



SEFELEC 1000-M

The EATON Insulation Resistance Meter



SEFELEC 1000-M features and benefits:

Insulation measurement up to 200GΩ under 1000 VDC
2 TΩ in option

Measurement voltage adjustable by steps of 1 V
from 20 to 1000 VDC

Programmable test ramps
Ramp up, dwell, fall

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 1000-M** is the new generation EATON insulation resistance meter 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 1000-M** 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
- 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
- Multi-ramp mode for 3 dwells tests

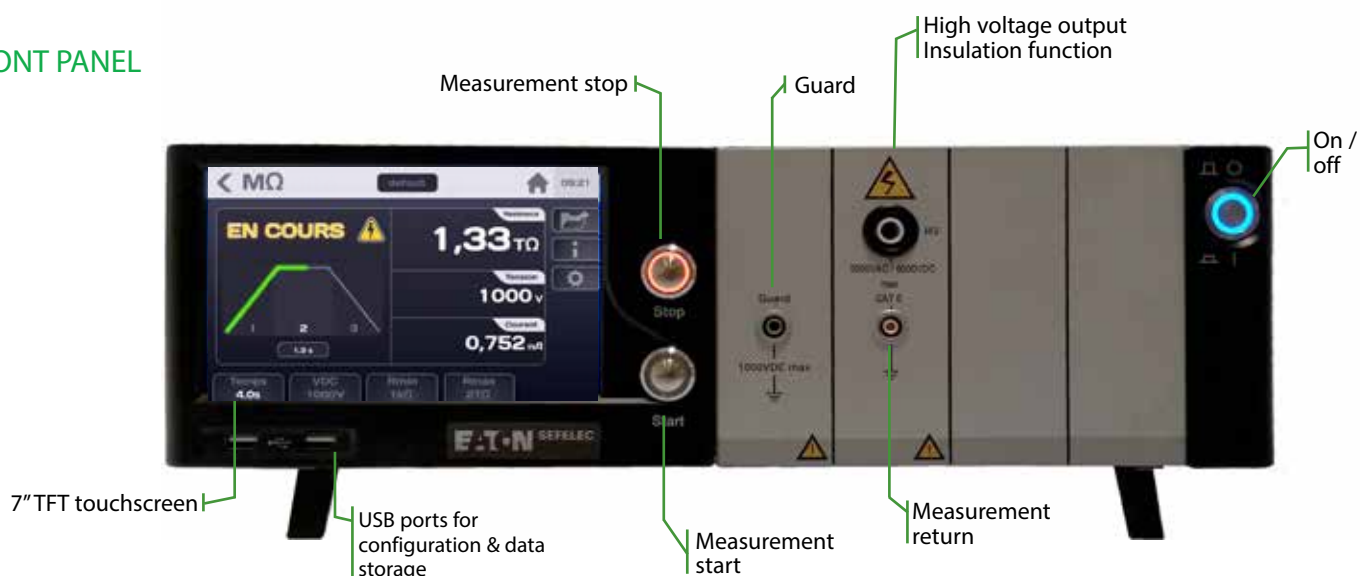


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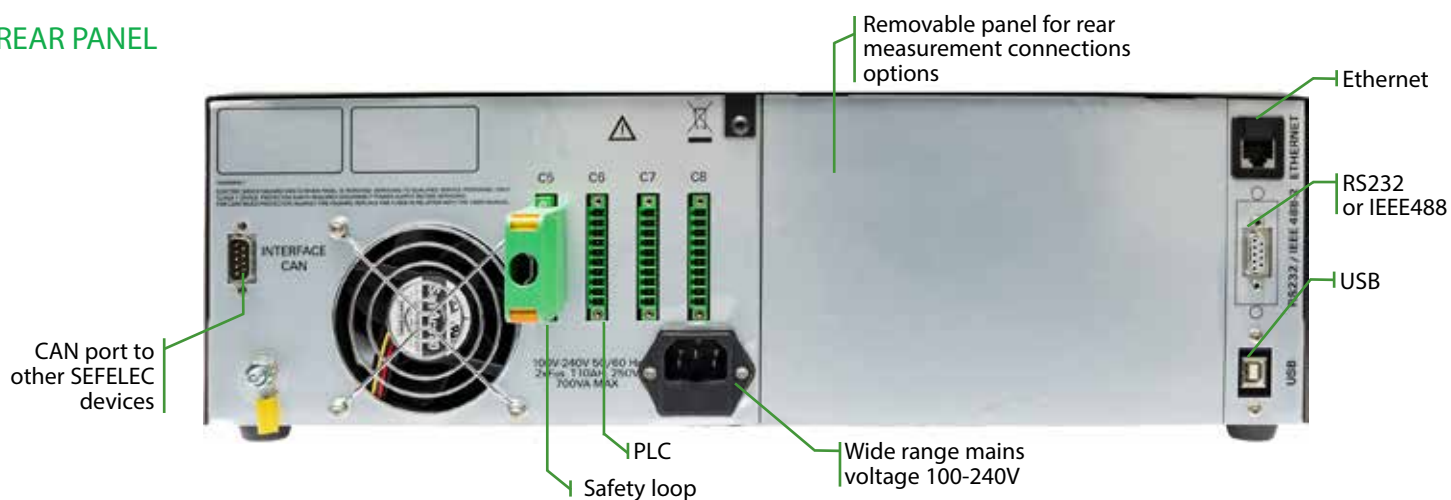
Powering Business Worldwide

SEFELEC 1000-M : Megohmmeter - Overview

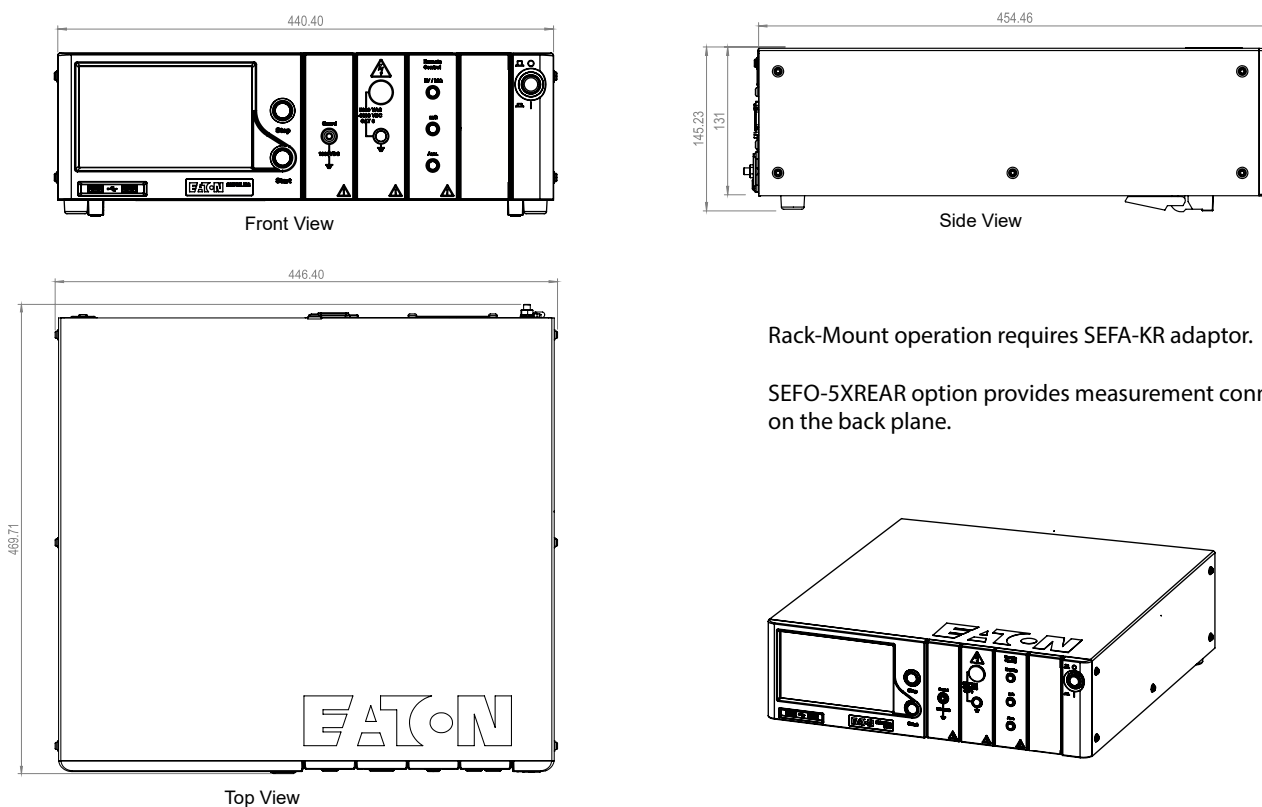
FRONT PANEL



REAR PANEL



DIMENSIONAL DIAGRAMS



SEFELEC 1000-M : Touchscreen - Overview



Passed test



Failed test



Permanent mode



Communication configuration



Measurement parameters configuration



Parameters and results storage

SEFELEC 1000-M : Accessories & Options

Accessories

- SEFA-SE15-02⁽¹⁾** Measurement probe and test lead length 2 meters
- SEFA-CO175-02⁽¹⁾** Return lead with 4mm termination length 2 metres.
- SEFA-FTHV10-02⁽¹⁾** High voltage lead without probe for hardwire connection, length 2 meters
- SEFA-KR** 19" rackmount adaptors for SEFELEC 5x series
- SEFA-CO160** Green / red safety lamp

⁽¹⁾ Models also available with leads 5m and 10m long. Part numbers as follows :
SEFA-SE15-05 / SEFA-SE15-10 / SEFA-CO175-5 / SEFA-CO175-10 /
SEFA-FTHV10-05 / SEFA-FTHV10-10

SEFA-SE15-02



SEFO-IEEE488



Options

- SEFO-5XRC** Remote controls connection module
- SEFO-5X2TΩ** 2TΩ measurement range option
- SEFO-IEEE488** GPIB/IEEE488-2 communication board
- SEFO-5XREAR** Rear panel connection

General Specifications				
Mains	100-240 VAC ±10 % 50 to 60 Hz / single phase			
Mains protection	Temporized double fuse T10AH 250V			
Input power	100 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. 15 kg
Measurement Voltage				
Programming	20 ... 1000 V DC by steps of 1 V			
Voltage generator accuracy	±(1% + 1V) full range and with a current below 100 µA			
Polarity	positive pole grounded			
Ripple voltage	< 1% with a current < 100 µA			
Dynamic stability	For ΔV _{mains} = ±10% measurement voltage variation < ±1%			
Maximum current in measurement circuit	2 mA - 20% / +0%			
Max D.U.T. capacitance	< 100µF (discharge time < 10 s)			
Discharge resistor	2,2 kΩ			
Resistance Measurement Range				
(U _{test} / U _{max generator}) x 200GΩ standard version and (U _{test} / U _{max generator}) x 2TΩ with 2 TΩ option				
Test voltage	100V	250V	500 V	1000V
Standard measurement range	100 kΩ to 20 GΩ	250 kΩ to 50 GΩ	500 kΩ to 100 GΩ	1 MΩ to 200 GΩ
Measurement range with 2 TΩ option	100 kΩ to 200 GΩ	250 kΩ to 500 GΩ	500 kΩ to 1 TΩ	1 MΩ to 2 TΩ
Measurement Accuracy				
Display Resolution	1 999 digits, units in kΩ, MΩ, GΩ et TΩ			
Accuracy	% of reading, 1U = 1 digit			
Standard version 200 GΩ	± (1,5 % + 1U)			
With 2 TΩ option and U _{test} ≤ 200 V DC	± (2 % + 1U)			
With 2 TΩ option and U _{test} > 200 V DC	± (1 % x U _{test} / 100 + 1U)			
Capacitance mode	from 1,00 MΩ to 200 GΩ Accuracy : normal mode ± 100 kΩ Input Impedance : 10 MΩ ±1%			
Measurement Threshold				
Range	50 kΩ to 200 GΩ (or 2 TΩ)			
Thresholds types	1 high and 1 low			
Tests results depending on thresholds (examples)	Low Limit (LL)	R _{measured}	High Limit (HL)	
PASS : R _{measured} ≥ LL and HL disabled	10 MΩ	26,1 MΩ	---	
PASS : R _{measured} ≤ HL and LL disabled	---	98,0 MΩ	100 MΩ	
PASS : LL ≤ R _{measured} ≤ HL	25 MΩ	63,2 MΩ	70 MΩ	
FAIL : R _{measured} ≥ HL	45 MΩ	110 MΩ	80 MΩ	
Temporisation				
PERMANENT mode	The rise duration set is active. The output voltage rises to the setpoint. Test stops if there is a fault or if pressing the red button on the front panel.			
AUTO mode	Test runs in 3 sequences : linear raise up to set voltage (Ramp Up), set output voltage remains applied (Dwell), progressive descent to 0V (Fall)			
Ramp Up - Dwell - Fall duration	0,1 à 9999,0 s by steps of 0,1 s			
Accuracy	+/- 20 msec			

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Please learn more about SEFELEC 5x series
on : **Sefelec.com**