Power quality

Reporting

Events

Transients

Homepage

Graphic Programming

EN 50160 / ISO 50001 Made in Germany

MRG 508 / 511 Flex

Communication
- Ethernet (TCP/IP) via patch cable
- Modbus (RTU, TCP, Gateway)
- HTTP (Homepage)
- FTP (file transfer)
- SNMP
- TFTP
- NTP (time synchronisation)
- SMTP (email function)
- DHCP

Interfaces
- Ethernet 10/100 BaseTX

Accuracy of measurement
- Current: 0.2 %
- Voltage: 0.1 %

Power quality
- Harmonics up to the 40th (MRG 508 Flex) or 63rd (MRG 511 Flex) harmonic
- Interharmonics for U and I
- Distortion factor THD-U / THD-I / TDD
- Measurement of positive, negative and zero sequence component
- Direction of rotation field
- Voltage crest factor
- Acquisition of short-term interruptions (> 20 ms)
- Transient recorder (> 50 µs)
- Starting currents (from 20 ms)
- Unbalance
- Flicker measurement per EN 61000-4-15 (only MRG 511 Flex)
- Display of waveforms

Buffered UPS
- Up to 5 hrs

PLC functionality
- Graphical programming
- Jasic® programming language

Networks
- TN, TT networks
- 3 and 4-phase networks
- Up to 4 single-phase networks

Network visualisation software
- GridVis®-Basic (in the scope of supply)

Rogowski coil
- 100 – 4.000 A

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)

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: EN 50160 , IEEE519, ITIC, EN 61000-2-4
- Cost centre report
- Large 128 / 256 MB internal memory for storing measurement data
- UPS-supported power supply for up to 5 hours

Fig.: UMG 511 measuring case, voltage supply

MRG 508 / 511: 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

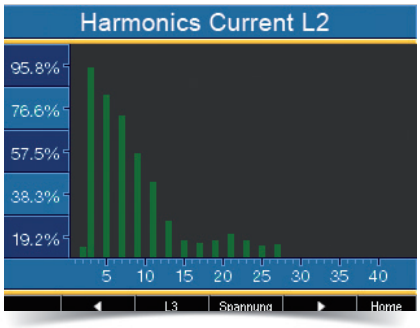

Fig.: Colour graphical display – Example Harmonics analysis

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

Large measurement data memory

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

Graphical programming

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

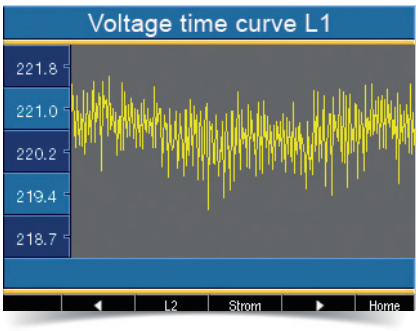

Fig.: Colour graphical display – Example Voltage profile over time

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 5 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)
- 5 voltage tap-offs
- 3 voltage tap-offs with magnet for fuse connection

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

Optional accessories:
Rogowski coil Ø 95 mm, length 300 mm, weight 190 g
with connector for MRG 508 Flex / MRG 511 Flex
Item number: 15.03.604

Rogowski coil Ø 190 mm, Length 600 mm, weight 195 g
with connector for MRG 508 Flex / MRG 511 Flex
Item number: 15.03.605

Fig.: Rogowski coil with connector for MRG

Device overview and technical data

	MRG 508 Flex	MRG 511 Flex
Item number	**52.21.902**	**52.19.904**
Interfaces		
Ethernet 10/100 Base-TX (RJ-45 socket)	•	•
Power quality measurements		
Harmonics per order / current and voltage	1st – 40th	1st - 63rd
Harmonics per order / active and reactive power	1st – 40th	1st - 63rd
Interharmonics - current / voltage	-	•
Flicker: Short-term, long-term, present	-	•
Measured data recording		
Memory (Flash)	256 MB	256 MB
Measured voltage input		
Overvoltage category	600 V CAT III	600 V CAT III
Displays and inputs / outputs		
LCD display	Colour graphical display 320 x 240, 256 colours, 6 buttons	Colour graphical display 320 x 240, 256 colours, 6 buttons

General	MRG 508 / 511 Flex
Use in low and medium voltage networks	•
Accuracy voltage measurement	0.1
Accuracy current measurement	0.2
Accuracy active energy (kWh, .../5 A)	Class 0.2S
Number of measurement points per period	400
Uninterrupted measurement	•
RMS - momentary value	
Current, voltage, frequency	•
Active, reactive and apparent power / total and per phase	•
Power factor / total and per phase	•
Energy measurement	
Active, reactive and apparent energy [L1, L2, L3, L4, Σ L1–3,Σ L1–4]	•
Recording of the mean values	
Voltage, current / actual and maximum	•
Active, reactive and apparent power / actual and maximum	•
Frequency / actual and maximum	•
Demand calculation mode (bi-metallic function) / thermal	•
Other measurements	
Operating hours measurement	•
Clock	•
Weekly timer	Jasic®
Power quality measurements	
Distortion factor THD-U in %	•
Distortion factor THD-I in %	•
Voltage unbalance	•
Current and voltage, positive, zero and negative sequence component	•
Transients	> 50 µs
Error / event recorder function	•
Short-term interruptions	> 20 ms
Oscillogram function (waveform U and I)	•
Under and overvoltage recording	•
Measured data recording	
Average, minimum, maximum values	•
Measured data channels	8
Alarm messages	•
Time stamp	•
Time basis average value	freely user-defined
RMS averaging, arithmetic	•
Displays and inputs / outputs	
Colour display	•

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

• = included
– = not included

Voltage and current inputs	each 4
Password protection	•
Communication	
Protocols	
Modbus RTU, Modbus TCP, Modbus RTU over Ethernet	•
HTTP (homepage configurable)	•
SMTP (email)	•
NTP (time synchronisation)	•
TFTP	•
FTP (File-Transfer)	•
SNMP	•
DHCP	•
TCP/IP	•
BACnet (optional)	•
ICMP (Ping)	•
Software GridVis®-Basic*1	
Online graphs	•
Historical graphs	•
Databases (Janitza DB, Derby DB); MySQL, MS SQL with higher GridVis® versions)	•
Manual reports (energy, power quality)	•
Graphical programming	•
Topology views	•
Manual read-out of the measuring devices	•
Graph sets	•
Programming / threshold values / alarm management	
Application programs freely programmable	7
Graphical programming	•
Programming via source code Jasic®	•
Technical data	
Nominal voltage, three-phase, 4-conductor (L-N, L-L)	417 / 720 V AC
Nominal voltage, three-phase, 3-conductor (L-L)	600 V AC
Measurement in which quadrants	4
Networks	TN, TT
Measurement in single-phase/multi-phase networks	1 ph, 2 ph, 3 ph, 4 ph and up to 4 times 1 ph
Measured voltage input	
Measured range, voltage L-N, AC (without potential transformer)	10 … 600 Vrms
Measured range, voltage L-L, AC (without potential transformer)	18 … 1000 Vrms
Resolution	0.01 V
Impedance	4 MOhm / phase
Frequency measuring range	40 … 70 Hz (MRG 508) 15 … 440 Hz (MRG 511)
Power consumption	approx. 0.1 VA
Sampling frequency	20 kHz / phase
Measured current input	
Rated current	5 A
Resolution	0.1 mA
Measurement range	0.001 … 8.5 Amps
Overvoltage category	300 V CAT III
Measurement surge voltage	4 kV
Power consumption	approx. 0.2 VA (Ri = 5 MOhm)
Overload for 1 sec.	120 A (sinusoidal)
Sampling frequency	20 kHz
Mechanical properties	
Weight	approx. 6000 g
Device dimensions in mm (H x W x D)	approx. 411 x 168 x 322
Protection class per EN 60529	IP20
Safety	
Europe	CE labelling
Firmware	
Firmware update	

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®-Enterprise and GridVis®-Service.

Smart Energy &
Power Quality Solutions

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