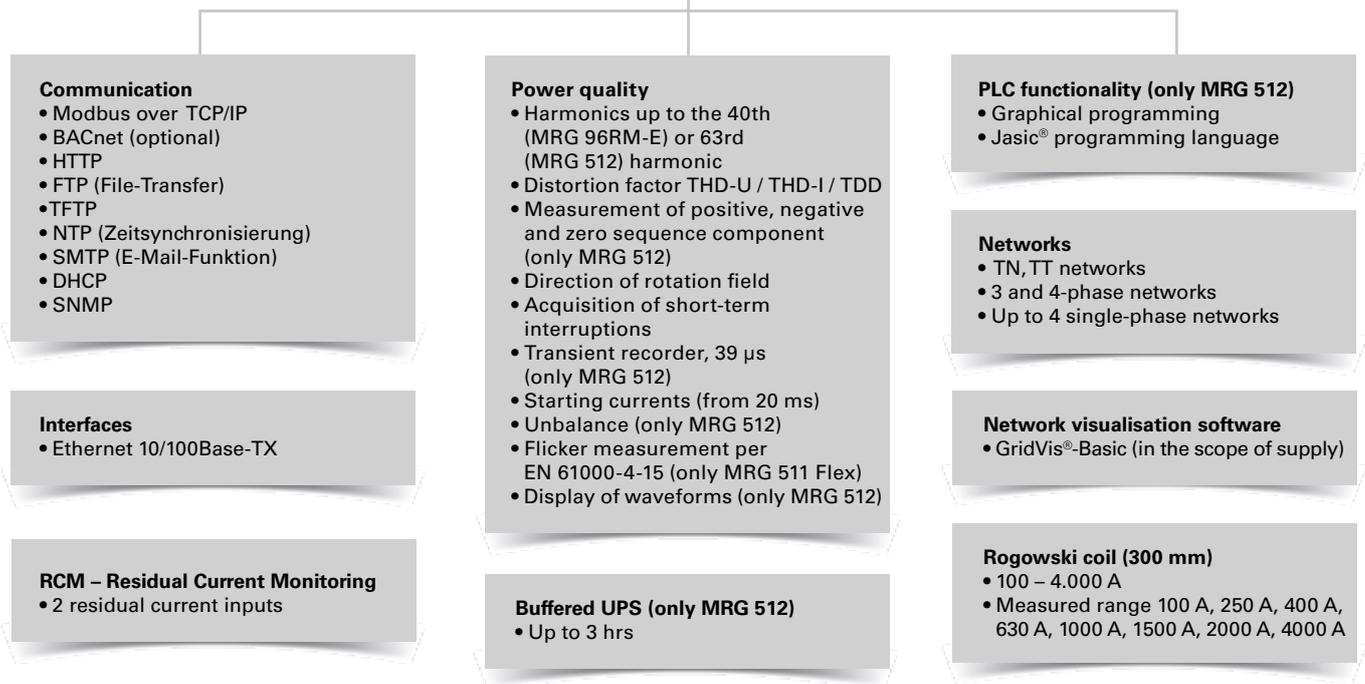
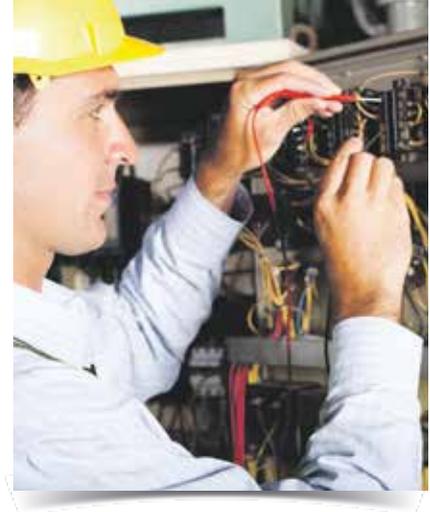




MRG 96RM-E RCM Flex & MRG 512 PQ Flex





## Areas of application



- High quality PQ analysis at class A level (IEC 61000-4-30)
- Temporary measurement e.g. for the design of power factor correction systems
- Analysis of electrical disturbances in the event of PQ problems
- Fault analysis with power quality problems
- High quality comparative measurement of energy measurement devices and meters
- Calibration of measurement devices (ISO 50001 audit)
- Recording of residual currents over an external current transformer (not included in the scope of delivery)

## Main features

- Monitoring of the power quality
- Capturing of all power quality parameters (harmonics, short-term interruptions, asymmetries etc.)
- Remote access via Ethernet and embedded web server
- GridVis® PQ analysis software
- Standard PQ reports, depending on the version: EN 50160 , IEEE519, ITIC, EN 61000-2-4
- Cost centre report
- Large 256 MB internal memory for storing measurement data
- UPS-supported power supply for up to 3 hours



Fig.: MRG 512 PQ Flex – Portable power quality analyser with RCM



### **MRG 512 PQ Flex: User-friendly, colour graphical display with intuitive user guidance**

- High resolution graphics display
- User-friendly, self-explanatory and intuitive operation
- Clear and informative representation of online graphs and further power quality events



### **Modern communications architecture via Ethernet**

- Ethernet interface and web server
- Faster, better cost-optimised and more reliable communication system
- High flexibility due to the use of open standards



Fig.: MRG 96RM-E RCM Flex – Portable energy measurement device with RCM



### **Large measurement data memory**

- 256 MByte
- Recording range of up to 2 years, depending on the recording configuration
- Recording freely configurable



### RCM (Residual Current Monitoring)

- Continuous monitoring of residual currents (Residual Current Monitoring, RCM)
- Alarming in case a preset threshold fault current reached
- Near-realtime reactions for triggering countermeasures
- Permanent RCM measurement for systems in permanent operation without the opportunity to switch off
- Ideal for the central earthing point in TN-S systems



### Graphical programming (only MRG 512)

- Comprehensive programming options (PLC functionality)
- Jasic® source code programming
- Sustainable functional expansions far beyond pure measurement
- Complete APPs from the Janitza library

### Scope of delivery for the MRG product range

- Compact, robust plastic housing with measurement device and all connections
- UPS-supported power supply for up to 3 hours
- Supplementary description for each measurement device
- Operation manual for each measurement device
- DVD with following content:
  - Programming software GridVis®-Basic
  - Functional description - GridVis®
- Carry soft bag for accessories
- Mains connection cable
- 1 Crossover patch cable, CAT5e
- 1 set of voltage measuring cables with fuses (brown, black, grey, blue, green/yellow)
- Voltage tap-offs
- 2 connection cable 3 m for residual current measuring with connector
- Incl. Rogowski coil Ø 95 mm, length 300 mm, weight 190 g with connector for MRG 96RM-E RCM Flex / MRG 512 PQ Flex

### Optional accessories:

Differential current transformer on request.

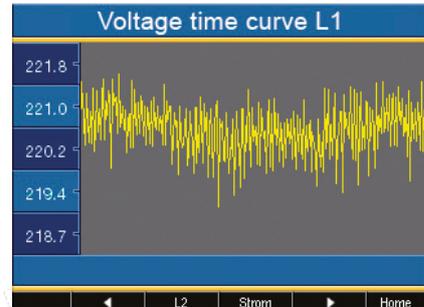


Fig.: Colour graphical display MRG 512 PQ Flex – Example voltage profile over time



Fig.: Colour graphical display MRG 512 PQ Flex – Example harmonics analysis



Fig.: Measurement connection for current transformer and voltage; auxiliary voltage and ethernet connection



## Device overview and technical data

	MRG 96RM-E RCM Flex	MRG 512 PQ Flex
<b>Item number</b>	<b>52.16.906</b>	<b>52.16.905</b>
<b>Interfaces</b>		
Ethernet 10/100 Base-TX (RJ-45 socket)	•	•
<b>Measurement of the power quality</b>		
Harmonics per order / current and voltage	1 – 40.	1 – 63.
Harmonics per order / active and reactive power	1 – 40.	1 - 63.
Interharmonics - current / voltage	-	•
Flicker: Short term, long term, present	-	•
<b>Measured data recording</b>		
Memory (Flash)	256 MB	256 MB
<b>Measured voltage input</b>		
Overvoltage category	600 V CAT III	600 V CAT III
<b>Displays and inputs / outputs</b>		
LCD display	LCD display with backlight, 2 buttons	Colour graphical display 320 x 240, 256 colours, 6 buttons

General	MRG 96RM-E RCM Flex	MRG 512 PQ Flex
Use in low and medium voltage networks	•	•
Accuracy of measurement with voltage	0.2 %	0.1%
Accuracy of measurement with current	0.2 %	0.1%
Accuracy of measurement with active energy (kWh, .../5 A)	Class 0.5S	Class 0.2S
Number of measurement points per period	426	512
Uninterrupted measurement	•	•
<b>RMS - momentary value</b>		
Current, voltage, frequency	•	•
Active, reactive and apparent power / total and per phase	•	•
Power factor / total and per phase	•	•
<b>Energy measurement</b>		
Active, reactive and apparent energy [L1, L2, L3, L4, Σ L1-3, Σ L1-4]	•	•
<b>Recording of the mean values</b>		
Voltage, current / actual and maximum	•	•
Active, reactive and apparent power / actual and maximum	•	•
Frequency / actual and maximum	•	•
Requirement calculation mode (bi-metallic function) / thermal	•	•
<b>Other measurements</b>		
Operating hours measurement	•	•
Clock	•	•
<b>Measurement of the power quality</b>		
Distortion factor THD-U in %	•	•
Distortion factor THD-I in %	•	•
Current and voltage, positive, zero and negative sequence component	•	•
Transients	-	> 39 µs
Error / event plotter function	•	•
Short term interruptions	•	•
Oscillogram function (wave form U and I)	-	•
Under and overvoltage recording	•	•
<b>Measured data recording</b>		
Mean, minimum, maximum values	•	•
Alarm messages	•	•
Time stamp	•	•
Time basis mean value	freely user-defined	freely user-defined
RMS averaging, arithmetic	•	•
<b>Displays and inputs / outputs</b>		
Analogue inputs (RCM, analogue)	•	•
Voltage and current inputs	L1, L2, L3 + N	every 4
Password protection	•	•

Comment:  
For detailed technical information,  
please refer to the operation manual  
and the Modbus address list.

• = included  
– = not included



Fig.: Rogowski coil with connector for MRG



Fig.: Voltage taps

	MRG 96RM-E RCM Flex	MRG 512 PQ Flex
<b>Protocols</b>		
ModbusTCP, Modbus RTU over Ethernet	•	•
HTTP (homepage configurable)	•	•
SMTP (email)	•	•
NTP (time synchronisation)	•	•
TFTP (automatic configuration)	•	•
FTP (file transfer)	•	•
SNMP	•	•
DHCP	•	•
TCP/IP	•	•
BACnet (optional)	•	•
ICMP (Ping)	•	•
<b>Software GridVis® Basic *1</b>		
Online graphs	•	•
Historical graphs	•	•
Databases (Janitza DB, Derby DB)	•	•
Manual reports (energy, power quality)	•	•
Graphical programming	-	•
Topology views	•	•
Manual read-out of the measuring devices	•	•
Graph sets	•	•
<b>Programming / threshold values / alarm management</b>		
Application programs freely programmable	-	7
Graphical programming	-	•
Programming via source code Jasic®	-	•
Comparator (5 Groups with 10 comparators each)	•	-
<b>Technical data</b>		
Nominal voltage, three-phase, 4-conductor (L-N, L-L)	277 / 480 V AC	417 / 720 V AC
Nominal voltage, three-phase, 3-conductor (L-L)	480 V AC	600 V AC
Measurement in which quadrants	4	4
Networks	TN, TT, IT	TN, TT
Measurement in single-phase/multi-phase networks	1 ph, 2 ph, 3 ph, 4 ph	1 ph, 2 ph, 3 ph, 4 ph and up to 4 times 1 ph
<b>Measured voltage input</b>		
Metering range, voltage L-N, AC (without transformer)	10 ... 300 Vrms	10 ... 600 Vrms
Metering range, voltage L-L, AC (without transformer)	18 ... 520 Vrms	18 ... 1000 Vrms
Resolution	0.01 V	0.01 V
Impedance	4 MOhm / phase	4 MOhm / phase
Frequency measuring range	45 to 65 Hz	15 ... 440 Hz
Power consumption	approx. 0.1 VA	approx. 0.1 VA
<b>Measured current input</b>		
Rated current	5 A	5 A
Resolution	0.1 mA	0.1 mA
Metering range	0.001 - 6 Amps	0.001 - 7 Amps
Overvoltage category	300 V CAT II	300 V CAT III
Measurement surge voltage	2 kV	6 kV
Power consumption	approx. 0.2 VA (Ri = 5 mOhm)	approx. 0.1 VA (Ri = 5 MOhm)
Overload for 1 sec.	120 A (sinusoidal)	120 A (sinusoidal)
Sampling rate	20 kHz	25,6 kHz
<b>Mechanical properties</b>		
Weight	approx. 3,4 Kg	approx. 14,5 Kg
Device dimensions in mm (L x W x H)	350 x 295 x 150	ca. 500 x 390 x 230
Protection class per EN 60529	Front: IP40; Back: IP20	Front: IP40; Back: IP20
<b>Security</b>		
Europe	CE labelling	CE labelling

Comment:  
For detailed technical information,  
please refer to the operation manual  
and the Modbus address list.

- = included
- = not included

\*1 Optional additional functions  
with the packages GridVis®-  
Professional, GridVis®-Service and  
GridVis®-Ultimate.

