UMG 605

High performance power quality analyser for DIN rails

according to EN 50160

The UMG 605 power quality analyser is particularly suitable for monitoring power quality according to standards such as the EN 50160. All power quality parameters are collected and analysed e.g. flicker, short-term interruptions with fault recorder function, transients, harmonics up to 63rd and inrush currents etc. Extensive communication possibilities e.g. RS 485 Modbus, Profibus, Ethernet (TCP/IP), BACnet, HTTP, FTP, SMTP, SNTP, SNMP, DNS .... allow cost effective and rapid integration in existing communication networks. Worldwide access to the embedded web server can be gained through a web browser. The GridVis software included in the content of delivery allows extensive analysis just with the click of a button.

Areas of application

- Continuous monitoring of the power quality e.g. EN 50160
- Ethernet gateway for subordinate measurement points
- Analysis of electrical faults for network problems
- Monitoring of the internal distribution network according to EN 61000-4-7, 4-15, 4-30
- Report generator for EN 50160 analysis
- Control tasks, e.g. depending on achieved measured values or limits
- Transducer for building automation or PLC systems

Power quality analyser

UMG 605: the extra compact power quality analyser

Added value through additional functions

Thanks to state-of-the-art digital signal processor, it is possible to offer the power quality analyser UMG 605 at a very reasonable price. The high sampling rate enables a continuous measurement of more than 2000 measured values per measurement cycle (200ms). The UMG 605 power quality analyser serves the purpose of continuous monitoring of the power quality e.g. in accordance with EN 50160. This serves the purpose of monitoring the supply power quality from the energy supply side. The UMG 605 can also be used in applications for failure analysis on the consumer side and is also used as a preventative measure for network perturbations.

Main Features

- Measurement of power quality according to **DIN EN 61000-4-30**
- **Measurement method class A**
- Fourier analysis **1st to 63rd** harmonics for U-LN, U-LL, I, P (consumption/supply) and Q (ind./cap.)
- Measurement of harmonics and interharmonics (U-LN, U-LL, I)
- Analysis and evaluation according to **DIN EN 50160** with the contained programming and analysis software GridVis
- Flicker measurement according to **DIN EN 61000-4-15**
- Measurement in IT and TT grids (300V CATIII)
- 4 voltage measuring inputs, 4 current measuring inputs
- **Continuous sampling** of the voltage and current measuring inputs with **20kHz**
- Recording of more than 2000 different measurement parameters per measuring cycle (200ms)
- Detection of transients >50µs and storage with up to 16.000 samples
- Data logger / event memory (128MB Flashdisk)
- 2 digital inputs and 2 digital outputs
- Profibus DP/V0 alternatively RS 485 (Modbus RTU, Modbus-Master, optional **BACnet)**
- **Ethernet** (Web-Server, E-Mail, optional BACnet)
- Programming of customer specific applications in Jasic®

Applications

The power quality analyser which is equipped with 4 current and voltage inputs collects and digitalises the effective values (True RMS) from currents and voltages in 40-70Hz (15-440Hz) networks. The integrated microprocessor calculates the electrical parameters from the sampling values. The relevant voltage can be defined as a phase-neutral or a phase-phase voltage for measurement in a three-phase system. The voltage serves the UMG 605 as a reference voltage for harmonic measurement, transient and event recording and for the flicker meter. A nominal current can be set using this for the measurement of electrical current events. The 4th current and voltage input represents a separate measurement system. However, it is generally used for measuring the current in the neutral or PE conductor or used for measuring a voltage difference between N and PE.

UMG 605

Router

PLC

Software

Interfaces
- Ethernet
- RS 232
- RS 485

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

2 digital inputs
- Pulse input
- Logic input
- Status monitoring
- HT/LT switch over
- Emax (max. demand) resetting

2 digital outputs
- Pulse output kWh/kvarh
- Switch output
- Limit value output
- Emax output
- Logic output

(can be extended through external I/O modules)

Profibus connection

Communication
- Profibus (DP/V0)
- Modbus (RTU, UDP, TCP, gateway)
- TCP/IP
- BACnet
- HTTP (freely configurable homepage)
- FTP (file transfer)
- SNMP
- TFTP (automatic configuration)
- NTP (time synchronisation)
- SMTP (e-mail function)
- DHCP
- SNMP

Temperature measurement input
PT 100, PT 1000, KTY 83, KTY 84

Memory
- 128 MB Flash
- 16 MB RAM

Power quality
- Harmonics up to 63rd
- Short-term interruptions
- Transient recorder (>50µs)
- Starting current (>10ms)
- Unbalance
- Half wave-effective value recordings (up to 4.5 min)
- Flicker

Measurement accuracy
- Class: 0.5S (…/5A) class
- Current: 0.2%
- Voltage: 0.2%

Peak demand management
- 64 stages for load shedding

***Jasic*® programming language**

Scope of operation and types of variants

Overview

Three/four phase power quality analysers; current transformer .../1/5a; including GridVis programming and analysis software

Supply voltage								Interfaces					
95...240V AC, 135...340V DC ±10% of nominal range	50...110V AC, 50...155V DC ±10% of nominal range	20...55V AC, 20...77V DC ±10% of nominal range	4 voltage and 4 current inputs	Memory 128/256 MB Flash	digital inputs	digital outputs	1 temperature input	RS 232	RS 485	Ethernet 100baseT	Profibus DP V0	Type	Item number
●			●	●	2	2	●	●	●	●	●	UMG 605	**52.16.027**
	●		●	●	2	2	●	●	●	●	●	UMG 605	**52.16.028**
		●	●	●	2	2	●	●	●	●	●	UMG 605	**52.16.029**
Options (for all versions)													
Emax function application program (peak demand management)												Emax	**52.16.084**
BACnet communication												BACnet	**52.16.083**

- = not possible ● = contained

General technical data

Nominal voltage	3-phase 4-wire grid (L-N, L-L)	277/480 V AC
	3-phase 3-wire grid (L-L)	480 V AC
Overvoltage category		300V CATIII
Quadrants		4
Continuous measurement		yes
8 channel scanning rate	Per channel	20 kHz
Weight		350g
Dimensions		L=107.5mm * W=90mm * H=76/82mm
Mounting	According to IEC EN 60999-1/DIN EN 50022	35mm DIN rail
Working temperature range		-10…55 °C
Connectable conductor (U/I)	Single wire, multi-wire, fine-wire	0.08 - 2.5 mm²
	pin cable lugs, ferrule	1.5 mm²
Protection class	According to EN 60529	IP 20

Measurement range

L-N voltage, AC (without voltage transformer)	Free voltage transformer settings	50...300 VAC
L-L voltage, AC (without voltage transformer)	Free voltage transformer settings	87...520 VAC
Current (transformer: x/1 and x/5A)		0.005...6 A
Frequency of mains	(only for static frequence)	15...440 Hz
Networks		IT, TN, TT
Measurement in single/multi-phase networks		1 ph, 2 ph, 3 ph, 4 ph and up to 4 x 1 ph

Periphery

Digital inputs	Status, logic or pulse input	2
Digital outputs	Switch logic output or pulse output	2
Temperature measurement input	PT100, PT1000, KTY83, KTY84	1
Password protection	Multilevel	yes
Demand management	**Optional 64 channels**	**yes**
Software	**GridVis**	**yes**

Features

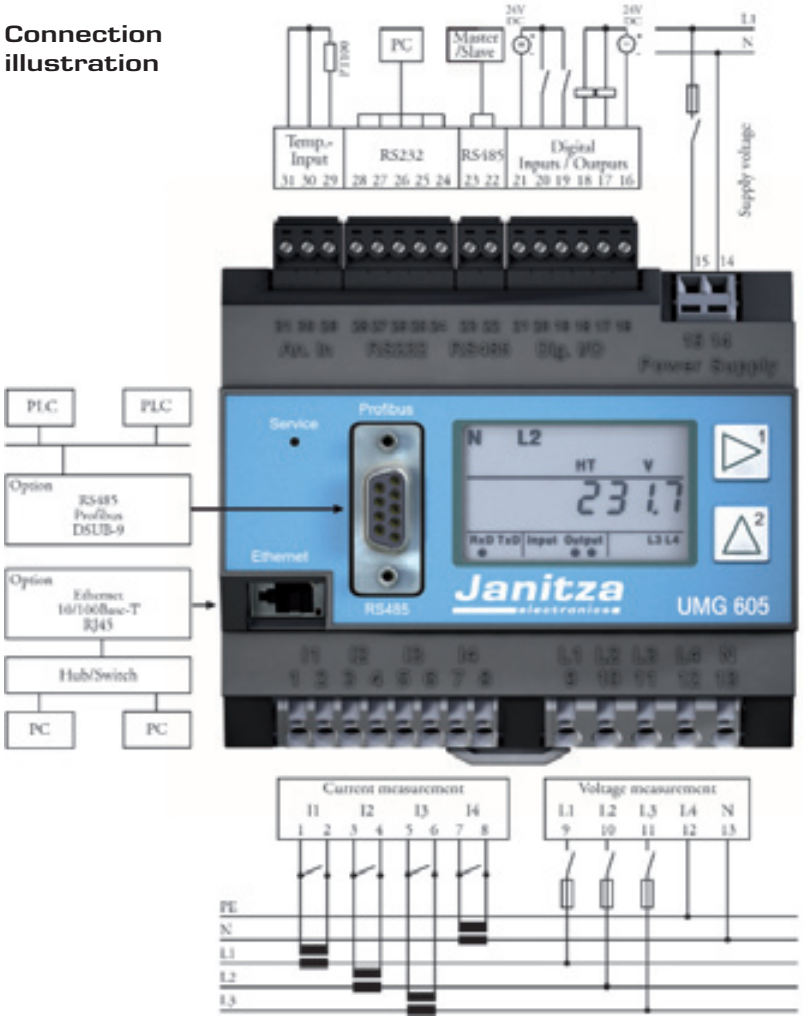
Memory		128 MB
Clock		+/- 1 min per month
Integrated logic		Programming language Jasic®
Operating hour meter		yes
Weekly time switch		Jasic®

Measurement values		
Voltage	L1, L2, L3, L4, L1-L2, L2-L3, L1-L3	Accuracy ±0.2%)
Current	L1, L2, L3, L4	±0.2%
	Calculated sum current	±0.6%
K-factor	L1, L2, L3, L4	yes
Three-phase current components	Positive/ Negative/ Zero Phase Sequence	yes
Cos-phi, power factor	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4	yes
Phase angle	L1, L2, L3, L4	yes
Effective energy (kWh)	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4: - Purchased effective energy (tariff 1, tariff 2) - Supplied effective energy (tariff 1, tariff 2)	Class 0.5S (…/5A) Class 1 (…/1A)
Reactive energy (kvarh)	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4: - Inductive reactive power (tariff 1, tariff 2) - Capacitive reactive power	Class2
Apparent energy (kVAh)	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4	yes
Current/voltage wave form	L1, L2, L3, L4	yes
Frequency of mains		Accuracy ±0.1%
Temperature measurement		Accuracy ±1.5%
Average value		yes
Minimum and maximum values		yes

Power quality		
Harmonics order, 1.- 63rd Harmonics, even/odd	Voltage L1, L2, L3, L4 Measure value > 3% of measuring range Measure value < 3% of measuring range	 Accuracy ± 5% Accuracy ± 0.05
Interharmonics	Current, voltage L1, L2, L3, L4	yes
Distortion factor THD-U in %	L1, L2, L3, L4	yes
Distortion factor THD-I in %	L1, L2, L3, L4	yes
Positive/negative/zero system		yes
Actual flicker value	L1, L2, L3, L4	yes
Short term flicker value	L1, L2, L3, L4	yes
Long term flicker value	L1, L2, L3, L4	yes
Transients	50 µs	yes
Trigger events	10 ms	yes
Inrush currents	10 ms	yes
Event recorder		yes

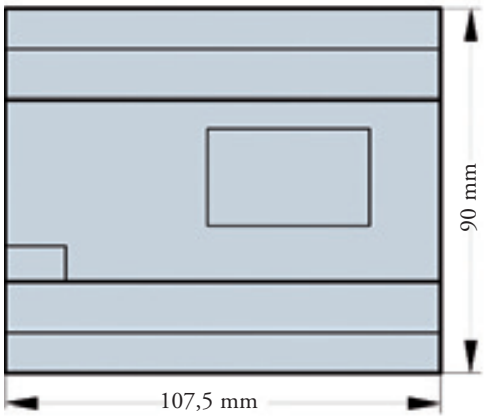
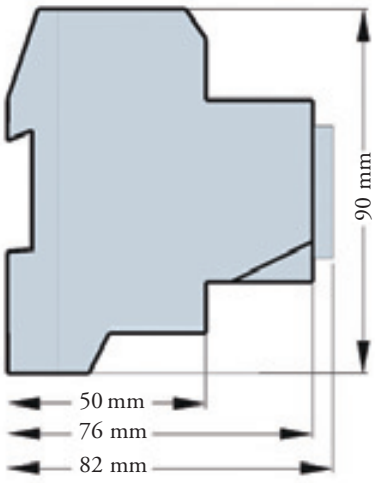
Communication		
Interfaces		
RS 232	9.6, 19.2, 38.4, 115.2 kbps	yes
RS 485	9.6, 19.2, 38.4, 76.8, 115.2, 921.6 kbps	yes
Profibus DP	Plug, sub D 9-pole up to 12Mbps	yes
Ethernet 10/100 Base- TX	RJ-45 sockets	yes
Protocols		
Modbus RTU		yes
Profibus DP V0		yes
Modbus TCP		yes
Modbus over TCP		yes
Modbus gateway		yes
HTTP	Homepage (configurable)	yes
SMTP	E-Mail	yes
SNMP		yes
SNTP	Time synchronisation	yes
TFTP	Automatic configuration	yes
FTP	File Transfer	yes
DHCP		yes
BACnet / IP or MSTP		yes, option

Connection illustration



Dimensional drawing

front view



side view