



# SEFELEC 506-D

The EATON Dielectric Meter



## SEFELEC 506-D: features and benefits:

**Dielectric strength** up to 5kVAC 500VA or 6kVDC

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

**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

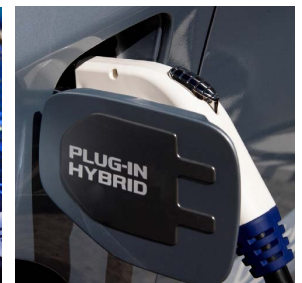
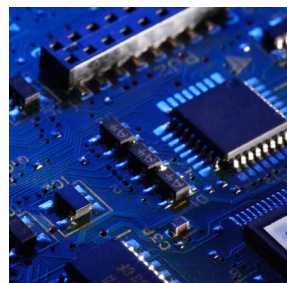
The **SEFELEC 506-D** is the new generation EATON dielectric meter (hipot and insulation test) based and controlled by ARM-Dual Core and DSP technologies providing the best stability and repeatability.

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

The sequence mode makes the **SEFELEC 506-D** 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.

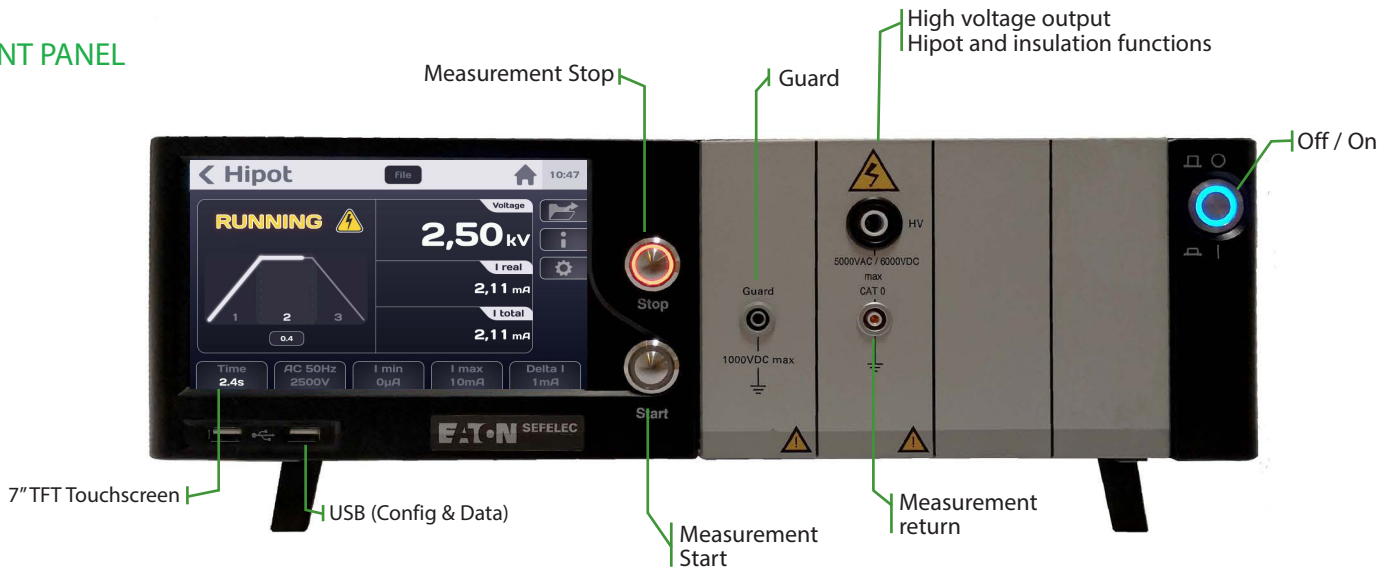
- Native Ethernet / RS232 / USB / PLC / 0-10 V
- IEEE488-2 interface as an option
- Bus CAN for external additional modules (Scanners)
- SIL2 double safety loop
- Automatic measurement range selection
- Sequence mode to combine several successive tests (i.e.: Insulation / Hipot / Insulation)



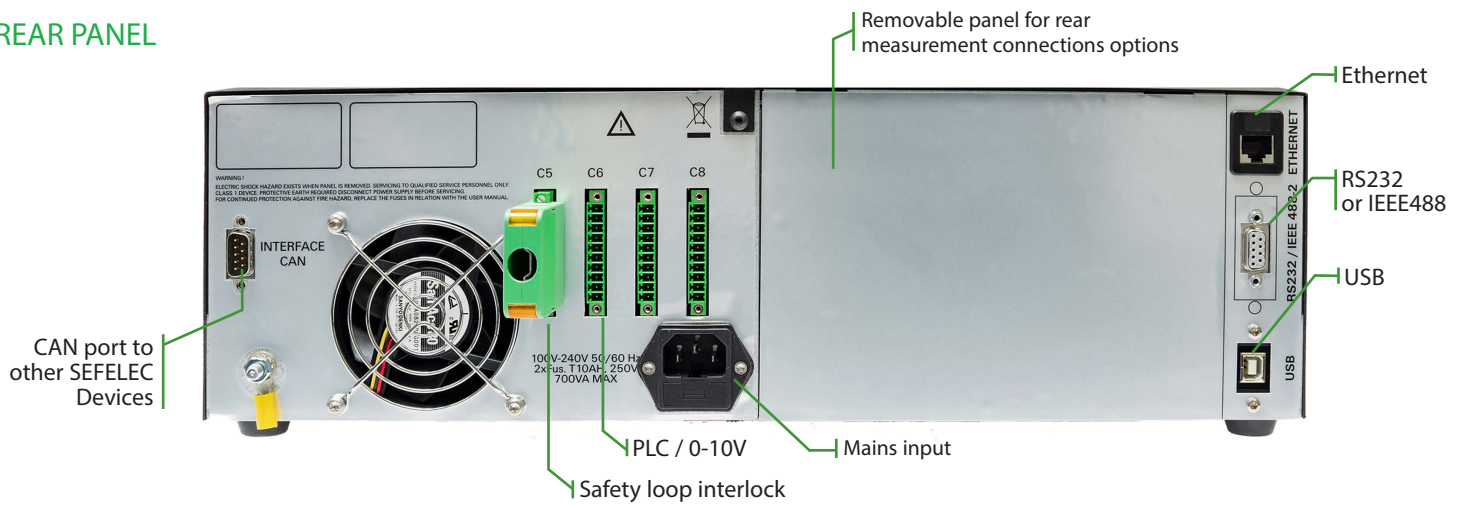
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# SEFELEC 506-D : Dielectric Meter - overview

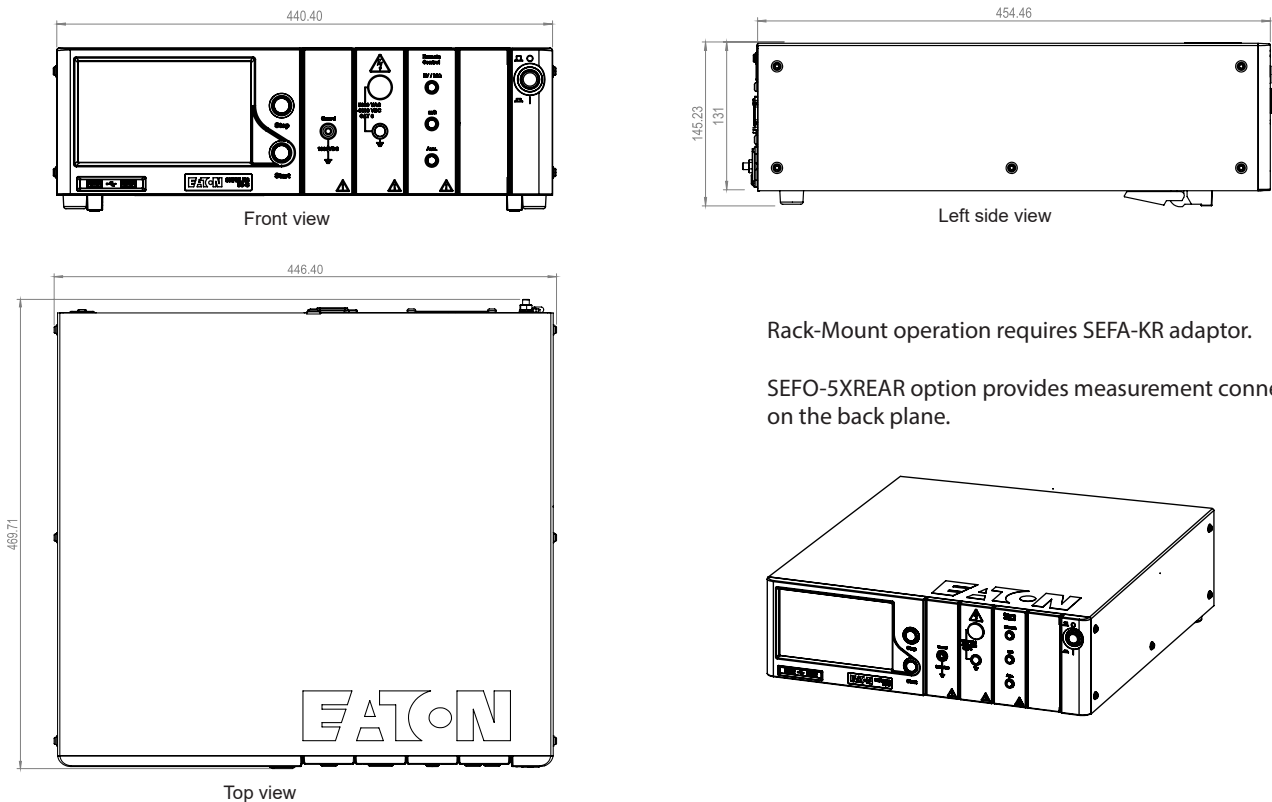
## FRONT PANEL



## REAR PANEL

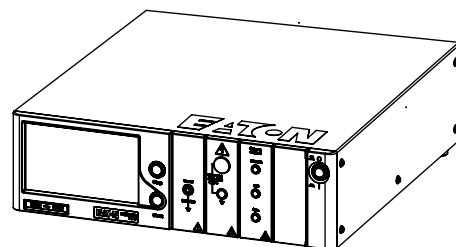


## DIMENSIONAL DIAGRAMS

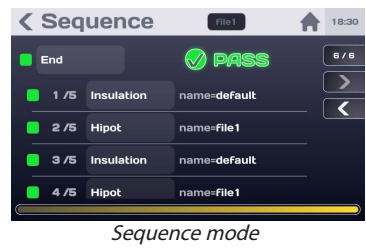
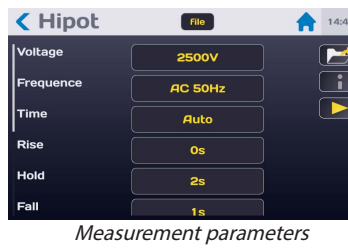
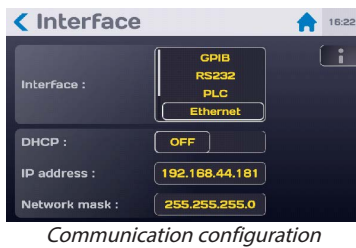
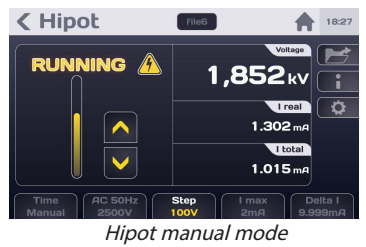
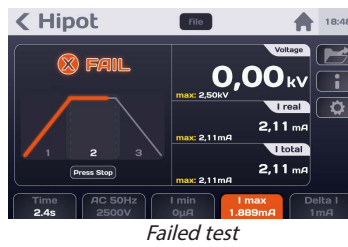
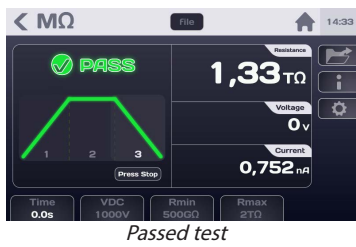
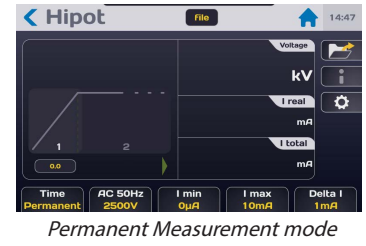
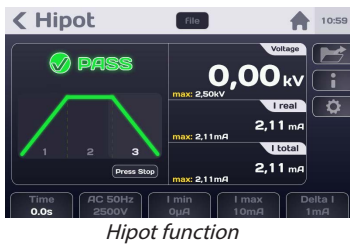
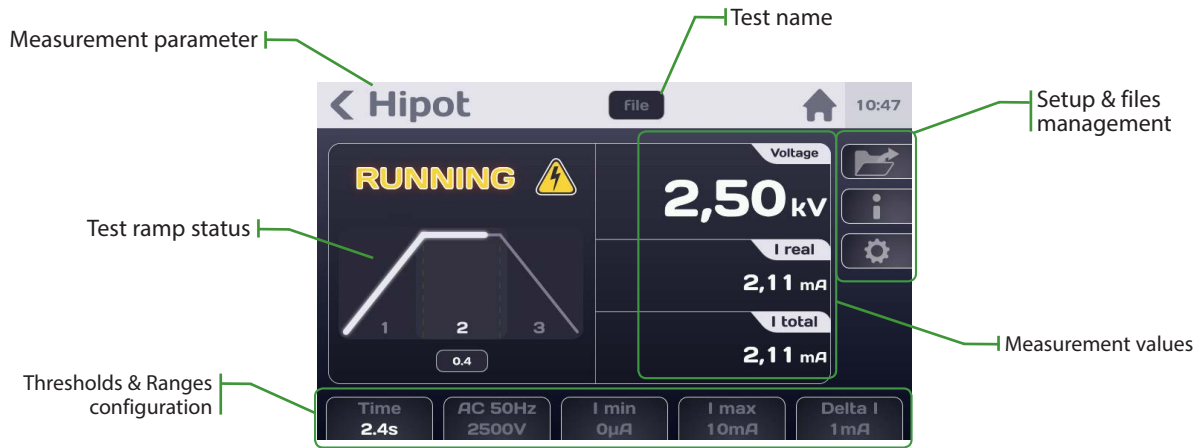


Rack-Mount operation requires SEFA-KR adaptor.

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



# SEFELEC 506-D : Touchscreen overview



# SEFELEC 506-D : Accessories & Options

SEFA-TE65-02

SEFO-IEEE488



## Accessories

- SEFA-TE65-02 <sup>(1)</sup> High voltage probe and test lead length. 2 meters
- SEFA-CO175-02 <sup>(1)</sup> Return lead with 4mm termination - length 2 metres.
- SEFA-CO180-02 <sup>(1)</sup> 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

<sup>(1)</sup> Models also available with leads 5m and 10m long. Part numbers as follows : SEFA-TE65-05 / SEFA-TE65-10 / SEFA-CO180-05 / SEFA-CO180-10 / SEFA-CO175-05 / SEFA-CO175-10

## Options

- SEFO-5XRC Remote controls connection module
- SEFO-5X2TO 2TΩ insulation measurement range
- SEFO-IEEE488 IEEE488-2 communication
- SEFO-5XREAR Rear panel measurement connection
- SEFO-5X3MA 3mA max. output current limitation (Hipot function)



General Specifications				
Mains	230 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. 18 kg

Dielectric Strength Function (hipot)	
Voltage range	100 ... 5 000 VAC / 100 ... 6 000 VDC - Positive pole connected to bond in DC
Voltage generator accuracy	$\pm (3\% + 5\text{ V})$ over full voltage range and with a current below 1 mA
DC voltage ripple	< 1% with a current < 1 mA
Max D.U.T. capacitance	< 1 $\mu\text{F}$ (discharge time < 10 sec.) Discharge resistor in DC = 1,5 M $\Omega$
Voltage measurement accuracy	Through a kilovoltmeter directly connected to output. $\pm (1,5\% + 5\text{ Volts})$ resolution: 600 pts
Short-circuit max. current	$\geq 200\text{ mA AC}$ / $\geq 100\text{ mA DC}$
Default detection modes	Current variation $\Delta I$ / Max-Min current / without detection
$\Delta I$ detection mode current range	Adjustable from 10 mA $\pm 10\%$ to 100 mA $\pm 10\%$ by 10 mA steps, pulse 10 $\mu\text{s}$ $\pm 20\%$ .
Min/Max detection mode current range	adjustable from 0,1 mA to 110 mA by 0,1mA steps
Permanent total current measurement	Resolution 1 000 digits with a shunt installed in the test circuit. Value displayed is true RMS current: $\sqrt{(I_{AC}^2 + I_{DC}^2)}$
Total current accuracy (in AC and DC)	$\pm (2,5\% + 0,2\text{ mA})$
PERMANENT mode	The rise time 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.
MANUAL mode	No rise time is set. Manual control pressing up and down arrows on the touch-screen. 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 sec. by steps of 0,1sec, accuracy +/- 20 msec.

Insulation Resistance 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 $\mu\text{F}$ (discharge time < 10 sec.), Discharge resistor 2,2 k $\Omega$			
Display resolution	1 999 points - Displayed units: k $\Omega$ , M $\Omega$ , G $\Omega$ , T $\Omega$			
Measurement range	100V	250V	500 V	1000V
	100 k $\Omega$ à 20 G $\Omega$	250 k $\Omega$ à 50 G $\Omega$	500 k $\Omega$ à 100 G $\Omega$	100 k $\Omega$ à 200 G $\Omega$
Measurement range with 2 T $\Omega$ option	100 k $\Omega$ à 200 G $\Omega$	250 k $\Omega$ à 500 G $\Omega$	500 k $\Omega$ à 1 T $\Omega$	100 k $\Omega$ à 2 T $\Omega$
Normal mode accuracy	Standard version 200 G $\Omega$ : $\pm (1,5\% + 1\text{ digit})$			
	Option 2 T $\Omega$ and $U_{\text{test}} \leq 200\text{ V DC}$ : $\pm (2\% + 1\text{ digit})$			
	Option 2 T $\Omega$ avec $U_{\text{test}} > 200\text{ V DC}$ : $\pm (1\% \times U_{\text{test}} / 100 + 1\text{ digit})$			
Capacitance mode accuracy	(normal mode accuracy) $\pm 100\text{k}\Omega$			
Ramp Up - Dwell - Fall duration	0,1 à 9999,0 sec. by steps of 0,1sec, accuracy +/- 20 msec.			
Thresholds range	50 k $\Omega$ to 200 G $\Omega$ (or 2 T $\Omega$ )			
Thresholds types	1 high and 1 low			
Test results with thresholds (examples)	Low Limit (LL)	$R_{\text{measured}}$	High Limit (HL)	
	PASS: $R_{\text{measured}} \geq \text{LL}$ and HL disabled	10 M $\Omega$	26,1 M $\Omega$	---
	PASS: $R_{\text{measured}} \leq \text{HL}$ and LL disabled	---	98,0 M $\Omega$	100 M $\Omega$
	PASS: $\text{LL} \leq R_{\text{measured}} \leq \text{HL}$	25 M $\Omega$	63,2 M $\Omega$	70 M $\Omega$
	FAIL: $R_{\text{measured}} \geq \text{HL}$	45 M $\Omega$	110 M $\Omega$	80 M $\Omega$

**Eaton - Sefelec sas**  
19 rue des Campanules  
F-77185 Lognes  
Headquarters  
+33 (0)1 64 11 83 42  
Services  
+33 (0)1 64 11 83 48

**Eaton - Sefelec GmbH**  
Karl- Bold- Str. 40  
D-77855 Achern  
Zentrale  
+49 (0) 7841 640 77 0  
Fax  
+49 (0) 7841 640 77 29

Please learn more about SEFELEC 5x series  
on : [Sefelec.com](http://Sefelec.com)