

1. ELECTRICAL SPECIFICATIONS

Accuracy is calculated as \pm [% readings + (no. of digits*resolution)] at 23 °C \pm 5 °C, relative humidity <80%RH

SAFETY TEST

DMM – DC Voltage

| Range [V] | Resolution [V] | Accuracy |
|-----------|----------------|------------------------|
| 3 ÷ 1500 | 1 | \pm (1.0%rdg + 2dgt) |

DMM – AC TRMS Voltage

| Range [V] | Resolution [V] | Accuracy |
|-----------|----------------|------------------------|
| 3 ÷ 1000 | 1 | \pm (1.0%rdg + 3dgt) |

Frequency range: 42.5Hz ÷ 69Hz ; Voltage zeroed for measured values <3V

Insulation Resistance (M Ω) – DUAL Mode

| Test voltage DC [V] | Range [M Ω] | Resolution [M Ω] | Accuracy (*) |
|----------------------|---------------------|--------------------------|----------------------|
| 250, 500, 1000, 1500 | 0.1 ÷ 0.99 | 0.01 | \pm (5%rdg + 5dgt) |
| | 1.0 ÷ 19.9 | 0.1 | |
| | 20 ÷ 100 | 1 | |

(*) Accuracy indicatec for VPN \geq 240V, R_{fault} \geq 10 Ω . Accuracy of R_p and R(+) not declared if R(+) \geq 0.2M Ω and R(-) <0.2M Ω
Accuracy of R_p and R(-) not declared if R(+) < 0.2M Ω and R(-) \geq 0.2M Ω

Open voltage <1.25 x nominal test voltage
Short circuit current <15mA (peak) for each test voltage
Nominal measured current >1mA on R = 1k Ω x V_{nom} (with VPN, VPE, VNE= 0)

Insulation Resistance (M Ω) –TMR Mode

| Test voltage DC [V] | Range [M Ω] | Resolution [M Ω] | Accuracy |
|----------------------|---------------------|--------------------------|-----------------------|
| 250, 500, 1000, 1500 | 0.01 ÷ 9.99 | 0.01 | \pm (5.0%rdg+ 5dgt) |
| | 10.0 ÷ 99.9 | 0.1 | |

Open voltage <1.25 x nominal test voltage
Short circuit current <15mA (peak) for each test voltage
Nominal measured current >1mA on R = 1k Ω x V_{nom} (with VPN, VPE, VNE= 0)
Setting timer: 3s ÷ 999s

Continuity of protection conductors (RPE)

| Range [Ω] | Resolution [Ω] | Accuracy |
|--------------------|-------------------------|----------------------|
| 0.00 ÷ 9.99 | 0.01 | \pm (2%rdg + 2dgt) |
| 10.0 ÷ 99.9 | 0.1 | |
| 100 ÷ 1999 | 1 | |

Test current: >200mA DC up to 5 Ω (included cables), Resolution 1mA, Accuracy \pm (5.0%rdg + 5dgt)
Open voltage 4 < V_o < 10V

GFL (Ground Fault Locator) function

| Test voltage DC [V] | Range [M Ω] | Resolution [M Ω] | Accuracy (*) | Position accuracy |
|----------------------|---------------------|--------------------------|----------------------|-------------------|
| 250, 500, 1000, 1500 | 0.1 ÷ 0.99 | 0.01 | \pm (5%rdg + 5dgt) | \pm 1module |
| | 1.0 ÷ 19.9 | 0.1 | | |
| | 20 ÷ 100 | 1 | | |

(*) Accuracy indicatec for VPN \geq 240V, R_{fault} \geq 10 Ω . Accuracy of R_p and R(+) not declared if R(+) \geq 0.2M Ω and R(-) <0.2M Ω
Accuracy of R_p and R(-) not declared if R(+) < 0.2M Ω and R(-) \geq 0.2M Ω

Open voltage <1.25 x nominal test voltage
Short circuit current <15mA (peak) for each test voltage
Nominal measured current >1mA on R = 1k Ω x V_{nom} (with VPN, VPE, VNE= 0)
Set limit threshold on measure 0.05M Ω , 0.1M Ω , 0.23M Ω ; Number of set modules: 4 ÷ 35

The GFL function allows obtaining correct results with the following conditions:

- > Test carried out with V_{test} \geq V_{nom} on a single string disconnected from the inverter, from possible arresters and from earth connections
- > Test performed upstream of any blocking diodes
- > **Single fault** of low insulation located at any position in the string
- > Insulation resistance of the single fault <0.23M Ω
- > Environmental conditions similar to those in which the fault was reported





FUNCTIONALITY TEST (IVCK)

DC Voltage @ OPC

| Range [V] | Resolution [V] | Accuracy |
|--------------|----------------|----------------------|
| 3.0 ÷ 1500.0 | 0.1 | $\pm(1.0\%rdg+2dgt)$ |

Minimum VPN voltage to start the test: 15V

IDC Current @ OPC

| Range [A] | Resolution [A] | Accuracy |
|--------------|----------------|----------------------|
| 0.10 ÷ 40.00 | 0.01 | $\pm(1.0\%rdg+2dgt)$ |

DC Voltage @ STC

| Range [V] | Resolution [V] | Accuracy |
|--------------|----------------|----------------------|
| 3.0 ÷ 1500.0 | 0.1 | $\pm(4.0\%rdg+2dgt)$ |

IDC Current @ STC

| Range [A] | Resolution [A] | Accuracy |
|--------------|----------------|----------------------|
| 0.10 ÷ 40.00 | 0.01 | $\pm(4.0\%rdg+2dgt)$ |





2. GENERAL SPECIFICATIONS

DISPLAY AND MEMORY

| | |
|-----------------------------------|--------------------------------------|
| Features: | 240x240pxl custom LCD with backlight |
| Memory: | max 999 test |
| Internal database for PV modules: | max 64 saving modules |

POWER SUPPLY

| | |
|------------------------------|---|
| Internal power supply: | 6x1.5V alkaline batteries type LR6, AA or 6x1.2V rechargeable NiMH batteries type LR6, AA (External adapter needed for NiMH batteries recharging) |
| Battery life (@Temp = 20°C): | RPE: >500 Test (RPE \geq 0.1 Ω) GFL, M Ω : >500 test (Riso \geq 1k Ω xVTest) IVCK: >500 test (no SOLAR03) |
| Auto Power OFF: | after 5 minutes of idleness |

OUTPUT INTERFACE

| | |
|-------------------------|---|
| PC communication port: | optical/USB and WiFi |
| Interface with SOLAR03: | Bluetooth BLE communication (max distance 100m) |

MECHANICAL FEATURES

| | |
|------------------------------|------------------|
| Dimensions (L x W x H): | 235 x 165 x 75mm |
| Weight (batteries included): | 1.2kg |
| Mechanical protection: | IP40 |

ENVIRONMENTAL CONDITIONS

| | |
|------------------------|-------------------------------|
| Reference temperature: | 23°C \pm 5°C |
| Working temperature: | -10°C \div 50°C |
| Working humidity: | <80%RH (without condensation) |
| Storage temperature: | -10°C \div 60°C |
| Storage humidity: | <80%RH (without condensation) |
| Max height of use: | 2000m |

REFERENCE GUIDELINES

| | |
|------------------------------------|---|
| Safety: | IEC/EN61010-1, IEC/EN61557-1 |
| EMC: | IEC/EN61326-1 |
| Safety of measurement accessories: | IEC/EN61010-031 |
| IVCK measurements: | IEC/EN62446-1 |
| M Ω measurement: | IEC/EN61557-2 |
| RPE measurement: | IEC/EN61557-4 |
| Insulation: | double insulation |
| Pollution degree: | 2 |
| Overvoltage category: | CAT III 1000VAC, CAT III 1500VDC to ground Max 1000VAC, 1500VDC between inputs |

This instrument complies with the requirements of the European Low Voltage Directives 2014/35/EU (LVD), EMC directive 2014/30/EU and RED 2014/53/EU directive
This instrument satisfies the requirements of 2011/65/EU (RoHS) directive and 2012/19/EU (WEEE) directive



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Calibrage de l'analyse de gaz de combustion



Séminaires et ateliers



Calibrage de la thermographie

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