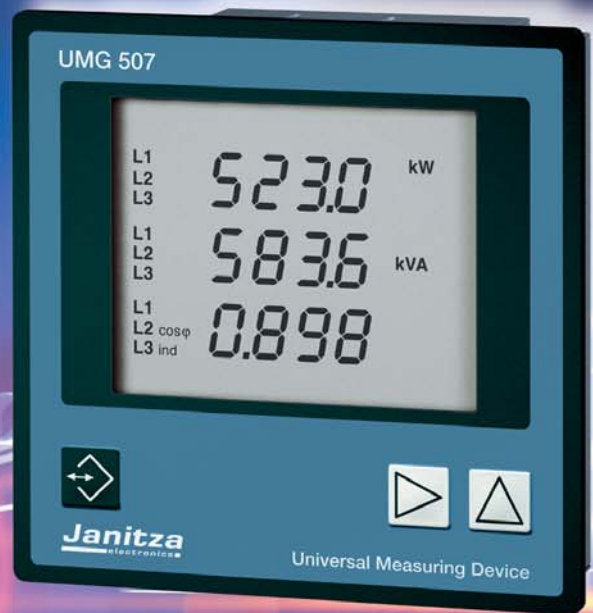


# UMG 507



Ethernet



Profibus DP  
Modbus/TCP  
Embedded Webserver

Detection of  
Short Interruptions

# Universal Measuring Device



## Function

The three phase electronic instrument acquires the rms values of current and voltage in 50 Hz and 60 Hz power grids by sampling the input signals. Further calculation is done by the built-in microprocessor. All measured values will be calculated and aggregated in intervals of 200 ms, containing 10 power line cycles at 50 Hz respectively.

## Short-term interruptions

Proper detection of short interruptions including fault recording: Recording of 128 cycles (one rms value each cycle), including 64 cycles pretrigger and transient recorder storing the waveform of 5 power line cycles, 2 cycles pretrigger. The propagation delay of the internal outputs is < 10 ms and of field-bus connected outputs is < 200ms.

## Embedded webservice / email-client

The UMG 507 is worldwide accessible via an internet browser.

In order to allow access it is only necessary to set up the IP-Address and access privileges.

The entire configuration menus are available as HTML pages from the internal web server. User contributed Java applets and ActiveX components can be stored in the flash memory.

In case of exceeding set limits or other events a message will be sent to user-defined email addresses. Stored data can be sent by email at set times and can be processed with PSW software.

**Supported protocols:** HTTP, SMTP, DNS, NTP, Mod/TCP, Modbus over TCP, DHCP, BootP

## Internet connection via ISDN or DSL router

The device can be connected to the internet by an external router (e.g. ISDN or DSL).

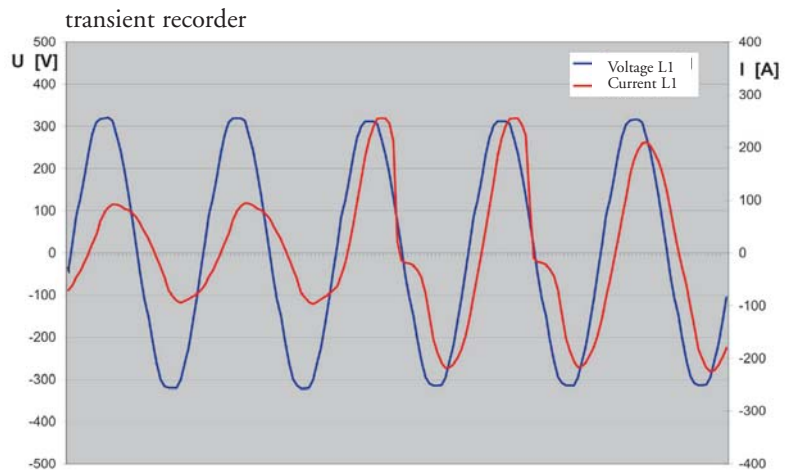
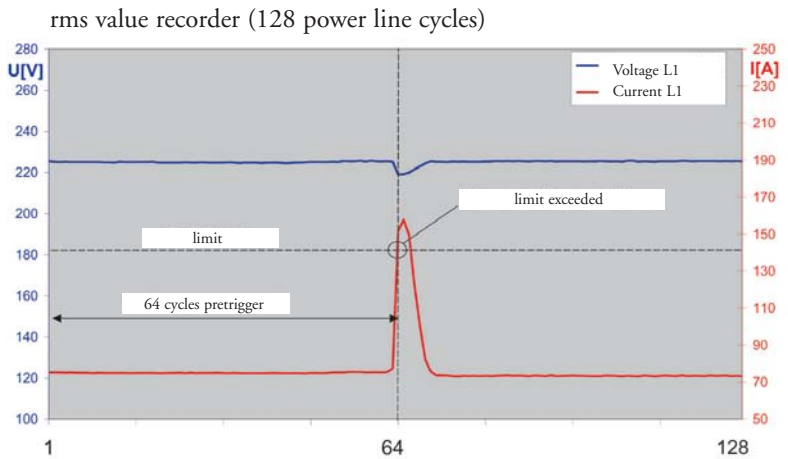
SMTP provides Plain/Login/Cram-MD5 (latest encryption standards) authentication to send email messages to your mailbox.

## Memory

- RAM (battery backed) 256 kB
- 16 MB Flash  
Mean values with programmable averaging time of 1-9999 sec. can be stored in the memory. Minimum and maximum values are also stored for each mean value.

### Additional memory options :

- fault logging (rms values and transients)
- data recorder (speed up to one value in every 200 ms)
- HTML pages, Java applets (in 16 MB Flash memory)



## Inputs / Outputs

- 1 input for temperature sensor ( supports PT 100/1000, KTY 83 or 84 )
  - 1 analogue input 0(4) – 20 mA
  - 6 digital inputs, configuration selectable as counting input ( max. 20 Hz ), pulse input for EMAX, nominal value switch, tariff switch and 32 Flags
  - 6 digital outputs, configuration selectable via programmable logic functions
  - 2 analogue outputs, configuration selectable for measured values, analogue EMAX generator control and field-bus controlled.
- The UMG 507 as Modbus master can communicate with other fieldbus devices, that support Modbus RTU protocol.

## Integrated logic

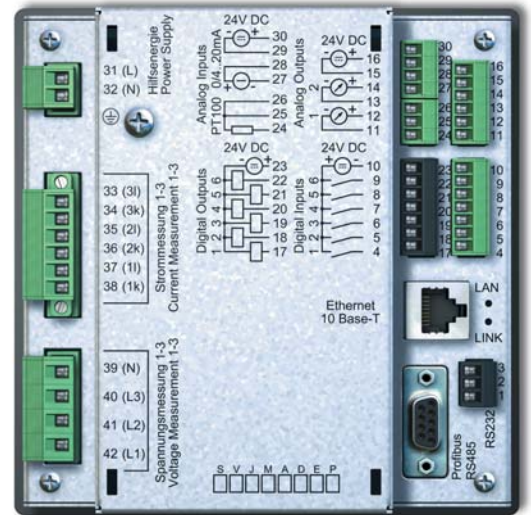
The 128 programmable logic elements provide connections from the inputs and internal functions of the UMG507 (e.g. Comparators) to the digital outputs.

Available operators : AND, NAND, OR, NOR, XOR, EQU, edge detection (rising and falling).

Available input data: Trigger events 1-9, weekly time controller 1-24, limit comparator 1-16, EMAX channel 1-16 and field bus input.

## Technical Data

Overvoltage class:	III
Pollution degree:	2
Operating ambient temperature:	-10 °C .. +55°C
Storage temperature:	-20°C .. +60°C
Mounting position:	optional
Protection class:	1=Device with protective wire
Auxiliary voltage:	(see versions)
Impedance per outer conductor against ground (PE)	4MΩ
Voltage measurement:	L-N 50.. 500V 50/60 Hz L-L 90.. 870V 50/60 Hz
Crest factor	V=1,5; I=1,9
Current measurement:	.. /5A (1A)
Power consumption :	approx.. 0,2 VA
Minimum operating current:	5mA
Protection class:	front IP 65 acc. to IEC 60529 back side IP 20 acc. to IEC 60529



## Measured values

Quantity to be measured	Indication	Measuring range at scale factor 1+	L1	L2	L3	Sum	Lowest value	Mean-value <sup>*1</sup>	Peak mean value	Peak-value	Date/Time	Measuring accuracy
Current .. / (1)5A	0,000 .. 9999 A	0,005 .. / (1)5A	●	●	●			●	●	●	●	+0,2 % rng
Current, N	0,000 .. 9999 A	0,060 .. 15 A				●		●		●	●	+0,6 % rng
Voltage L-N	0,0 .. 999,9 MV	50 .. 500 V	●	●	●		●	●		●	●	+0,2 % rng
Voltage L-L	0,0 .. 999,9 MV	90 .. 870 V	●	●	●		●	●		●	●	+0,2 % rng
Positive/negative/zero sequence	0,0 .. 999,9 MV	50 .. 500 V						●		●	●	+0,5 % rng
Frequency (U)	45,00 .. 65,00 Hz	45,00 .. 65,00 Hz	●	●	●		●	●		●	●	+0,2 % rdg
Real power +/-	0,00 W .. 9999 MW	0,05 W .. 2,5 kW	●	●	●	●		●	●	●	●	+0,5 % rng
Apparent power	0,00 VA .. 9999 MVA	0,05 VA .. 2,5 kVA	●	●	●	●		●		●	●	+0,5 % rng
Reactive power	0,00 kvar .. 999 MVar	0,05 var .. 2,5 kvar	●	●	●	●		●		ind.	●	+0,5 % rng
Power factor	0,00 kap. .. 1,00 .. 0,00 ind.	0,00 kap. .. 1,00 .. 0,00 ind.	●	●	●	●		●		ind.	●	+0,5 % rng
Real energy +	0,0 Wh .. 9999 GWh	0,05 Wh .. 9999 GWh <sup>2</sup>				●		●			t <sub>1</sub> /t <sub>2</sub>	class 1 <sup>3</sup>
Real energy -	-0,0 Wh .. -9999 GWh	-0,05 Wh .. -9999 GWh <sup>2</sup>				●		●			t <sub>1</sub> /t <sub>2</sub>	class 1 <sup>3</sup>
Reactive energy +/-	0,0 .. 9999 Gvarh	0,05vars .. 9999 Mvarh <sup>2</sup>				●		●			t <sub>1</sub> /t <sub>2</sub>	class 1 <sup>3</sup>
Harmonic content THD U,I	0,0 .. 100 %	0,0 .. 100 %	●	●	●			●		●	●	+0,5 % rng
Harmonic content	0,000 A .. 9999 A	0,005 A .. 5A (1 A)	●	●	●			●		●	●	+0,5 % rng
U 1-15 (odd-harmonics)	0,0 V .. 99,99 kV	0,000 V .. 9999 V	●	●	●			●		●	●	+0,5 % rng

rng: of measured range, rdg: of measured value, t<sub>1</sub>: Starting time, t<sub>2</sub>: Running time, + Consumption, - Supply, \*1 Integration possible for a selectable time of 5, 10, 15, 30 seconds, 1, 5, 10, 15, 30, 60 minutes,

\*2 Storage time 60 minutes.

\*3 Accuracy according to DIN EN 61036: 2001-01, VDE 0418 part 7, EC 61036: 1994 + A1:2000

## Versions of the UMG 507

Type UMG 507	L	AD	P	E	EP
Auxiliary voltage: 85 .. 250V AC, 80 .. 350V DC	●	●	●	●	●
RS232 interface, Modbus RTU	●	●	●	●	●
RS485 interface, Modbus RTU	●	●	●	●	●
Ethernet 10baseT	○	○	○	●	●
Profibus DP V0	○	○	●	○	●
1 Input for the temperatur feelers (PT 100, PT 1000, KTY83 o. 84)	○	●	●	●	●
1 Analogue input 0 (4) - 20mA	○	●	●	●	●
2 Analogue output 0 (4) - 20mA	○	●	●	●	●
6 Digital inputs	●	●	●	●	●
6 Digital outputs	●	●	●	●	●
Memory 16MB Flash	○	○	○	●	●

● = existing

○ = not possible

Also available for auxiliary voltage range:  
40 .. 115V AC, 55 .. 165V DC  
oder 15 .. 55V AC, 20 .. 80V DC

### Interfaces

- RS 232 Modbus RTU, data rate: 38,4 kBit/s
- RS 485 Modbus RTU slave, Modbus RTU master/gateway, data rates: 9,6, 19,2, 38,4, 57,6 and 115,2 kBit/s
- Profibus DP V0, transmission rates: 9,6, 19,2, 93.75, 187,5, 500 k and 1,5 Mbit/s
- Ethernet 10baseT

### Transformer supervision, k-factor

The maximum permissible current for transformers, fuses and motors can be supervised by setting the k-factor.

The manufacturers ratings of the transformer, e.g. current and k-factor ( 1=100 % ) can be monitored by properly setting one or more of the comparators and routing its output to one of the digital outputs. Futhermore the reading of the external temperature sensor can be used for the supervision of the transformer/s.

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Representative