solution sachet, HI 700661 electrode cleaning solution sachets (2), battery, protective case and instructions.

Specifications

HI 8424

Range	pH	-2.00 ~ 16.00pH
	mV	± 699.9mV; ± 1999mV
Resolution	Temperature	-20.0 ~ 120.0°C / -4.0 ~ 248.0°F
	pH	0.01
Accuracy (@20°C)	mV	0.1mV; 1mV
	Temperature	0.1°C / 0.1°F
Accuracy (@20°C)	pH	±0.01
	mV	± 0.2mV; ± 1mV
Accuracy (@20°C)	Temperature	± 0.4°C / ±0.8°F



Solutions

HI 5004L	pH 4.01 buffer solution, 500mL
HI 5007L	pH 7.01 buffer solution, 500mL
HI 5010L	pH 10.01 buffer solution, 500mL
HI 7061L	Electrode cleaning solution, 500mL
HI 70300L	Electrode storage solution, 500mL

7. Chemical & Water Analysis

GPS Multiparameter Meter



- Display up to 12 parameters
- Track measurement locations with GPS
- Waterproof protection for meter (IP67) and probe (IP68)
- Fast Tracker™-Tag I.D. System simplifies test logging
- Log on demand and automatic logging (up to 60,000 samples)
- Good Laboratory Practice feature with last 5 calibrations recorded

This multiparameter meter is able to display up to 12 parameters, having waterproof protection for meter with fast tracker, GPS system, graphic LCD with built-in barometer for DO compensation.

Measure pH, pH/mV, ORP, % saturation DO, mg/L DO, EC, absolute EC, resistivity, TDS, salinity, seawater specific gravity, atmospheric pressure and temperature.

For measuring points within a 30 ft range or where GPS signals are not available, HI 9828's Fast Tracker™ is invaluable for associating measurements with their locations.

HI 9828 is supplied complete with a probe maintenance kit. This kit includes HI 7042S (electrolyte solution for DO sensor), (5) O-rings for DO sensor, a small brush, (5) O-rings for multiparameter probe and a syringe with grease to lubricate the O-rings.

Specifications

Range	HI 9828
pH	0.00 ~ 14.00 pH
mV of pH input	± 600.0 mV
ORP	± 2000.0 mV
Dissolved Oxygen	0.0 to 500.0% / 0.00 to 50.00 mg/L
Conductivity	0.000 to 200.000 mS/cm (absolute EC up to 400 mS/cm)
Resistivity	0 to 999999 Ω•cm; 0 to 1000.0 kΩ•cm; 0 to 1.0000 MΩ•cm
TDS	0 to 400000 mg/L or ppm
Salinity	0.00 to 70.00 PSU (Extended Practical Salinity Scale)
Seawater specific gravity	0.0 to 50.0 δ _t , δ _o , δ ₁₅
Atm. pressure	450 to 850 mmHg; 600.00 to 1133.2 mbar; 8.702 to 16.436 psi
Temperature	-5.00 to 55.00°C

pH / EC / TDS / Temperature Portable Meters



- Water resistant
- On-screen tutorial messages for calibration
- Switch parameters at the touch of a button
- Automatic Temperature Compensation
- Fast response probe included

HI 9811-5, pH / EC / TDS waterproof meters designed for simplicity in taking pH, µS/cm, ppm (mg/L) and temperature measurements. HI 9811-5 ideal for hydroponics, greenhouses, farming and ground water applications.

Specifications

Range		HI 9811-5
pH		0.0 ~ 14.0pH
EC		0 ~ 6000µS/cm
TDS		0 ~ 3000ppm (mg/L)
Temperature		0 ~ 60°C
Resolution	pH	0.1pH
	EC	10µS/cm
	TDS	10ppm (mg/L)
	Temperature	0 °C
Accuracy (@20°C / 68°F)	pH	± 0.1pH
	EC	± 2% F.S.
	TDS	± 2% F.S.
	Temperature	± 0.5°C

pH Buffer Solutions

HI 7004L	pH 4.01 buffer solution, 500mL
HI 7007L	pH 7.01 buffer solution, 500mL
HI 7010L	pH 10.01 buffer solution, 500mL
HI 70300L	Electrode storage solution, 500mL
HI 7061L	Electrode cleaning solution, 500mL

7. Chemical & Water Analysis

Multiparameter Photometer for Laboratories



HI 83200 measures up to 44 methods critical to analyzing water quality, based on special subminiature tungsten lamps and narrow-band interference filters to guarantee both high performance and reliable results.

Test

Alkalinity	Aluminum	Ammonia MR	Ammonia LR
Bromine	Calcium	Chlorine Dioxide	Chlorine*, Free
Chlorine*, Total	Chromium VI HR	Chromium VI LR	Color of Water
Copper HR	Copper LR	Cyanuric Acid	Fluoride
Hardness, Calcium		Hardness, Magnesium	
Hydrazine	Iodine	Iron HR	Iron LR
Magnesium	Manganese HR	Manganese LR	Molybdenum
Nickel HR	Nickel LR	Nitrate	Nitrite HR
Nitrite LR	Oxygen, Dissolved (DO)		Ozone
pH	Phosphate HR	Phosphate LR	Phosphorus
Potassium HR	Potassium MR	Potassium LR	Silica
Sliver	Sulfate	Zinc	

Multiparameter Photometer for Boilers and Cooling Towers



HI 83205 is a multiparameter bench meter that measures twenty-four methods essential for monitoring boiling and cooling towers. The parameters monitoring include: iron, whose presence can be an important indication of corrosion; chlorine to circumvent microbiological fouling; dissolved oxygen, whose presence causes corrosion; silica can point to a contamination of the feed water while phosphate is important to reduce scaling.

Test

Aluminum	Ammonia MR	Ammonia LR	Bromine
Chlorine Dioxide	Chlorine*, Free	Chlorine*, Total	Chromium VI HR
Chromium VI LR	Copper HR	Copper LR	Hydrazine
Iron HR	Iron LR	Molybdenum	Nitrate
Nitrite LR	Oxygen, Dissolved (DO)		Nitrite HR
Phosphate HR	Phosphate LR		pH
			Silica
			Zinc

Multiparameter Photometer for Aquaculture



Monitoring and controlling parameters such as the oxygen level as well as pH and nitrate content in water is vital in ensuring profitable fish production. Accurate control can prevent disease, increase production and even reduce the premiums on crop insurance. Research personnel, fish farm operators and wildlife specialists now have one compact and easy to use meter to keep a close tab on the most important parameters in aquaculture. HI 83203 is based on special subminiature tungsten lamps and narrow-band interference filters to guarantee both high performance and reliable results.

Test

Ammonia LR	Ammonia MR	Chlorine Free*	Chlorine Total*
Copper HR	Copper LR	Nitrate	Nitrite HR
Nitrite LR	Oxygen, Dissolved (DO)		pH
Phosphate HR	Phosphate LR		

Multiparameter Photometer for Environmental Testing

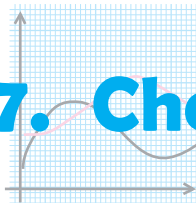


HI 83206 dedicated to environmental testing. Critical environmental parameters such as pH, dissolved oxygen, nitrite, ammonia, chlorine and phosphorus or pollutants like chromium VI, nickel, silver and zinc can be monitored with this meter. This instrument measures 24 different methods, and has four measuring channels for a wide range of tests.

Test

Ammonia MR	Ammonia LR	Chlorine*, Free	Chlorine*, Total
Chromium VI HR	Chromium VI LR	Color of Water	Copper HR
Copper LR	Cyanuric Acid	Molybdenum	Nickel HR
Nickel LR	Nitrate	Nitrite HR	Nitrite LR
Oxygen, Dissolved (DO)		pH	Phosphate HR
Phosphate LR	Phosphorus	Silica	Silver
			Zinc

7. Chemical & Water Analysis



Free and Total Chlorine Portable Photometer



- CAL CHECK™
- Certified calibration and verification standards
- User calibration
- GLP Features

The HI 96724 measures the free and total chlorine content in water samples in the 0.00 to 5.00mg/L(ppm) range. The method is an adaptation of the USEPA Method 330.5 for wastewater, and Standard Method 4500-CL G for drinking water.

Specifications

HI 96724 Free and Total Chlorine

Range	0.00 ~ 5.00mg/L (ppm)
Resolution	0.01mg/L from 0.00 to 3.50mg/L (ppm); 0.10mg/L above 3.50mg/L
Accuracy @ 25°C (77°F)	± 0.03mg/L ± 3% of reading

HI 96724 is supplied with sample cuvettes (2) with caps, 9V battery and instruction manual.

Reagents and standards

HI 93701-F	Reagents for 300 tests
HI 93701-T	Reagents for 300 tests
HI 93711-D3	DPD3 reagent for 200 tests
HI 96724-11	CAL CHECK™ standard Cuvettes

pH Mini Controller



- Easy to handle
- Fire retardant casing
- Selectable overdose protection system
- Splash resistant cover

BL 981411 pH controller has been designed for easy, affordable installation in tight spaces, ideal for simple and effective process control. Measurements are clearly displayed on the LCD, while the status LED indicates operating mode.

The pH Mini Controller is provided with differential pH input and can be used with any pH electrode with standard BNC connector with a dosing relay is also provided.

Set point adjustment (from 0 to 14pH) and calibration procedures are easily performed with trimmers on the front panel. Users can choose from automatic or manual dosing modes with a switch on the front panel.

Specifications

BL 981411-1

Range	0.0 ~ 14.0pH
Resolution	0.1pH
Accuracy (@20°C / 68°F)	± 0.2pH

BL 981411-1 (115 / 230V) are supplied with mounting brackets, transparent cover and instruction manual.

7. Chemical & Water Analysis

Conductivity Mini Controllers

- Easy to handle
- Fire retardant casing
- Selectable overdose protection system
- Splash resistant cover

Conductivity Mini Controllers have been specially designed for water conditioning and growing applications. Compact in size, they can be mounted in confined spaces or even right next to the vat or barrel containing the chemicals.

EC measurements are shown on the display and the multicolored LED continuously indicates if the mini controller is in measurement dosing or alarm mode.

Users can choose automatic or manual dosing mode with a switch on the front panel.

Specifications

	BL 983313	BL 983320	BL 983322
Range	0 ~ 1999 μ S/cm	0 ~ 199.9 μ S/cm	0 ~ 19.99 μ S/cm
Resolution	1 μ S/cm	0.1 μ S/cm	0.01 μ S/cm
Accuracy (@20°C / 68°F)	± 2% F.S.	± 2% F.S.	± 2% F.S.

BL 983313/20/22-0 (12VDC), BL 983313/20/22-1 (115 / 230V), are supplied with mounting brackets, transparent cover and instruction manual.



pH Digital Controllers & AmpHel pH High Temperature Electrode

- Single or dual set point
- Fully programmable
- mA and VDC recorder output or RS232
- Differential input for ground loop protection
- Automatic three point calibration
- Automatic Temperature Compensation

pH 500 series of controllers are simple to operate, microprocessor-based process meters with any two points between 0 and 14 pH can be chosen to correspond to the analog output spans. The models are equipped with a bi-directional RS232 port. Push button password programming prevents tampering.

The Fail Safe Alarm System protects the pH 500 against the power interruption or line failure. With one, two or three point calibration at pH 4.01, 7.01 and 10.01 comes standard.

Specifications

	pH 500
Range	0.00 to 14.0pH; -9.9 ~ 120°C
Resolution	0.01pH; 0.1°C
Accuracy (@20°C / 68°F)	± 0.02pH; ± 0.5°C
Set Point Relay	1 or 2 contact outputs SPDT 5A-250 VAC, 5A-30 VDC (resistive load), fuse protected (2A, 250V fast fuse)

Each pH 500 model is supplied complete with mounting brackets and instructions.

HI 6100405 Amplified pH electrode with matching pin, 5m (16.5') cable, BNC connector.



General purpose pH electrodes

	Type	Electrolyte	Matching Pin	Amplifier	Glass Type	Temperature	Max. Pressure	Connector	Cable
HI 6100405	Teflon®	polymer	yes	yes	GP	-5 ~ 80°C (23 ~ 176°F)	6 bar (87psi)	BNC	5m(16.5')



8. Laboratory Equipments

MRST60/MRST60N Series Stereo Microscope MRDVST60N Digital Series Stereo Microscope

MRST60N adopt new optics design, improve the definition of image, better resolution and better contrast. Efficiently reduce the user's fatigue, improve comfort level and operation efficiency. High quality optics system, and optical components coated with special coating, form a clear, bright and flat image in the field of view

Magnification	Standard:20X/40X, using optional eyepiece and auxiliary lens, it can extend to 5X~160X
Objective	Shift objectives 1X/3X, 2X/4X, 1X/2X (MRST60N) for option
Wide field and high eyepoint Eyepiece	a) WF10X/20mm b) WF15X/15mm c) WF20X/10mm
Viewing Head	<ul style="list-style-type: none"> Binocular head, 45°inclined,360°rotatable, inter-pupillary range 54~76mm, both two side diopter adjustment(±5) Trinocular head, one side light path output light splitting 100%:0 or 0:100% LCD head,8 inch LCD screen, resolution 800*600,CCD 520 TVLINES (MRDVST60N)
Working Distance	Standard:100mm, using optional auxiliary lens can expand to 30mm-165mm



MRST70 Series Stereo Microscope

Level shifter, more convenient operation, the ring light not follow rotation when shift the magnification, not affect the operation. WF10X/23 large field of view eyepiece, so that observation is more comfortable and efficient



Magnification	Standard:10X/30X, using optional eyepiece and auxiliary lens, it can extend to 5X~160X,
Objective	Shift objective 1X/3X, 2X/4X, 1X/2X
Wide field and high eyepoint Eyepiece	a) WF10X/23mm b) WF15X/16mm c) WF20X/12mm
Viewing Head	<ul style="list-style-type: none"> Binocular head, 45°inclined,360°rotatable, inter-pupillary range 54~76mm, both two side diopter adjustment(±5) Trinocular head, fixed light splitting 50% :50%
Working Distance	Standard:100mm, using optional auxiliary lens can expand to 30mm-165mm

MRSZ6 Series Zoom Stereo Lens MRDVZ6 Series Zoom Stereo Video Microscope



Designed for the applications in the fields of machine vision, industrial inspection and scientific research. Modularization product portfolio, excellent optical performance, SZ6 becomes a better choice for the lens applications in these areas.

- Adopt semi-apochromatic parallel optical imaging system, and use advanced multi-layer coating technology, excellently correct the imaging on the edge of field of view, to get high-resolution and high contrast images, naturally restore the true colors of observed objects.
- There are a variety of auxiliary lens and CCD for option, make the system's maximum magnification up to 0.09X-18X, working distance 37mm-356mm, object field of view 0.23mm-91mm
- Coaxial illumination system, adopt single high brightness 1W LED, color temperature 5500K, uniform lighting, suitable for high reflectivity surface precision detection, and limited exterior lighting occasions

Zoom lens

Zoom objective:0.7-4.5X

MRSZ6D

MRSZ6DF3, with 3mm fine adjustment

MRSZ6DF12, with 12mm fine adjustment

MRSZ6CHI, with coaxial light interface

MRSZ6CHIF3, with coaxial light interface and 3mm fine adjustment

MRSZ6DP, with main ratio positioning mechanism

MRSZ6CHIP, with main ratio positioning mechanism and coaxial light interface

MRSZ6DF3P, with main ratio positioning mechanism and 3mm fine adjustment

MRSZ6CHIF3P, with main ratio positioning mechanism, coaxial light interface and 3mm fine adjustment.

MRSZ6DF12P with main ratio positioning mechanism and 12mm fine adjustment

MRSZ6DMOT, motor-driven zoom

MRSZ6CHIMOT, motor-driven zoom, with coaxial light interface

LCD module

MRDVZ6:8 inch LCD screen, resolution ratio 800*600,CCD 520 TVLINES, can mount on any zoom lens

8. Laboratory Equipments

MRSZ7 Series Monocular Zoom Stereo Video Microscope

Meet the requirements of digital imaging observation, inspection and measurement in modern electronic equipment, semiconductor, laser, LED, LCD, online testing and biological areas.

- High quality optical system and optical components with special coating, created a high-quality optical images.
- Monocular zoom body, Zoom stereo objectives, high resolution and definition
- MRSZ7D standard magnification: 0.7X~5X, MRSZ7CHI standard magnification: 1X~7X
- Total optics magnification: MRSZ7/CHIB5 0.4X~2.8X MRSZ7/DB5 0.28X~2X
- Working distance: MRSZ7/DB5 105mm, MRSZ7/CHIB5 100mm



MREZ460D Digital Zoom Stereo Microscope

- New optics offers high quality resolved images, 1:4.4 zoom ratio
- Integrated 5.0 mega-pixel 1/2.5 inch CMOS camera
- Images can be recorded and saved with 2G SD card.
- With HDMI , AV, USB2.0 interface for high definition output
- Fixed eyepiece design for safe handling of microscope

Magnification	8X-35X
Eyepiece with diopter control	a) WF10TX22mm eyepiece b) WF15TX16mm eyepiece c) WF20TX12mm eyepiece
Digital viewing head	Binocular head , 60°inclined, interpupillary distance 50mm-75mm, build-in interlocking mechanism. Zoom objective:0.8X-3.5X, working distance:95mm



MRSZX7 Zoom Stereo Microscope

Provide high quality optical system and stable operation system

- Fixed position and fixed times function
- With simple operation, excellent optical performance
- Can add the middle light path between the viewing head and zoom tube

Optical system	Two independent parallel optical system(Galileo optical system)
Viewing head	45°inclined
Interpupillary distance	54-75mm
Eyepiece	PL10x22T(FN22), with diopter adjustable
Magnification	0.8-5.6 zoom objective
Objective	1x
Working distance	90mm



8. Laboratory Equipments

MRSZ4 Series Zoom Setreo Microscope

- New optical system with sharp and good contrast images
- Compact stucture and appearance design for saving space
- Zoom objective:0.8x~3.5x,zoom ratio:1:4.4,be suitable for industry detection
- 45°and 60°inclined head
- Working distance: 95mm
- Be suitable for industry detection and industry equipment bonding

Eyeiece	High eyepiont wide field WF10X/20mm, WF15X/15mm, WF20X/10mm (reticle mountable)
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MRSZN Series Zoom Stereo Microscope

The new design of the optical system, it improved image quality to new levels, a greater range of clear and high resolution. Integrated design of LED lighting and stand

MRSZ45/N series zoom stereo microscopes meet high-precision requirements on modern biology, medicine, scientific research, inspection lines in modern electronics and other technology industries.

Wide field high eyepiont diopter adjustment Eyeiece (can mount micrometer)	a) WF10X/22mm b) WF15X/16mm c) WF20X/12mm
Viewing Head 360°rotatable, zoom objective 0.67X-4.5X, working distance 100mm. inter-pupillary range 54~76mm, both two tube diopter adjustment(±5)	a) MRSZN745: Binocular head, 45° inclined, b) MRSZN745TR: Trinocular head, 45° inclined c) MRSZN760: Binocular head, 60° inclined



MRSZ Series Zoom Stereo Microscope

Provide high quality optical system and stable operation system. Complete accessories and diversified combination specification. To meet high-precision requirements on modern biology, medicine, scientific research, inspection lines in modern electronics and other technology industries

Wide field high eyepiont Eyeiece (can mount micrometer)	a) WF10X/22mm, b) WF15X/16mm b) WF20X/12mm, d) WF25X/9mm
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Viewing Head zoom objective 0.67X-4.5X, or 0.9X-4.0X, working distance 100mm.



8. Laboratory Equipments



New structural design, more compact and flexible, more comfortable operating and more widely used. Full-featured, cost-effective, the best choice for the inspection in modern electronics industry

MRSZMN Series Zoom Stereo Microscope MRDVSZMN Digital Zoom Stereo Microscope

- High quality optical system, and optical components coated with special coating, created a high-quality optical system
- Standard magnification 7X~45X. Use optional auxiliary lens, the magnification can be 3.5X~180X
- Long working distance to create enough space for the users
- Suit to ergonomic design, feel less fatigue when long time use

Eyepiece	Wide field high eyepoint eyepiece WF10X/20mm, WF15X/15mm, WF20X/10mm (can mount micrometer)
	Wide field high eyepoint eyepiece and diopter adjustment eyepiece WF10X/20mm, WF15X/15mm, WF20X/10mm (can mount micrometer)
Viewing Head 360°rotatable, zoom objective 0.7X-4.5X, working distance 100mm. inter-pupillary range 54~76mm	<p>MRSZMN7045 : Binocular head, 45° inclined, MRSZMN7045 : Trinocular head, 45° inclined, MRSZMN645 : Binocular head, 45° inclined, MRSZMN645 : Trinocular head, 45° inclined, MRDVSZMN645 : Digital head with LCD screen. 45° inclined, 8 inch LCD screen, resolution ratio 800*600, CCD 520 TVLINES</p>



High quality optical performance, various accessories and diversified combination specification. To meet high-precision requirements on modern biology, medicine, scientific research, inspection lines in modern electronics and other technology industries

MRSZM Series Zoom Stereo Microscope MRDMSZM Digital Zoom Stereo Microscope

- High quality optical system, and optical components coated with special coating created a high-quality optical system.
- Standard magnification 7X~45X. Use optional auxiliary lens, the magnification can be 3.5X~180X
- Long working distance to create enough space for the uses
- Suit to ergonomic design, feel less fatigue when long time use

Wide field high eyepoint eyepiece Eyepiece (can mount micrometer)	a) WF10X/20mm b) WF20X/10mm
Viewing Head	<p>MRSZM7045 : Binocular head, 45° inclined, 360°rotatable, zoom objective 0.7X-4.5X, working distance 100mm. Inter-pupillary range 54~76mm, both two tube diopter adjustment(±5)</p> <p>MRSZM-7045TR : Trinocular head, 45° inclined, 360°rotatable, can mount TV adapter</p> <p>MRSZM-7045V : Digital head, built-in 450 thousand pixels CCD, 480 TVLINES</p>
Auxiliary Lens	0.5X/165mm. 0.75X/105mm. 1.5X/45mm. 2X/30mm.



MRSZG Jewelry Microscope

Gerry Ivanov optical imaging systems and special jewelry tested microscope stand. Fully meet the appraisal needs of all kinds of diamonds, crystals, gems and other jewelries.

- Using 1:6.7 zoom optical system, 0.67X-4.5X zoom lens, magnification setting meet the jewelry appearance observation and the internal fine identification needs. Excellent optical system provides more clear, high contrast, high resolution images. Also a better depth of field made the final image has a 3D effect.

High eyepoint wide field diopter adjustable Eyepiece (Micrometer can be installed)	<p>a) WF10X/22mm b) WF15X/16mm c) WF20X/12mm</p>
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8. Laboratory Equipments

MRMX-6R Series Metallurgical Microscope MRMX-4R Series Metallurgical Microscope



Flexible system, excellent imaging performance and stable system architecture. MRMX-6R series professional used in industrial testing and metallographic analysis.



Flexible system, excellent imaging performance and stable system architecture. MRMX-4R series professional used in industrial testing and metallographic analysis.

Model	MRMX-6R	MRMX-6RT	MRMX-4R	MRMX-4RT
Alternative method of observation	Bright field/Dark field/polarizing/DIC	Bright field/Dark field/polarizing/DIC / Transmission light	Bright field/Oblique illumination/ polarizing/DIC	Bright field/Oblique illumination/polarizing/ DIC /Transmission light
Optical system	Infinity color corrected optical system		Infinity color corrected optical system	
Eyepiece	High eyepoint plan eyepiece PL10X/22		Hight eyepoint plan eyepiece PL10X/22	
Objective	LMPL-BD infinity LWD metallurgical objective (both brightfield and darkfield available)		LMPL infinity LWD Metallurgical objective 5X, 10X, 20X, 50X, 100X	
Viewing head	Erect image , 25°gemel trinocular , reflect rate, binocular:trinocular=100:0 or 0:100		30°inclined gemel trinocular, reflect rate, binocular:trinocular=100:0 or 50:50	
Nosepiece	<ul style="list-style-type: none">Reversed quintuple nosepiece, both brightfield and darkfield available ,with DIC slotReversed quintuple nosepiece, both brightfield and darkfield available		Reversed quintuple nosepiece, with DIC slot	
Stage	6"three ply mechanical stage, moving range158x 158mm, glass stage, right hand position X, Y moving wheel with clutch handle, can be moved fast	6" three ply mechanical stage, reflected moving range 158x 158mm, Transmission moving range:100x100mm, glass stage, right hand position X, Y moving wheel with clutch handle, can be moved fast	4" mechanical stage, moving range 105x 105mm, with metal plate, right hand position X, Y moving hand wheel, the platform with interface	4" mechanical stage, moving range 105x 105mm, with glass plate, right hand positionX, Y moving hand wheel, the platform with interface
Body	Coaxial coarse and fine focus system, Coarse adjustment range 33 mm;precision of fine adjustment:0.001mm., with coarse adjustment stop and tightness adjustment, Built-in wide voltage 90V-240V, single power supply output		Coaxial coarse and fine focus system, Coarse adjustment range 33 mm; precision of fine adjustment:0.001mm., with coarse adjustment stop and tightness adjustment, Built-in wide voltage 90V-240V	
Reflective illumination System	With iris diaphragm and aperture diaphragm, both centers adjustable, with filter slot and polarizing device slot, switch rod with oblique lighting,12V100W halogen bulb, light intensity continuously adjustable			
Transmission illumination system	-	Single high power 5W LED, white, light intensity continuously adjustable. N.A.0.5 condenser with iris aperture diaphragm	-	Single high-power 5W LED, white, light intensity continuously adjustable. N.A.0.5 condenser with iris aperture diaphragm

8. Laboratory Equipments

MRXYM Series Metallurgical Microscope

Provide superior image and reliable mechanical structure; Easy operating, various of accessories, widely used in teaching and research metallographic analysis, Semiconductor silicon wafer inspection, geology mineral analysis, precision engineering surveying fields.



Optical system	Infinity color corrected optical system
Viewing head	<ul style="list-style-type: none"> Gemel binocular , 30°inclined, 360° rotatable, Interpupillary distance adjustable between: 54-75mm, Diopter adjustment ± 5 Gemel trinocular , refract rate: binocular 100% binocular: trinocular = 50%:50%
Eyepiece	High eyepoint widely field plan eyepiece PL10X22mm High eyepoint widely field plan eyepiece PL15X/16mm
Objective	Infinity LWD plan achromatic metallurgical objective: LMPL5X /0.15 /WD10.8 LMPL10X/0.3 /WD10 LMPL20X/0.45 /WD4 Infinity LWD plan semi-apochromatic metallurgical objective: LMPLFL50X/0.55 /WD7.8 LMPLFL100X/0.80 /WD2.1
Nosepiece	Reversed quintuple nosepiece

MRBHM Series Metallurgical Microscopes

Plan achromatic optics and Epi Kohler illumination system and anti-reflective structure in the epi-illumination system, can make the image clarity better contrast of field of view.

And effectively prevent interference by stray light. Widely used in various types of semi-conductor silicon wafer inspection, material science study, geology mineral analysis and precision engineering and other disciplines



Optical system	Finity color corrected optical system
Viewing head	Gemel binocular, 30° inclined, 360° rotating, Interpupillary distance adjustable between 54-75mm, Diopter adjustment ± 5 for each side; Gemel trinocular, refract rate, binocular:trinocular=80%:20%
Eyepiece	High eyepoint plan eyepiece PL10X, view of field 18mm
Objective	LWD plan achromatic metallurgical objective 5X, 10X, 20X, 50X, 100X
Nosepiece	Reversed quadruple nosepiece Reversed quintuple nosepiece

8. Laboratory Equipments

MRXDM Series Metallurgical Microscope

Provide superior image and reliable mechanical structure; Easy operating, various of accessories, widely used in teaching and research metallographic analysis and facilitate materials testing

Optical system	Infinity color corrected optical system
Viewing head	Gemel trinocular head 45°inclined, Interpupillary distance adjustable between: 54-75mm, diopter adjustment ± 5 , refract rate: binocular 100%, binocular:trinocular=80%:20%
Eyepiece	High eyepoint widely field plan eyepiece PL10X22mm High eyepoint widely field plan eyepiece PL15X/16mm
Objective	Infinity LWD plan achromatic metallurgical objective: LMPL5X /0.15 /WD10.8 LMPL10X/0.3 /WD10 LMPL20X/0.45 /WD4 Infinity LWD plan semi-apochromatic metallurgical objective: LMPLFL50X/0.55 /WD7.8 LMPLFL100X/0.80 /WD2.1
Nosepiece	Reversed quintuple nosepiece



MRIE200M Series Metallurgical Microscope

- Professional metallurgical objective and plan eyepiece provide clear image, high resolution, comfortable observation
- Superior image and reliable mechanical structure.
- With the corresponding photo or video accessories, can collect and preserve the image, with computers and specialized metallographic analysis software can analyze the metallographic image.
- Easy to operate, Have all kinds of accessories. Widely used in teaching and research metallographic analysis, semiconductor silicon wafer inspection, geology mineral analysis, precision engineering and surveying fields.

Optical system	Finity color corrected optical system
Viewing head	Gemel trinocular, 45°inclined, Diopter adjustment ± 5 for each side, Interpupillary distance adjustable between: 54-75mm, refract rate, binocular:trinocular =80%:20%
High eyepoint wide field plan Eyepiece	a) PL10X/18mm b) WF15X/13mm c) WF20X/10mm
Metallurgical	LWD plan achromatic metallurgical objective 5X, 10X, 20X, 50X, 100X
Nosepiece	Reversed quadruple nosepiece Reversed quintuple nosepiece



8. Laboratory Equipments



MRXY-P Series Polarizing Microscope

Provide superior optical system and reliable operating mechanism
Clear image, easy operating, widely used in component analysis and identification on a variety of mineral specimens and sample slices under polarized light.

- This series microscope is a laboratorial polarizing microscope, for research and teaching
- Professional metal rotary stage, particularly craftwork, wear-resistant

Optical system	Color corrected infinity optical system (CSIS)
Viewing head	<p>Infinity gemel type binocular head, 30°inclined, 360° rotatable, inter-pupillary adjustment range:54mm to 76mm, diopter adjustment of range(±5mm)</p> <p>Infinity gemel type trinocular head , light split ratio : binocular 100% , binocular: trinocular = 50%:50%</p> <p>Infinity digital head, 3 mega. pixels</p>
High eyepoint wide field plan Eyepiece	<p>a) PL10X/22、</p> <p>b) PL10X/22R with reticle</p> <p>c) PL10X/22G with gridding</p> <p>d) PL10X/22T with diopter adjustment</p> <p>e) PL15X/16</p>
Objective	<p>Transmission: Infinity plan destressing objective 4X, 10X, 20X, 40XS, 60XS, 100XS (oil)</p> <p>Transmission & reflection: Long working distance infinity plan destressing objective 5X,10X,20X, 50XS,100X</p>
Nosepiece	Reversed quadruple nosepiece (center adjustable and with objective center control wrench)
Polarizer	<p>Transmission :360°rotatable, 0, 90, 180, 270 four type graduations,</p> <p>Reflection: built in reflected illuminator, fixed</p>



MRBH-P Series Polarizing Microscope

- This series microscope is a universal-type polarizing microscope, designed for teaching and conventional usage
- Professional metal rotary stage, particularly craftwork, wear-resistant
- Koehler illuminator systems, wide-range voltage, effectively protect and extend the life of bulbs
- Widely used in component analysis and identification on a variety of mineral specimens and sample slices under polarized light.

Optical system	Color corrected infinity optical system
Viewing head	<p>Gemel type binocular head, 30°inclined, 360° rotatable, inter-pupillary adjustment range:54mm to 75mm, diopter adjustment of range(±5mm)</p> <p>Gemel type trinocular head, fixed light split ratio, binocular:trinocular =80%:20%</p> <p>Gemel type digital viewing head</p>
High eyepoint wide field plan Eyepiece	<p>a) PL10X/18、</p> <p>b) PL10X/18r with reticle</p> <p>c) PL10X/20</p> <p>d) PL10X/18G with gridding</p> <p>e) PL15X/13</p> <p>f) PL20X/10</p>
Objective	<p>Plan destressing objective 4X,10X,20X,40XS,60XS</p> <p>Achromatic objective 4X,10X,20X, 40XS,60XS</p>
Nosepiece	Reversed quadruple nosepiece
Polarizer	360°rotatable, 0, 90, 180, 270 four type graduations
Analyser	360°rotatable, 2° increments , a does value of vernier 6'

8. Laboratory Equipments



MRXY laboratory fluorescence microscope, designed for biomedicine cell detection, immuno fluorescence analysis, cell culture observation, fluorescence in-situ hybridization (fish).

MRXY Biological Fluorescence Microscope

- New generation of infinity color corrected optical systems and professional plan semi-apochromatic fluorescence objectives, present you sharp and bright fluorescence image.
- Professional fluorescence filter system, imported optical material and broadband multilayer coating, high transmissivity, mould proof, heat insulation and safety protection system, OSRAM brand mercury lamp, digital power-supply control.

Optical system	Color corrected infinity optical system
Head	Gemel trinocular head, 30° inclined, interpupillary distance adjustment range 54-75mm, one eyepiece tube with ± 5 diopter adjustment light splitting ratio: binocular 100%; binocular 0%/trinocular 100%
Eyepiece	PL10X22mm high eye-point plan eyepiece
Objective	Infinity plan semi-apochromatic fluorescence objective 4X/0.13/WD15.3mm 10X/0.30/WD8.7mm 20X/0.50/WD2.5mm 40X/0.75/WD0.72mm 100X/1.28/WD0.21mm
Nosepiece	Reversed quintuple nosepiece

MRXY Series Biological Microscope MRDMXY Digital Biological Microscope



- A new generation of infinity color corrected optical systems with wide-field high eye-point eyepieces and plan achromatic objectives, presents you sharp and bright micro-images.
- New professional fluorescence disc filter system with high-quality displays excellent performance.
- Intelligent fluorescence image processing software and digital image processing software, meets any request of the most professional picture processing.

Model	MRXY
Optical system	Infinity color corrected optical system
Eyepiece	Wide-field high eye-point plan eyepiece: PL10X/22mm (with reticle for optional), PL15X/16mm
Objective	Infinity plan achromatic objectives, infinity plan phase contrast objectives, plan Semi-apochromatic fluorescent objectives
Viewing head	30° inclined gemel binocular head, 360° rotatable, interpupillary distance range: 54-75mm, Diopter adjusting range: ± 5 diopter either side. 30° inclined gemel trinocular head, splitting ratio for binocular : trinocular = 50:50, interpupillary distance range: 54-75mm, diopter adjusting range: ± 5 diopter either side. 30° inclined gemel fluorescent trinocular head, splitting ratio for binocular : trinocular = 100: 0 or 0:100, interpupillary distance range: 54-75mm, diopter adjusting range: ± 5 diopter either side. Efficient infinity gemel binocular head, 30°-60° adjustable elevation, 360° rotatable, interpupillary distance range: 54-75mm, diopter adjusting range: ± 5 diopter either side. 30° inclined digital gemel binocular head, interpupillary distance range: 54-75mm, diopter adjusting range: ± 5 diopter either side, internal 320/500 million pixels camera, USB2.0 output
Nosepiece	Revolving quintuple nosepiece

8. Laboratory Equipments

MRXD-RFL Series Inverted Fluorescence Microscope



MRXD-RFL laboratory inverted fluorescence microscope, designed for cell culture observation, to get details of cell growing process, internal spontaneous fluorescence phenomenon, living cell fluorescence transfection, protein transfer and etc.

Model	MRXD30-RFL	MRXD30A-RFL
Optical system	Color corrected infinity optical system	
Head	Gemel trinocular head, 45° inclined, interpupillary distance adjustment range 54-75mm, one eyepiece tube with ± 5 diopter adjustment light splitting ratio: binocular 100%; binocular 0%/trinocular 100%	
Eyeiece	PL10X22mm high eye-point plan eyepiece	
Objective	Long working distance infinity plan fluorescence objective LWDPLF4X/0.13/WD18.52 LWDPLF10X/0.30/WD7.11 LWDPLF20X/0.45/WD5.91 LWDPLF40X/0.65/WD1.61 LWDPLF60X/0.75 /WD1.04 Long working distance infinity plan fluorescence phase contrast objective LWDPLFP20X/0.45WD5.91 LWDPLFP40X/0.65WD1.61	
Nosepiece	Quintuple nosepiece	

MREX30 Series Biological Microscope MREX30 Multiband Biological Fluorescence Microscope MREX30 Single-band LED Fluorescence Biological Microscope MRDMEX30 Digital Biological Microscope



- Various microscopic examinations can be fulfilled, such as bright-field, dark-field, phase contrast, fluorescence, simple polarizing and so on.



- LED fluorescence excitation illumination, breadding through the traditional type, is more stable, low radiation and over long working.

Digital viewing head, 3.2 million pixels high resolution camera system with USB2.0 digital output.

Model	MREX30
Optical system	Infinity corrected Achromatic optical system
Eyeiece	PL10X/20T plan eyepiece 10X with diopter ± 5 adjustable ,field scope 20mm PL10X/22T plan eyepiece 10X with diopter ± 5 adjustable, field scope 22mm
Objective	OIP infinity plan achromatic objective 4x.10x.20x.40x.100x Infinity phase contrast objectives10X、 20X、 40X、 100X Plan Semi-apochromatic fluorescence objectives 4X、 10X、 20X、 40X、 100X
Viewing head	30° gemel binocular , Eyepiece tube can rotate 360°, interpupillary distance range: 50-75mm 30° gemel trinocular , Eyepiece tube can rotate 360°, interpupillary distance range: 50-75mm, fixed spectroscopical ratio R: T=8:2 30° gemel fluorescent trinocular head, Eyepiece tube can rotate 360°, interpupillary distance range: 50-75mm, fixed spectroscopical ratio R: T=5:5
Filter	Fluorescence filter:B1/G1/V1/UV1
Nosepiece	Reversed quintuple nosepiece Reversed quadruple nosepiece

8. Laboratory Equipments

MREX20 Series Biological Microscope MRDMEX20 Digital Biological Microscope



Digital viewing head, 3.2 million pixels high resolution camera system with USB2.0 digital output

- This microscope can also be used with many accessories to realize bright field, simple polarization, dark field, phase contrast. Which has excellent cost-performance.
- This microscope can be used in variety of biological applications, such as teaching and laboratory.

Optical system	Infinity achromatic optical system
Observation tube	Binocular head, 30° inclined, 54~75mm interpupillary distance Trinocular head, 30° inclined, (with 0/100 or 20/80 light splits)
Eyepiece	High eyepoint widefield plan eyepiece PL10X/18mm, with ±5 degrees diopter control High eyepoint widefield plan eyepiece PL10X/20mm, with ±5 degrees diopter control
Objective	Infinity plan achromatic objective 4X, 10X, 20X, 40X, 100XSO
Nosepiece	Backward quadruple nosepiece Backward quintuple nosepiece

MRXD30 Series Inverted Biological Microscope



Color corrected infinity optical system.

Ergonomics physical design, various accessories for option
---Specially design for observation of cell structure

- Professional vertical fluorescence technology, to get clear and bright fluorescent image

Optical system	Color corrected infinity optical system
Head	Gemel binocular head, 45° inclined, interpupillary distance adjustment range 54-75mm, one eyepiece tube with ±5 diopter adjustment Gemel trinocular head, 45° inclined, light splitting ratio: binocular 100%; binocular 80%/trinocular 20%
Eyepiece	PL10X22mm high eye-point plan eyepiece PL15X16mm high eye-point plan eyepiece
Objective	Infinity long working distance plan achromatic objective: LWDPL4X/0.1/WD22 LWDPL10X/0.25WD7.94 LWDPL20X/0.40WD7.66 LWDPL40X/0.60/WD3.71 LWDPL60X/0.70/WD2.50 Infinity long working distance plan phase contrast objective: LWDPL10X/0.25WD7.94 LWDPL20X/0.40WD7.66 LWDPL40X/0.60/WD3.71
Nosepiece	Reversed quintuple nosepiece

8. Laboratory Equipments

MRICX40 Laboratory Inverted Biological Microscope



- Phase contrast with the characteristics of high-contrast and low chromatic, high lights the cell outline and internal structure.

Model	MRICX40
Optical System	Infinity color corrected optical system
Eyeiece	High eye-point plan eyepiece PL10X/22, field of view: 22mm. High eye-point plan eyepiece PL10X/22, field of view: 22mm, with reticle. High eye-point plan eyepiece PL15X/16, field of view: 16mm
Objective	OLIPP2N long working distance plan positive phase contrast objective 4X、10X、20X、40X
Nosepiece	Revolving quintuple nosepiece (option: quadruple nosepiece)
Viewing Head	45°inclined gemel binocular head, interpupillary distance range: 54-75mm. 45°inclined gemel trinocular head, interpupillary distance range: 54-75mm. fixed splitting ratio for binocular: trinocular= 80:20.

MRBS Series Biological Microscope



Optical system	Finity & infinity achromatic optical system
Observation tube	Binocular head , 30°inclined, 54~75mm interpupillary distance, ±5 degrees diopter control Trinocular head, 30°inclined , (with 0/100 or 20/80 light splits)
Eyeiece	High eyepoint widefield plan eyepiece PL10X/18mm High eyepoint widefield plan eyepiece PL10X/20mm
Objectives	Achromatic objective 4X、10X、40X (S) 、100X (S、Oil) Plan achromatic objective 4X、10X、20X、40X (s) 、100X (S、Oil) Infinity plan achromatic objective 4X、10X、20X、40X (s) 、100X (S、Oil)
Nosepiece	Backward quadruple nosepiece Backward quintuple nosepiece

MRBH Series Biological Microscope

- Designed to be used in teaching applications, lab, chemical, and scientific reserch



Optical system	Finity/Infinity optical system
Observation tubes	Binocular head, inclined 30 degrees and rotating Trinocular head with light splits 80%:20% 54-75mm interpupillary distance, ±5 degrees diopter control
Eyeiece	PL10X/18mm, High eyepoint ,widefield plan eyepiece PL10X/20mm, High eyepoint ,widefield plan eyepiece
Objective	Finity high contrast achromatic objective: 4X、10X、40XS、100XSO Finity plan achromatic objective: 4X、10X、20X、40XS、100XSO Infinity plan achromatic objective: 4X、10X、20X、40XS、100XSO
Nosepiece	Quadruple/quintuple with click stop

8. Laboratory Equipments

MRXS Series Biological Microscope MRDMXS Digital Biological Microscope



This microscope can be used in teaching and laboratory in colleges and university, as well as R & D institution.

Observation tube	<ul style="list-style-type: none"> Binocular head ,45°inclined and rotating Trinocular head,45°inclined and rotating, 54~75mm interpupillary distance, ±5 degrees diopter control Binocular head,30°inclined and rotating, 54~75mm interpupillary distance, ±5 degrees diopter control Trinocular head,30°inclined and rotating, 54~75mm interpupillary distance, ±5 degrees diopter control Digital head, 30°inclined and rotating
Eyepiece	Wide field eyepiece WF10X/18, (option pointer and micrometer) WF15X/13mm, WF20X/10mm
Objective	Plan achromatic 4X、10X、20X、40XS、100XSO Infinity plan achromatic 4X、10X、20X、40XS、100XSO
Nosepiece	Quadruple backward nosepiece

MRXSM Series Biological Microscope



- This microscope can be used in teaching and laboratory in colleges and university, as well as R & D institution.

Eyepiece	High eyepoint wide field eyepiece WF10X/18, (option pointer and micrometer) Wide field eyepiece WF15X/13、WF 20X/10
Objective	Achromatic objective 4X、10X、40X、100X Plan objective 4X、10X、40X、100X
Observation tube	<ul style="list-style-type: none"> Monocular head ,45°inclined and rotating Binocular head,45°inclined and rotating Trinocular head,45°inclined and rotating Binocular head,30°inclined and rotating Trinocular head,30°inclined and rotating
Focusing adjustment	Coaxial coarse and fine focusing adjustment,with limited and tension adjustment. coarse adjustment travel range:22mm,fine adjustment precision:0.002mm
Nosepiece	Triple nosepiece Quadruple nosepiece

MRXSG Series Biological Microscope

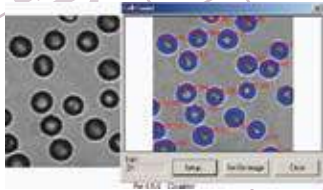


- This microscope can be used in teaching and laboratory in colleges and university, as well as R & D institution

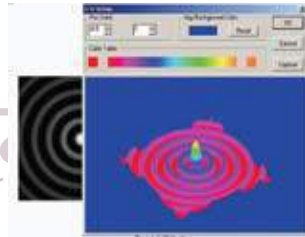
Observation tube	<ul style="list-style-type: none"> Binocular head,45°inclined and rotating Binocular head , 45°inclined and rotating, 55~75mm interpupillary distance, ±5 degrees diopter control Binocular head , 30°inclined and rotating, 54~75mm interpupillary distance, ±5 degrees diopter control Trinocular head , 30°inclined and rotating, 54~75mm interpupillary distance, ±5 degrees diopter control Digital head, 30°inclined and rotating
Eyepiece	Wide field eyepiece WF10X/18, (option pointer and micrometer) WF15X/13mm, WF20X/10mm
Objective	Achromatic objective 4X、10X、20X、40XS、100XSO Plan achromatic objective 4X、10X、20X、40XS、100XSO
Nosepiece	Quadruple backward nosepiece

8. Laboratory Equipments

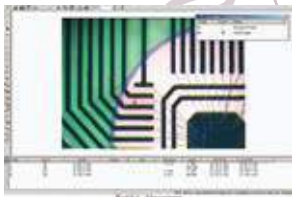
Software - Photolib



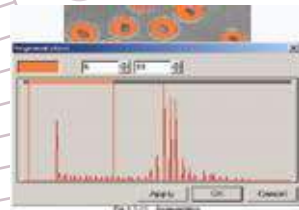
• Image Processing



• 3D Simulation



• Geometric Measurement



• Quantitative Analysis

Function

- Support TWAIN standard scanners and digital cameras and a variety of image acquisition card
- The up to date programming tools, Chinese or English menu
- Including: color adjustment, image deformation, digital form processing, image enhancement texture analysis, identification, such as more than hundred kinds of professional image processing and analysis function
- Support 24 bit true color image acquisition, processing and analysis for RGB, CMYK, HSV, YUV color model
- Advanced particle automatic identification system, particles automatic segmentation function
- Geometric measurement, automatic quantitative analysis, with a variety of parameters

Operation systems

Support WIN95, WIN98, WIN2000 and WINXP

Microscope Digital Eyepiece - BSMDE-130

MDE-130 is designed for improving a traditional microscope to a digital microscope by plug in to an eyepiece. It can be used either on a monocular, binocular or a trinocular microscope. It is 1.3 Megapixel, it can be directly connect to a PC. The analysis software can take images, take videos and can measure the object without touch.

Features

- Adopt high performance USB2.0 colorful sensor
- With high-resolution 1280x1024 (1.3M Pixel), avoid mosaic phenomenon and make image fluent
- With 30f/s high image transmission speed, makes image transmission more fluent and realistic
- Convenient to use and just insert it into eyepiece tube of trinocular head
- With software measurement functions, it is an outstanding assistant in medicine, teaching, industrial inspection field and other sectors

Colorful Digital Camera

BSBUC2 Series digital cameras are colorful USB2.0 digital image system that captures microscope images and displays real-time live video on your PC screen. It comes with a high-resolution digital camera, built-in reduction lens, user-friendly software, and adapters for all sizes of microscopes.

Features

- With high resolution sensor, providing high quality image
- Very convenient to Use, just insert it into Eyepiece Tube or Top Tube of Trinocular Head
- Through USB2.0 interface, getting Real-time and Non-compressing Video Data and Capturing Image Directly
- High sensitivity, low noise, excellent color correction
- Easy and fast software installation

8. Laboratory Equipments

The Ultimate Hand-Held Refractometer



Master - Q series

Refractometer (Automatic Temperature Compensation & Water Resistant)

Master - H series

Refractometer (Automatic Temperature Compensation, Water Resistant & Heat Resistant)

Master - T series

Refractometer (Automatic Temperature Compensation)

Master - M series

Refractometer

Master-M series is good choice when the Water Resistant feature is not a priority, and the Temperature Compensation will be carried out manually. Economical and uncompromising quality.

Application

Measuring sugar concentration, concentration, Brix and Refractive Index

- ▶ **Agriculture** Fruit and vegetable juice / Leaf juice / Stem juice / Root juice
- ▶ **Drink** Fruit juice / Soft drink / Carbonated beverage
- ▶ **Food** Condiment / Various sauces / Soy sauce / Jam / Soybean milk / Honey / Oil
- ▶ **Cooking** Chinese noodle soup / Various soup / Various sauces
- ▶ **Salinity** Sodium chloride solution / Sea water
- ▶ **Machine Tools** Fire extinguishing solution / Soluble cutting oil
- ▶ **Chemicals & medicine** Brine / Snow-melting agent / Medicine / Chemical / Cosmetics / Cleaning solution
- ▶ **Clinical** Urine / Serum

Model	Master - M	Master - 2M	Master - 3M	Master - 4M	Master - 53M	Master - 10M	Master - 20M	Master - PM
Cat.No	2313	2323	2333	2343	2353	2373	2383	2393
Scale range	Brix 0.0 to 33.0%	Brix 28.0 to 62.0%	Brix 58.0 to 90.0%	Brix 45.0 to 82.0%	Brix 0.0 to 53.0%	Brix 0.0 to 10.0%	Brix 0.0 to 20.0%	Brix 0.0 to 33.0%
Minimum scale	Brix 0.2%		Brix 0.5%			Brix 0.1%		Brix 0.2%

Model	Master - S10M	Master - S20M	Master - S / Mill M	Master - BR	Master - BC	Master - BCF	Master - RI
Cat.No	2473	2483	2493	2930	2931	2932	2612
Scale range	Sodium chloride 0.0 to 10.0g / 100g	Sodium chloride 0.0 to 28.0g / 100g	Salinity 0 to 100% Specific gravity 1.000 to 1.070	propylene glycol 0 to 70%, 0 to -50°C ethylene glycol 0 to 70%, 0 to -50°C	<Freezing temperature scale> ethylene glycol 0 to -50°C propylene glycol 0 to -50°C <Battery fluid d20/20> 1.150 to 1.300	<Freezing temperature scale> ethylene glycol 32 to -60°F propylene glycol 32 to -50°F <Battery fluid d20/20> 1.150 to 1.300	Refractive index 1.435 to 1.520
Minimum scale	Sodium chloride 0.1g / 100g	Sodium chloride 0.2g / 100g	Salinity 1% Specific gravity 0.001	5%, 5°C	<Freezing temperature scale> ethylene glycol 5°C propylene glycol 5°C <Battery fluid d20/20> 0.01	<Freezing temperature scale> ethylene glycol 10°F propylene glycol 10°F <Battery fluid d20/20> 0.01	Refractive index 0.001

Digital Refractometers for Sugar Analysis Throughout the Food Industry



Features

- Ideal for the analysis of: fruits, energy drinks, puddings, soy milk juices, jam, marmalade, honey, soups, jelly, tofu and condiments
- Dual-level LCD
- Automatic Temperature Compensation
- Single point calibration

The HI 96801 Sucrose, HI 96802 Fructose, HI 96803 Glucose and HI 96804 Invert Sugar refractometer are rugged, portable and water resistant for measurements in the lab or field. Each instrument offers a specific analysis to determine accurate sugar concentration.

The refractometers measure the refractive index to determine the % Brix / % fructose / % Glucose / % Invert Sugar of sugar in aqueous solutions. The refractive index of the sample is converted to % concentration units

Specifications

HI 96801 / HI 96802 / HI 96803 / HI 96804

Range	Sugar Content	0 ~ 85% Brix (% Brix)(HI96801) 0 ~ 85% Fructose (HI96802) 0 ~ 85% Glucose(HI96803) 0 ~ 85% Invert Sugar(HI96804)
	Temperature	0 ~ 80°C
Resolution	Sugar Content	0.1% Brix
	Temperature	0.1°C
Accuracy (@ 25°C)	Sugar Content	±0.2% Brix
	Temperature	0.3°C

8. Laboratory Equipments

Homogenizer



The ELWT-130 is a rotor / stator type hand held tissue homogenizer which can perform dispersing, homogenizing, extractions, cell disruption, mixing and emulsifying. During operation, the suspended material is drawn into the core of the homogenizer by a rotor turning at up to 30,000 rpm. The material is repeatedly cycled through narrow slits in the stator where it is sheared and disintegrated by high shear mechanical action.

The ELWT-500 has the ability to achieve quality result quickly, usually in a few seconds to less than a minute. It is best for emulsifying, homogenizing, dispersing, mixing and grinding industrial chemicals, biological tissue samples, pharmaceutical products, cosmetics and food industries.

Model	ELWT-130	ELWT-500
Working volume	0.1 - 250ml	100 - 40,000ml
Motor type	Universal, 130 watt	Universal, 500 watt
Speed range	8000 - 30,000rpm / 6 stages dial selection	10,000 - 30,000rpm / 6 stages dial selection
Noise emission	< 54 dBA at 30,000rpm	< 72 dBA at 30,000rpm
Ultimate fineness Suspension / Emulsion	Suspension: 10 - 15 microns Emulsion: 1 - 10 microns	Suspension: 10 - 15 microns Emulsion: 1 - 10 microns
Protection class	IP 20	IP 20

8. Laboratory Equipments

Digital Overhead Stirrer

Features

- Accurate stirring speed control:
The feedback control technology effectively guarantees the speed precision
- Anti-spill samples:
PC control system starts up smoothly, prevent samples overflow
- LCD real-time display:
Setting value and actual value can be displayed. Real-time monitoring torque and speed via LCD display
- Overload protection:
Motor would automatically stop in case of continuous overload
- Setting safely circuit:
Automatically cut off the circuit when motor overheating and other exceptional circumstances, ensure safe operation
- Extended application:
PC can control and document all measuring values via RS232 interface. Parameter can be set to carry out safety monitoring



Specifications

	DGOS40-Pro	DGOS20-Pro
Max. Stirring quantity (H ₂ O)[L]	40	20
Motor rating input [W]	120	60
Motor rating output [W]	100	50
Speed range [rpm]	50~2200	50~2200
Speed display accuracy [rpm]	± 3	± 3
Speed display	LCD	LCD
Speed display resolution [rpm]	1	1
Max. torque [Ncm]	60	40
Torque display	LCD	LCD
Overload protection	LED light flash auto stop	LED light flash auto stop
Motor protect	LED light flash auto stop	LED light flash auto stop
Viscosity max. [mPas]	50000	10000

Disperser / Homogeniser

T 18 Basic Ultra-Turrax®

Features

- High-performance disperser
- For volumes of 1 to 1.500ml (H₂O)
- A wide speed range allows you to work at high circumferential speeds for dispersing element
- Electronic speed control & overload protection
- Quick release button for dispersing element



Technical Data

Motor rating input [W]	500
Motor rating output [W]	300
Volume range min. (H ₂ O) [l]	0.001
Volume range max. (H ₂ O) [l]	1.5
Viscosity max. [mPas]	5000
Speed range [rpm]	3500 ~ 24000
Speed deviation [%]	1
Speed control	stepless
Speed display	scale

Magnetic Stirrers



A magnetic stirrer is a laboratory device that employs a rotating magnetic field to cause a stir bar immersed in a liquid to spin very quickly, thus stirring it. Magnetic stirrer is used in laboratory and is a preferred choice than the motorized stirrers and it is also compact and lightweight. HI 190M comes supplied with an ABS cover that resists the harmful effects of chemicals that are accidentally spilled. HI 200M is supplied with an AISI 316 stainless steel cover.

	HI 190M / HI 200M	HI 300N	HI 310N
Maximum stirring capacity	: 1 liters	2.5 litres	5 litres
Low speed	: 100 rpm	100rpm	100rpm
High speed	: 1000 rpm	800 ~ 1000rpm	

8. Laboratory Equipments

Stirring Hotplate / Hot Plate / Magnetic Stirrer

Features

- Robust construction
- Rugged cast-aluminium base chassis, provides a stable platform for the top plate, coated with chemically resistant epoxy paint
- Solid ceramic top plate, chemically resistant
- Built-in support rod mount for retort rod
- Temperature controlled by efficient infinite energy regulator
- Speed controlled by solid state electronic controller

Technical Specifications

	<i>Stirring Hotplate</i> HS0707V2	<i>Hot Plate</i> HP0707V2	<i>Magnetic Stirrer</i> ST0707V2
Plate dimensions	7" x 7"	7" x 7"	7" x 7"
Max. plate surface temperature	520°C	520°C	-
Speed range unloaded	100 to 1500rpm	-	100 to 1500rpm
Overall dimension (wxlxh)	220 x 295 x 115mm	220 x 295 x 115mm	220 x 295 x 115mm



Ultrasonic Cleaners

Industrial B.L.T type ultrasonic transducer (Bolt Clamped Langevin Type Transducer) generates high-frequency sound waves that provide maximum cleaning power.

Features

- Durable leakproof ABS/PBT housing and cover with 304 stainless steel tanks
- Digital LED display using splash-proof keypads: timer (1 to 99 min), temperature monitor (UC-02 is only On/Off)
- High-frequency 40kHz sound waves provide greater cleaning power and increased reliability
- Multiple frequency on 3 stages for both gentle cleaning and intensive cleaning (without UC-02)

Technical Specifications

<i>Model</i>	<i>UC-02</i>	<i>UC-10[10P]</i>	<i>UC-20[20P]</i>
Bath volume (L)	2.0	10.0	20.0
Temperature range (°C)	Amb. ~ to 50	Amb. ~ to 70	Amb. ~ to 70
Ultrasonic power (W)	70	200 (300)	400 (500)
Dimensions:			
Bath internal (WxL, D)(mm/inch)	142x132, 104	300x240, 150	495x292, 150



8. Laboratory Equipments

Waterbath



WNB 7

Waterbath is a piece of equipment used in science, industry and cooking to heat material gently and gradually to fixed temperatures or to keep the materials warm over a period of time.

- Microprocessor PID-temperature controller with integrated autodiagnostic system with fault indicator
- One Pt100 sensor class A in 4-wire-circuit
- Integrated digital timer from 1 min. to 99,59 hours
- Digital display (LED) of set and actual temperature (0.1°C resolution) and of (remaining) programme time
- From +10°C (however, at least 5°C above ambient) up to +95°C with additional boiling mode (+100°C)

Temperature range: RT +5°C ~ +95°C / +100°C

Overtemperature protection (double)

- In case of overtemperature due to failure, the heating is switched off at approx. 10°C above the set temperature
- Mechanical temperature limiter TB protection class 1

Oilbath



ONE 7

Oil bath is a laboratory heating device which uses boiling oil as the temperature regulator. Also different oil have different boiling points, it is possible to obtain a temperature near to the desired temperature by selecting an oil with a boiling point as close as possible to the desired temperature.

- Fuzzy-supported PID-microprocessor controller with integrated autodiagnostic system with fault indication
- Digital timer from 1 min. up to 999 hours
- Easy-to-clean interior, made of stainless steel, reinforced by deep drawn ribbing, material no.1.4301 (ASTM 304), laser-welded
- Corrosion-proof large-area heating on three sides
- From +20°C (however, at least 5°C above ambient) up to +200°C

Temperature range: RT +5°C ~ +200°C

Triple overtemperature protection

- In case of overtemperature due to failure, the heating is switched off at approx. 10°C above the set temperature
- Electronic overtemperature temperature limiter TWB protection class 2
- Mechanical temperature limiter TB protection class 1

Forced Convection Ovens

Forced convection oven provides a circular fan for a highly uniform drying performance. It is for general purpose lab ovens.

Features

- From +10°C above room temperature to 220°C
- Microprocess PID control / Auto-tuning / Calibration
- Digital timer: 1 min to 99 hr 59 min, delayed On/Off
- Over-temperature limit protection / Door opening alarm
- Digital LED display (1°C resolution) with touch keypads
- Circular fan assist forced-air convection provides a highly uniform drying performance
- Corrosion-resistant incoloy sheath heater and stainless steel chamber
- Two circular adjustable top slide vents helps to control inner air vapor circulation

Specifications

Model	OF-01E	OF-21E
Chamber Volume (L)	52	150
Temperature	Range (°C) Amb. +10 to 220	
	Fluctuation " at 100°C (±°C) 0.4	
	Variation " at 100°C (±°C) 3.3	
Dimension (WxDxH)	Interior (mm) 375x370x370	
	Exterior (mm) 530x535x737	
	585x460x555	
	740x625x922	



8. Laboratory Equipments

Rotational Viscometers Alpha / Smart Series

Indispensable in QC and R&D laboratories for accurate measurement of viscosity for a wide range of substance.

Features

- Auto-range and auto-test function
- Touch key board 6 keys
- Unit converter SI to CGS
- Data displayed:
 - Selected speed r.p.m.
 - Selected spindle SP
 - Viscosity reading cP (mPa•s) or cSt
 - Percentage of full scale %
 - Direct readout on a graphic display (Smart)
 - Sample temperature °C or °F (Optional) (Smart)
 - Shear Rate (with coaxial spindles) SR (s-1) (Smart)
 - Shear Stress (with coaxial spindles) SS (N/m2) (Smart)
 - Density (introduced by the user) g/cm3 (Smart)
- Viscosity reading : dynamic viscosity (cP or mPa•s) or kinematics viscosity (cSt)(Smart)
- Program features : (Smart)
 - Time to torque : target torque pre-setting device
 - Time to stop : target time pre-setting device
 - 10 working memories
- Temperature reading by PT 100 (optional) (Smart)
- Interface : USB (Smart)
- Datalogger Software : USB allows data transfer to a PC Excel format. (Smart)

Technical Data

- Precision : $\pm 1\%$ of full scale
- Resolution :
 - With low viscosity adapter : 0.01
 - For lower than 10.000 viscosity cP : 0.1
 - For viscosity equal to or above 10.000 cP : 1
- Repeatability : 0.2%
- Thermometer features : (Smart)
 - Temperature margines : 0°C to +100°C
 - Resolution : 0.1°C
 - Precision : $\pm 0.1^\circ\text{C}$
 - Type of probe : PT100



Fungilab Smart

Ref.No	Model	Measuring range	Speed in r.p.m	Number of speeds
FL20 B013	Alpha / Smart L	20 ~ 2.000.000	0.3 ~ 100	18
FL20 B012	Alpha / Smart R	100 ~ 13.000.000	0.3 ~ 100	18
FL20 B011	Alpha / Smart H	200 ~ 106.000.000	0.3 ~ 100	18

8. Laboratory Equipments

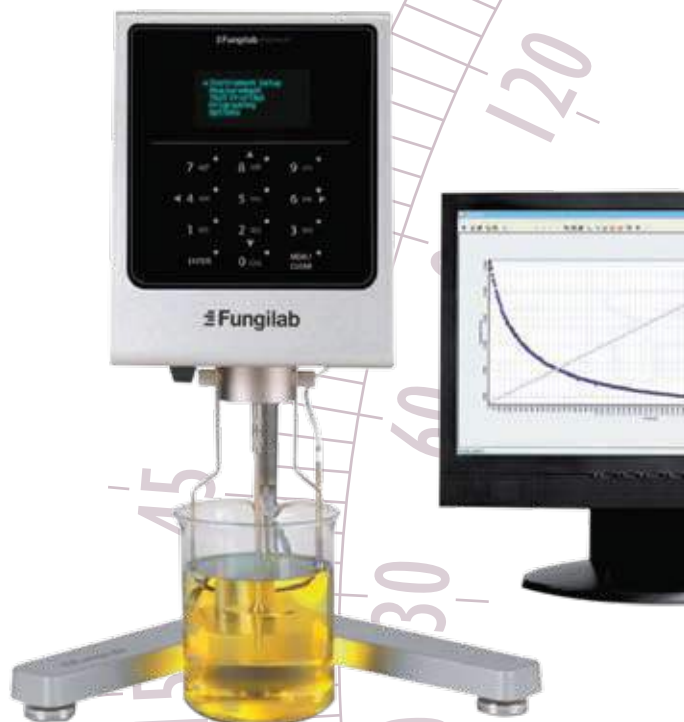
Viscometers Expert / Premium Series

Expert series add essential performance to determine viscosity and other rheological features of homogeneous samples.

Premium series monitored by SUPERVISC software, offer a wider and unique range of rheological applications.

Features

- Touch key board 12 keys
- Direct readout on a graphic display
- Unit converter SI to CGS
- Data displayed:
 - Selected speed r.p.m.
 - Selected spindle SP
 - Viscosity reading cP (mPa·s) or cSt
 - Percentage of full scale %
 - Sample temperature °C or °F
 - Shear Rate (with coaxial spindles) SR (s-1)
 - Shear Stress (with coaxial spindles) SS (N/m²)
 - Density (introduced by the user) g/cm³
 - Step Program Status (Premium)
 - Analyze & visual characteristics (flow curves) (Premium)
- Viscosity reading : dynamic viscosity (cP or mPa·s) or kinematics viscosity (cSt)
- Program features :
 - Time to torque : target torque pre-setting device
 - Time to stop : target time pre-setting device
 - 10 working memories
 - Customizable Options
 - Programmable
 - Multistep
 - Ramp
- Auto-test with sound and visual malfunction alarm
- Auto-range function
- Temperature reading by PT 100
- User-enabled viscosity and temperature calibration
- 10 language options



Fungilab Premium

Ref. No	Model
FL20 B016	Premium L
FL20 B017	Premium R
FL20 B018	Premium H
FL20 B019	Expert L
FL20 B020	Expert R
FL20 B021	Expert H

Technical Data

- Precision : $\pm 1\%$ of full scale
- Resolution :
 - With low viscosity adapter : 0.01
 - For lower than 10.000 viscosity cP : 0.1
 - For viscosity equal to or above 10.000 cP : 1
- Repeatability : 0.2%
- Thermometer features :
 - Temperature margines : 0°C to +100°C
 - Resolution : 0.1°C
 - Precision : $\pm 0.1^\circ\text{C}$
 - Type of probe : PT100

Model	Measuring range	Speed in r.p.m	Number of speeds
Expert / Premium L	20 ~ 6.000.000	0.01 ~ 200 (Expert)	54 (Expert)
		0.01 ~ 250 (Premium)	2600 (Premium)
Expert / Premium R	100 ~ 40.000.000	0.01 ~ 200 (Expert)	54 (Expert)
		0.01 ~ 250 (Premium)	2600 (Premium)
Expert / Premium H	200 ~ 106.000.000	0.01 ~ 200 (Expert)	54 (Expert)
		0.01 ~ 250 (Premium)	2600 (Premium)

8. Laboratory Equipments

Automatic Krebs Viscometer



Ref. No : TQ20 B051
Model : TQC DV1300

The TQC Automatic Krebs Viscometer is widely used for determination of the viscosity according to Krebs KU, as used in the paint, coating and ink industry. The TQC Automatic Krebs Viscometer is equipped with a clear display and easy user interface that ensure highly reproducible results in fully automatic measuring cycles.

The TQC Automatic Krebs Viscometer can be used automatic and manually. In both modes waiting and measuring time can be preset by the user between 0 and 99 seconds. Results can be printed by means of a thermal printer and serial communication RS232.

The meter is both highly accurate and simple to use, making it suitable for research as well as production environment.

ASTM D 562, ASTM D 1131, ASTM D 856

Specifications

Speed	200rpm
Spindle	Standard Krebs-type spindle
Interface	RS232 Unidirectional
Range	40.2 ~ 141KU; 31 ~ 1099g; 27 ~ 5274cP
Resolution	0.1KU, 1.0g, 5cP

Visco Ball

The Visco Ball viscometer with its special glass ball, provides accurate viscosity measurements of transparent Newtonian liquids and glass.

Technical Data

Measuring Principle, the falling-ball viscometer Visco Ball is based on the Hoppler measurement system. It measures the time taken by a solid sphere to travel the reference distance through an inclined tube filled with the sample. A return constant may be established by turning the tube upside-down. The test results are given as dynamic viscosity in the international standardised absolute units of milli Pascal seconds (mPa·s).

Main Features

- High visibility of falling ball allows full accuracy
- Minimal test time
- Cost efficient resistance
- Minimal re-calibration needs through improved bearing support
- Technical data:
 - Viscosity range 0.5 ~ 105mPa·s (cP)
 - Temperature range -20°C up to +120°C
 - Reproducibility Greater than 0.5%
 - Comparability above 1%
 - Materials : Balls 1, 2 and G are borosilicate glass
 - Balls 3 and 4 are nickel iron alloy
 - Balls 5 and 6 are stainless steel

Supplied with 6 balls, control thermometer (-1 to +26°C), cleaning tools, calibration sheet and instruction manual.



Ref. No : FL20 B010
Model : Visco Ball

Ball n°	Viscosity range (mPa·s)
1	0.6 ~ 10
2	7 ~ 30
3	30 ~ 700
4	200 ~ 4800
5	1500 ~ 45000
6	> 7500

8. Laboratory Equipments

Viscometer VP1000

Viscometer VP1000 allows quick determination of viscosity during production process. Along with its intuitive and easy functionality and its light weight, this instrument provides great versatility. Its main feature, the compatibility to the Brookfield methods, allows comparative measurements with results obtained in quality control laboratories using standard rotary viscometers.

MYR portable viscometer VP1000 is used to measure viscosity in samples from different industrial sectors.

Displayed Data

Speed	rpm (depending on the version)
Spindle selected	R2 ~ R7 (R1 as option)
Dynamic viscosity	mPas
Full scale percentage	%
Full scale range (FSR)	mPas
Battery status warning with self-disconnection	

Viscosity Range

Ref. No	Model	Speed	Viscosity range	Viscosity range (R1)
VI20 B041	VP1020	20rpm	200 ~ 200.000mPas	50 ~ 500mPas
VI20 B042	VP1030	30rpm	130 ~ 133.300mPas	33 ~ 333mPas
VI20 B043	VP1050	50rpm	80 ~ 80.000mPas	20 ~ 200mPa
VI20 B044	VP1060	60rpm	66 ~ 66.600mPas	16 ~ 166mPas

Accuracy $\pm 2\%$ full scale range

Repeatability $\pm 1\%$



Viscotech VP 1000

Viscotester VT-03F (Low Viscosity) / 04F (High Viscosity)

This product is designed for a wide range of viscosity measurements. It is suitable for checking industrial substances such as heavy oil, paint, adhesives, foodstuffs, light spindle oil, gear oil & etc.

The unit employs the rotating cylinder principle. A rotor turning at constant speed is inserted into the liquid to be measured. The resistance to rotor movement caused by the viscosity (torque) is measured using a special mechanism to obtain direct readings in millipascal-seconds (mPa·s) or decipascal-seconds (dPa·s).

Specifications

Ref. No: R020 B011

Model: VT-03F

Measurement range

No. 4 rotor : 2 ~ 33mPa·s
No.5 rotor : 15 ~ 150mPa·s
No.3 rotor : 50 ~ 300mPa·s

Sample fluid capacity

Approx. 460mL (with cup A or cup B)

Measurement accuracy

Within $\pm 5\%$ of scale maximum
(using supplied cup A or cup B)
Scale calibrated according to JIS Z 8809 : 2000 viscosity calibration standard

Ref. No: R020 B012

Model: VT-04F

Measurement range

No. 3 rotor : 0.3 ~ 13dPa·s (with No.3 cup)
No. 1 rotor : 3 ~ 150dPa·s (with JIS 300mL beaker)
No. 2 rotor : 100 ~ 4000dPa·s (with JIS 300mL beaker)
No. 1 & 2 rotor (with JIS 300mL beaker) approx. 300mL
No. 3 rotor (with No. 3 cup) approx. 170mL

Sample fluid capacity

Measurement accuracy

$\pm 10\%$ of indicated value

Reproducibility

$\pm 5\%$ (calibration with silicon oil)



Rion Viscotester VT-03F



Rion stand VA-04

9. Metal Detection

Hand-held Metal Detector

Ref. No
CS11 B002

Model
SD 100



Features

- Sounder
- Target detect light
- HI / LO sensitivity switch and light

Security

Specifically designed to meet the particular requirements of searching for concealed metal objects in suspect parcels or in clothing.

Building Industry

Ideally suited for locating objects hidden beneath the surface of all common building materials such as electrical wiring and pipe runs, cavity wall ties and reinforcing bars in concrete.

Performance

The sensitivity of the detector is determined primarily by the size, shape and composition of the object to be detected

Technical Specifications

Maximum Detection Range

Object	Low Sensitivity	Optimum / High Sensitivity
38 calibre hand gun	20cm (8")	28cm (11")
Pen knife	10cm (4")	15cm (6")
13A power cable	8cm (3")	13cm (5")
15mm copper pipe	13cm (5")	18cm (7")
Ear ring (small)	2cm (3/4 ")	3cm (1")

Portable Metal Detector

Ref. No : CS11 B008
Model : CS4PI



CS4PI - Pulse Induction Technique

On site portable all metal detector suitable for locating hidden metal objects in the ground or wood. Typical target will be buried manhole covers in the roadway, steel reinforcement rod, fuel tank, pipeline, nails or bullets in wood. Detection range subject to the object size. Optimised for beach treasure detecting also.

Technical Specifications

Maximum Detection Range

Object	Optimum Sensitivity
Manhole Cover	75cm (30")
Rusty Screw Φ 5mm / 30mm long	18cm (7")

CS880 - Induction Balance Technique for Manhole Cover

Locates metal objects in the ground such as manhole covers, stopcock boxes, steel reinforcement rods.

Operation : Provides maximum sensitivity to solid metal objects whilst ignoring the small metal clutter which causes false signals in cheap inferior metal detectors.

CS3MX - Precision Treasure Hunt Metal Detector

The detector has a sophisticated Discrimination System which is capable of eliminating signals from a variety of metals which are likely to be valueless allowing you to concentrate on more interesting targets.

Mode	Motion
On / Off	Sensitivity
Frequency	17 kHz with Pinpoint button
Power	8 alkaline 1.5 volt AA / battery life 35 hours
Waterproof	Sealed battery compartment
Search heads	8" (20cm) concentric - supplied as STANDARD
Control box	Rugged pressure tested ABS moulding

All models are of TWO PARTS STEM with cam knurled nut locking and hole and pin alignment and length adjustment. GRP lower stem with ultra strong bolt to the search head.

9. Metal Detection

High Performance / Data Logging Pipe & Cable Locator

The MXL Locator offers the latest in digital signal processing including Data Logging function transferred via Bluetooth. The MXL feature a great all-in-one AllScan Mode which detects unusual frequency signal present on pipes and cables.

Features

- Classic Power Mode allows most buried power cables to be detected and traced quickly & effectively
- Sharp & sensitive Radio Mode detects many of the other buried metallic services
- Multi Frequency Transmitter Mode to detect wide range of signal
- Innovative AllScan Mode speed up the locating process with just one sweep of the site
- Intelligent Data Logging function expedites the process of updating the existing or creating new maps
- Depth Measurement with advanced digital Signal processing offer greatest accuracy and ideal for identifying the layout of a pipe or cable network
- IP65 standard for outstanding protection against water & dust ingress

Data logging Features (ZCSMXL33-8-640-DLB)

- Log up to 80 hours of operation
- Log the time & date
- Log the Depth measurement
- Detection of Modes (P-R-G-All Scan)
- Log the Signal Strength & frequency
- Retrieve Logged Data over Bluetooth into PC or Smartphone
- Easy integration Data into GIS, GPS task scheduling, mapping, surveying, site management and tracking software solution

Technical Specifications

MXL Locator (Ref. No:CS11 B009 Model: ZCSMXL-33-8-640)

(Ref. No:CS11 B011 Model: ZCSMXL-33-8-640-DLB)

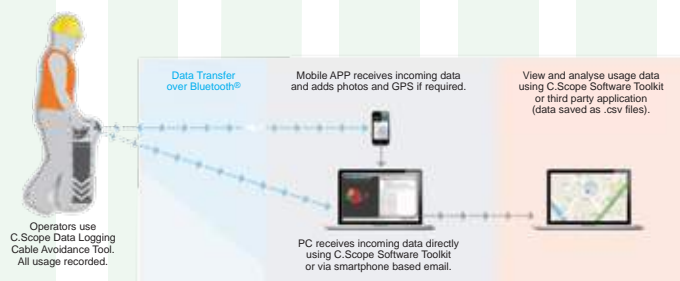
Mode / Feature	Frequency (Hertz)	Sensitivity @1m depth	Detection Depth
Power	50-400	5mA	up to 3m
Radio	10-3k	25µA	up to 2m
Transmitter 33kHz	32,768	5µA	up to 3m
Transmitter 8kHz	8,192	100µA	up to 3m
Transmitter 512Hz / 640Hz	512 / 640	500µA	up to 3m
allScan	50-33k	100µA	up to 3m
Depth Measurement	33k, 8k, 512 / 640	-	0.05m - 3m
Signal Current Measurement	33k, 8k, 512 / 640	-	up to 3m
Sondes depth Range	33k, 8k	-	0.2m - 9.9m

MXT Transmitter (Ref. No:CS11 B010 Model: ZCSMXT-33-8-512)

Mode / Feature	Frequency (Hertz)	Tracing Distance	Direct Connection	Signal Clamp	Signal Injector	Induction
Transmitter 33kHz	32,768	Medium	Yes	Yes	Yes	Yes
Transmitter 8kHz	8,192	Medium / Long	Yes	Yes	Yes	Yes
Transmitter 512Hz / 640Hz	512 / 640	Long	Yes	No	No	No



The multi frequency MXT Transmitter provides longer distance tracing with clear audible signal output.



For Datalogging model only

9. Metal Detection

Pipe & Cable Avoidance Tool XD (c/w depth)

The C-Scope Avoidance Tool is the multi-function digital locator with depth measurement. Locates a wide variety of underground pipes and cables, primarily as an aid to safe excavation. Provides ultimate information about the precise location and direction of pipes and cables.

Technical Specifications

Controls

- On / Off control on handle, activated when in use
- Three position function select switch:
P - Power Mode for detecting live, imbalanced cables
R - Radio Mode for detecting re-radiated radio signals
G - Generator Mode for detecting conductors carrying the signal generated by the Signal Generator. This mode is also used for depth measurements
- Sensitivity control
- Depth push button; above in G mode only give a depth indication when pressed
- Detachable and user replaceable loudspeaker
- User replaceable base protector

Visual indicator

Large, high accuracy, easy to read LCD with ruggedised mounting. Shock resistant

Display

- Signal strength
- Battery condition
- Depth in G Mode with button pressed : 0.2 - 3m (LINE),
- Mode selected

Depth of detection

The XD will typically detect conductors to the following depths:

P - 3 meters, R - 2 meters, G - 4.5 meters

Sensitivity at 1m :

P - 7mA rms, R - 12µA, G - 2µA

Frequency

The frequency and filter characteristics are chosen to yield the optimum signal-to-noise ratio with a high degree of selectivity:

P - 50 ~ 500Hz, R - 10 ~ 30Hz, G - 32.1 ~ 33.4Hz

Response width : 5% of depth

Location accuracy : 10% of depth

Depth measurement : Active in G Mode only activated by push button. Range 0.25 ~ 3.0m (LINE); 1.0 ~ 6m (SONDE)



Ref. No : CS11 B005
Model : ZCSC ATXD-33



LCD meter display signal strength, operation mode, depth and battery condition.



Signal Generator SGV

Enhance detectability of pipes and cables. Operate in Generator Mode.

Ref. No : CS11 B006
Model : ZCSSG-33E



Signal Injector

It allows the Signal Generator signal to be applied via 3-pin Power Socket.

Ref. No : CS11 A007
Model : YIRSIIP-33E



Signal Clamp

Provide a safe way to apply the Generator signal to enable precision tracing of a small pipe & cable.

Ref. No : CS11 A001



Sonde

The small size Sonde is a battery powered transmitter which propelled along a pipe. The signal then tracked from the surface by locator.

Ref. No : CS11 A008



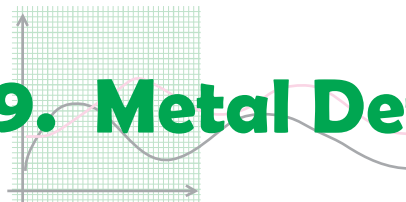
Plastic Pipe Tracer

Specifically designed to allow small diameter non-metallic pipes to be traced.

Tracing Rod (Plastic Pipe) 20m

Tracing Rod (Plastic Pipe) 50m

9. Metal Detection



RITX-200PW(Waterproof) / RITX-200D Walk-through Metal Detector



The RITX-200PW metal detector is water proof model, it can be operated outside without weather shed. It is a multi-channel metal detector with six overlapping detection zones. The zones create a sequential sine-wave magnetic field within the detection area.

Features:

- Divided into 6 overlapped reticulate detecting areas according to the fundamental structure of human body. Adopting the single stimulated frequency technology and forming the symmetrical density of upright magnetic field in the detecting areas. High penetration and sensitivity, avoiding the weak / blind zone of detecting areas
- Utilizing the most advanced VFD technology from SAMSUNG SDI to show the adjustment of parameter, the number of people crossing and the times of alarm ringing. It can be operated with menus in English, easy and convenient. Operating in large temperature range. Highlight displaying panel for outdoor operation, better than LCD and LED
- Adoption of high desity fire-proof board material through special producti process, which is abrasionproof, corrosionproof, waterproof, moistureproof, fireproof and anti-shock
- Installing color lights on the gateposts of four sides to reveal the alarm-ringing district, which is quite starightforward and could reach all direction of view
- Divided into 6 overlapped reticulate detecting areas according to the fundamental structure of human body. Each detecting area bears 200 sensitivity adjusting programs of stages in which specific parameters could be set according to the actual application situation. Without considering the influence of buckle, key, jewelry, and coin etc., it could detect the knife and handgun, and the highest sensitivity is able to check out a metal as large as a clip
- Design of anti-shock for no false signal when subject to shock
- Being able to connect with the testing and controlling system of the computer through the ESD designed pre-laid communication interface by RS485, and to show the number of people crossing, the times of alarm ringing, the area of alarming, and the history of alarming
- You can choose to install a camera, it will snapshot the person who is alarmed, and the data will be telecommunicated
- Having code protecting programs in order that the user can alter the code, enhancing the security. The metal detecting gate can be operated through the remote control

Standards Compliance (For RITX-200PW only)

- Conformity with active National Standard GB 15210-94
- Device refer to safety standard EN60950, conform with standard GB2423
- Radiation refer to standard EN50081-1, conform with standard GB6833
- Anti-jamming refer to EN50082-1, conform with standard GB6833
- Electrical apparatus insulation and dielectric strength conform with standard GB10408
- CE, RoHs

Technical Specifications

	RITX-200PW	RITX-200D
Power supply	110V or 220V 60/50Hz	
Signal frequency	6KHz ~ 9KHz adjustable	
Weight	about 90kg	
Outer frame (mm)	2220(H)x820(W)x610(D)	2220(H)x820(W)x500(D)
Inner frame (mm)	2000(H)x700(W)x610(D)	2000(H)x700(W)x500(D)

10. Portable Inspection Gauge

Pressure Calibrator

The ConSt 273 is a high precision instrument controlled by a microprocessor and powered by an internal lithium battery or an external 10V DC adapter. Not only does the ConST 273 calibrate pressure transducers and pressure switches, but has the function of sourcing 24V power and can also measure electrical signals.

Advanced silicon technology delivers 0.025%FS accuracy for range up to 700 bar (10000psi) and 0.1%FS accuracy for range up to 2500 bar (36000psi). All of the sensors used in pressure calibrators have been strictly aged and tested before final assembly.

Features

- Measure mA or V, and 24V loop power
- Pressure range up to 2500 bar (36000psi)
- Pressure measurement accuracy up to 0.025%FS
- Data logging function: can store up to 1200 records
- HART communication ability



Ref. No : C110 B001
Model : ConST 273

Digital Pressure Gauge



Ref. No : C110 B002
Model : ConST 211

ConST 211 is a high-accuracy, high-resolution digital pressure gauge. Because of thier robust design, these digital pressure gauges meet stringent demands and can be used in critical industrial applications where particular importance is attached to measuring accuracy. reproducibility, long term stability and protection against exploration penetration.

Features

- Gauge pressure: up to 2500bar (37500psi)
- Long working time: 6,000 hours
- Large, easy-to-read display with 5 digit resolution
- Bar graph for quick visual and % pressure indication
- Measuring speed: up to 10 times / s

Portable Pneumatic Pump



Ref. No : C110 B003
Model : ConST 117

A dual pressure source with the ability to easily adjust and stabilize. This calibration pump possesses both 95% vacuum and pressure 600psi; uses air as the media, and can adjust the pressure easily and safely. Since it is attached with a inner gas-liquid isolator and shut-off valve (for releasing dirt) is totally free from humidity and dirt. The adjusting resolution is up to 10Pa (0.1 mbar). These features make the ConST 117 ideal for calibrating pressure transducers, precision pressure gages, and other pressure instruments, especially for big cavity pressure gauge.

10. Portable Inspection Gauge

Portable Hydraulic Pump



Ref. No : C110 B004
Model : ConST 132

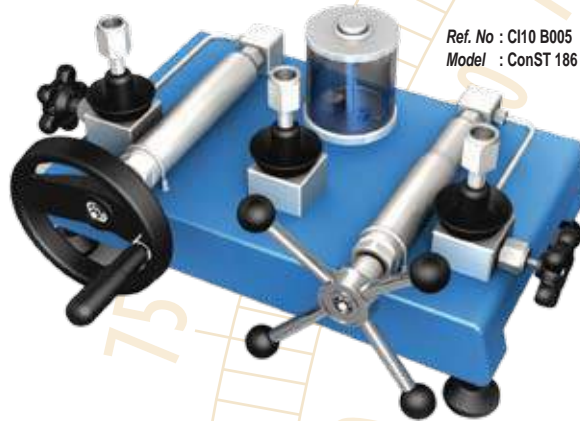
Hand operated pressure pump designed to generate pressure either 90% vacuum or 10,000psi (700 bar). With the patented screw press technology, the high pressure can be easily generated, increased and decreased smoothly. Two finger-tight connectors installed on the pump allow the user using fingers to connect and disconnect the reference gauge and devices under test quickly and easily without the need for PTFE tape or wrenches.

Features

> Extremely low leakage

Patented screw press technology, rather than "easy-to-leak" non-returning valve in hand pump

High Pressure Calibration Pump



Ref. No : C110 B005
Model : ConST 186

Features

> Generate ultra-high pressure

Generate pressure up to 37,500psi (2500 bar)

> Durable and minimal maintenance

Patented screw press technology, without non-returning valve inside that is usually used in "trouble-maker" hand pump

> Easy-to-use

With the patented screw press technology, the high pressure can be generated easily, increased and decreased smoothly

> Extremely low leakage

Patented screw press technology, rather than "easy-to-leak" non-returning valve in hand pump

Portable Automatic Pressure Calibrator



Ref. No : C110 B006
Model : ConST 811

Features

- Additional release valve can effectively avoid the blockage and leakage problems
- All electrical jacks provide protection of 30V error input voltage and short circuit
- Strong tasks management functions, lead to calibration, data analysis and logging automatically
- Large display and user-friendly interface

Selection solution of the range and accuracy of CMOD (control module)

Solution	Built in range and accuracy	
AP	(-95 ~ 160)kPa, 0.02%FS	(0 ~ 700)kPa, 0.02%FS
DP	(-2 ~ 2)kPa, 0.05%FS	(-40 ~ 400)kPa, 0.02%FS

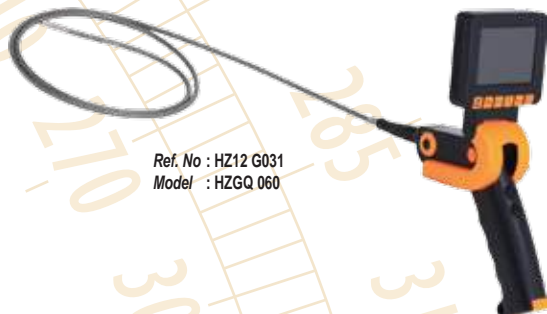
Specification of measure and electrical signal output

Items	Range	Resolution	Accuracy
Measure Voltage	-30V ~ 30V	0.1mV	$\pm(0.01\%RD + 0.005\%FS)$
Measure Current	-30mA ~ 30mA	0.1μA	$\pm(0.01\%RD + 0.005\%FS)$
Measure On / Off	Detective Voltage: 3V ~ 30v under the condition of the switch with power		
External Pressure Module	Please refer to Select manual of the intelligent digital pressure module CDP for the range and accuracy		
Current Output	0mA ~ 22mA	1μA	$\pm(0.02\%RD + 0.005\%FS)$
DC24V Output	24V ± 0.5V max loading is 50mA		
Size	296mm* 186mm* 180mm		

- Built-in electric pump, intelligent control
- Source the set pressure fast and accurately
- Automatically source pressure and fine adjust
- Built-in rechargeable battery
- Compact size and weight: 5.6kg

10. Portable Inspection Gauge

Portable Video Endoscopes



Ref. No : HZ12 G031
Model : HZGQ 060

Borescopes are commonly used in the visual inspection of aircraft engines, industrial turbines, diesel engines, and automotive and truck engines. Borescope inspection of engines can be used to prevent unnecessary maintenance, which can become extremely costly for large turbines. They are also used in manufacturing of machined or casting parts to inspect critical interior surfaces for burrs, surface finish or complete through-holes also for law enforcement and building inspection.

Features

- 2 - Ways Articulation with Joystick Control by micro-motor
- 3.5" LCD screen, resolution: 960 × 240,
- LED, Brightness adjustable Illumination
- Freedom of movement: Handle 3 steps 0°, 45°, 80°, LCD screen 0° - 90°.
- Photo and Video storage: Camera 720×480 – Video 720×480
- Memory capacity: 4G SD card

Technical Data

Model	HZGQ060
Φ (mm)	Φ6 mm
Field of View	90°
Depth of Field	10 mm – 100 mm
Image Sensor	1/12"
Resolution(pixel)	450,000
Working Length	1500 mm
Output	AV port, USB1.1 port

Portable Video Borescope



Ref. No : CVS12 G041
Model : CVSTP 1000



Features

- 5 times digital zoom
- Quick Photo & Video Recording
- Quick Snap / Review
- AV out

Specifications

Image sensor	CMOS Image Sensor
Resolution (Dynamic / Static)	320 (H)*240(V) / 640(H)*480(V)
Size tip (Inserting Tube) diameter	5.5mm
Inserting tube length	1 ~ 3 meter
Frame rate	30fps
Exposure	Automatic
Light source	4 white LEDs with adjustable brightness
Display	3.5" TFT LCD Monitor 320*240 pixel
Interface	Mini USB 1.1 / AV out / AV in
Battery	Rechargeable Li-Polymer battery (3.7V)
Video out format	NTSC & PAL
Memory capacity	1G SD card

Borescope

Ref. No : TM12 G032
Model : TBS 2486



- Professional Endoscope with long duty hour (3 h)
- Quick video recording and photo taking with review, NTSC/PAL, AVI format with TV output and USB interface
- 3.9mm ~ 10mm Lens
- Head diameter 5.5mm (standard)
- 1m (standard) ~ 30m Tube length
- Display: 3.5" TFT LCD, 640x480 pixels
- Storage memory: 1 to 4G SD card (2G standard)

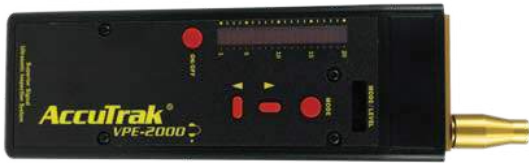
Ref. No : TM12 G031
Model : TBS 2488



- Basic Endoscope for practical confined space inspection
- Offer for real time viewing only without photo taking and video recording
- TV output, NTSC/PAL format
- 2.7mm Len
- Head diameter 5.5mm (standard)
- Tube length: 1m (standard)
- Display: 3.5" TFT LCD
- Zoom: x1.0, x1.5, x2.0, x2.5

10. Portable Inspection Gauge

VPE 2000 Leak Detector



Ref. No : SS15 B012
Model : VPE 2000

This new patented detector offers advanced computer controlled digital circuitry, setting a new standard for accuracy and repeatability. AccuTrak features two LED displays with peak hold for easy readability. Selectable modes are held in memory and control; independent volume and sensitivity, frequency selection with sonic and ultrasonic modes, and display adjustments.

Features

- Two permanent sensors, Proprietary contact sensor offers wide range of detection (sonic to ultrasonic)
- Small compact & portable
- LED bargraph and alphanumeric displays with Peak Hold

Specification

Displays	Intense 20 element LED bargraph and 4 element alphanumeric
Air sensor frequency	Two ultrasonic
Probe sensor frequency	One sonic, two ultrasonic
Sensitivity	-80dB / volt / microbar
Battery	9 volt cell
Battery life	8 hours continuous

VPE 1000 Leak Detector



Ref. No : SS15 B013
Model : VPE 1000

Detect Electrical Arcing



By detecting the ultrasonic sound created by turbulence and friction in industrial equipment, these extraordinary instruments pinpoint compressed air leaks, vacuum leaks, refrigerant leaks, worn bearings, and internal leaks through valves and steam traps.

Features

- Advanced digitally controlled circuitry
- Dedicated touchprobe sensor for optimum sensitivity and sound quality
- Two LED displays with peak hold
- Separate volume and sensitivity settings
- Wide dynamic range increases effectiveness in loud areas

Specification

Power	9V
Battery life	8 hrs. continuous
Displays	10 element LED bargraph, and 4 element alphanumeric
Frequency response	30 ~ 42kHz airborne, 18 ~ 22 kHz probe (center)
Audio output	0 to 4kHz
Sensitivity	-80dB / volt / microbar

VPE Leak Detect



Ref. No : SS15 B010
Model : AccuTrak VPE

The AccuTrak VPE is compact, and designed for one hand operation. Comes with flexible wave guide for hard to reach areas.

Other applications include the detection of bearing wear, leaks in ductwork, leaking steam traps & valves, vacuum leaks & electrical arcing.

Unique acoustic design of our precision probe maximizes sensitivity for contact applications such as bearing and valve analysis.

Specification

Model	AccuTrak VPE
Nominal sensitivity	-80db/V/μBar
Frequency response	30 to 42 KHz
Display	10 element LED bar graph
Audio output	0 to 4 KHz
Power	9V cell
Battery life	15 hours (continuous)
Headset	Dynamic 32 Ohm



Locate HVAC Leak

Detecting Bearing Wear

Test Valve & Steam Traps

10. Portable Inspection Gauge

VPX-WR Leak Detector

With the DND technology AccuTrak VPX-WR is designed for various environments to find air leaks even in loud environment. DND (an acronym for Dynamic Noise Discrimination) is the first and only ultrasonic technology to analyze a broad spectrum of ultrasound, and select the proper frequency band of the leak sound AUTOMATICALLY!



Ref. No : SS15 B014
Model : VPX-WR

Features

- Ultra-durable and waterproof design
- Easy to use, single control operation
- 20 to 100kHz range, NO tuning
- Output to analyzer; converted or RAW signal

Specifications

Model	AccuTrak VPX-WR
Sensor	Piezoelectric, Totally Waterproof
Sensitivity	-75dB / volt / microbar
Frequency range	20kHz to 100kHz
Frequency selection	Automatic DND
Conversion	DND with Heterodyne mix

Portable Stroboscope

A microprocessor circuit design, high accuracy, digital readout, STROBOSCOPE that is ideal for inspecting and measuring the speed of moving gears, fans, centrifuges, pumps, motors and other equipment.



Specifications

Large LCD display with backlight	
Digital control to adjust flash frequency	
Low power consumption	
Measure range : 60~39,999RPM	
Coarse/Fine adjustment amplitude : <1,000RPM	Coarse adjust : ± 10 RPM
	Fine adjust : ± 0.1 RPM
	$\geq 1,000$ RPM Coarse adjust : ± 100 RPM
	Fine adjust : ± 1 RPM

Accuracy	: $\pm 0.05\%$
Resolution	: <1,000RPM: 0.1RPM $\geq 1,000$ RPM: 1RPM

10 commonly functions for rotational speed storage, improves the efficiency of measurement. The intensity of flashlight is increased 100% than previous model.

Digital Tachometer



Ref. No Model
TS17 B001 RM 1500
TS17 B002 RM 1501
TS17 B003 RM 1502

Tachometer is used to measure the rotational speed of a shaft or disk, as in a motor or other machine. It usually displays the rpm (revolutions per minute).

Features

- 5 digits LCD display
- Light reflex measurement
- Range 10.00 to 99,999 RPM
- Measuring distance 50 ~ 300mm
- Even counter with elapsed time
- Max / Min / Hold : true average
- Auto range RPM
- RS232 interface for model RM1501 c/w software
- Contact RPM and circumferential velocity measurements in one simple adaptor (RM1502, optional)
- Resolution : 0.01 / 0.1 / 1RPM

Technical Specifications

Range	Speed (Non-contact)	Accuracy : $0.04\% \pm 2$ dgts RPM : 10.00 ~ 99999 Rps (Hz) : 0.2 ~ 2000
	Speed (Contact)	Accuracy : $0.04\% \pm 2$ dgts Rpm : 10 ~ 29999 m/min : 1.0 ~ 2999.9
	Event counter	0 ~ 99999



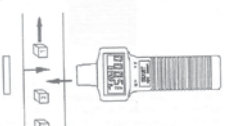
1. Point the photoelectric probe at the object.
Measurement of Rotating Speed (rpm, rps)



2. Using the Mechanical Adaptor (Option RM 1502)



3. Mechanical Adaptor (Option RM1502)
Measurement of Surface Speed (m/min, ft/min, yd/min)



4. Use as an Event Counter with Internal Red LED

10. Portable Inspection Gauge

Mechanical Analog Push-Pull Force Gauge

The SN/SKN series are analog force gauge with compact size and high accuracy. Single click on a knob on the device will convert the movement of the indication needle from the peak force indication (the needle stands still indicating peak force) to the tracking indication (the needle moves in accordance with change of force).

Features

- High resolution : The device provides 1/200 resolution and graduations scale is clear
- Dual scale (N & Kg)
- High accuracy
- Easy operation

Technical Specifications

Ref. No	Model	Capacity	Min. Load	Value Error
SU05 B001	SN-10	10N	0.05N	± 1 %
SU05 B002	SN-20	20N	0.1N	± 1 %
SU05 B003	SN-30	30N	0.2N	± 1 %
SU05 B004	SN-50	50N	0.25N	± 1 %
SU05 B005	SN-100	100N	0.5N	± 1 %
SU05 B006	SN-200	200N	1N	± 1 %
SU05 B007	SN-300	300N	2N	± 1 %
SU05 B008	SN-500	500N	2.5N	± 1 %
SU05 B009	SKN-1	1000N	5N	± 1 %
SU05 B010	SKN-2	2000N	10N	± 1 %
SU05 B011	SKN-3	3000N	20N	± 1 %
SU05 B012	SKN-5	5000N	25N	± 1 %

Digital Push-Pull Force Gauge

The SH series can be used not only for simple measurement of tension / compression force but also used for various testing purposes; such as switch test, connector insertion / withdraw test, and fracture test.

Features

- High accuracy, high resolution
- Peak hold function
- Comparator (limit) function
- Unit conversion - It is possible to convert the graduations of N, kgf, lbf on the device

Technical Specifications

Ref. No	Model	Capacity	Min. Load	Sensor Conformation	Value Error
SU05 B013	SH-20	20N	0.01N	Sensor inside	± 0.5 %
SU05 B014	SH-50	50N	0.01N	Sensor inside	± 0.5 %
SU05 B015	SH-200	200N	0.1N	Sensor inside	± 0.5 %
SU05 B016	SH-500	500N	0.1N	Sensor inside	± 0.5 %
SU05 B017	SH-2K	2KN	1N	Sensor outside	± 0.5 %
SU05 B018	SH-5K	5KN	1N	Sensor outside	± 0.5 %
SU05 B019	SH-20K	20KN	0.01KN	Sensor outside	± 0.5 %
SU05 B020	SH-50K	50KN	0.01KN	Sensor outside	± 0.5 %

Model	H	M
SH-2K	76.2	M12 x 1.75
SH-5K	76.2	M12 x 1.75
SH-20K	101.6	M20 x 1.5
SH-50K	101.6	M20 x 1.5



SN Series



SKN Series



SH Series



SH Sensor Inside



SH Sensor Outside

10. Portable Inspection Gauge

Manual Test Stands

SPF Keystroke Test Stand

Capacity: 100N; Stroke: 25mm;

It is for testing keystroke, button, switch and so on



SLS Peel-off Force Special Test Stand

Capacity: 500N; Stroke: 170mm

It is specialized in testing vertical peel-off force



SLR Wheel Manual Test Stand

Capacity: 500N; Stroke: 175mm;

It is especially designed to match push pull force gauge applied in various test, such as switch test, insertion / withdraw test and fracture test



SPJ-B Manual Test Stand

Capacity: 500N; Stroke: 70mm

It is specialized in tension / compression, insertion / withdraw and fracture test in every trade and scientific research organization

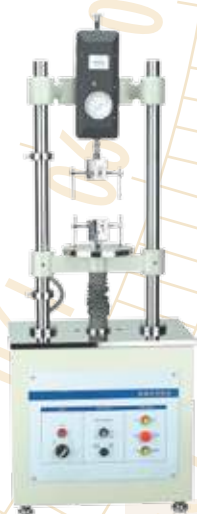


Electric Test Stands

SJV-5K (SH) Electric Vertical Test Stand

Testing speed: 30~240mm/min; Stroke: 200mm

It is with double vertical pillar, it has good stability, wide application range, convenient usage. It is specialized for tension / compression, insertion / withdraw and fracture test.



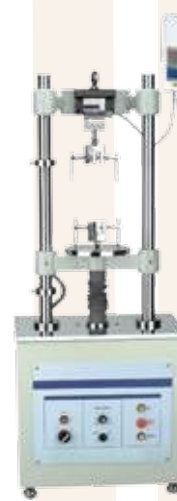
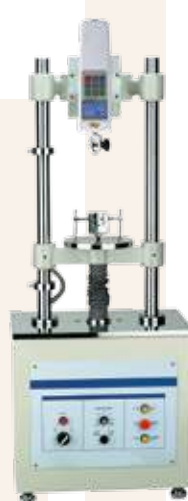
SJV-5KV/10KV/20KV Electric Vertical Test Stand

Capacity: 5000N/10000N/20000N

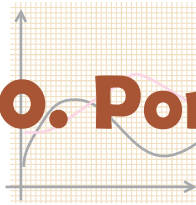
Testing speed: 30~240mm/min

Stroke: 200mm

Stepless speed adjusting motion, manual and automatic control. The testing times of up-down can be pre-set by automatic recycles switch function. Applied with SKN/SN/SH/SP push pull gauge and specialized for tension / compression, insertion/withdraw and fracture test in every trade.



10. Portable Inspection Gauge



Electric Test Stand



SJX-500/1KV/2KV

It has stepless speed adjusting motion, digital display of the testing speed, converting mode between manual operation and automatic. It is specialized for tension / compression, insertion/withdraw, fatigue test and fracture test.

SJX-500 Testing Speed: 50-245mm/min, max load: 200N, 250-500mm/min, max load: 500N; Stroke: 250mm

SJX-1KV Testing Speed: 50-245mm/min, max load: 500N, 250-500mm/min, max load: 1000N, Stroke: 520mm

SJX-2KV Testing Speed: 50-500mm/min, max load: 2000N, Stroke: 600mm



SJX-500H Electric Horizontal Test Stand

Capacity: 500N; speed: 50-500mm/min, Stroke: 210mm;

Stepless speed variation uniform motion, digital displaying test speed, function of converting manual and automatic control, presenting the cycle test times. When equipped with SH series, it can present the stopping working load. The stand is specialized for tension / compression, insertion / withdraw and fracture test.

Portable Ultrasonic Flowmeter TUF-2000P Portable Ultrasonic Energy Flowmeter TUF-2000E



An ultrasonic flow meter is a type of flow meter that measures the velocity of a liquid, eg. Water, sea water, industrial sewage, acid and alkali liquid, various oils etc. by using the principle of ultrasound. Using ultrasonic transducers, the flow meter can measure the average velocity along the path of an emitted beam of ultrasound, by averaging the difference in measured transit time between the pulses of ultrasound propagating into and against the direction of the flow.

Main Features:

Features Description

- Flow velocity range 0- 30m/s
- High Accuracy Linearity: better than 0.5%,
- Repeatability: better than 0.2%,
- Accuracy: better than 1%
- LCD with backlight
- Non-intrusive measuring with clamp-on transducer, no pressure drop, no pipe disturbance.
- Wide measuring range, several types of transducers for selection, measuring pipe size from DN15mm to DN6000mm
- Built-in Ni-MH rechargeable battery for 20 hours of continuous operation
- Built-in mini thermal printer with instant and timing print function
- Built-in data logger and RS-485 interface for networking Uplink over 20 measuring data to computer or internet

10. Portable Inspection Gauge

Laser Distance Meter

Laser distance meter is a measuring tools for distance, areas, volumes and more accurate than a tape measurement. The instrument is in compliance IP54 and great for measuring inaccessible areas.

Ref Code : CE16 E021
Model : LDM-100



Features

- Area, volume calculations, addition / subtraction
- Indirect measurement using Pythagoras
- Continuous measurement with min/max distance tracking
- Display illumination and multi-line display
- Buzzer indication
- Multifunctional end pieces

Specifications

Measuring range	0.05 to 50m (0.15ft to 164ft)
measuring accuracy (2σ)	Typically : ±1.5mm (±0.06in)
Smallest unit display	1mm
Measuring units	m, in, ft

Laser Distance Meter

Ref Code : LC16 E007
Model : DISTO X310



Features

Measuring range : 0.05 to 80m	Precise, quick and reliable measurements
Typ. accuracy ±1.0mm	Max tolerance ± 2.0mm
Smart Horizontal Mode™	Determine precise horizontal distances at the press of a key
Tilt sensor	Measure angles up to ± 360° at the touch of a button
Flip-out end-piece with automatic detection	Reliable, trouble-free and error-free measurement from edges or out of corners
Pythagoras functions	Indirect height and width measurements in inaccessible positions
Room dimensions	Values such as total wall length, wall and ceiling area are available at the touch of a button
Stake out function	Stake out equal or two different recurring distances
Triangle function	Determine the area of a many-cornered room efficiently

Your advantages

Laser Distance Meter

DISTO D2 the smallest laser meter in the world. The compact and handy base model was specifically designed for indoor applications. The last 10 measurements are also stored and the laser dot is clearly visible. You can always see your targetting point even if the target object is in a hard to access area.



Ref Code : LC16 E004
Model : DISTO D2

Features

Measuring range : 0.05m up to 60m
Typ. accuracy : ±1.5mm
Illuminated 3-line display
Flip-out end-piece
Time delay release
Simple Pythagorean functions
IP54

Your advantages

Precise, fast and reliable indoor measurements
Measured values can be read even in the dark
Measure from edges or corners
Measure without shake
Indirect height and width measurements for inaccessible positions
Splash and dust proof

Laser Distance Meter

Disto D5, powerful partner for outdoors. World first digital pointfinder with 4 x Zoom. Designed with many functions and features to make measuring easier, particularly when you are working outdoors.

Ref Code : LC16 E006
Model : D5



Features

Measuring range : 0.05m to 200m;
typ. accuracy ±1.5mm /
Digital pointfinder with 4 x zoom and high resolution color display
Power range technology
Tilt sensor
Horizontal distance measurement using the tilt sensor
Trapezium function
Pythagorean functions

Your advantages

Convenient measuring to distant objects, even in strong sunlight
Measure long distances, up to 100m without and 200m with a target plate
Measure vertical angles up to ± 45° at the touch of a button
It's no problem to determine distances despite obstructions
Simple and quick measurement of roof slopes and facade areas
Indirect height and width measurements at inaccessible positions

10. Portable Inspection Gauge

Vibration Pen Tester



Ref No.	Model
TM19 B001	TV 200
TM19 B009	TV 220
TM19 B005	TV 260A

Vibration pen TV200/220/260A, with compact size, small weight and easy handling. It is used for fast failure detecting of motor, electric fan, pump, air compressor, machine tools and so on. It also used for prompt testing of vibration on the workshop machines, for quick checking of unbalance misalignment, bearing and gears.

Features

- Guard against mechanical malfunction
- Holding tested value for 40 seconds
- Automatic switch off after 40 seconds

Specification

Model	TV200	TV220	TV260A
Parameters	RMS of vibration velocity (mm/s)	Displacement	Acceleration, Velocity, Displacement
Testing range	Velocity: 0.1mm/s 0.1 ~ 199.9mm/s	Displacement : 0.01 ~ 1.999mm (peak ~ peak)	Acceleration : 0.01 ~ 199.9m/s ² (peak) Velocity : 0.01 ~ 199.9mm/s (RMS) Displacement: 0.001 ~ 1.999mm (peak -peak)
Frequency range		Velocity: 10Hz 10Hz ~ 500Hz	Displacement: Velocity: 10Hz ~ 1kHz Displacement: 10Hz ~ 500Hz
Acceleration: 10Hz ~ 1kHz ~ 1kHz			
Accuracy	±5%	±5%	±5%

Precision Vibration Tester



Ref No.	Model
TM19 B007	TV 310
TM19 B008	TV 320

TV310 is equipped with low sensitivity probe, suitable for testing strong vibration signal. TV320 is equipped with high sensitivity probe, suitable for testing weak vibration signal.

Features

- Two display modes : digital value mode and spectrum mode
- Large memory function : 100 x 100 measured results (100 testing points, 100 data can be stored in each testing points); 100 spectral chart
- Spectrum chart can display in real time
- Easy diagnosis : alarm is sounded when vibration go over limit set, and get into spectrum mode
- Testing results and spectrum chart can be printed out when connected to printer
- 300 x 200 matrix LCD display, with backlight

Specification

Measuring range	TV310 : Acceleration : 1m/s ² ~ 392m/s ² (Peak) Velocity : 0.1cm/s ~ 80cm/s (RMS) Displacement : 0.01mm ~ 18.1mm (Peak-Peak)
	TV320 : Acceleration : 0.1m/s ² ~ 20m/s ² (Peak) Velocity : 0.01cm/s ~ 4cm/s (RMS) Displacement : 0.001mm ~ 0.8mm (Peak-Peak)
Frequency range	Acceleration : 10Hz ~ 200Hz, 10Hz ~ 500Hz, 10Hz ~ 1KHz, 10Hz ~ 10KHz Velocity : 10Hz ~ 200Hz, 10Hz ~ 500Hz, 10Hz ~ 1KHz Displacement : 10Hz ~ 500Hz
Accuracy	± 5%

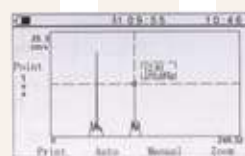
Advanced Vibration Tester



Ref No.	Model
TM19 B003	TV 300

Features

- Three display modes
- Special mode: displaying acceleration, velocity and displacement
- Common mode: displaying one of acceleration, velocity and displacement
- Spectrum mode: displaying vibration spectrum
- Large memory up to 1550 readings and 25 spectrums
- Easy diagnosis: alarm is sounded when vibration go over limit set, and get into spectrum mode



Spectrum mode



Common mode



Special mode

TV300 is advanced vibration tester with large measuring range. The testing results and spectrum can be printed out with optional micro-printer.

Technical Specification

Testing range	Acceleration	0.1m/s ² ~ 392m/s ² (peak value)
	Velocity	0.01cm/s ~ 80cm/s (virtual value)
	Displacement	0.001mm ~ 18.1mm (peak to peak value)
Frequency range	Acceleration	10Hz~200Hz, 10Hz~500Hz, 10Hz~1KHz, 10Hz~10KHz
	Velocity	10Hz ~ 1KHz
	Displacement	10Hz ~ 500Hz
Tolerance		± 5%

10. Portable Inspection Gauge

Spot Welding Force Gauge



TNP-900

TNP-900 Force Gauge is a total seal hydraulic, light, small, isolate structure with no electricity operate force check gauge. It is suitable for all resistance spot welding machine. It using international force standard (lb / Kg) for meter.

With Red Meter needle will help to operate and check force easily.

Specification

Model	TNP-900
Force range	100lbs ~ 2000lbs (50kgf ~ 900kgf)
Weight	800gms

Pocket Weld Testers Current / Time

TMM-315B



Key Features

- Simple current measurement in the palm of your hand
- For AC and inverter power supplies
- Measures current, cycles, milliseconds and conduction degrees
- Impulse memory, 9 welds
- Includes coil, charger and carrying case
- Memory function for easy recall of impulses

Specification

Power supply	Rechargeable battery and AC charger
Current sensor	Toroidal coil
Current range	1.00 ~ 9.99A, 5.0 ~ 49.9kA
Time range	1 ~ 99 cycles or 0.01 ~ 0.80 sec
Conduction angle	30° 180°

Weld Monitor for Resistance Welding

It is completely new type high precision weld checker.

Welding average data and welding current wave data (Welding current, Time, Voltage, Resistance, Counter) will be displayed graphically.

Software for PC communicates with Handy Nadescomder, and data will be displayed graphically for easy understanding. As the data can be stored in file, it is useful to trace the past data and permanent data administration.



Handy Nadescomder

Specifications

Model	TMDM22-M03*	
Measurement range	Weld current	Lo: 2.50-1 + .99kA Hi: 10.00-49.99kA
	Weld time	Cycle: 0.5 - 99.5 cycle Msec: 1 - 1999 msec
Measurement accuracy	Tip voltage	0.00 - 4.99V
	Tip resistance	1 - 2000 uOhm
	Weld current	± 2% FS
	Tip voltage	± 5% FS
Memory	Tip resistance	± 5% FS
	10,000 data	

10. Portable Inspection Gauge

Bridge Cam Gauge



Ref. No : GA22 B001

Features

- Angle of preparation, 0° to 60°
- Excess weld metal (capping size)
- Depth of undercut
- Depth of pitting
- Fillet weld throat size
- Fillet weld length
- Misalignment (High-Low)

Pocket Bridge Cam Gauge

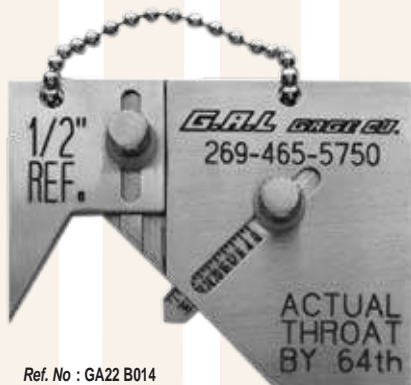


Ref. No : GA22 B013

Features

- Angle of preparation, 0° to 60°
- Excess weld metal (capping size)
- Depth of undercut by 1/32"
- Depth of pitting by 1/32"
- Fillet weld throat size (1/64" or .5mm, Theoretical & Actual)
- Fillet weld leg length
- Misalignment (High-Low)

"Mini Sub" Socket Weld Gauge



Ref. No : GA22 B014

Features

- Check throat dimension
- Check leg length
- Checks all pipe schedule

Digital Welding Gauge



Ref. No : GA22 B015

Abilities

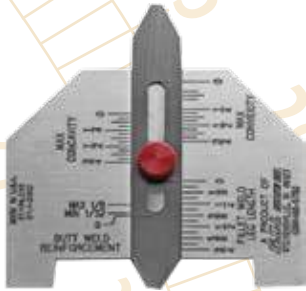
- Holds either the zero setting or measured value at any position for differential measurement
- Has a serial output to interface with a computer or printer to process data
- Automatically turns on by moving the main scale or by pressing ON/OFF key
- Automatically turns off after 4 minutes of inactivity.... conserving battery power
- Measures butt weld reinforcement, measures throat

Specifications

Model No.	Range (usage 1)	Range (usage 2)	Resolution
1110-301	10mm/0.4"	20mm/0.8"	0.01mm/0.0005"

10. Portable Inspection Gauge

Automatic Weld Size Weld gauge



Ref. No : GA22 B016

It is used to:

- Check reinforcement
- Check the throat of fillet weld
- Determine the leg size of the fillet weld

Economy Single Purpose Hi-Lo Welding Gauge

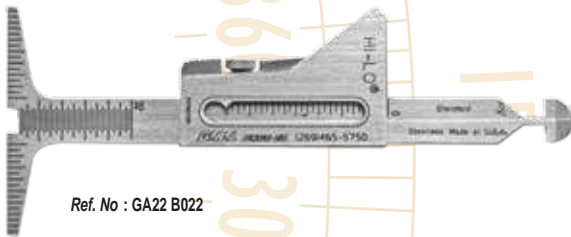


Ref. No : GA22 B003

Features

- Available in standard or metric (specify when ordering)
- Root weld space
- Eliminates rejects - Improves productivity
- Internal misalignment

Hi-Lo Welding Gauge



Ref. No : GA22 B022

Features

- Measures internal alignment of pipe after fit-up / alignment, cuts radiographic rejects
- Measures internal misalignment of pipe before and after tracking
- Measurement read in standard on one side and metric on the opposite side

7 Piece Fillet Weld Set - 1/8" to 1"



Ref. No : GA22 B006

Features

- Available in inch or metric - with markings on both sides upon request
- Checking fillet leg size
- Checking fillet throat size

8 Piece Fillet Weld Set



Ref. No : GA22 B017

Features

- 1 1/8 inches to 2 inches by 1/8 inch increments
- Available in inch or metric - with marking on both sides upon request
- Checking fillet leg size
- Checking fillet throat size

Adjustable Fillet Weld Gauge

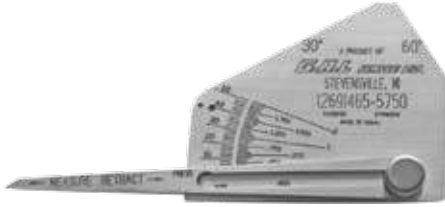


Ref. No : GA22 B005

It is easy to use to measure fillet weld, measure weld throat thickness.

10. Portable Inspection Gauge

Skew-T Fillet Weld Gauge



Ref. No : GA22 B008

It is used for:

- Checking angle of vertical member
- Checking weld acute side
- Checking weld obtuse side

Pocket Fillet Weld Gauge



Ref. No : GA22 B007

- Pocket size - measures 8 size fillets
- Checks leg length, throat size, plus allowable convexity
- All increments permanently engraved
- Available in standard & metric
- Handy key chain holds set together

Pipe Pit Gauge



Ref. No : GA22 B011

- Range is 0 to 1/2" in 1/64" & .020 increments
- Arm can be locked in place at any dimension
- All stainless steel
- Gauge will fit in shirt pocket & comes in a pocket protector
- Has handy formulas on front & decimal equivalents on back

Mini Fillet Weld Keys



Ref. No : GA22 B018

- Set comes with handy key chain & pocket pouch
- 11 different sizes in standard with metric equivalent markings - 1/8" to 1"
- Checking weld leg size
- Checking throat dimension
- Checking weld dimension of skewed member

"V-Wac" Single Weld Gauge



Ref. No : GA22 B004

- Undercuts / pits to 6mm, crowns to 6mm by 0.5mm increments
- Checks undercut
- Checks crown height
- Checks porosity
- Checks pits

Combination 0" - 10" Dial / Pit Depth Gauge



Micro Probes
.062 DIAM. - .025 DIAM.

Ref. No : GA22 B009

- Measuring range 0" - 10", graduations 0.001"
- Accuracy meets or exceeds federal specs
- Continuous dial for 1/2" travel with revolution counter
- Uniform pressure over full range of travel
- Complete with 6 extensions rods in fitted case
- Micro probes for small diameter pits .062 - .025
- Interchangeable bases

10. Portable Inspection Gauge

Gap-A-Let® Socket Weld Contraction Rings



Introduction

Gap-A-Let® is a split ring that is engineered and designed to give you a pre-measured 1/16" minimum gap for socket welds. Made from a certified stainless steel, Gap-A-Let® resists corrosion from chemicals, radioactive materials, and water.

Gap-A-Let® spring tension makes it fit tightly into all standard sized fittings from 1" to 4". (Non-standard sizes are available upon request.) Once inserted into the fitting, the Gap-A-Let® ring becomes a permanent part of the joint. It will not rattle or vibrate even under extreme pressure.

Advantages

- Cut fit-up time by 90%
- Save thousands of dollars in cracked weld repairs
- Meet US military and commercial construction code standards

Technical Specifications

Ref. No	Standard Ring	Ring Free Outside Diameter
GA22 C001	1/4" NPS	.600
GA22 C002	3/8" NPS	.730
GA22 C003	1/2" NPS	.880
GA22 C004	3/4" NPS	1.110
GA22 C005	1" NPS	1.385
GA22 C006	1 1/4" NPS	1.780
GA22 C007	1 1/2" NPS	2.020
GA22 C008	2" NPS	2.580
Ref. No	Heavy Duty Ring	Ring Free Outside Diameter
GA22 C009	2 1/2" NPS	2.910
GA22 C010	3" NPS	3.530
GA22 C012	4" NPS	4.015



1. Fitter compresses Gap-A-Let® ring to fit into pipe fitting



2. Fitter seats ring into fitting. Spring tension holds ring tightly in place, assuring no rattling or vibration even under extreme pressure. Ring actually becomes a permanent part of the joint.



3. Fitter inserts pipe into fitting. Gap-A-Let® ring automatically assure the required minimum gap (1/16") to meet the code requirements of ANSI 31.1 Section III, ASME & military codes.

11. Weighing

Analytical Balances GH Series / GR Series / HR Series



GH Series



GR Series



HR Series

Analytical Balances with An Internal Calibration Mass

These analytical balances with internal calibration, provide high-end features and performance, a larger weighing chamber and smaller footprint than conventional balances. These analytical balances are easy to use and calibrate, and adjust their setting based on environment changes.

Features

- One touch automatic calibration (For GH & GR series)
- Automatic self calibration (For GH & GR series only)
- Automatic response adjustment
- Anti-static glass breeze break
- Data memory function
- Multiple weighing units
- GLP / GMP / GCP / ISO compliance
- Density determination kit (optional)
- Conformity to GLP with I.D. and serial number output (For HR series only)
- Multifunctional weighing : %, PCS, G, mg, oz, ozt, dwt, ct, mom, GN, t, TL (For HR series only)
- Body & frame constructed of extra strong die-cast aluminium alloy (For HR series only)
- Optional battery pack, standard WinCT Software (For HR series only)

External Input / Output

- RS-232C interface
- Quick USB interface (optional)
- LAN - Ethernet interface with WinCT-Plus software (optional)

Specifications

Model	Capacity	Repeatability (Standard deviation)	Linearity	Pan (diameter)
GH-200	220g	0.1mg	± 0.2mg	90mm
GH-300	320g	0.2mg	± 0.3mg	90mm
Model	Capacity	Weighing value	Repeatability (Standard deviation)	Pan (diameter)
GR-120	120g	0.1mg	0.1mg	85mm
GR-200	210g	0.1mg	0.1mg	85mm
GR-300	310g	0.1mg	0.2mg	85mm
Model	Capacity	Resolution	Pan (diameter)	
HR-120	120g	0.1mg	85mm	
HR-200	210g	0.1mg	85mm	

11. Weighing

FX-i Series Precision Balances



FX-i Series Precision Balances

Precise and robust precision balance for the laboratory and production environment with a choice of advance features. It provides accurate weighting result in one (1) second stabilization resulting in better productivity.

Features

- Fast, 1 second stabilization
- Multiple weighing units
- GLP / GMP / GCP / ISO compliant
- Built-in rechargeable battery (optional)

External Input / Output

- RS-232C interface
- Quick USB interface (optional)
- LAN - Ethernet interface with WinCT-Plus software (optional)

Specifications

Model	Capacity	Weighting Value	No. of Samples	Pan (diameter)
FX-200i	220g	0.001g	5, 10, 25, 50 or 100pieces	130mm
FX-300i	320g	0.001g	5, 10, 25, 50 or 100pieces	130mm
FX-2000i	2200g	0.01g	5, 10, 25, 50 or 100pieces	150mm
FX-3000i	3200g	0.01g	5, 10, 25, 50 or 100pieces	150mm

Combine with SKY & SNUG III series

JWA & JWE Weighing Scale

JWA Weighing Scale

JWE Weighing Scale



A weighing scale is a measuring instrument for determining the weight or mass of an object. High standard of accuracy in applications such as pharmaceutical, chemical, electronics, food production, and metallurgy or any other use.

Features

- High resolution in 1/30,000 (OIML approved 1/3000)
- Rugged construction and stainless steel weighing pan (for JWA series)
- Option : removable RS-232 interface x 2, relay interface x 1

Specifications

Model	JWA-6K	JWA-30K
Capacity (kg)	6	30
Division(g)	0.2	1
Weighting Units	kg, g, lb, lb.oz, pcs, %	
Display (mm)	7 digit, 30mm character height, green backlit LCD display	
Certification	CE, OIML	

JCE Counting Scale

Counting scale offer simple and easy operation with high performance counting function.

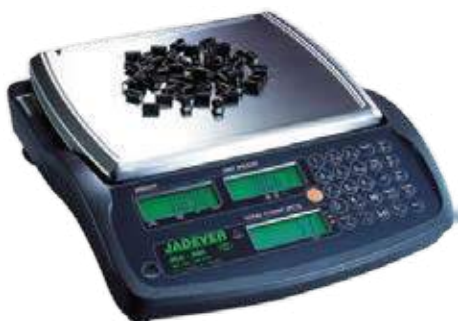
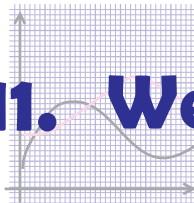
Features

- High resolution in 1/30,000, fast reading
- Water-resistant durable keypad
- RS-232 interface (optional)

Specifications

Model	JCE-3K	JCE-30K
Capacity (kg) (Between 3kg to 30kg)	3	30
Division (g) (Between 0.1g to 1g)	0.1	1
Weighting Units	g, kg, lb	g, kg, lb
Certification	CE	CE

11. Weighing



Counting scale offer simple and easy operation with high performance counting function.

JCA Series Multifunction Counting Scale

Features

- High resolution in 1/30,000, (OIML approved 1/3000) Internal resolution 1/600000
- Fast display of weight, average piece weight and part count
- Rugged construction and stainless steel weighing pan
- Option : removable RS-232 interface x 2, relay interface x 1 and dual channel (connection to larger platforms and floor scales)

Specifications

Model	JCA-6K	JCA-30K
Capacity (kg)	6	30
Division (g)	0.2	1
Countable Unit Weight (g)	0.16	0.8
Weighing Units	g, kg, lb	g, kg, lb
Display (mm)	6/5/6 digits, 18mm digit height, LCD display with green LED backlight	
Certification	CE, OIML	



A weighing scale is a measuring instrument for determining the weight or mass of an object. High standard of accuracy in applications such as pharmaceutical, chemical, electronics, food production, and metallurgy or any other use.

HXW-II Weighing Scale

Features

- Resolution : 1/15000; internal sensitivity : 1/300,000
- Can choose resolution at 1/30000, 1/15000, 1/7500, 1/3000 or dual display resolution
- Single point and three point calibration
- Simple counting function (in pcs or % model)
- With units kg, g, lb, oz, %, pcs

Specifications

Model	HXW-11-7500	HXW-11-30K
Capacity (g)	7500	30000
Resolution (g)	0.5	2
Pan size (mm)	250 x 180	250 x 180

Weighing Indicator / Counting Indicator

Weighing indicator used with platform scales, and floor scales, bench scale, together for showing the weighing results.

Features

- Up to 1/30000 resolution
- RS-232 interface (optional)
- Ideal for applications, shipping and receiving, inventory management

Specifications

Model	JWI-700C	JWI-700W
Weighing unit	kg / lb	kg / lb / g / oz / pcs
Display	6/5/6 digits, 19mm digit height LCD display with green LED backlight	6 digits, 30mm digit height LCD display with green LED backlight
Power supply	AC 110V/220V (AC \pm 10%) or rechargeable battery (6V/4A)	AC 110V/220V (AC \pm 10%) or rechargeable battery (6V/4A)
Certification	CE	CE



JWI-700W Weighing Indicator



JWI-700C Counting Indicator

11. Weighing

JL Series Bench Scale



Bench scale is ideal for general, weighing and simple counting applications in production, packaging, warehouse, inventory, shipping and receiving areas and designed with affordability in mind.

Ideal for home office, mail room, shipping and receiving, and general commercial and industrial weighing applications designed specially with affordability.

Features

- Removable stainless steel weighing pan
- Non-slip adjustable feet and integral leveling bubbles
- Iron structure / stainless steel structure for durable performance

Specifications

Model	JL-02	JL-03
Capacity (kg) (between 30 -300kg)	30,75 / 75,150	75,150,300 / 150,300
Platform size (cm)	33x44 / 40x50	42x52 / 45x60
Pole diameter (cm)	Φ 3.8	Φ 3.8
Pole height (cm)	66	66

JLT Series Crane Scale

Crane scales are used for bigger applications and can often be found in goods in or at the ports for off loading of ships. Crane scale have two functions, one is to give you the weight of an item, the other is to ensure operators do not overload the crane or hoist, so they have a safety function. Rugged and reliable construction, suitable for all kinds of heavy-duty measurements.

Features

- 360° freely swiveling hook
- Battery life 150 hours
- Overload safety : 200% of rated capacity
- Ultimate overload : 400% of rated capacity
- Auto calibration
- Optional accessory : wireless remote controller

Specifications

Model	JLT-1T	JLT-7.5T	JLT-20T
Capacity (kg)	1000	7500	20000
Division(kg)	0.5	5	10
Display	5 digits, 25mm digit height, red backlit LED display		





Universal Testing Machine

VICTOR's Universal Testing Machine otherwise known as a materials testing machine/ test frame is used to test the tensile and compressive properties of materials. The Universal Testing machine is named so because it can perform all the tests like compression, flexure/bending, tension, shearing, peeling, cycle test etc to examine the material in all mechanical properties.

Charpy Izod Pendulum Impact Tester

VICTOR's Charpy and Izod Impact tester is high a performance pendulum impact tester that precisely determines absorbed impact energy and resistance to breakage of metallic specimens. With the computer display, it can show test result and test curve in real time easily





Plastic Testing Machine

Melt Flow Indexer

This type of Melt Flow Indexer is a new and affordable tabletop instrument that tests the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of a wide range of thermoplastic raw materials (granulate). Any temperature within 120°C - 450°C (248°F - 842°F) can be control accurately.



HDT / VICAT Tester

The tester is used to determine the Heat Deflection Temperature or the Vicat softening Point. All the specimens are charged with a constant load and immersed in a bath, where temperature is increased at a standard velocity.

The attained heat resistance rate of plastic material is a widely required parameter for product characterization, for quality control, as well as for evaluating their conformity to the previewed applications.



Falling Weight Impact Tester

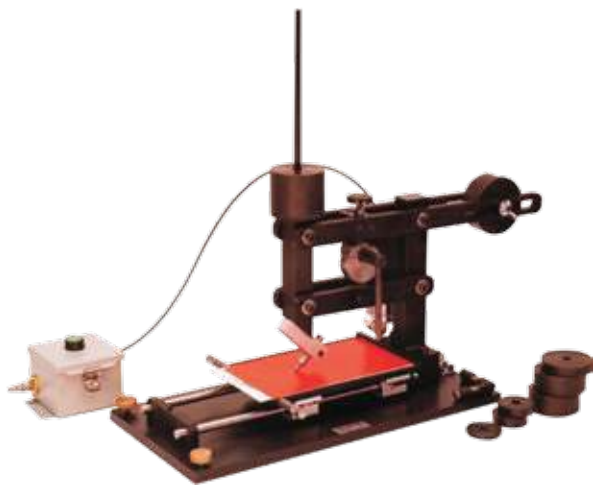
This machine is used to determine the resistance to external blows of thermoplastics pipes of circular cross-section. Test pieces are subject to blow from a falling striker, of specified mass and shape, dropped from a known height onto specified position around the circumference of the test piece. The true impact rate of the batch, or production run from an extruder, is estimated.

Paint Test Equipment



Film Thickness Measurement System

DJH Film Thickness System was developed with both the production line and quality control laboratory in mind. Advanced computer programmed motion control results with an excellent degree of accuracy. The heart of the system is the specially designed Borrer Machine. On a painted surface it will bore a clean, smooth, shallow crater approximately 0.0015" deep. The sample piece is then placed under the microscope and the crater is viewed on the high resolution color video monitor. The metal surface, undercoat, and top layer of paint can be easily viewed & measured.



Scrape & Intercoat Adhesion Tester

The Scrape & Intercoat Tester can be utilized as an on line production tester or as a paint/substrate/process system development test in order to establish quality.



MEK Rub Test Machine

The MEK Rub Test machine has been developed to combat the problem of inconsistent test results between operators. This frees the operator to perform other QC test while the machine performs the rub test consistently and reliably with the added benefit of greatly reducing operator contact with and exposure to the solvents being used for the rub test procedure.



Film Impact Tester

For impact resistance test of plastic films, foils, laminated films, aluminum foils and etc.



Film Free Shrink Tester

For heat shrinkage test of all kind of films in liquid under various temperatures.



Airproof Tester

For airproof test of foodstuff, pharmaceuticals, daily chemistry and other industries.



Leak and Seal Strength Detector



Headspace Gas Analyzer

For content analysis of oxygen and carbon dioxide inside the packages like pouches, cans and bottles.



Rub Tester

For abrasion resistance test of printed material like labels, folding cartons, corrugated boxes, inserts, circulars, and other packaging materials.



Box Compression Tester



Digital Torque Tester

For the test of open and lock forces of bottle caps.



Adhesive Tester

For tack test of adhesives, adhesive tapes, adhesive products.



Auto Air Permeability Tester

For air permeability test and air resistance test for PU foam and so on.



Lasting Adhesive Tester

For holding power test of pressure sensitive adhesive tapes.



Gas Chromatography Tester

For solvent residue tests of the packaging materials, especially for the food content materials.



Fogging Tester

For test of fogging characteristics of automotive interior materials.



Coefficient of Friction Tester





Water Transmission Rate Test System

Water vapor permeability test of plastic film, laminated film, high barrier materials, back sheets, sheets, foil, construction heat insulation materials, and construction water insulation materials, as well as many materials in pharmaceutical application.



Thickness Tester

For accurate thickness test of all kinds of material in its test range, like film, membrane, paper, foil, and etc.

High precision thickness measurement of non-ferrous materials, ideal for bottles, aluminium cans, glass and plastic components with complex shapes.



Gas Permeability Tester

For tests of gas transmission rate, solubility coefficient, diffusion and permeability coefficient through plastic films, laminated film, high barrier materials, foils, tyre, sheets, osmosis membranes.

Tearing Tester

For tearing resistance test of films, laminated films, foils, paper and textiles.

Falling Dart Impact Tester

For energy test that causes plastic films and foils to fail under specified conditions of impact of a free-falling dart.



Manual and automatic hardness testers both available in bench and portable versions, with analogic or digital measuring device for standard and superficial Rockwell tests, as well as for Brinell (with loads from 153,2N up to 2452N) and Vickers tests (with loads from 9.807N to 980.7N).

Microhardness testers with optical-digital computerised measuring device, available both in the automatic and CNC versions for Vickers and Knoop microhardness tests, execution of single or multiple hardness profiles. Loads from 0.09807N to 98.07N.



Primary Standard Machines for
National Metrology Institutes





Analog Rockwell Hardness Tester



Brinell Hardness Tester



Measuring Internal Wall Hardness



Rockwell & Rockwell Superficial Hardness Tester

Suitable for large, bulky parts on the site inspection, to test high-pressure vessel, welded circular seam and thin-walled vessel, to test surface defects and hidden deeper defects.

Magnetic particle inspection machine based on the magnetization principle, used to check the parts made of ferromagnetic material, for surface defects or near surface defects due to forging, quenching, grinding, fatigue cracks, and present of non-metallic impurities or cracks on bolts.



Mobile AC & DC Magnetic Flaw Detection



AC & DC Magnetic Flaw Detection

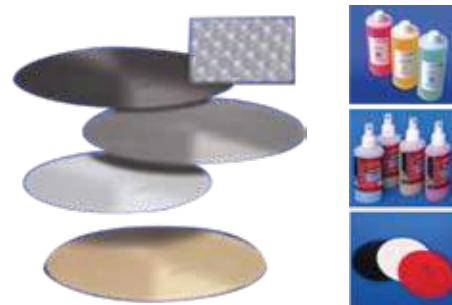


Vibration Testing and Packing Drop Test

Transport packaging and their contents are influenced by the modes of transport either by sea, or road transport. Depending on which transport mode that is used, packages will be exposed to different kind of forces stresses like vibration and dropping. **Vibration Testing System** is important in stimulate the vibration condition which occur in nature like during transportation by truck, ship, earthquake and etc. This is to determine a product can withstand the rigors of its intended use environment. This can ensure the final packaging will be suitable for shipment in order to reduce product defects. **MERIDIAN** offers a wide range of vibration system application for different industries : electrical and electronic components, plastic components, glass components, automotive components and etc. Basically vibration testing system include 1) economic vibration system, 2) mechanical vibration system, 3) electromagnetic vibration system. **Package Drop Test** simulates actual shocks by dropping the package and its content freely against a rigid plane surface from a predetermined height.

Metallographic Sample Preparation Machine

VICTOR offer a complete range of Metallographic Sample Preparation Machine & consumables from manual grinding machines to microprocessor controlled automatic grinding & polishing machines. These include Cutting machine, hot mounting press, grinding & polishing machine.



**Metallographic
Cut Off Saw**



**Combo
Digital Polisher**



**Automatic
Mounting Press**



Automatic Dispenser



**Automatic Hydraulic
Mounting Press**



Precision Cut Off Saw

Polisher Grinding Machines



XRF Spectrometer

Designed and Developed for RoHS detection & Alloy analysis RoHS standards restrict new electrical, electronic equipment, plastic parts and many others shall not contain lead(Pb), mercury(Hg), cadmium(Cd), chromium(Cr) and Bromine(Br) more than certain limitation.

Alloy analysis is to let you know the grade and composition of alloyed steel. For example stainless steel consists of many grades and this spectrometer can show you the actual grade such as grade 304, 316 and 317 in a short time.



Handheld Spectrometer



EDX Pocket III



EDX 1800B



EDX 6000B



EDX 3600B

Specially designed for rapid and non-destructive plating thickness measurement.

Able to analyze more than 5 plating layers simultaneously and the detection limit of thickness can reach 0.005um.



Thick 800A

ANALYTICAL INSTRUMENTS GROUP

GNR Optical Emission Spectrometer (OES) In optical emission spectroscopy, a metal is heated to high temperature using electrical discharge; the light emitted by the metal atoms in the sample is then passed through a spectrometer, which splits the light up with a prism or diffraction grating. The pattern of bands cast by the spectrometer can be used to identify the element.

OES is used to evaluate how much of each metal is present in a complex alloy and able to analyze any different kind of metal alloys, ferrous and non ferrous.

SCP



Metal Test



ESP





X-ray Inspection System for food industry

Fscan-3280

1. High power X-ray solution(80kV and 120kV) would give customers to inspect contamination for not only small or medium-size packages but also large product boxes, allowing customers to perform last-minute product quality check prior to last shipment.
2. Excellent detection ability without taking packaging materials.
3. Possible to detect Fe, Al, SUS, Glass, Stone, Plastic and Pb.

X-ray Inspection system for Automotive, Die-Casting and Machinery Component Xscan-7630

1. Focus size (μm): 5μm
2. Inspection for inside of objects such as pin-hole, void, crack, foreign materials and so on.
3. Specialized inspection system for die-casting

Applied Products

1. Automotive Components (Brake, Cylinder, Piston, Wheel, Door, Handle, Connectors, and so on.)
2. Die-casting of AL, MG, ZN and so on.



X-ray Inspection System for PCB, SMT, LED

Xscan-7130

1. Focus size (μm): 5μm
2. Realization of high-speed and high-efficiency product inspection

Applied Products

1. BGA, CSP, Flip Chip
2. Battery, Plastic Injection Molding, Camera Modules, and so on.
3. PCB, MLB, FPCB
4. LED Chips and LED Back Light Unit Components

Conveyor Metal Detector

The general-purpose metal detector is used to detect metal contamination (needle, broken needle, etc.) within products in production lines. Contamination of food by metal shards from broken processing machinery during the manufacturing process is a major safety issue in the food industry. Metal detectors for this purpose are widely used and integrated into the production line. It can be widely used in food, medicine, daily-chemical, rubber and other industries.



Check Weigher

A check weigher is an automatic machine for checking the weight of packaged commodities. It is normally found at the outgoing end of a production process and is used to ensure that the weight of a pack of the commodity is within specified limits. Any packs that are outside the tolerance are taken out of line automatically.



Mahr

Mahr established in 1861, Germany. It has the power of technical innovation and a goal-oriented focus on quality.



MarShaft MAN Flexible
Shaft Measuring Center



MarSurf Contour Measuring Station



Precimar Linear Setting &
Measuring Instrument



MarSurf Surface Measuring Station



Digimar Height
Measuring Instrument



Marform Formtester



MarPreset Tool Preseter

- * 350 mm / 400 mm ø screen,
- * H-Horizontal or V-Vertical projection system
- Measuring system type M-TOUCH. This coloured LCD touch screen is provided with practical simple and quick to use alphanumerical and graphic readout for all measurements.



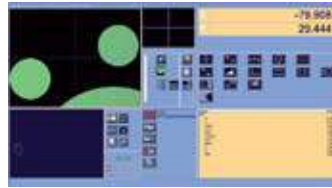
SIRIUS with 500mm screen diameter, horizontal projection system, large and sturdy front worktable with powered displacements of either 300 x 200mm or 710 x 200mm.



ATLAS versions with 600 and 760mm screen diameter, horizontal projection system, heavy duty side worktable with powered displacements of either 300 x 200 or 710 x 200mm.



VISUAL MEASURING SYSTEM



Digital Tool Presetter



Video Toolmaker Microscope

Measuring function



Can measure the Point, Line, Arc, Ellipse, Rectangle, distance, Angle.
Can detect the graph element automatically.
Can construct the Center point, Midpoint, Line, Circle, Angle.

Outputting the data



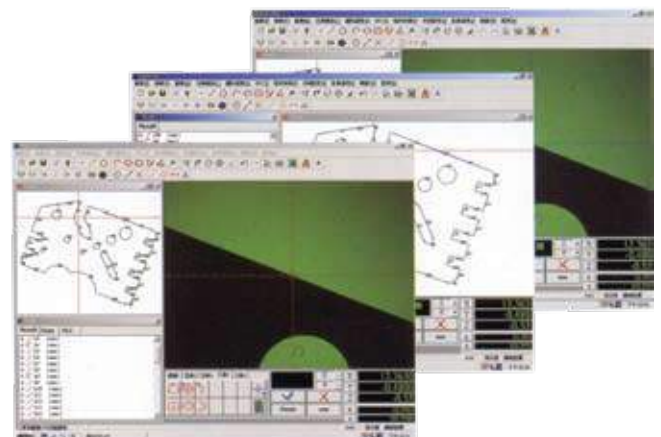
The graph can be exported to AutoCAD.
The data can be exported to Notebook, Excel, Word.



Special function for M2D-AT

Scanning 2D graph

Can scan 2d graph, all are points.
Can be saved as*.DXF and then managed in AutoCAD.



MERIDIAN CHAMBER IS THE SOLUTION FOR ENVIRONMENTAL FORCES

There are few enemies (sunlight, temperature, moisture, salt, dust and etc.) in our surrounding environment, which will cause damage to our products and reduce product quality like color fade, strength loss, corrosion, cracking and etc. Therefore we need environmental testing chamber to provide an accelerated weathering condition which is identical to natural environment for testing our product quality and improve in R&D. It is used in many industrials like automotive, rubber, plastic, metals, electronics, paint and etc. **MERiDIAN** chambers fulfilled national and international standard: IEC 60068-2-1-1990, IEC 60068-2-2-1974, IEC60068-2-30-2005, JIS, ASTM, ISO and etc.



Walk in Temp. & Humidity Chamber

Temp. : -20°C/-40°C/-70°C to 150°C
 Humidity : 25-98%RH
 Size : 10m3, 20m3, 30m3, 40m3 &etc
 Test : Temp. and Humidity test for big sample size



Temp. & Humidity Chamber

Temp. : -20°C/-40°C/-70°C to 150°C
 Humidity : 25-98%RH
 Size : 80L, 150L, 250L, 400L &etc
 Test : Temp. and Humidity Test



Thermal Shock Chamber

Type : two temp. method, three temp. method
 Size : 50L, 100L, 300L &etc.
 Test : capability of components to withstand rapid temperature changes from extremely high temp and low temp in short time



Salt Spray Machine

Temp : 35°C -55°C
 Size : 108L, 207L, 413L and etc.
 Test : corrosion resistance of metal surface finishing to the corrosive effect of salt water



Accelerated Weathering Tester (UV Chamber)

Temp. : RT+10°C-70°C
 Humidity : >95%
 Lighting source : UVA (320nm-400nm, UVB (250-350nm)
 Test : Effect of sunlight UV, temp and humidity



Xenon Test Chamber

Temp : 10°C to 70°C
 Humidity : 45-95RH%
 Light source : Xenon lamp (320nm-780nm)
 Test : Effect of sunlight, temp. and humidity

Others



Temp. & Humidity Chamber



Bench Top Temp & Humidity Chamber



Sand & Dust Test Chamber / Ozone Test Chamber (Test Rubber)

- More than 60 years of experiences and customer relationship
- The widest and deepest Range of furnace in the world
- Professional Solutions-standard and customized
- Excellent design, good quality and cost efficiency furnace

Thermal Engineering for Professional Applications

Furnace is used in many applications like auto-motive parts, electrical and electronic parts, metal and foundry industry, glass industry, plastic industry and etc. The heat treatment system involved melting, annealing, hardening, soldering of metal, curing, tempering, drying and surface treatment purpose and etc.



- Laboratory Furnace
- Thermal Process Furnace
- Retort Furnace
- Vacuum Furnace
- Air Circulation Furnace
- Production Furnace
- Foundry Furnace
- Tube Furnace
- Melting Furnace



ESCO
WORLD CLASS. WORLDWIDE.

Esco Controlled Environment Laboratory and Cleanroom Equipment Solutions

Biological Safety Cabinets

Compounding Pharmacy Equipment

Containment / Pharma Products

CO₂ Incubators

Ductless Fume Hoods

In-Vitro Fertilization Workstations

Lab Animal Research Products

Laboratory Fume Hoods

Laboratory Ovens and Incubators

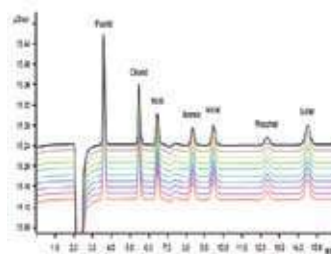
Laminar Flow Clean Benches

PCR Products

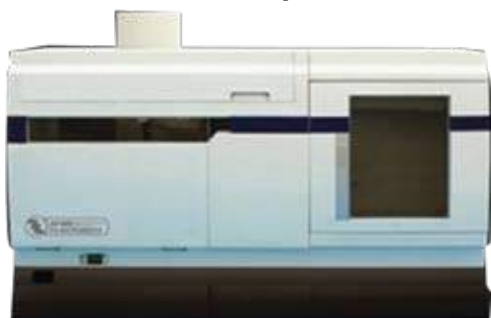
Ultra-low Temperature Freezer

The Trusted Solution for Chemical Analysis (Quantitatively and Qualitatively)

Atomic Absorption Spectrophotometer



Double-Channel Atomic Fluorescence Spectrometer



Single / Double Beam UV / Visible Spectrophotometer

Portable Spectrophotometer

Bench Spectrophotometer



Fourier Transforms Infrared Spectroscopy (FTIR)



Ion Chromatography



Gas Chromatography



High Performance Liquid Chromatography



Combination System

- GC-MS (Gas Chromatography-Mass Spectrometer)
- LC-MS (Liquid Chromatography-Mass Spectrometer)
- IC-MS (Ion Chromatography-Mass Spectrometer)

Scientific Laboratory Equipments



Ultrapure Water System



Centrifuges



Microwave Digestion



Rotary Evaporator



Vacuum Freeze Dryer



Universal Testing Machine

- ✓ Inspection
- ✓ Service
- ✓ Repair
- ✓ Calibration



Ultrasonic Thickness Gauge



Gas Detector Calibration

Authorized Technical Centre for Service & Calibration

A well equipped Laboratory that is pursuing
ISO 17025 standard



Coating Thickness Gauge

Testimonial



ASSEMBLY SERVICES SDN BHD (No. 021542-A)
Persiaran Selangor, 40000 Shah Alam, Selangor Darul Ehsan, Malaysia.
P.O Box 7091, 40702 Shah Alam, Selangor Darul Ehsan, Malaysia.
Phone : (03) 51232000
Fax : (03) 55193971

Obsnap Instruments Sdn Bhd

No 29A, Jalan SS 15/4C,

47500 Subang Jaya,

Selangor, Malaysia.

26 March 2012

TO WHOM IT MAY CONCERN

RE: LETTER OF APPRECIATION

We believe Obsnap Instrument Sdn Bhd is one of the trustable supplier for testing and measuring equipment in the market because they provide a satisfying after sales service support. Their service engineers are professional, friendly and commitments in duties. They try their best to provide best customer's services and customer's problems solving as well. Because of this positive practice, we are believed that Obsnap teams will continue provide the high-quality services to us.

Again, I strongly believe choosing Obsnap Instrument was one of the reliable supplier and I would like to take this opportunity to thank you for their dedicated engineers and good service support. We will continue to support Obsnap Instrument Sdn Bhd in the future time.

Yours faithfully,

Assembly service Sdn Bhd

Mr. Lim Pan Sheng

(Engineer)

Production Engineering Department

Mr. Too Shaw Shyong

(Assistant Manager)

Mr. Foo Check Tuann

(Head of Department)

Testimonial

HITACHI
Inspire the Next

Hitachi Air Conditioning Products (M) Sdn. Bhd.

Lot 10, Jalan Kemajuan, Bangi Industrial Estate,

43650 Bandar Baru Bangi, Selangor Darul Ehsan, Malaysia.

12 October 2011

Obsnap Instruments Sdn Bhd

No 29A, Jalan SS 15/4C,

47500 Subang Jaya,

Selangor, Malaysia.

TO WHOM IT MAY CONCERN

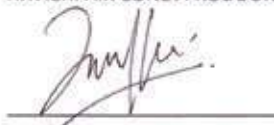
RE: LETTER OF APPRECIATION

It has been a real pleasure by choosing Obsnap Instrument Sdn Bhd as our testing and measuring supplier. The service engineer teams of Obsnap Instrument are very professional and responsible. For testing and measuring instrument, the most important part is after sales service support. We are very happy and satisfied with the good services that provided by Obsnap teams to us. The service teams of Obsnap go well beyond the normal call of duty. They always go the extra mile to minimize instrument downtime.

Thank you for their dedicated engineers and good service support and I strongly believe that choosing Obsnap Instrument was the right one.

Yours faithfully,

HITACHI AIR COND. PRODUCTS (M) SDN BHD



Zambri B. Hashim

Senior Engineer

Quality Assurance Department

Hitachi Air Conditioning Products (M) Sdn. Bhd. (185363-T)

Lot 10, Jalan Kemajuan, Bangi Industrial Estate, 43650 Bandar Baru Bangi, Selangor Darul Ehsan, Malaysia.
Tel : 603-8925 6611 Fax : 603-8925 6511

<http://www.hapm.hitachi-asia.com>

Testimonial



To Whom It May Concern

27 October 2011

Our experience to date has proved that choosing Obsnap Instrument Sdn Bhd as our testing and measuring supplier was the right one. We are very satisfied with the handling of the instrument, the responsible engineers and the quality service that they provide.

Yours faithfully,



NG SING HEAD
QA Officer
APM SHOCK ABSORBERS

**APM SHOCK ABSORBERS
SDN BHD (60052-P)**

Lot 600, Pandamaran Ind Est,
Locked Bag No 240,
40099 Port Klang,
Selangor Darul Ehsan, Malaysia.

Tel: 603-2167 7167
Fax: 603-2167 2185


INDUSTRIAL QUALITY MANAGEMENT SDN. BHD. (134428-4)
Manufacturers of Plastic & Metal Components

12 Oct 2011

Obsnap Instruments Sdn Bhd
No 29A, Jalan SS 15/4C,
47500 Subang Jaya,
Selangor, Malaysia.

Dear Sir,

RE: LETTER OF APPRECIATION

It has been a real pleasure working with the professional and courteous staff at Obsnap Instruments Sdn Bhd. The service team of Obsnap goes well beyond the normal call of duty. They always go the extra mile to minimize instrument downtime. We are fortunate to have Obsnap Instruments Sdn Bhd working with us.

Thank you for your dedicated engineers and we are satisfied with your service support.

Yours sincerely,

Your company name



Your Name
Position
Company Chop



INDUSTRIAL QUALITY MANAGEMENT SDN BHD
(134428-4)
 LOT 7, JALAN BUKA 2/34
 SECTION 22, KOSID SHAH ALAM
 40150 KOTA DAMAI, SELANGOR
 TEL: 03-54622881 FAX: 03-54622881

To be the best in quality and price components manufacturing
offer to help Corporate Satisfaction to our priority



31 Oct 2011

Obsnap Instruments Sdn Bhd
No 29A, Jalan SS 15/4C,
47500 Subang Jaya,
Selangor, Malaysia.

Dear Sir,

RE: LETTER OF APPRECIATION

My experience with Obsnap service and support has been outstanding. Service calls have been answered promptly, and technical support has been friendly and competent. It has been a real pleasure working with the professional and courteous staff at Obsnap Instruments Sdn Bhd.

Thank you for your dedicated engineers and we are satisfied with your service support.

Yours sincerely,



Hafizan Lamin
Manager, Quality Control
Jutasama Sdn. Bhd.



Lot 1990, Batu 7, Jalan Bukit Kemuning, Seksyen 32, 40460 Shah Alam, Selangor Darul Ehsan, Malaysia.
 Tel: 60-323-6123 0988 Fax: 60-323-6123 0677 E-mail: general@jutasama.com.my Website: www.jutasama.com

A member of  Mekong Group Bhd.



TAN CHONG MOTOR ASSEMBLIES SDN. BHD. (19428-D)

Your Ref: _____
Our Ref: _____

Date: _____

To : Whom May Concern

31st October 2011

"With the assistance of Obsnap Instruments Sdn Bhd, we manage to do our jobs efficiently by using their high quality products / instruments as been promised. Their fast service that been offered also help us in order to get the instruments as soon as possible and the service team also assist us in giving their best advice and information needed. Thanks a lot from us for your precious assistance and advice"



Shaltan Othman
Manager
Production Department (Paintshop)
Tan Chong Motor Assemblies Sdn Bhd

Lot 1440, Jalan Regentech, 11000 Kuala Lumpur, Malaysia.
 Tel: 60-3-6276 8388 Fax: 60-3-6271 3311

No. 340, Jalan Regentech, 11000 Kuala Lumpur, Malaysia.
 Tel: 60-3-6276 8388 Fax: 60-3-6271 3311

Obsnap

the professional

OBSNAP INSTRUMENTS SDN. BHD.

No. 29A, Jalan SS 15/4C,
47500 Subang Jaya,
Selangor, Malaysia.

Tel : 60-3-5621 5786
Fax : 60-3-5621 5829
E-mail : sales@obsnap.com



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