



KYORITSU



PEWA
Messtechnik GmbH
Weidenweg 21
58239 Schwerte
Tel.: 02304-96109-0
Fax: 02304-96109-88
E-Mail: info@pewa.de
Homepage: www.pewa.de



ISO 9001 APPROVED BY BVQI

2002

CATALOGUE

**World Class Test and Measuring Instruments
for a Global Marketplace**



KYORITSU ELECTRICAL INSTRUMENTS WORKS, LTD.

Greetings

The electrical instrumentation industry has been playing a key role as a basis for technological development to sustain the growth of the world.

With the passage of time there is an ever increasing need for us to meet the more diversified and sophisticated demand from all walks of our industrial society.

Since its foundation in 1940 Kyoritsu Electrical Instruments Works, Ltd. has been pursuing a solid business philosophy of "Customer First" in every area of our production and servicing activities, thus establishing a relationship of mutual trust with our customers.

Here in our company all of us are expected to fully develop our individual personality and creativity into a valuable corporate asset for our future growth.

We are united together by the guiding principle of always being diligent, honest and appreciative of all those around us.

We sincerely wish that with this corporate culture we can make some contribution towards building a more affluent human society.

Thank you in advance for all your continuous support and patronage.



ISO9001

QUALITY STANDARDS APPROVAL



Ehime Factory of Kyoritsu Electrical Instruments Works, Ltd. obtained ISO 9001 certification in December, 1992.

The certification was given by UK based Bureau Veritas Quality International (BVQI), one of the few globally recognized certification bodies.

All the above testify to our compliance with the International Quality Assurance Standard.



CONTENTS

■ ANALOGUE MULTIMETERS

1106, 1108	2
1109, 1110	3

DIGITAL MULTIMETERS

1008, 1020	4
KEW MATE 2000, 2001	5

■ CLAMP METERS

2017, 2027	6
2037, 2608A, 2805	7
2002PA, 2006, 2007A, 2031	8

CLAMP LEAKAGE METERS

2432, 2433	9
2412, 2413F, 2414, 2415, 2417, 2431, 2434	10

AC/DC CLAMP METERS

2003A, 2004, 2009A, 2010, 2033	12
--------------------------------------	----

■ CLAMP ADAPTORS

8006, 8112, 8112BNC, 8113	14
---------------------------------	----

MULTI-TRANS, ENERGIZER

8004, 8008, 8021	15
------------------------	----

■ DIGITAL INSULATION/CONTINUITY TESTERS

3005A, 3007A	18
--------------------	----

INSULATION/CONTINUITY TESTERS

3131A	19
3001B, 3111V, 3132A	20

■ INSULATION TESTERS

3165, 3166, 3321, 3322, 3323	21
3144, 3145, 3146, 3161, 3313, 3314	22

HIGH VOLTAGE INSULATION TESTERS

3121, 3122, 3123, 3124	23
------------------------------	----

■ EARTH TESTERS

4105A	24
4102A	25

■ LOOP/PSC TESTERS

4120A	26
4116A, 4118A	27

■ RCD TESTERS

5402D, 5404, 5406A	28
--------------------------	----

■ MULTI FUNCTION TESTERS

6010A	29
6015	30
6011A	32
6017, 6018	33
6020, 6030	34

■ RECORDERS

5350, 5360	36
5351	37
5361	38

■ ACCESSORIES

5200, 5201, 8030, 8031	39
5500, 5510	40
Test Leads	41

■ Instrument Glossary

42

Kyoritsu Quality Control Concept

44

PRODUCT INDEX

45



Safety Warnings

Please read the "Safety Warnings" in the instruction manual supplied with the instrument thoroughly and completely for safety use.

Failure to follow the safety rules can cause fire, trouble, electrical shock, etc. Therefore, make sure to operate the instrument on a correct power supply and voltage rating marked on each instrument.

KEW ANALOGUE MULTIMETERS

Kyoritsu analogue multimeters are the products of our technical expertise gained from more 50 years of panel meter production.

Made of high quality, high performance meter movements, all of our multimeters are used for a wide range of testing application in the field.

MODEL 1106



- Designed for safety.
- Slim, compact lightweight and truly portable.
- Sloping front panel permits easy reading.

MODEL 1108



- Sloping front panel for easy reading. Tilt stand to allow for an optimum viewing angle.
- Fuse and diode protected circuitry.

Selection Guide

MODEL	1106	1108	1109	1110
Sensitivity (DC)	5k Ω /V	20k Ω /V	20k Ω /V	20k Ω /V
DCV	•	•	•	•
ACV	•	•	•	•
DCA	•	•	•	•
ACA	•	•	•	•
Ω	•	•	•	•
LED				•
Decibel		•	•	
Temperature	•	•		•
Battery Test	•	•		•

Optional Accessories



■ Model 7060
Temperature Probe



■ Model 7069
10kV High Voltage Probe

! WARNING

To avoid electrical shock hazards never use the multimeters on an industrial power line above 250V.

KEW ANALOGUE MULTIMETERS

MODEL 1109



- Mirrored scale for easy and accurate reading.
- Fuse and diode protected circuit (except 15A AC range).
- Output terminal to cut off DC component when measuring AC voltage.
- Safety designed input terminals and test leads.

MODEL 1110



- High sensitivity DC20k Ω /V.
- Polarity selector switch.
- 1m drop-proof heavy duty designed taut-band movement.
- Can measure line voltage up to AC 600V.
(Voltage to ground MAX AC300V) (Protected by 600V ceramic fuse against accidental overload)
- Continuity buzzer, battery check, LED check, temperature measurement function.
- Skeleton type robust and clear case with carrying handle furnished as standard accessory.

Specifications

MODEL	Model 1106	Model 1108	Model 1109	Model 1110
DC V	0.5/5/25/100/250/500V (5k Ω /V) $\pm 3\%$ of FS	0.25/1/2.5/5/10/25/50/ 100/250/500/1000V $\pm 3\%$ of FS (20k Ω /V)	0.1/0.5/2.5/10/50/250/1000V $\pm 3\%$ of FS (20k Ω /V)	0.3V(16.7k Ω /V) $\pm 3\%$ of FS 3/12/30/120/300/600V(20k Ω /V) $\pm 3\%$ of FS
AC V	10/50/250/500V(2.5k Ω /V) $\pm 3\%$ of FS	1/2.5/5/10/25/50/100/ 250/500/1000V(20k Ω /V) $\pm 3\%$ of FS, $\pm 5\%$ (1V, 2.5V)	10/50/250/1000V(9k Ω /V) $\pm 3\%$ of FS	12V(9k Ω /V) $\pm 4\%$ of FS 30/120/300/600V(9k Ω /V) $\pm 3\%$ of FS
DC A	200 μ A/2.5/25/250mA $\pm 3\%$ of FS $\pm 5\%$ of FS(250mA)	50 μ A/2.5/25/500mA/10A $\pm 3\%$ of FS	50 μ A/2.5/25/250mA $\pm 3\%$ of FS	60 μ A/30/300mA $\pm 3\%$ of FS
AC A	—	10A $\pm 3\%$ of FS	15A $\pm 3\%$ of FS	—
Ω	3/30/300k Ω $\pm 3\%$ of scale length	5/50/500k Ω /5M Ω $\pm 3\%$ of scale length	2/20k Ω /2/20M Ω $\pm 3\%$ of scale length	3/30/300k Ω $\pm 3\%$ of scale length
Continuity buzzer	—	—	—	Buzzer sounds below 100 Ω
Decibel	—	-20~+22dB	-10~+62dB	—
hFE	—	—	0~1000($\Omega \times 10$) $\pm 3\%$ of scale length	—
LED	—	—	—	10mA approx. at 0 Ω (at 3V of battery voltage)
Temperature	-20°C~+150°C $\pm 5^\circ$ C(0°C~+100°C), $\pm 10^\circ$ C(other ranges) (with the use of Temperature probe 7060)			-20°C~+150°C $\pm 5^\circ$ C(0°C~+100°C), $\pm 10^\circ$ C(other ranges) (with the use of Temperature probe 7060)
Battery Test	2V(20 Ω load)	2.5V(10 Ω load)	—	1.5V(0.7~2V) $\pm 3\%$ of FS (10 Ω load)
Maximum Circuit Voltage	—	—	—	600V AC/DC (between line/neutral) 300V AC/DC (against earth)
Safety Standard	—	—	—	IEC61010-1 CAT. III 300V Pollution Degree 2 CAT. II 600V Pollution Degree 2 IEC61010-2-031
Withstand Voltage	3000V AC for 1 minute		6000V AC for 1 minute	3700V AC for 1 minute
Power Source	R6P(AA)(1.5V) \times 1	R6P(AA)(1.5V) \times 2	R6P(AA)(1.5V) \times 2, 6F22(9V) \times 1	R6P(AA)(1.5V) \times 2
Dimensions	130(L) \times 85(W) \times 38(D)mm	188(L) \times 102(W) \times 45(D)mm	150(L) \times 100(W) \times 47(D)mm	94(L) \times 140(W) \times 39(D)mm
Weight	175g approx.	350g approx.	330g approx.	280g approx.
Accessories	7066(Test Leads) 8901(0.5A/250V fuse) \times 1 R6P(AA) \times 1 Instruction Manual	7066(Test Leads) 8901(0.5A/250V fuse) \times 2 9012(Carrying Case) R6P(AA) \times 2 Instruction Manual	7085(Test Leads) 8901(0.5A/250V fuse) \times 2 R6P(AA) \times 2 6F22 \times 1 Instruction Manual	7066(Test Leads) 8923(F500mA/600V fuse) \times 2 R6P(AA) \times 2 9103(Carrying Case) Instruction Manual
Optional	9059(Carrying Case) 7060(Temperature Probe)	7060(Temperature Probe) 7069(10kV High Voltage Probe)	9076(Carrying Case)	7060(Temperature Probe)

※FS : full scale

KEW DIGITAL MULTIMETERS

MODEL 1008



- Auto range and manual range selector provided. (with range hold feature)
- Continuity test buzzer.
- Diode test feature.
- 3200 count with bargraph.
- Resistance range provides audible continuity test.
- Automatically turns power off in about 10 minutes to conserve battery life.
- Direct current measurement up to 10A AC and DC.

MODEL 1020



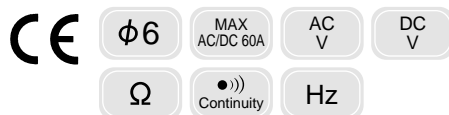
- Test leads can be clipped onto housing case.
- Features automatic mode switching between AC and DC voltage measurements.
- Frequency measurement and diode test functions plus continuity buzzer.
- Contoured for comfortable grip.
- Auto power off.
- Overload protected to 500V rms.
- Pocket size and heavy duty design.

Specifications

MODEL	Model 1008	Model 1020
DC V	300mV/3/30/300/1000V(Input Impedance 10MΩ) ±0.5%rdg±2dgt(300mV) ±1%rdg±2dgt(3/30/300V) ±1%rdg±4dgt(1000V)	320mV/3.2/32/320/450V(Input Impedance 100M,10MΩ) ±2%rdg±4dgt(320mV) ±0.7%rdg±4dgt(3.2V) ±1.3%rdg±4dgt(32/320/450V)
AC V	3/30/300/750V(Input Impedance 10MΩ) ±1.2%rdg±4dgt	3.2/32/320/450V(Input Impedance 11M,10MΩ) ±2.3%rdg±8dgt(50Hz~500Hz)
Hz	—	3.2/32/320kHz ±0.1%rdg±1dgt
DC A	300/3000μA/30/300mA/10A ±1.5%rdg±2dgt(300μA/30mA) ±2%rdg±2dgt(3000μA/300mA/10A)	—
AC A	300/3000μA/30/300mA/10A ±2%rdg±5dgt(300/3000μA/30/300mA) ±2.5%rdg±5dgt(10A)	—
Ω	300Ω/3/30/300kΩ/3/30MΩ ±1%rdg±2dgt(300Ω/3/30/300kΩ) ±2%rdg±2dgt(3MΩ) ±3.5%rdg±2dgt(30MΩ)	320Ω/3.2/32/320/3200kΩ/32MΩ ±2.5%rdg±6dgt(320Ω/3200kΩ) ±2%rdg±6dgt(3.2/32/320/3200kΩ) ±10%rdg±6dgt(32MΩ)
Diode Test	2V Release Voltage:Approx. 1.3V	Open Circuit Voltage:1.7V Test Current: < 1mA
Continuity buzzer	300Ω (Buzzer sounds below 20Ω)	320Ω (Buzzer sounds below 250Ω)
Withstand Voltage	3000V AC for 1 minute	5550V AC for 1 minute
Power Source	R6P(AA)(1.5V)×2	LR-44(1.5V)×2
Dimensions	167.5(L)×78(W)×37.5(D)mm	120(L)×68(W)×19(D)mm
Weight	250g approx.	100g approx.
Accessories	7066(Test Leads) 8922(0.5A/250V fuse)×2, 8921(10A/250V fuse)×1 9086(Carrying Case) R6P(AA)×2 Instruction Manual	Instruction Manual Soft Case

DIGITAL MULTI METER with AC/DC OPEN CLAMP SENSOR

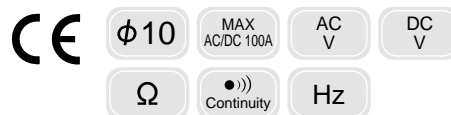
MODEL KEW MATE 2000



CONDUCTOR SIZE
φ6



MODEL KEW MATE 2001



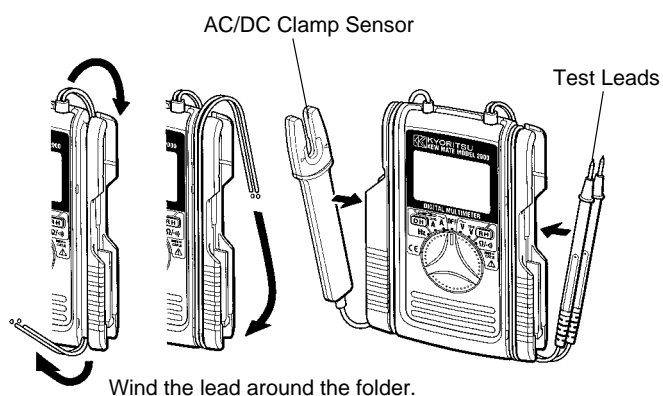
CONDUCTOR SIZE
φ10



Features

- Capable of measuring AC and DC currents up to 60A(KEW MATE 2000) /100A(KEW MATE 2001) with OPEN CLAMP SENSOR.
- 3400 counts with bargraph display.
- Pocket size and heavy duty design.
- Sleep function to save battery consumption.
- Designed to international safety standard IEC61010-1 CAT. III 300V

How to put test lead in.



Specifications

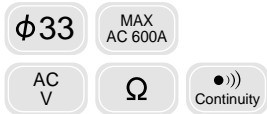
MODEL		KEW MATE MODEL 2000/2001		
Range		Measuring Range	Accuracy	
DC A	60A	0~60A(KEW MATE 2000)	±2%rdg±5dgt	
	100A	0~100A(KEW MATE 2001)		
AC A	60A	0~60A(KEW MATE 2000)	±2%rdg±5dgt (50/60Hz)	
	100A	0~100A(KEW MATE 2001)		
DC V	340mV	0~600V (5 Autoranging)	±1.5%rdg±4dgt	
	3.4V			
	34V			
	340V			
	600V			
AC V	3.4V	0~600V (4 Autoranging)	±1.5%rdg±5dgt(50-400Hz)	
	34V			
	340V			
	600V			
Resistance (Ω)	340Ω	0~33.99MΩ (6 Autoranging) Buzzer sounds at 30Ω±10Ω	±1%rdg±3dgt (±5%rdg±5dgt) (±15%rdg±5dgt)	
	(Continuity)			
	3.4kΩ			
	34kΩ			
	340kΩ			
	3.4MΩ			
Frequency (Hz)	AC A	3.4kHz	0~10kHz (2 Autoranging)	±0.1%rdg±1dgt
		10kHz		
	AC V	3.4kHz	0~300kHz (3 Autoranging)	±0.1%rdg±1dgt
		34kHz		
		300kHz		
		300kHz		
Maximum AC/DC Circuit Voltage		600V AC/DC (between line/neutral) 300V AC/DC (against earth)		
Conductor Size		φ 6mm max. (KEW MATE 2000) φ 10mm max. (KEW MATE 2001)		
Withstand Voltage		3700V AC for 1 minute		
Safety Standard		IEC61010-1 CAT.III 300V Pollution Degree 2 IEC61010-2-031, IEC61010-2-032 IEC61326-1		
Power Source		Two R03 or equivalent (DC1.5V) batteries		
Dimensions		128(L)×87(W)×21(D)mm (KEW MATE 2000) 128(L)×91(W)×27(D)mm (KEW MATE 2001)		
Weight		210g approx. (KEW MATE 2000) 220g approx. (KEW MATE 2001)		
Accessories		R03(1.5V)×2 Instruction Manual		
Optional		Soft Case		

KEW CLAMP METERS

Model 2017 series is a new line of clamp meters developed on the basis of a new design concept.

All models are built to IEC61010-1(CAT. III) and offer many outstanding safety features.

MODEL 2017



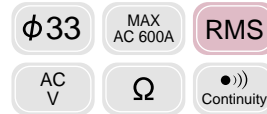
Features

- Tear drop shaped jaws for ease of use in tight places and crowded cable areas.
- Designed to meet internationally proven safety standards such as IEC61010-1, UL3111 and VDE0411.
- Three functions in one unit; AC current, AC voltage and resistance.
- Resistance range provides audible continuity test.
- Frequency response from 40Hz to 1kHz on AC current and voltage ranges.
- Can measure up to AC 600A and AC 600V.
- Data hold function to allow for easy reading in hard-to-reach locations.
- Display can be observed away from the conductor.
- True RMS sensing.(Model 2027/2037)

Specifications

MODEL	Model 2017	Model 2027	Model 2037
AC A	200/600A ±1.5%rdg±4dgt(200A)(50/60Hz) ±1%rdg±3dgt(600A)(50/60Hz) ±2%rdg±5dgt(45Hz~1kHz)	200/600A(True RMS) ±1.5%rdg±4dgt(200A/600A) (50/60Hz) (CF<3) ±2%rdg±5dgt(40Hz~1kHz)	400/600A(True RMS) ±1.5%rdg±5dgt(50/60Hz)(CF<3) ±3.5%rdg±5dgt(40Hz~1kHz)
AC V	200/600V ±1%rdg±2dgt(50/60Hz) ±1.5%rdg±4dgt(45Hz~1kHz)	200/600V(True RMS) ±1%rdg±2dgt(50/60Hz)(CF<3) ±1.5%rdg±4dgt(40Hz~1kHz)	40/400/600V(True RMS) ±1.5%rdg±5dgt(50/60Hz)(CF<3) ±3.5%rdg±5dgt(40Hz~1kHz)
DC A	—	—	400/1000A ±1%rdg±5dgt
DC V	—	—	40/400/600V ±1%rdg±5dgt
Ω	200Ω ±1.2%rdg±2dgt	200Ω ±1.2%rdg±4dgt	400/4000Ω ±1%rdg±5dgt
Continuity buzzer	buzzer sounds below 30±20Ω	buzzer sounds below 30±20Ω	buzzer sounds below 20Ω
Hz	—	—	3000Hz ±1.5%rdg±5dgt
Conductor Size	φ 33mm max.		
Safety Standard	IEC61010-1 CAT.Ⅲ 600V Pollution Degree 2 IEC61010-2-031		
Frequency Response	45Hz~1kHz	40Hz~1kHz	DC,10Hz~1kHz
Withstand Voltage	5550V AC for 1 minute		
Power Source	6F22(9V)×1		
Dimensions	208(L)×91(W)×40(D)mm		
Weight	400g approx.		450g approx.
Accessories	7066(Test Leads) 9079(Carrying Case) 6F22×1 Instruction Manual		
Optional	8004/8008 (Multi-Tran) 8021(Energizer)		8004/8008 (Multi-Tran)(AC only) 8021(Energizer)

MODEL 2027



Selection Guide

MODEL	2017	2027	2037
AC A	• 600A	• 600A	• 600A
AC V	• 600V	• 600V	• 600V
DC A			• 1000A
DC V			• 600V
Ω	• 200Ω	• 200Ω	• 4000Ω
Hz			• 3000Hz
Data Hold	•	•	•
Peak hold			•
True RMS		•	•

Optional Accessories



■ Multi-Tran
Model 8004

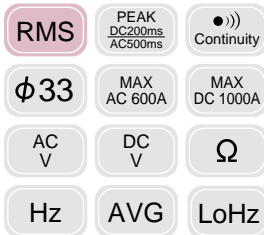


■ Multi-Tran
Model 8008



■ Energizer
Model 8021

MODEL 2037

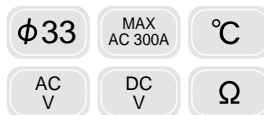


Model 2037 is a microprocessor controlled, high function AC/DC digital clamp meter. It is equipped with a number of new functions to meet the needs of the times, including its capability of making AC current measurements over a wide frequency range starting from 10Hz upwards. The instrument is designed to IEC61010 and fully compliant with the requirements for CE marking, etc.

Features

- Accurate true RMS readings of AC current and voltage regardless of the waveform.
- LoHz mode that automatically selects a lower sample rate in low frequency measurement to reduce fluctuations of display readings.
- Sleep function to save battery.
- "Peak" function to measure current or voltage peaks.
- "Average" function to allow for easy reading of fluctuating current or voltage.
- Auto-null function to allow for easy zero adjustment.
- Frequency measurement function.
- Digital display with maximum counts of 4000.
- Safety operation. The instrument is designed to IEC61010-1 (over-voltage category CAT. III)

MODEL 2608A

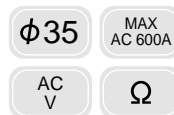


- DC voltage range is also available especially for checking emergency battery operated power supply.
- Can measure temperature using optional probe.
- Tear drop shaped transformer jaws for ease of use.

Specifications

MODEL	Model 2608A	Model 2805
AC A	6/15/60/150/300A ±3% of FS	6/20/60/200/600A ±3% of FS
AC V	150/300/600V ±3% of FS	150/300/600V ±3% of FS
DC V	60V ±3% of FS	—
Ω	1/10kΩ(25/250Ω mid-scale) ±2% of scale length	2kΩ(25Ω mid-scale) ±3% of scale length
Temperature	-20°C~+150°C (with the use of Temperature Probe 7060) ±5°C(0°C~+100°C)±10 °C(other ranges)	—
Conductor Size	φ 33mm max.	φ 35mm max.
Frequency Response	50Hz/60Hz	—
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-031, IEC61010-2-032	—
Withstand Voltage	3700V AC for 1 minute	2200V AC for 1 minute
Power Source	R6P(AA)(1.5V)×1	—
Dimensions	193(L)×78(W)×39(D)mm	220(L)×83(W)×40(D)mm
Weight	275g approx.	390g approx.
Accessories	7066(Test Leads) 8901(0.5A/250V fuse)×2 9097(Carrying Case) R6P(AA)×1 Instruction Manual	7067(Test Leads) 8901(0.5A/250V fuse)×2 9054(Carrying Case) R6P(AA)×1 Instruction Manual
Optional	7060(Temperature Probe) 8004/8008(Multi-Tran) 8021(Energizer)	8004/8008(Multi-Tran) 8021(Energizer)

MODEL 2805



- Range switch selects only one rotary scale at a time, making it easy to take readings correctly.
- A longtime seller with proven reputation world wide for its easy-to-use functions.

This is a full range of analogue clamp meters with built-in high quality Kyoritsu meter movements.

Still enjoying great popularity, Model 2805 in particular has so far sold more than one million units world wide.

Selection Guide

MODEL	2608A	2805
AC A	● 300A	● 600A
AC V	● 600V	● 600V
DC V	● 60V	—
Ω	● 10kΩ	● 2kΩ
Temperature	●	—

KEW CLAMP METERS

This is a full range of dedicated AC digital clamp meters. Popularly known as "KEW SNAP" all over the world, they are available in two product lines - 2002PA series with a large jaw diameter of 55mm and 2006 series with a very small jaw diameter of 19mm.

Selection Guide

MODEL	2031	2002PA	2007A	2006
AC A	● 200A	● 2000A	● 600A	● 200A
AC V		● 750V	● 750V	● 500V
DC V		● 1000V		● 500V
Ω		● 400k Ω	● 4k Ω	● 2k Ω
Data Hold	●	●	●	●
Peak Hold		●		

MODEL 2031

CE



φ24 MAX AC 200A

- Can measure large AC current up to 200A.
- 24mm-dia tear drop shaped jaws.

MODEL 2007A

CE



φ33 MAX AC 600A
AC V Ω Continuity

- Sleep function to save battery
- Data hold function.
- Digital display with maximum 4000 counts.

MODEL 2002PA

CE



φ55 MAX AC 2000A
AC V DC V Ω
PEAK 10ms OUT PUT Continuity

- Can measure large AC current up to 2000A.
- Peak hold function for Model 2002PA.
- 55mm-dia large tear drop shaped jaws.

MODEL 2006

φ19 MAX AC 200A



AC V DC V Ω Continuity

- Pocket size, handy clamp meter.
- UL listed fire retardant plastic housing case.
- Multifunction instrument having voltage and resistance measurement functions in addition to all the ranges incorporated.

Specifications

MODEL	Model 2031	Model 2002PA	Model 2007A	Model 2006
AC A	20A $\pm 2\% \text{rdg} \pm 5 \text{dgt}$ (50Hz~1kHz) 200A $\pm 2\% \text{rdg} \pm 5 \text{dgt}$ (50/60Hz) $\pm 3\% \text{rdg} \pm 10 \text{dgt}$ (40Hz~1kHz)	400A (0~400A) $\pm 1\% \text{rdg} \pm 3 \text{dgt}$ (50/60Hz) $\pm 2\% \text{rdg} \pm 3 \text{dgt}$ (40~1kHz) 2000A (0~1500A) $\pm 1\% \text{rdg} \pm 3 \text{dgt}$ (50/60Hz) $\pm 3\% \text{rdg} \pm 3 \text{dgt}$ (40~1kHz) 2000A (1500~2000A) $\pm 3.0\% \text{rdg}$ (50/60Hz)	400/600A $\pm 1.5\% \text{rdg} \pm 4 \text{dgt}$ (50/60Hz) $\pm 2\% \text{rdg} \pm 5 \text{dgt}$ (40~400Hz)	2/20/200A $\pm 2\% \text{rdg} \pm 5 \text{dgt}$ (2/20A) (50Hz~1kHz) $\pm 2\% \text{rdg} \pm 5 \text{dgt}$ (200A) (50/60Hz) $\pm 3\% \text{rdg} \pm 10 \text{dgt}$ (200A) (40Hz~1kHz)
AC V	—	40/400/750V $\pm 1\% \text{rdg} \pm 2 \text{dgt}$ (50/60Hz) $\pm 1.5\% \text{rdg} \pm 3 \text{dgt}$ (40~1kHz)	400/750V $\pm 1.2\% \text{rdg} \pm 3 \text{dgt}$ (50/60Hz) $\pm 1.5\% \text{rdg} \pm 4 \text{dgt}$ (40~400Hz)	2/20/200/500V $\pm 1.5\% \text{rdg} \pm 2 \text{dgt}$ (50/60Hz) $\pm 1.5\% \text{rdg} \pm 5 \text{dgt}$ (40Hz~1kHz)
DC V	—	40/400/1000V $\pm 1\% \text{rdg} \pm 2 \text{dgt}$	—	2/20/200/500V $\pm 1\% \text{rdg} \pm 2 \text{dgt}$
Ω	—	400 Ω /4k/40k/400k Ω $\pm 1.5\% \text{rdg} \pm 2 \text{dgt}$	400/4000 Ω $\pm 1.5\% \text{rdg} \pm 2 \text{dgt}$	2k Ω $\pm 1.5\% \text{rdg} \pm 2 \text{dgt}$
Continuity buzzer	—	buzzer sounds below 50 $\pm 35\Omega$	buzzer sounds below 50 $\pm 35\Omega$	buzzer sounds below 300~400 Ω
Output Voltage	—	400/2000A DC 400mV/200mV	—	—
Conductor Size	φ 24mm max.	φ 55mm max.	φ 33mm max.	φ 19mm max.
Safety Standard	IEC61010-1 CAT. III 300V	IEC61010-1 CAT. III 600V CAT. II 1000V IEC61010-2-031, IEC61010-2-032	IEC61010-1 CAT. III 300V CAT. II 600V CAT. I 1000V IEC61010-2-031, IEC61010-2-032 IEC61326(EMC)	—
Frequency Response	40Hz~1kHz	40Hz~1kHz	40Hz~400Hz	40Hz~1kHz
Withstand Voltage	3700V AC for 1 minute	5550V AC for 1 minute	3700V AC for 1 minute	2200V AC for 1 minute
Power Source	LR-44 (1.5V) × 2	R6P(AA) (1.5V) × 2	R03(AAA) (1.5V) × 2	R6P(AA) (1.5V) × 2
Dimensions	147(L) × 58.5(W) × 26(D)mm	247(L) × 105(W) × 49(D)mm	195(L) × 78(W) × 36(D)mm	184(L) × 54(W) × 32(D)mm
Weight	100g approx.	470g approx.	260g approx.	160g approx.
Accessories	9090 (Carrying Case) LR-44 × 2 Instruction Manual	7107 (Test Leads) 8201 (Output Plug) 9094 (Carrying Case) R6P(AA) × 2 Instruction Manual	7066 (Test Leads) 9097 (Carrying Case) R03(AAA) × 2 Instruction Manual	7066 (Test Leads) 9066 (Carrying Case) R6P(AA) × 2 Instruction Manual
Optional	8004/8008 (Multi-Tran) 8021 (Energizer)	8008 (Multi-Tran) 7014 (Output Cord)	8004/8008 (Multi-Tran) 8021 (Energizer)	8004/8008 (Multi-Tran) 8021 (Energizer)

Method of leakage current measurement

Broadly speaking, there are two methods of leakage current measurement. One is designed to measure leakage current by directly clamping on an earthing conductor and the other is intended to measure leakage current by clamping on two-way wires together. Please refer to Fig.1 for respective measurement methods. The principle of measurement involving the clamping of two-way wires together is meant to find out the difference of current flowing between the incoming wire and outgoing wire and display the result. If there is no leakage on the load side, the instrument display reads zero. If the leakage occurs on the load side, the leakage current will flow back into the power supply through earth, resulting in the difference of current flowing between the two-way wires which will then be displayed on the instrument as a value of leakage current.

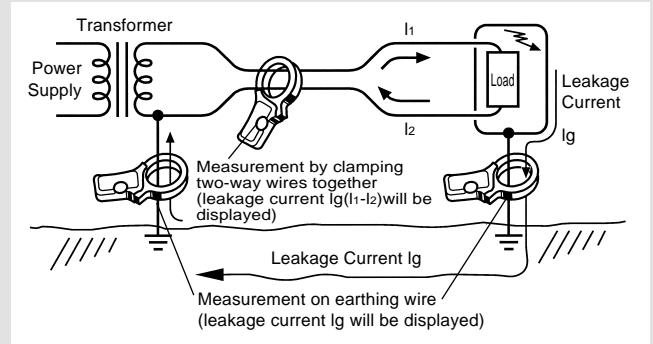


Fig.1 Method of leakage current measurement.

Features

- Least affected by external stray magnetic field.
2mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC (2432) 10mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC (2433)
- Frequency Selector Switch to eliminate the effect of harmonics.
- Three AC current ranges: 4mA/40mA/100A (2432) 40mA/400mA/400A (2433).
- Data hold function.
- Peak hold function.
- Sleep function to save battery.
- Designed to international safety standard IEC61010-1 CAT. III 300V

Selection Guide

MODEL	2432	2433
AC A	• 100A	• 400A
Data Hold	•	•
Peak Hold	•	•
Freq. Select	•	•

MODEL 2432



High Sensitive Model



φ40

MAX AC 100A

Resolution 0.001mA

Filter

PEAK 10ms



MODEL 2433



φ40

MAX AC 400A

Resolution 0.01mA

Filter

PEAK 10ms

Specifications

MODEL	Model 2432	Model 2433
AC A (50/60Hz)	4/40mA/100A ±1%rdg±5dgt(4/40mA) ±1%rdg±5dgt(0~80A) ±5%rdg(80.1~100A)	40/400mA/400A ±1%rdg±5dgt(40/400mA) ±1%rdg±5dgt(0~350A) ±2%rdg(350.1~399.9A)
AC A (WIDE)	4/40mA/100A ±2.5%rdg±10dgt[20~1kHz], ±1%rdg±5dgt[50/60Hz](4/40mA) ±2.5%rdg±10dgt[40~1kHz], ±1%rdg±5dgt[50/60Hz](0~80A) ±10%rdg[40~1kHz], ±5%rdg[50/60Hz](80.1~100A)	40/400mA/400A ±2.5%rdg±10dgt[20~1kHz], ±1%rdg±5dgt[50/60Hz](40/400mA) ±2.5%rdg±10dgt[40~1kHz], ±1%rdg±5dgt[50/60Hz](0~350A) ±5%rdg[40~1kHz], ±2%rdg[50/60Hz](350.1~399.9A)
Frequency Response	20Hz~1kHz(40Hz~1kHz:100A)	20Hz~1kHz(40Hz~1kHz:400A)
Maximum Circuit Voltage	600V AC/DC (between line/neutral) 300V AC/DC (against earth)	
Conductor Size	φ 40mm max.	
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-032	
Effect of External Stray Magnetic Field	2mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC	10mA AC approx. in proximity to a 15mm-dia conductor carrying 100A AC
Withstand Voltage	3700V AC for 1 minute	
Response Time	Approx. 2 seconds	
Power Source	Two R03 or equivalent (DC1.5V) batteries	
Dimensions	185(L)×81(W)×32(D)mm	
Weight	290g approx.	270g approx.
Accessories	9052 (Carrying Case) R03(1.5V)×2 Instruction Manual	
Optional	8004/8008 (Multi-Tran) These Multi-Tran can not be used for leakage current measurement	

KEW LEAKAGE CLAMP METERS

This is a full range of our leakage clamp meters.

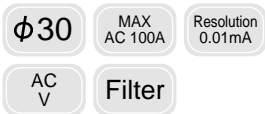
Use of highly sensitive transformer jaws permits AC current measurements in the order of milliamps. These instruments can measure not only earth leakage current but also leakage current flowing in live conductors of single and three phase systems by directly clamping them together.

The most outstanding feature of the Kyoritsu leakage clamp meters is that all models have a frequency selector switch to check for the harmonic content of the current under test.

Selection Guide

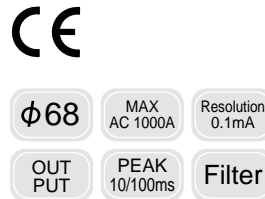
MODEL	2414/15	2413F	2431	2412	2417	2434
AC A	● 100A	● 1000A	● 200A	● 500A	● 500A	● 100A
AC V	● 500V			● 600V		
Ω				● 200Ω		
Data Hold	●	●	●	●	●	●
Peak Hold		●				
Output		● AC/DC		● DC		
Freq.Select	●	●	●	●	●	●
True RMS					●	

MODEL 2414/2415



- Compact, truly portable, high performance digital leakage current clamp meter.
- 200mA range with a minimum resolution of 0.01mA.
- Frequency filter switch to eliminate the effect of harmonics.

MODEL 2413F



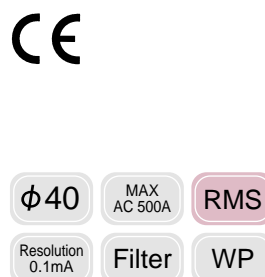
- Extra wide transformer jaws are best suited for clamping on all three or four wires (3 phases) together for leakage current measurement.
- Frequency filter switch to eliminate the effect of harmonics.
- Peak hold function.
- Analogue output terminal.

MODEL 2431



- Frequency Selector Switch to eliminate the effect of harmonics.
- Three AC current ranges 20mA/200mA/200A.
- 20mA range with a minimum resolution of 0.01mA.
- Auto power-off function (automatically turns off in about 10 minutes).
- Rotary switch for easy one finger power-on and range selection.

MODEL 2417



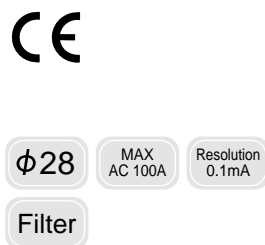
- Water and dust proof construction. The instrument is protected against water and dust.
- True RMS for accurate measurement of non-sinusoidal waveform current.
- Selectable frequency response of 50/60Hz only or up to 1KHz.
- Automatically turns power off in about 30 minutes to conserve battery life.

MODEL 2412



- Digital clamp meter with tear drop shaped, medium size transformer jaws specially designed for leakage current measurement.
- Frequency filter switch to eliminate the effect of harmonics.
- Output terminal for connection to recorders and facility to operate from external power supply permit continuous leakage current monitoring.

MODEL 2434



- Least affected by external stray magnetic field. 20mA AC max. in proximity to a 15mm-dia conductor carrying 100A AC
- Frequency Selector Switch to eliminate the effect of harmonics.
- Data hold function
- Sleep function to save battery

Specifications

MODEL	Model 2414/2415	Model 2413F	Model 2431	Model 2412	Model 2417	Model 2434
AC A (50/60Hz)	20/200mA/100A(M-2414) 20mA/2/100A(M-2415) ±1.5%rdg±2dgt(20/200mA/2A) ±2%rdg±5dgt(100A)	200mA/2/20/200A/1000A ±1.5%rdg±2dgt(200mA/2/20A) ±2%rdg±5dgt(200A 0~500A) ±5.5%rdg(501~1000A)	20/200mA/200A ±3%rdg±5dgt(20/200mA/100A) ±5%rdg±5dgt(200A)	20/200mA/2/20/200/500A ±1.5%rdg±5dgt(20/200mA/2A) ±2%rdg±5dgt(20/200A) ±2.5%rdg±5dgt(500A)	200/2000mA/20/200/500A (True RMS) ±1.5%rdg±6dgt(20/2000mA) ±2%rdg±6dgt(20/200A) ±2.5%rdg±6dgt(500A)	400mA/4/100A ±2%rdg±4dgt
AC A (WIDE)	20/200mA/100A(M-2414) 20mA/2/100A(M-2415) ±1.5%rdg±2dgt(20/200mA/2A) ±2%rdg±5dgt(100A)	200mA/2/20/200A/1000A ±1%rdg±2dgt (200mA/2/20A)(50/60Hz) ±5%rdg±6dgt(20/200mA/100A) ±5.5%rdg(501~1000A)	20/200mA/200A ±2%rdg±4dgt(20/200mA/100A) (50/60Hz) ±5%rdg±6dgt(20/200mA/100A) (40~400Hz) ±5%rdg±4dgt(200A) (50/60Hz)	20/200mA/2/20/200/500A ±1%rdg±3dgt(50/60Hz) (20/200mA/2A) ±1.5%rdg±3dgt (50/60Hz)(20/200A) ±2%rdg±3dgt(50/60Hz)(500A)	200/2000mA/20/200/500A (True RMS) ±3%rdg±4dgt(200mA/2/20A) (50/60Hz) ±3.5%rdg±4dgt(200A 0~500A) ±4%rdg±4dgt(500A)	400mA/4/100A ±2%rdg±4dgt (50/60Hz) ±3%rdg±5dgt (40~400Hz)
AC V	500V ±1.5%rdg±2dgt(50/60Hz) ±2%rdg±5dgt(40Hz~1kHz)	—	—	600V ±2%rdg±5dgt(50/60Hz) ±3.5%rdg±5dgt(40Hz~1kHz)	—	—
Ω	—	—	—	200Ω ±1.5%rdg±5dgt	—	—
Conductor Size	φ 30mm max.	φ 68mm max.	φ 24mm max.	φ 40mm max.	—	φ 28mm max.
Safety Standard	—	IEC61010-1 CAT. III 300V IEC61010-2-032	IEC61010-1 CAT. III 300V IEC61010-2-032	—	IEC61010-1 CAT. III 300V IEC61010-2-032	IEC61010-1 CAT. III 300V IEC61010-2-032
Effect of External Stray Magnetic Field φ15mm 100A	7mA AC max.	10mA AC max.	10mA AC max.	10mA AC max.	10mA AC max.	20mA AC max.
Frequency Response	40Hz~1kHz	40Hz~1kHz	40~400Hz	40Hz~1kHz	—	40~400Hz
Output	—	AC/DC200mV against 2000 count	—	DC200mV against 2000 count	—	—
Withstand Voltage	2200V AC for 1 minute	3000V AC for 1 minute	1000V AC for 1 minute	3700V AC for 1 minute	—	—
Power Source	R6P(AA)(1.5V)×2	6F22(9V)×1	LR-44(1.5V)×2	6F22(9V)×1 or AC Adaptor	6F22(9V)×1	R03(AAA) (1.5V) × 2
Dimensions	173(L)×80(W)×32(D)mm	250(L)×130(W)×50(D)mm	149(L)×60(W)×26(D)mm	209(L)×96(W)×45(D)mm	—	169(L)×75(W)×40(D)mm
Weight	210g approx.	570g approx.	120g approx.	450g approx.	—	220g approx.
Accessories	7053(Test Leads) 9052(Carrying Case) R6P(AA)×2 Instruction Manual	9064(Carrying Case) 6F22×1 Instruction Manual	9090(Carrying Case) LR-44×2 Instruction Manual	7066(Test Leads) 9072(Carrying Case) 8025(Plug for Output Jack) 6F22×1 Instruction Manual	9079(Carrying Case) 6F22×1 Instruction Manual	Carrying Case R03×2 Instruction Manual
Optional	8004/8008(Multi-Tran) ※ 8021(Energizer)	7073(2WAY Output Cord)	8004/8008(Multi-Tran) ※ 8021(Energizer)	8004/8008(Multi-Tran) ※ 8022(AC Adaptor)(110V) 8023(AC Adaptor)(220V) 7014(Output Probe)	8004/8008(Multi-Tran) ※	8004/8008(Multi-Tran) ※

※ These Multi-Trans can not be used for leakage current measurement.

High frequency selector switch

This switch is designed to select "WIDE" or "50/60Hz" range. "WIDE" range covers a wide frequency band of 40Hz to 1kHz. AC current having a fundamental waveform and harmonics can be measured over this range. "50/60Hz" is restricted to a frequency response of 40Hz to 100Hz and therefore permits measurement of AC current of fundamental frequency only by filtering harmonic content. When in doubt as to the presence of harmonics you can identify it by using this frequency selector switch. To give an example, the following shows the results of AC current measurement on an earthing wire within a switchbox where there is an inverter based airconditioner is connected at summertime. Model 2414 reads 56mA AC with the frequency selector switch set at the "WIDE" position as shown, while it displays 3mA at the "50/60Hz" switch position. The difference between the two readings (56mA - 3mA = 53mA) is considered leakage current caused by harmonics. The test also found that this leakage current is flowing into single phase, 3-wire circuits other than those connected with the inverters in the building inspected.

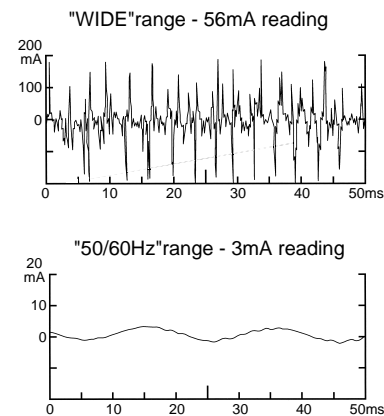


Fig. Results of AC current measurement on earthing wire within switch-box by using Model 2414 on the 200mA range.

True RMS value

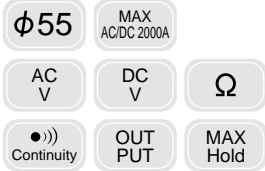
Most alternating currents and voltages are expressed in effective values, which are also referred to as RMS(Root-Mean-Square) values. The effective value is the square root of the average of the square of alternating current or voltage values. Many clamp meters with rectifier type circuits have scales that are calibrated in RMS values for AC measurements. But, they actually measure the average value of input voltage or current, assuming the voltage or current to be a sine wave. The conversion factor for a sine wave, which is obtained by dividing the effective value by the average value, is 1.1. These instruments are in error if the input voltage or current has some other shape than a sine wave.

Waveform	Effective value V rms	Average value V avg	Conversion factor V rms/V avg	Reading errors for average sensing Instruments	Crest factor CF
	$\frac{1}{\sqrt{2}} A$ ≈ 0.707	$\frac{2}{\pi} A$ ≈ 0.637	$\frac{\pi}{2\sqrt{2}}$ ≈ 1.111	0%	$\sqrt{2}$ ≈ 1.414
	A	A	1	$\frac{A \times 1.111 - A}{A} \times 100$ = 11.1%	1
	$\frac{1}{\sqrt{3}} A$	0.5 A	$\frac{2}{\sqrt{3}}$ ≈ 1.155	$\frac{0.5A \times 1.111 - \frac{A}{\sqrt{3}}}{\frac{A}{\sqrt{3}}} \times 100$ = -3.8%	$\sqrt{3}$ ≈ 1.732
	$A \sqrt{D}$	$A \frac{f}{T}$ = A · D	$\frac{A \sqrt{D}}{A D} = \frac{1}{\sqrt{D}}$	$\frac{(1.111 \sqrt{D} - 1)}{\sqrt{D}} \times 100\%$	$\frac{A}{\sqrt{AD}} = \frac{1}{\sqrt{D}}$

CF: Crest Factor=Peak value/RMS value
DC=1
Sine wave=1.414

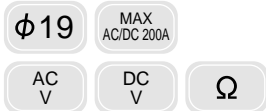
KEW AC/DC CLAMP METERS

MODEL 2003A



- Equipped to measure both AC and DC current with transformer jaws of large diameter.
- Can measure AC and DC currents up to 2000A.
- Output terminal for connection to recorders.
- AC/DC voltage, resistance measurement and continuity functions also available.

MODEL 2004



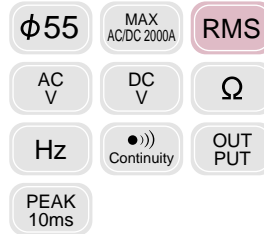
- Smallest clamp meter capable of AC and DC current measurements.
- 20A range has a minimum resolution of 0.01A AC/DC.
- AC/DC voltage and resistance measurement functions also available.

MODEL 2033



- Smallest clamp meter capable of AC and DC current measurements.
- 300A auto ranging has minimum resolution of 0.01A AC/DC.
- Auto-zero function to allow one touch zero adjustment.

MODEL 2009A



- True RMS reading instrument ideal for accurate measurement of distorted waveforms and non-sinusoidal waveforms arising from thyristors.
- Can measure AC and DC currents up to 2000A.
- Output terminal for connection to recorders.

MODEL 2010

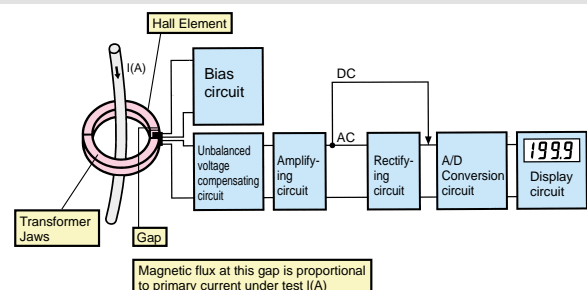


- High sensitivity, miniature AC/DC clamp meter.
- 0.1mA minimum resolution for AC current and 1mA minimum resolution for DC current.
- Output terminal for recorder connection.

Measurement Principle of AC/DC Clamp Meter

In general hall elements are used as a sensor to detect DC current because it is not possible to employ an electromagnetic induction method as used for dedicated AC clamp meters. As shown in a figure at left, a hall element is placed across a gap created by cutting off part of the transformer jaws. When there occurs a flow of magnetic flux proportional to both AC and DC primary currents in the transformer jaws this hall element detects the magnetic flux and takes it out as an output voltage.

Hall element: This is a semiconductor to generate a voltage proportional to the product of bias current and magnetic field on the output terminal when bias current is applied to the input terminal.



KEW AC/DC CLAMP METERS

This is a full range of AC/DC digital clamp meters. Model 2003A has been synonymous with an excellent AC/DC digital clamp meter since its introduction more than 10 years ago. It can measure up to 2000A AC and DC. The instrument is widely recognized as a high function, high quality digital clamp meter.

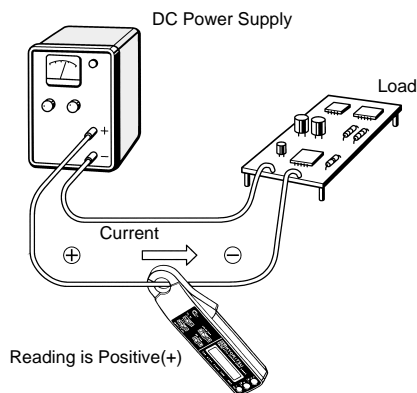
Selection Guide

MODEL	2033	2004	2003A	2009A	2010
AC A	● 300A	● 200A	● 2000A	● 2000A	● 20A
AC V		● 500V	● 750V	● 750V	
DC A	● 300A	● 200A	● 2000A	● 2000A	● 20A
DC V		● 200V	● 1000V	● 1000V	
Ω		● 200Ω	● 4000Ω	● 4000Ω	
Data Hold	●	●	●	●	●
Peak Hold				●	
MAX Hold			●		
Average				●	
Hz				● 4000Hz	
Output			●	●	●
True RMS				●	

Specifications

MODEL	Model 2003A	Model 2004	Model 2033	Model 2009A	Model 2010
AC A	400A(0~400A) ±1.5%rdg±2dgt(50/60Hz) ±3%rdg±4dgt(40~1kHz) 2000A(0~1700A) ±1.5%rdg±2dgt(50/60Hz) ±3%rdg±4dgt(40~1kHz) 2000A(1701~2000A) ±3%rdg±2dgt(50/60Hz)	20/200A ±1%rdg±2dgt(20A)(50/60Hz) ±1.5%rdg±4dgt(20A)(40Hz~1kHz) ±1.5%rdg±4dgt(0~150A)(50/60Hz) ±2%rdg±5dgt(0~150A) (40Hz~1kHz) ±3.5%rdg(>150A)(40Hz~1kHz)	40/300A ±1%rdg±4dgt(0~40A) (50/60Hz) ±2.5%rdg±4dgt(0~40A) (20Hz~1kHz) ±1.5%rdg±4dgt(20~200A) (50/60Hz) ±2.5%rdg±4dgt(20~200A) (20Hz~1kHz) ±3.5%rdg(200~300A) (50/60Hz) ±4%rdg(20~300A) (20Hz~1kHz)	400A(0~400A)(True-RMS) ±1.5%rdg±3dgt(50/60Hz) ±3%rdg±4dgt(30~1kHz) 2000A(0~1700A)(True-RMS) ±1.5%rdg±2dgt(50/60Hz) ±3%rdg±4dgt(30~1kHz) 2000A(1701~2000A)(True-RMS) ±3%rdg±3dgt(50/60Hz)	200mA/2/20A ±1%rdg±2dgt(200mA)(50/60Hz) ±1.5%rdg±4dgt(200mA) (40Hz~2kHz) ±1%rdg±2dgt(2A)(50/60Hz) ±2.5%rdg±5dgt(2/20A) (40Hz~2kHz)
AC V	400/750V ±1.5%rdg±2dgt(50/60Hz) ±1.5%rdg±4dgt(40~1kHz)	500V ±1.5%rdg±2dgt(50/60Hz) ±2%rdg±4dgt(40Hz~1kHz)	—	40/400/750V(Tru-RMS) ±1.5%rdg±3dgt(50/60Hz) ±1.5%rdg±4dgt(30~1kHz)	—
DC A	400/2000A ±1.5%rdg±2dgt	20/200A ±1%rdg±2dgt(20A) ±1.5%rdg±4dgt(0~150A) ±3%rdg(>150A)	40/300A ±1%rdg±4dgt(0~±40A) ±1.5%rdg±4dgt(±20~±200A)	400/2000A ±1.5%rdg±2dgt	2/20A ±1%rdg±2dgt(2A) ±1.5%rdg±4dgt(20A)
DC V	400/1000V ±1%rdg±2dgt	200V ±1%rdg±2dgt	—	40/400/1000V ±1%rdg±2dgt	—
Ω	400/4000Ω ±1.5%rdg±2dgt	200Ω ±1.5%rdg±2dgt	—	400/4000Ω ±1.5%rdg±2dgt	—
Continuity buzzer	buzzer sounds below 50±35Ω	—	—	buzzer sounds below 20Ω	—
Frequency	—	—	—	10 ~ 4000Hz ±1.5%rdg±5dgt	—
Output Voltage	400/2000A DC400mV/200mV	—	—	400/2000A DC400mV/200mV	200mV DC for 200mA AC/DC and 2A/20A AC/DC full scale
Conductor Size	φ 55mm max.	φ 19mm max.	φ 24mm max.	φ 55mm max.	φ 7.5mm max.
Safety Standard	IEC61010-1 CAT. III 600V CAT. II 1000V IEC61010-2-031,IEC61010-2-032	—	IEC61010-1CAT. III 300V IEC61010-2-032	IEC61010-1 CAT. III 600V CAT. II 1000V IEC61010-2-031,IEC61010-2-032	—
Frequency Response	40Hz~1kHz	DC, 40Hz ~ 1kHz	DC, 20Hz~1kHz	40Hz~1kHz	DC, 40Hz~2kHz
Withstand Voltage	5550V AC for 1 minute	1000V AC for 1 minute	3700V AC for 1 minute	5550V AC for 1 minute	750V AC for 1 minute
Power Source	R6P(AA)(1.5V)×2	R6P(AA)(1.5V)×2	LR-44(1.5V)×2	6F22(9V)×1	6LF22(9V)×1 or AC Adaptor
Dimensions	250(L)×105(W)×49(D)mm	180(L)×54(W)×31(D)mm	147(L)×59(W)×25(D)mm	250(L)×105(W)×49(D)mm	142(L)×64(W)×26(D)mm 153(L)×23(W)×18(D)mm Clamp Sensor
Weight	530g approx.	170g approx.	100g approx.	540g approx.	220g approx.
Accessories	7107(Test Leads) 8201(Output Plug) 9094(Carrying Case) R6P(AA)×2 Instruction Manual	7066(Test Leads) 9055(Carrying Case) R6P(AA)×2 Instruction Manual	9090(Carrying Case) LR-44×2 Instruction Manual	7107(Test Leads) 8201(Output Plug) 9094(Carrying Case) 6F22×1 Instruction Manual	9071(Carrying Case) Alkaline 6LF22×1 Instruction Manual
Optional	8008(Multi-Tran)(AC only) 7014(Output Cord)	8004/8008(Multi-Tran)(AC only) 8021(Energizer)	8004/8008(Multi-Tran)(AC only) 8021(Energizer)	8008(Multi-Tran)(AC only) 7014(Output Cord)	8022(AC Adaptor)(110V) 8023(AC Adaptor)(220V) 7014(Output Cord)

How to Measure DC Current



Clamp on to a conductor just the same way as with AC current measurement using an AC current clamp meter. In the case of DC clamp meters the reading is positive (+) when the current is flowing from the upside to the underside of the clamp meter.

Accessories

Model 8201

Output Plug



Optional Accessories

Model 7014

Output Cord



Model 8022

AC Adaptor
(110V)



Model 8023

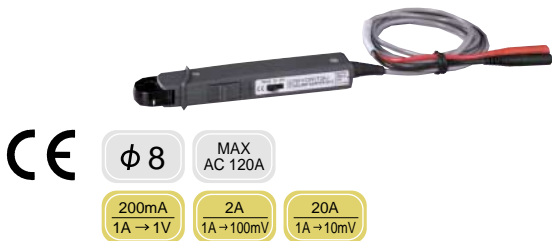
AC Adaptor
(220V)



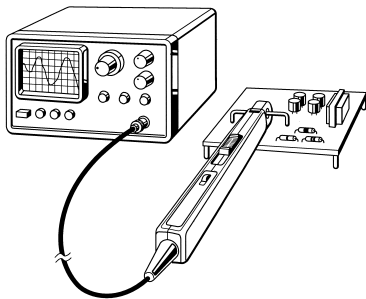
KEW CLAMP ADAPTORS

MODEL 8112 AC CLAMP ADAPTOR

Model 8112 clamp adaptor is designed to be an AC current/voltage conversion probe capable of measuring AC current from 0.1mA to 120A in conjunction with digital multimeters. Simple to operate, the unit has range switch position at 200mA, 2A and 20A. It also features safety design throughout with no exposed metal parts.



Example of Model 8112 BNC application



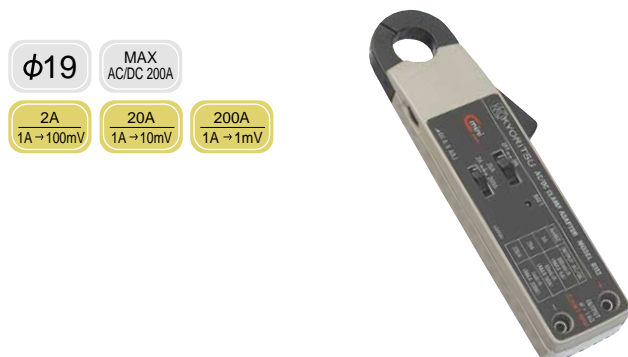
MODEL 8006 AC CLAMP ADAPTOR

Model 8006 is designed to measure AC current up to 1500A. It can accommodate up to 60mm-dia conductor or 50mm by 75mm bus-bar.



MODEL 8113 AC/DC CLAMP ADAPTOR

Model 8113 is a clamp-on AC/DC current/voltage converter that permits AC/DC current measurements from 1mA to 200A in conjunction with a voltmeter having 0.1mV resolution.



Specifications

Range	Measuring Ranges	Output Voltage	Accuracy	Frequency Response
200mA	AC 0~500mA	AC1V/A (1000mA→1V)	±1.5%rdg±0.2mA	50Hz~1kHz
	AC 0~1000mA		±3%rdg±0.4mA	40Hz~10kHz
2A	AC 0~20A	AC100mV/A (20A→2V)	±1%rdg±1mA	40Hz~1kHz
			±1.5%rdg±2mA	1~10kHz
20A	AC 0~20A	AC10mV/A (120A→1.2V)	±1%rdg±0.01A	40Hz~1kHz
	AC 20~60A		±1.5%rdg±0.02A	1~10kHz
	AC 60~120A		±1.5%rdg	50Hz~10kHz
Conductor Size		φ 8mm max.		
Frequency Response		30Hz~100kHz(-3dB)		
Safety Standard		IEC61010-1 CAT. II 100V Pollution Degree 2		
Withstand Voltage		500V AC for 1 minute		
Dimensions		153(L)×18(W)×23(D)mm		
Weight		100g approx.		
Accessories		9057(Carrying Case) Instruction Manual		

MODEL 8112BNC

Model 8112BNC is an AC clamp adaptor designed for use with oscilloscopes.

Output cord has a BNC connector which enables direct observation of current waveform on oscilloscope. Refer to a diagram shown at left for application.

Specifications are same as those for Model 8112.



Specifications

MODEL	Model 8006
Measuring Range	1500A AC
Output Voltage	1mV AC/1A(1500A→1.5V)
Accuracy	±3%rdg+1A(0~1000A)(45~65Hz) ±5%rdg(1000~1500A)(45~65Hz)
Load Resistance	>1kΩ
Allowable Measurement Time	0~600A continuous 600~1000A 30 minutes max. 1000~1500A 5 minutes max.
Conductor Size	φ 60mm max. (50×75mm)
Frequency Response	45~65Hz
Withstand Voltage	2200V AC for 1 minute
Dimensions	240(L)×85(W)×30(D)mm
Weight	500g approx.
Accessories	9022(Carrying Case) Instruction Manual

Specifications

Range	Measuring Ranges	Output Voltage	Accuracy	Frequency Response
AC	2A AC5A	AC100mV/A(5A→500mV)	±2%rdg±5mA	DC~1kHz
	20A AC50A	AC10mV/A(50A→500mV)	±1.5%rdg±0.04A	DC~1kHz
	200A AC150A	AC1mV/A(200A→200mV)	±2%rdg±0.5A (0~150A)	DC~1kHz
	AC200A		±3.5%rdg (150~200A)	DC~10kHz
DC	2A DC5A	DC100mV/A(5A→500mV)	±1.5%rdg±5mA	—
	20A DC50A	DC10mV/A(50A→500mV)	±1%rdg±0.02A (0~50A)	—
	200A DC150A	DC1mV/A(200A→200mV)	±1.5%rdg±0.5A (0~150A)	—
	DC200A		±3%rdg (150~200A)	—
Conductor Size		φ 19mm max.		
Frequency Response		DC~1kHz		
Withstand Voltage		1000V AC for 1 minute		
Power Source		R6P(AA)(1.5V)×2		
Dimensions		180(L)×54(W)×31(D)mm		
Weight		170g approx.		
Accessories		7061(Output cords) R6P(AA)×2 9055(Carrying Case) Instruction Manual		

KEW MULTI-TRANS, ENERGIZER

MODEL 8004

MULTI-TRAN

φ60 MAX AC 1000A Input to Output Ratio 10 : 1



MODEL 8008

MULTI-TRAN

CE

φ100 MAX AC 3000A Input to Output Ratio 10 : 1



Specifications MULTI-TRAN

MODEL	Model 8004	Model 8008
Measuring Range	0~1000A AC	0~3000A AC
Ratio/Range	10 : 1 (input to output)	
Accuracy	±3% of full scale	±2% of input±0.5A
Allowable Measurement Time	0~1000A(continuous), 1000~1500A(10 minutes max.) 3000A(30 seconds max.)	
Conductor Size	φ 60mm max. (50×75mm)	φ 100mm max. (100×150mm)
Frequency Response	50Hz/60Hz	
Safety Standard		IEC61010-1 CAT. III 300V Pollution Degree 2
Withstand Voltage	3000V AC for 1 minute	
Dimensions	240(L)×85(W)×30(D)mm 45(L)×40(W)×10(D)mm Output coil	317(L)×150(W)×30(D)mm 45(L)×40(W)×10(D)mm Output coil
Weight	490g approx.	750g approx.
Accessories	9022(Carrying Case)	9056(Carrying Case)
For use with following models ※	2002PA, 2003A(AC only), 2004(AC only), 2006, 2009A(AC only) 2414/15, 2608A, 2805, 2017, 2027, 2037(AC only), 2412, 2417, 8113(AC only), 2031, 2033(AC only), 2431, 2432, 2433, 2434	

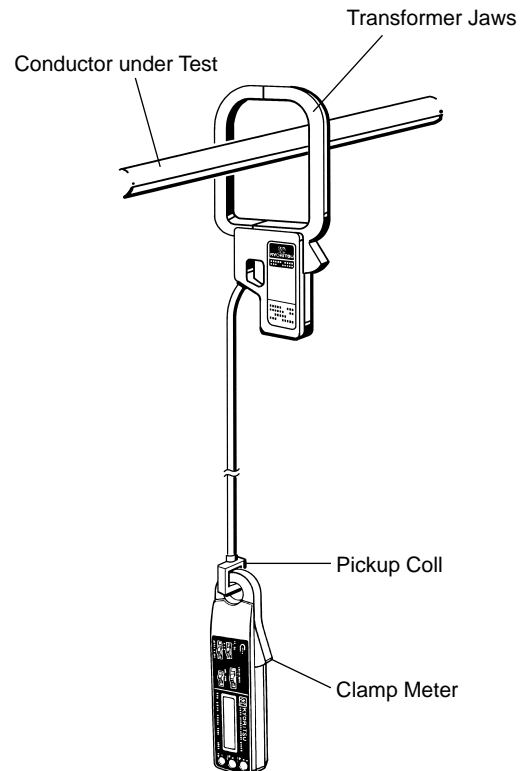
※ These Multi-Trans can not be used for leakage current measurement.

Adaptor designed to increase the measuring capability of your clamp meters.

With the use of the multi-tran you can not only extend current ranges but also clamp on a conductor of larger diameter.

How to Use:

Clamp your instrument around the pick-up coil of the multi-tran. Then, clamp the transformer jaws of the multi-tran on the conductor, as shown below. Multiply the reading of your clamp meter by 10 to obtain the current value measured.

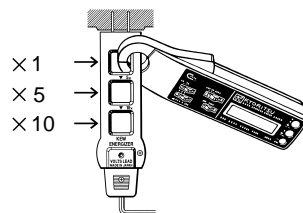


MODEL 8021

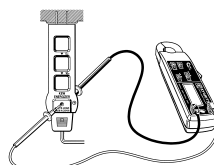
ENERGIZER



- As an ammeter
Connection to AC Power Outlet



- As a voltmeter
Connection to Appliance under Test



Rated value	ACA-10A max. ACV-300V max.
For use with following models;	2004, 2006, 2007A, 2017, 2027, 2031, 2033 2037, 2412, 2414, 2415, 2417, 2431 2608A, 2805, 8113

Permits your clamp meters to read low current. Also, split two conductor line cord for current readings. When used in conjunction with this energizer your clamp meters can also be used for servicing electrical home appliances and office machines.

As an ammeter

When measuring low currents, connect the energizer as shown at left. Clamp the loop ×5 or ×10 with the transformer jaws of the clamp meter. The current to be measured will be indicated as 1/5 or 1/10 of the value read on the meter. When the direct measurement of the two conductor line cord is not possible with the clamp meter, clamp the loop ×1 and read the meter directly.

As a voltmeter

First, connect the energizer as shown at left. Insert one of the voltage test leads into VOLTS LEAD terminal and the other test lead into VOLTS LEAD terminal on the reverse side. Then, read the indicated value directly.

KEW CLAMP METERS

WHAT ARE CLAMP METERS?

Clamp meters are a very convenient testing instrument that permits current measurements on a live conductor without circuit interruption. When making current measurements with the ordinary multimeter, we need to cut wiring and connect the instrument to the circuit under test as shown in Fig.1.

Using the clamp meter, however, we can measure current by simply clamping on a conductor as illustrated in Fig.2. One of the advantages of this method is that we can even measure a large current without shutting off the circuit being tested.

Fig.1 Measurement using multimeter

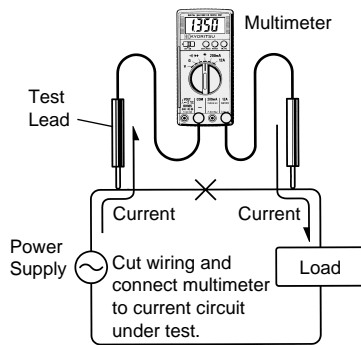


Fig.2 Measurement using clamp meter

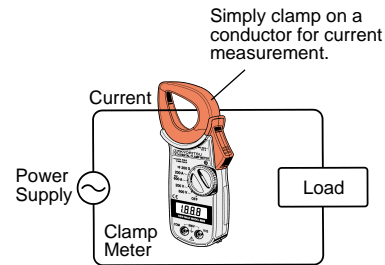
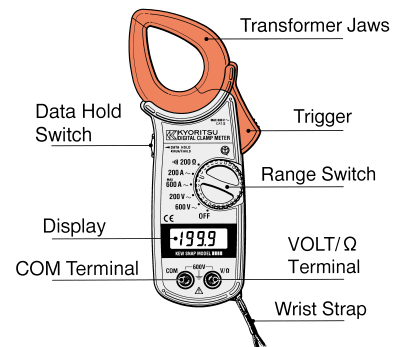
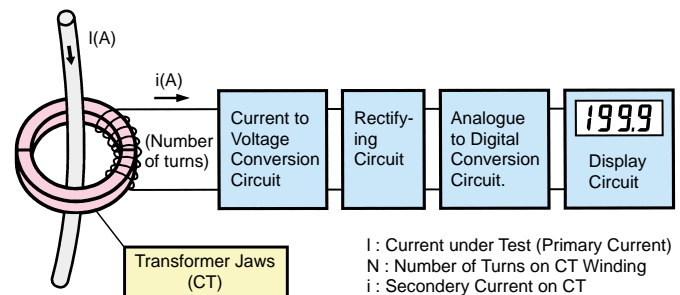


Fig.3 Instrument Layout



HOW DO CLAMP METERS OPERATE?

In general AC clamp meters operate on the principle of current transformer(CT) used to pick up magnetic flux generated as a result of current flowing through a conductor. Assuming a current flowing through a conductor to be the primary current, you can obtain a current proportional to the primary current by electromagnetic induction from the secondary side(winding) of the transformer which is connected to a measuring circuit of the instrument. This permits you to take an AC current reading on the digital display(in the case of digital clamp meters) as illustrated by the block diagram.



I : Current under Test (Primary Current)
N : Number of Turns on CT Winding
i : Secondary Current on CT

$$i = \frac{I}{N} (A)$$

Selection Guide

	Analogue Clamp Meter		Digital Clamp Meter						AC/DC Digital Clamp Meter						Digital Leakage Clamp Meter							
MODEL	2608A	2805	2031	2002PA	2007A	2006	2017	2027	2003A	2004	2009A	2010	2033	2037	2431	2412	2413F	2414/5	2417	2432	2433	2434
Conductor size (MAX mm)	φ 33	φ 35	φ 24	φ 55	φ 33	φ 19	φ 33	φ 33	φ 55	φ 19	φ 55	φ 7.5	φ 24	φ 33	φ 24	φ 40	φ 68	φ 30	φ 40	φ 40	φ 40	φ 28
ACA MAX	300A	600A	200A	2000A	600A	200A	600A	600A	2000A	200A	2000A	20A	300A	600A	200A	500A	1000A	100A	500A	100A	400A	100A
MIN	6A	6A	20A	400A	400A	2A	200A	200A	400A	20A	400A	200mA	40A	400A	20mA	20mA	200mA	20mA	200mA	4mA	40mA	400mA
DCA MAX	—	—	—	—	—	—	—	—	2000A	200A	2000A	20A	300A	1000A	—	—	—	—	—	—	—	—
MIN	—	—	—	—	—	—	—	—	400A	20A	400A	2A	40A	400A	—	—	—	—	—	—	—	—
ACV MAX	600V	600V	—	750V	750V	500V	600V	600V	750V	500V	750V	—	—	600V	—	600V	—	500V	—	—	—	—
MIN	150V	150V	—	40V	400V	2V	200V	200V	40V	40V	40V	—	—	40V	—	—	—	—	—	—	—	—
DCV MAX	60V	—	—	1000V	—	500V	—	—	1000V	200V	1000V	—	—	600V	—	—	—	—	—	—	—	—
MIN	—	—	—	40V	—	2V	—	—	400V	—	40V	—	—	40V	—	—	—	—	—	—	—	—
Frequency	—	—	—	—	—	—	—	—	—	—	10-4000Hz	—	—	3000Hz	—	—	—	—	—	—	—	—
Ω	1k/10k	2k	—	400/4k	400/4k	2k	200	200	400/4k	200	400/4k	—	—	400/4k	—	200	—	—	—	—	—	—
Temperature	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Continuity Buzzer	—	—	—	●	●	●	●	●	●	—	●	—	—	●	—	—	—	—	—	—	—	—
Data Hold	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Peak Hold	—	—	—	●	—	—	—	—	● MAX	—	●	—	—	●	—	—	●	—	—	●	●	—
Analogue Output (FS)	—	—	—	400mV	—	—	—	—	400mV	—	400mV	200mV	—	—	—	200mV	200mV	—	—	—	—	—
Frequency Response(Hz)	50/60	50/60	40-1k	40-1k	40-400	40-1k	45-1k	40-1k	DC 40-1k	DC 40-1k	DC 30-1k	DC 40-2k	20-1k	DC 40-1k	40-400	40-1k	40-1k	40-1k	40-1k	40-1k	40-1k	40-400Hz
True RMS	—	—	—	—	—	—	—	●	—	—	●	—	—	●	—	—	—	—	●	—	—	—
Power Source	R6P×1	R6P×1	LR44×2	R6P×2	R03×2	R6P×2	6F22×1	6F22×1	R6P×2	R6P×2	6F22×1	6F22×1	LR-44×2	6F22×1	LR-44×2	6F22×1	6F22×1	R6P×2	6F22×1	R03×2	R03×2	R03×2
Weight	275g	390g	100g	470g	260g	160g	400g	400g	530g	170g	540g	220g	100g	450g	120g	450g	570g	210g	450g	290g	270g	210g
Page	7	7	8	8	8	8	6	6	12	12	12	12	12	7	10	10	10	10	10	9	9	10

Why insulation test is necessary?

All live conductors of electrical appliances and installations must be insulated to prevent electric shock hazards from inadvertent contact, fire hazards from short circuit and equipment damage. In addition, a low insulation resistance in installation will result in a leakage current, and hence causes a waste of energy which would increase the running costs of the installation.

Insulation resistance must be checked by applying appliances or installations a higher voltage than its normal working voltage, because an insulation resistance is lower at higher voltage than at lower voltage. KYORITSU's insulation resistance testers provide measurement at high levels of test voltages.

Periodical test is also important to ensure that insulation of installations or appliances is not deteriorating. Foreign matter and mechanical factors like wear or breakage may reduce insulation resistance. Regular tests and data logs can detect possible fault in insulation.

Minimum value of insulation resistance by IEC364-6-61 TABLE 61A

Nominal circuit voltage (V)	Test voltage V DC	insulation resistance (Mohms)
SELV and functional extra-low voltage, when the circuit is supplied from a safety isolating transformer (SELV: Safety Extra-Low Voltage)	250	≥ 0.25
Up to and including 500V with the exception of the above cases	500	≥ 0.5
Above 500V	1000	≥ 1.0

Insulation Testing Methods

■ Measurement of Insulation resistance between live conductors (A)

Prior to testing, make sure that the circuit or part of the installation to be tested is disconnected from the mains supply and not energized. It is also necessary to ensure: the point of the installation to be checked is not open due to other equipment incorporated, the load connected with a fixed load and socket outlet is disconnected from the mains supply, and relay coils, fluorescent lamps, etc do not produce continuity between conductors. Circuits or components likely to be damaged by insulation test voltage must be removed from the circuit under test. If they cannot be disconnected, an alternative testing method is to measure insulation resistance between live conductors and earth.

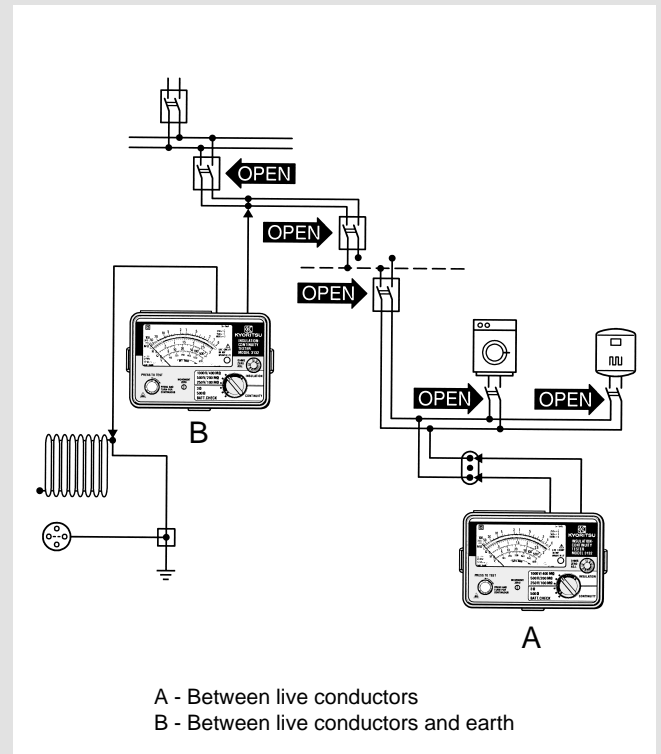
■ Measurement of insulation resistance between live conductors and earth (B)

The test must be carried out with equipment always disconnected, i.e., with the mains switch open it must be disconnected from the mains supply. Earth terminal must be connected to earth and Line terminal to a live conductor or conductors. Where there is insulation deterioration or an indoor electrical installation is not partly or totally insulated a variety of electric hazards may be anticipated.

To give some of the examples;

- Leakage current dangerous to the human body will develop. This is particularly the case with equipment that has no good earth and therefore is not properly protected against the potential difference.
- Overheating of conductors due to the leakage of current or microscopic discharging will cause short circuits or fires.
- RCDs will trip, with resulting damage to the equipment which will also cause short circuits and fires.

Kyoritsu's dedicated leakage clamp meters Model 2412, 2413F, 2414, 2415, 2417, 2431, 2432, and 2433 will be very helpful in identifying the possible causes of such accidents.



KEW DIGITAL INSULATION/CONTINUITY TESTERS

Model 3005A and 3007A are microprocessor controlled digital insulation/continuity testers.

They not only permit insulation resistance measurement on three rated test voltages (250V, 500V and 1000V) and continuity testing, but also offer a number of advanced features such as a bargraph reading of insulation resistance, auto null function for continuity testing, Trac-Lok function to save battery power (Model 3007A only), etc.

Selection Guide

MODEL	3005A	3007A
250V test voltage	●	●
500V test voltage	●	●
1000V test voltage	●	●
200mA continuity range	●	●
Live circuit warning	●	●
Illuminated scale		●
Automatic discharge	●	●
Trac-lok for extended battery life		●

MODEL 3005A

CE



MODEL 3007A

CE

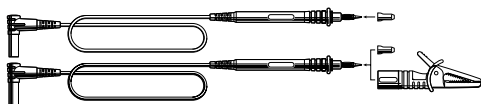


Features (3005A/3007A)

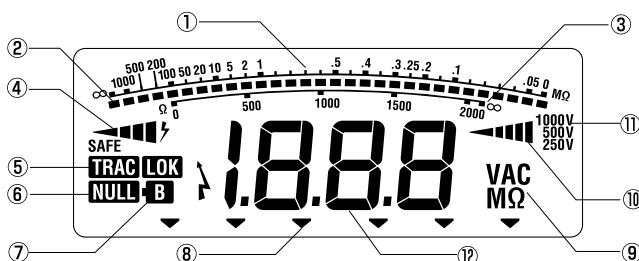
- Bargraph to display insulation resistance.
- Displays the value of external AC voltage along with flashing symbol.
- Auto null function to automatically subtract the test lead resistance before displaying the real continuity resistance value.
- Trac-Lok mode to conserve battery life on insulation and continuity tests (Model 3007A only).
- Live circuit warning beeper.
- Releasing the test button automatically discharges the charges stored in the circuit under test.
- Backlight function to view the test results in dimly lit areas (Model 3007A only).
- 200mA continuity measuring current to IEC 61557.
- Minimum 1mA current on insulation tests to IEC 61557.

Accessory

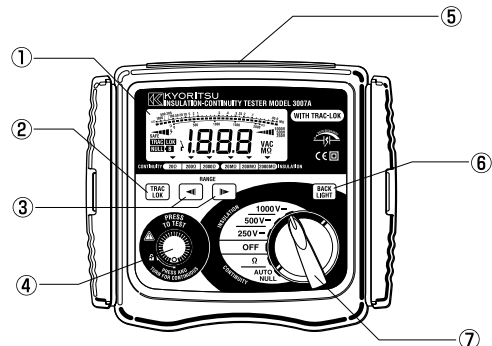
Model 7122 Test Leads



LCD DISPLAY



Layout Diagram



- 1 LCD DISPLAY
- 2 TRAC-LOK SWITCH (Model 3007A only)
- 3 RANGE SELECTOR SWITCH
- 4 TEST BUTTON
- 5 CONNECTOR
- 6 BACK LIGHT SWITCH (Model 3007A only)
- 7 FUNCTION SWITCH

- 1 INSULATION RESISTANCE SCALE
- 2 BAR GRAPH
- 3 CONTINUITY SCALE
- 4 LIVE CIRCUIT WARNING
- 5 TRAC-LOK MODE
- 6 AUTONULL OPERATION
- 7 BATTERY VOLTAGE WARNING
- 8 CONTINUITY/INSULATION RESISTANCE RANGE SETTING
- 9 UNIT
- 10 OUTPUT VOLTAGE GRAPH (INSULATION RESISTANCE)
- 11 OUTPUT VOLTAGE RANGE
- 12 MEASUREMENT VALUES

KEW INSULATION/CONTINUITY TESTERS

The Model 3131A offers unmatched performance, and feature including test lead resistance zero adjustment for time-saving continuous operation, a clear ease to read illuminated scale, and a live circuit warning.

MODEL 3131A



Accessory

Model 7122 Test Leads



Specifications

Insulation	3005A/3007A	3131A	3132A
Test Voltage	250V/500V/1000V	250V/500V/1000V	250V/500V/1000V
Measuring Ranges (Mid-scale Value)	20M Ω /200M Ω /2000M Ω	100M Ω /200M Ω /400M Ω (1M Ω) (2M Ω) (4M Ω)	100M Ω /200M Ω /400M Ω (1M Ω) (2M Ω) (4M Ω)
Output Voltage on open circuit	Rated test voltage+20%, -0%	Rated test voltage+20%, -0%	Rated test voltage+20%, -0%
Nominal Current	1mA DC min.	1mA DC min.	1mA DC min.
Output Short Circuit Current	1.5 mA DC approx.	1.3 mA DC approx.	1.3 mA DC approx.
Accuracy	$\pm 1.5\%rdg \pm 5dgt$ (20M Ω /200M Ω) $\pm 10\%rdg \pm 3dgt$ (2000M Ω)	0.05-10M Ω /0.1-20M Ω /0.2-40M Ω (Accuracy Guaranteed Ranges) $\pm 5\%$ of indicated value	0.1-10M Ω /0.2-20M Ω /0.4-40M Ω (Accuracy Guaranteed Ranges) $\pm 5\%$ of indicated value

Continuity

Measuring Ranges (Mid-scale Value)	20 Ω /200 Ω /2000 Ω	2 Ω /20 Ω (1 Ω)(10 Ω)	3 Ω /500 Ω (1.5 Ω) (20 Ω)
Output Voltage on open circuit	7~12V DC	4~9V DC	4.1V DC approx.
Measuring Current	200mA DC min.	200mA DC min.	210mA DC min.
Accuracy	$\pm 1.5\%rdg \pm 5dgt$ (20 Ω) $\pm 1.5\%rdg \pm 3dgt$ (200 Ω /2000 Ω)	$\pm 3\%$ of scale length	$\pm 3\%$ of scale length

AC Voltage

AC Voltage range	0-600V AC	—	0-600V AC
Accuracy	$\pm 5\%rdg \pm 3dgt$	—	$\pm 5\%$ of scale length

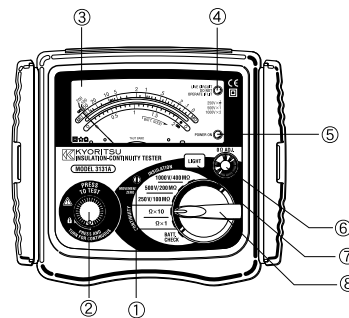
General

Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-031 IEC61557-1/2/4	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-031 IEC61557-1/2/4	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-031 IEC61557-1/2/4
IP Rating	IEC60529-IP54	IEC60529-IP54	IEC60529-IP54
EMC Standard	IEC61326-1	IEC61326-1	IEC61326-1
Withstand Voltage	3700V AC for 1 minute	3700V AC for 1 minute	3700V AC for 1 minute
Power Source	R6P(AA)(1.5V)×8	R6P(AA)(1.5V)×6	R6P(AA)(1.5V)×6
Dimensions	185(L)×167(W)×89(D)mm	185(L)×167(W)×89(D)mm	106(L)×160(W)×72(D)mm
Weight	990g approx.	860g approx.	560g approx.
Accessories	7122(Test leads) Pouch for test leads 8923(F500mA/600V fuse)×2 R6P(AA)×8, Shoulder Strap Instruction Manual	7122(Test leads) Pouch for test leads 8923(F500mA/600V fuse)×2 R6P(AA)×6, Shoulder Strap Instruction Manual	7122(Test leads) Pouch for test leads 8923(F500mA/600V fuse)×2 R6P(AA)×6, Shoulder Strap Instruction Manual

Features

- Test insulation up to 100M Ω at 250V, 200M Ω at 500V, 400M Ω at 1000V and continuity up to 20 Ω .
- LIVE circuit warning lamp plus audible warning.
- Automatic discharge of circuit capacitance when TEST button is released.
- Fuse protected (continuity range only).
- Battery check LED.
- Front panel zero adjust.
- Back light function to facilitate working at dimly lit situations.
- PRESS TO TEST button with lock down feature.

Layout Diagram



- 1 METER MOVEMENT ZERO ADJUST
- 2 TEST BUTTON
- 3 SCALE PLATE
- 4 LIVE CIRCUIT WARNING LED
- 5 POWER-ON INDICATION LED
- 6 CONTINUITY ZERO ADJUST
- 7 LIGHT SWITCH
- 8 RANGE SELECTOR SWITCH

KEW INSULATION/CONTINUITY TESTERS

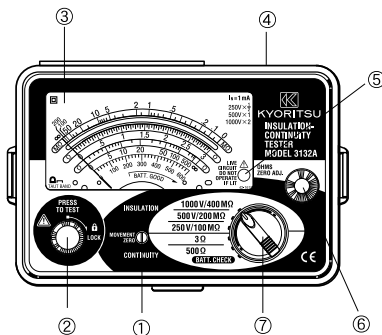
The Model 3132A is a highly compact and easy to use insulation and continuity tester.

Designed to strict IEC61010-1 safety standards, it has an IP protection rating of IP54 and is ideally suited to more arduous environments. The instrument offers 3 insulation test ranges, a 3Ω continuity range and a 500Ω resistance range.

MODEL 3132A



Layout Diagram



- ① METER MOVEMENT ZERO ADJUST
- ② TEST BUTTON
- ③ SCALE PLATE
- ④ INPUT CONNECTOR
- ⑤ LIVE CIRCUIT LAMP
- ⑥ OHMS ZERO ADJUST
- ⑦ RANGE SELECTOR SWITCH

Specifications

Insulation Resistance Ranges

MODEL	Model 3001B	Model 3111V
Test Voltage	500V/1000V	250V/500V/1000V
Measuring Ranges (Mid-scale Value)	200MΩ(2/20/200MΩ) autoranging	0-100MΩ/0-200MΩ/0-400MΩ (1MΩ) (2MΩ) (4MΩ)
Output Voltage on open circuit	Rated test voltage +12%	Rated test voltage ±10%
Rated Current	1~1.2mA DC approx.	0.8mA DC approx.
Output Short Circuit Current	1.5mA DC approx.	2mA DC approx.
Accuracy Guaranteed Ranges	—	0.05-10MΩ/0.1-20MΩ/0.2-40MΩ
Accuracy	±2%rdg±5dgt	±5% of indicated value

Continuity Test Ranges

Measuring Ranges (Mid-scale Value)	200Ω(20/200Ω) autoranging	50Ω (20Ω)
Output Voltage on open circuit	600mV DC approx.	0.6V DC approx.
Output Short Circuit Current	6mA approx.	300mA approx.
Accuracy	±2%rdg±0.1Ω±1dgt	±3% of scale length

General

Withstand Voltage	2200V AC for 1 minute	2200V AC for 1 minute
Power Source	R6P(AA)(1.5V) × 8	R6P(AA)(1.5V) × 8
Dimensions	144(L) × 93(W) × 61(D)mm	143(L) × 93(W) × 63(D)mm
Weight	460g approx.	500g approx.
Accessories	7025(Test leads) Pouch for test leads fuse 520HF 250V/0.5A 9050(Carrying Case) R6P(AA) × 8 Instruction Manual	7025(Test leads) fuse 250V/1A 9038(Carrying Case) R6P(AA) × 8 Instruction Manual

Selection Guide

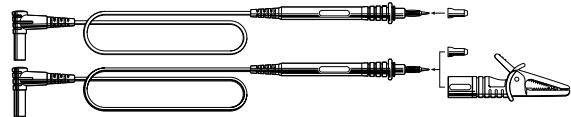
MODEL	3131A	3132A
3 range insulation test voltage	●	●
200mA continuity	●	●
Live circuit warning	●	●
AC Voltage range		●
Illuminated scale	●	
Automatic discharge	●	●
IP54 rated	●	●

Features

- Dust and drip proof construction. (designed to IEC60529 IP54)
- Designed to meet IEC61010-1 and IEC61557 safety standard.
- 1mA rated test current at the minimum resistance.
- 200mA measuring current on continuity testing.
- Automatic discharge of circuit capacitance. (Any charge stored in the circuit under test will be automatically discharged after testing.)
- Live circuit warning buzzer and neon lamp.
- Small and lightweight. Shock resistant new case material.
- AC voltmeter with linear, easy-to-read scale.
- Operates on AA, R6P×6 dry batteries.

Accessory

Model 7122 Test Leads



MODEL 3001B

Compact and lightweight digital Insulation/Continuity tester.



MODEL 3111V

Compact, lightweight and portable Insulation/Continuity tester.



KEW INSULATION TESTERS

Model 3165 and 3166 are a simple, low cost, single range insulation tester. Miniaturized and weighing 330g only, they are available in two versions having 500V/1000MΩ and 1000V/2000MΩ ranges respectively.

MODEL 3165/3166



- 500V/1000MΩ (Model 3165)
- 1000V/2000MΩ (Model 3166)
- Expanded megohm scale for easy reading.
- New robust housing case to prevent damage.
- AC voltmeter scale for easy reading.
- Neck strap for both hand's operation.

MODEL 3321/3322/3323

CE



- AC Voltmeter with linear, easy-to-read scales.
- Auto discharge function; any charge stored in the circuit under test will be automatically discharged after testing.
- Designed to meet IEC61010-1 CAT. III 600V
- Color-coded scales for easy reading.
- Back light function to facilitate working at dimly illuminated locations.
- Test lead set with remote control switch.
- Shoulder strap for hands free.
- Test lead set can be kept in a carrying case.

Specifications

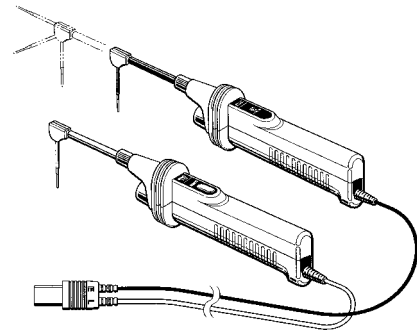
MODEL	Model 3165	Model 3166
Insulation Resistance		
DC Test Voltage	500V	1000V
Measuring Range	1000MΩ	2000MΩ
Mid-Scale Value	20MΩ	50MΩ
Primary Effective Measuring Range Accuracy	1~500M	2~1000M
	±5% of indicated value	
Secondary Effective Measuring Range Accuracy	500~1000M	1000~2000M
	±10% of indicated value	
AC Voltage	600V	
Accuracy	±3% of full scale value	
Withstand Voltage	4000V AC for 1 minute	
Power Source	R6P(AA)(1.5V)×4	
Dimensions	90(L)×137(W)×40(D)mm	
Weight	330g approx.	
Accessories	7025(Test leads) 9067(Pouch for test lead) Neck Strap R6P(AA)×4 Instruction Manual	

Selection Guide

MODEL	3321	3322	3323
Test Voltage	250V 500V 1000V	125V 250V 500V	25V 50V 100V
Illuminated scale	●	●	●
Automatic discharge	●	●	●
Remote control switch	●	●	●

Optional Accessories

Model 7115 Extension Probe



Specifications

MODEL	Model 3321	Model 3322	Model 3323
Insulation Resistance			
DC Test Voltage	250V/500V/1000V	125V/250V/500V	25V/50V/100V
Measuring Ranges	50MΩ/100MΩ/2000MΩ	20MΩ/50MΩ/100MΩ	10MΩ/10MΩ/20MΩ
Mid-Scale Value	1MΩ/2MΩ/50MΩ	0.5MΩ/1MΩ/2MΩ	0.2MΩ/0.2MΩ/0.5MΩ
Primary Effective Measuring Ranges	0.05~20MΩ(250V) 0.1~50MΩ(500V) 2~1000MΩ(1000V)	0.02~10MΩ(125V) 0.05~20MΩ(250V) 0.1~50MΩ(500V)	0.01~5MΩ(25V) 0.01~5MΩ(50V) 0.02~10MΩ(100V)
Accuracy	±5% of Indicated Value		
Secondary Effective Measuring Ranges	20~50MΩ(250V) 50~100MΩ(500V) 1000~2000MΩ(1000V)	10~20MΩ(125V) 20~50MΩ(250V) 50~100MΩ(500V)	5~10MΩ(25V) 5~10MΩ(50V) 10~20MΩ(100V)
Accuracy	±10% of Indicated Value		
AC Voltage	600V	600V	300V
Accuracy	±3% of Full Scale Value		
Safety Standard	IEC61010-1 CAT. III 600V Pollution Degree 2		
Withstand Voltage	7400V AC for 1 minute		
Power Source	R6P(AA)(1.5V)×6		
Dimensions	105(L)×158(W)×70(D)mm		
Weight	520g approx.		
Accessories	7076 (Test Lead with Remote Control Switch) 7081 (Guard Connection Lead) Model 3321 only 8017 (Extension Prod) 9089 (Carrying Case) R6P (AA)×6 Instruction Manual		
Optional	7115 (Extension Probe)		

KEW INSULATION TESTERS

Model 3140 and 3310 series are our standard insulation testers supplied with a test probe having a remote control switch as a standard accessory. Model 3140 series features its miniature size and Model 3310 series four insulation testing voltages. All of these models are designed to IEC348 safety standard.

Selection Guide

MODEL	3144	3145	3146	3161	3313	3314
Test voltage	250V 500V	125V 250V	50V 125V	15V 500V	125V 250V 500V 1000V	50V 125V 250V 500V
Illuminated scale	●	●	●	●	●	●
Automatic discharge	●	●	●	●	●	●
Remote control switch	●	●	●	●	●	●

MODEL 3144/3145/3146/3161



- Miniature lightweight insulation tester. It weighs only 340g(battery included), but carries full measurement functions.
- Automatic discharge of circuit capacitance.
- Test leads with remote control switch .
- New robust housing case.
- Back light function.
- Neck strap for both hand's operation.

MODEL 3313/3314



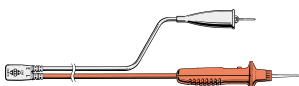
- 4 test voltages plus AC voltage range.
- Colour coded scales and range switch position for easy reading.
- Test leads with remote control switch .
- New robust housing case.
- Back light function.
- Neck strap for both hand's operation.

Specifications

Insulation Resistance	Model 3144	Model 3145	Model 3146	Model 3161	Model 3313	Model 3314
DC Test Voltage	250V/500V	125V/250V	50V/125V	15V/500V	125V/250V/500V/1000V	50V/125V/250V/500V
Measuring Ranges	100MΩ/200MΩ	50MΩ/100MΩ	20MΩ/50MΩ	10MΩ/100MΩ	20MΩ/50MΩ/100MΩ/2000MΩ	10MΩ/20MΩ/50MΩ/100MΩ
Mid-Scale Value	1MΩ/2MΩ	0.5MΩ/1MΩ	0.2MΩ/0.5MΩ	0.05MΩ/2MΩ	0.5MΩ/1MΩ/2MΩ/50MΩ	0.2MΩ/0.5MΩ/1MΩ/2MΩ
Primary Effective Measuring Ranges	0.05~20M/ 0.1~50M	0.02~10M/ 0.05~20M	0.01~5M/ 0.02~10M	0.005~2M/ 0.1~50M	0.02~10M/0.05~20M/ 0.1~50M/2~1000M	0.01~5M/0.02~10M/ 0.05~20M/0.1~50M
Accuracy	±5% of Indicated Value				±5% of Indicated Value	
Secondary Effective Measuring Ranges	20~50M/ 50~100M	10~20M/ 20~50M	5~10M/ 10~20M	2~10M/ 50~100M	10~20M/20~50M/ 50~100M/100~2000M	5~10M/10~20M/ 20~50M/50~100M
Accuracy	±10% of Indicated Value				±10% of Indicated Value	
AC Voltage	600V	300V		600V	600V	
Accuracy	±3% of Full Scale Value				±3% of Full Scale Value	
Safety Standard	—				IEC61010-1 CAT. III 600V Pollution Degree 2	
Standard	IEC348				IEC348	
Withstand Voltage	4000V AC for 1 minute				6000V AC for 1 minute	
Power Source	R6P(AA)(1.5V) × 4				R6P(AA)(1.5V) × 8	
Dimensions	90(L) × 137(W) × 40(D)mm				175(L) × 115(W) × 87.5(D)mm	
Weight	340g approx.				650g approx.	
Accessories	7078(Test Lead with Remote Control Switch) Pouch for Test Leads Neck Strap R6P(AA) × 4 Instruction Manual				7076(Test Lead with Remote Control Switch) 7081(Test Lead with Guard Terminal) Pouch for Test Leads Shoulder Strap, Shoulder Pad R6P(AA) × 8, Instruction Manual	
Optional	8016(Pickel Type Prod) 8017(Extension Prod)				7115(Extension Probe) 8016(Pickel Type Prod) 8017(Extension Prod)	

Accessories

Model 7078



Model 7076



Model 7081

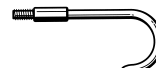


Optional Accessories

Model 8017 Extension Prod



Model 8016 Pickel Type Prod



KEW HIGH VOLTAGE INSULATION TESTERS

Model 3120 series is our range of high voltage insulation testers covering a rated test voltage range from 2500V to 10000V.

They feature an extremely compact design due to the employment of high performance electronic circuit and a wide, dual scale for easy reading.

Selection Guide

MODEL	3121	3122	3123	3124
2500V Test voltage	●			
5000V Test voltage		●	●	
10000V Test voltage			●	
1k-10kV Variable Test Voltage				●
Dual Resistance scales	●	●	●	●
Recorder output				●
Guard Terminal	●	●	●	●

MODEL 3121/3122/3123



- Dual scales for low and high ranges which change automatically. Colour coded scales for easy reading plus LED's that illuminate in matching colour.
- Drip proof construction.
- Hard carrying case furnished as standard accessory.
- Designed for low power consumption.

MODEL 3124



- Permits a wide range of insulation testing up to 100GΩ at variable test voltage from 1kV to 10kV.
- DC voltage output for recorders.
- Output voltage is shown on the digital display.
- After tests, automatically discharges the charges stored in the circuit under test.
- Operated by rechargeable Nickel-Cadmium batteries.

Specifications

MODEL	Model 3121	Model 3122	Model 3123		Model 3124	
DC Test Voltage	2500V	5000V	5000V	10000V	1k~10kV variable	1000V
Measuring Ranges (automatic change)	2GΩ/100GΩ (autoranging)	5GΩ/200GΩ (autoranging)	5GΩ/200GΩ (autoranging)	10GΩ/400GΩ (autoranging)	1.6GΩ/100GΩ (autoranging)	100MΩ
Primary Effective Measuring Ranges	0.1~50GΩ	0.2~100GΩ	0.2~100GΩ	0.4~200GΩ	0.05~50GΩ	1~100MΩ
Accuracy	±5% rdg				±10% rdg	
Other ranges Accuracy	±10% rdg or 0.5% of scale length				±1% of scale length	
Output Voltage and Set Voltage Indicate	—				DC 0~10kV ±2%rdg±2dgt	
Withstand Voltage	5000V AC for 1 minute				5000V AC for 1 minute	
Power Source	R6P(AA)(1.5V)×8				Ni-Cd rechargeable battery(1.2V)×8	
Dimensions	200(L)×140(W)×80(D)mm				200(L)×140(W)×80(D)mm	
Weight	1kg approx.				1.5kg approx.	
Accessories	7058(Test leads) 9039(Hard Carrying Case) R6P(AA)×8 Instruction Manual		7058(Test leads) 9039(Hard Carrying Case) 8019(Pickel type prod) R6P(AA)×8 Instruction Manual		7082(Lead for recorder) 7083(Lead for battery charging) 7084(Earth and guard leads) 8079(120V) or 8080(220V) (Battery charger) 9069(Hard Carrying Case) Ni-Cd rechargeable battery×8 Instruction Manual	
Optional	8019(Pickel type prod) 8020(Adaptor for recorder)		8020(Adaptor for recorder)		—	

Optional Accessories

Model 8019 Pickel Type Prod



Model 8020 Adaptor for recorder



KEW DIGITAL EARTH TESTERS

MODEL 4105A

MODEL 4105A Soft Case Model
MODEL 4105A-H Hard Case Model



The Kyoritsu's range of earth resistance testers have been enjoying worldwide popularity and longtime sales as a high quality and high performance test instrument. Our original constant current circuit to minimize the effect of commercial frequencies and a synchronous rectifying circuit always ensure a stable instrument performance. Advanced functions include self-check of the resistance of auxiliary earth spikes and testing of earth voltage, etc. All of these features ensure trouble free operation in the field.

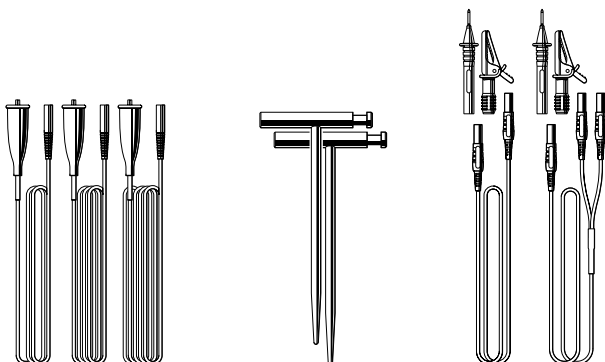
Features

- Dust and drip proof.(designed to IEC 529 IP54)
- In addition to the facility for precision measurement, test leads for simplified two wire measuring system also supplied as standard accessories. (unit can be hung from the neck for simplified measurement)
- Designed to meet IEC61010-1 safety standard.
- Capable of measuring earth voltage.
- Automatic warning when resistance of auxiliary earth spikes is in excess of tolerance.
- Small and lightweight. Shock resistant new case material.
- 2mA measuring current permits earth resistance tests without tripping earth leakage current breakers in the circuit under test.

Specifications

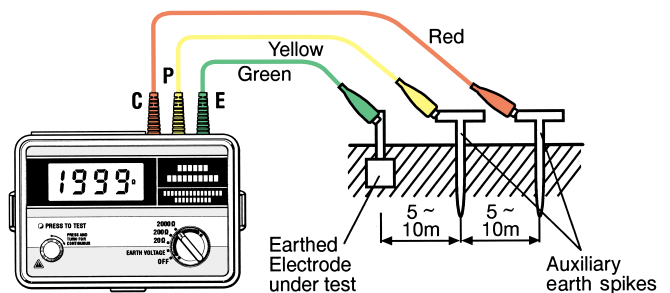
	Model 4105A/4105A-H
Measurement Ranges	Earth Resistance:0-20 Ω/0-200 Ω/0-2000 Ω Earth Voltage(50,60Hz):0-200V AC
Accuracy	Earth Resistance:±2%rdg±0.1Ω(20Ωrange) ±2%rdg±3dgt(200Ω/2000Ωrange) Earth Voltage:±1%rdg±4dgt
Overload Protection	Earth Resistance:280V AC for 10 seconds across 2 of the 3 terminals Earth Voltage:300V AC for 1 minute
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2, IEC61557
Applicable Standards	IEC60529 IP54
Withstand Voltage	3700V AC for 1 minute
Power Source	R6P(AA)(1.5V)×6
Dimensions	105(L)×158(W)×70(D)mm
Weight	550g approx.
Accessories	7095(Test Leads)×1set(red-20m, yellow-10m, green-5m) 8032(Auxiliary earth spikes)×1set 7127(Simplified measurement probe)×1set R6P(AA)×6, Neck strap, Instruction Manual
	Carrying Case Soft Case (4105A) Hard Case (4105A-H)

Accessories

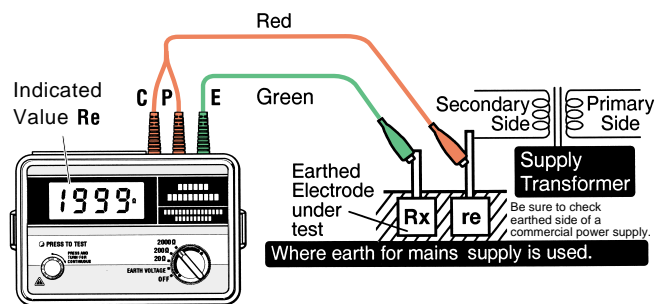


■ Model 7095 ■ Model 8032 ■ Model 7127

Precision Earth Resistance Measurement



Simplified Earth Resistance Measurement



MODEL 4102A

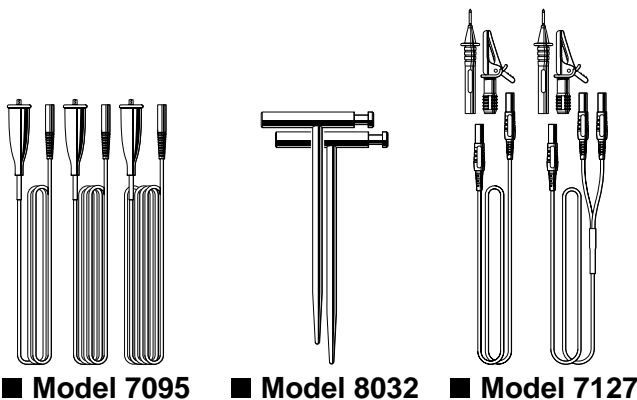
MODEL 4102A Soft Case Model
MODEL 4102A-H Hard Case Model



Specifications

	Model 4102A/4102A-H
Measurement Ranges	Earth Resistance: 0-12 Ω /0-120 Ω /0-1200 Ω Earth Voltage(50,60Hz): 0-30V AC
Accuracy	Earth Resistance: $\pm 3\%$ of full scale Earth Voltage: $\pm 3\%$ of full scale
Overload Protection	Earth Resistance: 276V AC for 10 seconds across 2 of the 3 terminals Earth Voltage: 276V AC for 1 minute
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2, IEC61557
Applicable Standards	IEC60529 IP54
Withstand Voltage	3700V AC for 1 minute
Power Source	R6P(AA)(1.5V) $\times 6$
Dimensions	105(L) \times 158(W) \times 70(D)mm
Weight	600g approx.
Accessories	7095(Test Leads) $\times 1$ set(red-20m, yellow-10m, green-5m) 8032(Auxiliary earth spikes) $\times 1$ set 7127(Simplified measurement probe) $\times 1$ set R6P(AA) $\times 6$, Neck strap, Instruction Manual
	<div>Carrying Case</div> <div>Soft Case (4102A)</div> <div>Hard Case (4102A-H)</div>

Accessories



■ Model 7095

■ Model 8032

■ Model 7127

Features

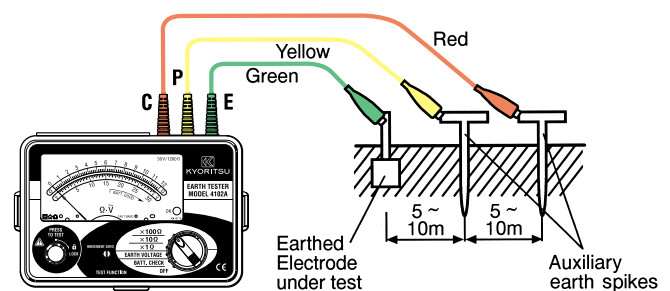
- The latest circuit design permits the instrument to operate with the minimum of influence from earth voltage and earth resistance of auxiliary earth spikes.
- Low power consumption. Only 12V/100mA max.
- Earth resistance value can be read directly from the scale.
- Simplified measurement can be easily made by pressing the "Simplified Meas." switch button only. No need to use a shorting wire as terminals P and C can be internally shorted by pressing this switch.
- Battery replacement can be easily made without removing the carrying case.
- Lead wire connection to C and P terminals and proper auxiliary earth resistance can be checked by "OK" lamp. Lead wire connection to C and E terminals is good when "OK" lamp is illuminated.



MODEL 4102A-H Hard Case Model

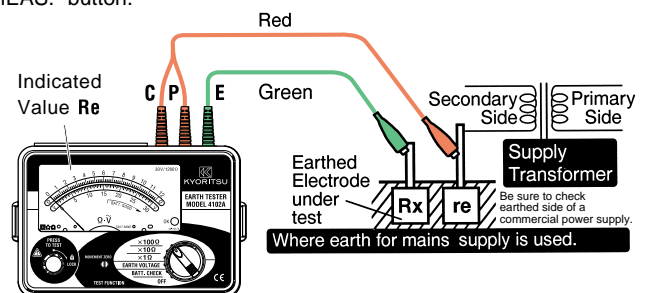
Earth Resistance Measurement

Press a desired range switch button first and then "MEAS." button.



Simplified Measurement Method Using Earthed Side of Commercial Power Supply

Press a desired range switch button first and then "SIMPLIFIED MEAS." button.



KEW LOOP/PSC TESTERS

MODEL 4120A

CE



In the event of earth circuit being overloaded or shorted the likely result is that a sufficient current does not flow into the circuit where a loop resistance is too high, causing circuit breaker, earth leakage breaker and other protection devices to become inoperative. To prevent such a possible accident we must check the earth circuit for its correct resistance and keep it as low as required.

Features

- Custom microprocessor controlled for highest accuracy and reliability.
- 3 LEDs for checking correct wiring status.
- 15mA LOOP measurement: LOOP impedance 2000Ω range measurement is carried out with low test current (15mA). The current will not cause tripping out involved RCD even the one with the lowest nominal differential current (30mA).
- Model 4120A has the automatic RCD(ELCB)lock device. There is no need to by-pass most passive RCD's at distribution boards when conducting LOOP or PSC tests.
- Direct reading of Prospective Short Circuit Current (PSC) and earth fault current.
- Safe voltage measurement function.
- Large custom digital display readout on all models.
- Measures low loop resistances (resolution of 0.01Ωm).
- Automatic lock-out if test resistor overheats.
- Large custom digital display readout.
- Visual indication of reversed phase and neutral wiring at socket.
- Designed to IP54 Rating
- Complies with IEC61557

Loop Testing Methods

In the buildings mainly used for private residence where low voltage power is supplied from electric utilities the fundamental protection against electric shock hazards is provided by appropriately coordinating the function of an earthing circuit with automatic switches placed at the latter stage of indoor wiring circuits. This is intended to quickly cut off the supply to an earthing circuit where a fault occurs following touch voltage exceeding an acceptable limit. Proper protection against electric shock hazards is given when the TT wiring system satisfies the requirement as expressed by the following formula:

$$R_a \times I_a \leq 50$$

where R_a is the sum of the resistances of earth bars and protective conductors and I_a is the maximum current of a protection system provided for installations, indicating that the value obtained by multiplying R_a with I_a is not more than 50V. This means a maximum voltage one can touch shall not exceed 50V in the event of an earth fault.

Method of earth fault loop impedance testing at socket outlet

As shown in Fig.1, total earth fault loop impedance can be measured by plugging a loop tester into socket. The value of earth fault loop impedance measured represents the sum of transformer coil winding resistance, phase conductor (L3) resistance and protective conductor (PE) resistance as well as source earth resistance and installation earth resistance. With the loop tester set to any one of the PSC (prospective short circuit current) range, it is also possible to measure earth fault current.

- Measurement of earth fault loop impedance using external earth probe. Fault loop impedance can be measured by touching an external probe directly to an earth bar, collector and connection point of the earth bar as illustrated in Fig.2. The same measurement can also be performed by touching the earth probe to the exposed, conductive parts of user's equipment installed in the indoor wiring circuits and its exposed metal parts.

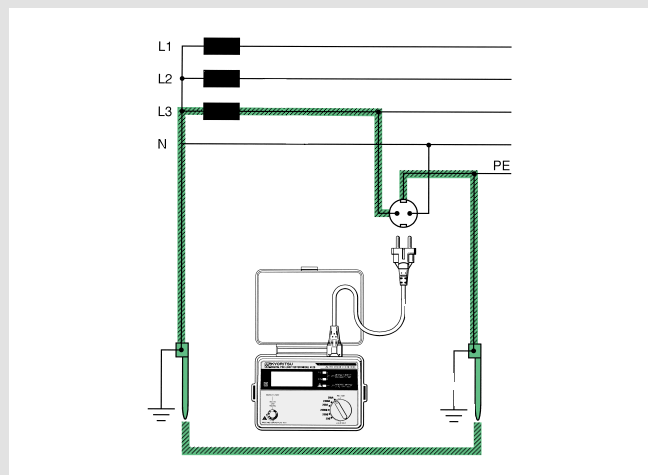


Fig.1 Earth fault loop impedance testing at socket outlet.

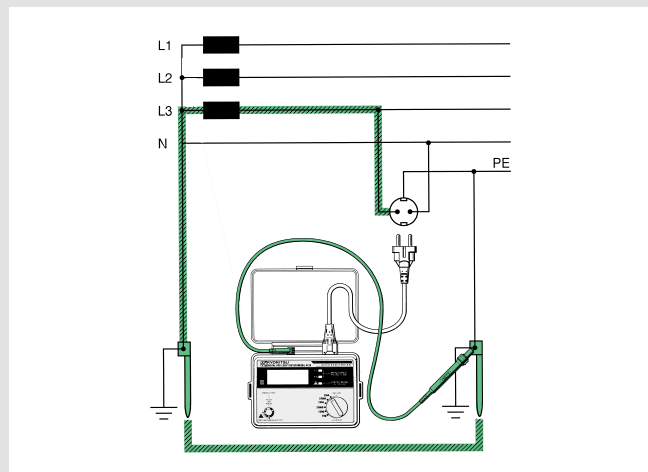


Fig.2 Measurement of earth fault loop impedance using external earth probe.

Model 4120A series is a very convenient test instrument capable of measuring fault loop impedance within the wiring circuit directly at the power outlet. It is widely used in EUROPE. Model 4118A and 4120A can also measure prospective short circuit current. One of the outstanding features of Model 4120A is a new D-Lok circuit that permits loop impedance testing without tripping out the RCDs(ELCBs) installed in the circuit under loop testing.

MODEL 4116A



Features (4116A/4118A)

- Custom microprocessor controlled for highest accuracy and reliability.
- 3 LEDs for checking correct wiring status.
- 15mA LOOP measurement: LOOP impedance 2000Ω range measurement is carried out with low test current (15mA). The current will not cause tripping out involved RCD even the one with the lowest nominal differential current (30mA).
- Model 4120A has the automatic RCD(ELCB) lock device. There is no need to by-pass most passive RCD's at distribution boards when conducting LOOP or PSC tests.
- Direct reading of Prospective Short Circuit Current (PSC). (Model 4118A only)
- Safe voltage measurement function.
- Large custom digital display readout on all models.
- Measure low loop resistances(resolution of 0.01Ω)
- Automatic lock-out if test resistor overheats.
- Large custom digital display readout .
- Visual indication of reversed phase and neutral wiring at socket.
- Designed to IP54 Rating
- Complies with IEC61557

Specifications

MODEL	4116A	4118A	4120A
Loop Impedance Ranges	20/200/2000Ω	20/200/2000Ω	20/200/2000Ω (20/200Ω D-LOK)
Loop Impedance Accuracy	±2%rdg±4dgt	±2%rdg±4dgt	±2%rdg±4dgt
AC Test Current	20Ω 25A 200Ω 2.3A 2000Ω 15mA	20Ω 25A 200Ω 2.3A 2000Ω 15mA	20Ω 25A 200Ω 2.3A 2000Ω 15mA
AC Test Period	20Ω (20ms) 200Ω (40ms) 2000Ω (280ms)	20Ω (20ms) 200Ω (40ms) 2000Ω (280ms)	20Ω (20ms) 200Ω (40ms) 2000Ω (280ms)
PSC Ranges	—	200A(2.3A 40ms) 2000A(25A 20ms) 20kA(25A 20ms)	200A(2.3A 40ms) 2000A(25A 20ms) D-LOK 20kA(25A 20ms) D-LOK
PSC Ranges Accuracy	—	Consider accuracy of Loop impedance	
Voltage	110V-260V ±2%rdg±4dgt		
Operating Voltage	230V+10% -15%(195V–253V)50Hz		
Safety Standard	IEC61010-1 CAT. III 300V IEC61557-1,-3 IEC61010-2-031 Pollution Degree 2		
IP Rating	IEC60529-IP54		
Dimensions	185(L)×115(W)×86(D)mm		
Weight	750g approx.		960g approx.
Accessories	Molded plug test leads Pouch for test leads Shoulder Strap Instruction Manual	Molded plug test leads 7121 Distribution board test leads Pouch for test leads Shoulder Strap Instruction Manual	
Optional	7121 Distribution board test leads —		

Selection Guide

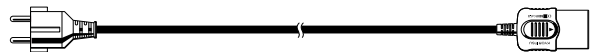
MODEL	4120A	4116A	4118A
LOOP Test Range	●	●	●
PSC Test Range	●		●
Automatic RCD lock circuit	●		
Display mains voltage before test	●	●	●
Visual indication of correct wiring status	●	●	●
Lock down test button for continuous operation	●	●	●
15mA LOOP measurement (2000ΩRange)	●	●	●

MODEL 4118A



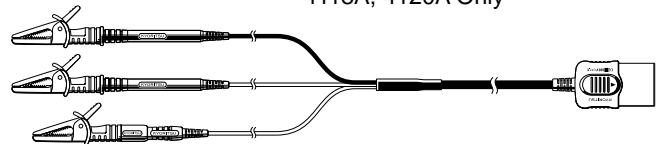
Accessories

Molded plug test leads



- **Model 7123** (AU)Australian plug
- **Model 7124** (UK)British plug(13A)
- **Model 7125** (EU)European SHUKO plug
- **Model 7126** (SA)South African plug

Model 7121 (Distribution board test leads) 4118A, 4120A Only



FRONT COVER



KEW RCD TESTERS

Model 5406 series is an instrument to check RCD(ELCB) testers. RCD trip time can be easily measured at the power outlet. Model 5406A has a microprocessor controlled constant current circuit that operates independent of voltage. This always allows highly accurate measurement results.

MODEL 5406A

CE



MODEL 5404

CE



Features (5406A/5404)

- Custom microprocessor controlled for highest accuracy and reliability.
- 3 LEDs for checking correct wiring status.
- 0 and 180 degree phase angle switch permits quick tests and consistent readings.
- Digital read-out of tripping time.
- Test DC sensitive breakers.
- Constant current source circuitry ensures that a fluctuating mains voltage does not affect the accuracy of readings.
- Large custom digital display readout.
- Visual indication of reversed phase and neutral wiring at socket.
- Designed to IP54 Rating.
- Complies with IEC61557

Selection Guide

MODEL	5406A	5404	5402D
Tripping time resolution 1ms	•	•	•
0° / 180° Phase angle switch	•	•	•
Constant current testing	•		
Checks operation of DC sensitive breakers	•		

MODEL 5402D



Features (5402D)

- Accurate digital readout of tripping time.
- Two neon lamps give quick check for correct wiring.
- Compact, lightweight and simple to operate.
- Zero cross circuitry permits testing at 0 and 180 degree portion of sine wave. At these two tests minimum (best) and maximum (worst) trip times will be displayed.

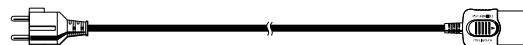
Specifications

MODEL	Model 5404	Model 5406A	Model 5402D
Rated Tripping Current	10/20/30/200/300/500mA	10/20/30/200/300/500mA	5/10/30/100/300/500mA
Fault Condition Settings	x1/2, x1, x5	x1/2, x1, x5, x DC, AUTO RAMP	x1/2, x1, Fast (250mA)
Trip Current Duration	2000ms, 200ms(X 5)	1000ms, 200ms(x5)	2000ms, 40ms (Fast Trip)
Lowest Resolution	1ms	1ms	1ms
Trip Time Accuracy	±1%rdg±4dgt	0.6%rdg±4dgt	±2%rdg±3dgt
Operating Voltage	220V±10%, 50Hz	230V±10%-15% (195V~253V) 50Hz	220V or 240V 50Hz/60Hz
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-031	IEC61557-1-6 IEC61010-1 CAT. III 300V IEC61010-2-031 Pollution Degree 2	—
Withstand Voltage	3000V AC for 1 minute	3700V AC for 1 minute	2200V AC for 1 minute
IP Rating	—	IEC60529-IP54	—
Dimensions	175(L)×115(W)×86(D)mm	185(L)×115(W)×86(D)mm	140(L)×90(W)×20(D)mm
Weight	440g approx.	800g approx.	350g approx.
Accessories	KAMP10(Test Lead with IEC connector)※ KSLP5(External Earth Probe) Pouch for test leads Shoulder Strap Shoulder Pad Instruction Manual	Molded plug test leads Pouch for test leads Shoulder Strap Instruction Manual	7019(Test Leads) Carrying Case Instruction Manual
Optional	—	7121 Distribution board test leads	—

※ KAMP10(EU): European SHUKO plug
KAMP10(UK): British plug(13A)
KAMP10(AU): Australian plug
KAMP10(SA): South African plug

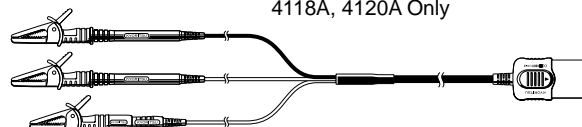
Accessories

Molded plug test leads



- **Model 7123** (AU) Australian plug
- **Model 7124** (UK) British plug(13A)
- **Model 7125** (EU) European SHUKO plug
- **Model 7126** (SA) South African plug

- **Model 7121** (Distribution board test leads)
4118A, 4120A Only



MODEL 6010A



Specifications

Continuity Testing	
Measuring Ranges	0~19.99 and 10.0~199.9Ω (2 auto ranges)
Open Circuit Voltage	> 4V (as per IEC364)
Short Circuit Current	> 200mA DC (as per IEC364)
Accuracy	±(3% + 3dgt)

Insulation Testing	
Measuring Ranges	0~19.99 and 10.0~199.9MΩ (2 auto ranges)
Test Voltage	500V DC
Output Voltage on Open Circuit	570V DC±6%
Rated Current	> 1mA (as per IEC364)
Accuracy	± (3% + 3dgt)

Loop Impedance Testing	
Rated Voltage	230V AC±10% (50Hz)
Voltage Measuring Range	100-250V AC (50Hz)
Impedance Ranges	20/2000Ω
Nominal Test Current	24A (20Ω range) 15mA (2000Ω range)
Test Period	1/2 cycle (10ms)
Accuracy	20Ω range: ±(3% + 8dgt) 2000Ω range: ±(3% + 8dgt)

RCD Testing	
Rated Voltage	230V AC±10% (50Hz)
Trip Current Settings	RCD×1/2: 5, 15, 50, 150, 250mA RCD×1: 10, 30, 100, 300, 500mA
Trip Current Duration	RCD×1/2×1: 2000ms
Fast Trip	150mA
Accuracy	Trip current±3% of test current at 230V. Trip time ±(3% + 3dgt)

General

Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61010-2-031 IEC61557
Withstand Voltage	4000V AC for 1 minute
Power Source	R6P(AA)(1.5V)×8
Dimensions	175(L)×115(W)×86(D)mm
Weight	780g approx.
Accessories	7025(Test Leads) KAMP10 ※ (Test Lead with IEC Connector) Pouch for Test leads Shoulder Strap Shoulder Pad R6P(AA)×8 Instruction Manual

※KAMP10(EU): European SHUKO plug
KAMP10(UK): British plug(13A)
KAMP10(AU): Australian plug
KAMP10(SA): South African plug

Model 6010A is an advanced multifunction tester that can perform all the testing required by IEC 364-6-61 with a single instrument.

It can be used to test insulation resistance, continuity, loop impedance and RCDs(ELCBs), four major test requirement in the electrical testing industry. This four-in-one instrument eliminates the need to carry individual single function testers. Model 6010A is designed to IEC 61010-1 and available with CE marking for EMC compliance.

Features

Continuity and Insulation Testing

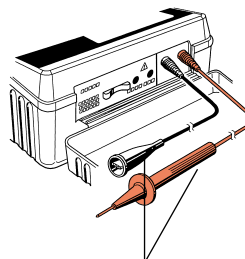
- Live circuit warning LED:
Immediate illumination of a warning lamp if the circuit under test is live
- Auto Discharge:
Allows fast and safe discharge of electrical energy stored in capacitive circuits following testing
- Integral overload protection on internal continuity and insulation test circuitry
- Autoranging
- 500V DC test voltage for insulation tests
- 200mA short circuit current on continuity ranges

Loop and RCD Testing

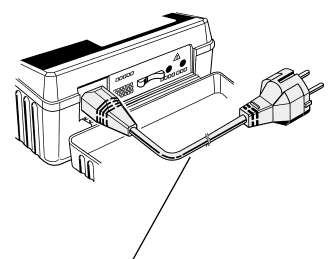
- Wiring connection check LED's:
Immediate indication if wiring of circuit under test is correct
- Overheat Protection:
Rapid detection of overheating of internal circuitry, display of warning signal to user and automatic halting of measurement
- Supply Voltage Indication:
Can display supply voltage value in loop impedance mode
- Low Current Loop Impedance Test:
Short duration low test current will prevent tripping of many passive RCDs
- Auto Data Hold:
Retains displayed reading for set period following test
- Phase Angle Selection:
Selection of test current from +ve or -ve half cycle of waveform can prevent tripping of polarized type RCDs

Accessories

Continuity and Insulation Testing LOOP and RCD Testing



■ **Model 7025**
(Test Leads)



■ **KAMP10**
(Test Lead with IEC Connector)

KEW MULTI FUNCTION TESTERS

MODEL **KEW 6015**



IEC 61010-1 CAT. III 300V

The top of the range KEW6015 can perform TEN separate test functions and provides all the test functions generally required to verify the safety of electrical installations in full compliance with IEC61557.

The KEW6015 can store test results in its on-board memory for later downloading to a computer or printer. Data can be downloaded via the infra Red Communication Port (IRDA Port).

The KEW6015 is software driven and guides the user through the test functions required making the instrument very easy to use. It's numerous features include the ability to conduct 3 or 4 wire earth resistance test, D-Lok technology to prevent tripping of most passive type RCD's when loop testing and mains voltage and frequency measurement.

Features

- Live circuit and wiring connection check LED's
- D-Lok technology on loop test range
- On-board memory to store test results
- Downloading of data via IRDA port
- Auto power off
- Back light display
- Polarity switch
- Continuity Auto-null
- Auto ramp and auto test on RCD ranges
- Designed to IP54 Rating
- Complies with IEC61557

10in1

Continuity Tester

Insulation Tester

Loop Impedance Tester

RCD Tester

PSC Tester

Fault Current Tester

Earth Resistance Tester

Phase Rotation Tester

Mains Frequency Measurement

Mains Voltage Measurement

Specifications

Continuity Testing	
Measuring Ranges	20/200/2000Ω Autoranging
Open Circuit Voltage	> 6V
Short Circuit Current	> 200mA DC
Accuracy	±(1.5%rdg+3dgt)

Loop Impedance Testing	
Rated Voltage	230V AC 10% @ 50Hz
Voltage Measuring Range	100-250V AC @ 50Hz
Impedance Range	20/200/2000Ω
Nominal Test Current	25A (20Ω range) 1.2A (200Ω range) 1.2A (2000Ω range)
Test Period	1/2 cycle (10ms)
Base Accuracy	20Ω range ±(3%rdg+5dgt)

RCD Testing	
Rated Voltage	230V AC ±10% @ 50Hz
Trip Current Settings	RCD×1/2 : 10,30,100,300,500mA RCD×1 : 10,30,100,300,500mA RCD×5 : 10,30,100,300,500mA
Trip Current Duration	RCD×1/2×1: 2000ms RCD×5: 200ms fast trip 50ms
Accuracy	Trip current +10%-0% of test current at 230V Trip time±(2%rdg + 3dgt)

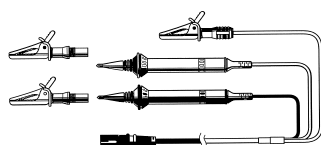
Insulation Testing	
Measuring Ranges	20/200/2000MΩ Autoranging
Test Voltages	250V, 500V and 1000V DC
Output Voltage on Open Circuit	250V+20%-0% 500V+20%-0% 1000V+20%-0%
Rated Current	>1mA
Accuracy	0~100MΩ ±(2%rdg+3dgt) 100MΩ~2000MΩ ±(2%rdg+4dgt)

PSC Testing	
Rated Voltage	230V AC ±10% @ 50Hz
PSC Range	2000A and 20kA
Accuracy	PSC accuracy derived from measured loop impedance specification and measured voltage specification

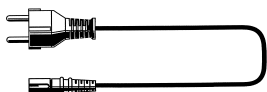
Fault Current	
Rated Voltage	230V AC ±10% @ 50Hz
Fault Current Ranges	2000A and 20kA
Nominal Test Current	1.2A(2000A) 25A(20kA)
Accuracy	Fault Current accuracy derived from measured loop impedance specification and measured voltage specification

Earth Resistance	
Ranges	20Ω/200Ω/2000Ω
Output Voltage	70V peak to peak square wave
Frequency	720Hz ±5%
Accuracy	20Ω(±2%rdg+5dgt) 200/2000Ω(±2%rdg+3dgt)

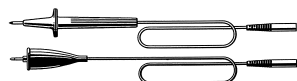
Accessories



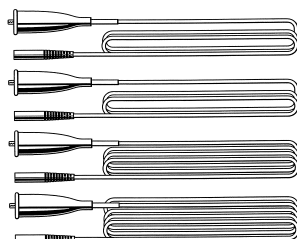
■ Model 7098



■ Model 7099



■ Model 7025



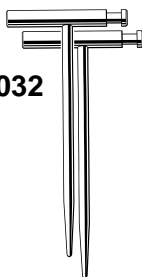
■ Model 7109



■ Model KSLP5 (Model 7132)



■ Model 8210



■ Model 8032



■ Durable Holdall & Accessory Pouch

General	
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61557
Withstand Voltage	3700V AC for 1 minute
Power Source	8×1.5V R6 or LR6
Dimensions	105(L)×210(W)×240(D)mm
Weight	1924g approx.

Accessories	
7098	Distribution board test leads for Loop/PSC/RCD testing
※ 7099	Moulded plug test leads(1 set) for Loop and RCD testing at sockets(EU plug)
7025	Lead for insulation and continuity testing
7109	Earth resistance test leads (1 set)
KSLP5	external earth probe
8032	auxiliary earth spikes
8210	IrDA Adaptor
	Durable Holdall
	Accessory pouch
	Battery 8×1.5V R6 or LR6
	Instruction Manual

- ※ 7112 Distribution board test leads for Loop/PSC/RCD testing(UK plug)
- 7113 Distribution board test leads for Loop/PSC/RCD testing(AU plug)
- 7114 Distribution board test leads for Loop/PSC/RCD testing(SA plug)

KEW MULTI FUNCTION TESTERS

MODEL 6011A



The Model 6011A can perform FIVE separate test functions; insulation, continuity, earth loop impedance, prospective short circuit current and RCD trip testing in full compliance with IEC61557.

Features

- Complies with IEC61557
- Designed to IP 54 Rating
- Live circuit and wiring connection check LED's
- Triple ranges insulation tests at 250, 500 and 1000V
- Triple range loop and PSC tests 15mA test current at 200Ω/2000Ω range (No RCD Trip)
- Phase angle selection on RCD ranges
- Polarity switch for continuity tests
- Auto-null facility for continuity tests
- DC test for DC sensitive RCDs
- Earth probe for loop impedance testing on extraneous metalwork
- Contact Voltage Reading

Specifications

Continuity Testing	
Measuring Ranges	20/200/2000Ω (Autorange)
Open Circuit Voltage	>6V
Short Circuit Current	>200mA DC
Accuracy	±(1.5%rdg+3dgt)

Insulation Testing	
Measuring Ranges	20/200MΩ (Autorange)
Test Voltages	250V 500V 1000V DC
Output Voltage on Open Circuit	250V+20%-0% 500V+20%-0% 1000V+20%-0%
Rated Current	> 1mA
Accuracy	±(1.5%rdg+3dgt)

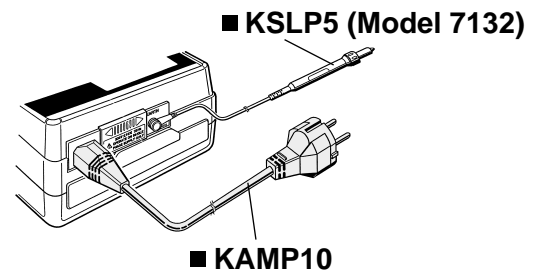
Loop Impedance Testing	
Rated Voltage	230V AC +10%-15% @ 50Hz
Voltage Measuring Range	100-250V AC @ 50Hz
Impedance Ranges	20/200/2000Ω
Nominal Test Current	3A (20Ω range) 15mA (200Ω range) 15mA (2000Ω range)
Accuracy	20Ω range ±(3%rdg+4dgt) 200Ω range ±(3%rdg+4dgt) 2000Ω range ±(3%rdg+4dgt)

PSC Testing	
Rated Voltage	230V AC +10%-15% @ 50Hz
PSC Ranges	200A (15mA Test Current) 2000A (3A Test Current) 20kA (3A Test Current)
Accuracy	PSC accuracy derived from measured loop impedance specification and measured voltage specification

RCD Testing	
Rated Voltage	230V AC ±10%-15% @ 50Hz
Trip Current Settings	RCD × 1/2 : 10,30,100,300,500,1000mA RCD × 1 : 10,30,100,300,500,1000mA RCD × 5 : 10,30,100,300mA (on × 5 range max current 1A)
Trip Current Duration	RCD × 1/2 × 1 : 2000ms RCD fast: 50ms
Accuracy	Trip current +10%-0% of test current at 230V Trip time ±(1%rdg + 3dgt)

General	
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2 IEC61557
Withstand Voltage	3700V AC for 1 minute
Power Source	LR6 (1.5V) × 8
Dimensions	130(L) × 183(W) × 100(D)mm
Weight	1000g approx.

Accessories



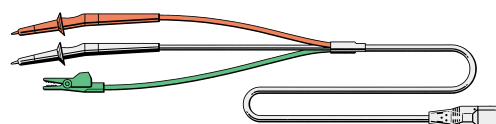
Model 7122 Test Leads



Accessories
※KAMP10 molded plug test leads for loop and RCD testing at sockets
7122 lead for insulation and continuity testing
KSLP5 external earth probe
Pouch for Test Leads
Shoulder Strap
Battery LR6 (1.5V) ×8
Instruction Manual
Optional Accessories
OMA DIEC Distribution board or lighting circuit test leads for LOOP/PSC/RCD testing

※ KAMP10(EU):European SHUKO plug
KAMP10(UK):British plug(13A)
KAMP10 (AU):Australian plug
KAMP10(SA):South African plug

Optional Accessory



OMA DIEC (Model 7133)

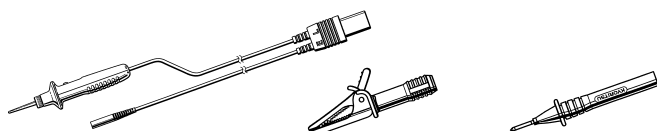
MODEL 6017/6018

CE



IEC61010-1 CAT. III 600V

Accessories

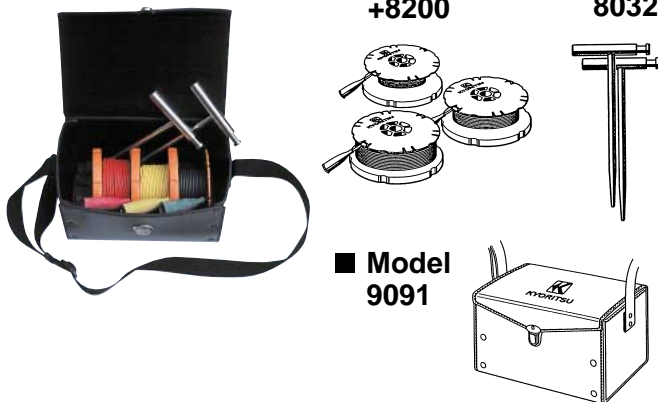


■ Model 7103 ■ Model 7102 ■ Model 7101

Optional Accessories

Precision measurement Cord Set

■ Model 7100 ■ Model 7095 +8200 ■ Model 8032



■ Model 9091

The Model 6017/6018 can perform THREE separate test functions; insulation, earth resistance, voltage testing.

Features

- Designed to meet IEC61010-1 CAT. III 600V
- Test leads with remote control switch.
(For insulation&Simplified Earth Test)
- Back light function.
- Color coded scales and range switch position for easy reading.
- Automatic warning when resistance of auxiliary earth spikes is in excess of tolerance.
- Can be hung around the neck for both hands' operation.

Specifications

Insulation Testing	
6017 Test Voltage	125V/20MΩ 250V/50MΩ 500V/100MΩ
6018 Test Voltage	250V/50MΩ 500V/100MΩ 1000V/2000MΩ
Accuracy	±5%rdg

Earth Resistance	
Simplified • Precision measurement	12Ω/120Ω/1200Ω
Accuracy	±3% of full scale value

AC Voltage	
0-600V AC	±3% of full scale value

Earth Voltage	
0-60V AC	±3% of full scale value

General	
Safety Standard	IEC61010-1 CAT. III 600V Pollution Degree 2 IEC61010-2-031 IEC61557
Withstand Voltage	5550V AC for 1 minute
Power Source	LR6(1.5V)×8
Dimensions	130(L)×183(W)×100(D)mm
Weight	1000g approx.

Accessories	
7103 Test leads with Remote Control Switch	
8017 Extension Prod	
7102 Safety Crocodile clips	
7101 Flat Test Bar	
Cord Case	
Neck Strap	
Battery LR6 (1.5V)×8	
Instruction Manual	

Optional	
7100 Precision measurement Cord Set	
7115 Extension Probe	

Accessories	
7095 (Test Leads)×1set (red-20m, yellow-10m, green-5m)	
8032 (auxiliary earth spikes)×1set	
8200 (cord reel)	
9091 (cord set carrying case)	

KEW MULTI FUNCTION TESTERS

MODEL 6020/6030



Model 6020 and 6030 are a heavy duty multifunction tester primarily developed to meet the demand from the power companies and safety control and maintenance industry. These instruments are fully water proof to IP57 rating with best consideration given to the possible use at restoration work in the rain following disaster caused by a typhoon. They are designed to withstand use under the most rigorous environmental conditions. Model 6020 and 6030 perform four test functions - insulation resistance (3 test voltages), earth resistance, voltage testing and phase check.

Features

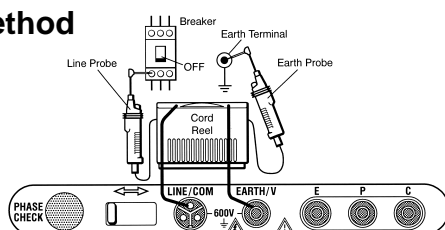
- Water resistant (IEC60529 IP57)
- Test leads are stored in a cord reel module
- Easy-to-read large digital display
- The instrument automatically turns itself off in about 30 minutes to conserve battery life, if no push buttons are pressed.
- Illumination on test probes for work at night or in dimly lit locations
- Display back-light to improve legibility in poor lighting conditions
- Autoranging; three ranges for insulation resistance, two ranges for earth resistance and two AC voltage ranges
- The instrument and all accessories in one carrying case
- AC voltage range;
 - True RMS sensing permits accurate measurement of voltage with distortion and harmonics generated by equipment using SCRs or TRIACs.
- Insulation resistance range;
 - Three test voltages; Model 6020 (125V, 250V, 1000V)
 - Three test voltages; Model 6030 (250V, 500V, 1000V)
 - 1mA test current at the minimum load.
 - Automatically releases electric charges stored in the circuit under test.
 - Remaining charges can be observed on AC voltage range
 - Remote control switch on a test probe
- Earth resistance range;
 - Checks resistance of auxiliary earth bars
 - Can make both simplified and normal measurement
- Phase test;
 - LEDs indicate whether phase sequence is correct or reversed as well as open phase, if any.
 - Rated voltage from 100V to 600V AC

Specifications

INSULATION TEST SPECIFICATIONS

MODEL	Model 6020	Model 6030	Model 6020/6030
Test Voltage	125V/250V	250V/500V	1000V
Measuring Ranges (MΩ)	0~1.999MΩ 1.00~19.99MΩ 10.0~199.9MΩ (3 auto ranges)		0~19.99MΩ 10.0~199.9MΩ 100~1999MΩ
Accuracy	±2%rdg ±3dgt ±10%rdg (on 1000-2000MΩ)		
Open Circuit Voltage	+20% -0% of Rated Test Voltage		
Rated Test current	1mA DC +20%-0%		
Short Circuit current	1.3mA DC approx.		
Effect of AC Component of Terminal Voltage	Within ±10% of reading when 5uF capacitor is connected in parallel on insulation test		
Overload Protection	1200V (DC + ACp-p) for 10 seconds		

Measuring Method

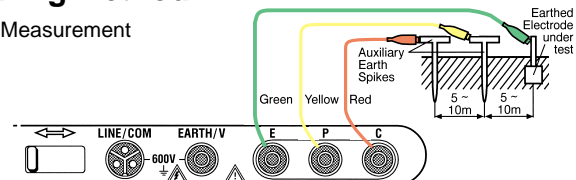


EARTH RESISTANCE TEST SPECIFICATIONS

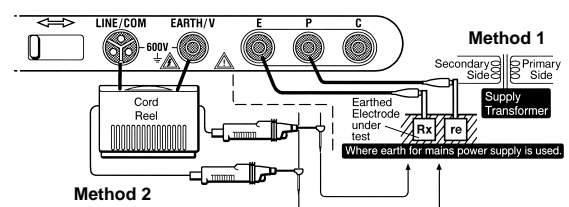
Measuring Ranges (Ω)	0~199.9Ω 100~1999Ω (2 auto ranges)
Accuracy	±2%rdg ±3dgt (at 500Ω auxiliary earth resistance)
Measuring Method	By constant current inverter 820Hz approx. 2mA approx.
Overload Protection	200V AC for 10 seconds between measuring terminals

Measuring Method

Precision Measurement



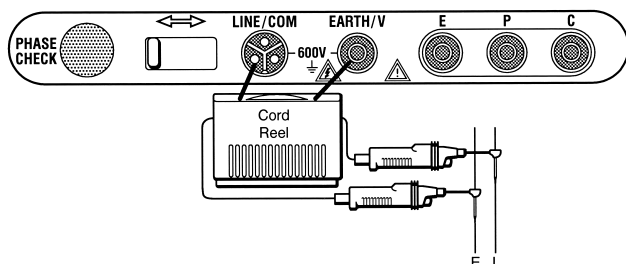
Simplified Measurement



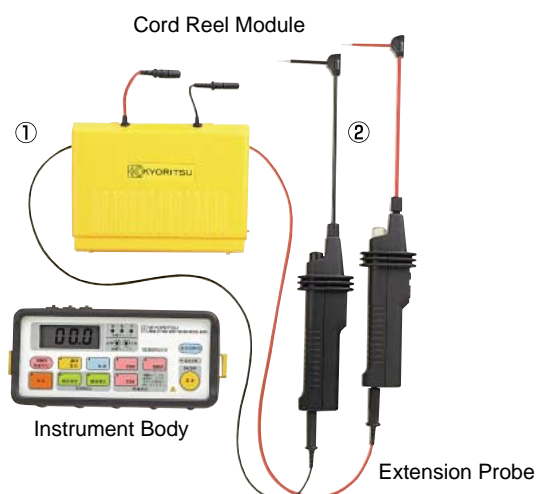
VOLTAGE TEST SPECIFICATIONS

Measuring Ranges (V)	0 ~ 199.9/100 ~ 600V (2 auto ranges)
Accuracy	±1%rdg ±4dgt
Sensing	True RMS
Input Impedance	2MΩ
Overload Protection	900V AC for 1 minute

Measuring Method



Accessories



Assorted Test Leads



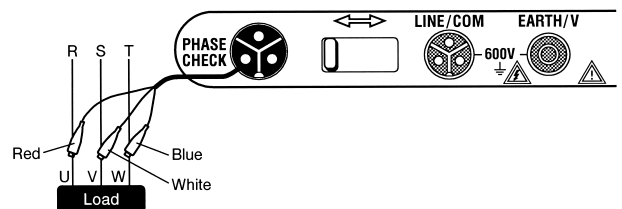
Description	Model No.	Quantity
① Cord Reel Module	7092	1pce
② Extension Probe	8082	1set
③ Test Leads (large)	7089	1set
④ Test Leads (small)	7090	1set
⑤ Test Leads for Earth Test (red-20m, yellow-10m, green-5m)	7091	1set
⑥ Test Leads for Phase Check	7088	1set
⑦ Auxiliary Earth Spikes	8083	2pcs
Carrying Case	9081	1pce
Belt for Carrying Case	—	2pcs
Instruction Manual	—	1copy
LR6 1.5V Alkaline Battery or equivalent	—	9pcs
0 Ring Set	—	1set

(Model 6020 and 6030 include all of the above accessories)

PHASE CHECK SPECIFICATIONS

Measuring Range	10 ~ 600V (50Hz/60Hz) (for checking correct or reverse phase and open phase)
-----------------	---------------------------------------------------------------------------------

Measuring Method



General Specifications for Model 6020,6030

- Display 3 1/2(1999)digit large LCD
- Response Time Approx. 4 seconds for AC voltage and earth resistance tests Approx. 5 seconds for insulation resistance tests.
- Withstand Voltage 5550V AC for one minute
- Effect of Drop No electrical and mechanical damage shall occur when the unit is dropped from a height of 1 m onto the concrete floor.
- Effect of Temperature Readings shall not differ greater than specified below when taken at a reference temperature of 23°C and varied temperature of 0°C and 40°C.
AC Voltage 3% ±2 dgt insulation resistance and earth resistance 5% ±2 dgt
- Operating Temperature Range 0-40°C
- Dimensions 130×238×207mm
(main body plus cord reel module)
105×238×207mm (main body only)
- Weight Approx. 1.6kg (main body only)
Approx. 750g (cord reel module only)
- Power Supply 1.5V LR6 alkaline battery or equivalent×8 (for main body only)
1.5V LR6 alkaline battery or equivalent×1 (probe only)
- Safety Standard IEC 61010-1 CAT. III 600V Pollution Degree 2

A full set (deluxe version complete with aluminum carrying case and leakage clamp meter) is available as Model 6020T or 6030T.

Optional Accessories

- Model 2417 Water Proof Leakage Clamp Meter(→ page 10)
40 mm jaw diameter True RMS 200mA/ 2000mA/ 20A/ 200A/ 500A
- Model 7093 Cord for Extension Probe
This is used to connect the extension probe directly to the instrument.
You can then use the instrument without the cord reel module.
- Model 9080 Aluminum Carrying Case
This is a hard case of rugged construction. Mainly available with the top grade version of the multifunction tester that comes with the leakage clamp meter Model 2417.

Description	Model No.
Water Proof Leakage Clamp Meter	2417
Aluminum Carrying Case	9080
Cord for Extension Probe	7093

KEW RECORDERS

MODEL 5350/5360



Basic Recorder only
(Model 5350 One Channel)
(Model 5360 Two Channels)

Recorder with Module
(Model 5351 One Channel)

Basic Recorder	Module	Descriptions
Model 5350	+ Model 5307	6-range Temperature Recorder(Pt-100)
Model 5350	+ Model 5308	6-range Temperature Recorder(K type)
Model 5360	+ Model 5321	AC Volt-Amp Recorder

Model 5350 series is a DIN size, miniature, low cost chart recorders. It is designed for direct mounting on a switchboard or application as a portable recorder.

In combination with a wide variety of modules, the recorder can be used to monitor temperature, humidity, AC current and AC voltage.

Features

- DIN size 96mm×96mm bezel and 92mm×92mm panel opening.
- Compact and lightweight for easy panel or portable use.
- Dot printing on clean, inkless, pressure sensitive paper.
- Removable chart cassette permits simple loading and unloading of chart paper. •50 mm chart width.
- Three chart speeds of 1"(25.4mm), 12"(304.8mm) and 24"(609.6mm) per hour available. The desired speed is selected by pulling out and rotating the switch to the appropriate position.
- Both one channel basic recorder Model 5350 and two channel basic recorder Model 5360 are available.
- Complete with one of the modules listed above, a temperature module, for example, Model 5350 or 5360 basic 1mA/250mV recorder makes a temperature monitor.

BASIC RECORDERS MODEL 5350 (1 CHANNEL) & 5360 (2 CHANNELS)

Specifications

MODEL	Model 5350/5360
Recordings System	Direct dot printing on pressure sensitive paper
Input Ranges	1mA/250mV DC, 2mA/100mV DC, 10mA/100mV DC
Meter Scale Accuracy	±2% of full scale value
Chart Speed	Single Speed:1" (25.4mm)per hour, Three Speeds:1" (25.4mm)/12" (304.8mm)/24" (609.6mm)per hour
Imprint Rate	60 dots per inch at all speeds(120 dots for channel No.2 of Model 5360 2 channel recorder)
Chart Paper	2. 1/2" (63.5mm) × 65.6feet(19m)for non-take-up mode 2. 1/2" (63.5mm) × 32.8feet(9.5m)for take-up mode
Chart width	50mm(1.97in)
Scale Length	55.5mm(2.19in)
Operating Temperature Range	-10°C~+50°C
Power Supply	100V, 110~120V, 200~240V AC, 50Hz or 60Hz(specify on order)
Power Consumption	3.5VA
Safety Standard	IEC61010-1 CAT. III 300V Pollution Degree 2
Dimensions	96(W)×96(H)×162(D)mm
Weight	880g approx.

Ordering Information

Model 53 -

(Channel)	(Chart Speed)	(Chart Paper)	(Power Supply)	(Input Range)
50 One Channel	2 Three Speeds	1 Non-Take-up Mode	1 100V AC, 50Hz	1 1mA/250mV DC
60 Two Channels		2 Take-up Mode	2 100V AC, 60Hz	2 2mA/100mV DC
			3 110~120V AC, 60Hz	3 10mA/100mV DC
			4 200~240V AC, 50Hz	0 Special Order
			5 200~240V AC, 60Hz	
			0 Special Order	

MODEL 5351 ONE CHANNEL 6-RANGE TEMPERATURE RECORDER (Model 5350+5307 or 5308)

Features

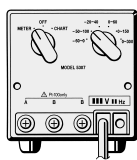
- Complete with Model 5307 Module for Pt-100 sensor or Model 5308 for Type K sensor.
- External range switch permits temperature measurement and recording in 6-ranges.

Specifications

Module	Model 5307	Model 5308
Input Ranges	(for Pt-100 Temp. probe) -60°C~0°C 0°C~+60°C -50°C~+100°C 0°C~+150°C -20°C~+40°C 0°C~+300°C	(for Type K Temp. probe) +600°C~+1200°C 0°C~+150°C +300°C~+600°C 0°C~+300°C +150°C~+300°C 0°C~+600°C
Accuracy	±3% of full scale	±4% of full scale
Dimensions	82(W)×82(H)×48(D)mm(module only)	
Weight	300g approx.(module only)	

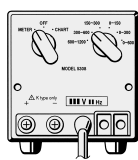
Back of module case

For Pt-100 Temperature Sensor



■ Model 5307

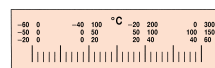
For K Type Temperature Sensor



■ Model 5308

Scale

No. T-13(for Pt-100)



No. T-12(for Type K)

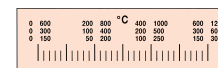
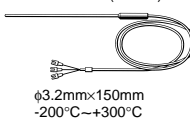


Chart Paper

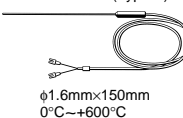
Non-Take-up Mode No.5350-005(30 divisions)
Take-up Mode No.5350-008(30 divisions)

Temperature Sensors (Optional)

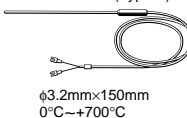
■ Model 8067 (Pt-100)



■ Model 8068 (Type K)



■ Model 8069 (Type K)



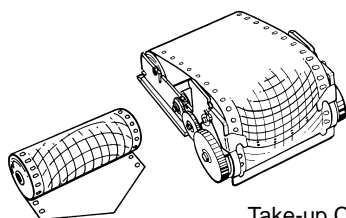
Ordering Information

Model 5351 - 2

(Chart Speed)	(Chart Paper)	(Power Supply)	(Module)	(Power Supply Cord)	(Temp. Probe)
2 Three Speeds	1 Non-Take-up Mode 2 Take-up Mode	1 100V AC, 50Hz 2 100V AC, 60Hz 3 110~120V AC, 60Hz 4 200~240V AC, 50Hz 5 200~240V AC, 60Hz 0 Special Order	07 for Pt-100 08 for Type K	2 for Japan & others 3 for USA & others 4 for Europe & others 5 for Australia & others 6 for UK 0 Special Order	1 Model 8067(Pt-100) 2 Model 8068(Type-K) 3 Model 8069(Type-K)

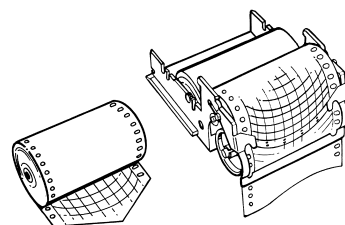
Chart Cassettes

■ Model 8065



Take-up Chart Cassette

■ Model 8064



Non-Take-up Chart Cassette

KEW RECORDERS

MODEL 5361 TWO CHANNEL AC VOLT/AMP RECORDER (Model 5360+5321)

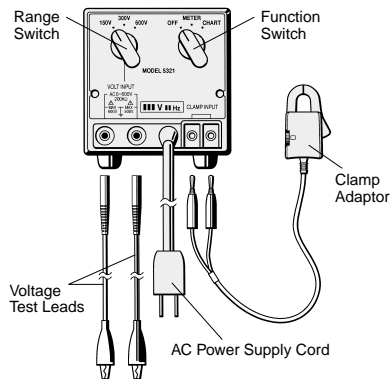
Features

- Complete with Model 5321 module to measure and record AC voltage and AC current.
- Range Switch selects 150V, 300V or 600V input voltage.
- Basic recorder and input are isolated by internal circuitry(500V AC max. withstand voltage for voltage input only).
- Three clamp adaptors are available for different application needs.
- Single dot for voltage and two dots for currents are imprinted alternately.

Specifications

Input Ranges	AC Voltage AC Current	150/300/600V AC 6/15/60/150/300A AC(using Model 8101 AC clamp adaptor) 15/30/150/300/1500A AC(using Model 8103 AC clamp adaptor) 30/150/300/1500/3000A AC(using Model 8104 AC clamp adaptor)
Accuracy	±3% of full scale value	
Dimensions	82(W)×82(H)×49.2(D)mm(module only)	
Weight	340g approx.(module only)	

Optional Diagram



Scale

No. C-01

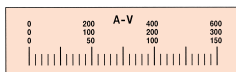


Chart Paper

Non-Take-up Mode	No.5350-005 (30 divisions)
Take-up Mode	No.5350-008 (30 divisions)

Carrying Case (Optional)

Model 9047



Ordering Information

Model 5361 - 2 21 -

(Chart Speed)	(Chart Paper)	(Power Supply)	(Power Supply Cord)	(Clamp Adaptor)
2 Three Speeds	1 Non-Take-up Mode 2 Take-up Mode	1 100V AC, 50Hz 2 100V AC, 60Hz 3 110~120V AC, 60Hz 4 200~240V AC, 50Hz 5 200~240V AC, 60Hz 0 Special Order	2 for Japan & others 3 for USA & others 4 for Europe & others 5 for Australia & others 6 for UK 0 Special Order	1 Model 8101 2 Model 8103 3 Model 8104

Optional Accessories

(Clamp Adaptors)

Model 8101

φ20	MAX AC 300A	FS →150mV
-----	----------------	-----------



Model 8103

φ60	MAX 1500A	FS →150mV
-----	--------------	-----------



Model 8104

φ100	MAX 3000A	FS →150mV
------	--------------	-----------



Specifications

Model 8101

Measuring Range	6/15/60/150/300A AC
Output Voltage	150mV AC/full scale value
Accuracy	±2% of Output
Load Resistance	>100kΩ
Conductor Size	φ 20mm max.
Frequency Response	45Hz~65Hz
Withstand Voltage	2200V AC for 1 minute
Dimensions	125(L)×75(W)×35(D)mm
Weight	220g approx.

Model 8103

Measuring Range	15/30/150/300/1500A AC
Output Voltage	150mV AC/full scale value
Accuracy	±2% of Output
Load Resistance	>100kΩ
Conductor Size	φ 60mm max.
Frequency Response	45Hz~65Hz
Withstand Voltage	2200V AC for 1 minute
Dimensions	242(L)×119(W)×34(D)mm
Weight	500g approx.

Model 8104

Measuring Range	30/150/300/1500/3000A AC
Output Voltage	150mV AC/full scale value
Accuracy	±2% of Output
Load Resistance	>100kΩ
Conductor Size	φ 100mm max.
Frequency Response	45Hz~65Hz
Withstand Voltage	2200V AC for 1 minute
Dimensions	317(L)×150(W)×34(D)mm
Weight	950g approx.

DIGITAL PHASE INDICATOR with open phase checker

8030



Features

- Phase indicator designed to check the presence of open phase and also the phase sequence by LED and buzzer at the same time.
- Small, lightweight, and portable.

Specifications

MODEL	Model 8030
Operational Voltage	200~480V AC
Time limit for continuous	200V: within 60 minutes 480V: within 4 minutes
Frequency Response	20~400Hz
Safety Standard	IEC61010-1 CAT.Ⅲ 300V Pollution Degerr 2
Withstand Voltage	2200V AC for 1 minute
Dimensions	82(L)×59(W)×23(D)mm
Weight	200g approx.
Cord	1m(R: red S: white T: blue)
Accessories	Carrying Case pins for Test leads Instruction Manual

PHASE INDICATOR with open phase checker

8031



Features

- Phase indicator designed to check the presence of open phase and also the phase sequence by rotating disk and lamps.
- Can check a wide range of 3-phase power source from 110V to 600V.

Specifications

MODEL	Model 8031
Operational Voltage	110~600V AC
Time limit for continuous	>500V: within 5 minutes
Frequency Response	50Hz/60Hz
Safety Standard	IEC61010-1 CAT.Ⅲ 600V Pollution Degerr 2
Withstand Voltage	2200V AC for 1 minute
Dimensions	106(L)×75(W)×40(D)mm
Weight	350g approx.
Cord	1.5m(R: red S: white T: blue)
Accessories	9029(Carrying Case) Instruction Manual

ILLUMINOMETER

5200



Features

- $\pm 10\%$ accuracy. Permits a wide range of light measurements from 0 to 5,000 Lux.
- Swivel head that revolves 300 degrees will always allow the user to make measurements at an optimum viewing position.

Specifications

MODEL	Model 5200
Ranges	Low 0~1000Lux(Red Scale) Ordinary 0~5000Lux(Black Scale) High 0~50000Lux(Black Scale w/10X Slide)
Accuracy	$\pm 10\%$ (tested by a standard parallel light tungsten lamp of 2854K colour temperature)
Angle Allowance	30° Less than -3% 60° Less than -10%
Correction of Slight Sensitivity	0~1000Lux: Use correction factor 0~5000Lux: Lux read directly
Dimensions	112(L)×58(W)×27(D)mm
Weight	135g approx.
Accessories	8058(10X Slide) 8059(Lumidisc for Low measurement) 8060(Lumidisc for Ordinary measurement) 9040(Carrying Case) Instruction Manual

DIGITAL ILLUMINOMETER

5201



Features

- Model 5201 is a highly portable and compact digital illuminometer for measuring illuminance from 0.1 to 19,990 Lux, with auto range switching.
- The digital display is held for a preset time (about 20 seconds) and, therefore, facilitates reading, recording and measuring in any direction.

Specifications

MODEL	Model 5201
Ranges	0.1~19990Lux(automatic 3 range switching)
Accuracy	$\pm 5\%$ rdg ± 3 dgt
Measuring Time	3 times per second
Temperature humidity characteristics	$\pm 3\%$ (at 20°C)
Angular Incident Light Characteristics	Closely related to the Lambert's cosine law
Spectral Response Characteristics	Closely related to the spectral luminous efficiency (of a standard observer).
Power Source	6F22(9V)×1
Dimensions	166(L)×68(W)×32(D)mm
Weight	180g approx.
Accessories	Photocell Cover 6F22×1 Soft Carrying Case Instruction Manual

KEW ACCESSORIES

Portable Infrared Thermometer

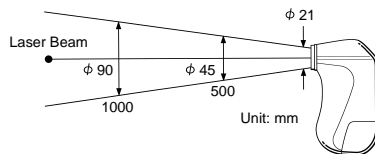
5500



Features

- Simple temperature measurement from -40°C to 500°C
- Laser sight pinpoints measured spots.
- Automatic-backlight LCD display at dark places by a brightness sensor.
- Palm size, lightweight 180g only.
- Automatic power off for saving battery life.
- Maximum or minimum temperature display.
- Audible buzzer high alarm standard.
- Emissivity adjustable from 0.30 to 1.90 in 0.01 steps.

Distance to Spot Size



Waterproof handheld Infrared Thermometer

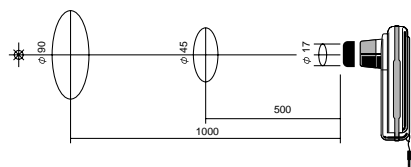
5510



Features

- Safe even if getting wet. Dustproof and waterproof structure of IP67. Possible to wash
- Please feel secure to use the product on the spot, made from ABS resin of antibacterial specification.
- Shock-proof structure: No damage even if dropped from the height of 1m.
- With auto-power-off function, preventing consumption of the battery
- Wide Temperature Range of -40°C to 300°C
- Small and light: Possible to measure easily by one hand.
- Portable type: Convenient to carry

Relation of Distance and Measuring Diameter



Model 5500 is non-contact infrared thermometer with laser sighting.

Specifications

MODEL	Model 5500
Ranges	-40°C ~ 500°C
Detecting Element	Thermopile
Spectral Range	8~14 μm
Measuring Diameter	$\phi 45$ at a distance of 500mm
Measuring Accuracy	$\pm 1\% \text{rdg} \pm 2^{\circ}\text{C}$, whichever is the greater at an ambient temperature of 25°C
Repeatability	Within $\pm 1^{\circ}\text{C}$
Response Time	0.8 second (90% response)
Collimation	Laser beam marks the center of the area measured
Beam Diameter	5mm approx.(at a distance of 1m)
Beam Output	Less than 1mW, 670nm, IEC Class2
Display Indications	Current reading, Maximum, Minimum, Reading Hold, Emissivity, Alarm Point, Low Battery
Auto Power Off	Automatically shuts power off if no key is pressed for 30 seconds
Alarm	Upper limit alarm with a beeper Lower limit alarm, optional
Emissivity Correction	Selectable from DARK(0.95), BRIGHT(0.80) and FREE(variable between 0.30 and 1.90, initial value is 1.00)
Display Illumination	Automatic back light
Power Source	LR6(1.5V) $\times 2$
Battery Life	approx. 60 hours for continuous use
Dimensions	142(L) \times 81(W) \times 32(D)mm
Weight	180g approx.
Accessories	LR6 $\times 2$ Soft Vinyl Case Instruction Manual



Caution

- Please do not aim or direct laser toward faces.
- On measurement of targets like as glossy metal, be careful with influences by the reflection from it.

Specifications

MODEL	Model 5510
Measuring Range	-40°C to 300°C
Display Resolution	0.5°C , 1°C for below -20°C and over 100°C
Measuring Accuracy	When the ambient temperature is $25 \pm 2^{\circ}\text{C}$ and the emissivity (E) is 1, 0 to 300°C : bigger value of either of $\pm 1\%$ of the measured value $\pm 1 \text{dgt}$ or $\pm 2^{\circ}\text{C} \pm 1 \text{dgt}$. 0 to -30°C : $\pm 3^{\circ}\text{C} \pm 1 \text{dgt}$ below -30°C : $\pm 5^{\circ}\text{C} \pm 1 \text{dgt}$
Repeatability	within $1^{\circ}\text{C} \pm 1 \text{dgt}$
Response	1 sec(90% response)
Measuring Diameter	(45mm/500mm(Optical sensitivity: 90%))
Collimation	Before shipment: 0.95. The value can be altered between 0.8 and 1.0 with the slide switch at the lower part of the battery compartment(by 0.05 steps). Laser beam(650nm 1mW JIS class2)specifies the center.
Water-Proof Property	IP67
Auto Power Off	If no key is pressed for 30 seconds, the power is shut off automatically.
Shock Proof Property	This instrument or its function/performance will not be damaged even if it is dropped on the p tile floor from 1 meter high
Operating Temperature	0 to 50°C
Operating Humidity	90% rH and below(no condensation)
Storage Temperature	20 to 55°C (no condensation)(Note): In the case of longterm storage, the batteries should be removed.
Battery	2 AAA alkali cell batteries
Battery Life	Approximately 10 hours for continuous use
Housing material	ABS(antibacterial)
Dimension	120 \times 60 \times 54mm(Maximum value for each direction)
Weight	Approx. 123g
Accessories	2 AAA alkaline cell batteries, instruction manual, strap
Approved Standard	CE marking:EMC EN61326 Class B, EMS EN61326 Annex C Stability: $\pm 5^{\circ}\text{C}$ under EMC test environment at 25°C

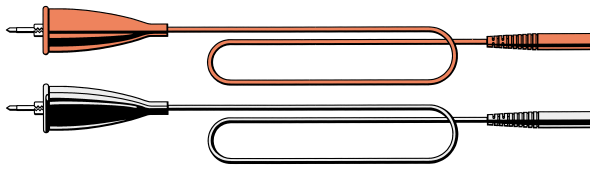
Caution

5510 is one of the portable, laser applied instruments which are regulated by the consumer product safety law.
• Do not look into the laser beam.
• Do not aim the laser beam at human beings.
• Keep the instrument out of children's reach.



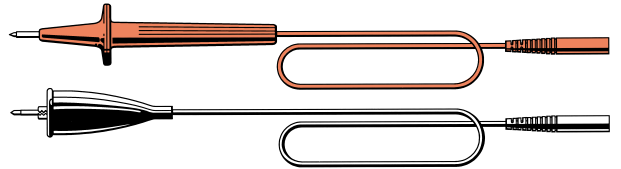
Test Leads

7053



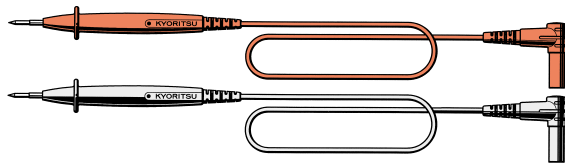
For use with following models:
2414,2415

7025



For use with following models:
3001B,3111V,3165,3166,6010A,6015

7066



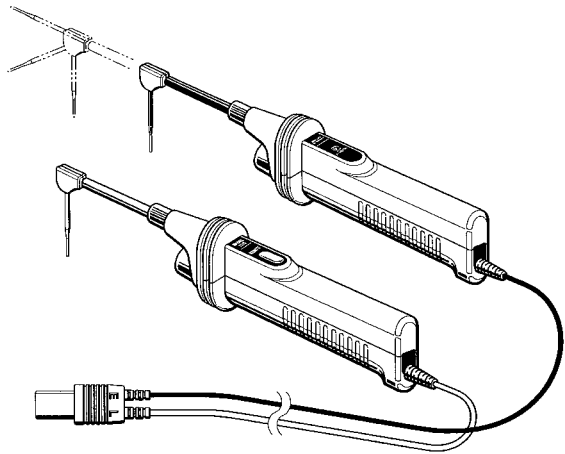
For use with following models:
1008,1106,1108,1110,2004,2006,2007A,2017,2027,2037,
2412,2608A

7061



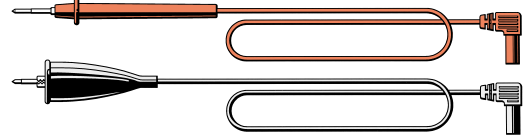
For use with following model:
8113

7115



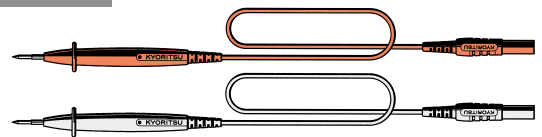
For use with following models:
3313,3314,3321,3322,3323,6017,6018

7067



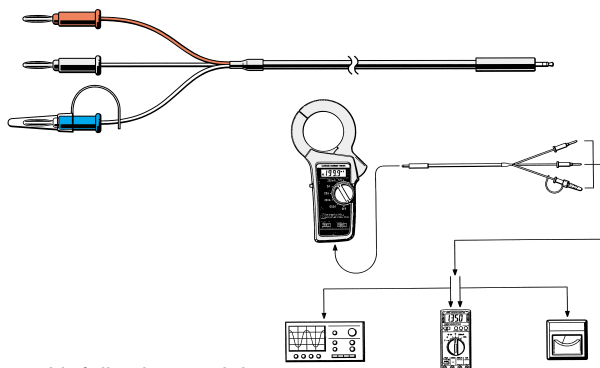
For use with following model:
2805

7107



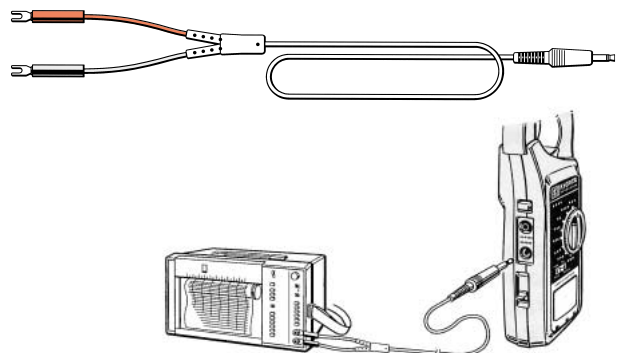
For use with following models:
2002PA,2003A,2009A

7073



For use with following model:
2413F

7014



For use with following models:
2002PA,2003A,2009A,2010,2412

Instrument Glossary

Accuracy

The accuracy of a digital tester is defined as the difference between the reading and the true value for a quantity measured in reference conditions. Accuracy is specified in the format: ($\pm xx\%$ rdg $\pm xx$ dgt)

The first portion identifies a percentage error relative to the reading, which means it is proportional to the input. The second portion is an error, in digits, that is constant regardless of the input.

"Rdg" is for reading and "dgt" is for digits. Dgt indicates the counts on the last significant digit of the digital display and is typically used to represent an error factor of a digital tester.

Auto-discharge Function

A function used immediately after an insulation test to automatically release charges stored within the circuit under test during measurement.

Voltage remaining in the circuit under test can be monitored during auto-discharging process as the scale reading.

Auto-ranging

A function of a tester to automatically select the appropriate measuring range based on the input signal.

Average Value

The average of an AC waveform's instantaneous values taken over a half cycle. Ordinary testers respond to the average value.

For sinusoidal wave:

Average value = Maximum value $\times 2/\pi$ = Maximum value $\times 0.637$

When the effective value is 100V;

Average value = Maximum value $\times 2/\pi$ = $141 \times 0.637 = 90$ (V)

The reading of ordinary testers is calibrated in terms of the effective value of a sinusoidal wave even though they are responding to the average value. They are called average-responding-rms-calibrated type of testers. As opposed to these, true-rms type testers respond and show the effective value.

Crest Factor

The ratio of the maximum value to the effective value.

It represents the range of input in which a tester maintains linear operation, expressed by a multiple of the full scale value of the range being used.

Crest factor = Maximum value / Effective value

For sinusoidal wave;

Crest factor = $141/100 = 1.41$

Data Hold

A function to freeze the reading on a digital display for ease of checking or recording even in a difficult-to-read situation for a tester.

Decibel: dB

A unit used to express the magnitude of change in level of electric signal or sound intensity.

A voltage ratio of 1 to 10 is equal to -20dB, 10 to 1 to 20dB, 100 to 1 to 40dB and 1000 to 1 to 60dB. A power ratio of 10 to 1 is not 20dB, but 10dB, since power (P) is proportional to the square of voltage (V).

Diode Test

A function to apply a diode or a transistor a constant current having a value needed to turn it on in order to check the diode's or the transistor's forward voltage drop and identifying the connection direction of the device.

Distortion Factor

A degree of distortion of a waveform, typically expressed as the ratio of the effective value of harmonic components to the effective value of the fundamental component.

Dual Integration Method

A technique to convert voltage into time. The first integration time (Ts) and the second integration time (Tx) are used. First, the input voltage (Vx) is integrated on a certain time interval (Ts) and then, the resulting voltage is "reverse-integrated" using a reference voltage (Vr) until it becomes 0 (zero).

The "reverse-integration time" (Tx) is proportional to input voltage (Vx). Therefore, the input voltage (Vx) can be determined by measuring Tx.

With this technique, stable measurements can be taken with high accuracy, resolution and noise rejection ratio. One particular advantage is high noise rejection ratio at 50 or 60Hz power line frequency. All of Kyoritsu digital clamp meters and testers utilize this method.

Effective Measuring Range of Insulation Tester

The measuring range for which the accuracy of an insulation tester is guaranteed. There are two kinds of effective measuring ranges: the first and second effective measuring ranges.

First effective measuring range

From 1/1000 to 1/2 the maximum effective scale value

(When there is no major scale division for 1/2 the maximum effective scale value, the nearest major scale division is used.)

Second effective measuring range

Scales divisions not included in the first effective measuring range

For example for a 500V/100M Ω insulation tester;

First effective measuring range: 0.1-50M Ω ($\pm 5\%$ of indicated value)

Second effective measuring range: 50-100M Ω ($\pm 10\%$ of indicated value)

Effective Value

The square root of the average of the square of a periodic waveform's instantaneous values taken over one cycle. It is also called the rms value and the most closely relates to such form of energy as force and heat.

(The effective value of an alternating current is expressed as the value of the direct current which produces the same amount of heat as the alternation current does.)

For sinusoidal wave:

Effective value = Maximum value $\times 1/\sqrt{2}$ = Maximum value $\times 0.707$

When an effective value is 100V;

Maximum value $\times \sqrt{2} = 100 \times 1.41 = 141$ (V)

Form Factor

The ratio of the effective value to the average value.
Form factor = Effective value/Average value

Frequency Response

The manner in which a device changes its output quantity it, its indication for a measured quantity or its response over a range of frequencies.

AC signals to measure with a tester can be of one frequency or from a wide frequency band ranging from low to high frequencies. To measure these frequencies, it is better to use a tester having a wide frequency response range.

Hall Element

When a current-carrying conductor is placed in a magnetic field so that the direction of the magnetic field is perpendicular to the direction of the current flow, voltage is developed in the direction perpendicular to both the magnetic field and the current flow. This is called the Hall effect and the Hall element is a device that utilizes the effect.

Kyoritsu AC/DC clamp meters and clamp sensors employ the Hall element.

Harmonics

Power line AC voltage from a utility company has near sinusoidal waveform of fundamental frequency with little distortion. When only a load consisting of resistors, capacitors and coils, called a linear load (its constant is fixed regardless of the amount of current flowing through it), is connected to mains supply, no distortion is introduced into the load current waveform. However, when a non-linear load, such as a semiconductor and a saturable reactor, is connected, distortion appears in the load current waveform. The current with a waveform containing distortion, or harmonic current, flows in the direction toward the low impedance side and in the process, produces voltage drop over the impedance of the current path, causing the load voltage also to contain harmonics.

Indicated Value

The value indicated by a tester for a measured quantity

Inverter

A device that converts DC voltage to AC voltage. It provides a wide range of continuous AC motor speed control and is used in such variable-speed drive applications as air conditioners, pumps and blowers. In this device, power line voltage is converted and filtered into DC voltage, then fed to a thyristor-or transistor-inverter circuit to generate AC voltage having various frequencies.

Peak Hold

A function to memorize the peak value over a certain period of time.

*Response time is selectable from approx. 10ms and 100ms.

Reading in the peak hold mode is the peak current value multiplies by $1/\sqrt{2}$.

(When the input is sinusoidal, the reading is equal to the effective value.)

Peak Value

The value at a point where a waveform has the maximum amplitude.

Resolution

The minimum increments in which a tester can take measurements.

Sample Rate

Frequency at which an A/D converter circuit senses the quantity to measure: typically, twice or three times per second.

Sensitivity

The ability of a tester to respond to the quantity to measure, expressed as the ratio of a change induced in the reading to a change in the input:

$$\text{Sensitivity} = \frac{\text{Change in reading}}{\text{Change in quantity to measure}}$$

Shock Hazard

Also referred to as electric shock. When a person touches a motor that has a "leak", a path can be created from the motor frame to the hand, body and feet of the person to the floor he is standing on to allow a current to flow through it, sometimes resulting in a fatal accident.

The seriousness of a shock hazard widely varies depending on the amount and duration of the current that flows through the person's body. His constitution, age and medical condition are also variation factors, but in general, at a frequency of 50 or 60Hz, stimulus to the skin is felt at 1mA, considerable pain occurs at 5mA, pain is unbearable at 10mA, there is difficulty in releasing the "leaking" object because of intense muscle contraction at 20mA, it is considerably dangerous at 50mA and fatality is likely at 100mA. For the safety limit for a fatal current, which causes ventricular fibrillation, Professor Dalziel proposed the following equation from numbers of experiments on animals.

$$I = 165 \sqrt{t}$$

Where, I = current (mA) and t = time (sec).

From this theory, the maximum duration for a current of 165mA is 1 second.

Thermocouple

A device that uses the voltage developed by the junction of two dissimilar metals to measure temperature. One junction, called the measuring junction, is placed at the point where temperature is to be measured. The other junction, called the reference junction, is maintained at a reference temperature. The voltage developed between the two junctions varies depending on the difference between the temperatures of the two junctions and the type of thermocouple.

Kyoritsu Quality Control Concept

Kyoritsu started early an effort to establish system that ensures traceability to the national standards in order to produce reliable instruments as well as instruments that can assure reliability of other equipment and installations.

When traceability is in place, measurements taken with an instrument any time and anywhere in any situation can be related to the appropriate national measurement standards through a clear and unbroken chain of comparisons.

For example, in terms on measurement defined by JIS (Japanese Industrial Standards), traceability is specified as a condition in which a calibration path is established from instruments produced or in-house standards to higher level standards to the national standards. Kyoritsu currently has a system in place as shown in the figure below.

Without this system, Kyoritsu would have to have all instruments that it produces inspected at Japan Electric Meters

Inspection Corporation (JEMIC), who performs calibration based on the national standards established and maintained by Electrotechnical Laboratory (ETL). This would result in a considerable loss of time and cost, thus preventing efficient operation of the company.

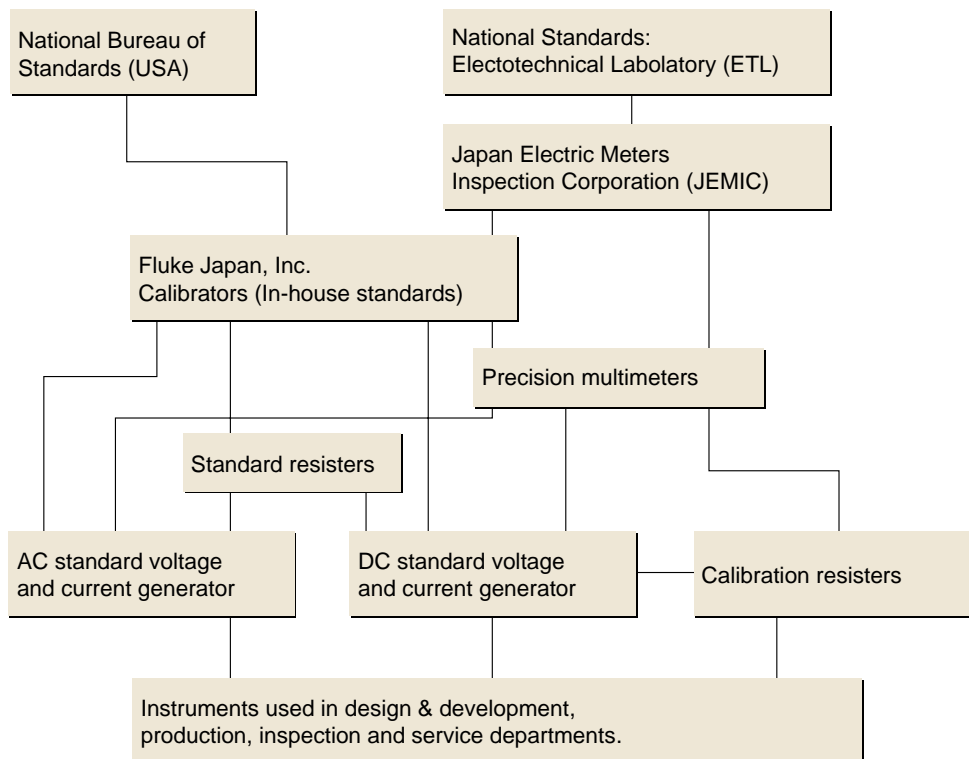
Therefore, only calibrators (in-house standards) are periodically calibrated at Fluke Japan, who maintains traceability to the above mentioned governmental bodies, and the calibrators are used to calibrate other in-house standards.

Voltage: Fluke 5100B calibrators are used as in-house DC and AC voltage standards.

Current: DC and AC standard current generators are calibrated with a precision digital multimeter calibrated with Fluke 5100B and standard resisters.

Resistance: Calibration resisters are calibrated with a DC standard current generator and the precision digital multimeter.

Calibration System for Electrical Measuring Instruments



CE Marking: signifies conformance to EMC directive (89/336/EEC, 92/31/EEC, 93/68/EEC) and Low Voltage directive (73/23/EEC, 93/68/EEC)

※The contents of this catalogue may be subject to change without notice.

DISTRIBUTOR



®

KYORITSU ELECTRICAL INSTRUMENTS WORKS, LTD.

No. 5-20 Nakane 2-chome, Meguro-ku,

Tokyo, 152-0031 Japan

Phone: 81-3-3723-0131

Fax: 81-3-3723-0152

URL: <http://www.kew-ltd.co.jp>

E-mail: info@kew-ltd.co.jp

Factories: Uwajima & Ehime

2002-07AD PRINTED IN JAPAN