GridVis® SOFTWARE

Energy management, power quality, residual current monitoring:
Visualisation, analysing, generating alerts, documenting

Energy management (EnMS)
Certified in accordance with ISO 50001, optimum for covering the subjects: BAFA, EEG levy reduction, peak balancing per SpaEfV [energy efficiency improvement systems law]

Transparency
Gain an overview of consumption data and costs. Uncover deviations. Formulate key figures from consumption and measurement data per ISO 50006.

Network analysis & evaluation
Analyse measured data with statistics. Functions: Line diagram, pie chart, heat map, CBEMA curve, duration curve, tables, Sankey diagram, key figures.

Safety & alarm management
Monitor threshold values of measured variables, consumption data, residual currents and communication flows. Reliable alerts via email and web interface.

Visualisation & documentation
Generate personalised dashboards/overviews, with a large choice of functions and graphics. Including reports and documentation prepared for the topics of energy management, power quality and residual current monitoring.

Dashboard example

Item no.: 33.03.607 • Doc. no.: 2.500.034.8a • Version 02/2019 • Subject to technical alterations.

Janitza electronics GmbH
Vor dem Polstück 6
35633 Lahnau, Germany
Germany

+49 6441 9642-0
+49 6441 9642-30
info@janitza.com
www.janitza.com

Janitza®

OVERVIEW OF GridVis® EDITIONS

GridVis® Basic –
Free basic edition **51.00.116**

- Maximum five measurement devices
- Graphs and analysis tools
- Database (Jan-DB)
- Reports:
  - Commissioning report
  - Energy and consumption reports
  - PQ reports (EN 50160 61000-2-4, etc.)
  - RCM report

GridVis®-Professional **51.00.160**

As GridVis® Basic, but with the following additional features:

- Unlimited number of devices and data points
- Database driver (MSSQL, MySQL)
- Automation (read-out, time setting, etc.)
- Virtual measurement devices and logic
- User management

GridVis® Service **51.00.180**

As GridVis® Professional, but with the following additional features:

- **NEW**[*1]: Active Directory
- Expanded reports:
  - Percentage utilisation report (**NEW**[*1])
  - High availability
  - LET (Limits, Events, Transients)
  - Energy bill
- COMTRADE export
- MSCONS import (**NEW**[*1]) and export
- Service inclusive REST API
- Online recorder
- Alarm management
- Measurement and consumption data export (CSV)
- External devices (generic Modbus)
- Expanded automation (reports, database actions, email/alerts, cost centres and tariff formation)

GridVis® Ultimate **51.00.190**

As GridVis® Service, but with the following additional features:

- GridVis® Energy web interface
- Expanded user management
- Dashboard and template manager
- Widgets
- Key performance indicators (KPIs)
- Sankey diagram (energy flow analysis)
- Device overview with graph function
- OPC UA Client
- Image and symbol library

[*1] NEW: From version 7.4

THE JANITZA 3-IN-1 SOLUTION

The UMG measurement devices, the GridVis® software and components combine three solutions in a common system environment (3-in-1):

Energy management DIN EN ISO 50001

- Reduces CO_2 emissions
- Reduces energy costs
- Improves energy efficiency

Power quality DIN EN 50160

- Ensures availability
- Reduces downtimes
- Optimises maintenance

Residual current monitoring (RCM)

- Reduction of the DGUV V3
- Improves supply reliability
- Rapidly identifies faults
- Improves fire protection

SMART ENERGY PANEL

Visualisation of the energy measured values of up to 33 devices, article no.: 15.06.358

- Visualisation & monitoring of Modbus-enabled Janitza UMGs
- 3 masters & 30 slaves
- Direct Modbus connection
- Web-enabled

The Smart Energy Panel JPC 100-WEB is used for optimum, central display and monitoring of energy measured values. Modbus slave devices (e.g. Janitza UMG 103-CBM) are integrated either via the gateway function of the master device or directly via the RS-485 interface. Measurement data independent of location: Direct access to the device homepage, optionally also via remote access, is provided by the web capability of the Smart Energy Panel. Remote access is also possible via TeamViewer. A USB connection provides for simple export of the measurement data.

Analysis and documentation: With the GridVis® software the energy data can be evaluated, documented and further processed. GridVis® offers comprehensive reporting for this purpose.

Alarm management and data storage: The clear presentation of threshold value exceedances enables hazards to be identified at an early stage. In addition, the e-mail notification function can be activated in the event of violations. Initially defined threshold values for voltage, current and power can be filtered, acknowledged and stored. The storage of minimum and maximum values is also possible.

CURRENT TRANSFORMER

The link between heavy current and digital technology

Needless to say, currents from a few hundred to thousands of amperes cannot be measured directly. Current transformers convert almost any level of primary current into "bite-sized" secondary current. The secondary outputs are .../1 or .../5A.

Janitza electronics has a broad spectrum of different current transformers, ranging from plug-on current transformers, summation current transformers to residual current transformers and core balance transformers. Low-power transformers with mA outputs and Rogowski coils including converter with 1 A output complete the product range.

Areas of application

- Conversion of primary currents into secondary currents .../1A or .../5A
- Converter classes 0.5 or 1, depending on measurement device
- Converter for wide variety of bus bars and cables available
- Cable harness converter for cables, if current path cannot be opened
- Residual current transformer (incl. type A and type B+)
- Summation current transformer

POWER QUALITY SOLUTIONS

Improvement of the power quality

Power quality and supply reliability are extremely important. High sensitivity devices and processes are heavily dependent on a clearly defined power quality. In order to ensure stable processes and adequate power supply despite the increasing number of devices which generate grid distortions, steps must be taken to improve the power quality.

Janitza electronics offers a comprehensive package to improve the power quality:

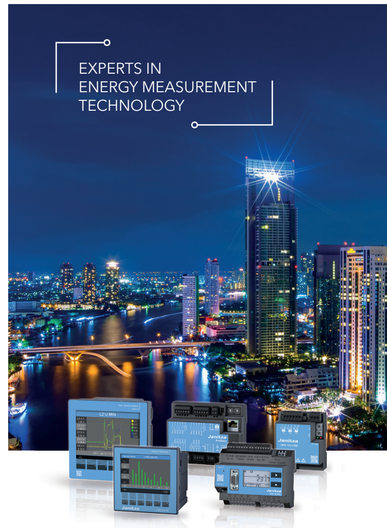
- Power factor correction in both inductive and capacitive ranges
- Dynamic power factor corrections
- Active and passive harmonics filter

Rapid amortisation through:

- Reduction of reactive power and savings in operational costs
- Reduction of harmonics
- Network symmetry between phases
- Reduction of transients and voltage dips
- Compensation with rapid switching actions
- Reduction of switching spikes

Reduction of: Maintenance costs and costs due to production outages

Smart Energy & Power Quality Solutions



BRIEF PRODUCT OVERVIEW

Janitza®

Short overview of UMG measuring devices

Janitza®

MADE IN GERMANY

- UMG 103-CBM: Compact energy measurement device with clock, battery and memory
- UMG 20CM & 20 CM-CT6: Compact RCM and energy measurement device UMG 20CM with 20 current measurement channels & expansion module 20CM-CT6 / Modular expansion for the measurement device UMG 20CM
- UMG 604-PRO: Voltage analyser with state-of-the-art communication options
- UMG 605-PRO: Power quality analyser as per EN 50160
- UMG 801 & UMG 801 module: Modular energy monitoring solution / Expansion module for the UMG 801 (additional functions)
- UMG 96-S2: High-precision universal power meter
- UMG 96RM: Cost efficient and multifunctional network analyser
- UMG 96-PA & UMG 96-PA modules: Modular energy measurement device / Expansion modules for the UMG 96-PA (additional functions)
- UMG 509-PRO: Multifunctional network analyser with RCM
- UMG 512-PRO: Class A power quality analyser with RCM

Type	UMG 103-CBM	UMG 20CM	Module 20CM-CT6	UMG 604-PRO E	UMG 604-PRO EP	UMG 605-PRO	UMG 801	Module 800-CT8-A	UMG 96-S2
Item number	52.28.001*1	14.01.625	14.01.626	52.16.202*1	52.16.201*1	52.16.227*1	52.31.001	52.31.201	52.34.001
Supply voltages									
Use in three-phase 4-conductor systems with grounded neutral conductor up to a maximum of	277 / 480 V AC	277 / 480 V AC	Only current measurement	277 / 480 V AC		277 / 480 V AC	417 / 720 V AC		230 / 400 V AC
Use in three-phase 3-conductor systems ungrounded up to a maximum of	-	-	-	480 V AC		480 V AC	690 V AC		-
Supply voltage	-	90 – 276 V AC; 90 – 276 V DC	-	95 – 240 V AC; 135 – 340 V DC*2		95 – 240 V AC; 135 – 340V DC*2	External 24 V		90 – 265 V AC; 90 – 250 V DC
Three-conductor / four-conductor (L-N, L-L)	- / •	• / •	- / •	• / •		• / •	-/ •		- / •
Quadrants	4	4	4	4		4	4	4	4
Sampling rate 50/60 Hz, measuring points per second	5.4 kHz, 5,400	20 kHz, 20,000	60 kHz, 60,000	20 kHz, 20,000		20 kHz, 20,000	51.2 Hz (V) / 25.6 Hz (A)	8.33 kHz	8 kHz, 8,000
Uninterrupted measurement	•	•	•	•		•	•	•	•
Effective value from periods (50/60 Hz)	10 / 12	10 / 12	10 / 12	10 / 12		10 / 12	10 / 12	10 / 12	16 / 16
Residual current monitoring	-	•		-		-	•		-
Harmonics V / A	1st – 40th	1st – 63rd	1st – 63rd	1st – 40th		1st – 63rd	1st - 127th / 1st–63rd	1st, 3rd, 5th to 25th	1st – 15th
Distortion factor THD-U / THD-I in %	•	•	Only THD-I	•		•	•	•	•
Unbalance	-	-	-	•		•	•		-
Short-term flicker / long-term flicker	-	-	-	-		•	-		-
Transients	-	-	-	> 50 µs		> 50 µs	-		-
Short-term interruptions	-	-	-	•		•	-		-
Accuracy V; A	0.2 %; 0.2 %	1 %; 1 %	– ; 0.5 %	0.2 %; 0.25 %		0.2 %; 0.25 %	0.2 %; 0.2 %	0.5 %	0.2 %; 0.2 %
Class A per EN 61000-4-30	-	-	-	-		-	-		-
Active energy class	0.5S (.../5 A)	1	2	0.5S (.../5 A)		0.5S (.../5 A)	0.2 (.../5 A)	0.5 (.../5 A)	0.5S (.../5 A)
Digital inputs	-	-	-	2		2	4		-
Digital / pulse output	-	2	-	2		2	4		1
Analogue output	-	-	-	-		-	1		-
Current measuring channels	3	20	6–96 (max. 16 modules)	4		4	8	8	3
Thermistor input	-	-	-	1		1	4*5		-
Integrated logic	Comparator	Current threshold values per channel	Current threshold values per channel	Jasic® (7 Prg.)		Jasic® (7 Prg.)	-		-
Memory min. / max. values	•	•	•	•		•	•	*12	•
Memory size	4 MB	768 KB	768 KB	128 MB		128 MB	4 GB		-
Clock	•	•	•	•		•	•	*12	-
APPs: Measured value monitor, EN 50160 & IEC 61000-2-4 Watchdog	-	-	-	•		•	-		-
Fault recorder function	-	-	-	•		•	-		-
Peak load optimisation	-	-	-	•*3		•*3	-		-
Software for energy management and network analysis	GridVis® Basic	GridVis® Basic	GridVis® Basic	GridVis® Basic		GridVis® Basic	GridVis® Basic	GridVis® Basic	GridVis® Basic
Interfaces									
RS232	-	-	-	•		•	-		-
RS485	•	•	Only via UMG 20CM	•		•	•	*12	•
USB	-	-	-	-		-	•		-
Profibus DP	-	-	-	-	•	•	-		-
M-Bus	-	-	-	-		-	-		-
Ethernet	-	-	-	•		•	2	*12	-
Web server / e-mail	-	-	-	• / •		• / •	-		-
Protocols									
Modbus RTU	•	•	Only via UMG 20CM	•		•	•*13	*12	•
Modbus gateway	-	-	-	•		•	•		-
PROFIBUS DP V0	-	-	-	-	•	•	-		-
Modbus TCP/IP, Modbus RTU over Ethernet, SNMP	-	-	-	•		•	Modbus TCP/IP	*12	-
OPC UA	-	-	-	-		-	•	*12	-
BACnet IP	-	-	-	•*3		•*3	-		-
Profinet	-	-	-	-		-	-		-

Type	UMG 96RM	UMG 96RM P	UMG 96RM M	UMG 96RM E	UMG 96RM CBM	UMG 96RM EL	UMG 96RM PN	UMG 96-PA Without MID	UMG 96-PA With MID	UMG 96-PA modules 96-PA-RCM-EL	UMG 96-PA modules 96-PA-RCM	UMG 509-PRO	UMG 512-PRO
Item number	52.22.061*1	52.22.064*1	52.22.069*1	52.22.062*1	52.22.066*1	52.22.068*1	52.22.090*1	52.32.001*1*2	52.32.003*10	52.32.010	52.32.011	52.26.001*1	52.17.011*1
Supply voltages													
Use in three-phase 4-conductor systems with grounded neutral conductor up to a maximum of	277 / 480 V AC							417 / 720 V AC				417 / 720 V AC 347 / 600 V AC (UL listed)	417 / 720 V AC 347 / 600 V AC (UL listed)
Use in three-phase 3-conductor systems ungrounded up to a maximum of	480 V AC							-				600 V AC	600 V AC
Supply voltage	90 – 277 V AC; 90 – 250 V DC*2							90 – 277 V AC; 90 – 250 V DC*2				95 – 240 V AC; 80 – 300 V DC*2	95 – 240 V AC; 80 – 300 V DC*2
Three-conductor / four-conductor (L-N, L-L)	• / •							- / •				• / •	• / •
Quadrants	4							4				4	4
Sampling rate 50/60 Hz, measuring points per second	21.33 / 25.6 kHz, 21,330/25,600							8.33 kHz, 8,330				20 kHz, 20,000	25.6 kHz, 25,600
Uninterrupted measurement	•							•				•	•
Effective value from periods (50/60 Hz)	10 / 12							10 / 12				10 / 12	10 / 12
Residual current monitoring	-	-	-	•	-	-	•	-		•		•	•
Harmonics V / A	1st – 40th							1st – 40th	1st – 25th			1st – 63rd	1st – 63rd
Distortion factor THD-U / THD-I in %	•							•				•	•
Unbalance	-							-				•	•
Short-term flicker / long-term flicker	-							-				-	•
Transients	-							-				> 50 µs	> 39 µs
Short-term interruptions	-	-	-	•	-	-	-	-				•	•
Accuracy V; A	0.2 %; 0.2 %							0.2 %; 0.2 %				0.1 %; 0.2 %	0.1 %; 0.1 %
Class A per EN 61000-4-30	-							-				-	•
Active energy class	0.5S (.../5 A)							0.5S (.../5 A)				0.2S (.../5 A)	0.2S (.../5 A)
Digital inputs	-	4	-	(3)*4	4	-	(3)*4	3				2	2
Digital / pulse output	2	6	2	(5)*4	6	-	(5)*4 *7	3*9				2	2
Analogue output	-	-	-	-	-	-	-	•				-	-
Current measuring channels	3	4	3	4 + 2	4	3	4 + 2	3		1		4 + 2	4 + 2
Thermistor input	-	-	-	2*5	-	-	2*5	-		1		1	1
Integrated logic	Comparator							Comparator				Jasic® (7 Prg.)	Jasic® (7 Prg.)
Memory min. / max. values	•							•				•	•
Memory size	-	256 MB	-	256 MB	256 MB	-	-	4 MB				256 MB	256 MB
Clock	-	•	-	•	•	-	-	•				•	•
APPs: Measured value monitor, EN 50160 & IEC 61000-2-4 Watchdog	-							-				•	•
Fault recorder function	-							-				•	•
Peak load optimisation	-							-				-	-
Software for energy management and network analysis	GridVis® Basic							GridVis® Basic				GridVis® Basic	GridVis® Basic
Interfaces													
RS232	-							-				-	-
RS485	•	•	-	•	•	-	•	•				•	•
USB	-	•	-	-	•	-	-	-				-	-
Profibus DP	-	•	-	-	-	-	-	-				•	•
M-Bus	-	-	•	-	-	-	-	-				-	-
Ethernet	-	-	-	•	-	•	•	-		•	-	•	•
Web server / e-mail	-	-	-	• / •	-	-	• / -	-				• / •	• / •
Protocols													
Modbus RTU	•	•	-	•	•	-	•	•				•	•
Modbus gateway	-	-	-	•	-	-	-	-		•	-	•	•
PROFIBUS DP V0	-	•	-	-	-	-	-	-				•	•
Modbus TCP/IP, Modbus RTU over Ethernet, SNMP	-	-	-	•	-	•*6	•*8	-		•*11	-	•	•
OPC UA								-				-	-
BACnet IP	-	-	-	•*3	-	-	-	-				•*3	•*3
Profinet	-	-	-	-	-	-	•	-				-	-

- • : included
- \- : not included

*1 UL certified

*2 Other voltages are also available as options

*3 Option

*4 Combination options for inputs and outputs:
a) 5 digital outputs
b) 2 Digital outputs and 3 digital inputs

*5 Combined function: optional analogue / temperature / residual current input

*6 No SNMP protocol

*7 2 Pulse outputs

*8 SNMP only for internal PROFINET communication

*9 With module + 1 current measurement channel

*10 MID certified

*11 No SNMP

*12 On the basic device

*13 For polling the slave device

Comment: For detailed technical information please refer to the respective operation manuals and the Modbus address lists.