

# S1-568 and S1-1068

## 5 & 10 kV DC Insulation Resistance Testers



- High performance, 8 mA noise rejection, 4 digital filter options
- Compact and light weight
- Tough dual case design
- Rapid charge Li-ion battery – meets IEC62133
- Operate with flat battery from an AC source
- Remote control with indicator beacon

### DESCRIPTION

Megger's new S1-Series of insulation resistance testers consist of a 5 kV model, S1-568 and a 10 kV model, S1-1068. These top end instruments are targeted at power utilities and service companies working in generation, transmission and distribution markets. Class leading charge current, noise rejection and software filters make the S1-Series Megger's most advanced DC insulation resistance testers to date.

Instrument productivity is a focus of the new S1-Series which offers rapid charge batteries and operation from an AC source when the battery is flat. An intuitive user interface ensures no lost time remembering how to use the tester. Simplicity of operation is achieved with two rotary switches and a large backlight display which enables multiple results to be displayed simultaneously. A graphical quick start guide is provided inside the lid of each model to assist first time users.

Safety of operation is built in, 5 kV and 10 kV models are safety rated to CAT IV 600 V up to 3000 m. Original equipment manufacturers and repairers will welcome the remote control feature allowing them to automate resistance testing on the factory floor, as will technicians in substations wanting to operate from a more convenient, safe distance.

The S1-Series have a dual case design with a tough outer case to protect the tester from knocks and drops and a fire retardant inner case. The case IP rating prevents moisture and dust ingress when storing or carrying the instrument. The lids have clip-on lead pouches ensuring that leads remain with the instrument at all times. Case lids are removable for improved access to the terminals.

Five preset voltage ranges are provided in insulation test mode, plus a user settable lock voltage range. Preconfigured diagnostic tests include Polarisation Index (PI), Dielectric Absorption Ratio (DAR), Dielectric Discharge (DD), Stepped Voltage (SV) and Ramp test.

Advanced memory storage includes time/date stamping of results, logging of data and recall of results to screen. A fully isolated USB interface or on-board Bluetooth® interface is used for safe transfer of data to Megger's asset management software; PowerDB Pro, Advanced or Lite packages.

Test leads are double insulated with clamps rated at 3 kV □ equivalent to 6 kV single insulation for the medium clip leadset and 5 kV □ equivalent to 10 kV single insulation for the large clip leadset.

### FEATURES

- Resistance measurement: 15 TΩ - 5 kV, 35 TΩ - 10 kV
- High current – 6 mA short circuit current, 2 mA charge current
- High noise immunity – 8 mA of noise rejection
- Four software filters: 10s, 30s, 100s, 200s
- Li-ion battery – charges in 2 hours and gives up to 6 hours continuous testing a 100 MΩ load (S1-568), battery meets IEC 62133
- CATIV 600 V safety rating up to 3000m
- Remote operation via USB cable
- Download of memory via isolated USB cable or Bluetooth
- Timed IR, DAR, PI, DD, SV and ramp diagnostic tests
- Large LCD display with backlight
- Dedicated voltmeter function (30 V to 660 V) AC or DC
- Advanced memory, on screen recall and real time clock for date/time stamped results
- PowerDB Lite asset management software
- Option to record temperature, humidity (measured independently)

#### APPLICATION

The Insulation Resistance (IR) test is a quantitative test which indicates the effectiveness of a product's electrical insulation. Applications include cables, transformers, motors/generators, circuit breakers and bushings. Common insulation tests are the "spot test", a 1 minute IR test and a 10 minute Polarisation Index (PI) test, where PI is the ratio  $R_{10min}/R_{1min}$  and temperature independent.

#### ELECTRICAL SPECIFICATIONS

AC voltage input range:	90 - 264 V rms, 50/60 Hz, 100 VA
Battery:	11.1 V, 5.2 Ah meets IEC 62133:2003
Battery life S1-568:	6 hours (typical) continuous testing at 5 kV with a 100 MΩ load
Battery life S1-1068:	4.5 hours (typical) continuous testing at 10 kV with a 100 MΩ load
Battery charge time:	2.5 hours from deep discharge, 2 hours normal discharge
30 min. quick charge:	1 hour operation at 5 kV, 100 MΩ
Test voltages:	250 V (5 kV only), 500 V, 1000 V, 2500 V, 5000 V, 10000 V, V <sub>DC</sub>
Lock test voltage:	40 V to 1 kV in 10 V steps, 1 kV to 5 kV in 25 V steps, 5 kV to 10 kV in 25 V steps
Voltage o/p accuracy:	+4%, -0%, ±10 V nominal test voltage at 1GΩ load (0 °C to 30 °C)
Resistance range:	10 kΩ to 15 TΩ @ 5 kV, 10 kΩ to 35 TΩ @ 10 kV

Accuracy (23 °C):

	<b>S1-568</b>	<b>5000 V</b>	<b>2500 V</b>	<b>1000 V</b>	<b>500 V</b>	<b>250 V</b>	
±5% to	1 TΩ	500 GΩ	200 GΩ	100 GΩ	50 GΩ		
±20% to	10 TΩ	5 TΩ	2 TΩ	1 TΩ	500 GΩ		
	<b>S1-1068</b>	<b>10 kV</b>	<b>5000 V</b>	<b>2500 V</b>	<b>1000 V</b>	<b>500 V</b>	<b>250 V</b>
±5% to	2 TΩ	1 TΩ	500 GΩ	200 GΩ	100 GΩ	50 GΩ	
±20% to	20 TΩ	10 TΩ	5 TΩ	2 TΩ	1 TΩ	500 GΩ	

Guard performance:	2% error guarding 500 kΩ leakage with 100 MΩ load
Display range analogue:	100 kΩ to 10 TΩ
Display range digital:	10 kΩ to 35 TΩ
Short circuit current:	6 mA nominal
Charge current:	2 mA
Insulation alarm:	100 kΩ to 10 GΩ
Capacitor charge battery power:	<2.5 s/μF to 5 kV, <5 s/μF to 10 kV
Capacitor charge AC power:	<1.5 s/μF to 5 kV, <2.7 s/μF to 10 kV
Capacitor discharge:	5 kV to 50 V: <120 ms/ μF 10 kV to 50 V: <250 ms/ μF

Capacitance range:	10 nF to 50 μF (dependant on measurement voltage)
Capacitance accuracy (23 °C):	±10% ±5 nF
Current measurement range:	0.01 nA to 6 mA
Current measurement accuracy (23 °C):	±5% ±0.2 nA at all voltages
Interference rejection:	8 mA
Software filtering:	4 filter settings: 10s, 30s, 100s, 200s
Voltmeter range:	30 V to 660 V ac or dc, 45 Hz - 65 Hz
Voltmeter accuracy:	±3%, ±3 V
Timer range:	Up to 99 minutes 59 seconds, 15 second minimum setting
Memory capacity:	11 hrs logging @ 5 sec intervals
Test regimes:	IR, IR(t), DAR, PI, DD, SV, ramp test
Interfaces:	USB type B (device), Bluetooth®
Real time output:	reading/s (V, I, R) at a rate of 1 Hz
Remote control:	Remote control via USB cable only (requires RC indicator to be in position)

#### ENVIRONMENTAL SPECIFICATIONS

CATIV 600 V safety rating up to 3000 m @ 10 kV with safety plug or guard lead inserted in guard terminal

CATIV 600 V safety rating up to 3000 m @ 5 kV

S1-1068 Altitude: 3000 m (with all three leads are connected or when safety plug is inserted in the guard terminal)

S1-568 Altitude: 3000 m

Operating temperature: -20 °C to 50 °C

Storage temperature: -25 °C to 65 °C

Humidity: 90% RH non-condensing at 40 °C

Ingress protection: IP65 (lid closed), IP40 (lid open)

#### SAFETY SPECIFICATIONS

Safety: Meets the requirements of IEC 61010-1, CATIV 600 V

EMC: Meets the requirements of IEC61326-1

Dimensions: L 315 mm x W 285 mm x H 181 mm

Weight: 4.5 kg

**ORDERING INFORMATION**

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
S1-568-UK	1003-017	<b>Optional accessories</b>	
S1-568-EU	1003-018	<b>HV test leads</b>	
S1-568-US	1003-019	3 m leadset x 3, medium insulated clips	6220-820
S1-568-AU	1003-020	3 m leadset x 3, large insulated clips	6220-811
S1-1068-UK	1003-008	3 m leadset x 3, bare clips	8101-181
S1-1068-EU	1003-009	8 m leadset x 3, bare clips	8101-182
S1-1068-US	1003-010	15 m leadset x 3, bare clips	8101-183
S1-1068-AU	1003-011	<b>Screened HV test lead sets</b>	
<b>Included accessories</b>		3 m, 5 kV screened un-insulated small clips	6220-835
User guide CD-ROM		15 m, 5 kV screened un-insulated small clips	6311-080
Safety warning sheet		3 m, 10 kV screened un-insulated small clips	6220-834
Power lead		10 m, 10 kV screened un-insulated small clips	6220-861
Screened USB cable with filters		15 m, 10 kV screened un-insulated small clips	6220-833
PowerDB Lite software CD		<b>Other</b>	
Product information CD		CB101, 5 kV calibration box	6311-077
3 m leadset x 3, medium insulated clips (S1-568, S1-1068)	6220-820	Calibration certificate - CB101	1000-113
3 m leadset x 3, large insulated clips (S1-1068 only)	6220-811	UKAS calibration certificate CB101	1000-047
		Fused test probe and clip leadset	1002-913
		Control circuit test leadset	6220-822

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**CERTIFICATION ISO**  
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