

Photovoltaic and electrical installation tester

MI 3116 PV AnalyserXA

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The MI 3116 PV AnalyserXA is an advanced photovoltaic and electrical installation tester designed for maximum efficiency and precision. It combines insulation and I/U measurements of 1500 V PV systems in a single device while ensuring accurate testing of high-efficiency PV modules. A wireless (Wi-Fi) remote unit enables real-time measurement and logging of irradiation and cell temperature, enhancing data collection. The Auto Test function for Category 1 tests streamlines operation, while the innovative correction feature allows users to adjust previously incorrect parameters on completed measurements or entire test groups, ensuring greater accuracy and reliability in PV system diagnostics.

MEASURING FUNCTIONS

- Maximum system voltage up to **1500 VDC**;
- Maximum harness Sub Array current up to **40 ADC**;
- **1500 V** insulation resistance of strings;
- Support for **bifacial modules**;
- **I/U characteristics**;
- Isc and Uoc test;
- Continuity of PE conductors;
- Polarity test;
- Acquisition of irradiation and PV module temperature.

KEY FEATURES

- **Insulation and I/U measurement of 1500 V PV systems in one instrument.**
- Measurement of **high efficiency PV modules**.
- Capacitive measurement method.
- **Wireless (Wi-Fi)** remote unit for measuring and logging irradiation and cell temperature of PV modules.
- **Auto test for Category 1 tests.**
- Calculation of STC values and comparison with nominal data.

- **Correction of** previously incorrectly entered parameters on already executed **measurement** or a group of measurements.
- The instrument is controlled via a **colour touch screen display** through which the user can prepare and start the selected test or measurement, store results, and review them in a numerical and graphical form.
- Memory organizer, **operations on a single or a group of measurements**, search functionality.
- **PV modules database handler.**
- **AUTOSEQUENCE.**
- The SW 1201 Metrel Electrical Safety Manager (MESM) is a powerful software solution designed to streamline electrical safety testing. It allows users to predefine measurement structures, upload or download test data, and efficiently review results. With advanced features such as I/U curve analysis, a PV module database explorer, and professional report generation, MESM enhances workflow efficiency and ensures precise data management.

APPLICATION

- **Testing of large 1500 V PV plants**
- First inspection testing
- Periodic testing
- Maintenance testing
- Evaluation and troubleshooting
- Report generation

STANDARDS

Functionality

- EN 62446
- EN 61557

Electromagnetic compatibility

- EN 61326-1

Safety

- EN 61010-1
- EN 61010-2-30
- EN 61010-031

TECHNICAL SPECIFICATION

Photovoltaic measurements		
Function	Measuring range	Accuracy
Voltage	20.0 ... 199.9 VDC 200 ... 1699 VDC	±(1 % of reading + 2 digits) ±1 % of reading
Current	0.10 ... 9.99 ADC 10.00 ... 39.99 ADC	±(1 % of reading + 3 digits) ±1 % of reading
Power	0.2 ... 199.9 W 200 ... 1999 W 2.00 k ... 19.99 kW 20.0 k ... 48.0 kW	±(2 % of reading + 5 digits) ±2 % of reading ±2 % of reading ±2 % of reading
I/U curve	1500 V / 40 A / 48 kW	
Irradiation (A 1834)	0 ... 999 W/m ² 1.00 ... 1.75 kW/m ²	± (4 % + 5 digits) ±4 % of reading
Temperature (A 1833)	-10.0 ... 85.0 °C	±5 digits
Electrical installation measurements		
Insulation resistance Roc-, Roc+		
Um = 250 V d.c.	0.00 ... 19.99 MΩ 20.0 ... 199.9 MΩ	±(5 % of reading + 3 digits) ±10 % of reading
Um = 500 V d.c., 1000 V d.c. and 1500 V d.c.	0.00 ... 19.99 MΩ 20.0 ... 199.9 MΩ 200 ... 999 MΩ	±(5 % of reading + 3 digits) ±5 % of reading ±5 % of reading
Insulation resistance Roc	0.00 ... 999 MΩ	Calculated value
Continuity, 200 mA	0.00 ... 19.99 Ω 20.0 ... 199.9 Ω 200 ... 1999 Ω	±(3 % of reading + 3 digits) ±5 % of reading ±10 % of reading
General	Main unit	Remote unit
Display	Colour TFT display, 4.3", 480 x 272 pixels with touch screen	128x64 dots matrix display with backlight
Power supply		
Battery	Li-Ion, 14.4 V, 4400mAh, non-removable	9 VDC (6x1.5 V battery or accu, size AA)
Mains	100 V ... 240 V, 50 Hz ... 60 Hz, 100 W	External power supply adapter 12 V 0,4 A
Overvoltage category	CAT II / 300V	
Protection classification	Reinforced insulation	
Pollution degree	2	
Degree of protection	IP 54 (cover closed)/ IP 40 (cover opened)	IP 40
Altitude	up to 4000 m	
Memory	Memory card slot, microSD card, up to 512 GB	Number of memorized results: > 3000, circular buffer
Connectivity		
RS232	1 port, DB9 female	1 port, PS2
USB	USB 2.0, standard Type-B	USB 2.0, standard Type-B
Bluetooth	v4.2 BR/EDR and BLE specification	
Wi-Fi	802.11 b/g/n (802.11n up to 150 Mbps) (Only for communication with A 1785 - PV Remote WL)	802.11 b/g/n (802.11n up to 150 Mbps) (Only for communication with PV Main Unit)
Size (l x h x w)	420 x 180 x 330 mm	140 x 80 x 230 mm
Weight	6.8 kg	1 kg

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ORDERING INFORMATION



Picture of MI 3116 BF set

Standard set MI 3116 ST

- Instrument MI 3116 PV AnalyserXA
- A 1785 PV Remote WL
- A 1833 PV temperature sensor
- A 1834 PV reference cell
- 2x A 1835 Clamp for attaching accessories
- A 1840 MC4 Test lead, Blue, 1500 V
- A 1841 MC4 Test lead, Red, 1500 V
- A 1790 RED Test lead, Red, 3m, 2,5mm²
- A 1790 BLU Test lead, Blue, 3m, 2,5mm²
- A 1792 Test lead Green, 3m, 0,75mm²
- A 1509 Test lead, Black, 50m, 0,75mm² – Reel
- A 1012 Test lead, Green, 4m, 0,75mm²
- A 1309 Crocodile clip, Green
- A 1014 Test probe, Black
- A 1015 Test probe, Blue
- A 1016 Test probe, Red
- A 1727 USB cable TypeA/B
- A 1728 Power cable, 2m, 3x0.75mm²
- A 1551 Soft padded carrying bag Size: L
- A 1548 Power supply 0,5A/12V**
- A 1791 Carrying strap with tightening buckle
- S 2080 Battery set, Type AA, 2100mAh - 6pcs
- Calibration certificate for MI 3116
- Calibration certificate for A 1785
- User Manual
- SW 1201 Metrel Electrical Safety Manager (MESM)*

* Metrel ES Manager can be downloaded free of charge from Web server
** In some countries replaced with national specific version of A 1569

Bifacial set MI 3116 BF

- MI 3116 ST
- A 1844 PV Reference cell for dual mount
- A 1383 Temperature probe with 3 m cable
- A 1847 Communication cable, 0.5m
- A 1835 Clamp for attaching accessories

OPTIONAL ACCESSORIES

Photo	Order No.	Acc. description
	A 1530	G clamp Dia=27mm
	1844	PV Reference cell for dual mount
	A 1383	Temperature probe with 3 m cable
	A 1835	Clamp for attaching accessories
	A 1847	Communication cable, 0.5m, 2xDB9 female/DB9 male
	P 1403	3-year Metrel Smart Cloud PRO subscription • Metrel Cloud Reports • Metrel Cloud Storage (24 GB)