

5.000 VAC  
6.000 VDC



|                   |  |
|-------------------|--|
| Technical data    | <b>F1-1A / F1-1M</b>   |
| Test voltage:     | 100 .. 2.500 VAC<br>200 .. 5.000 VAC<br>200 .. 3.500 VDC (option)<br>300 .. 6.000 VDC (option) |
| Nominal power:    | 500 VA   |
| Tripping current: | 0 .. 1 / 10 / 100 mA   |
| Interface:        | RS232-C  |
| Mains voltage:    | 230 V / ±10% / 49 .. 51 Hz*  |
| Size:             | 19" / 4 HU   |
| Weight:           | approx. 22 kg  |



Front view F1-1A



Front view F1-1M



Rear view F1-1A, F1-1M

**Modular high-voltage testing device**

Depending on the version and extension status, the devices provide flexible deployment possibilities during manual and automated use for high-voltage and insulation resistance testing on systems, subassemblies or components. For more detailed technical data, please see the table on back.

|                          | Description                | Size       | Article no. |
|--------------------------|----------------------------|------------|-------------|
| High-voltage test device | incl. TouchMe control unit | 19" / 4 HU | F1-1A       |
| High-voltage test device | for automatic use          | 19" / 4 HU | F1-1M       |

**Extension modules for the test devices**

|                             | Technical data   | For device type | Article no. |
|-----------------------------|--|-----------------|-------------|
| DC voltage                  | Test voltage: 200 .. 3.000 / 6.000 VDC<br>Tripping current: 0 .. 1 / 10 / 100 mA   | F1-1A, F1-1M    | F1-1A E01   |
| Insulation resistance       | 0.1 .. 1 / 10 / 35 MΩ + Autorange  | F1-1A, F1-1M    | F1-1A E02   |
| Security current limitation | < 3 mA for AC; < 5 mA for DC   | F1-1A, F1-1M    | F1-1A E03   |
| Voltage feedback            | The module allows a four-wire measurement by readback of the test voltage. Two high-voltage sockets are additionally incorporated in the back panel of the device. | F1-1A, F1-1M    | F1-1A E04   |
| Burn-Mode                   | Overvoltage tripping can be deactivated for troubleshooting.   | F1-1A, F1-1M    | F1-1A E05   |
| Digital additional outputs  | Six additional digital outputs for activation of an external switching matrix.   | F1-1A, F1-1M    | F1-1A E06   |
| Ethernet                    | Alternative interface to RS232-C   | F1-1A, F1-1M    | F1-1A E10   |
| USB                         | Alternative interface to RS232-C   | F1-1A, F1-1M    | F1-1A E12   |
| Software package            | ElutionDevice software package   | F1-1A, F1-1M    | N2-1A Z7D   |
| Device driver               | On request   |                 |             |
| Calibration                 | Supplied with Elabo works calibration protocol   | F1-1A, F1-1M    | F1-1A E99   |

The description of the accessories can be found starting on page 108.

Please also see our sample configurations starting on page 36.

\*other mains frequency on request

Technical specifications subject to change without notice.

# Device features F1-1A / F1-1M

**Elabo HighPerformance**

5.000 VAC  
6.000 VDC

| Device   | F1-1A   | F1-1M                       |
|--|---|-----------------------------|
| <b>Application fields</b>                            |   |                             |
| Automatic use  | ●   | ●                           |
| Manual use   | ●   |                             |
| <b>Operation</b>                                     |   |                             |
| Touch Display 6.5"                                   | ●   |                             |
| Interface  | ●   | ●                           |
| Start button   | ●   |                             |
| Reset button   | ●   | ●                           |
| <b>Interfaces</b>                                    |   |                             |
| RS 232-C   | ●   | ●                           |
| Ethernet   | ○   | ○                           |
| USB  | ○   | ○                           |
| USB accessory interface                              | ●   |                             |
| Digital interface 1                                  | ●   | ●                           |
| Digital interface 2                                  | ○   | ○                           |
| 2 safety circuits                                    | ●   | ●                           |
| <b>Connections</b>                                   |   |                             |
| HV test probes, rear                                 | ●   | ●                           |
| HV test probes, front                                | ●   | ●                           |
| Warning lights                                       | ●   | ●                           |
| Non-heating apparatus socket                         | ●   | ●                           |
| <b>Test functions</b>                                |   |                             |
| High voltage AC                                      | ●   | ●                           |
| High voltage DC                                      | ○   | ○                           |
| Insulation resistance measurement                    | ○   | ○                           |
| Current limitation (EN50191) <sup>1</sup>            | ○   | ○                           |
| Burn-Mode (deact. tripping) <sup>1</sup>             | ○   | ○                           |
| Voltage feedback                                     | ○   | ○                           |
| <b>Test voltages</b>                                 |   |                             |
| Test voltage AC 1                                    | 100 .. 2.500 V  |                             |
| Test voltage AC 2                                    | 200 .. 5.000 V  |                             |
| Test voltage DC 1 <sup>2</sup>                       | 200 .. 3.000 V  |                             |
| Test voltage DC 2 <sup>2</sup>                       | 300 .. 6.000 V  |                             |
| Residual ripple DC <sup>2</sup>                      | < 3 % bei R > 3MΩ   |                             |
| Positioning rate for ramp                            | 10 .. 3.500 V/s   |                             |
| Adjustment inaccuracy                                | Typ. 10 V   |                             |
| Measurement error, voltage                           | 0.5% of meas. ± 2 digit                                   |                             |
| <b>Current ranges</b>                                |   |                             |
| Measurement range 1 / resolution                     | 0 .. 100 mA / 100 µA                                      |                             |
| Measurement range 2 / resolution                     | 0 .. 10.0 mA / 10 µA                                      |                             |
| Measurement range 3 / resolution                     | 0 .. 1.000 mA / 1 µA                                      |                             |
| Current tripping                                     | Active current – Apparent current – Crest value – Delta I |                             |
| Accuracy Apparent current                            | measurement range 1                                       | 0.5 % of meas. +/- 2 digit  |
|  | measurement range 2                                       | 0.5 % of meas. +/- 5 digit  |
|  | measurement range 3                                       | 0.5 % of meas. +/- 20 digit |
| Accuracy Peak value                                  | measurement range 1                                       | 1.0 % of meas. +/- 5 digit  |
|  | measurement range 2                                       | 1.0 % of meas. +/- 5 digit  |
|  | measurement range 3                                       | 1.0 % of meas. +/- 20 digit |
| Accuracy Active current                              | measurement range 1                                       | 1.0 % of meas. +/- 8 digit  |
|  | measurement range 2                                       | 1.0 % of meas. +/- 8 digit  |
|  | measurement range 3                                       | 1.0 % of meas. +/- 20 digit |
| Accuracy DC  | measurement range 1 <sup>2</sup>                          | 0.5 % of meas. +/- 2 digit  |
|  | measurement range 2 <sup>2</sup>                          | 0.5 % of meas. +/- 2 digit  |
|  | measurement range 3 <sup>2</sup>                          | 0.5 % of meas. +/- 2 digit  |
| <b>Insulation resistance measurement<sup>2</sup></b> |   |                             |
| Test voltage DC 1                                    | 200 .. 3.000 V  |                             |
| Test voltage DC 2                                    | 300 .. 6.000 V  |                             |
| Measurement range 1                                  | 0.1 .. 1.00 MΩ  |                             |
| Measurement range 2                                  | 1 .. 10.0 MΩ  |                             |
| Measurement range 3                                  | 10 .. 35 MΩ   |                             |
| Autorange  | 0.1 .. 35 MΩ  |                             |
| Accuracy at 500 V                                    | 3% of meas. ± 1 digit                                     |                             |
| Accuracy at 1.000 V                                  | 1% of meas. ± 1 digit                                     |                             |



Flexibility is of prime importance with Elabo. That is why two versions of the devices in this line of equipment are available. Depending on the purpose, universal use or fully automated operation are possible.

### Technical main data

|                                 |                                      |
|---------------------------------|--------------------------------------|
| Nominal power                   | 500 VA                               |
| Short-circuit current           | >200 mA                              |
| Mains voltage                   | 230 V +/- 10%                        |
| Mains frequency                 | 49 .. 51 Hz*                         |
| Dimensions Depth 360 mm         | 19" / 4 HU                           |
| Weight                          | 22 kg   21 kg                        |
| Permissible relative humidity   | 25 .. 75 % rel.                      |
| Operating temperature           | 10 .. 50 °C                          |
| Test time                       | 0.1 .. 999.9 sec. / constant testing |
| Burn-Mode current <sup>2</sup>  | approx. 200 mA                       |
| Feedback threshold <sup>2</sup> | 0.7 .. 1 x U <sub>test</sub>         |

- Standard ○ Optional

<sup>1</sup> cannot be combined

<sup>2</sup> Extension module required

\*other mains frequency on request

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