

Product Datasheet - Technical Specifications



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SEFELEC 56-S

The EATON Electrical Safety Tester



SEFELEC 56-S: features and benefits:

Dielectric strength up to 5kVAC 50VA or 6kVDC

Insulation measurement up to 2TΩ at 1000 VDC
Adjustable voltage from 10 to 1000 VDC by steps of 1V

Earth bond test under 6VAC / 32A

Programmable test ramps
Up, Steady, Down
Multi-ramps mode (hipot test)

7" TFT Multi touchscreen 16 million colors for programming, tests and results display

ARM-Dual core control & Nand 3D technologies inside for more accuracy, stability and repeatability

DSPs speeds up measurements and production tests

Large internal memory for configurations and test results storage

IEC 61010-2-034 full compliance, specific safety standard for insulation and dielectric strength meters

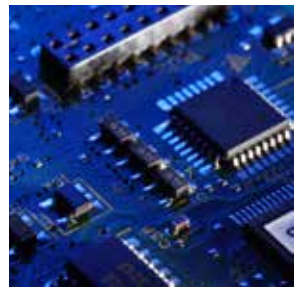
The **SEFELEC 56-S** is the new generation EATON Safety Tester (3 tests in 1 device: hipot, insulation, earth bond test) based and controlled by ARM-Dual Core and DSP technologies providing the best stability and repeatability.

The high accuracy and measurement speed are suitable for quality control or incoming inspection departments.

The sequence mode makes the **SEFELEC 56-S** easier to use and integrate in a control or a test-bench.

The new SEFELEC Series HMI, with its 7" dual-touch TFT screen, offers simple and intuitive operations.

- Native Ethernet / RS232 / USB / PLC / 0-10 V
- IEEE488-2 interface as an option
- Bus CAN for external additional modules (Scanners)
- SIL2 double safety loop
- Automatic measurement range selection
- Sequence mode to combine several successive tests (i.e.: Insulation / Hipot / Insulation / Earth Bond)



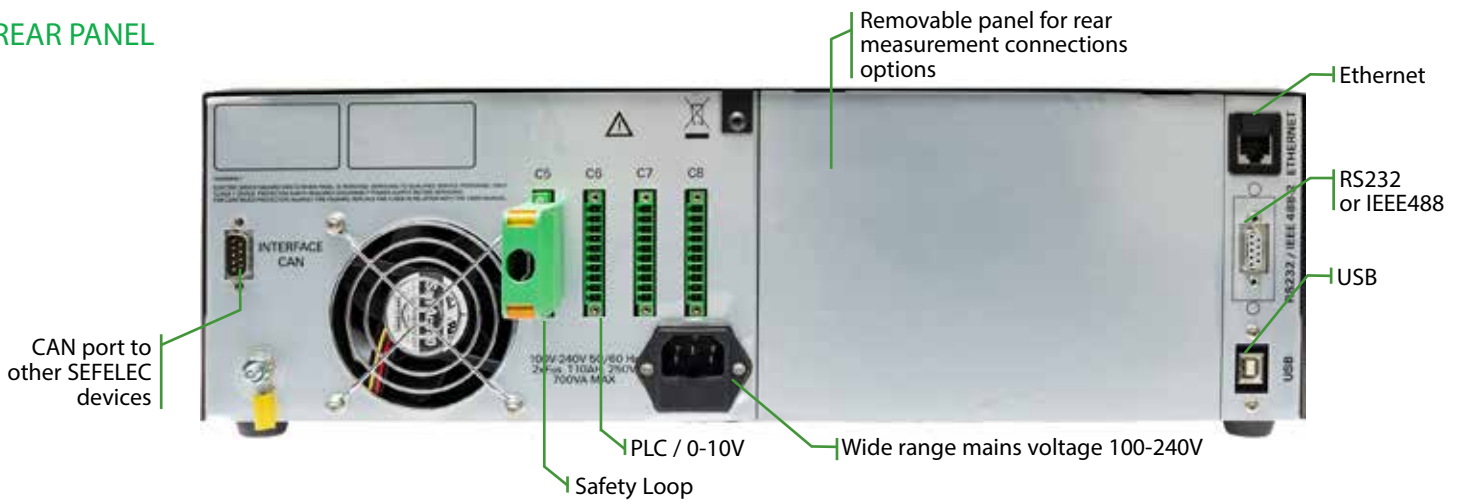
Powering Business Worldwide

SEFELEC 56-S : Electrical Safety Tester - Overview

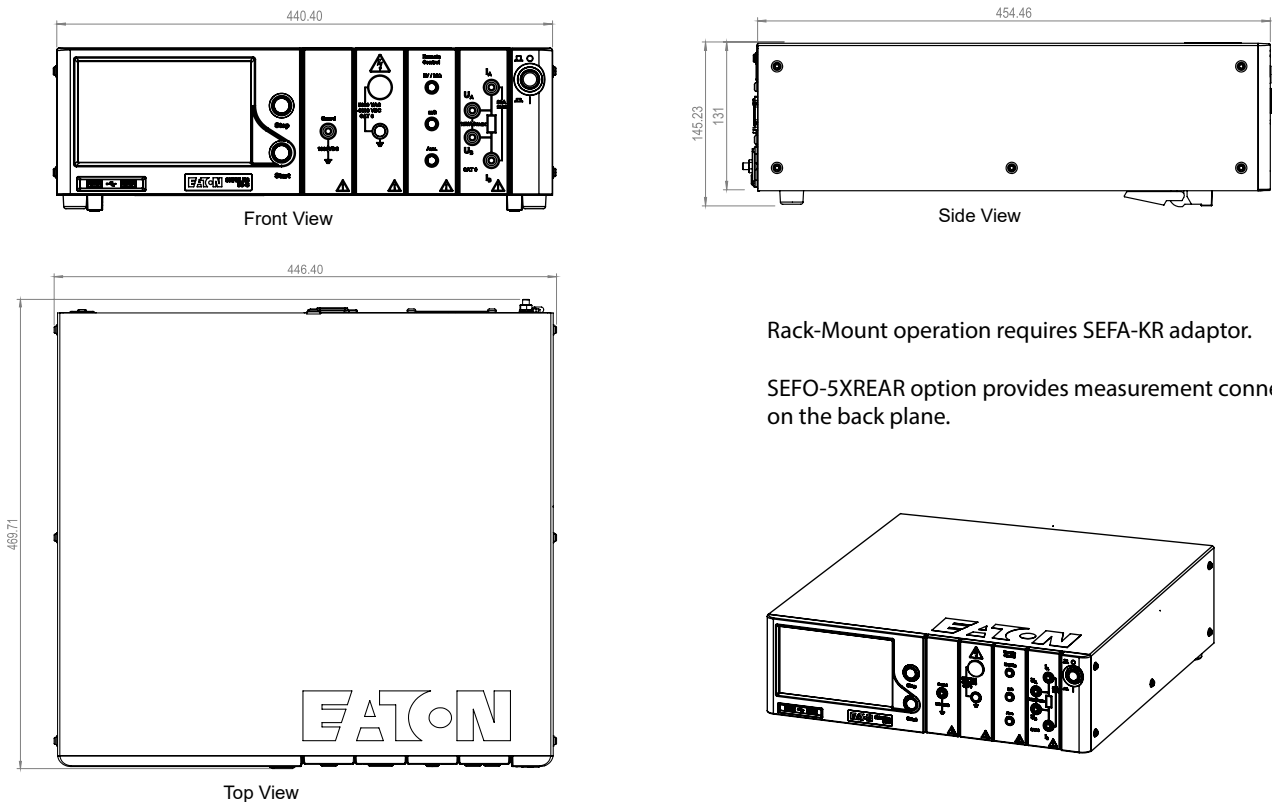
FRONT PANEL



REAR PANEL



SCHEMAS D'ENCOMBREMENT



SEFELEC 56-S : Touchscreen - Overview



Hipot function



Insulation function



Earth Bond function



Passed Test



Failed Test



Permanent Mode



Communication configuration



Measurement parameters configuration



Save and Restore configurations

SEFELEC 56-S : Accessories & Options

SEFA-TE65-02



SEFO-IEEE488



Accessories

- SEFA-TE65-02** ⁽¹⁾ High voltage probe and test lead length. 2 meters
- SEFA-CO175-02** ⁽¹⁾ Return lead with 4mm termination - length 2 metres.
- SEFA-CO180-02** ⁽¹⁾ High voltage lead without probe for hardware connection, length 2 meters
- SEFA-TE81-3202** ⁽¹⁾⁽²⁾ 32A safety probe for earth bond test with remote control, length 2 meters
- SEFA-CO183-3202** ⁽¹⁾⁽²⁾ 32A 4mm leads / alligator clips for earth bond test, length 2 meters
- SEFA-KR** 19" rack mounting adaptor for SEFELEC range
- SEFA-CO160** Red/Green Lamps

⁽¹⁾ Models also available with length 5 & 10m with folling part numbers : SEFA-TE65-05 / SEFA-TE65-10 / SEFA-CO180-05 / SEFA-CO180-10 / SEFA-CO175-05 / SEFA-CO175-10
⁽²⁾ Models also available with current 50A (SEFA-TE81-50, SEFA-CO183-50)

Options

- SEFO-5XRC** Remote controls connection module
- SEFO-5X2TO** 2TΩ insulation measurement range
- SEFO-5X50A** 8VAC/50A earth bond test
- SEFO-IEEE488** IEEE488-2 communication
- SEFO-5XREAR** Rear panel measurement connection
- SEFO-5X3MA** 3mA max. output current limitation (Hipot function)

General Specifications				
Mains	100-240 VAC $\pm 10\%$ 50 to 60 Hz / single phase			
Mains protection	Temporized double fuse T10AH 250V			
Input power	700 VA max.			
Temperature range	Storage		Operation	
	-10°C à +60°C		0°C à +45°C	
	Specified accuracy after 1/2 hour warm-up and RH<50 %			
Altitude	Up to 2 000 m			
Relative humidity	80 % max. @ 31°C			
Dimensions & weight	Height	Width	Depth	Weight
	131 mm	440 mm	455 mm	approx. 27 kg
Hipot Function				
Voltage range	100 ... 5 000 VAC / 100 ... 6 000 VDC - Positive pole connected to bond in DC			
Voltage generator accuracy	$\pm (2\% + 5\text{ V})$ over full voltage range and with a current below 100 μA			
DC voltage ripple	< 1% with a current < 100 μA			
Max D.U.T. capacitance	< 1 μF (discharge time < 10 sec.) Discharge resistor in DC = 1,5 M Ω			
Voltage measurement accuracy	Through a kilovoltmeter directly connected to output. $\pm (1,5\% + 5\text{ Volts})$ resolution: 600 pts			
Short-circuit max. current	< 20 mA AC / < 20 mA DC			
Default detection modes	Adjustable from 1 mA $\pm 10\%$ to 10 mA $\pm 10\%$ by 1 mA steps, pulse 10 $\mu\text{s} \pm 20\%$.			
ΔI detection mode current range	Amplitude réglable de 1 mA $\pm 10\%$ à 10 mA $\pm 10\%$ par pas de 1 mA, impulsion 10 $\mu\text{s} \pm 20\%$.			
Min/Max detection mode current range	Adjustable from 0,001 mA to 9,999 mA by 0,001mA steps			
Permanent total current measurement	Resolution 9 999 pts with a shunt installed in the test circuit			
Total current accuracy (in AC and DC)	0,001 mA to 9,999 mA = $\pm (2\% + 3\ \mu\text{A})$. 10,00 mA to 20,00 mA: $\pm (2\% + 0,05\text{ mA})$ ($R_{\text{load}} > 1\text{M}\Omega$)			
Ramp Up - Dwell - Fall duration	0,1 à 9999,0 sec. by steps of 0,1sec, accuracy +/- 20 msec			
Insulation Function				
Measurement voltage	20 - 1000 VDC, accuracy $\pm(1\% + 1\text{V})$, positive pole grounded			
Maximum current in measurement circuit	2 mA - 20% / +0%			
Max D.U.T. capacitance	< 100 μF (discharge time < 10 sec.), Discharge resistor 2,2 k Ω			
Display resolution	1 999 points - Displayed units: k Ω , M Ω , G Ω , T Ω			
Measurement range	100V	250V	500 V	1000V
	100 k Ω to 20 G Ω	250 k Ω to 50 G Ω	500 k Ω to 100 G Ω	100 k Ω à 200 G Ω
Measurement range with 2 T Ω option	100 k Ω to 200 G Ω	250 k Ω to 500 G Ω	500 k Ω to 1 T Ω	100 k Ω à 2 T Ω
Normal mode accuracy	Standard version 200 G Ω : $\pm (1,5\% + 1\text{ digit})$			
	2 T Ω option with $U_{\text{test}} \leq 200\text{ V DC}$: $\pm (2\% + 1\text{ digit})$			
	2 T Ω option with $U_{\text{essai}} > 200\text{ V DC}$: $\pm (1\% \times U_{\text{essai}} / 100 + 1\text{ digit})$			
Capacitance mode accuracy	(Normal mode accuracy) $\pm 100\text{k}\Omega$			
Thresholds	High and low programmable from 50 k Ω to 200G Ω (or 2T Ω with option)			
Ramp Up - Dwell - Fall duration	0,1 à 9999,0 sec. by steps of 0,1sec, accuracy +/- 20 msec			
Earth Bond Test Function				
Measurement frequency	50Hz or 60Hz depending on mains			
Measurement current	5 to 32A AC adjustable by steps of 0,5A (5 to 50A AC with 50A option)			
Generator accuracy	$\pm (1\% + 500\text{mA})$ or $\pm (1\% + 650\text{mA})$ with 50A option			
Open circuit maximum output voltage	6V AC			
	8V AC with 50A option			
Display resolution	1 499 digits			
Unit	m Ω (0,001 Ω)			
Accuracy	$\pm (2,5\% + 10\text{ points})$			
Measurement range	0 - 960 m Ω under 6 V AC			
	0 - 1,500 Ω under 8 V AC			
Thresholds	High and low adjustable from 1m Ω to 1500m Ω			
Ramp Up - Dwell - Fall duration	0,1 à 9999,0 sec. by steps of 0,1sec, accuracy +/- 20 msec			