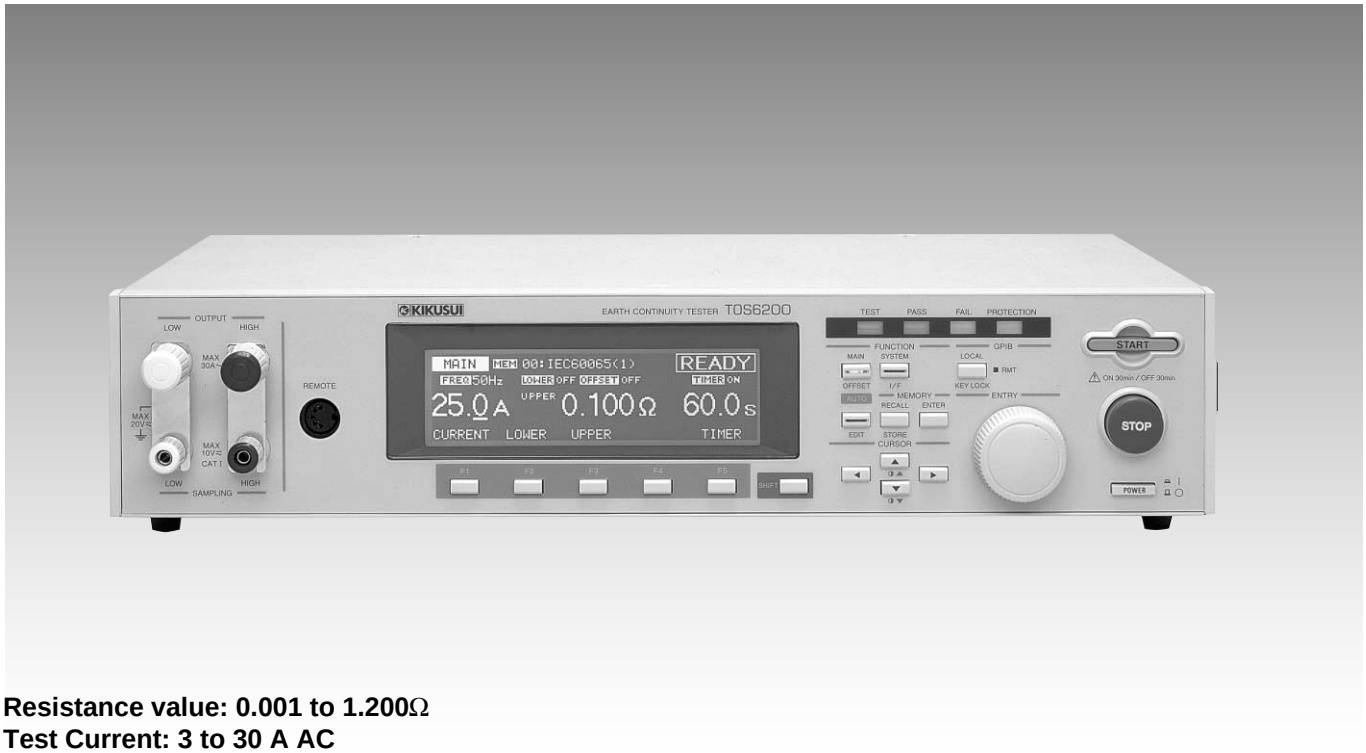
TOS6200

Earth Continuity Tester



Resistance value: 0.001 to 1.200Ω
Test Current: 3 to 30 A AC
Stores 100 test conditions in memory
Incorporates conditions into program

Outline

The TOS6200 tester is designed to perform the earth continuity tests required for class-I devices by safety standards such as IEC, EN, VDE, BS, UL, JIS, and the Electrical Appliance and Material Control Law of Japan.

Equipped with a new high-efficiency power supply, it is compact and lightweight, about half the size and weight of our conventional products, while achieving a large output of 150 VA.

Use of the constant current method eliminates the need to reset test currents even in the face of fluctuating resistance values for the device being tested. The test duration can also be set from 0.3 s, making the tester suitable for production line testing, which requires reduced cycle time.

This tester is also designed for ease of use, featuring a large, easy-to-read display, memory capacity for storage of 100 types of test conditions, and incorporation of test conditions into programs to enable automatic testing. Standard GPIB and RS-232C interfaces allow the user to use PCs or other devices to control test conditions such as test current, resistance value for judgement, and test duration, and enables read-back of measured values and test results.

The tester is also provided with test leads as standard and provides high cost effectiveness.

Features

❑ Making a test current constant
A test current for earth continuity testing has been made constant. Thus, the test current does not need to be reset even in the face of fluctuating resistance values for the device being tested.

❑ High accuracy
The tester is equipped with an ammeter of ±(1% of reading + 0.2 A), a voltmeter of ±(1% of reading + 0.02 V), and an ohmmeter of ±(2% of reading + 0.003 Ω) that calculate resistance values based on measured current and voltage.

❑ Offset canceling function
The tester is provided with an offset canceling function that cancels resistance values, such as the contact resistance at alligator-clip and the resistance of measurement leads when in two terminals testing method is used.

❑ Provided with a contact check function
The tester has a contact check function that identifies the connection of the device being tested (by current detection) before testing.

❑ Memo function
The tester has a memo function with a capacity of 60 characters of 20 digits by 3 lines. You can use it to save a serial number, calibration date, and/or comments.

❑ Equipped with standard GPIB and RS-232C interfaces
The tester comes with standard GPIB and RS-232C interfaces, allowing external control of test conditions such as test current, judgement resistance value, and test duration. It also permits read-back of measured values and test results.

Specifications

■ Output block
- Current setting range (*1): 3.0 to 30.0 A AC (With respect to resistance resulting in output power of the maximum rated Output or less and an output terminal voltage of 5.4 V or less)
  - Resolution: 0.1A
  - Accuracy: ± (1% of setting + 0.2A)
- Maximum rated output: 150 VA (at the output terminals)
- Distortion factor: 2% or less (with respect to 0.1 Ω pure resistance load of 10 A or greater)
- Frequency: 50/60 Hz, sine wave (selectable)
  - Accuracy: ±200ppm
- Open terminal voltage: 6 Vrms or less
- Output method: PWM switching method

■ Output ammeter
- Measurement range: 0.0 to 33.0 A AC
- Resolution: 0.1A
- Accuracy: ± (1% of reading + 0.2A)
- Response: Mean value response/rms value display (response time: 200 ms)
- Holding function: The current measured at the end of test is held during the PASS or FAIL inteval

■ Output voltmeter
- Measurement range: 0.00 to 6.00 V AC
- Resolution: 0.01V
- Accuracy: ± (1% of reading + 0.02A)
- Response: Mean value response/rms value display (response time: 200 ms)
- Holding function: The voltage measured at the end of test is held during the PASS or FAIL inteval

■ Ohmmeter
- Measurement range: 0.001 to 1.200 Ω
- Resolution: 0.001 Ω
- Offset cancel function: 0.000 to 1.200 Ω (Offset ON/OFF function provided)
- Accuracy: ± (2% of reading + 0.003 Ω)
- Holding function: The resistance measured at the end of test is held during the PASS or FAIL inteval

■ Pass/fail judgement function
- Judgement system: Window comparator system
  - If a resistance value equal to or greater than the upper reference value is detected, a FAIL determination is returned.
  - If a resistance value equal to or less than the lower reference value is detected, a FAIL determination is returned.
  - If a resistance value has been judged as FAIL, the tester shuts off the output and generates a FAIL signal.
  - If the set time elapses without abnormalities, the tester shuts off the output and generates a PASS signal.
- Setting range for the upper reference value (UPPER): 0.001 to 1.200 Ω
- Setting range for the lower reference value (LOWER): 0.001 to 1.200 Ω
- Judgement accuracy: ± (2% of UPPER + 0.003 Ω)
- Calibration: Calibration is performed with the rms value of the sine wave, using a pure resistance load.
- LED
  - PASS: Lights for approximately 0.2 sec when the measured value has been judged as PASS. It is lit continuously when the PASS holding time is set to HOLD.
  - UPPER FAIL: Lights if a resistance value equal to or greater than the upper reference value is detected and judged FAIL.
  - LOWER FAIL: Lights if the resistance value equal to or less than the lower reference value is detected and judged FAIL.
- Buzzer
  - The buzzer sounds for approximately 0.2 sec if the measured value has been judged as PASS.
  - The buzzer sounds continuously under the following condition:
    The measured value has been judged as PASS when the PASS holding time is set to HOLD.
    The measured value has been judged as UPPER FAIL.
    The measured value has been judged as LOWER FAIL.

  The buzzer volume for FAIL or PASS judgment are adjustable. Note that it cannot be adjusted individually since setting is shared with the setting for PASS.

■ Time
- Test time
  - Setting range: 0.3 to 999 s Timer ON/OFF function is available.
  - Accuracy: ± (100ppm of setting + 20ms)

■ Environment
- Installation: Indoors and the altitude is less than 2,000 m
- Warranty range
  - Temperature: 5° to 35°C
  - Humidity: 20% to 80% R.H (non condensing)
- Operating range
  - Temperature: 0° to 40°C
  - Humidity: 20% to 80% R.H (non condensing)
- Storage range
  - Temperature: -20° to 70°C
  - Humidity: 90% or less R.H (non condensing)

■ Power requirement
- Allowable voltage range: 100 V model : 85 to 132 V AC
  100 V/200 V model : 85 to 132 V AC/170 to 250 V AC
- Power consumption
  - At no load (READY): 100 V model : 70 VA or less
    100 V/200 V model : 45 VA or less
  - At rated load: 100 V model : 450 VA max.
    100 V/200 V model : 330 VA max.
- Allowable frequency range: 45 Hz to 65 Hz

■ Insulation resistance: 30MΩ min. (500 V dc), between AC line and chassis

■ Withstanding voltage: 1350 V AC (1 second), between AC line and chassis

■ Earth continuity: 25 A AC/0.1 Ω max.

■ Physical dimensions (maximum)
430(450)W × 88(140)H × 270(345)Dmm

■ Weight: Approx. 9kg

■ Accessories
- AC power cord: 1 piece
- Test leadwire TL11-TOS: 1 set
- Short bar: 2 pieces (These are inserted between the OUTPUT and SAMPLING terminals.)
- AC power fuse: 2 pieces (2, including one spare in the fuse holder)
- Operation manual: 1 copy

*1: Time limitation with respect to output
The heat-radiation capacity at the tester's output section is designed to be half that of rated output, taking into account the size, weight, cost, and other factors. The tester should be used within the limitations provided below.
Use of the tester in circumstances exceeding this limitation may cause sharp increases in the output section temperature, which may in turn trip the internal protection circuit.

Output time limitation			
Ambient temperature t (°C)	Test current I (A)	Quiescent time	Maximum test duration
t ≤ 40°	15 < I ≤ 30	Equal to or greater than test duration	30 minutes or less
	I ≤ 15	Not required	Continuous output possibl

