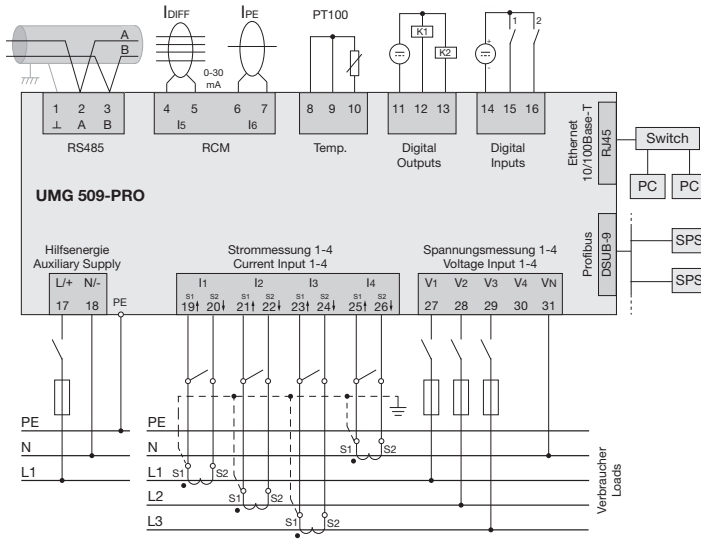




# Typical connection



# Device overview and technical data

Item number	UMG 509-PRO	
	52.26.001	52.26.003
Supply voltage AC	95 ... 240 V AC	48 ... 110 V AC
Supply voltage DC	80 ... 300 V DC	24 ... 150 V DC
<b>Device options</b>		
BACnet communication	52.26.081	52.26.081
<b>General</b>		
Use in low, medium and high 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		•
<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-L3, Σ L1-4]		•
Number of tariffs		8
<b>Recording of the mean values</b>		
Voltage, current / actual and maximum		•
Active, reactive and apparent power / actual and maximum		•
Frequency / actual and maximum		•
Demand calculation mode (bi-metallic function) / thermal		•
<b>Other measurements</b>		
Operating hours measurement		•
Clock		•
Weekly timer		Jasic®
<b>Power quality measurements</b>		
Harmonics per order / current and voltage		1st – 63rd
Harmonics per order / active and reactive power		1st – 63rd
Distortion factor THD-U in %		•
Distortion factor THD-I in %		•

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

• = included - = not included

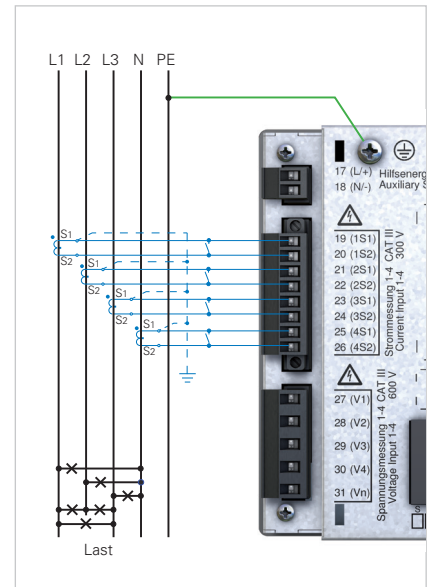


Fig.: Example current measurement

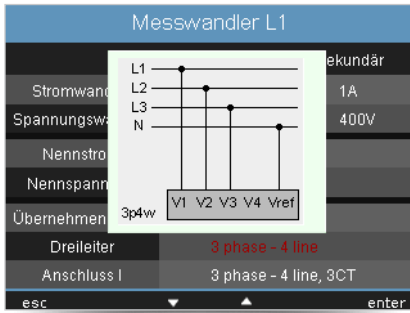


Fig.: Example for the configuration of current measurement via 3 current transformers in a three-phase 4-wire network on the UMG 509-PRO display

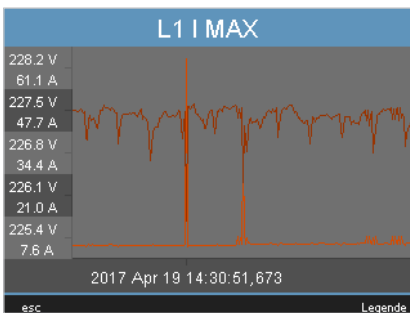


Fig.: Illustration of the full wave effective values for an event (voltage drop)

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.

\*2 With UL variants: 347/600 V

\*3 The UMG 509-PRO can only determine measured values, if an L-N voltage of greater than 10 Veff or an L-L voltage of greater than 18 Veff is applied to at least one voltage measurement input.

Voltage unbalance	•
Rotary field indication	•
Current and voltage, positive, zero and negative sequence component	•
Transients	> 50 µs
Error / event recorder function	•
Short-term interruptions	20 ms
Oscillogram recording (waveform U and I)	•
Full wave effective values (U, I, P, Q)	•
Under and overvoltage recording	•
<b>Measured data recording</b>	
Memory (Flash)	256 MB
Average, minimum, maximum values	•
Measured data channels	10
Alarm messages	•
Time stamp	•
Time basis average value	freely user-defined
RMS averaging, arithmetic	•
<b>Displays and inputs / outputs</b>	
LCD colour graphical display 320 x 240, 256 colours, 6 buttons	•
Language selection	•
Digital inputs	2
Digital outputs (as switch or pulse output)	2
Voltage and current inputs	each 4
Residual current inputs	2
Temperature input	1
Password protection	•
<b>Communication</b>	
<b>Interfaces</b>	
RS485: 9.6 – 921.6 kbps (terminal board)	•
Profibus DP: Up to 12 Mbps (DSUB-9-plug)	•
Ethernet 10/100 Base-TX (RJ-45 socket)	•
<b>Protocols</b>	
Modbus RTU, Modbus TCP, Modbus RTU over Ethernet	•
Modbus Gateway for Master-Slave configuration	•
Profibus DP V0	•
HTTP (homepage configurable)	•
SMTP (email)	•
NTP (time synchronisation)	•
TFTP	•
FTP (File-Transfer)	•
SNMP	•
DHCP	•
TCP/IP	•
BACnet (optional)	•
ICMP (Ping)	•
<b>Software GridVis®-Basic*1</b>	
Online and historic 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	•
<b>Programming / threshold values / alarm management</b>	
Application programs freely programmable	7
Graphical programming	•
Programming via source code Jasic®	•
<b>Technical data</b>	
Type of measurement	Constant true RMS Up to 63rd harmonic
Nominal voltage, three-phase, 4-conductor (L-N, L-L)	417 / 720 V AC *2
Nominal voltage, three-phase, 3-conductor (L-L)	600 V AC
Measurement in quadrants	4
Networks	TN, TT, IT
Measurement in single-phase/multi-phase networks	1 ph, 2 ph, 3 ph, 4 ph and up to 4 times 1 ph
<b>Measured voltage input</b>	
Overvoltage category	600 V CAT III
Measured range, voltage L-N, AC (without potential transformer)	0*3 ... 600 Vrms

# UMG 509-PRO

Measured range, voltage L-L, AC (without potential transformer)	0 <sup>3</sup> ... 1000 Vrms
Resolution	0.01 V
Impedance	4 MOhm / phase
Frequency measuring range	40 ... 70 Hz
Power consumption	approx. 0.1 VA
Sampling frequency	20 kHz / phase
<b>Measured current input</b>	
Rated current	1 / 5 A
Resolution	0.1 mA
Measurement range	0.005 ... 7 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
<b>Residual current / Temperature inputs</b>	
Residual current inputs	2
Measurement range, residual current inputs	0,05 ... 30 mA
Temperature input	1
<b>Digital inputs and outputs</b>	
Number of digital inputs	2
Maximum counting frequency	20 Hz
Reaction time (Jasic® program)	200 ms
Input signal present	18 ... 28 V DC (typical 4 mA)
Input signal not present	0 ... 5 V DC, current < 0.5 mA
Number of digital outputs	2
Switching voltage	max. 60 V DC, 30 V AC
Switching current	max. 50 mA Eff AC / DC
Output of voltage dips	20 ms
Pulse output (energy pulse)	max. 20 Hz
Maximum cable length	up to 30 m unshielded, from 30 m shielded
<b>Mechanical properties</b>	
Weight	1080 g
Device dimensions in mm (H x W x D)	144 x 144 x approx. 81
Battery	Type CR2450, 3 V, Li-Mn
Protection class per EN 60529	Front: IP40; Rear: IP20
Assembly per IEC EN 60999-1 / DIN EN 50022	Front panel installation
Connecting phase (U / I), Single core, multi-core, fine-stranded	0.2 to 2.5 mm <sup>2</sup>
Terminal pins, core end sheath	0.2 to 2.5 mm <sup>2</sup>
<b>Environmental conditions</b>	
Temperature range	Operation: K55 (-10 ... +55 °C)
Relative humidity	Operation: 0 ... 75 % RH
Operating height	0 ... 2,000 m above sea level
Degree of pollution	2
Installation position	user-defined
<b>Electromagnetic compatibility</b>	
Electromagnetic compatibility of electrical equipment	Directive 2004/108/EC
Electrical appliances for application within particular voltage limits	Directive 2006/95/EC
<b>Equipment safety</b>	
Safety requirements for electrical equipment for measurement, regulation, control and laboratory use – Part 1: General requirements	IEC/EN 61010-1
Part 2-030: Particular requirements for testing and measuring circuits	IEC/EN 61010-2-030
<b>Noise immunity</b>	
Class A: Industrial environment	IEC/EN 61326-1
Electrostatic discharge	IEC/EN 61000-4-2
Voltage dips	IEC/EN 61000-4-11
<b>Emissions</b>	
Class B: Residential environment	IEC/EN 61326-1
Radio disturbanc voltage strength 30 – 1000 MHz	IEC/CISPR11/EN 55011
Radiated interference voltage 0.15 – 30 MHz	IEC/CISPR11/EN 55011
<b>Safety</b>	
Europe	CE labelling
USA and Canada	UL variants available
<b>Firmware</b>	
Firmware update	Update via GridVis® software. Firmware download (free of charge) from the website: <a href="http://www.janitza.com">http://www.janitza.com</a>

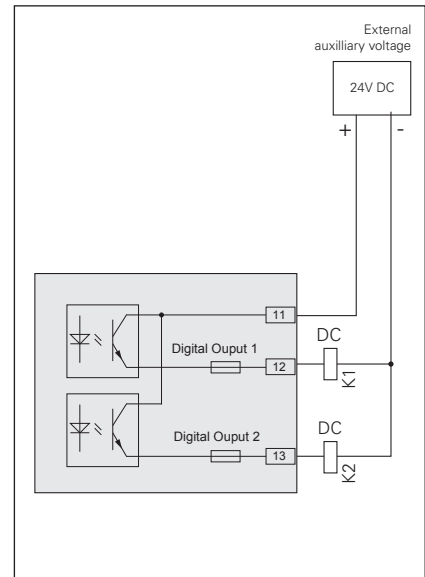


Fig. Example for two electrical relays connected to the digital outputs

Comment:  
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• = included - = not included

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