

High-voltage testing devices

Variant overview



BestPerformance

Device	G1-1A	G1-1M	G1-1B	G1-1N	G1-1G	G1-1T	G1-1C	G1-1P	G1-1H	G1-1U
Applications										
Manual application	•		•		•		•		•	
Automatic application	•	•	•	•	•	•	•	•	•	•
Operation										
Touch-Panel	•		•		•		•		•	
Measurement types										
High-voltage AC						•	•		•	•
						5 kV / 100 mA	5 kV / 100 mA		3 kV / 200 mA	3 kV / 200 mA
High-voltage DC		•	•	•	•			•	•	
		6 kV / 5 mA	6 kV / 5 mA	6 kV / 2 mA	6 kV / 2 mA			6 kV / 10 mA	6 kV / 10 mA	
Insulation resistance measurement		○	○	○	○			○	○	
		6 kV 2,5 GΩ	6 kV 2,5 GΩ	6 kV 5 GΩ	6 kV 5 GΩ			6 kV 1 GΩ	6 kV 1 GΩ	
Extensions										
Safety current limitation HV	•	•	•	•						
Burn function					○	○				
Voltage read-back	○	○	○	○			○	○		

• Standard ○ Optional

HighPerformance

Device	F1-1A	F1-1A Z200	F1-1M	F1-1M Z200	F1-1B	F1-1N	F1-1C	F1-1P	F1-1D	F1-1Q
Applications										
Manual application	•	•			•		•		•	
Automatic application	•	•	•	•	•	•	•	•	•	•
Operation										
Touch-Panel	•	•			•		•		•	
Measurement types										
High-voltage AC	•	•	•	•	•	•	•	•	•	•
	5 kV / 100 mA	3 kV / 200 mA	5 kV / 100 mA	3 kV / 200 mA	7 kV / 70 mA	7 kV / 70 mA	10 kV / 50 mA	10 kV / 50 mA	12 kV / 40 mA	12 kV / 40 mA
High-voltage DC	○	○	○	○	○	○	○	○	○	○
	6 kV / 100 mA	3 kV / 200 mA	6 kV / 100 mA	3 kV / 200 mA	9 kV / 70 mA	9 kV / 70 mA	12 kV / 50 mA	12 kV / 50 mA	16 kV / 40 mA	16 kV / 40 mA
Insulation resistance measurement	○	○	○	○	○	○	○	○	○	○
	6 kV 100 MΩ	3 kV 100 MΩ	6 kV 100 MΩ	3 kV 100 MΩ	9 kV 100 MΩ	9 kV 100 MΩ	12 kV 100 MΩ	12 kV 100 MΩ	16 kV 100 MΩ	16 kV 100 MΩ
Extensions										
Safety current limitation HV	○		○		○	○				
Burn function	○		○		○	○				
Voltage read-back	○	○	○	○	○	○				

• Standard ○ Optional

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.

Combined testing devices

Variant overview



BestPerformance

Device	G7-1A	G7-1M	G7-1B	G7-1N	G7-1G	G7-1T	G7-1C	G7-1P	G7-1U	G7-1H
Applications										
Manual application	•		•		•		•		•	
Automatic application	•	•	•	•	•	•	•	•	•	•
Operation										
Touch-Panel	•		•		•		•		•	
Measurement types										
High-voltage AC						•	•		•	•
						5 kV / 100 mA	5 kV / 100 mA		3 kV / 200 mA	3 kV / 200 mA
High-voltage DC		•	•	•	•			•	•	
		6 kV / 5 mA	6 kV / 5 mA	6 kV / 2 mA	6 kV / 2 mA			6 kV / 10 mA	6 kV / 10 mA	
Insulation resistance measurement		•	•	•	•	•	•	•	•	•
		6 kV / 0,25 GΩ	6 kV / 0,25 GΩ	6 kV / 5 GΩ	6 kV / 5 GΩ	1,2 kV / 1 GΩ	1,2 kV / 1 GΩ	6 kV / 1 GΩ	6 kV / 1 GΩ	1,2 kV / 1 GΩ
Protective conductor resistance measurement		•	•	•	•	•	•	•	•	•
		0,5 Ω / > 10 A	0,5 Ω / > 10 A	0,5 Ω / > 10 A	0,5 Ω / > 10 A	1,2 Ω / 10...32 A	1,2 Ω / 10...32 A	0,5 Ω / > 10 A	0,5 Ω / > 10 A	1,2 Ω / 10...32 A
Extensions										
Integrated switching-field	•	•	•	•	•	•	•	•	•	•
Safety current limitation HV	•	•	•	•						
Burn function					○	○				
Voltage read-back	○	○	○	○			○	○		

• Standard ○ Optional

HighPerformance

Device	F7-1A	F7-1A Z200	F7-1M	F7-1M Z200	F7-1B	F7-1N	F7-1C	F7-1P
Applications								
Manual application	•	•			•		•	
Automatic application	•	•	•	•	•	•	•	•
Operation								
Touch-Panel	•	•			•		•	
Measurement types								
High-voltage AC	•	•	•	•	•	•	•	•
	5 kV / 100 mA	3 kV / 200 mA	5 kV / 100 mA	3 kV / 200 mA	5 kV / 100 mA	5 kV / 100 mA	6 kV / 100 mA	6 kV / 100 mA
High-voltage DC	○	○	○	○	○	○	○	○
	6 kV / 100 mA	3 kV / 200 mA	6 kV / 100 mA	3 kV / 200 mA	6 kV / 100 mA	6 kV / 100 mA	8 kV / 100 mA	8 kV / 100 mA
Insulation resistance measurement	○	○	○	○	○	○	○	○
	6 kV / 100 MΩ	3 kV / 100 MΩ	6 kV / 100 MΩ	3 kV / 100 MΩ	6 kV / 100 MΩ	6 kV / 100 MΩ	8 kV / 100 MΩ	8 kV / 100 MΩ
Protective conductor resistance measurement	•	•	•	•	•	•	•	•
	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A	1,2 Ω / 5...32 A
Extensions								
Integrated switching-field	•	•	•	•				
Safety current limitation HV	○		○		○	○		
Burn function	○		○		○	○		
Voltage read-back	○	○	○	○	○	○	○	○

• Standard ○ Optional







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.

Combined testing devices

Variant overview



BestPerformance . Plus

Gerät	G8-1A	G8-1G	
Applications			
Manual application	•	•	
Automatic application	•	•	
Operation			
Touch-Panel	•	•	
Measurement types			
High-voltage AC			• 5 kV / 100 mA
High-voltage DC		• 6 kV / 5 mA	
Insulation resistance measurement		• 6 kV 2,5 GΩ	• 1,2 kV 1 GΩ
Protective conductor resistance measurement		• 1,2 Ω / 5...32 A	• 1,2 Ω / 5...32 A
Functional test		• 50...300 V / 16 A 4000 W / VA	• 50...300 V / 16 A 4000 W / VA
Continuity test (AC)		• > 24 V / > 2 A / 1000 Ω	• > 24 V / > 2 A / 1000 Ω
Extensions			
Integrated switching-field	•	•	
Safety current limitation HV	•		
Burn function		○	
Voltage read-back			

• Standard ○ Optional



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.

SMT Modules

Variant overview



Device	SM-ISO-0-ZRM	SM-HVDC-0-ZRM	SM-HVDC-10-ZRM	SM-HVDC-20-ZRM	SM-PEAC-0-ZRM	SM-PEAC-1-ZRM	SM-PEDC-0-ZRM
Measurement types							
High-voltage DC		•	•	•			
		3 kV / 10 mA	6 kV / 5 mA	10 kV / 3 mA			
Insulation resistance measurement		•	•	•	•		
		1,2 kV 10 GΩ	3 kV 5 GΩ	6 kV 5 GΩ	10 kV 5 GΩ		
Protective conductor resistance measurement					•	•	•
					1,2 Ω / 2...40 A	1,2 Ω / 2...40 A	3...800 mΩ / 1...5 A
Programmable test current					•	•	•
Extensions							
Custom programmable digital outputs (6 pcs.)	○	○	○	○	○	○	○
Safety current limitation HV	•	•	•	•			
Voltage read-back		○	○	○			

• Standard ○ Optional



Protective earth conductor resistance testing devices

Variant overview

Device	90-2A	90-2B	90-2C	90-4F	90-4G	90-4E
Applications						
Manual application	●	●	●	●	●	●
Automatic application	●	●	●	●	●	●
Testing parameters						
Test voltage	12 VAC	12 VAC	12 VAC	10 VAC	6 VAC	6 VAC
Programmable test current				10...25 A	25 A	12 A
Selectable test current	10...25 A	10...30 A	10...50 A			
Measurement ranges	0...300 mΩ	0...300 mΩ	0...200 mΩ	0...350 mΩ	0...200 mΩ	0...3,5 V
Measurement error display	< 5 % of setting			1,5 % of setting / ± 2 digit		
Measurement error analog output	< 2 % of setting			1,5 % of setting / ± 2 digit		
Interfaces						
Digital interface	●	●	●	●	●	●
Analog output 0...10 VDC (Measured value)	●	●	●	●	●	●
Alternative interfaces						
Ethernet	○ 90-2A E10	○ 90-2B E10		○ 90-4F E10	○ 90-4G E10	○ 90-4E E10
RS232	○ 90-2A E11	○ 90-2B E11		○ 90-4F E11	○ 90-4G E11	○ 90-4E E11
USB	○ 90-2A E12	○ 90-2B E12		○ 90-4F E12	○ 90-4G E12	○ 90-4E E12
Principal technical data						
Mains connection	230 V ± 10 %		230 V + 10 / - 5 %	230 V + 10 / - 5 %		
Mains frequency	49 .. 61 Hz					
Dimensions	3 HU / 36 HP	3 HU / 42 HP	19" / 4 HU	3 HU / 36 HP	3 HU / 36 HP	3 HU / 36 HP
Weight	6 kg	7 kg	30 kg	6 kg	6 kg	6 kg

● Standard ○ Optional

Insulation resistance testing devices

Variant overview



Device	90-4K	90-2E
Applications		
Manual application	●	●
Automatic application	●	●
Testing parameters		
Test voltage 1	50...550 VDC	500 VDC
Test voltage 2	500...1000 VDC	
Test current	< 12 mA	< 3 mA
Measurement range 1	0...10,00 MΩ	0...10 MΩ
Measurement range 2	0...100,0 MΩ	0...100 MΩ
Measurement range 3	0...1000 MΩ	
Measurement error display	< 3 % of setting	< 5 % of setting
Measurement error analog output	< 2 % of setting	< 2 % of setting
Interfaces		
Digital interface	●	●
Analog output 0 .. 10 VDC (Measured value)	●	●
Alternative interfaces		
Ethernet	○ 90-4K E10	○ 90-2E E10
RS232	○ 90-4K E11	○ 90-2E E11
USB	○ 90-4K E12	○ 90-2E E12
Principal technical data		
Mains connection	230 V ± 10 %	
Mains frequency	49...61 Hz	
Dimensions	3 HU / 36 HP	
Weight	2,8 kg	1,3 kg

● Standard ○ Optional

Leakage current testing device

Variant overview



Device	92-4A	92-4D	92-4G	90-2M
Applications				
Manual application	●	●	●	
Automatic application	●	●	●	●
Operation				
LC-Display	●	●	●	
Interface	●	●	●	●
Start button	●	●	●	
Interfaces				
RS232-C	●	●	●	○
Digital interface				●
Analog output 0 .. 10 VDC (Measured value)				●
Connections				
1~ socket at front	●	●	●	
3~ socket at front			●	
Laboratory receptacles at front	●	●	●	
Calibration receptacles at front				●
Measurement connections at back	●	●	●	●
Testing parameters				
Test voltage internal	Mains...280 V	50...280 V		
Test voltage programmable	○	○		
Test voltage internal potential-free		●		
Test current internal	0...15 A	0...4 A		
Test voltage external	50...280 V	50...280 V	50...280 V / 50...480 V	50...280 V
Test current external	0...15 A	0...15 A	0...32 A	0...15 A

Device	92-4A	92-4D	92-4G	90-2M
Frequency external	50 .. 400 Hz			
Measurement range / resolution	0...100 µA	0...100 µA	0...100 µA	0...100 µA
Measurement error, measurement range 1 ² TRMS; MAD; alternating component	1 % of meas. + 10 digit	1 % of meas. + 10 digit	1 % of meas. + 10 digit	1 % of meas. + 3 µA
Measurement error, measurement range 1 ² Direct component; peak value	2 % of meas. + 30 digit µA	2 % of meas. + 30 digit µA	2 % of meas. + 30 digit µA	
Measurement error, measurement range 2 / resolution	0...1 mA	0...1 mA	0...1 mA	0...1 mA
Measurement error, measurement range 2 ² TRMS; MAD; alternating component	1 % of meas. + 10 digit µA	1 % of meas. + 10 digit µA	1 % of meas. + 10 digit µA	1 % of meas. + 5 µA
Measurement error, measurement range 1 ² Direct component; peak value	2 % of meas. + 30 digit	2 % of meas. + 30 digit	2 % of meas. + 30 digit	
Measurement error, measurement range 3 / resolution	0...10 mA	0...10 mA	0...10 mA	0...10 mA
Measurement error, measurement range 3 ² TRMS; MAD; alternating component	1 % of meas. + 10 digit	1 % of meas. + 10 digit	1 % of meas. + 10 digit	1 % of meas. + 50 µA
Measurement error, measurement range 1 ² Direct component; peak value	2 % of meas. + 30 digit	2 % of meas. + 30 digit	2 % of meas. + 30 digit	
Measured bandwidth of measurement amplifier	DC; 50 Hz...1 MHz			
Effective value measurement	● ¹	● ¹	● ¹	●
Average value measurement	● ¹	● ¹	● ¹	
Peak value measurement	● ¹	● ¹	● ¹	
AC component	● ¹	● ¹	● ¹	
DC component	● ¹	● ¹	● ¹	

Principal technical data				
Memory	200 data sets			
Mains connection	230 V ± 10 %; 49...61 Hz			
Dimensions	19" / 4 HU			3 HU / 48 HP
Weight	31 kg	28 kg	20 kg	4 kg
Allowable humidity	25...75 % rel.			
Working temperature	10...50°C			
Test timer	1 s...24 h			

● Standard ○ Optional

¹ Dependent on the testing standard applied. Please also request the respective standards when ordering.

² Evaluated at DC / 50 .. 60 Hz

Housings

Variant overview



Housing	30-6M	30-6P	30-6N
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Dimensions			
36 HP	●		
42 HP		●	
84 HP			●

Additional options / Additional wiring back panel			
Ethernet	○ 30-6M E10	○ 30-6P E10	○ 30-6N E10
RS232	○ 30-6M E11	○ 30-6P E11	○ 30-6N E11
USB	○ 30-6M E12	○ 30-6P E12	○ 30-6N E12
Digital/analogue interface	○ 30-6M E13	○ 30-6P E13	○ 30-6N E13
Interface 92-5K	○ 30-6M E14		○ 30-6N E14
Test unit connection 92-5K	○ 30-6M E53		○ 30-6N E53
Test unit connection Protective conductor	○ 30-6M E50	○ 30-6P E50	○ 30-6N E50
Test unit connection 90-2E	○ 30-6M E51		○ 30-6N E51
Test unit connection 90-4K	○ 30-6M E51-1		○ 30-6N E51-1

● Standard ○ Optional