

Insulation Testers Earth Testers

Insulation and Earth Testers

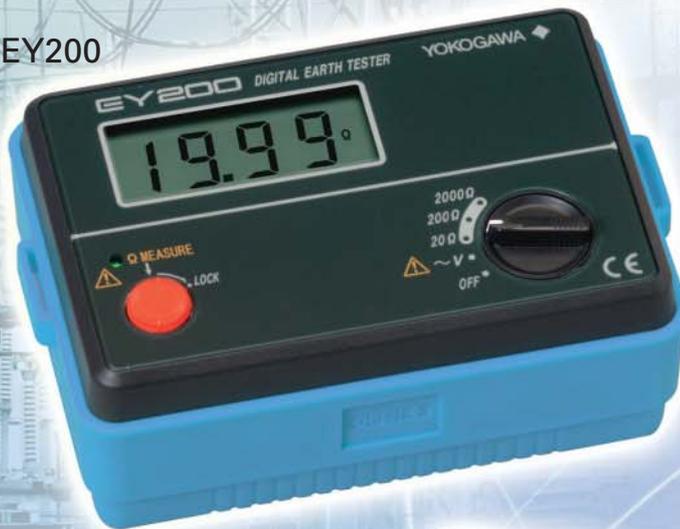
● Insulation Tester

- 3213A** Single range
- 2406E** 2 and 3 ranges
- MY10** Single range
- MY40** 4 ranges

● Earth Tester

- EY200** Digital
- 323511** Analog

EY200



MY40

What Is Insulation Resistance?

Insulation resistance represents the state of insulation of electric equipment or circuits. It is one of the important measurement parameters in terms of safety and security. Methods of examining the state of insulation include using a clamp-on leakage tester for live circuits. Under normal circumstances, however, such electric equipment or circuits are shut down temporarily and their insulation is tested with an insulation tester.

Classification of Applications

Applications are roughly classified into low-voltage, high-voltage and ultra-high-voltage circuits. The table below summarizes examples of using rated test voltages. A tester with the rated test voltage of 500 V or 100 V/250 V is used for low-voltage circuits.

Rated test voltage	General Electric Equipment	Electric Installations/Circuits
	Insulation testing at safe voltage levels	
25V 50V	Insulation testing of telephone network equipment and flame-proof equipment	Insulation testing of telephone line circuits
100 V 125 V	Insulation testing of control equipment	Insulation testing for maintaining low-voltage circuits or equipment handling levels lower than 100 V
250 V	Insulation testing of low-voltage circuits or equipment	Insulation testing for maintaining low-voltage circuits or equipment handling 200 V or lower levels lower than 100 V
500 V	Insulation testing of newly installed circuits or of circuits or equipment handling levels lower than 600 V (general equipment)	Insulation testing for maintaining low-voltage circuits or equipment handling levels lower than 600 V; insulation testing of circuits or equipment handling 100 V, 200 V, or 400 V levels upon completion of installation
1000 V	Insulation testing of circuits, equipment, or facilities handling levels higher than 600 V (general equipment)	Insulation testing of circuits or equipment handling constantly high operating voltages (e.g., high-tension cables, high-voltage electric equipment, and communications equipment and electric circuits handling high voltages)

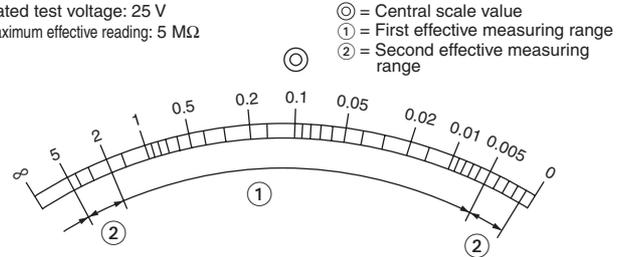
Test Methods for Low-voltage Circuits

Insulation resistance between cables of a low-voltage circuit and between the circuit and ground is tested for each circuit that can be separated by a switch or overcurrent breaker installed as specified by the electrotechnical equipment standards.

The low-voltage circuit is shut down by opening the switch and insulation between cables of the circuit and between the circuit and ground is tested. If the measured value is below the rated resistance, all shunt switches of a trunk line are opened and insulation is tested separately for each shunt circuit. The comparator function of the MY40 insulation tester allows for smooth judgment when checking the insulation of electric circuits.

Methods of Scaling the 1st and 2nd Effective Measuring Ranges of Moving-pointer Insulation Testers

Rated test voltage: 25 V
Maximum effective reading: 5 MΩ



Maximum effective reading:

The maximum reading that is indicated on the insulation tester and falls within the range with which the accuracy of the insulation tester is guaranteed.

Effective test range:

A test range or ranges, among those of the insulation tester, over which accuracy specified in the standards is guaranteed. In moving-pointer insulation testers, the range from a resistance value one-thousandth (1/1000) the maximum effective reading to the resistance value that is nearest to half (1/2) the maximum effective reading and equal to the maximum effective reading multiplied by 1, 2 or 5 or by any of these values multiplied by ten (10) raised to a whole-number power, shall be referred to as a first effective measuring range. In addition, the range from the upper limit of the first effective measuring range to the maximum effective reading and the range from the lower limit of the first effective measuring range to the zero (0) reading shall be referred to as second effective measuring ranges (see the figure above). In digital insulation testers, the first and second effective measuring ranges shall be those indicated on the insulation tester (Excerpt from JIS C1302-2002).

Insulation Testers

General Specifications

Display readings	Digital	Analog	
Applicable standard	JIS C 1302		
Model	MY40	3213A	MY10, 2406E
Effect of AC components	A change in the reading must not exceed $\pm 10\%$ when a resistance calculated from the rated measuring voltage and current is connected to the tester and a capacitance of 5 mF $\pm 10\%$ is connected in parallel across the resistance.		Same as to the left, except that the connected resistance has the central scale value.
Effect of temperature	A change in the reading at an ambient temperature of 23°C must not exceed $\pm 2\%$ at each of the maximum, minimum, and central scale values of the first effective measuring range when the temperature is changed from 23°C to 0°C or to 40°C.	A change in the reading at an ambient temperature of 23°C must not exceed $\pm 5\%$ at the central scale value and be no more than $\pm 0.7\%$ of the scale length at either the infinite scale value or the zero scale value when the temperature is changed from 23°C to 0°C or to 40°C.	A change in the reading must not exceed $\pm 5\%$ at the central scale value and be no more than $\pm 0.7\%$ of the scale length at either the infinite scale value or the zero scale value when the temperature is changed from 20°C to 0°C or to 40°C.
Effect of humidity	A change in the reading must be within the specified tolerance range when the tester is left to stand for one hour under a relative humidity of 90%.		
Effect of external magnetic field	A change in the reading must not exceed $\pm 3\%$ (analog) and be no more than $\pm 1.2\%$ (digital) at each of the maximum, minimum, and central scale values of the first effective measuring range when an external magnetic field of 400 A/m DC is applied to the direction where the effect thereof is the most significant.		Same as to the left, except that a change at the central scale value must be read.
Effect of inclination		A change in the infinite scale value (∞) must not exceed $\pm 2\%$ of the scale length when the tester is inclined 90° forward or backward and leftward or rightward from the horizontal position. Also, a change in the reading must not exceed $\pm 15\%$ at each of the maximum, minimum, and central scale values of	A change in the infinite scale value (∞) must not exceed $\pm 2\%$ of the scale length when the tester is inclined 30° forward or backward and leftward or rightward from the horizontal position.
Effect of external voltage application	No damage should be present when a 50 Hz or 60 Hz AC voltage with an amplitude 1.2 times the rated test range is applied across the test terminals for 10 seconds each time the tester switch is turned ON and OFF. Nor should the user be subjected to any danger.		Same as to the left, except that the voltage is applied for 10 seconds with the tester switch turned OFF.
Effect of vibration	No structural damage should be present and a change in the reading must be within the specified tolerance after applying a vibration frequency of 25 Hz and a displacement amplitude width of 1 mm for 20 minutes to each of three axis directions.		No mechanical or electrical damage should be present and the rating within the specified tolerance must be satisfied after applying a vibration frequency of 16.7 Hz and a double amplitude of 4 mm for one hour to each of three axis directions.
Effect of shock	No structural damage should be present and a change in the reading must be within the specified tolerance after directly and reversely applying 1000 m/s ² , 6 ms half sine-wave shocks to the three axis directions three times each (i.e., 18 times in total).		The rating within the specified tolerance must be satisfied after applying a shock of 1000 m/s ² to each of three directions twice each.
Operating temperature/humidity range	0°C to 40°C/90% RH maximum (no condensation)		
Storage temperature/humidity range	-10°C to 60°C/70% RH maximum (no condensation – batteries should be removed)		

Points on How to Choose an Insulation Tester

1

Type

Two choices:
Choose an analog model if visual recognition is of utmost importance, or a digital model if precise numeric recognition is of utmost importance.

2

Ratings

A wide choice of voltage/resistance ratings, from 25 V/5 MΩ to 1000 V/2000 MΩ
Some models have two or three ranges; thus, you need not take more than one instrument to the site.

3

Functionality

Each series includes a model or models with a backlight for working in dark places. Multi-functional models capable of, for example, AC voltage measurement, are also available.

4

Accessories

Optional test probes and probe tips are available for a variety of test environments.

Selection Guide (Insulation Tester & Earth Tester)

Type	Series/Model	Suffix Code & Backlight	Rating	AC Voltage Measuring range	Display	Additional Function	External View	Page			
Digital insulation testers	4 ranges	MY40 *	01 (EL-illuminated)	125V/200MΩ 250V/200MΩ 500V/2000MΩ 1000V/2000MΩ	0-600V	3 1/2-digit LCD	Automatic discharge Conductor resistance measurement Comparator function Memory function		P.3		
Analog insulation testers	2 & 3 ranges	2406E CE	31 (N/A)	25V/5MΩ	0-300V	Analog	Automatic discharge Battery check		P.4		
			41 (EL-illuminated)	50V/10MΩ 125V/20MΩ							
			32 (N/A)	125V/20MΩ	0-300V						
			42 (EL-illuminated)	250V/50MΩ							
			33 (N/A)	125V/20MΩ	0-600V						
			43 (EL-illuminated)	250V/50MΩ 500V/100MΩ							
			34 (N/A)	250V/50MΩ	0-600V						
			44 (EL-illuminated)	500V/100MΩ 1000V/2000MΩ							
	35 (N/A)	250V/500MΩ	0-600V								
	45 (EL-illuminated)	500V/1000MΩ 1000V/2000MΩ									
	Single range	MY10	01 (afterglow-illuminated)	125V/20MΩ	0-250V	Analog	Automatic discharge Battery check				P.5
			02 (afterglow-illuminated)	250V/50MΩ	0-300V						
			03 (afterglow-illuminated)	500V/100MΩ	0-500V						
04 (afterglow-illuminated)			500V/1000MΩ	0-500V							
05 (afterglow-illuminated)			1000V/2000MΩ	0-500V							
Single range	3213A *	41 (N/A)	100V/20MΩ	0-150V	Analog	Battery check		P.5			
		42 (N/A)	250V/50MΩ	0-250V							
		43 (N/A)	500V/100MΩ	0-300V							
		44 (N/A)	500V/1000MΩ	0-300V							
		45 (N/A)	1000V/2000MΩ	0-300V							
Type	Series/Model	Suffix Code & Backlight	Rating	AC Voltage Measuring range	Display	Additional Function	External View	Page			
Earth Testers	EY200 CE		0-2000Ω	Earth Voltage 0-200V	3 1/2-digit LCD			P.6			
	323511 *		0-1000Ω	Earth Voltage 0-30V	Analog			P.6			

* JIS mark has changed from 2008

MY40 Digital Insulation Tester

MY40 SERIES



- **Digital model with 4 voltage/resistance ratings**
- **Multifunction**
Insulation resistance, AC voltage and conductor resistance measurement
Insulation test mode: Comparator, memory, auto-hold and discharge functions
All test modes: Live-line alarm (excluding AC voltage measurement), battery check and automatic power-off
- **Easy-to-view, fluctuation-free display**
- **Double-action safety mechanism**



Protection against inadvertent setting of rotary switch to 1000 V rating

Testing Performance Specifications

Model	Rating	Range Option	Resolution	Measuring Range	Tolerance	Lower Limit of measured Ω	Rated Current	Central Scale Value
MY40 -01	125V/200M Ω	.4000	.1k Ω	0–0.199M Ω	\pm (5% of rdg+6dgt)	0.125M Ω	1mA	5M Ω
		4.000	1k Ω	.0200–10.00M Ω *	\pm (2% of rdg+6dgt)			
		40.00	10k Ω	10.01–200.0M Ω	\pm 5% of rdg			
		200.0	100k Ω					
	250V/200M Ω	.4000	.1k Ω	0–0.499M Ω	\pm (5% of rdg+6dgt)	0.25M Ω	1mA	5M Ω
		4.000	1k Ω	.0500–20.00M Ω *	\pm (2% of rdg+6dgt)			
		40.00	10k Ω	20.01–200.0M Ω	\pm 5% of rdg			
		200.0	100k Ω					
	500V/2000M Ω	4.000	1k Ω	0–0.999M Ω	\pm (5% of rdg+6dgt)	0.5M Ω	1mA	50M Ω
		40.00	10k Ω	1.000–500M Ω *	\pm (2% of rdg+6dgt)			
		400.0	100k Ω	501–2000M Ω	\pm 5% of rdg			
		2000	1M Ω					
1000V/2000M Ω	4.000	1k Ω	0–1.999M Ω	\pm (5% of rdg+6dgt)	2M Ω	0.5mA	50M Ω	
	40.00	10k Ω	2.000–1000M Ω *	\pm (2% of rdg+6dgt)				
	400.0	100k Ω	1001–2000M Ω	\pm 5% of rdg				
	2000	1M Ω						

* First effective measuring range; ** The minimum value at which the rated voltage can be maintained

Standard test conditions

Ambient temperature/humidity ranges: 23 \pm 5 $^{\circ}$ C/45–75% RH

Tolerances under the above-mentioned conditions:

Deviation from zero scale value: 6 digits maximum

Indication of ∞ mark on bar graph: Approx. 4000 M Ω min. (500 V/1000 V)
Approx. 400 M Ω min. (125 V/250 V)

Open circuit voltage: 130% max. of rated voltage

Rated measuring current: 1 mA (0 to 20%) when in first effective measuring range
Short-circuit Current: 2 mA max.

AC voltage measurement (45–400 Hz)

Model	Range	Resolution	Accuracy	Input Impedance
MY40-01	600V	1V	\pm (2% of rdg + 6dgt)	Approx. 2 M Ω

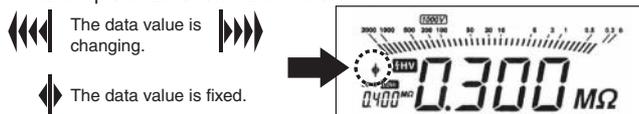
Conductor resistance measurement

Model	Range	Resolution	Accuracy	Open-circuit Voltage
MY40-01	400 Ω	0.1 Ω	\pm (2% of rdg + 8dgt)	Buzzer sound resistance: <40 Ω

General Specifications

Display: 3 1/2-digit LCD; 4000 count; backlight-illuminated; logarithmic bar graph; extension bar graph—no fluctuations, as the display shows the digits of a reading in the order in which each digit settles.

Example of Extension Bar Indicator View



Comparator function: The MY40 alerts you by turning on the LOW symbol and sounding the buzzer if the measured value is smaller than the reference value. You can allocate as many as three user-defined reference values to each rating. The factory-set defaults are 0.1 M Ω , 0.2 M Ω and 0.4 M Ω .

Memory function: For each rating, you can save as many as 20 measurements at desired memory address numbers.

Automatic discharge function: The MY40 automatically begins discharge when you turn off the MEAS switch. You can monitor the state of discharge by checking the bar graph and make sure discharge is complete by checking that the segment bar disappear.

High-voltage indicators: The high-voltage symbol and LED lamp come on to alert you when the MY40 is in insulation testing mode or if any voltage remains to be discharged.

Live-line alarm: If you apply an AC voltage of approximately 40 V or higher across the input terminals, the MY40 alerts you by blinking the LED lamp and sounding the buzzer.

Overrange input alarm: If the voltage being measured exceeds 600 V during AC voltage measurement, the MY40 alerts you by flashing the Maximum Value indicator and sounding the buzzer.

Auto-hold function: The tester retains the measured resistance for approximately 5 seconds after the MEAS switch is turned off.

Dimensions: 125 (W) \times 103 (H) \times 53 (D) (mm), excluding protrusions

Weight: 420 g (main unit and batteries only, excluding accessories)

Batteries: Four AA (R6P) batteries

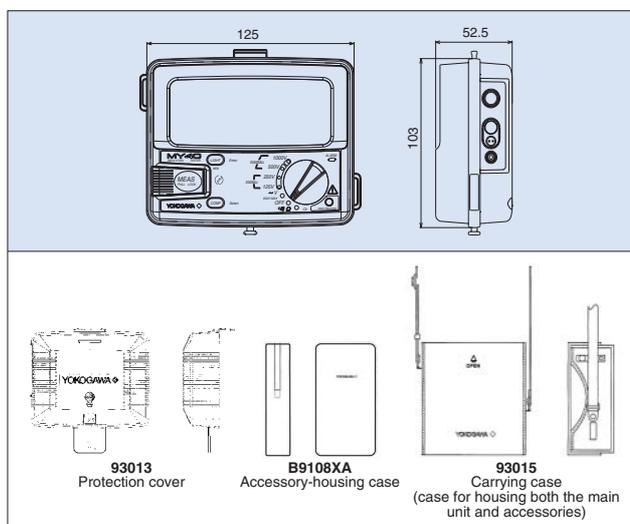
Note: See the list of accessories on the backside of this bulletin for more information on accessories.

Standard Accessories

Product	Part Number	Qty
Protection cover	93013	1
Shoulder strap	99005	1
Line probe	98001	1
Earth probe	98002	1
User's manual	—	1
Batteries	—	4

External Dimensions

Unit: mm



2406E Series of Analog Insulation Testers

2406E SERIES



240631 240632 240633 240634 240635 240641
240642 240643 240644 240645

- Analog models with two and three ratings
- AC voltage measurement
- Automatic discharge
- Sky blue EL backlight

Testing Performance Specifications

Model	Suffix Code	Rating	Effective Measuring range	Central Scale Value	AC Voltage Measuring range	Lower limit of measured Ω	Rated Current
240631	-E	25V/5MΩ	0.001-5MΩ	0.1MΩ	0-300V	0.025MΩ	1mA
240641	-E	50V/10MΩ	0.005-10MΩ	0.2MΩ		0.05MΩ	1mA
		125V/20MΩ	0.01-20MΩ	0.5MΩ		0.125MΩ	1mA
240632	-E	125V/20MΩ	0.01-20MΩ	0.5MΩ	0-300V	0.125MΩ	1mA
240642	-E	250V/50MΩ	0.01-50MΩ	1MΩ		0.25MΩ	1mA
240633	-E	125V/20MΩ	0.01-20MΩ	0.5MΩ	0-600V	0.125MΩ	1mA
240643	-E	250V/50MΩ	0.01-50MΩ	1MΩ		0.25MΩ	1mA
		500V/100MΩ	0.05-100MΩ	2MΩ		0.5MΩ	1mA
240634	-E	250V/50MΩ	0.01-50MΩ	1MΩ	0-600V	0.25MΩ	1mA
240644	-E	500V/100MΩ	0.05-100MΩ	2MΩ		0.5MΩ	1mA
		1000V/2000MΩ	1-2000MΩ	50MΩ		1MΩ	1mA**
240635	-E	250V/500MΩ	0.1-500MΩ	10MΩ	0-600V	0.25MΩ	1mA**
240645	-E	500V/1000MΩ	0.5-1000MΩ	20MΩ		0.5MΩ	1mA**
		1000V/2000MΩ	1-2000MΩ	50MΩ		1MΩ	1mA**

EL-backlit Non-backlit * The minimum value at which the rated voltage can be maintained;
** 0.55 mA in the case of the first effective measuring range

Standard test conditions:

Ambient temperature/humidity ranges: 23 ±5°C/45-75% RH
Position of use: Horizontal (5° max. of angle of inclination)

External magnetic fields: None

Battery voltage: Within effective voltage range
(The pointer must stay within the range indicated by the BAT symbol when the battery check is performed.)

Tolerances under the above-mentioned conditions:

Resistance measurement: First effective measuring range = ±5% of reading

Second effective measuring range = ±10% of reading

Infinite and zero scale values: 0.7% max. of scale length

AC voltage: ±10% of maximum scale value

No-load voltage: 130% max. of rated voltage

Rated measuring current: 1 mA (0 to 20%) when in first effective measuring range

Short-circuit current: 12 mA max.

General Specifications

Scale length: Approx. 86 mm (outer scale)

Discharge function: The tester automatically begins discharge when you turn off the MEAS switch. The pointer swings if there is any residual voltage in the circuit under test. You can make sure discharge is complete by checking that the pointer swings back to the infinite (∞) scale value. Under this condition, the tester is ready to enter voltage measurement mode.

AC voltage measurement: AC voltage measurement is possible wherever the rotary switch is positioned.

Dimensions (main unit): Approx. 120 (W) × 110 (H) × 60 (D) (mm)

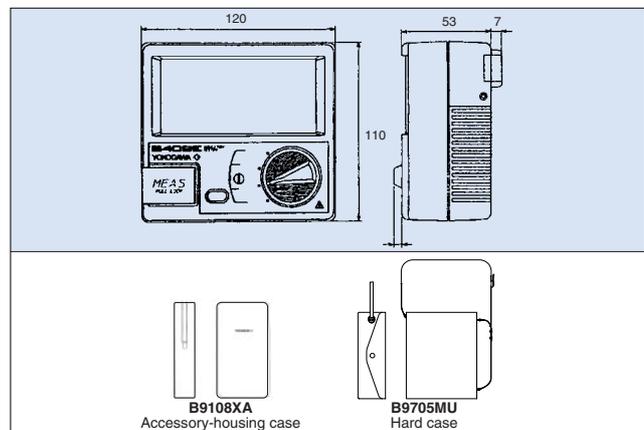
Weight: Approx. 500 g (including batteries)

Batteries: Six AA (R6P) batteries

Accessories: See the list of accessories on the backside of this bulletin for information on accessories.

External Dimensions

Unit: mm



Standard Accessories

Product	Part Number	Qty	Remarks
Earth and Line probes	98007	1	Earth probe(blake);approx. 1m long Line probe(vermilion);approx. 1m long
Carrying case	B9705MU	1	w/probe-housing pocket and neck strap
User's manual	-	1	-
Batteries	-	6	-

MY10 Series of Analog Insulation Testers

MY10
SERIES



- **Analog models with single rating**
MY10-01:125V/20MΩ
MY10-02:250V/50MΩ
MY10-03:500V/100MΩ
MY10-04:500V/1000MΩ
MY10-05:1000V/2000MΩ
- **AC voltage measurement**
- **Automatic discharge**
- **A wide choice of accessories**
–Designed for shared use with the MY40

Testing Performance Specifications

Model	Rating	Effective Measuring Range	Central Scale Value	AC Voltage Measuring Range	Lower Limit of Measured Ω*	Rated Current
MY10-01	125V/20MΩ	0.01–20MΩ	0.5MΩ	0–250V	0.125MΩ	1–1.2mA
MY10-02	250V/50MΩ	0.01–50MΩ	1MΩ	0–300V	0.25MΩ	1–1.2mA
MY10-03	500V/100MΩ	0.05–100MΩ	2MΩ	0–500V	0.5MΩ	1–1.2mA
MY10-04	500V/1000MΩ	0.5–1000MΩ	20MΩ	0–500V	1MΩ	0.5–0.6mA
MY10-05	1000V/2000MΩ	1–2000MΩ	50MΩ	0–500V	2MΩ	0.5–0.6mA

* The minimum value at which the rated voltage can be maintained

Standard test conditions:

Ambient temperature/humidity ranges:
23 ±5°C/45-75% RH

Position of use:

Horizontal (5° max. of angle of inclination)

Effect of geomagnetism: None

Battery voltage: Within effective voltage range

(The pointer must stay within the range indicated by the BAT symbol when the battery check is performed.)

Tolerances under the above-mentioned conditions:

Resistance measurement:

First effective measuring range = ±5% of reading

Second effective measuring range = ±10% of reading

Infinite and zero scale values: 0.7% max. of scale length

AC voltage: ±10% of maximum scale value

No-load voltage: 130% max. of rated voltage

Rated measuring current:

1 mA (0 to 20%) when in first effective measuring range

Short-circuit current: 12 mA max.

Standard Accessories

Product	Part Number	Qty
Protection cover	93013	1
Shoulder strap	99005	1
Line probe	98001	1
Earth probe	98002	1
User's manual	–	1
Batteries	–	4

General Specifications

Scale length: Approx. 78 mm

Battery life: Approx. 10 hours when continuously operated on manganese-oxide batteries with the pointer pointing to the central scale value.

Batteries: Four AA(R6P) batteries

Dimensions: Approx. 125(w) × 103(H) × 53(D) mm, excluding protrusions

Weight: Approx. 400 g (main unit and batteries only, excluding accessories)

Compliance: EN61010-1, EN61010-31 (over voltage category III, pollution Degree2 installations for indoor use).

3213A Series of Analog Insulation Testers

3213A
SERIES



- **Analog models with single rating**
- **AC voltage measurement and check live lines such as motive power lines**
- **One-touch operation Press-and-lock switch for continuous measurement**
- **A wide choice of accessories to meet various testing requirements**
- **Vibration- and shock-resistant hand-held compact testers**

Testing Performance Specifications

Model	Rating	Effective Measuring Range	Central Scale Value	AC Voltage Measuring Range	Lower Limit of measured Ω	Rated Current
321341	100V/20MΩ	0.02–20MΩ	0.5MΩ	0–150V	0.1MΩ	1mA
321342	250V/50MΩ	0.05–50MΩ	1MΩ	0–250V	0.25MΩ	1mA
321343	500V/100MΩ	0.1–100MΩ	2MΩ	0–300V	0.5MΩ	1mA
321344	500V/1000MΩ	1–1000MΩ	20MΩ	0–300V	0.5MΩ	1mA**
321345	1000V/2000MΩ	2–2000MΩ	50MΩ	0–300V	1MΩ	1mA**

* The minimum value at which the rated voltage can be maintained; ** 0.55 mA in the case of the first effective measuring range

Standard test conditions:

Ambient temperature/humidity ranges:
23 ±5°C/45-75% RH

Position of use:

Horizontal (5° max. of angle of inclination)

Effect of geomagnetism: None

Battery voltage: Within effective voltage range

(The pointer must stay within the range indicated by the BAT symbol when the battery check is performed.)

Tolerances under the above-mentioned conditions:

Resistance measurement:

First effective measuring range = ±5% of reading

Second effective measuring range = ±10% of reading

Infinite and zero scale values: 0.7% max. of scale length

AC voltage: ±10% of maximum scale value

Open circuit voltage: 130% max. of rated voltage

Rated measuring current:

1 mA (0 to 20%) when in first effective measuring range

Short-circuit current: 12 mA max.

General Specifications

Scale length: Approx. 88 mm

Dimensions (main unit): Approx. 180 (W) × 110 (H) × 60 (D) (mm)

Weight: Approx. 700 g including batteries, or approx. 1.2 kg including hard case, handle, test leads and batteries

Batteries: Eight AA (R6P) batteries

Accessories: See the list of accessories on the backside of this bulletin for information on accessories such as probes with a switch.

Standard Accessories

Product	Part Number	Qty
Test lead	98050	1 (consist of earth/line terminal)
Hard case	B9600HA	1 (w/leads-housing case)
Handle	B9303XE	1
User's manual	–	1
Batteries	–	8

Digital Earth Tester EY200

Specifications



• Model Code

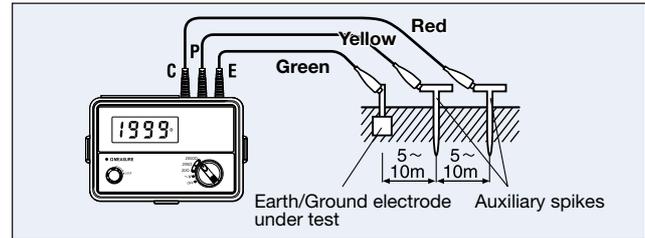
Name	Model
Digital Earth Tester	EY200

• EY200 General Specifications

Name	Model
Display	LCD Digital Display: 1999-count digital reading
Measuring Range	Earth Resistance: 2000Ω LSD: 0.01 to 1Ω Earth Voltage: 200V
Accuracy	Earth Resistance: 20Ω range: $\pm 2\% \text{rdg} \pm 0.1\Omega$ 200Ω range: $\pm 2\% \text{rdg} \pm 3 \text{dgt}$ 2000Ω range: $\pm 2\% \text{rdg} \pm 3 \text{dgt}$ Earth Voltage: $\pm 1\% \text{rdg} \pm 4 \text{dgt}$
Measuring Frequency	Approx. 820Hz
Measuring Current	Approx. 3mA (at 20Ω range)
Battery Life	Approx. 4.5 hours (at 5 second measuring 3300 times)
Operating Temp. and Humidity	0~40°C, 85%Rh or less
Dimensions	Approx. 105×158×70mm
Weight	Approx. 550g
Standard Accessories	3-pole Test Lead (Model 98074), Earth Spikes (for EY200) (Model 98070), 2-pole Test Lead Set (Model 98075), Soft Case (Model 93041), Shoulder Belt (for EY200) (Model 99018), Six AA (R6) dry cells, User's manual

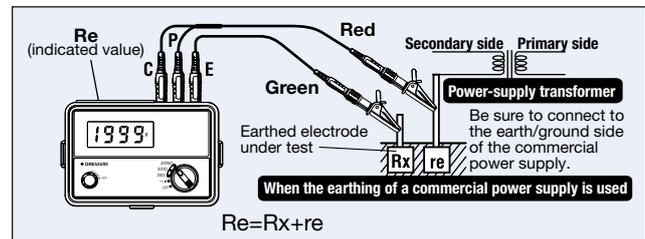
3-pole earth resistance measurement (precise measurement)

Connect the earth/ground electrode (E) and auxiliary spikes (P, C) to the main body using the accessory test lead. Put apart 5 to 10 m between E and P, and P and C, respectively. E, P, and C should be approximately in a line.



2-pole earth resistance measurement (simplified measurement)

A simplified 2-pole measuring method can be used if there is an almost perfectly earth/ground object such as a lead or iron water-pipe (plastic pipes cannot be used) or if there is an object with a known value of earth resistance, near the measurement site.



Analog Earth Tester

323511 SERIES



- 3 terminal measurement of earth resistance
- Accurate, wide-range logarithmic scale
- AC potentiometer bridge, synchronous detector
- Portable yet rugged and shockproof

General Specifications

Measuring Range:

Earth Resistance: 0 to 10 to 100 to 1,000 Ω
Earth Voltage: 0 to 30 V

Scale:

Earth Resistance: 3-digit logarithmic continuous scale on measuring dial
Earth Voltage: Uniform scale on galvanometer

Accuracy:

Earth Resistance: $\pm 5\%$ of 2 Ω in the range of 0 to 2 Ω
 $\pm 2.5\%$ of 20 Ω in the range of 2 to 20 Ω
 $\pm 2.5\%$ of 200 Ω in the range of 20 to 200 Ω
 $\pm 5\%$ of 1,000 Ω in the range of 200 to 1,000 Ω
Earth Voltage: $\pm 5\%$ of full scale value

Measuring Frequency: 500 Hz

Ambient Temperature Influence: Variation in indication is within the corresponding one scale division for temperature change by $20 \pm 20^\circ\text{C}$.

Battery Voltage Influence: The accuracy is maintained within the specified limit even if the voltage decreases down to approx. 4 V under operating condition.

Earth Voltage Influence: Variation in indication is within the corresponding one scale division for the earth voltages of up to 10 V at commercial frequency.

Power Source: Four 1.5 V batteries

Insulation Resistance: More than 20 MΩ at 500 V DC between terminals and case

Dimensions: Approx. 122 × 190 × 124 mm not including accessories.

Weight: Approx. 1.5 kg for Instrument only.
Approx. 3.5 kg including all accessories.

