

## Product Datasheet - Technical Specifications



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### Your contact

Technical and commercial sales, price information,  
quotations, demo/test equipment, consulting:

Tel.: **+49 - (0)81 41 - 52 71-0**

E-Mail: [sales@meilhaus.com](mailto:sales@meilhaus.com)

**Meilhaus Electronic GmbH**  
Am Sonnenlicht 2  
82239 Alling/Germany

Tel. **+49 - (0)81 41 - 52 71-0** E-  
Mail [sales@meilhaus.com](mailto:sales@meilhaus.com)

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# SEFELEC 506-S

The EATON Electrical Safety Tester



## SEFELEC 506-S: 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

**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 506-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 506-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)



# EATON

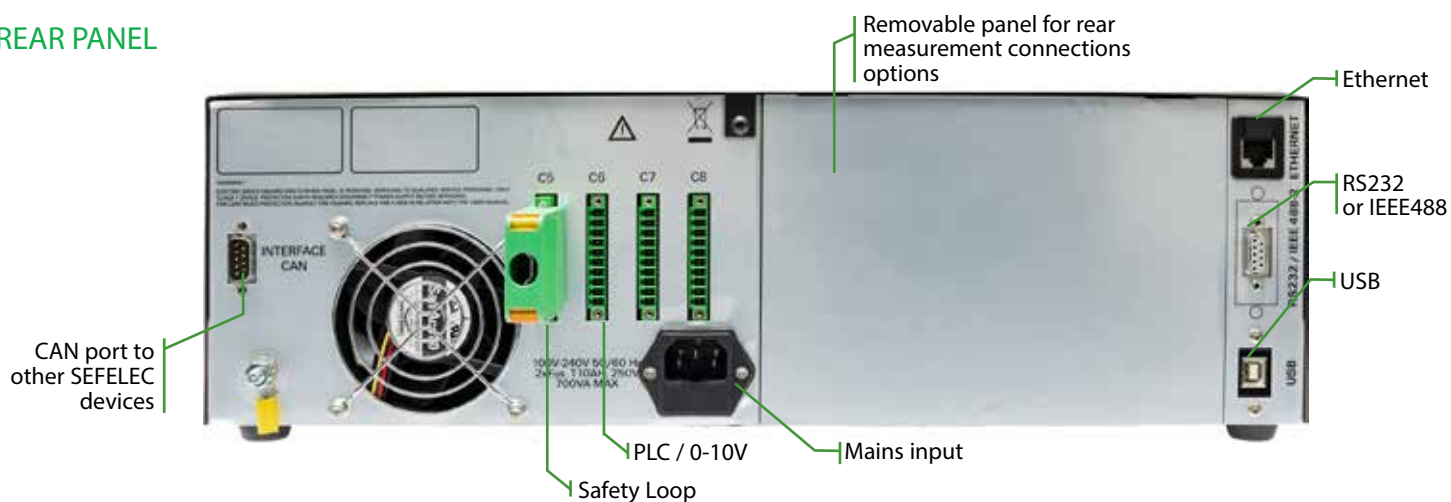
Powering Business Worldwide

# SEFELEC 506-S : Electrical Safety Tester - Overview

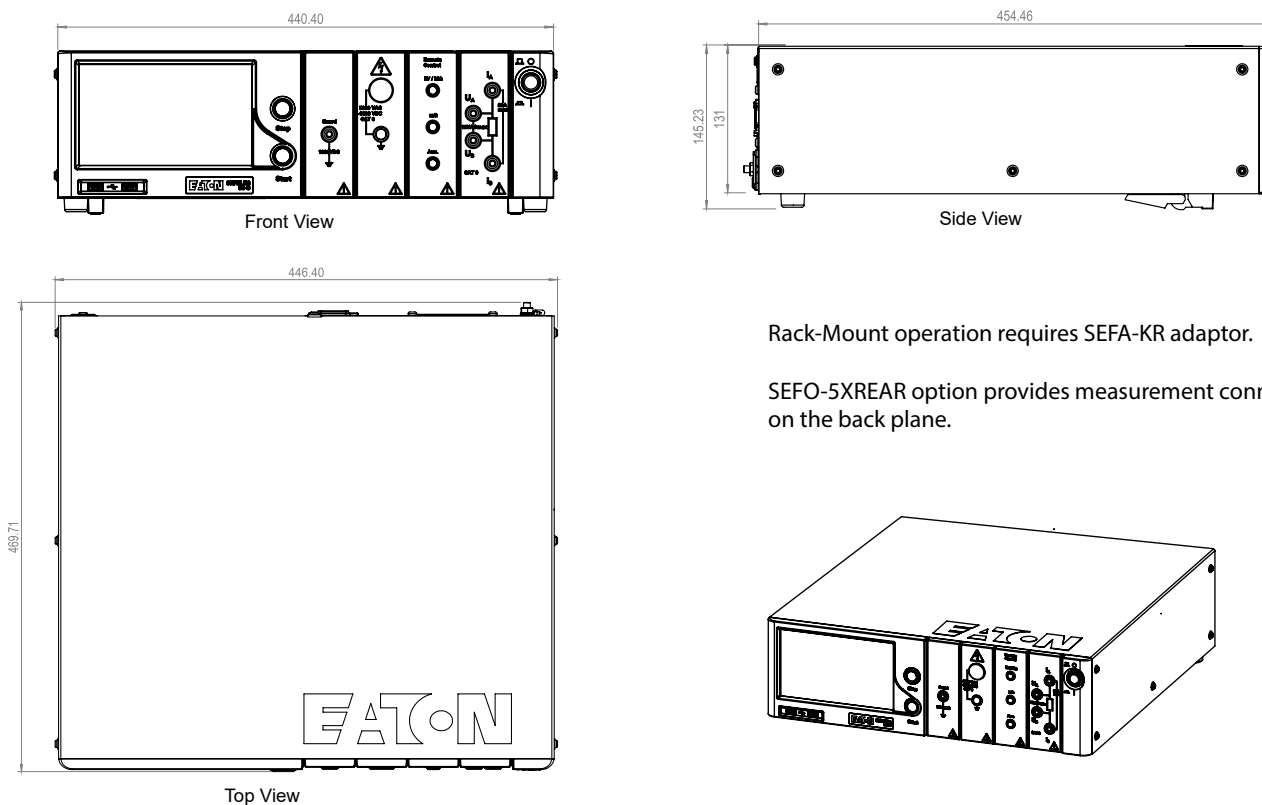
## FRONT PANEL



## REAR PANEL



## SCHEMAS D'ENCOMBREMENT





## SEFELEC 506-S : Touchscreen - Overview



Hipot function



Insulation function



Earth Bond function



Passed Test



Failed Test



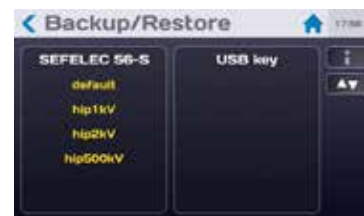
Permanent Mode



Communication configuration



Measurement parameters configuration



Save and Restore configurations

## SEFELEC 506-S : Accessories & Options

### 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 hardware connection, length 2 meters
- SEFA-TE81-3202**<sup>(1)(2)</sup> 32A safety probe for earth bond test with remote control, length 2 meters
- SEFA-CO183-3202**<sup>(1)(2)</sup> 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

<sup>(1)</sup> 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  
<sup>(2)</sup> Models also available with current 50A (SEFA-TE81-50, SEFA-CO183-50)

SEFA-TE65-02

SEFO-IEEE488



### 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

| General Specifications                 |  |                  |                  |                 |
|--|--|------------------|------------------|-----------------|
| Mains                                  | 100-240 VAC ±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             | ± (2 % + 5 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 µF (discharge time < 10 sec.) Discharge resistor in DC = 1,5 MΩ                          |                  |                  |                 |
| Voltage measurement accuracy           | Through a kilovoltmeter directly connected to output. ± (1,5% + 5 Volts) resolution: 600 pts |                  |                  |                 |
| Short-circuit max. current             | ≥ 200 mA AC / ≥ 100 mA DC  |                  |                  |                 |
| Default detection modes                | Adjustable from 1 mA ±10 % to 10 mA ± 10% by 1 mA steps, pulse 10 µS ±20 %.                  |                  |                  |                 |
| ΔI detection mode current range        | Amplitude réglable de 10 mA ±10 % à 100 mA ± 10% par pas de 10 mA, impulsion 10 µS ±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 pts with a shunt installed in the test circuit                              |                  |                  |                 |
| Total current accuracy (in AC and DC)  | ± (2 % + 0,2 mA)   |                  |                  |                 |
| 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 ±(1% + 1V), positive pole grounded                                   |                  |                  |                 |
| Maximum current in measurement circuit | 2 mA - 20% / +0%   |                  |                  |                 |
| Max D.U.T. capacitance                 | < 100µF (discharge time < 10 sec.), Discharge resistor 2,2 kΩ                                |                  |                  |                 |
| Display resolution                     | 1 999 points - Displayed units: kΩ, MΩ, GΩ, TΩ   |                  |                  |                 |
| Measurement range                      | 100V   | 250V             | 500 V            | 1000V           |
|  | 100 kΩ to 20 GΩ  | 250 kΩ to 50 GΩ  | 500 kΩ to 100 GΩ | 100 kΩ à 200 GΩ |
| Measurement range with 2 TΩ option     | 100 kΩ to 200 GΩ   | 250 kΩ to 500 GΩ | 500 kΩ to 1 TΩ   | 100 kΩ à 2 TΩ   |
| Normal mode accuracy                   | Standard version 200 GΩ : ± (1,5% +1 digit)  |                  |                  |                 |
|  | 2 TΩ option with U <sub>test</sub> ≤ 200 V DC : ± (2% +1 digit)                              |                  |                  |                 |
|  | 2 TΩ option with U <sub>essai</sub> > 200 V DC : ± (1% x U <sub>essai</sub> / 100 +1 digit)  |                  |                  |                 |
| Capacitance mode accuracy              | (Normal mode accuracy) ±100kΩ  |                  |                  |                 |
| Thresholds                             | High and low programmable from 50 kΩ to 200GΩ (or 2TΩ 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                     | ± (1% + 500mA) or ± (1% + 650mA) with 50A option   |                  |                  |                 |
| Open circuit maximum output voltage    | 6V AC  |                  |                  |                 |
|  | 8V AC with 50A option  |                  |                  |                 |
| Display resolution                     | 1 499 digits   |                  |                  |                 |
| Unit                                   | mΩ (0,001 Ω)   |                  |                  |                 |
| Accuracy                               | ± (2,5% + 10 points)   |                  |                  |                 |
| Measurement range                      | 0 - 960 mΩ under 6 V AC  |                  |                  |                 |
|  | 0 - 1,500 Ω under 8 V AC   |                  |                  |                 |
| Thresholds                             | High and low adjustable from 1mΩ to 1500mΩ   |                  |                  |                 |
| Ramp Up - Dwell - Fall duration        | 0,1 à 9999,0 sec. by steps of 0,1sec, accuracy +/- 20 msec                                   |                  |                  |                 |