

Power Analyser

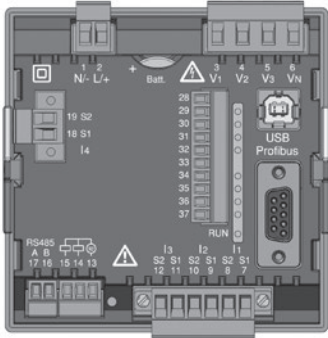
UMG 96RM-P

UMG 96RM-CBM

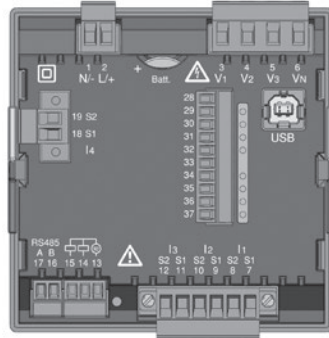
Data sheet

DEVICE VIEWS

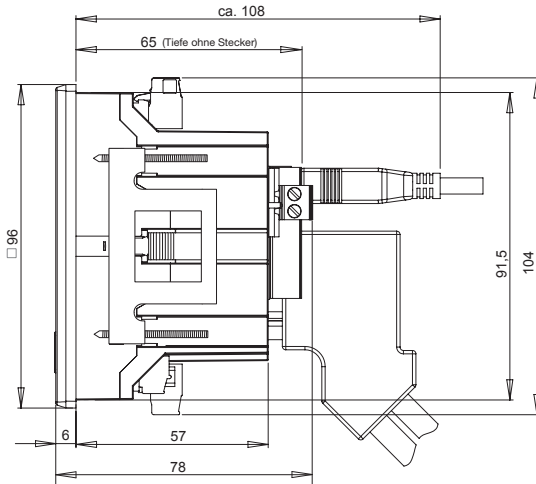
Rear view UMG 96RM-P



Rear view UMG 96RM-CBM

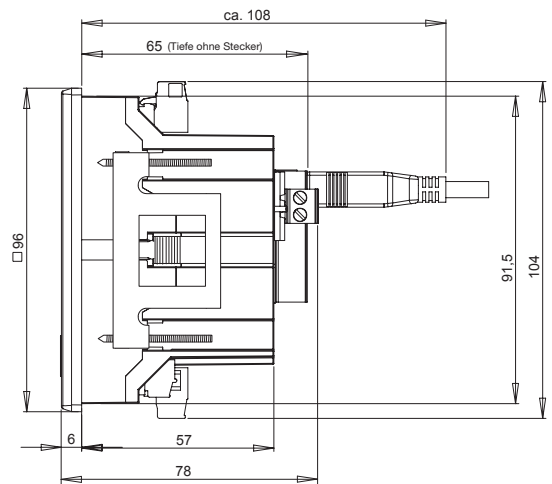


Side view of UMG 96RM-P
with USB and Profibus connectors inserted



All dimensions in mm

Side view of UMG 96RM-CBM
with USB connector inserted



Cut-out size: $92^{+0,8}$ mm x $92^{+0,8}$ mm.

TECHNICAL DATA

General	
Net weight (with attached connectors)	approx. 358g
Packaging weight (including accessories)	approx. 790g
Battery	Lithium battery CR2032, 3V (approval i.a.w. UL 1642)
Service life of the backlight	40000h (after this period of time the background lighting efficiency will reduce by approx. 50 %)

Transport and storage	
The following information applies for devices that are transported or stored in their original packaging.	
Free fall	1m
Temperature	K55 (-25 °C to +70 °C)
Relative humidity	0 to 90% RH

Ambient conditions during operation	
The UMG 96RM-CBM/-P is intended for use in weather-protected, fixed locations. Protection class II according to IEC 60563 (VDE 0106, part 1).	
Rated temperature range	K55 (-10°C .. +55°C)
Relative humidity	0 to 75 % RH
Operational altitude	0 .. 2000 m above sea level
Degree of pollution	2
Installation position	vertical
Ventilation	Forced ventilation is not required.
Foreign body and water protection	
- Front	IP40 according to EN60529
- Back	IP20 according to EN60529
- Front with seal	IP54 according to EN60529

Power supply voltage		
Option 230V	Nominal range	90V - 277V (50/60Hz) or DC 90V - 250V; 300V CATIII
	Power consumption	UMG 96RM-P: max. 7,5VA / 4W UMG 96RM-CBM: 6VA / 3W
Option 24V	Nominal range	24V - 90V AC / DC; 150V CATIII
	Power consumption	UMG 96RM-P: max. 6,5VA / 5W UMG 96Rm-CBM: 5VA / 3W
Operating range	+-10% of nominal range	
Internal fuse, not replaceable	Typ T1A / 250V/277V according IEC 60127	
Recommended overcurrent protection device for line protection (certified under UL)	Option 230V: 6 - 16A Option 24V: 1 - 6A (Char. B)	

Recommendation for a maximum number of devices on a circuit breaker:

Option 230V : Circuit breaker B6A: max. 4 devices / Circuit breaker B16A: max. 11 devices

Option 24V : Circuit breaker B6A: max. 3 devices / Circuit breaker B16A: max. 9 devices

Connection capacity of the terminals (power supply)	
Connectable conductor. Only one conductor may be connected per contact point!	
Single-wire, multi-wire, finely stranded conductor	0.2 - 2.5mm ² , AWG 26 - 12
Pin terminals, ferrules	0.2 - 2.5mm ²
Tightening torque	0.4 - 0.5Nm
Stripping length	7mm

Digital outputs	
6 digital outputs, semi-conductor relay, not short circuit protected.	
Switching voltage	max. 33V AC, 60V DC
Switching current	max. 50mAeff AC/DC
Reaction time	10/12 periods + 10ms *
Pulse output (energy pulses)	max. 50Hz

* Reaction time at 50 Hz, for example: 200 ms + 10 ms = 210 ms

Digital inputs	
4 optional digital outputs, semiconductor relays, not short-circuit proof.	
Maximum counter frequency	20Hz
Input signal present	18V .. 28V DC (typical 4mA)
Input signal not present	0 .. 5V DC, current less than 0.5mA

Cable lengths (digital inputs and outputs)	
Up to 30m	Unshielded
More than 30m	Shielded

Connection capacity of the terminals (digital in-/outputs)	
Rigid/flexible	0.14 - 1,5mm ² , AWG 28-16
Flexible with ferrules without plastic sleeve	0.20 - 1.5mm ²
Flexible with ferrules with plastic sleeve	0.20 - 1.5mm ²
Tightening torque	0.20 - 0.25Nm
Stripping length	7mm

Serial interfaces	
RS485 - Modbus RTU/slave	9.6kbps, 19.2kbps, 38.4kbps, 57.6 kbps, 115.2kbps
Stripping length	7mm
USB (receptacle)	USB 2.0, type B, max. transfer rate 921.6 kbps
Profibus (only UMG96RM-P) - Profibus DP/V0 - Receptacle	- 9.6kbps to 12Mbps - D-sub, 9-pole

Connection capacity of the terminals (RS485)	
Single-wire, multi-wire, finely stranded conductor	0.20 - 1.5mm ²
Pin terminals, ferrules	0.20 - 1.5mm ²
Tightening torque	0.20 - 0.25Nm
Stripping length	7mm

Voltage metering	
Three-phase, 4-wire systems with nominal voltages up to	277V/480V (+-10%)
Three-phase, 3-wire systems, unearthed, with nominal voltages up to	IT 480V (+-10%)
Oversvoltage category	300V CAT III
Rated surge voltage	4kV
Metering range L-N	0 ¹⁾ .. 300 Vrms (max. oversvoltage 520 Vrms)
Metering range L-L	0 ¹⁾ .. 520Vrms (max. oversvoltage 900Vrms)
Resolution	0.01V
Crest factor	2.45 (relative to the metering range)
Impedance	3M Ω /phase
Power consumption	approx. 0.1VA
Sampling rate	21.33kHz (50Hz), 25.6 kHz (60Hz) per measuring channel
Mains frequency - Resolution	45Hz .. 65Hz 0.01Hz

- ¹⁾ The UMG 96RM-P/CBM can only detect measurements when a voltage L1-N greater than 20V eff (4-wire measurement) at voltage input V1 or a voltage L1-L2 greater than 34V eff (3-wire measurement) is applied.

Current measurement I1 - I4	
Rated current	5A
Measurement range	0 .. 6Arms
Crest factor	1.98
Resolution	0.1mA (Display 0.01A)
Oversvoltage category	300V CAT II
Measurement surge voltage	2kV
Power consumption	ca. 0.2 VA (Ri=5m Ω)
Overload for 1 sec.	120A (sinusoidal)
Sampling frequency	21.33kHz (50Hz), 25.6 kHz (60Hz) per measurement channel

Connection capacity of the terminals (voltage and current measurement)		
Connectable conductor. Only one conductor may be connected per contact point!		
	Current	Voltage
Single-wire, multi-wire, finely stranded conductor	0.2 - 2.5mm ² , AWG 26-12	0.08 - 4.0mm ² , AWG 28-12
Pin terminals, ferrules	0.2 - 2.5mm ²	0.2 - 2.5mm ²
Tightening torque	0.4 - 0.5Nm	0.4 - 0.5Nm
Stripping length	7mm	7mm

FUNCTION PERFORMANCE CHARACTERISTICS

Function	Symbol	Accuracy class	Metering range	Display range
Total real power	P	0.5 ⁵⁾ (IEC61557-12)	0 .. 5.4 kW	0 W .. 999 GW *
Total reactive power	QA, Qv	1 (IEC61557-12)	0 .. 5.4 kvar	0 varh .. 999 Gvar *
Total apparent power	SA, Sv	0.5 ⁵⁾ (IEC61557-12)	0 .. 5.4 kVA	0 VA .. 999 GVA *
Total active energy	Ea	0.5 ⁵⁾ (IEC61557-12) 0.5S ⁵⁾ (IEC62053-22)	0 .. 5.4 kWh	0 Wh .. 999 GWh *
Total reactive energy	ErA, ErV	1 (IEC61557-12)	0 .. 5.4 kvarh	0 varh .. 999 Gvarh *
Total apparent energy	EapA, EapV	0.5 ⁵⁾ (IEC61557-12)	0 .. 5.4 kVAh	0 VAh .. 999 GVAh *
Frequency	f	0.05 (IEC61557-12)	45 .. 65 Hz	45.00 Hz .. 65.00 Hz
Phase current	I	0.2 (IEC61557-12)	0 .. 6 Arms	0 A .. 999 kA
Measured neutral conductor current I4	IN	1 (IEC61557-12)	0 .. 6 Arms	0 A .. 999 kA
Calculated neutral conductor current	INc	1 (IEC61557-12)	0.03 .. 25 A	0.03 A .. 999 kA
Voltage	U L-N	0.2 (IEC61557-12)	10 .. 300 Vrms	0 V .. 999 kV
Voltage	U L-L	0.2 (IEC61557-12)	18 .. 520 Vrms	0 V .. 999 kV
Displacement factor	PFA, PFV	0.5 (IEC61557-12)	0.00 .. 1.00	0.00 .. 1.00
Short-term flicker, long-term flicker	Pst, Plt	-	-	-
Voltage dips (L-N)	Udip	-	-	-
Voltage surges (L-N)	Uswl	-	-	-
Transient overvoltages	Utr	-	-	-
Voltage interruptions	Uint	-	-	-
Voltage unbalance (L-N) ¹⁾	Unba	-	-	-
Voltage unbalance (L-N) ²⁾	Unb	-	-	-
Voltage harmonics	Uh	Class 1 (IEC61000-4-7)	up to 2.5 kHz	0 V .. 999 kV
THD of the voltage ³⁾	THDu	1.0 (IEC61557-12)	up to 2.5 kHz	0 % .. 999 %
THD of the voltage ⁴⁾	THD-Ru	-	-	-
Current harmonics	Ih	Class 1 (IEC61000-4-7)	up to 2.5 kHz	0 A .. 999 kA
THD of the current ³⁾	THDi	1.0 (IEC61557-12)	up to 2.5 kHz	0 % .. 999 %
THD of the current ⁴⁾	THD-Ri	-	-	-
Mains signal voltage	MSV	-	-	-

¹⁾ Referred to amplitude.

²⁾ Referred to phase and amplitude.

³⁾ Referred to mains frequency.

⁴⁾ Referred to root mean square value.

⁵⁾ Accuracy class 0.5/ 0.5S with ..5 A transformer.
Accuracy class 1 with ..1 A transformer.

* The display returns to 0 W when the maximum total energy values are reached.

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