

PowerQ MI 2492



Handheld, easy to use, 3-phase analyser for quick diagnostics of power quality



PowerQ is a lightweight, handheld, 3-phase analyser for quick power quality assessment in low and middle voltage systems.

All major power quality parameters like U, I, PF, $\cos \varphi$, P, Q and S can be monitored on-line, measured or recorded.

Thanks to various pre-set measuring profiles, different diagnostics can be performed on-site even without using a PC.

Built-in in a rugged case **PowerQ** can be used in harsh industrial conditions.

Memory module allows up to five days of recording.

Windows compatible **PowerQ Link** PC Software is delivered in a standard set and supports data downloading and making of test reports.

Target applications:

- Power quality assessment and troubleshooting in low and middle voltage electric systems
- Power correction equipment performance testing and designing
- Selection and designing of harmonics filters
- Monitoring and managing of consumption profile

Main features:

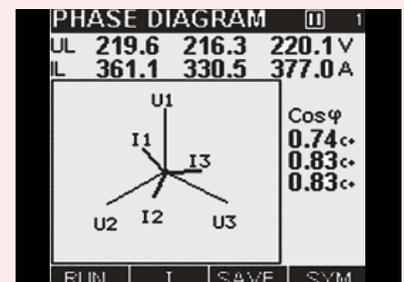
- Simultaneous measurement and recording of basic power parameters (U, I, P, Q, S, PF, $\cos \varphi$, THD)
- Pre-set measuring profiles (U-I-f; Power, Harmonics)
- Voltage and current harmonics up to 50th component
- Phase diagram
- Voltage un-symmetry in 3-phase systems
- On-line scope function
- Windows compatible PowerQ Link PC Software for downloading and creating of test reports

Standards:

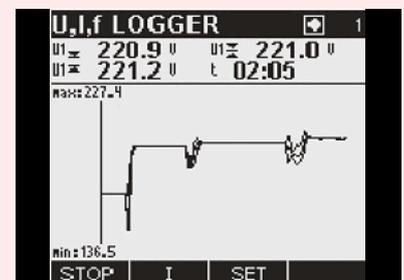
Safety: IEC/EN 61010-1

EMC: IEC/EN 61326-1

Measurements: EN 50160 and EN 61000-4-30, Class B



Phase diagram helps at connecting the instrument on the power network and visualizes phase shifts between phase voltages and currents.



Large LCD display enables on-line monitoring of measuring results either in table or graph form.

Technical specification

Voltage

Three phase AC/DC voltage input
(3 differential inputs, L_{1-N}, L_{2-N}, L_{3-N})
Input voltage range: 3 ÷ 550 V_{RMS} L-N
3 ÷ 550 V_{RMS} L-N
Resolution: 0.1 V
Crest factor: ≤ 1.4
Frequency range: 45 ÷ 66 Hz

Current

Three phase AC/DC input for connection of current transducers with voltage output.
Range 1: 0.004 V_{RMS} ÷ 0.1 V_{RMS} (4 A ÷ 100 A)
Resolution: 0.1 A
Crest factor: ≤ 2.3
Range 2: 0.04 V_{RMS} ÷ 1 V_{RMS} (40 A ÷ 1000 A)
Resolution: 0.1 A
Crest factor: ≤ 2.3

Power

Measured parameters:
Active power (P)
Reactive power (Q)
Apparent power (S)
Power factor
Cos φ
Energy (Wh, Vah, Varh)
Accuracy:
Power ±(3 % + 3 dig)
Power factor:
Range 1: 0.00 ÷ 0.39; Accuracy ±0.06
Range 2: 0.40 ÷ 1.00; Accuracy ±0.03
All measurements are performed in four quadrants: load or generator with capacitive or inductive character.

Voltage harmonics

Measuring range: U_M > 3 % U_N
Resolution: 0.1 %
Accuracy: 5 % U_M (3% for DC)
Measuring range: U_M > 3 % U_N
Resolution: 0.1 %
Accuracy: 0.15 % U_N
U_N: nominal voltage (TRMS)
U_M: measured harmonic voltage h_M = 1st ÷ 50th

Accuracy

Measuring range	Resolution	Accuracy	Crest factor
Range 1: 3.0 V _{RMS} ÷ 70.0 V _{RMS}	0.1 V	±(1 % + 0.5 V)	≤1.4
Range 2: 5.0 V _{RMS} ÷ 130.0 V _{RMS}		±(1 % + 0.8 V)	
Range 1: 10.0 V _{RMS} ÷ 300.0 V _{RMS}		±(1 % + 1.5 V)	
Range 1: 20.0 V _{RMS} ÷ 550.0 V _{RMS}		±(1 % + 2.5 V)	

Current

Measuring range	Resolution	Accuracy	Crest factor
Range 1: 0.004 V _{RMS} ÷ 0.1 V _{RMS}	0.1 A	±(2 % + 0.3 V)	≤2.3
Range 2: 0.04 V _{RMS} ÷ 1 V _{RMS}		±(2 % + 3 V)	

Possible recording time depends on selected interval. Maximum recording time is displayed automatically.

Current harmonics

Measuring range: I_M > 3 % I_N
Resolution: 0.1 %
Accuracy: 5 % I_M (3% for DC)
Measuring range: I_M < 3 % I_N
Resolution: 0.1 %
Accuracy: 0.15 % I_N
U_N: nominal voltage (TRMS)
U_M: measured harmonic voltage h_M = 1st ÷ 50th

Loggers

Voltage and current logger
Signals: selectable U1, U2, U3, I1, I2, I3
Integration period: selectable (1, 2, 5, 10, 15, 30) seconds
or (1, 2, 5, 10, 15, 30) minutes
Displayed data: min., average and max. value of the IP

Power logger

Signals: selectable L1, L2, L3, TOT
Interval: selectable (1, 2, 5, 10, 15, 30) seconds
or (1, 2, 5, 10, 15, 30) minutes
Displayed data: min., average and max. value of the interval

General technical specification

Working temperature range: -10 °C ÷ +55 °C
Storage temperature range: -20 °C ÷ +70 °C
Max. humidity: 95 % RH (0 °C ÷ 40 °C), non-condensing
Pollution degree: 2
Protection classification: double insulation
Over voltage category: CAT III/600 V
Protection degree: IP 42
Display: graphic LCD with backlight, 160x160 dots
External DC supply: 12 V, 400 mA min.
Maximum power consumption: 360 mA
Communication: RS232, USB
Connector: 9 pin D-type
Dimensions (mm): 220 x 115 x 90
Weight (without accessories): 650 g

Ordering information:

Standard set

Part No. MI 2492



- Instrument PowerQ
- Current clamp 1000 A/1 V, 3 pcs
- Test tips, 3 pcs
- Alligator clips, 4 pcs
- Voltage measurement cables, 4 pcs
- PowerQ Link PC SW package with RS232 and USB cable
- Power supply adapter
- Rechargeable batteries, 6 pcs
- Soft carrying bag
- Handbook "Modern Power Quality Measurement Techniques" on CD
- User manual
- Product verification data

Standard set

Part No. MI 2492F



Similar content as MI 2492:
Current clamp 1000 A/1 V, 3 pcs replaced by
1-phase flexible current clamps 3000/300/30 A, 3 pcs

Option accessories:

Photo	Order No.	Acc. description
	A 1020	Small soft carrying bag
	A 1033	Current clamp 1000 A/1 V
	A 1037	Current transformer 5 A/1 V
	A 1039	Clamp adapter (for A 1069 and A 1122)
	A 1069	Mini clamp 100 A/1 V to be used with A 1039
	A 1122	Mini clamp 5 A/1 V to be used with A 1039
	A 1171	USB/RS232 converter with 1 m fixed cable
	A 1179	3-phase flexible current clamps 2000/200/20 A
	A 1227	1-phase flexible current clamp 3000/300/30 A
	A 1257	3-phase flexible current clamps 3000/300/30 A
	S 2014	Safety fuse adapter
	S 2015	Safety flat clamps

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



Measuring and Regulation Equipment Manufacturer

METREL d.d.
Ljubljanska 77
SI-1354 Horjul
Tel: + 386 (0)1 75 58 200
Fax: + 386 (0)1 75 49 226
E-mail: metrel@metrel.si
http://www.metrel.si