

# **S1-554/2 and S1-1054/2**

## **5 kV and 10 kV Insulation Resistance Testers**



- **CAT IV 600 V**
- **Mains or battery powered**
- **Digital/analogue backlit display**
- **Variable test voltage from 50 to 5000 or 10,000 V**
- **Automatic IR, PI, DAR, SV and DD tests**
- **Measures to 15 TΩ (5 kV) and 35 TΩ (10 kV)**
- **Charge current: 5 mA**
- **4 mA noise rejection and software filtering**
- **RS232 and USB download of results to Megger Download Manager**
- **On board memory for results storage**

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### **DESCRIPTION**

The new 5 & 10 kV insulation resistance testers from Megger are designed specifically to assist you with the testing and maintenance of high voltage electrical equipment. IEEE 43-2000 recommends the use of 10 kV for motor windings rated above 12 kV and the Megger S1-1054/2 facilitates this. The case is incredibly rugged and easy to carry, being made of tough polypropylene and achieving an ingress protection rating of IP65. In addition, the model number is marked on both sides of the case for ease of identification in stores or vehicles.

The instruments have a large easy to read backlit LCD display making it equally suitable for use in both bright sunlight and poorly lit environments. Information displayed includes resistance, voltage, leakage current, capacitance, battery status and time constant. In addition, the elapsed time of the test is displayed constantly, removing the need for separate timers. Adjustable timers and limit alarms are included.

The instrument can test when being powered by the mains or its internal rechargeable battery, a great benefit when site conditions are unknown or long term testing is required.

The controls of the instrument are clear and unambiguous and a "quick start" guide is included in the lid of the instrument removing the need to carry bulky manuals under site conditions.

The instrument is fitted with a guard terminal to enhance accuracy. The guard test lead is included as standard with the instrument.

To further enhance the flexibility of the instruments both have the facility to set the test voltage in steps from 50 V to the maximum output voltage avoiding the expense of several insulation resistance testers to meet your application needs.

These IR instruments are designed to meet the highest safety standards and meets the requirements of EN61010. In addition, the instrument measures the voltage at the terminals and if this is above 50 V then the instrument will display the high voltage warning and inhibit testing. At the end of the test the instrument will automatically discharge the energy transferred to the equipment during the test phase.

These instruments are designed to cope with the highest demands of insulation resistance measurement, providing an industry leading 5 mA of charge current, and also extremely high noise immunity, making them ideal for use in switch yards. In addition, user selectable filtering software allows long period interference to be cancelled out.

The S1-554/2 and S1-1054/2 are equally suited to routine testing and diagnostic regimes being pre-programmed with IR, PI, DAR, SV and DD profiles.

**SPECIFICATIONS****Voltage input range**

85-265 V rms 50/60Hz, 60 VA

**S1-554/2 battery life**

Typical capacity is 6 hours continuous testing at 5 kV with a 100 M $\Omega$  load

**S1-1054/2 battery life**

Typical capacity is 4 hours continuous testing at 10 kV with a 100 M $\Omega$  load

**S1-554/2 test voltages**

50 V to 1 kV in 10 V steps, 1 kV to 5 kV in 25 V steps

**S1-1054/2 test voltages**

50 V to 1 kV in 10 V steps, 1 kV to 10 kV in 25 V steps

**S1-554/2 Accuracy (23°C, 5 kV)**

$\pm 5\%$  to 1 T $\Omega$   
 $\pm 20\%$  to 10 T $\Omega$

**S1-1054/2 Accuracy (23°C, 10 kV)**

$\pm 5\%$  to 2 T $\Omega$   
 $\pm 20\%$  to 20 T $\Omega$

**Guard**

2% error guarding 500 k $\Omega$  leakage with 100 M $\Omega$  load

**Display range**

Digital display (3 digit) 10 k $\Omega$  to 15 T $\Omega$  (S1-554/2)  
to 35 T $\Omega$  (S1-1054/2)  
Analogue display 100 k $\Omega$  to 1 T $\Omega$

**Short circuit/charge current**

5 mA @ 5 kV (S1-554/2) or 10 kV (S1-1054/2)

**S1-554/2 Capacitor charge time**

<1.5 seconds per  $\mu$ F at 5mA to 5 kV

**S1-1054/2 Capacitor charge time**

<3 seconds per  $\mu$ F at 5mA to 10 kV

**S1-554/2 capacitor discharge time**

<120 ms per  $\mu$ F to discharge from 5000 V to 50 V

**S1-1054/2 capacitor discharge time**

<250 ms per  $\mu$ F to discharge from 10000 V to 50 V

**Capacitance measurement (above 500 V)**

10 nF to 50  $\mu$ F (dependent on measurement voltage)

**Capacitance measurement accuracy (23°C)**

$\pm 5\%$   $\pm 5$  nF

**Voltage output accuracy (0°C to 30°C)**

+4%, -0%  $\pm 10$  V of nominal test voltage at 1 G $\Omega$  load

**Current measurement range**

0.01 nA to 5 mA

**Current measurement accuracy (23°C)**

$\pm 5\%$   $\pm 0.2$  nA at all voltages

**Interference rejection**

**S1-554/2** 1 mA per 250 V up to a maximum of 4 mA (selectable)

**S1-1054/2** 1 mA per 600 V up to a maximum of 4 mA (selectable)

**Filter**

10, 30 and 100 second time constants (selectable)

**Timer range**

Up to 99 minutes and 59 seconds from start of test  
15 second minimum setting for test voltage  $\geq 1000$  V  
30 second minimum setting for test voltage <1000 V

**Memory capacity**

32 kB

**Test regimes**

Auto IR, PI, DAR, SV and DD.

**Interface**

RS232 and USB

**Data store**

Voltage, test time, leakage current, resistance, PI, DAR, DD, capacitance and time constant

**Real time output**

Serial, once per second of test voltage, current and resistance

**Operating temperature**

-20°C to 50°C

**Storage temperature**

-25°C to 65°C

**Ingress protection (lid closed)**

IP65

**Humidity**

90% RH non-condensing at 40°C

**Safety**

Meets the requirements of EN61010-1:2001 CATIV 600 V

**EMC**

Meets the requirements of EN61326-1:1998 for use in heavy industrial areas.

**Dimensions**

305 x 194 x 360 mm (12.7 x 6 x 14.2 inches)

**Weight**

7.1 kg (16lb) approx.

**ORDERING INFORMATION**

<b>Item (Qty)</b>	<b>Order Code</b>	<b>Item (Qty)</b>	<b>Order Code</b>
5 kV insulation resistance tester	S1-554/2		
10 kV insulation resistance tester	S1-1054/2		
<b>Included Accessories</b>		<b>Optional Accessories</b>	
3 m lead set insulated clips	6220-820	<b>HV test lead sets</b>	
User guide on CD-ROM	2000-213	3 x 3 m un-insulated compact clips	8101-181
RS232 cable	25955-025	3 x 8 m un-insulated compact clips	8101-182
USB cable	25970-041	3 x 15 un-insulated compact clips	8101-183
3 x 3 m lead set insulated clips (S1-1054/2 only)	6220-811	3 x 10 m medium insulated clips	1000-441
		3 x 15 m medium insulated clips	1000-442
		3 x 3 m large insulated clips	6220-811
		3 x 10 m large insulated clips	1000-443
		3 x 15 m large insulated clips	1000-432
		<b>Control circuit test lead sets</b>	
		2 x 3 m control circuit, small insulated clips	6220-822
		<b>Screened HV test leads</b>	
		1 x 3 m, 5 kV screened un-insulated compact clips	6220-835
		1 x 15 m, 5 kV screened un-insulated compact clips	6311-080
		1 x 3 m, 10 kV screened un-insulated compact clip	6220-834
		1 x 10 m, 10 kV screened un-insulated compact clip	6220-861
		1 x 15 m, 10 kV screened un-insulated compact clip	6220-833

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**ISO STATEMENT**  
Registered to ISO 9001:2000 Cert. no. Q 09250  
Registered to ISO 14001-1996 Cert. no. EMS 61597  
**S1-554\_2\_S1-1054\_2\_DS\_en\_V03**  
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