




















# Power Quality and Energy Management for Industrial Applications

## RECOMMENDED OPTIONAL ACCESSORIES

Part No.	Smart Clamps	Description	Target application	MI 2893 / MI 2892 / MI 2885	MI 2884 / MI 2883
A 1501		1-phase mini flexible current clamp 3000/300/30 A / 1 V	Single phase flexible current clamp with three selectable measuring ranges (25 cm loop). Does not require external power supply as it is powered by the measuring instrument.	•	•
A 1502		1-phase mini flexible current clamp 3000/300/30 A / 1 V	Single phase flexible current clamp with three selectable measuring ranges (48 cm loop). Does not require external power supply as it is powered by the measuring instrument.	•	•
A 1503		1-phase mini flexible current clamp 6000/600/60 A / 1 V	Single phase flexible current clamp with three selectable measuring ranges (90 cm loop). Does not require external power supply as it is powered by the measuring instrument.	•	•
A 1281		Current clamp 0.5/5/100/1000 A / 1 V	High accuracy current clamp 0.5/ 5/100/1000 A / 1 V for precise current and power measurements including leakage current measurement.	•	•
A 1227		1-phase flexible current clamp 3000/300/30 A / 1 V	Single phase flexible current clamp with three selectable measuring ranges. Does not require external power supply as it is powered by the measuring instrument.	•	•
A 1446		1-phase flexible current clamp 6000/600/60 A / 1 V	Single phase flexible current clamp with three selectable measuring ranges. Does not require external power supply as it is powered by the measuring instrument.	•	•
A 1588		Current clamp 0.5/5/50 A	High smart accuracy current clamp 0.5/5/50 A, jaw opening: 40 mm; Max. conductor size < 50 mm for precise current and power measurements including leakage current measurement	•	•
A1391PQA		Current clamp 40/300 A / 1 V	AC + DC current clamp 40/300 A / 1 V with jaw opening 25 mm for power measurements. Battery Life, 66 hours typical (Alkaline).	•	•
S 2086		4 x Mini current clamp A 1069, 5 A / 1 V	Mini current clamp 100 A / 1 V with jaw opening 15 mm for power measurements, including A 1561 connection cable.	•	•
A 1037		Current transformer 5 A / 1 V	3-phase transformer for power measurements on distribution panels with 5 A nominal output current.	•	•
S 2015		Safety flat clamp, 4 pcs	Safety flat clamps assure good contact when connecting the test leads on busbars and other larger flat surfaces.	•	•
S 2014		Safety fuse adapter, 3 pcs	Fuse adapters protect the instrument and the user against current strike and overload.	•	•
A 1355		GPS receiver	GPS Synchronization unit guaranties that the time clock of the Metrel Power Quality analyzer is synchronized according to IEC 61000-4-30.	•	
A 1778		Magnetic contact probe	Test probe with magnetic contact provides reliable contact with metal surface during the measurement.	•	•

Metrel provides a wide range of different current sensors and other special accessories. Current sensors are available as flexible, iron or as a current transformer. Different ranges and sizes are available as well.

- Compatible
- Highly recommended

Part No.	Smart Clamps	Description	Target application	MI 2893 / MI 2892 / MI 2885	MI 2884 / MI 2883
A 1753		4G modem	4G / Wi-Fi Router for remote instrument access.	•	
S 2072		USB storage device (for backup of data)	USB stick enables you to backup your data to a USB drive. This is a practical backup solution as it allows you to store recorded data files to external device, offering increased portability.	•	•
A 1354		Temperature probe	Temperature probe can be used for monitoring and recording of temperature trend at measuring objects, such as capacitors, motors, transformers, etc.	•	•
A 1458		microSD card reader	Move data between your computer and memory card with memory card reader.	•	•
A 1479		Wide range power supply	Wide range power supply (Unom: 85V ÷ 650 Vac / 920 Vdc ) provide power supply directly from voltage measuring terminals. Applicable when standard electrical sockets are not available on measurement site.	•	•

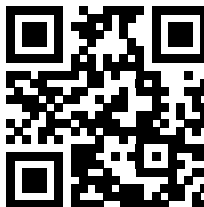
## A 1685, A 1565 AND A 1577 PROFESSIONAL PROTECTIVE WATERPROOF CASE'S

Extreme atmospheric conditions can wreak havoc on even the sturdiest of instruments, especially if left unprotected for some time. Still, many testing and measuring situations take place in outdoor environments, where there could be few appropriate shelters or the measured application itself is exposed to the weather. Power quality analysis or more specifically long-term recording of power parameters is one such example as it is performed over a longer period of time and often in more demanding environments. For such situations and for our line power quality analysers, we have developed the A 1565 Waterproof case for outdoor application and recordings (pylons, switchyards). A 1685 and A 1577 enable safe and comfortable transfer of all needed equipment for power quality measurements.



## MAIN DIFFERENCES BETWEEN MODELS

Model	IEC 61000-4-30 Compliance	General recorder	Waveform recorder	Transient recorder	Remote access	Current sensors
MI 2893 Power Master XT	Class A 0,1% (Independent)	•	•	•	•	4
MI 2892 Power Master	Class A 0,1% (Independent)	•	•	•	•	4
MI 2885 Master Q4	Class S 0,1% (Independent)	•	•	•	•	4
MI 2884 Energy Master XT	Class S 0,2%	•	•	•		3 + 1 optional
MI 2883 Energy Master	Class S 0,2%	•				3 + 1 optional



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# Power Quality and Energy Management for Industrial Applications 2021

## Measuring instruments and testers



Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery. Subject to technical change without notice.



# Power Quality and Energy Management for Industrial Applications

## Power Quality and Energy Management for Industrial Applications and Power Loads

### Hand-held three phase power quality instruments offering complete solution for:

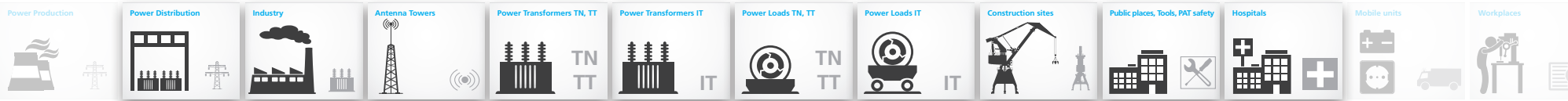
- Long term recording;
- Predictive maintenance;
- Checking power correction equipment performance;
- Verification of electrical system capacity before adding loads;
- On-site troubleshooting.

### Finding of hidden power quality problems such as:

- Voltage dips and swells;
- Harmonic distortion;
- Voltage unbalance;
- Flicker;
- Transients;
- Inrush current recording.

### Standards Applied:

- IEC/EN 61000-4-30,
- IEC/EN 61557-12
- IEC/EN 61000-4-15
- IEC/EN 61000-4-7, Class I
- EN 50160
- IEEE 1448
- IEEE 1459
- IEEE 519



### Recommended set MI 2893/MI 2892/MI 2885:

- A 1502 1-phase flexible current clamp 3000/300/30 A / 1 V, 4 pcs
- A 1355 GPS receiver
- A 1753 WiFi / 4G modem
- S 2015 Safety flat clamp, 4 pcs

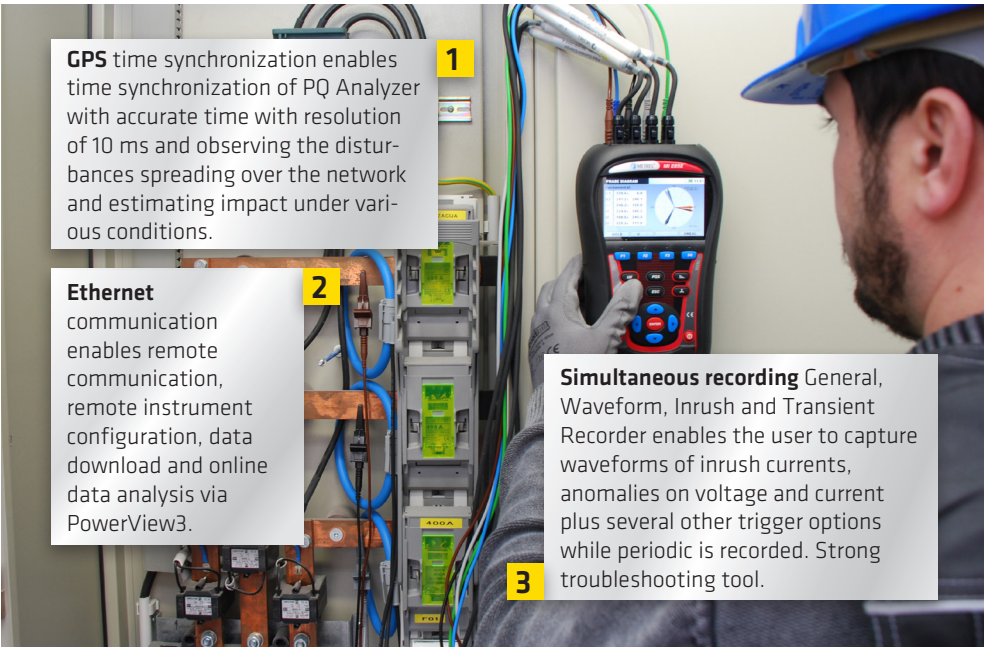
### Recommended set MI 2884/MI 2883:

- A 1502 1-phase flexible current clamp 3000/300/30 A / 1 V, 3 pcs (+ 1 pcs optional)
- S 2015 Safety flat clamp, 3 pcs

The offer of other available current clamps and other accessories can be found in Metrel General Catalogue or at [www.metrel.si](http://www.metrel.si).

# Power Quality and Energy Management for Industrial Applications

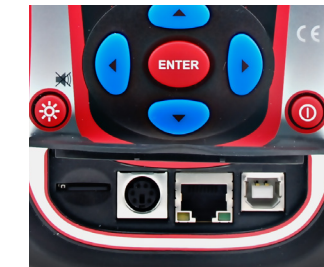
**Power quality analyzing, on-site troubleshooting, and energy management** - nowadays the electronic/energetic devices need to be powered from a quality power source, therefore requirements from power quality standard EN 50160 and recommended practice and requirements for harmonics control in electric power systems according IEEE 519 should be fulfilled. Power meter is a perfect tool for long term recording and analysis and a perfect tool to monitor the power quality.



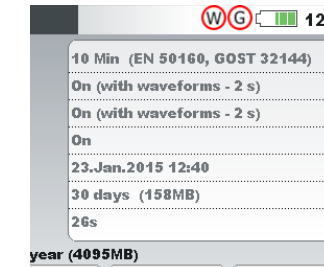
1. GPS time synchronization and GPS location coordinate...



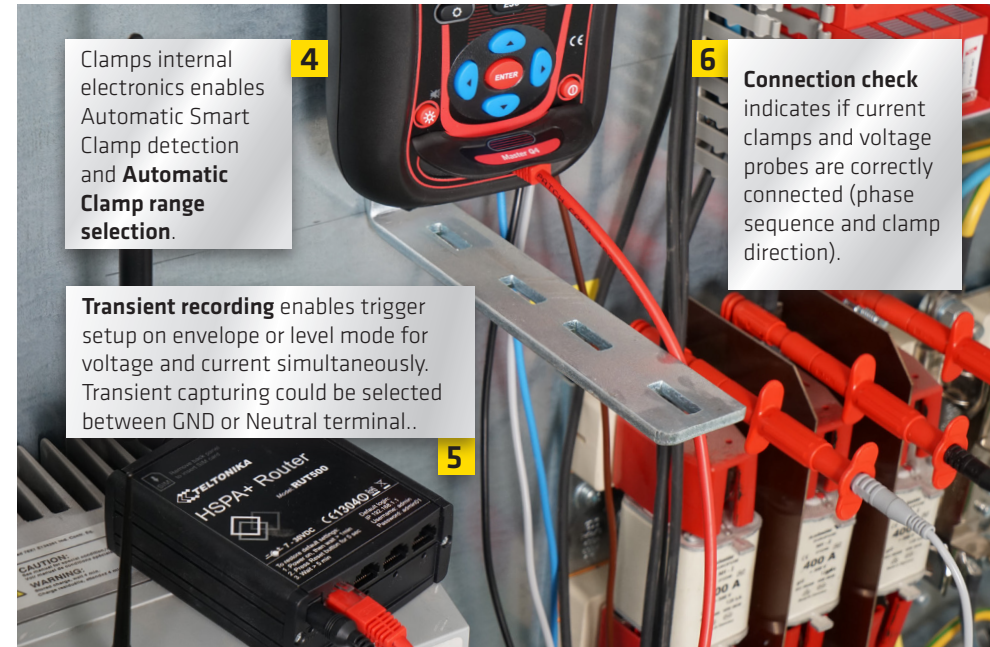
2. Ethernet (direct connection or via WiFi/4G router)...



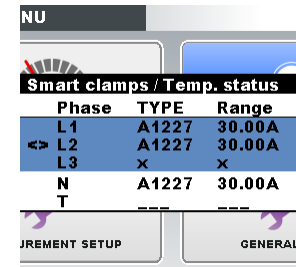
3. Simultaneous GENERAL and WAVEFORM recorders...



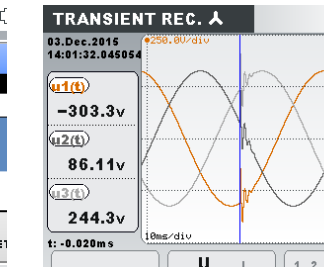
**Power quality instrument enables complete solution for** - easy identification and elimination of problems in the power utilities or customer's installation, preventative maintenance by the early location of potential sources of disturbances or failures, optimization of the power network based on power quality parameters.



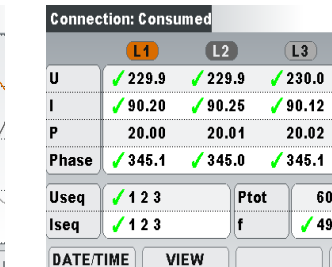
4. Smart current clamps and range selection...



5. Transient capturing...

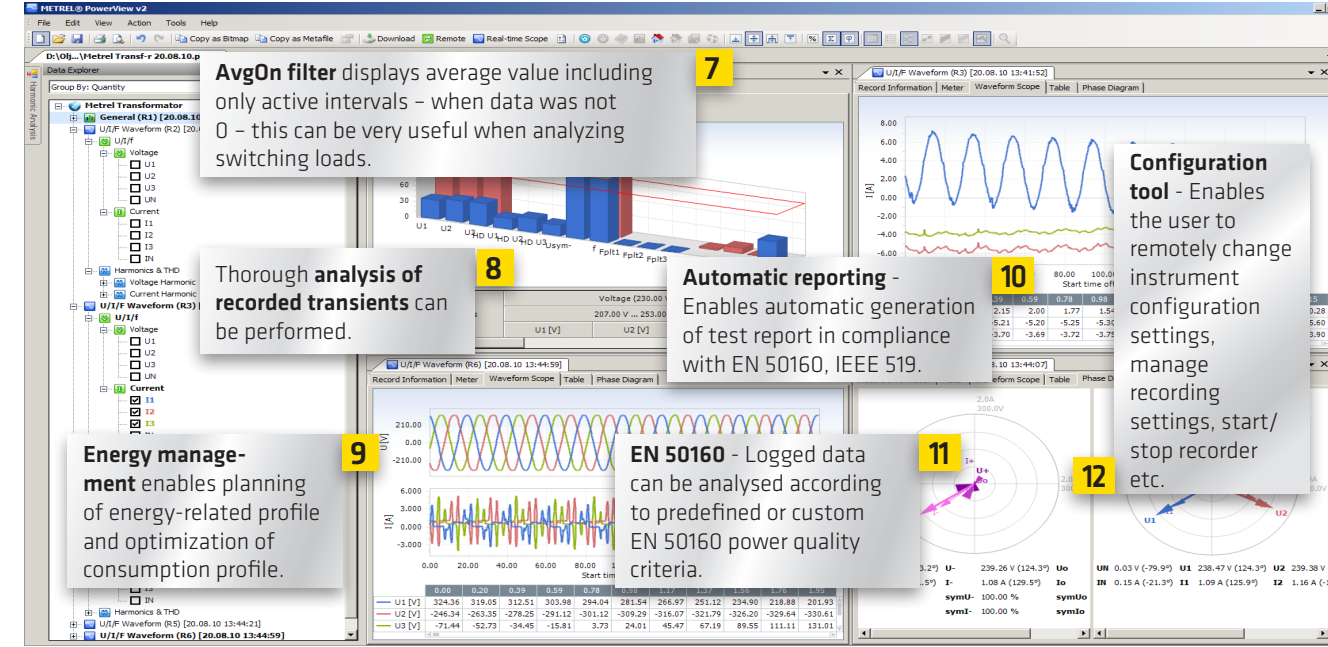


6. Connection check...

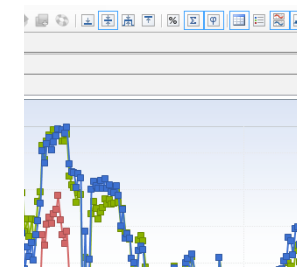


# Power Quality and Energy Management for Industrial Applications

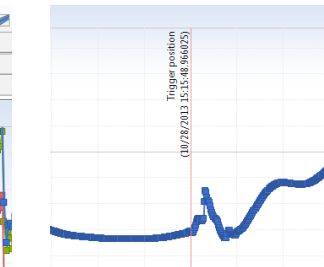
**PowerView software** - is a powerful platform for downloading, analysing recorded data and creation of power quality test reports. PC software contains a package of functionalities needed for profound evaluation of power quality phenomena, data comparison and creation of complex test reports. It works in conjunction with our new generation of power quality instruments (MI 2883/ MI 2884 / MI 2885/ MI 2892 / MI 2893). For the instruments equipped with GPRS or Ethernet functionality PowerView enables remote control of the instrument and its data.



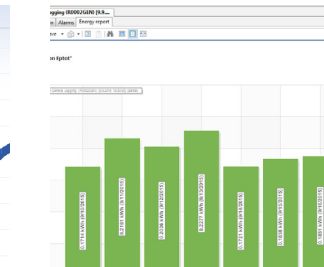
7. PowerView enables several filters...



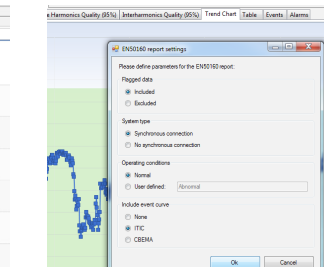
8. Transient waveform analysis...



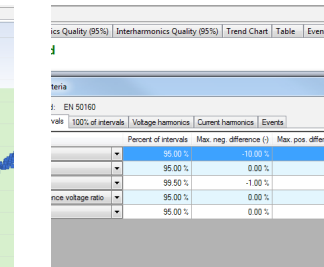
9. Energy management...



10. Automatic reporting...



11. EN 50160 automatic evaluation...



12. Instrument remote configuration tool...

