



Technical data	<b>F7-1A / F7-1M</b>
High voltage:	100 .. 2.500 VAC 200 .. 5.000 VAC 200 .. 3.000 VDC (option) 300 .. 6.000 VDC (option)
Protective earth conductor:	0 .. 1.2 Ohms 6 or 12 VAC 5 .. 32 A
Interface:	RS 232-C
Mains voltage:	230 V / +/- 10 % / 49 .. 51 Hz*
Size:	19" / 6 HU
Weight:	32 kg

**Modular combination test device  
PE / IS / HV with integrated switching field**

Depending on the version and equipment status, these devices with an integrated switching field allow configuration of a compact test system for manual and automated protective earth conductor and insulation resistance measurement in addition to high-voltage testing on systems, subassemblies or components. The system is rounded off by accessories especially configurable for this version. For more detailed technical data, please see the table on back.



Front view F7-1A



Front view F7-1M



Rear view F7-1A; F7-1M

	Description	Size	Article no.
Combination tester	Incl. TouchMe control unit and integrated switching field	19"/6HU	F7-1A
Combination tester	for automatic use and integrated switching field	19"/6HU	F7-1M

**Extension modules for the test devices**

	Technical data	For device type	Article no.
DC voltage	Test voltage: 200 .. 3.000 / 6.000 VDC Tripping current: 0 .. 1 / 10 / 100 mA	F7-1A, F7-1M	F7-1A E01
Insulation resistance	0.1 .. 1 / 10 / 35 MΩ + Autorange	F7-1A, F7-1M	F7-1A E02
Safety current limitation	< 3 mA for AC; < 5 mA for DC	F7-1A, F7-1M	F7-1A E03
Voltage feedback	The module allows a four-wire measurement by feedback of the test voltage. Two high-voltage sockets are additionally incorporated in the back panel of the device.	F7-1A, F7-1M	F7-1A E04
Burn-Mode	Current tripping can be deactivated for troubleshooting.	F7-1A, F7-1M	F7-1A E05
Digital additional outputs	Six additional digital outputs for activation of an external switching matrix.	F7-1A, F7-1M	F7-1A E06
Ethernet	Alternative interface to RS232-C	F7-1A, F7-1M	F7-1A E10
USB	Alternative interface to RS232-C	F7-1A, F7-1M	F7-1A E12
Software package	ElutionDevice software package	F7-1A, F7-1M	N2-1A Z7E
Device driver	On request		
Calibration	Supplied with Elabo works calibration protocol	F7-1A, F7-1M	F7-1A E99

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

Please also see our sample configurations starting on page 56.

\*other mains frequency on request

Technical specifications subject to change without notice.

Device	F7-1A	F7-1M
<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>		
1 HV test probe, rear	●	●
PE test probe, rear	●	●
System plug connector, rear	●	●
Voltage feedback, rear	○	○
Warning lights	●	●
Non-heating apparatus socket	●	●
<b>Measurement types</b>		
High voltage AC	●	●
High voltage DC	○	○
PE conductor resistance measurement	●	●
Insulation resistance measurement	○	○
Current limitation (EN50191) <sup>1</sup>	○	○
Burn-Mode (deact. Tripping) <sup>1</sup>	○	○
Voltage feedback	○	○
<b>High voltage</b>		
Test voltage AC1	100 .. 2.500 V	
Test voltage AC2	200 .. 5.000 V	
Test voltage DC1 <sup>2</sup>	200 .. 3.000 V	
Test voltage DC2 <sup>2</sup>	300 .. 6.000 V	
Residual ripple DC <sup>2</sup>	< 3 % bei R > 3 MΩ	
Positioning speed for ramp	10 .. 3.500 V/s	
Output frequency mains synchronous	●	
Adjustment inaccuracy	Typ. 10 V	
Accuracy, voltage	0.5% of meas. ± 2 digit	
<b>Current ranges</b>		
Measurement range 1 / resolution	0 .. 100.0 mA / 100 µA	
Measurement range 2 / resolution	0 .. 10.00 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>Protective earth conductor resistance measurement</b>		
Test voltage	6 / 12 VAC	
Test current	5 .. 32 A	
Measurement range resistance	0 .. 1.2 Ω <sup>3</sup>	
Measurement range Voltage drop	0 .. 12 V <sup>3</sup>	
Measurement method	4-wire-measurement	
Resolution, resistance	0.001 Ω	
Accuracy	1 % of meas. +/- 3 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 / resolution	0.1 .. 1.00 MΩ	
Measurement range 2 / resolution	1 .. 10.0 MΩ	
Measurement range 3 / resolution	10 .. 35 MΩ	
Autorange	0.1 .. 35 MΩ	
Accuracy at 500 V	3% of meas. ± 1 digit	
Accuracy at 1000 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.

### Principal technical data

Nominal capacity	500 VA
Short-circuit current	>200 mA
Mains connection	230 V +/- 10%
Mains frequency	49 .. 51 Hz*
Dimensions	19" / 6 HU depth 360 mm
Weight	32 kg   31 kg
Allowable humidity	25 .. 75 % rel.
Working temperature	10 .. 50 °C
Test time	0.1 .. 999.9 sec. / constant testing
Burn-Mode current <sup>2</sup>	ca. 200 mA
<b>External extension modules</b>	
Current measurement <sup>2</sup>	On request
Voltage measurement <sup>2</sup>	On request
Power measurement <sup>2</sup>	On request

● Standard ○ Optional

<sup>1</sup> cannot be combined

<sup>2</sup> Extension module required

<sup>3</sup> depending on test current

\*other mains frequency on request

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