



PVM-1020

reSYNC

automatic
synchronization of
STC parameters



PVM-1020
Photovoltaic meter



IRM-1
Solar radiation
and temperature meter



MRU-10
Earth resistance meter

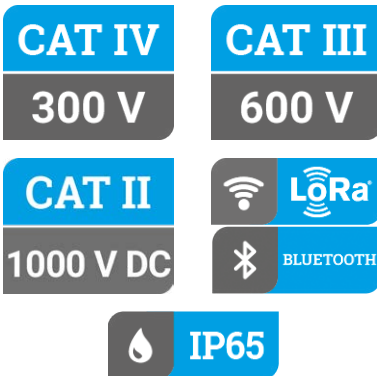


KT-256F
Thermal imager

Comprehensive measurements of photovoltaic installations

Capabilities

- **PVM-1020** | It can be used for category 1 measurements according to IEC 62446-1.
- **PVM-1020** | It converts measured parameters into STC conditions according to IEC 60891 by cooperation with the IRM-1 solar radiation and temperature meter.
- **IRM-1** | Measurement of solar radiation and temperature.
- **IRM-1** | The LoRa interface for communication with a master meter – offers a larger range than the Bluetooth technology!
- **MRU-10** | Earthing resistance measurements of photovoltaic installations using the 3-pole method.
- **KT-256F** | Infrared diagnostics.



PVM-1020

Photovoltaic meter

Features

- It can be used for category 1 measurements according to IEC 62446-1.
- AUTO mode for performing a sequence of measurements after one press of the START button.
- It converts measured parameters into STC conditions according to IEC 60891 by cooperation with the IRM-1 solar radiation and temperature meter.
- reSYNC function – automatic completion of results with environmental parameters and their conversion to STC conditions after restoring connection with IRM-1.
- The built-in LoRa radio interface ensures cooperation with the IRM-1 meter over long distances.
- Built-in Bluetooth module for communication with a computer.
- Large measurement memory: 100 objects with 40 cells each.
- Backlit display and buttons.

Measured parameters

- The open circuit voltage of the PV panel or a chain of panels, up to 1000 V DC.
- RMS voltage of the AC network up to 600 V with frequency measurement.
- Short circuit current of a PV panel or chain of panels – up to 20 A DC.
- Insulation resistance of PV panels – measuring voltage of 250, 500 or 1000 V, simultaneous measurement of two values: R_{ISO+} and R_{ISO-} .
- Insulation resistance of AC circuits – measuring voltage 250, 500 or 1000 V.
- Resistance of protective conductors and equipotential bonding with ± 200 mA current. Low-current resistance measurement, audible and visual signalling.
- Measurement of PV panels operating current and AC current – all with external clamp.
- AC/DC power Measurement.
- Diode test with 200 mA current, automatic polarity detection. Test of blocking diodes with 1000V DC voltage.



IRM-1

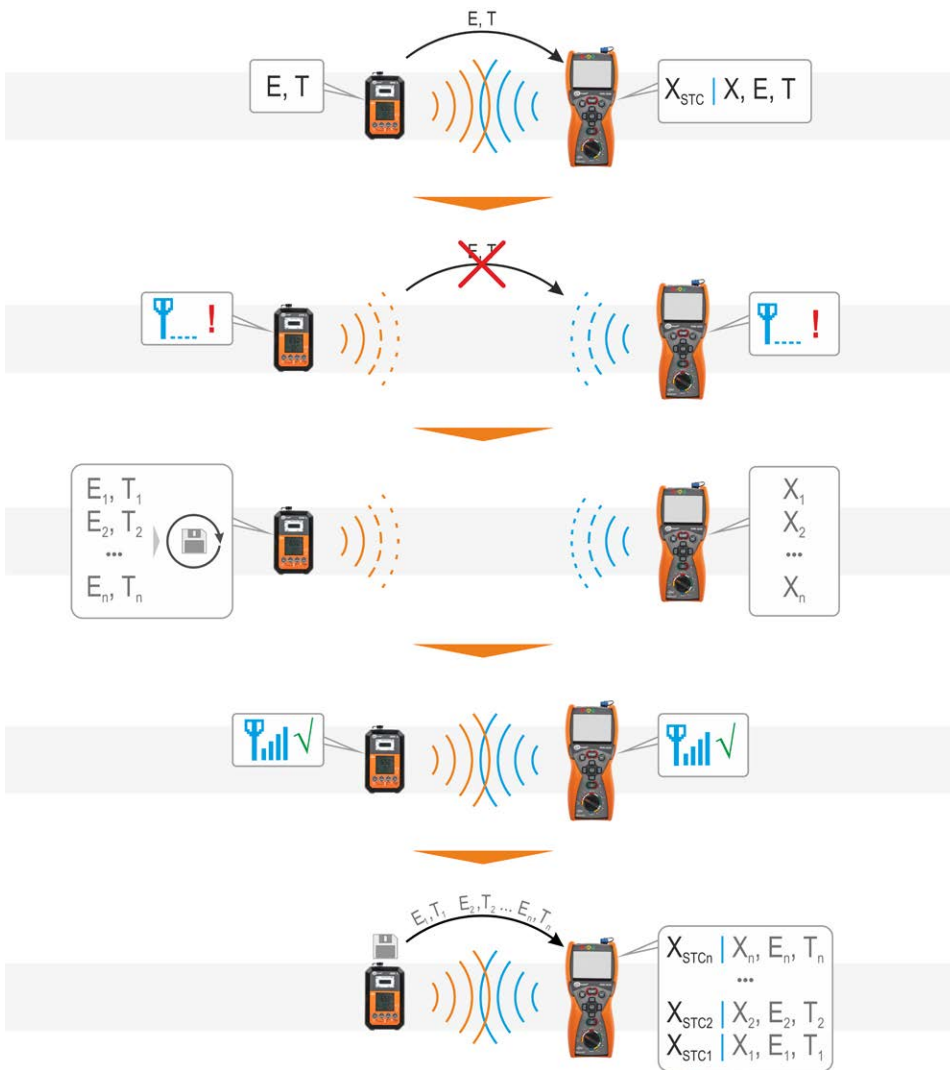
Solar radiation and temperature meter

Features

- Measurement of solar radiation and temperature.
- The LoRa interface for communication with a master meter – offers a larger range than the Bluetooth technology!
- Automatic data synchronization with a master meter with reSYNC function.
- Built-in compass and inclination sensor.
- Built-in recorder that can be used to record solar radiation before constructing PV systems, as well as to measure the shading of existing systems.
- Large measurement memory: 999 cache memory cells and 5000 recorder records available (one-time recording) with the option of overwriting them (continuous recording).

Measured parameters

- Solar radiation intensity (irradiance) in W/m^2 or BTU/ft^2h .
- PV panel temperature in $^{\circ}C$ or $^{\circ}F$.
- Ambient temperature in $^{\circ}C$ or $^{\circ}F$.
- Inclination angle of panels
- Orientation of the panels with the built-in compass.



Trouble? reSYNC!

It may happen that in the course of measurements the master meter moves away from the IRM-1 so far, that communication between them is lost. If the measurements are continued, then after the connection is restored, the results will be automatically **supplemented with environmental parameters**, which in the meantime were recorded by the IRM-1 in its **temporary memory**, and converted into STC conditions.



CAT III

300 V

IP67

MRU-10 Earth resistance meter

Earthing resistance measurements

- 3-pole method – measurement of earthing systems using auxiliary probes.
- 2-pole method.

Features

- Resistance of auxiliary electrodes R_H and R_S .
- Measurement of interference voltage to 100 V.
- Indication of battery state.
- Selection of maximum measuring voltage (25 V and 50 V).
- Auto-OFF function.

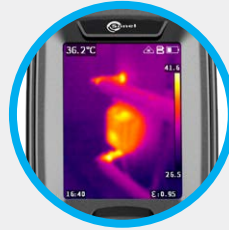
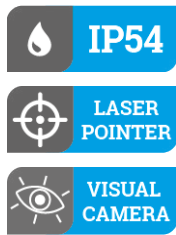


KT-256F

Thermal imager

Features

- Measuring range: -20°C...550°C (-4°F... 1022°F).
- Quick start.
- Fast temperature measurement.
- Automatic signalling of exceeded alarm threshold.
- Autofocus.
- Saving IR images to SD card.
- Built-in Li-Ion battery with 16-hour working time.
- Interfaces: USB type C, SD slot.
- Can be set up on a tripod.



2.4" display
Clear temperature reading



Autofocus trigger
Sharp image with a single press



Trigger
Temperature measurement with a single press

Large buttons
Conveniently located for flawless control

Technical data

Safety and work conditions	PVM-1020	IRM-1	MRU-10	KT-256F
Measuring category according to EN 61010	IV 300 V, III 600 V, II 1000 V DC	-	III 300 V	-
Ingress protection	IP65	IP65	IP67	IP54
Dimensions	228 x 102 x 61 mm	134 x 79 x 28 mm	220 x 102 x 61 mm	194 x 62 x 76 mm
Weight	ca. 1.0 kg	ca. 0.2 kg	ok. 0,7 kg	ca. 0.4 kg
Memory and communication				
Memory of measurement results	4 059 records	user measurement memory: 999 records recorder: 5000 records	-	32 GB
Data transmission	Bluetooth	USB	-	USB
Communication with IRM-1	LoRa	-	-	-
Communication with a master meter	-	LoRa	-	-



Standard accessories



PVM-1020 meter
WMGBPVM1020



IRM-1 meter
WMGBIRM1



MRU-10 meter
WMGBMRU10



KT-256F thermal imager
WMGBKT256F



C-PV clamp
WACEGCPV0KR



MC4-banana sockets adapter (set of 2 pcs.)
WAADAMC4



Test lead 1.2 m (banana plugs) black / red / yellow
WAPRZ1X2BLBB
WAPRZ1X2REBB
WAPRZ1X2YEBB



Test lead 2.2 m (banana plugs) black
WAPRZ2X2BLBB



Test lead on a reel 15 m / 30 m
WAPRZ015REBBSZ
WAPRZ030YEBBSZ



Pin probe 1 kV (banana socket) red
WASONRE0GB1



2x crocodile clip 1 kV 20 A black
WAKROBL20K01



Solar radiation meter mounting kit for PV panels + probe for measuring the temperature of PV panels and the ambient temperature
WASONTPVCKPL



2x earth contact test probe (rod), 25 cm
WASONG25



Crocodile clip 1 kV 20 A red / yellow
WAKRORE20K02
WAKROYE20K02



Z-20 USB charger
WAZASZ20



5 V power supply with USB 2.0 output and a detachable micro-USB cable
WAZASZ24



XL-14 hard carrying case
WAWALXL14



Wristband
WAPOZPAS1



2x hanging straps
WAPOZSZE4



32 GB microSD card
WAPOZMSD32



Type C USB cable
WAPRZUSBC



8x AA 1.5 V alkaline battery



2x AAA 1.5 V alkaline battery



Factory calibration certificates:
PVM-1020
IRM-1
MRU-10



Declaration of verification
KT-256F