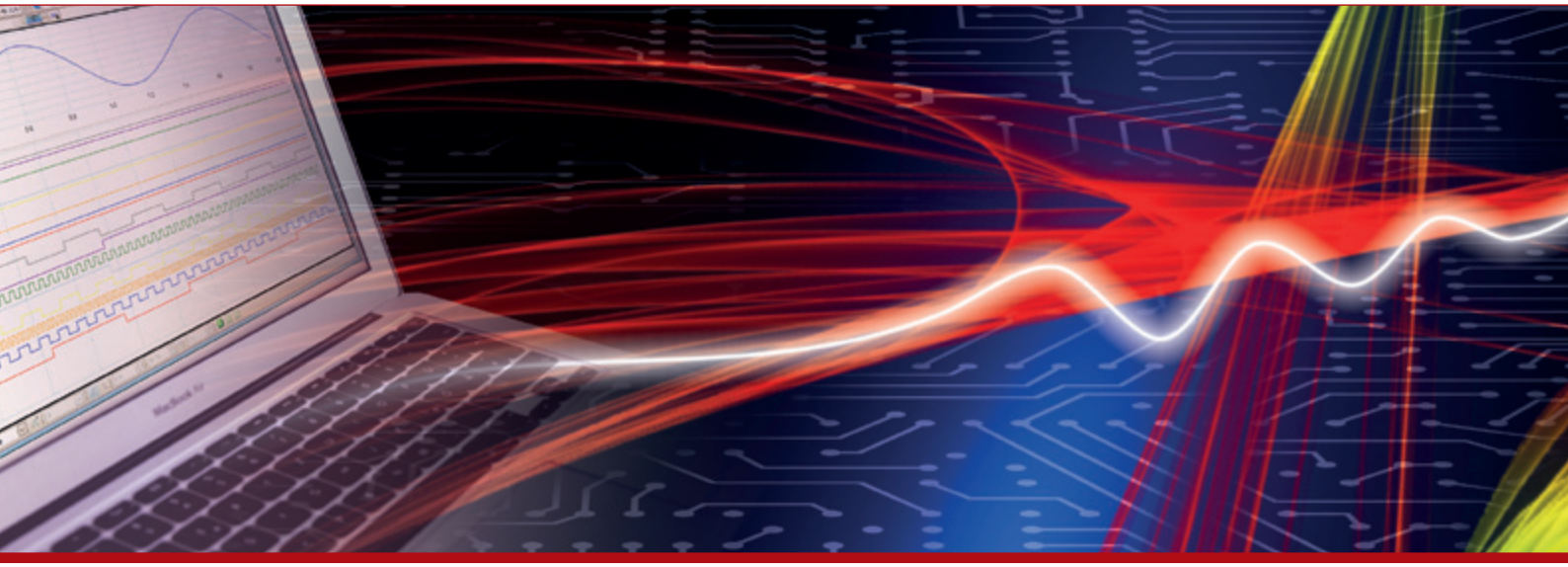
Product Datasheet - Technical Specifications



More information in our Web-Shop at ▸ **www.meilhaus.com**

Your contact

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Product Brochure

SEFELEC 1000-M

The EATON Insulation Resistance Meter

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.

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

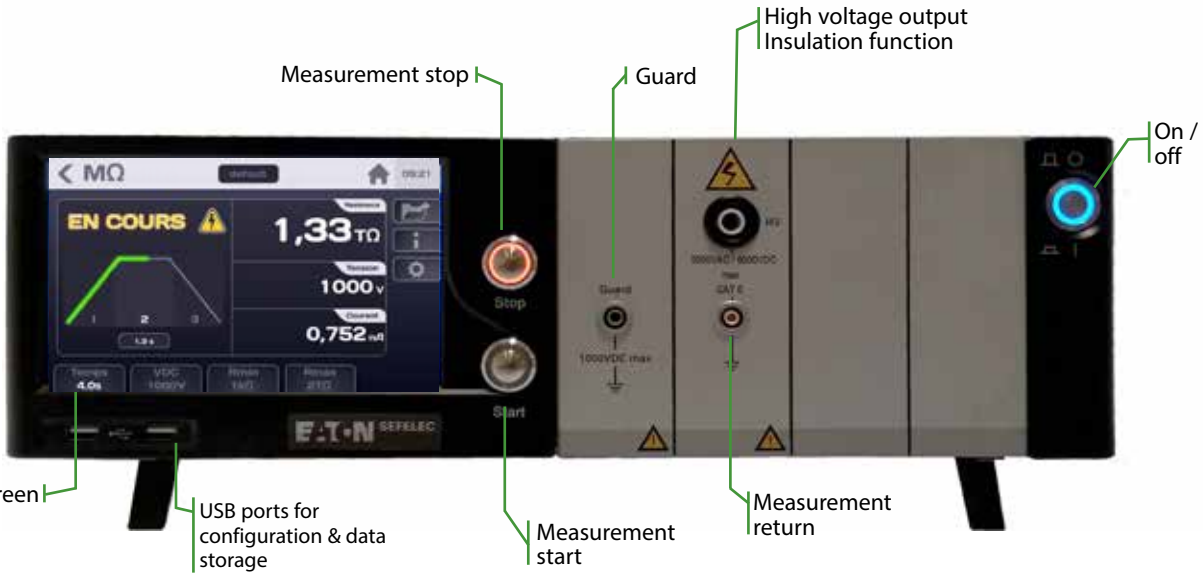
IEC 61010-2-034 full compliance, specific safety standard for insulation and dielectric strength meters

- 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
- Multi-ramp mode for 3 dwells tests

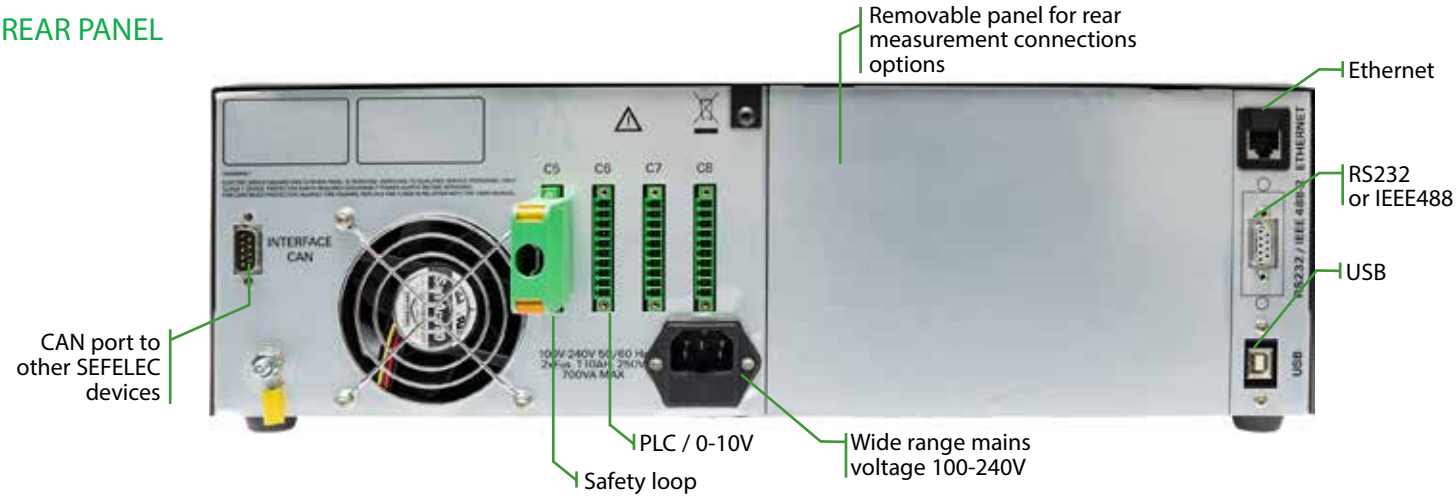
EATON
Powering Business Worldwide

SEFELEC 1000-M : Megohmmeter - Overview

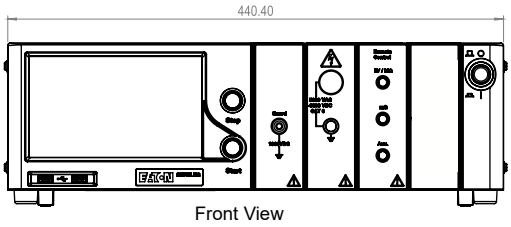
FRONT PANEL



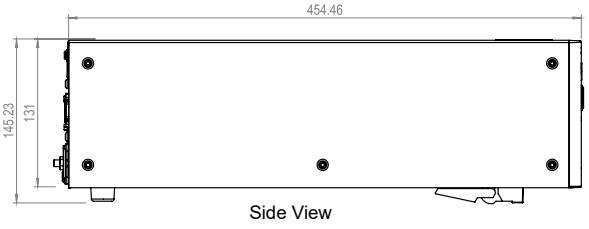
REAR PANEL



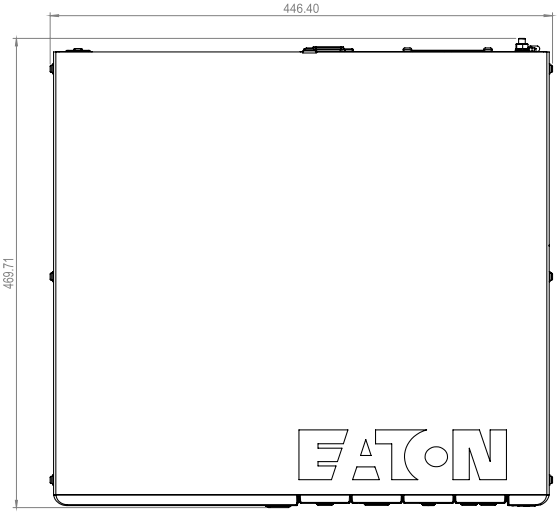
DIMENSIONAL DIAGRAMS



Front View



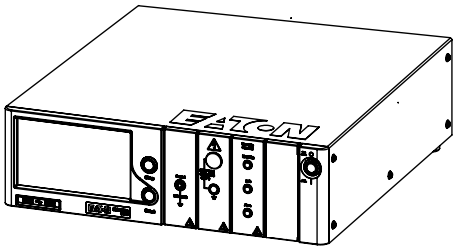
Side View



Top View

Rack-Mount operation requires SEFA-KR adaptor.

SEFO-5XREAR option provides measurement connectors on the back plane.



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

SEFA-SE15-02

SEFO-IEEE488

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

Options

SEFO-5XRC	Module raccordement télécommandes
SEFO-5X2TO	Gamme de mesure 2TΩ
SEFO-IEEE488	Carte de communication IEEE488-2
SEFO-5XREAR	Raccordement par le panneau arrière

SEFELEC 1000-M TECHNICAL SPECIFICATIONS

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 mmm	approx. 15 kg

Measurement Voltage	
Programmation	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 $U_{test} \leq$ 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 : $R_{measured} \geq$ LL and HL desabled	10 MΩ	26,1 MΩ	- - -
PASS : $R_{measured} \leq$ HL and LL desabled	- - -	98, 0 MΩ	100 MΩ
PASS : LL $\leq R_{measured} \leq$ HL	25 MΩ	63,2 MΩ	70 MΩ
FAIL : $R_{measured} \geq$ 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

FTFR-SEFELEC 1000-M Version : 1.0 Mar. 2020