

Your plus for more performance



PRODUCT CATALOGUE 2022

Hardware components - measuring equipment

Software solutions

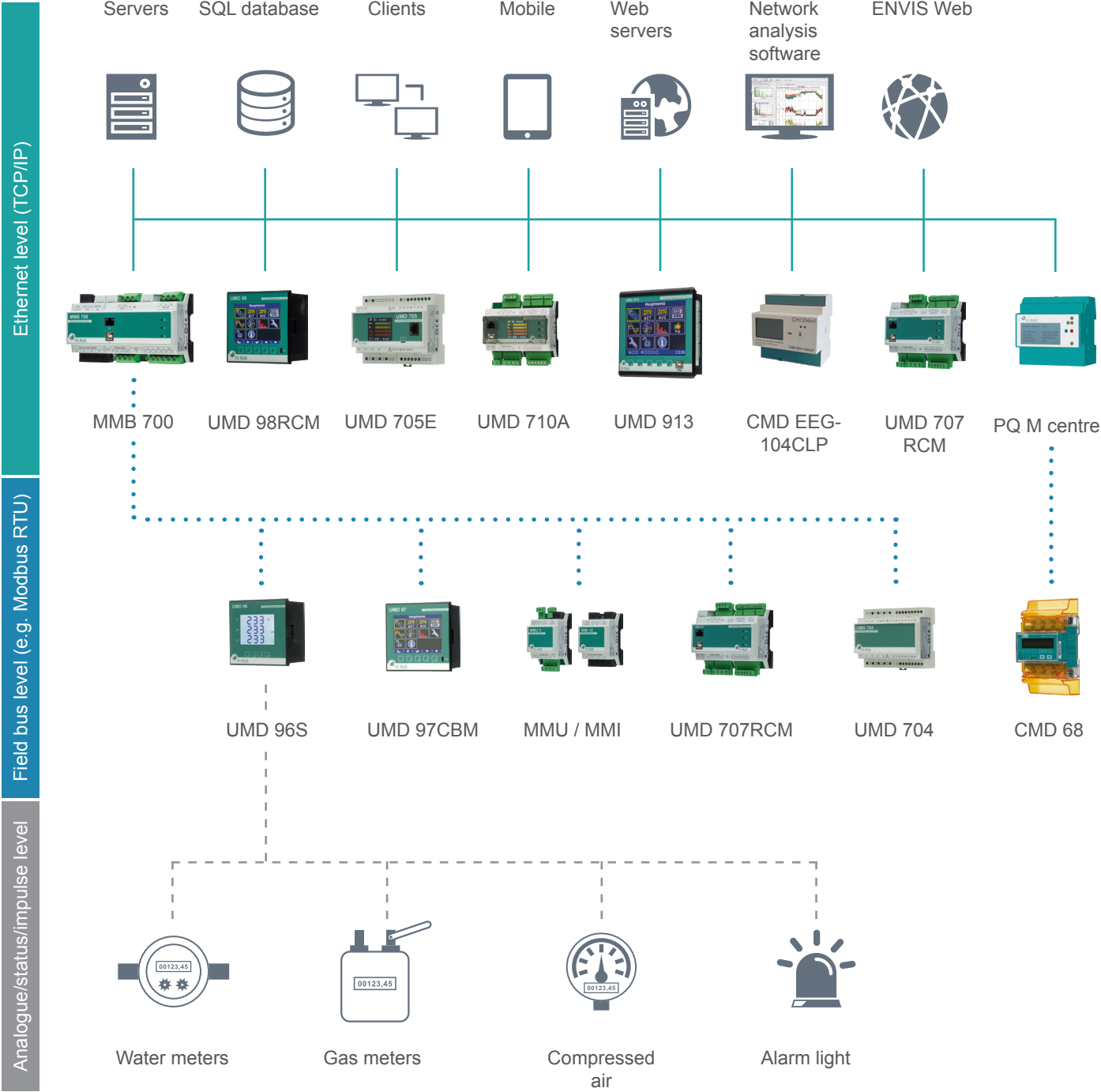
Transformers

Reactive power compensations

Accessories

Services

Our solutions for your networked world.



Company profile

Your plus for more performance - Energy management systems from PQ Plus

In a world where things are changing ever faster, the demands on technology and sustainability are constantly growing and, with them, the requirements that are placed on a secure infrastructure. As a specialist in power quality, we offer you system solutions with which you can improve the energy efficiency of your company, increase the availability of machines and systems and prove compliance with normative requirements.

Our goal is to provide you with the tools to solve your energy management tasks and safeguard power quality requirements. Based on many years of experience, we offer you comprehensive automation and solution proposals for the energy industry, hospitals, data centres, industry and infrastructure companies, and the machine market.

With our UMD measuring devices, we set new standards for modern, future-proof solutions.

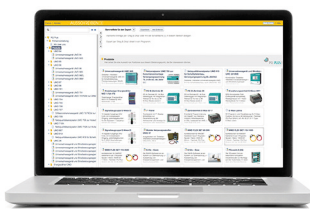
You get everything from a single source:

- Planning-Project planning-Commissioning-Training-Maintenance-Hardware & Software
- In particular, we want to offer you open solutions, to open and connect worlds. We are therefore your specialist for driver and communication solutions, for automation systems and integrating our products into the IT world.
- As an SME, we want to offer special, customer-oriented solutions for all application situations with our product range of energy measurement devices, software and hardware components.
- We are located in the Nuremberg metropolitan area.
- We co-operate with trained on-site sales teams in Germany, Austria and Switzerland.



“We are your plus for more performance.”

Daniel Fierus-Beyer
Managing Director of
PQ Plus GmbH



Additional online information is available at **AUSSCHREIBEN.de**

The descriptive texts for our products are now available in a suitable format on the www.ausschreiben.de platform.

In the catalogue, the available products are marked with the following **Notice**.



Table of contents

General information	2
Our solutions for your networked world	2
Company profile	3
Table of contents	4
Hardware components - measuring equipment	11
UMD 96 – Measuring equipment for front panel mounting	12
UMD 97 – Measuring equipment for front panel mounting	16
UMD 97EVU – Measuring equipment for CAT IV environments	20
UMD 98 – Measuring equipment for front panel mounting	23
UMD 807 – Measuring equipment for front panel mounting	27
UMD 913 – Measuring equipment for front panel mounting	30
MMB / MMU / MMI – Modular measuring equipment	33
MMB 700 – Modular measuring equipment for the DIN rail	35
MMU 3 – Modular measuring equipment for the DIN rail	37
MMI 12 – Modular measuring equipment for the DIN rail	39
MMI 12Flex – Modular measuring equipment for the DIN rail	41
MMI 12RCM – Modular measuring equipment for the DIN rail	43
MMI 12DC – Modular measuring equipment for the DIN rail	45
UMD 701 – Measuring equipment for the DIN rail	47
UMD 704 – Measuring equipment for the DIN rail	51
UMD 705 – Measuring equipment for the DIN rail, also for CAT IV environments	54
UMD 707RCM – Measuring equipment for the DIN rail	57
UMD 707DC – Measuring equipment for the DIN rail	59
UMD 709 – Measuring equipment for the DIN rail	62
UMD 710A – Measuring equipment for the DIN rail	64
UMD 710EVU – Measuring equipment for CAT IV environments	66
UMD 710MVU – Measuring equipment for the DIN rail in CAT IV environments for medium voltage applications	69
IO-M 500 – I/O hardware modules for UMD measuring devices	71
Firmware modules for function expansion for UMD measuring devices	72
Measurement of AC and DC networks	79
Residual current measurement	80
MMD 97 – Mobile PQ measurement device	81
MMD 98RCM – Mobile PQ measuring device	85
CMD 68-MID – Three-phase energy meter	89
CMD 68M – Three-phase adapter meter	92
CMD 68-45x – Alternating current energy meter	93
CMD 68M-451 – Alternating current adapter meter	95
CMD 68-V2 MID – Network energy meter	96
CMD EEG-CLP – Load profile meter	98
PQ M centre	100
GridCal solution for complete digitisation of the energy distribution network	103
Software solutions	107
Energy management and PQ analysis – ENVIS	109
ENVIS Web	111
Drivers for UMD measuring equipment	125

Transformers	127
KBR – Cable conversion transformer	128
KBU – Cable conversion transformer	130
CTB – Clip-on transformer	132
J3CT – Three-phase transformer set (MMI 12 – MMB 700)	134
J6CT – 2 x three-phase transformer set (MMI 12 – MMB 700)	136
JC – Cable conversion transformer (MMI 12 – MMB 700)	137
JS – Separable universal transformer (Hall effect)	139
JS – Cable conversion transformer	141
CTM 7 – Clip-on mini current transformer	143
RCM-CT – Clip-on residual transformer / fault current transformer (type A)	144
KBU...D – Cable conversion residual transformer / fault current transformer (type A)	146
RCM-CT V2 / RCM-SCT – residual transformer / fault current transformer (type A)	147
RCM-CT-V2 Type B/B+ – Residual current monitor all-current sensitive (Type B/B+)	149
KBU Flex 80 / 115 / 200 – Flexible transformers	152
KBU FLEX SET – Flexible transformers	153
KBU FLEX SET accessories – FLEX holder	154
Reactive power compensation	155
UMC 26 – Reactive power controller	156
Power capacitors	159
Accessories	161
PQ.touch – Web panel	162
Terminal block systems	164
EPSITRON® CLASSIC Power – Industrial power supply unit	168
EPSITRON® COMPACT Power – Industrial power supply unit	169
EPSITRON® ECO Power – Industrial power supply unit	170
CAT IV Power Compact – Industrial power supply unit	171
Industrial ECO Switch 5-Ports 10/100Base-TX – Industrial switch	173
Industrial ECO Switch 8-Ports 10/100Base-TX – Industrial switch	174
PQ.web4 – Router	175
IoT – LoRaWAN Interface	178
PFS – NH fuse-switch disconnecter	179
Services	183
Your partner for expert engineering services	184

- Standard ○ Optional
- * available soon
- ** DC-500 mode (0 - 500 Hz)
- *** Analogue input (RCM / 0 - 20 mA)



PQ PLUS types		UMD 96				UMD 97			
			M	S	EL	CBM	E	EL	EVU
Supply voltage	230 V variant	85 - 275 V _{AC}				100 - 275 V _{AC}			-
	24 V variant	20 - 75 V _{DC}				20 - 75 V _{DC}			10 - 36 V _{DC}
Overvoltage category		CAT III				CAT III			CAT IV
Measuring range		8 - 1090 V _{LL}				8 - 1090 V _{LL}			8 - 660 V _{LL}
Phase measurement		3U, 3I				3U, 3I			
Current transformer input		5 A; 1 A; 333 mV				5 A; 1 A			
Frequency		40 - 70 Hz**				40 - 70 Hz**			
Sampling rate		25.6 kHz				25.6 kHz			
Averaging		200 ms				200 ms			
Continuous measurement		●				●			
Harmonic		1st - 50th				1st - 50th			
Interharmonic		-				○ PQ S			
THD-U %		●				●			
THD-I %		●				●			
Asymmetry		●				●			
Flicker (Pst / Plt)		-				○ PQ S			
Voltage events		-				○ PQ S			
Oscilloscopes		-				○ GO			
Class precision U/I		0.5				0.5			0.2
Active energy cl.		0.5S				0.5S			
Digital inputs/outputs		1 / 2				1 / 2	4	1 / 2	2 / -
Relay inputs/outputs		○				○			- / 2
Analogue inputs/outputs		-				-			
Temperature input Pt100		-				-			
Internal temperature measurement		●				●			
Min/Max memory		●				●			
Memory size		-				512 MB			
Clock		-				●			
EN 50160		-				○ PQ S			
Residual current		-				-			
Communication									
RS485		-	-	●	-	●	●	-	●
Ethernet		-	-	-	●	-	●	●	●
USB		-	-	-	-	●	●	●	●
Local bus		-	-	-	-	-	-	-	-
Web servers		-	-	-	●	-	●	●	●
M bus		-	●	-	-	-	-	-	-
Modbus RTU		-	-	●	-	●	●	-	●
Modbus TCP		-	-	-	●	-	●	●	●
Gateway modbus master		-	-	-	-	-	●	-	●



UMD 98			UMD 807		UMD 913		MMB 700
RCM	RCM-T	LB				G	
100 - 275 V _{AC}		-	75 - 500 V _{AC}		75 - 500 V _{AC}		-
20 - 75 V _{DC}		20 - 75 V _{DC}	-		-		12 - 26 V _{DC}
CAT III			CAT III		CAT III		CAT IV
8 - 1090 V _{LL}		8 - 666 V _{LL}	20 - 1090 V _{LL}		5 - 1530 V _{LL}		5 - 1470 V _{LL}
3U, 4I, 2Ircm	3U, 4I, 1Ircm	3U, 4I	3U, 3I		4U, 4I, 2Ircm		3U, 3I / 12I
5 A; 1 A; 333 mV			5 A; 1 A		5 A; 1 A		5 A; 1 A / 333 mV
40 - 70 Hz**			40 - 70 Hz**		40 - 70 Hz**		40 - 70 Hz**
25.6 kHz			6.4 kHz		28.8 kHz		28.8 kHz
200 ms			200 ms		200 ms		200 ms
•			•		•		•
1st - 50th			1st - 50th		1st - 128th		1st - 128th
○ PQ S			○ PQ S		•		○ PQ A
•			•		•		•
•			•		•		•
•			•		•		•
○ PQ S			○ PQ S		•		○ PQ A
○ PQ S			○ PQ S		•		○ PQ A
○ GO			○ GO		•		○ GO
0.2			0.5		0.2		0.1
0.5S			0.5S		0.2S		0.2S
1		○	4 / 4		4		-
-			1 / 4		-	1 / 4	-
2*** / -	1*** / -	1*** / -	2 / 2		-	2 / 2	-
-	1	1	-		-	1	-
•			•		•		•
•			•		•		•
512 MB			512 MB		512 MB		512 MB
•			•		•		•
○ PQ S			○ PQ S		• PQ A		○ PQ A
•			-		•		-
•			•		•		•
•			•		•		•
•			•		•		•
-			-		-		•
•			•		•		•
-			-		-		-
•			•		•		•
•			•		•		•
•			•		•		•

- Standard ○ Optional
- * available soon
- ** DC-500 mode (0 - 500 Hz)
- *** Analogue input (RCM / 0 - 20 mA)



PQ PLUS types		MMU 3	MMI 12				UMD 701	
				FLEX	RCM	DC		RCM
Supply voltage	230 V variant	-	-				85 - 275 V _{AC}	
	24 V variant	10 - 29 V _{DC}	Local bus				20 - 75 V _{DC}	
Overvoltage category		CAT III	CAT III				CAT III	
Measuring range		14 - 610 V _{LL}	-				8 - 360 V _{LN}	
Phase measurement		3U	12I				1U, 8I	
Current transformer input		-	333 mV	333 mV	I _{rcm}	± 4 V	100 mA	I _{rcm}
Frequency		40 - 70 Hz**	-				40 - 70 Hz**	
Sampling rate		6.4 kHz	6.4 kHz				25.6 kHz	
Averaging		200 ms	200 ms				200 ms	
Continuous measurement		●	●				●	
Harmonic		1st - 25th	-				1st - 50th	
Interharmonic		-	-				-	
THD-U %		●	-				●	
THD-I %		-	●				●	
Asymmetry		●	-				-	
Flicker (Pst / Plt)		-	-				-	
Voltage events		-	-				-	
Oscilloscopes		-	-				○ GO	
Class precision U/I		0.05 / -	- / 0.5				0.2 / 0.5	
Active energy cl.		1	1				1	
Digital inputs/outputs		-	-				2 / 1	
Relay inputs/outputs		-	-				○	
Analogue inputs/outputs		-	-				-	
Temperature input Pt100		-	-				-	
Internal temperature measurement		-	-				●	
Min/Max memory		-	-				●	
Memory size		-	-				512 MB	
Clock		-	-				●	
EN 50160		-	-				-	
Residual current		-	-				-	●
Communication								
RS485		●	-				●	
Ethernet		-	-				●	
USB		-	-				-	
Local bus		●	●				-	
Web servers		-	-				●	
M bus		-	-				○	
Modbus RTU		●	-				●	
Modbus TCP		-	-				●	
Gateway modbus master		-	-				-	



UMD 704	UMD 705		UMD 707		UMD 709	UMD 710		
EL	CBM	E	RCM	DC		A	EVU	MVU
75 - 510 V _{AC}	85 - 510 V _{AC}		85 - 250 V _{AC}		65 - 275 V _{AC}	75 - 275 V _{AC}	-	
20 - 75 V _{DC}	20 - 75 V _{DC}		-		75 - 350 V _{DC}	-	10 - 30 V _{DC}	
CAT III	CAT III		CAT III		CAT III	CAT III	CAT IV	
11 - 520 V _{LL}	7 - 720 V _{LL}		5 - 1470 V _{LL}		5 - 1470 V _{LL}	5 - 1470 V _{LL}		0.04 - 20 V _{LL}
4U, 4I	3U, 3I		4U, 5I		3U, 4I, 1Ircm	3U, 4I, 1Ircm	3U, 3I	
100 mA	5 A; 1 A		Ircm	± 4 V	5 A; 1 A	5 A; 1 A		
40 - 70 Hz**	40 - 70 Hz**		40 - 70 Hz**		40 - 70 Hz**	40 - 70 Hz**		
25.6 kHz	25.6 kHz		28.8 kHz		28.8 kHz	28.8 kHz		
200 ms	200 ms		200 ms		200 ms	200 ms		
●	●		●		●	●		
1st - 50th	1st - 50th		1st - 128th		1st - 128th	1st - 128th		
-	○ PQ S		○ PQ S		○ PQ S	●		
●	●		●		●	●		
●	●		-		●	●		
●	●		●		●	●		
-	○ PQ S		○ PQ S		○ PQ S	●		
-	○ PQ S		○ PQ S		○ PQ S	●		
-	○ GO		○ GO		○ GO	●		
0.2 / 0.5	0.2		0.1		0.1	0.1		
1	1		0.5S		0.2S	0.2S		
2 / 1	2		4		4	4		
○	c		-		-	-		
-	-		-		-	-		
-	-		●		1	1		
●	●		●		●	●		
●	●		●		●	●		
-	512 MB		512 MB		512 MB	512 MB		
-	●		●		●	●		
-	○ PQ S		○ PQ S		○ PQ S	● PQ A		
-	-		●		●	●	-	
●	●		●		●	●		
●	-	●	●		●	●		
-	●	-	●		●	●		
-	-	-	-		-	-		
●	-	●	●		●	●		
-	-	-	-		-	-		
●	●		●		●	●		
●	-	●	●		●	●		
-	-	●	●		●	●		

- Standard ○ Optional
- * available soon
- ** DC-500 mode (0 - 500 Hz)
- *** Analogue input (RCM / 0 - 20 mA)



PQ PLUS types		CMD 68	CMD EEG-CLP	MMD	
		MID	MID / PTB-A 50.7	97	98RCM
Supply voltage	230 V variant	230 V / 400 V		100 - 500 V _{AC}	100 - 500 V _{AC}
	24 V variant	-		-	10 - 36 V _{DC}
Overvoltage category		CAT III		CAT III	
Measuring range		230 V / 400 V		20 - 865 V _{LL}	20 - 1090 V _{LL}
Phase measurement		3U, 3I		3U, 3I	3U, 4I, 2I _{rcm}
Current transformer input		5 A; 1 A; 100 A		333 mV (Rogowski)	
Frequency		50 Hz		40 - 70 Hz**	
Sampling rate		-		25.6 kHz	
Averaging		-		200 ms	
Continuous measurement		●		●	
Harmonic		-		1st - 50th	
Interharmonic		-		●	
THD-U %		-		●	
THD-I %		-		●	
Asymmetry		-		●	
Flicker (Pst / Plt)		-		●	
Voltage events		-		●	
Oscilloscopes		-		●	
Class precision U/I		0.5		0.2	
Active energy cl.		B		0.5S	
Digital inputs/outputs		- / 1 (2)	- / 1	-	
Relay inputs/outputs		-		-	
Analogue inputs/outputs		-		-	
Temperature input Pt100		-		-	
Internal temperature measurement		-		●	
Min/Max memory		○	●	●	
Memory size		○	3 years	512 MB	
Clock		○	●	●	
EN 50160		-		● PQ S	
Residual current		-		-	●
Communication					
RS485		○		-	
Ethernet		○		●	
USB		-		●	
Local Bus		-		-	●
Web servers		○		●	
M bus		○		-	
Modbus RTU		○		-	
Modbus TCP		○		●	
Gateway modbus master		-		-	

Hardware components - measuring equipment

UMD 96 – Measuring equipment for front panel mounting

Download
data sheet



UMD 96

The UMD 96 is a powerful measurement device for front panel mounting* and replaces all analogue measurement devices. It measures 3-phase current and voltage in 4-quadrant mode in class 0.2 and therefore the energy in class 0.5s, as well as all common network sizes such as harmonics up to the 50th harmonic. It can be measured via transformers with N/5 A and N/1 A, as well as via Rogowski coils (333 mV). It has an illuminated, large and easy to read digital display. It is easy to operate via 4 function keys. A PT100 probe is integrated internally. It is used in both 400 V networks and 690 V networks. The UMD 96 can also be equipped with an optional Ethernet interface and a web server. PLC systems and building management systems can therefore be connected easily. Digital inputs/outputs and a serial RS485 interface with Modbus are available. The ENVIS software is used to set parameters for the device and to visualise it.

* also suitable for installation on the DIN rail with adapter



Application

The device is used to measure consumption in low-voltage main distribution and sub-distribution systems.

Standard

INPUTS 3U, 3I	MEASUREMENT U, I, P, Q	PF, cos, THD	Wh, varh	CURRENT INPUT X/5A	SUPPLY 230V
HARMONICS 50	SAMPLING 25,6 kHz	STANDARDS IEC 61557-12	STANDARDS class 0.5S IEC 62053-22	OUTPUTS 2×PULSE	INPUTS 1×DIGI

Optional

CURRENT INPUT X/100mA	CURRENT INPUT 333mV	SUPPLY 12V/24V/230V	M-BUS M-Bus	
ETH 	WEBSERVER 	OUTPUTS 2×RELAY	MODBUS 	RS485

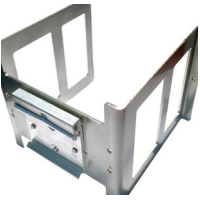
Technical specifications – UMD 96

		UMD 96	UMD 96M	UMD 96S	UMD 96EL
Inputs and outputs	Digital inputs/outputs	1 input and 2 outputs	1 input and 2 outputs	1 input and 2 outputs	1 input and 2 outputs
	Relay inputs/outputs	None	None	None	None
	Analogue inputs/outputs	None	None	None	None
	Residual current inputs	None	None	None	None
	Temperature inputs	None	None	None	None
Communication	Interfaces	None	M bus	RS485	Ethernet
	Communication protocols*	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON			
Further functions	Alarms*	Integrated logic: Limit values for exceeding/falling below freely defined values			
	Internal temperature measurement	-40 - 80 °C			
Data logger	Storage capacity and allocation	None			
	Measured value storage	Minimum and maximum storage			
Electrical connection	Supply voltage	230 V variant: 85 - 275 V AC / 80 - 350 V DC			
		24 V variant: 20 - 50 V AC / 20 - 75 V DC			
	Power input	8 VA / 4 W			
	Overvoltage category	CAT III / 300 V			
Accuracy classes		Voltage:	Cl. 0.5	Current:	Cl. 0.5
		Active power:	Cl. 0.5	Reactive power:	Cl. 1
		Harmonic oscillations:	Cl. 0.5	Power factor:	Cl. 0.5
		Active energy:	Cl. 0.5	Reactive energy:	Cl. 2
Measuring inputs	Voltage*	U L-N: 6 - 375 V AC; Optional: 10 - 625 V AC			
		U L-L: 8 - 660 V AC; Optional: 20 - 1090 V AC			
	Overload voltage*	Permanent U L-N: 600 V AC / peak overload for max. 1 sec. U L-N: 1200 V AC			
	Input impedance voltage*	3.6 MOhm			
	Input load voltage*	< 0.025 VA			
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)			
	Transformers*	3x 1 / 5 A; Optional: 3x 333 mV			
	Overload current*	Permanent: 7.5 A AC (666 mV) / peak overload for max. 1 sec: 70 A AC (3.33 V)			
	Input impedance current*	< 10 mOhm			
	Input load current*	< 0.5 VA			
	Sampling rate	25.6 kHz			
	Harmonics per order	1st - 50th for current and voltage			
	Measurement procedure	IEC 61000-4-30			
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity			
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity			
	Protection class front / rear	IP 40; optional IP 54 / IP 20			
	Dimensions WxHxD	96 x 96 x 80 mm			
	Weight	0.3 kg			
Internal real-time clock	Accuracy	None			
	Possible synchronisation	None			
FW modules		UDP: optional*			

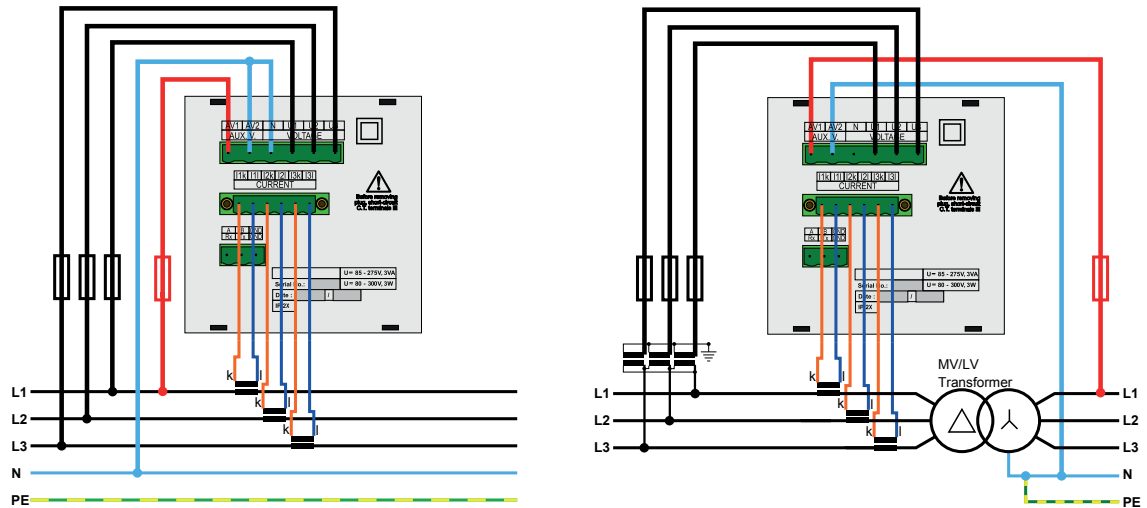
* depending on the variant

Supply voltage		Measurement voltage		Functions				Communication					Type	Item number
85 - 275 V AC 80 - 350 V DC	20 - 50 V AC 20 - 75 V DC	8 - 660 V LL	20 - 1090 V LL	Digital inputs	Digital outputs	Memory size in MB	Clock	RS485	Ethernet	Modbus master	M bus	USB		
•	-	•	-	1	2	-	-	-	-	-	-	-	UMD 96*	10.05.1000
•	-	-	•	1	2	-	-	-	-	-	-	-	UMD 96	10.05.2000
-	•	•	-	1	2	-	-	-	-	-	-	-	UMD 96	10.05.3000
-	•	-	•	1	2	-	-	-	-	-	-	-	UMD 96	10.05.4000
•	-	•	-	1	2	-	-	•	-	-	-	-	UMD 96S*	10.05.1001
•	-	-	•	1	2	-	-	•	-	-	-	-	UMD 96S	10.05.2001
-	•	•	-	1	2	-	-	•	-	-	-	-	UMD 96S	10.05.3001
-	•	-	•	1	2	-	-	•	-	-	-	-	UMD 96S	10.05.4001
•	-	•	-	1	2	-	-	-	•	-	-	-	UMD 96EL*	10.05.1002
•	-	-	•	1	2	-	-	-	•	-	-	-	UMD 96EL	10.05.2002
-	•	•	-	1	2	-	-	-	•	-	-	-	UMD 96EL	10.05.3002
-	•	-	•	1	2	-	-	-	•	-	-	-	UMD 96EL	10.05.4002
•	-	•	-	1	2	-	-	-	-	-	•	-	UMD 96M	10.05.1013
•	-	-	•	1	2	-	-	-	-	-	•	-	UMD 96M	10.05.2013
-	•	•	-	1	2	-	-	-	-	-	•	-	UMD 96M	10.05.3013
-	•	-	•	1	2	-	-	-	-	-	•	-	UMD 96M	10.05.4013
Variant with 333 mV direct connection														
•	-	•	-	1	2	-	-	•	-	-	-	-	UMD 96S	10.05.9001

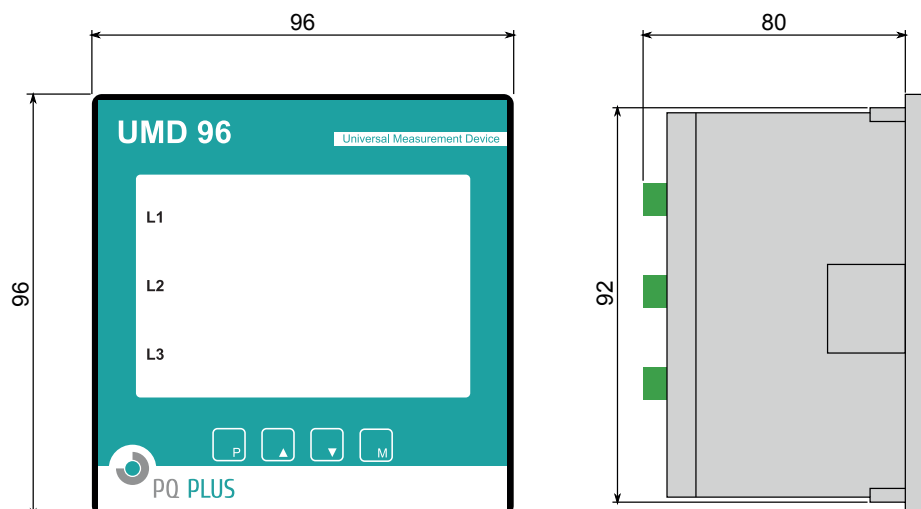
* preferred types (short delivery times)

Accessories		Item number
	AH9697 DIN rail adapter (Depth incl. UMD: 110 mm)	81.00.9697
	IP65 protective hood	37.00.9600

Typical connection variant - UMD 96



Dimensional drawings - UMD 96



UMD 97 – Measuring equipment for front panel mounting

Download
data sheet



UMD 97

The UMD 97 is a powerful measurement device for front panel mounting* and replaces all analogue measurement devices. It measures 3-phase current and voltage in 4-quadrant mode in class 0.2 and therefore the energy in class 0.5s, as well as all common network sizes such as harmonics up to the 50th harmonic. It can be connected via transformers with N/5 A or N/1 A. It maps the network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12. It has a brilliant, large colour graphical display. The UMD 97 is easy to operate via 5 function keys. A PT100 probe is integrated internally. It can be used in both 400 V and 690 V networks, as well as in IT networks. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and the mini USB connection on the front. This enables internet protocols to also be read in and PLC systems and building management systems to be connected easily. Digital inputs/outputs and a serial RS485 interface are also integrated. The PQ S and GO firmware modules can be added to extend the measurement device for network analysis. The ENVIS software is used to set parameters for the device and to visualise it.



* also suitable for installation on the DIN rail with adapter.

Application

The device is used to measure network quality and consumption in low-voltage main distribution and sub-distribution systems.

Standard

INPUTS 3U, 3I	MEASUREMENT U, I, P, Q	PF, cos, THD	+/- Wh, varh	HARMONICS 50	SUPPLY 230V
SAMPLING 25,6 kHz	FLASH 512MB	USB	STANDARDS IEC 61557-12	STANDARDS class 0.5S IEC 62053-22	INPUTS 1xDIGI
CURRENT INPUT X/5A	MODBUS Modbus	OUTPUTS 2xPULSE			

Optional

WEBSERVER 	INPUTS/OUTPUTS  4xDIGI	FIRMWARE GO	ETH 	RS485 
STANDARDS EN 50160	STANDARDS class S IEC 61000-4-30	SUPPLY 12V/24V/230V		OUTPUTS  2xRELAY
NTP 	FIRMWARE RCS			

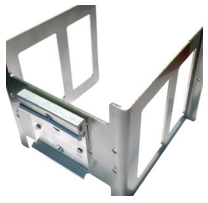
Technical specifications – UMD 97

		UMD 97CBM	UMD 97EL	UMD 97E
Inputs and outputs	Digital inputs/outputs	1 input and 2 outputs	1 input and 2 outputs	4 inputs/outputs
	Relay inputs/outputs	None	None	None
	Analogue inputs/outputs	None	None	None
	Residual current inputs	None	None	None
	Temperature inputs	None	None	None
Communication	Interfaces	RS485, front USB	Ethernet, front USB	RS485, Ethernet, front USB
	Communication protocols*	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON		
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values		
	Internal temperature measurement	-40 - 80 °C		
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives		
	Measured value storage	Freely configurable measured values with different averaging intervals		
Electrical connection	Supply voltage	230 V variant: 100 - 275 V AC / 90 - 350 V DC		
		24 V variant: 20 - 50 V AC / 20 - 75 V DC		
	Power input	8 VA / 4 W		
	Overvoltage category	CAT III / 300 V		
Accuracy classes		Voltage: Cl. 0.5	Current: Cl. 0.5	Frequency: Cl. 0.05
		Active power: Cl. 0.5	Reactive power: Cl. 1	Apparent power: Cl. 0.5
		Harmonic oscillations: Cl. 2	Power factor: Cl. 0.5	cos phi: Cl. 0.5
		Active energy: Cl. 0.5	Reactive energy: Cl. 2	Apparent energy Cl. 0.5
Measuring inputs	Voltage*	U L-N: 6 - 375 V AC; Optional: 10 - 625 V AC		
		U L-L: 8 - 660 V AC; Optional: 20 - 1090 V AC		
	Overload voltage*	Permanent U L-N: 600 V AC / peak overload for max. 1 sec. U L-N: 1200 V AC		
	Input impedance voltage*	3.6 MOhm		
	Input load voltage*	< 0.025 VA		
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)		
	Transformers*	3x 1 / 5 A		
	Overload current*	Permanent: 7.5 AAC / peak overload for max. 1 sec: 70 AAC		
	Input impedance current*	< 10 mOhm		
	Input load current*	< 0.5 VA		
	Sampling rate*	25.6 kHz		
	Harmonics per order	1st - 50th for current and voltage		
	Measurement procedure	IEC 61000-4-30 Cl. S		
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity		
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity		
	Protection class front / rear	IP 40; Optional IP 54 / IP 20		
	Dimensions WxHxD	96 x 96 x 80 mm		
	Weight	0.3 kg		
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C		
	Possible synchronisation*	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time		
FW modules		PQ S: optional	GO: optional	RCS: optional
		MM: optional*	UDP: optional*	

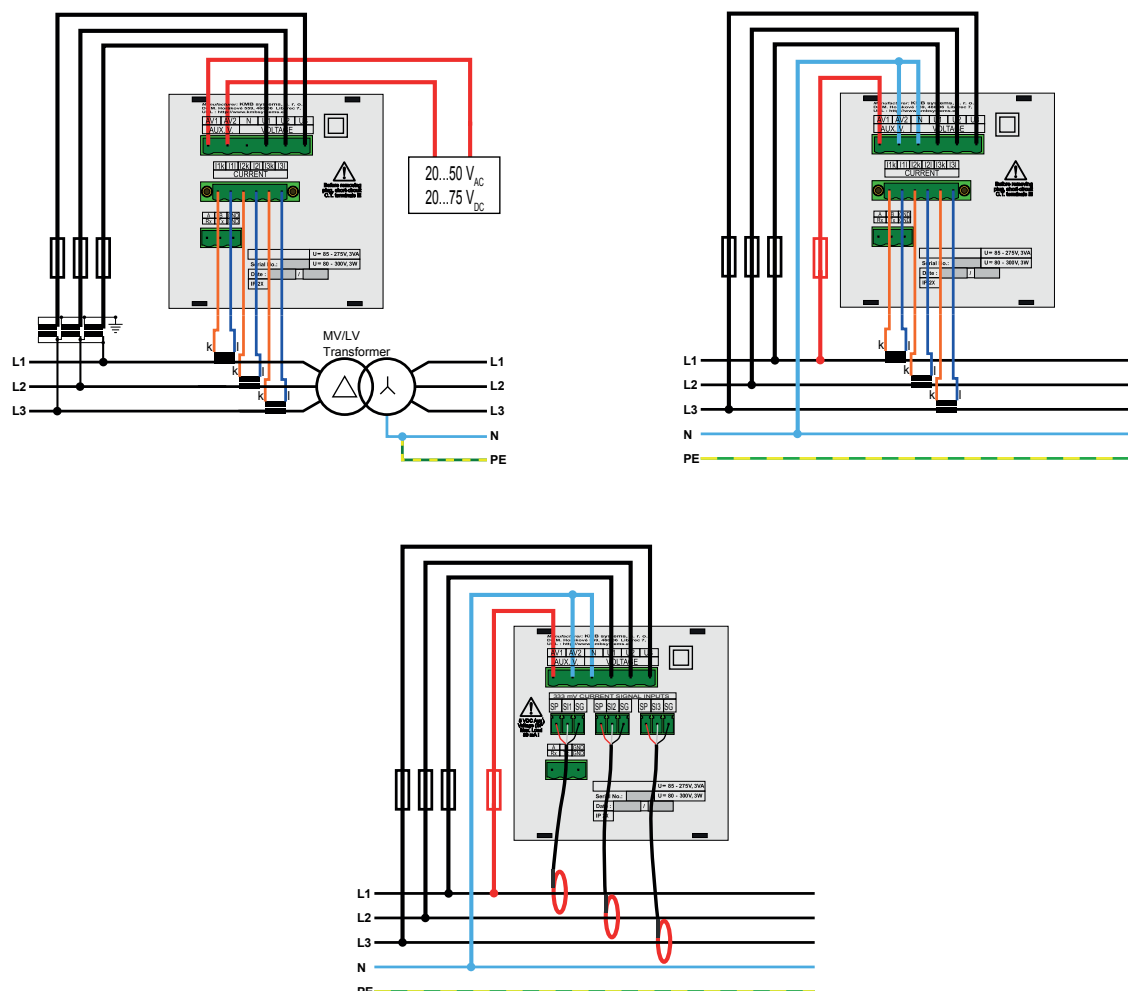
* depending on the variant

Supply voltage		Measurement voltage		Functions				Communication					Type	Item number
100 - 275 V AC 80 - 350 V DC	20 - 50 V AC 20 - 75 V DC	8 - 660 V LL	20 - 1090 V LL	Digital inputs	Digital outputs	Memory size in MB	Clock	RS485	Ethernet	Gateway Modbus master	M bus	USB		
•	-	•	-	1	2	512	•	•	-	-	-	•	UMD 97CBM*	11.06.1105
•	-	-	•	1	2	512	•	•	-	-	-	•	UMD 97CBM	11.06.2105
-	•	•	-	1	2	512	•	•	-	-	-	•	UMD 97CBM	11.06.3105
-	•	-	•	1	2	512	•	•	-	-	-	•	UMD 97CBM	11.06.4105
•	-	•	-	1	2	512	•	-	•	-	-	•	UMD 97EL*	11.06.1107
•	-	-	•	1	2	512	•	-	•	-	-	•	UMD 97EL	11.06.2107
-	•	•	-	1	2	512	•	-	•	-	-	•	UMD 97EL	11.06.3107
-	•	-	•	1	2	512	•	-	•	-	-	•	UMD 97EL	11.06.4107
•	-	•	-	4		512	•	•	•	•	-	•	UMD 97E*	11.06.1110
•	-	-	•	4		512	•	•	•	•	-	•	UMD 97E	11.06.2110
-	•	•	-	4		512	•	•	•	•	-	•	UMD 97E	11.06.3110
-	•	-	•	4		512	•	•	•	•	-	•	UMD 97E	11.06.4110

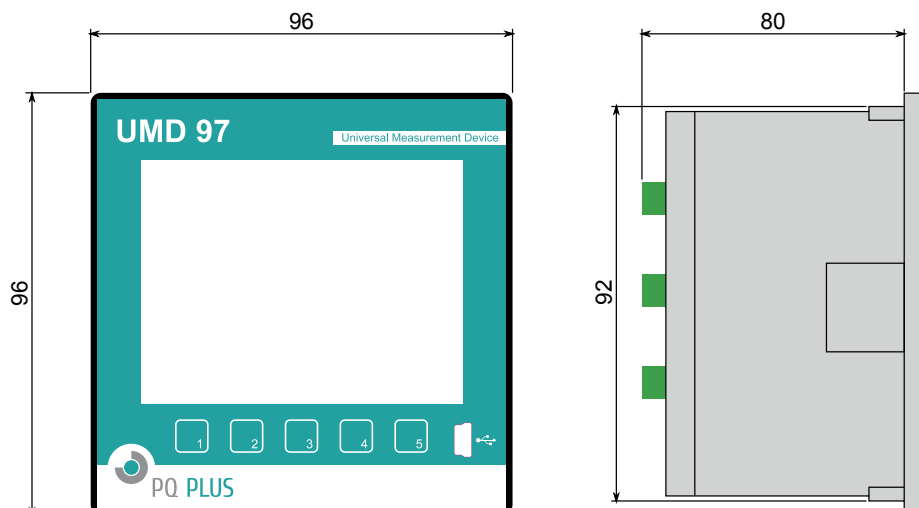
* preferred types (short delivery times)

Accessories		Item number
	AH9697 DIN rail adapter (Depth incl. UMD: 110 mm)	81.00.9697
	USB 2.0 connection cable, Type A - mini B; 3.0m	18.21.2020
	IP65 protective hood	37.00.9600

Typical connection variant - UMD 97



Dimensional drawings - UMD 97



UMD 97EVU – Measuring equipment for CAT IV environments

Download
data sheet



UMD 97EVU

The UMD 97EVU is a powerful measurement device for front panel mounting* for CAT IV environments. It measures 3-phase current and voltage in 4-quadrant mode in class 0.2 and therefore the energy in class 0.5s, as well as all common network sizes such as harmonics up to the 50th harmonic. It can be connected via transformers with N/5 A and N/1 A. It maps the network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12. It has a brilliant, large colour graphical display. The UMD 97 is easy to operate via 5 function keys. A PT100 probe is integrated internally. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and the mini USB connection on the front. This enables internet protocols to also be used and PLC systems and building management systems to be connected easily. Digital inputs/outputs and a serial RS485 interface are also integrated. The PQ S and GO firmware modules can be added to extend the measurement device for network analysis. The ENVIS software is used to set parameters for the device and to visualise it.



* also suitable for installation on the DIN rail with adapter.

Application

The device is used in all CAT IV environments. A suitable CAT IV power supply unit is available in our accessories.

Standard

INPUTS 3U, 3I	MEASUREMENT U,I,P,Q	PF,cos,THD	Wh,varh	HARMONICS 50	SUPPLY 24V
SAMPLING 25,6 kHz	FLASH 512MB	USB	STANDARDS IEC 61557-12	STANDARDS class 0.5S IEC 62053-22	INPUTS 2xDIGI
CURRENT INPUT X/5A	MODBUS Modbus	NTP	WEBSERVER	ETH	RS485
OUTPUTS 2xRELAY	CAT IV				

Optional

STANDARDS EN 50160	STANDARDS class S IEC 61000-4-30	FIRMWARE RCS	FIRMWARE GO
-------------------------------------	---	-------------------------------	------------------------------

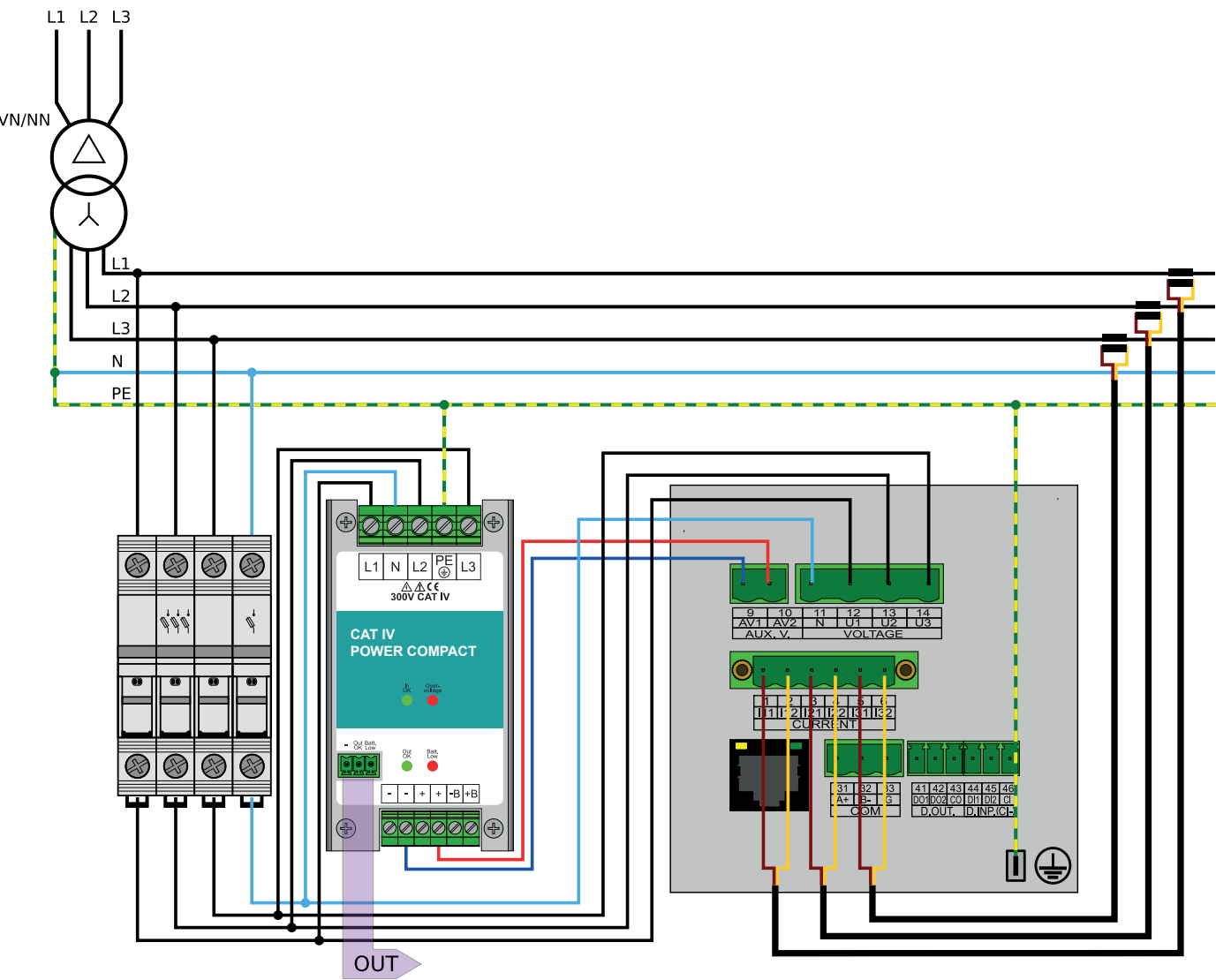
Supply voltage	Measurement voltage	Functions				Communication					Type	Item number
		Digital inputs/outputs	Relay outputs	Memory size in MB	Clock	RS485	Ethernet	Gateway Modbus master	M bus	USB		
10 - 26 V AC 10 - 30 V DC	8 - 660 V LL	2 / -	2	512	•	•	•	•	-	•	UMD 97EVU	11.31.3110

Technical specifications – UMD 97EVU

UMD 97EVU							
Inputs and outputs	Digital inputs/outputs	2 inputs					
	Relay inputs/outputs	2 outputs					
	Analogue inputs/outputs	None					
	Residual current inputs	None					
	Temperature inputs	None					
Communication	Interfaces	RS485, Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 80 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage						
		24 V variant: 10-26 V AC / 10-36 V DC					
	Power input	8 VA / 4 W					
	Overvoltage category	CAT IV / 300 V					
Accuracy classes		Voltage:	Cl. 0.2	Current:	Cl. 0.2	Frequency:	Cl. 0.02
		Active power:	Cl. 0.5	Reactive power:	Cl. 1	Apparent power:	Cl. 0.5
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.5	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 6 - 375 V AC					
		U L-L: 8 - 660 V AC					
	Overload voltage	Permanent U L-N: 600 V AC / peak overload for max. 1 sec. U L-N: 1200 V AC					
	Input impedance voltage	3.6 MOhm					
	Input load voltage	< 0.025 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	3x 1 / 5 A					
	Overload current	Permanent: 7.5 AAC / peak overload for max. 1 sec: 70 AAC					
	Input impedance current	< 10 mOhm					
	Input load current	< 0.5 VA					
	Sampling rate	25.6 kHz					
	Harmonics per order	1st - 50th for current and voltage					
	Measurement procedure	IEC 61000-4-30 Cl. S					
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity					
	Protection class front / rear	IP 40; optional IP 54 / IP 20					
	Dimensions WxHxD	96 x 96 x 80 mm					
	Weight	0.3 kg					
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ S: optional	GO: optional		RCS: optional		
		MM: optional	UDP: optional		IEC104: optional		

* depending on the variant

Typical connection variant - UMD 97EVU



UMD 98 – Measuring equipment for front panel mounting

Download
data sheet



UMD 98

The UMD 98 is an extremely powerful measurement device for front panel mounting* and replaces all analogue measurement devices. It measures 3/4-phase current and voltage in 4-quadrant mode in class 0.2 and therefore the energy in class 0.5s, as well as all common network sizes such as harmonics up to the 50th harmonic. The device is connected via transformers with N/5 A or N/1 A, optionally via Rogowski coils (333 mV). It maps the network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12. It has a brilliant, large colour graphical display. The UMD 98 is easy to operate via 5 function keys. It has two analogue inputs for RCM. It can be used in 230/400 V TN-S networks. It has a large 512 MB memory and an integrated web server. The device can be accessed via the Ethernet interface and the mini USB connection on the front. This enables internet protocols to also be read in and PLC systems and building management systems to be connected easily. Digital inputs/outputs and a serial RS485 interface are also integrated. A local bus connection is available as an option to connect the MMI modules directly. The PQ S and GO firmware modules can be added to extend the measurement device for network analysis. The ENVIS software is used to set parameters for the device and to visualise it. The CPU works at 25.6 kHz.



* also suitable for installation on the DIN rail with adapter.

Application

The device is used to measure network quality and consumption in low-voltage main distribution and sub-distribution systems. The RCM inputs can be used for residual current measurements. Particularly suitable for building automation, computing centres and hospitals.

Standard

INPUTS 3U, 4I	MEASUREMENT U, I, P, Q	PF, cos, THD	Wh, varh	HARMONICS 50
SAMPLING 25,6 kHz	FLASH 512MB	USB	STANDARDS IEC 61557-12	STANDARDS class 0.5S IEC 62053-22
MODBUS 	WEBSERVER 	NTP 	ETH 	

Optional

STANDARDS class S IEC 61000-4-30	STANDARDS EN 50160	FIRMWARE GO	INPUTS RCM	CURRENT INPUT X/5A
INPUTS Pt100 	FIRMWARE RCS	LOCAL BUS	INPUTS/OUTPUTS 1 x DIGI	
SUPPLY 12V/24V/230V	CURRENT INPUT 333mV	RS485 		

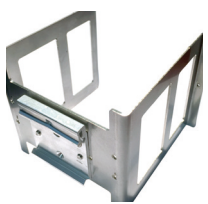
Technical specifications – UMD 98

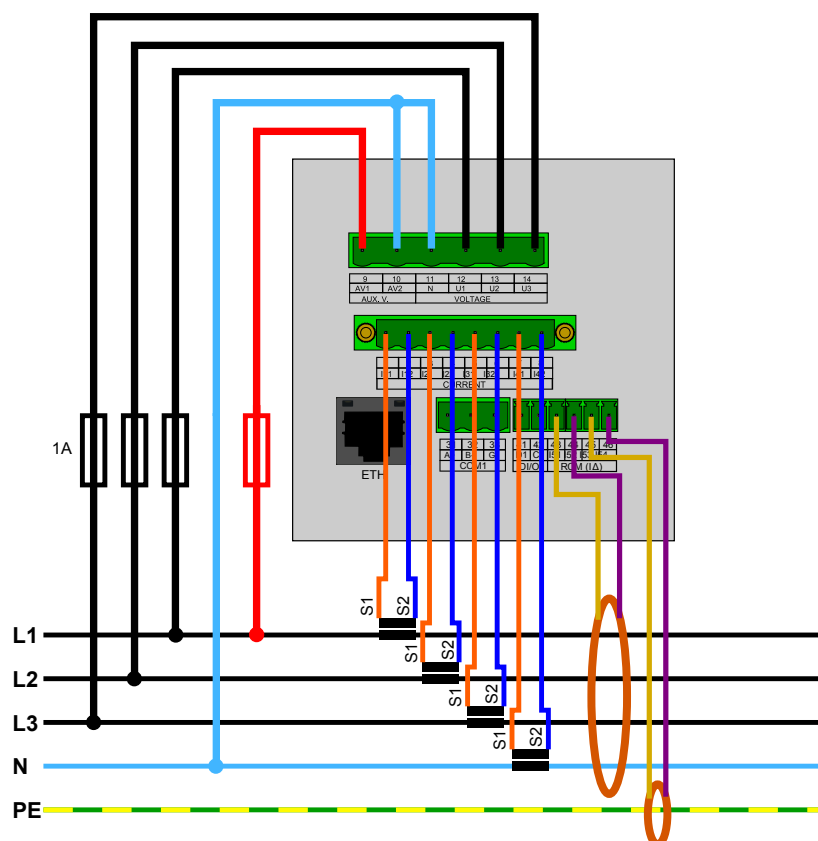
		UMD 98RCM	UMD 98RCM-T	UMD 98LB
Inputs and outputs	Digital inputs/outputs	1 input/output	1 input/output	1 input/output*
	Relay inputs/outputs	None	None	None
	Analogue inputs/outputs	2 inputs (for RCM or as 0/4 - 20 mA)	1 input (for RCM or as 0/4 - 20 mA)	1 input* (for RCM or as 0/4 - 20 mA)
	Residual current inputs			
	Temperature inputs	None	1 Pt100 input -50 - 150 °C	1 Pt100 input* -50 - 150 °C
Communication	Interfaces	RS485, Ethernet, front USB	RS485, Ethernet, front USB	Ethernet, front USB, local bus
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON		
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values		
	Internal temperature measurement	-40 - 80 °C		
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives		
	Measured value storage	Freely configurable measured values with different averaging intervals		
Electrical connection	Supply voltage*	230 V variant: 100 - 275 V AC / 90 - 350 V DC		
		24 V variant: 20 - 50 V AC / 20 - 75 V DC		
	Power input	8 VA / 4 W		
	Overvoltage category	CAT III / 300 V		
Accuracy classes		Voltage: Cl. 0.2	Current: Cl. 0.2	Frequency: Cl. 0.02
		Active power: Cl. 0.5	Reactive power: Cl. 1	Apparent power: Cl. 0.5
		Harmonic oscillations: Cl. 2	Power factor: Cl. 0.5	cos phi: Cl. 0.5
		Active energy: Cl. 0.5	Reactive energy: Cl. 2	Apparent energy Cl. 0.5
Measuring inputs	Voltage*	U L-N: 6 - 375 V AC; Optional: 10 - 625 V AC		
		U L-L: 8 - 660 V AC; Optional: 20 - 1090 V AC		
	Overload voltage*	Permanent U L-N: 600 V AC / peak overload for max. 1 sec. U L-N: 1200 V AC		
	Input impedance voltage*	3.6 MOhm		
	Input load voltage*	< 0.025 VA		
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)		
	Transformers*	4x 1 / 5 A; Optional: 4x 333 mV		
	Overload current*	Permanent: 7.5 AAC (666 mV) / peak overload for max. 1 sec: 70 AAC (3.33 V)		
	Input impedance current*	< 10 mOhm		
	Input load current*	< 0.5 VA		
	Sampling rate	25.6 kHz		
	Harmonics per order	1st - 50th for current and voltage		
	Measurement procedure	IEC 61000-4-30 Cl. S		
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity		
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity		
	Protection class front / rear	IP 40; Optional IP 54 / IP 20		
	Dimensions WxHxD	96 x 96 x 80 mm		
	Weight	0.3 kg		
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C		
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time		
FW modules		PQ S: optional	GO: optional	RCS: optional
		MM: optional*	UDP: optional	IEC104: optional

* depending on the variant

Supply voltage		Measurement voltage		Residual current measurement	Functions				Communication					Type	Item number
100 - 275 V AC 80 - 350 V DC	20 - 50 V AC 20 - 75 V DC	8 - 660 V LL	20 - 1090 V LL	Number	Digital inputs/outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Local bus	Gateway Modbus master	USB		
•	-	•	-	2	1	512	•	-	•	•	-	•	•	UMD 98RCM*	11.29.1110
•	-	-	•	2	1	512	•	-	•	•	-	•	•	UMD 98RCM	11.29.2110
-	•	•	-	2	1	512	•	-	•	•	-	•	•	UMD 98RCM	11.29.3110
-	•	-	•	2	1	512	•	-	•	•	-	•	•	UMD 98RCM	11.29.4110
•	-	•	-	1	1	512	•	•	•	•	-	•	•	UMD 98RCM-T*	11.29.1125
•	-	-	•	1	1	512	•	•	•	•	-	•	•	UMD 98RCM-T	11.29.2125
-	•	•	-	1	1	512	•	•	•	•	-	•	•	UMD 98RCM-T	11.29.3125
-	•	-	•	1	1	512	•	•	•	•	-	•	•	UMD 98RCM-T	11.29.4125
-	•	•	-	1	1	512	•	•	-	•	•	•	•	UMD 98LB	11.61.3131
Variants with 333 mV direct connection															
•	-	•	-	1	1	512	•	•	•	•	-	•	•	UMD 98RCM-T FLEX	11.29.9125
-	•	•	-	-	-	512	•	-	-	•	•	•	•	UMD 98FLEX LB	11.59.9131

* preferred types (short delivery times)

Accessories		Item number
	AH9697 DIN rail adapter (Depth incl. UMD: 110 mm)	81.00.9697
	USB 2.0 connection cable, Type A - mini B; 3.0m	18.21.2020
	IP65 protective hood	37.00.9600



Technical drawing of the UMD 98 device. The front view (left) shows a teal-colored device with a large white display area. The top of the device is labeled "UMD 98" and "Universal Measurement Device". The bottom of the device features five numbered buttons (1-5) and a small icon. The dimensions are 96 mm in width and 96 mm in height. The side view (right) shows the device's profile, which is 80 mm wide and 92 mm high. The side view also shows three green rectangular buttons on the left side and a small rectangular button on the right side.

UMD 807 – Measuring equipment for front panel mounting

Download
data sheet



UMD 807

The UMD 807 is an integrated network quality measurement device for installation in the control board 144x144. It measures 3-phase current and voltage with up to 3 tariffs in 4-quadrant mode in class 0.2 and therefore the energy in class 0.5, as well as all common network sizes such as harmonics up to the 50th harmonic. It can be used in both 400 V and 690 V networks, as well as in IT networks. It can be connected via transformers with N/5 A and N/1 A. It maps the network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and the USB connection on the front. This enables internet protocols to also be read in and PLC systems and building management systems to be connected easily. Analogue and digital inputs/outputs as well as an RS485 interface are integrated, as is an operating hours counter.

The sampling frequency is 6.4 kHz. The ENVIS software is used to set parameters for the device and to visualise it.

The PQ S module is available as an optional firmware module to evaluate the voltage quality in accordance with EN 50160. The GO firmware module is used to activate oscilloscope functions for current and voltage, and to set trigger signals for limit value events. The optional RCS module supports ripple control signal detection.



Application

The device is used to monitor the voltage quality in main distribution systems and transformer stations continuously.

Standard

INPUTS 3U, 3I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 50	INPUTS 4xDIGI	2xOUTPUTS 0÷10V 0/4÷20mA	2xINPUTS 0/4÷20mA
SAMPLING 6,4kHz	FLASH 512MB	USB	STANDARDS IEC 61557-12	STANDARDS class 0.5S IEC 62053-22	OUTPUTS 4xRELAY	MODBUS Modbus	
OUTPUTS 4xPULSE	CURRENT INPUT X/5A	ETH	WEBSERVER	SUPPLY 230V	NTP	RS485	

Optional

FIRMWARE RCS	STANDARDS class S IEC 61000-4-30
FIRMWARE GO	STANDARDS EN 50160

Supply voltage	Measurement voltage	Functions								Communication					Type	Item number
75 - 500 V AC 90 - 600 V DC	20 - 1090 V LL	Digital inputs	Digital outputs	Relay output	Analogue inputs	Analogue outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	M bus	USB		
•	•	4 + 1**	4	4	2	2	512	•	-	•	•	•	-	•	UMD 807E*	11.07.1110

* Preferred types (short delivery times)

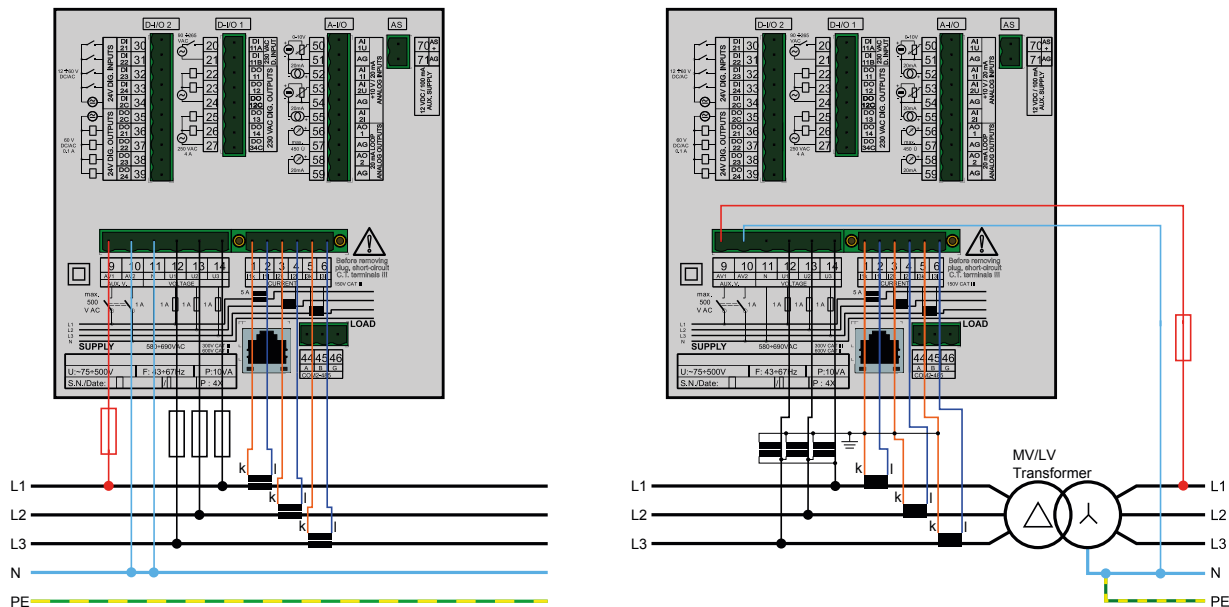
** Relay input

Technical specifications – UMD 807

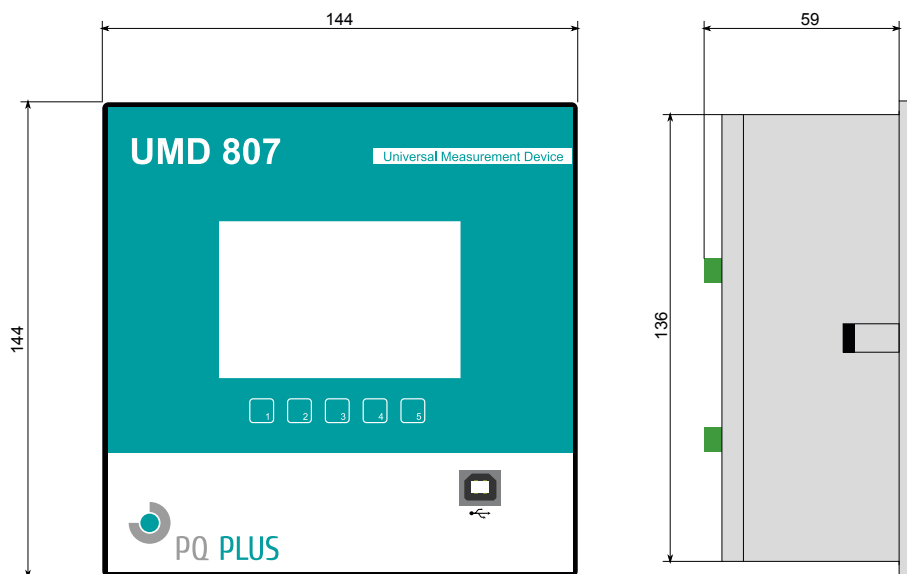
		UMD 807E			
Inputs and outputs	Digital inputs/outputs	4 inputs / 4 outputs			
	Relay inputs/outputs	1 input / 4 outputs			
	Analogue inputs/outputs	2 input / 2 outputs			
	Residual current inputs	None			
	Temperature inputs	None			
Communication	Interfaces	RS485, Ethernet, front USB			
	Communication protocols*	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON			
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values			
	Internal temperature measurement	-40 - 80 °C			
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives			
	Measured value storage	Freely configurable measured values with different averaging intervals			
Electrical connection	Supply voltage	230 V variant: 75 - 500 V AC / 90 - 600 V DC			
	Power input	20 VA / 8 W			
	Overvoltage category	CAT III / 300 V			
Accuracy classes		Voltage:	Cl. 05	Current:	Cl. 05
		Active power:	Cl. 0.5	Reactive power:	Cl. 1
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5
		Active energy:	Cl. 0.5	Reactive energy:	Cl. 2
Measuring inputs	Voltage	U L-N: 10 - 625 V AC			
		U L-L: 20 - 1090 V AC			
	Overload voltage	Permanent U L-N: 1000 V AC / peak overload for max. 1 sec. U L-N: 2000 V AC			
	Input impedance voltage	6 MOhm			
	Input load voltage	< 0.05 VA			
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)			
	Transformers	3x 1 / 5 A			
	Overload current	Permanent: 7.5 AAC / peak overload for max. 1 sec: 70 AAC			
	Input impedance current	< 10 mOhm			
	Input load current	< 0.5 VA			
	Sampling rate	6.4 kHz			
	Harmonics per order	1st - 50th for current and voltage			
	Measurement procedure	IEC 61000-4-30 Cl. S			
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity			
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity			
	Protection class front / rear	IP 40 / IP 20			
	Dimensions WxHxD	144 x 144 x 80 mm			
	Weight	0.8 kg			
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C			
	Possible synchronisation	NTP/SNTP; External GPS receiver; External pulses; System frequency; PC time			
FW modules		PQ S: optional	GO: optional	RCS: optional	
		MM: optional*	UDP: optional		

* depending on the variant

Typical connection variant - UMD 807



Dimensional drawings - UMD 807



UMD 913 - Measuring equipment for front panel mounting

Download
data sheet



UMD 913 energy quality measurement systems with integrated disturbance recorder for professional network analysis

The UMD 913 is a high-performance, multi-functional, high-precision measuring instrument for installation in the control board. It measures 4-phase current and voltage in 4-quadrant mode, in class 0.05 and therefore the energy in class 0.2s.

Regardless of the processes that run in the energy systems, the UMD 913 network analysers register even the smallest disturbances or changes. All electrical energy supply parameters are recorded consistently and precisely. Detailed quality evaluations make even the smallest deviations visible and provide information on the causes of the disturbances. The exact time synchronisation of the measurement systems via NTP enables measurement data to be merged for area-wide monitoring of the entire supply network. In order to analyse and document network quality according to self-defined or international standards such as EN 50160, EN 61000-2-2, EN 61000-2-4 or EN 61000-2-12, the UMD 913 continuously records all network parameters in class A according to EN 61000-4-30. High memory capacities and effective compression methods enable long-term recordings of up to several years.

In addition to continuously recording all sizes relevant for network quality, the integrated disturbance recording module enables event-triggered recording of transient processes with sampling rates of up to 28.8 kHz.



Application:

The device is used to monitor the voltage quality continuously in accordance with EN 50160 in class A.

Standard

INPUTS 4U, 4I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 128	INPUTS RCM	ETH
BATTERY	FLASH 512 MB	STANDARDS class A IEC 61000-4-30	STANDARDS class 0.2S IEC 62053-22	STANDARDS IEC 61557-12	STANDARDS EN 50160	CURRENT INPUT X/5A
RS485	SUPPLY 230V	WEBSERVER	NTP	INPUTS/OUTPUTS 4xDIGI	USB	FIRMWARE GO

Optional

OUTPUTS 4xRELAY	2xOUTPUTS 0÷10V 0/4÷20mA	2xINPUTS 0/4÷20mA	INPUTS Pt100
----------------------------------	---	------------------------------------	-------------------------------

Supply voltage	Measurement voltage	Residual current measurement	Functions						Communication			Type	Item number
85 - 265 V AC 90 - 350 V DC	5 - 1470 V LL	Number	Digital I/O	Relay output	Analogue I/O	Pt100 input	Memory size in MB	Clock	RS485	Ethernet	USB		
•	•	2	4	-	-	-	512	•	•	•	•	UMD 913*	12.08.1109
•	•	2	4+1**	4	2/2	1	512	•	•	•	•	UMD 913G*	12.52.1109

* preferred types (short delivery times)

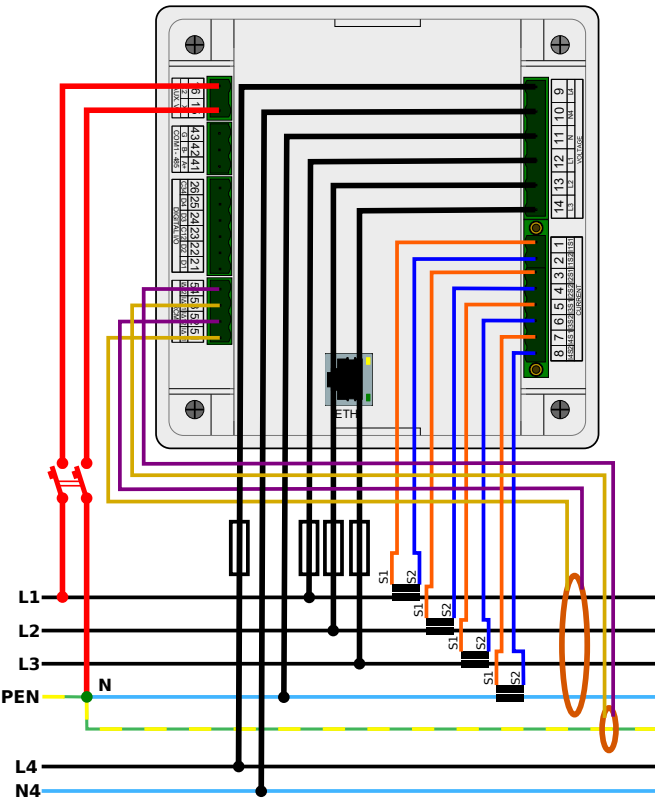
** Relay input

Technical specifications – UMD 913

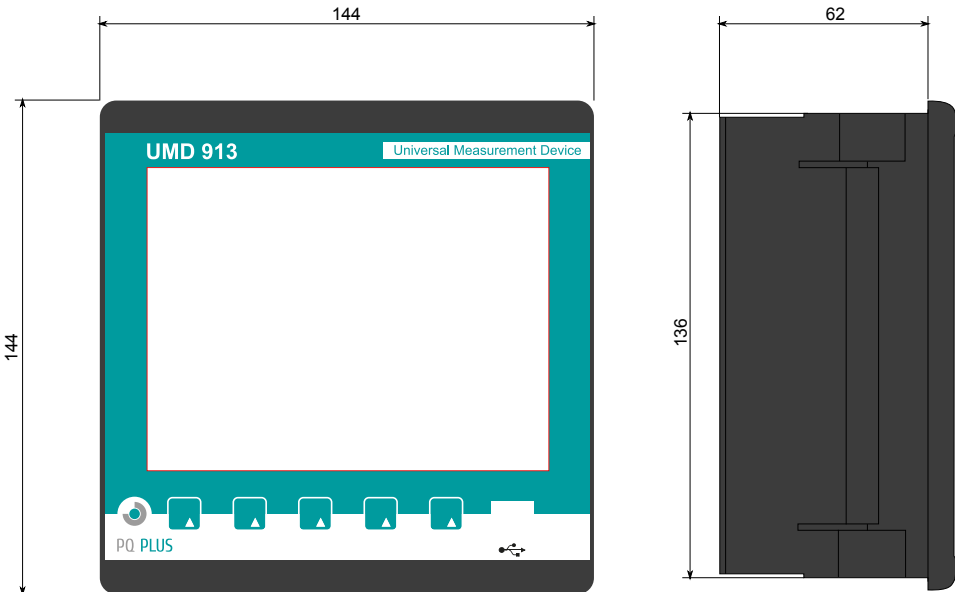
		UMD 913		UMD 913G			
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs		4 inputs/outputs			
	Relay inputs/outputs	None		1 input / 4 outputs			
	Analogue inputs/outputs	2 analogue inputs (for RCM or 0/4 - 20 mA)		4 analogue inputs (2 of which for RCM or 0/4 - 20 mA) and 2 analogue outputs			
	Residual current inputs						
	Temperature inputs	None		1 Pt100 input -50 - 150 °C			
Communication	Interfaces	RS485, Ethernet, front USB		RS485, Ethernet, front USB			
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	230 V variant: 75 - 500 V AC / 90 - 600 V DC					
	Power input	30 VA / 12 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 880 V AC					
		U L-L: 5 - 1530 V AC					
	Overload voltage	Permanent U L-N: 1300 V AC / peak overload for max. 1 sec. U L-N: 2210 V AC					
	Input impedance voltage	2.7 MOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	4x 1 / 5 A					
	Overload current	Permanent: 7.5 AAC / peak overload for max. 1 sec: 70 AAC					
	Input impedance current	< 10 mOhm					
	Input load current	< 0.5 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. A					
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity					
	Protection class front / rear	IP 40; Optional IP 54 / IP 20					
	Dimensions WxHxD	144 x 144 x 70 mm					
	Weight	0.9 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ A: included		GO: included		RCS: optional	
		MM: optional		UDP: optional		IEC104: optional	
		SH: optional					

* depending on the variant

Typical connection variant - UMD 913



Dimensional drawings - UMD 913



MMB / MMU / MMI - Modular measuring equipment

Feed measurement and measured value recording of all outgoing lines via compact measuring modules

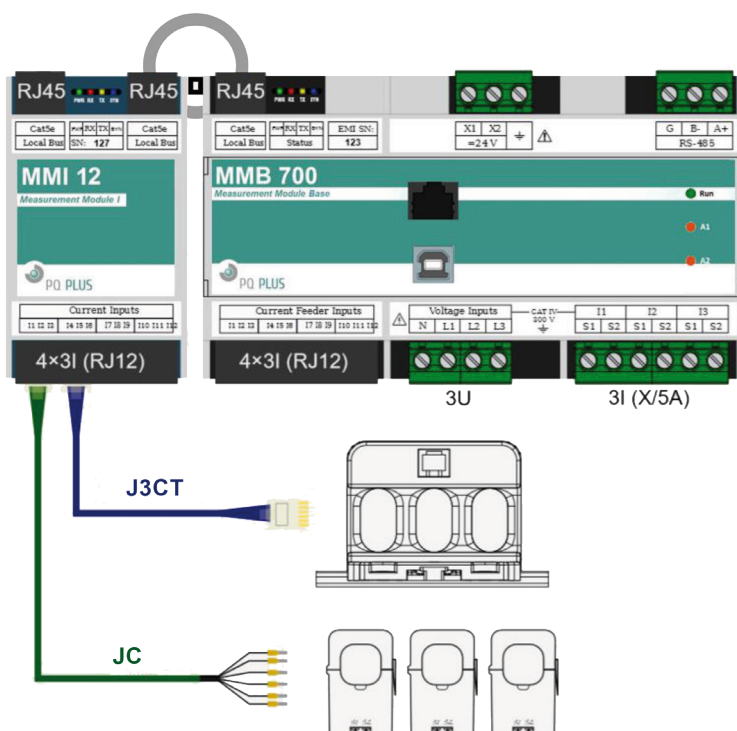
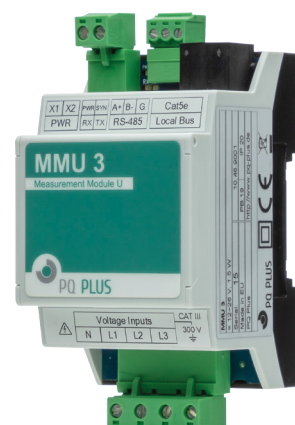
The MMB 700 is a new DIN rail power quality analyser with 3 voltages and a total of 15 current measurement channels for CAT IV environments.

It has built-in memory for network quality, oscilloscopes, slave data, etc. Access can be via Ethernet, RS485 or USB. The communication protocol is Modbus (RTU / TCP).

3 current inputs are for 5 A transformers and 12 further current channels for outgoing line measurements via the integrated MMI.

The associated 333 mV transducers are conveniently connected with RJ12 plugs. Additional MMI 12 modules can be connected to the MMB 700 via RJ45 cables for outgoing line measurements in transformer stations or low-voltage main distribution systems. Up to 12 currents can be detected on each of these modules. With a maximum of 5 interconnected modules, up to 60 currents (20 x 3-phase loads) can be measured.

The current inputs are designed for our new J3CT (3-phase transformer set) or the JC (1-phase cable conversion transformer) transformers with 333 mV and offer connection via RJ12 plugs.



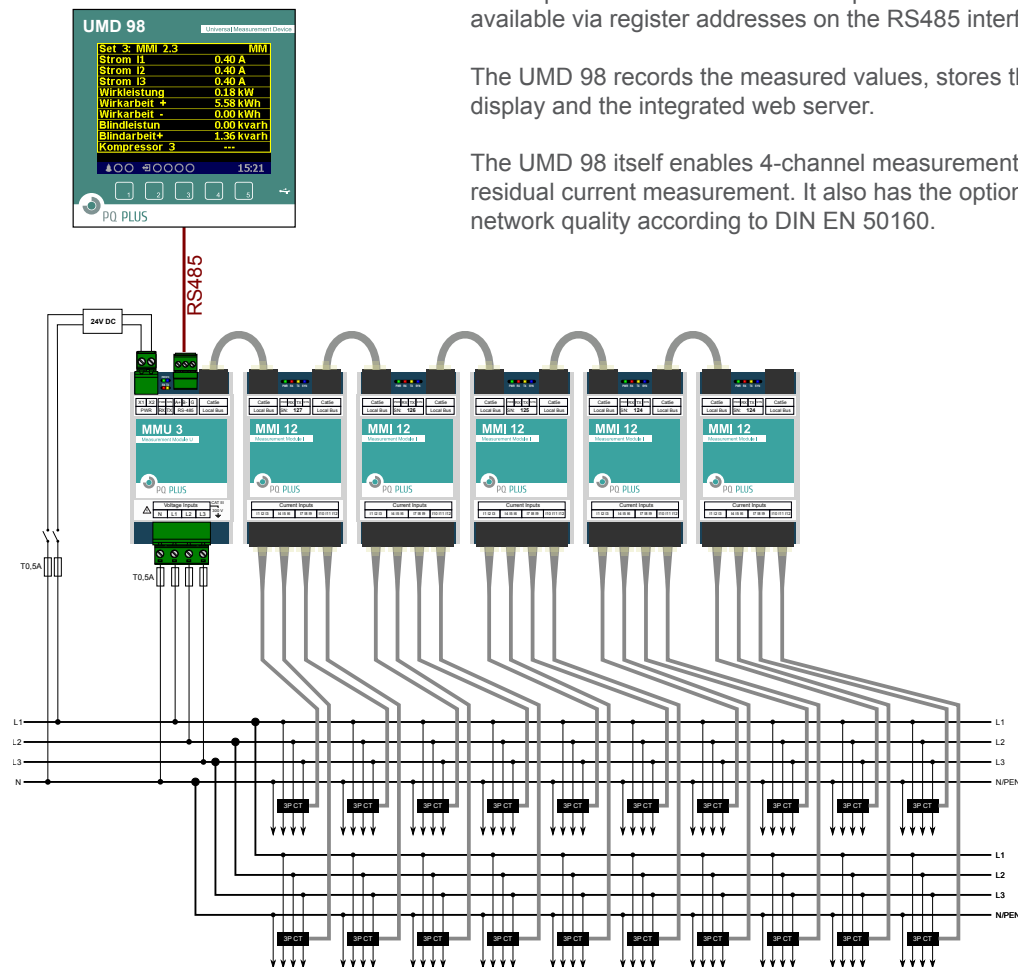
Modular measuring equipment with display and data logger

As an alternative to the MMB 700, the UMD 98 door-mounted network analyser with the ModbusMaster firmware module can also be used. Therefore, the outgoing line measurement data is not only logged, but also shown on the display of the UMD 98.

The MMU 3 voltage module is also required with this variant. The MMU and the MMI modules are connected to each other via RJ45 cables. Therefore, the voltages for the respective current channels are passed on to the MMIs for calculation and made available via register addresses on the RS485 interface.

The UMD 98 records the measured values, stores them and visualises them via the display and the integrated web server.

The UMD 98 itself enables 4-channel measurement for 1 / 5 A - transformers and residual current measurement. It also has the option to record and evaluate the network quality according to DIN EN 50160.



Designation	Length	Item number
Cable local bus 0.1 m	0.1 m	80.12.0010
Cable local bus 0.5 m	0.5 m	80.12.0050
Cable local bus 1.0 m	1.0 m	80.12.0100
Cable local bus 3.0 m	3.0 m	80.12.0300
Cable local bus 5.0 m	5.0 m	80.12.0500
Cable local bus 7.5 m	7.5 m	80.12.0750
Cable local bus 10.0 m	10.0 m	80.12.1000

MMB 700 – Modular measuring equipment for the DIN rail

Download
data sheet



MMB 700

The MMB 700 is a compact, high-end power quality measuring device for installation on the DIN rail. It measures up to 15 currents and 3 voltages in 4-quadrant operation in class 0.05 and therefore the work in class 0.2s, as well as all usual network quantities, e.g. harmonics up to the 128th harmonic. The device maps network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12 and measures in class A* according to EN 61000-4-30. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols such as NTP to also be read in and PLC systems and building management systems to be connected easily. A serial RS485 interface and a front USB port are also integrated.



The GO firmware module is used to activate oscilloscope functions for current and voltage, and to set trigger signals for limit value events. The PQ A* software module records and evaluates the power quality continuously according to DIN EN 50160.

3 current inputs are for 5 A transformers and 12 further current channels for outgoing line measurements via the integrated MMI. The associated 333 mV transformers are conveniently connected with plug-in contacts. Additional MMI 12 modules can be connected to the MMB 700 via RJ45 cables for outgoing line measurements in transformer stations or low-voltage main distribution systems. Up to 12 currents can be detected on each of these modules. With a maximum of 5 interconnected modules, up to 60 currents (e.g. 20 x 3-phase loads) can be measured. The current inputs are designed for our J3CT (3-phase transformer set) or the JC (1-phase cable conversion transformer) transformers with 333 mV and offer connection via RJ12 plugs.

* with FW module PQ A

Application

The device is used to monitor the voltage quality in computing centres, buildings or at energy suppliers continuously. Furthermore, the MMB 700 is used for multi-channel outgoing line measurement.

Standard

INPUTS 3U, 15I	MEASUREMENT U, I, P, Q	PF, cos, THD	+/- Wh, varh	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 24V	CAT IV
NTP 	INPUTS Pt100 	WEBSERVER 	STANDARDS class 0.2S IEC 62053-22	STANDARDS IEC 61557-12	ETH 	CURRENT INPUT 333mV	
BATTERY 	FLASH 512MB 	RS485 	MODBUS 	CURRENT INPUT X/5A	USB 	LOCAL BUS	

Optional

STANDARDS class A IEC 61000-4-30	FIRMWARE GO
FIRMWARE RCS	STANDARDS EN 50160

Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
24 V DC	5 - 1470 V LL	8 - 620 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Local bus	RS485	Ethernet	Gateway Modbus master	USB		
•	•	-	3U, 15I	-	512	•	•	•	•	•	•	MMB 700	11.48.2110

Technical specifications – MMB 700

MMB 700							
Inputs and outputs	Digital inputs/outputs	None					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	None					
	Temperature inputs	None					
Communication	Interfaces	RS485, Ethernet, front USB, local bus					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage						
		24 V variant: 12 - 26 V AC / 10 - 30 V DC					
	Power input	4 W					
	Overvoltage category	CAT IV / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 850 V AC					
		U L-L: 5 - 1470 V AC					
	Overload voltage	Permanent U L-N: 4200 V AC / peak overload for max. 1 sec. U L-N: 5600 V AC					
	Input impedance voltage	8.96 MOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	3x 1 / 5 A + 12x 333 mV					
	Overload current	Permanent: 15 AAC (666 mV) / peak overload for max. 1 sec: 70 AAC (3.33 V)					
	Input impedance current	< 10 mOhm					
	Input load current	< 1 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. A					
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	167 x 90 x 61 mm					
	Weight	0.35 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ A: optional		GO: optional		RCS: optional	
		MM: optional		UDP: optional		IEC104: optional	
		SH: optional					

* depending on the variant

MMU 3 – Modular measuring equipment for the DIN rail

Download
data sheet

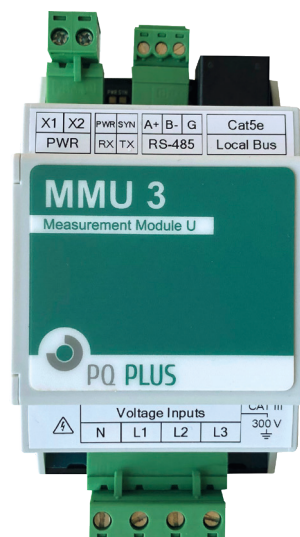
MMU 3

The MMU 3 voltage module is used as an alternative basis for a modular measurement system if no master with local bus connection (e.g. MMB 700) is available or additional voltage has to be measured.

It can be connected to up to 5 MMI 12 current modules and the measured values can be tapped via the RS485 interface.

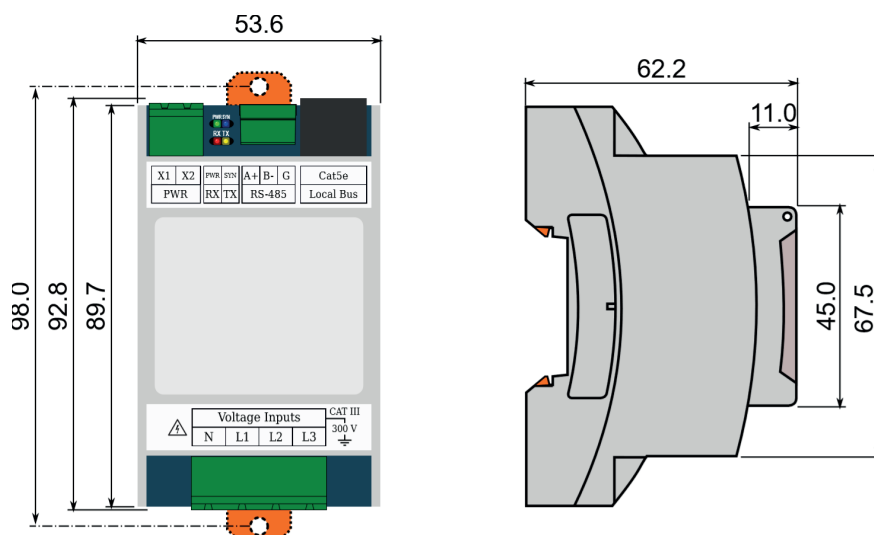
Application:

The device is used to monitor the voltages for the arranged MMI 12.



Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
24 V DC	5 - 1470 V LL	8 - 620 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Local bus	RS485	Ethernet	Gateway Modbus master	USB		
•	-	•	3U	-	-	-	•	•	-	-	-	MMU 3	10.46.9001

Dimensional drawings



Technical specifications – MMU 3

MMU 3					
Communication	Interfaces	RS485, local bus			
	Communication protocols	Modbus RTU			
Data logger	Storage capacity and allocation	None			
	Measured value storage	None			
Electrical connection	Supply voltage	24 V variant: 10 - 29 V DC			
	Power input	1.5 W			
	Overvoltage category	CAT III / 300 V			
Accuracy classes		Voltage: Cl. 0.05	Frequency: Cl. 0.02		
		Active power: Cl. 1	Reactive power: Cl. 2	Apparent power: Cl. 1	
		Harmonic oscillations: Cl. 1	Power factor: Cl. 0.5	cos phi: Cl. 0.5	
		Active energy: Cl. 1	Reactive energy: Cl. 2	Apparent energy Cl. 0.5	
Measuring inputs	Voltage	U L-N: 8 - 350 V AC			
		U L-L: 14 - 610 V AC			
	Overload voltage	Permanent U L-N: 1355 V AC / peak overload for max. 1 sec. U L-N: 2140 V AC			
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)			
	Input impedance voltage	6.12 MOhm			
	Input load voltage	< 0.05 VA			
	Harmonics per order	1st - 25th of the voltage			
Mechanical attributes	Measurement procedure	IEC 61000-4-30			
	Operating temperature range	-25 - 60 °C at < 95 % relative humidity			
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity			
	Protection class front / total	IP 40 / IP 20			
	Dimensions WxHxD	54 x 94x 61 mm			
Internal real-time clock	Weight	0.11 kg			
	Accuracy	None			
	Possible synchronisation	None			

* depending on the variant

MMI 12 - Modular measuring equipment for the DIN rail

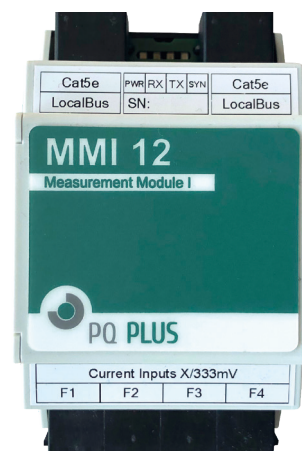
Download
data sheet

MMI 12

The MMI 12 module is a power module for connection to an MMU 3 or an MMB 700. Up to 12 current channels can be measured with each MMI 12. The MMI 12 can be connected to a master device with a local bus connection using the RJ45 cable. With a maximum of 5 interconnected modules, up to 60 currents (e.g. 20 x 3-phase loads) can be measured. The current inputs are designed for the J3CT (3-phase transformer set) or the JC (1-phase cable conversion transformer) transformers with 333 mV and offer connection via plug-in contacts.

Application:

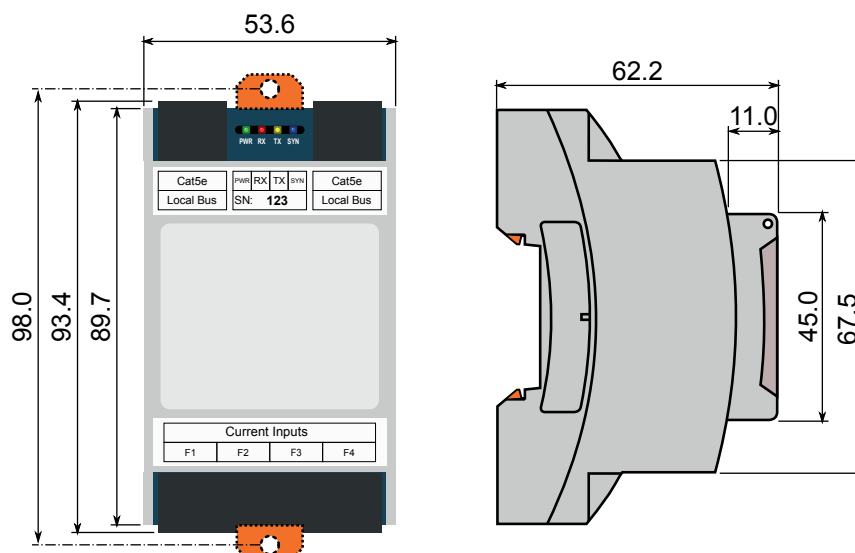
The device is used to monitor the currents in the outlets continuously.



Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
	5 - 1470 V LL	8 - 620 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Local bus	RS485	Ethernet	Gateway Modbus master	USB		
•*	-	-	12I	-	-	-	•	-	-	-	-	MMI 12	10.47.9000

* via local bus

Dimensional drawings



Technical specifications – MMI 12

MMI 12		
Communication	Interfaces	Local bus
	Communication protocols	Internal bus
Electrical connection	Supply voltage	Supply via local bus
	Power input	1.5 W
	Overvoltage category	Depending on the transformer used
	Transformers	12x 333 mV
	Overload current	Permanent: 666 mV AC / peak overload for max. 1 sec: 3.33 V AC
	Input impedance current	39 kOhm
	Input load current	< 5 µVA
	Sampling rate	6.4 kHz
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity
	Protection class front / total	IP 40 / IP 20
	Dimensions WxHxD	54 x 94 x 61 mm
	Weight	0.1 kg

* depending on the variant

MMI 12Flex – Modular measuring equipment for the DIN rail

Download
data sheet

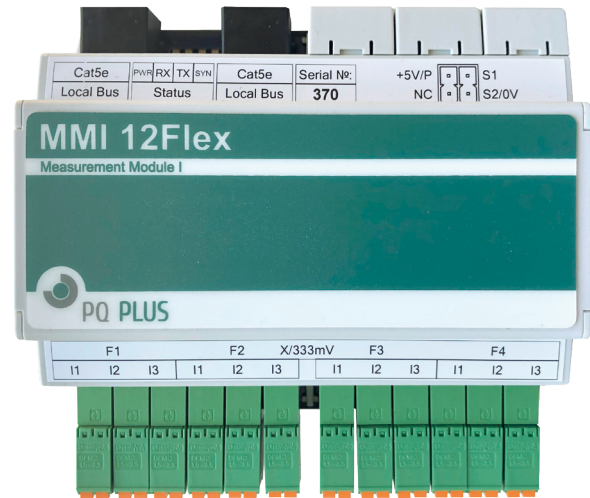


MMI 12Flex

The MMI 12Flex module is a power module for connection to an MMU 3 or any other master device with a local bus connection. Up to 12 current channels can be measured with each MMI 12Flex. The MMI 12Flex can be connected to other devices via the local bus interface using an RJ45 cable. With a maximum of 5 interconnected modules, up to 60 currents (e.g. 20x 3-phase loads) can be measured. The current inputs are designed for Rogowski coils (e.g. type KBU Flex) with an output signal of 333 mV.

Application:

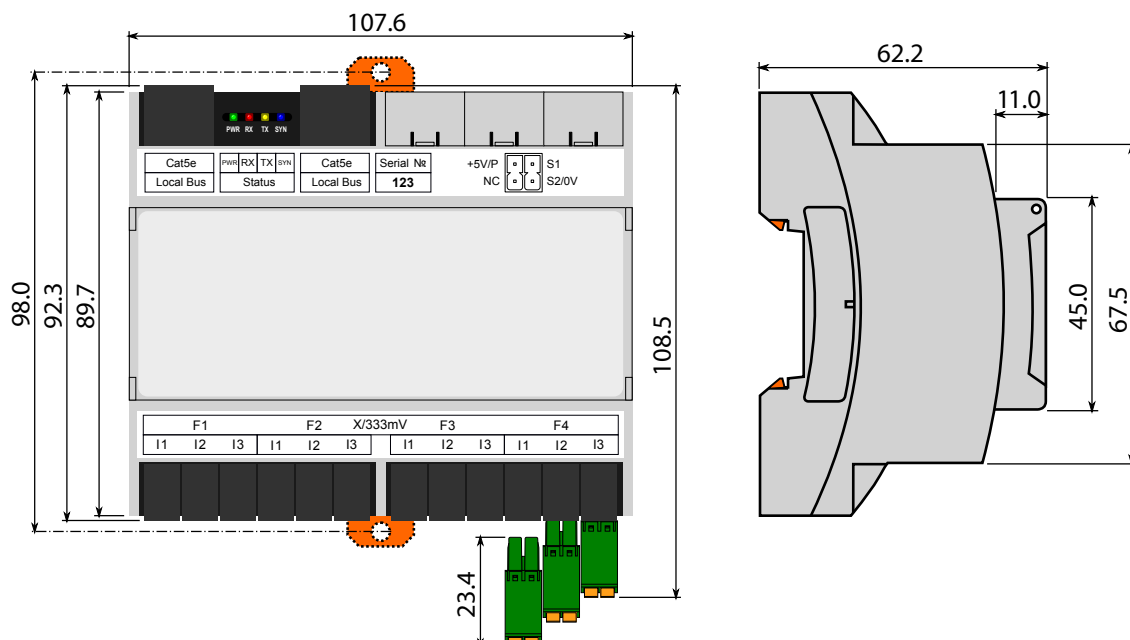
The device is used to monitor the currents in the outlets continuously.



Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
24 V DC	5 - 1470 V LL	8 - 620 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Local bus	RS485	Ethernet	Gateway Modbus master	USB		
● *	-	-	12I	-	-	-	●	-	-	-	-	MMI 12Flex	10.53.9000

* via local bus

Dimensional drawings



Technical specifications – MMI 12Flex

MMI 12Flex		
Communication	Interfaces	Local bus
	Communication protocols	Internal bus
Electrical connection	Supply voltage	Supply via local bus
	Power input	2 W – 5 W
	Overvoltage category	Depending on the transformer used
	Transformers	12x 333 mV (Rogowski coils)
	Overload current	Permanent: 666 mV AC / peak overload for max. 1 sec: 3.33 V AC
	Input impedance current	39 kOhm
	Input load current	< 5 µVA
	Sampling rate	6.4 kHz
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity
	Protection class front / total	IP 40 / IP 20
	Dimensions WxHxD	167 x 90 x 61 mm
	Weight	0.2 kg

* depending on the variant

MMI 12RCM - Modular measuring equipment for the DIN rail

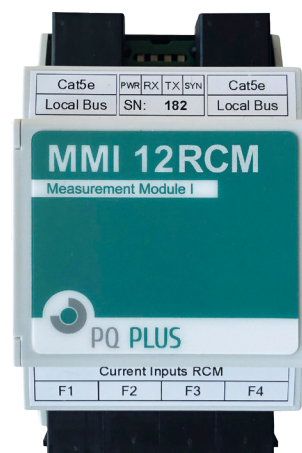
[Download data sheet](#)


MMI 12RCM

The MMI 12RCM module is a power module for connection to an MMU 3 or any other master device with a local bus connection. Up to 12 residual currents can be measured with each MMI 12RCM. The MMI 12RCM can be connected to other devices via the local bus interface using an RJ45 cable. With a maximum of 5 interconnected modules, up to 60 residual currents can be measured. The current inputs are designed for residual transformers (e.g. type RCM-CT) and offer a connection via plug-in contacts.

Application:

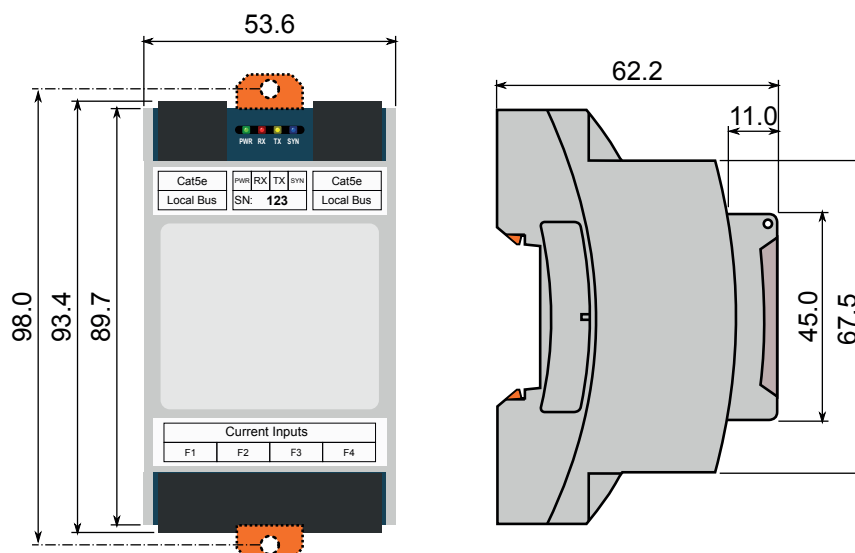
The device is used to monitor residual currents continuously.



Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
	5 - 1470 V LL	8 - 620 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Local bus	RS485	Ethernet	Gateway Modbus master	USB		
•*	-	-	12I	-	-	-	•	-	-	-	-	MMI 12RCM	10.55.9000

* via local bus

Dimensional drawings



Technical specifications – MMI 12RCM

MMI 12RCM		
Communication	Interfaces	Local bus
	Communication protocols	Internal bus
Electrical connection	Supply voltage	Supply via local bus
	Power input	1.5 W
	Overvoltage category	Depending on the transformer used
	Transformers	12x 20 mA (residual transformer)
	Overload current	Permanent: 100 mA AC / peak overload for max. 1 sec: 1 AAC
	Input impedance current	10 Ohm
	Input load current	< 0.01 VA
	Sampling rate	6.4 kHz
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity
	Protection class front / total	IP 40 / IP 20
	Dimensions WxHxD	54 x 94 x 61 mm
	Weight	0.1 kg

* depending on the variant

MMI 12DC - Modular measuring equipment for the DIN rail

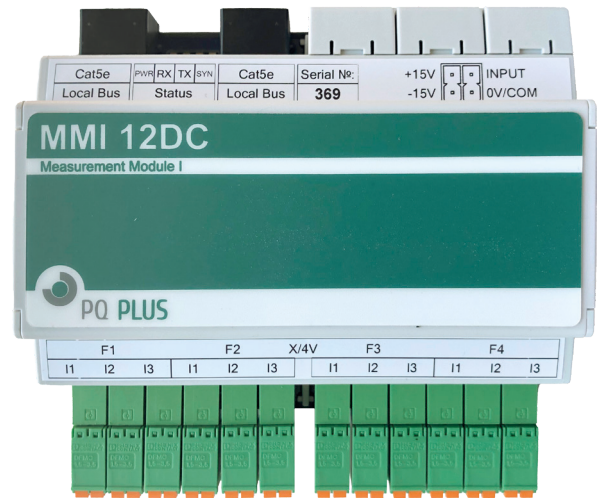
Download
data sheet

MMI 12DC

The MMI 12DC module is a power module for connection to an MMU 3 or any other master device with a local bus connection. Up to 12 DC or AC currents can be measured with each MMI 12DC. The MMI 12DC can be connected to other devices via the local bus interface using an RJ45 cable. With a maximum of 5 interconnected modules, up to 60 currents can be measured. The current inputs are designed for Hall sensors (e.g. type JS (H series) with an output signal of ± 4 V.

Application:

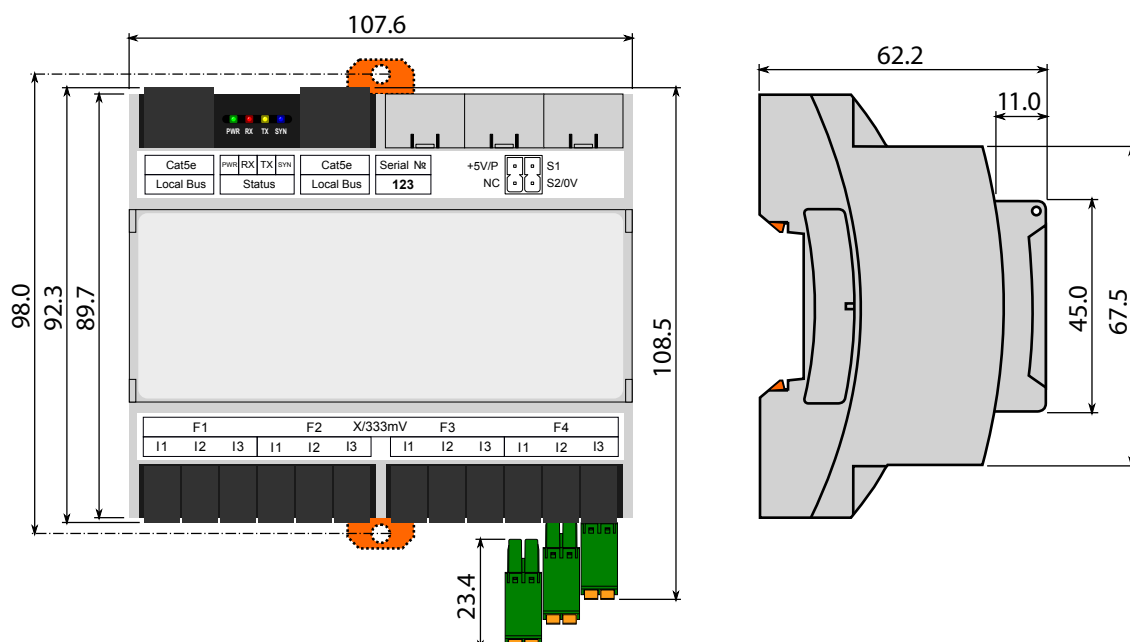
The device is used to monitor direct and alternating currents continuously.



Supply voltage	Measurement voltage		Measuring inputs	Functions			Communication					Type	Item number
24 V DC	5 - 1470 V LL	8 - 620 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Local bus	RS485	Ethernet	Gateway Modbus master	USB		
●*	-	-	12I	-	-	-	●	-	-	-	-	MMI 12DC	10.54.9000

* via local bus

Dimensional drawings



Technical specifications – MMI 12DC

MMI 12DC		
Communication	Interfaces	Local bus
	Communication protocols	Internal bus
Electrical connection	Supply voltage	Supply via local bus
	Power input	2.5 W – 16 W
	Overvoltage category	Depending on the transformer used
	Transformers	12x ±4 V (Hall sensors)
	Overload current	Permanent: 8 V AC / peak overload for max. 1 sec: 40 V AC
	Input impedance current	33.9 kOhm
	Input load current	< 1 mVA
	Sampling rate	6.4 kHz
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity
	Protection class front / total	IP 40 / IP 20
	Dimensions WxHxD	167 x 90 x 61 mm
	Weight	0.2 kg

* depending on the variant

UMD 701 – Measuring equipment for the DIN rail

Download
data sheet



UMD 701 / UMD 701RCM

The UMD 701 is a compact network quality measurement device with data logger for installation on the DIN rail. It measures 8-channel currents and a voltage, and the work in class 1, as well as the harmonics up to the 50th harmonic. The UMD 701 has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols to also be read in and PLC systems and building management systems to be connected easily. Digital inputs and outputs, and a serial RS485 interface are integrated. JS or CTB transformers (100 mA), for example, are used for measurement. In the UMD 701RCM variant, the device is used as an 8-channel residual current meter. Measurement is performed via residual transformers.



Application

The device is used in building automation or for measuring residual current in.

Standard

INPUTS 1U, 8I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 50	STANDARDS class 0.5S IEC 62053-22
SAMPLING 25,6 kHz	FLASH 512MB	RS485	MODBUS	STANDARDS IEC 61557-12	SUPPLY 230V
ETH	WEBSERVER	NTP	INPUTS 2xDIGI	OUTPUTS 1xPULSE	

Optional

SUPPLY 12V/24V/230V	INPUTS RCM
STANDARDS class S IEC 61000-4-30	OUTPUTS 1xRELAY
	CURRENT INPUT X/100mA

Supply voltage		Measurement voltage	Rated current	Residual current measurement	Functions				Communication					Type	Item number		
85 - 275 V AC 80 - 350 V DC	20 - 50 V AC 20 - 75 V DC	8 - 360 V LN	100 mA	RCM inputs	Digital inputs	Digital outputs	Memory size in MB	Clock	RS485	Ethernet	Gateway Modbus master	M bus	USB				
●	-	●	-	8	2	1	512	●	●	●	-	-	-			UMD 701RCM*	13.01.6004
●	-	●	●	-	2	1	512	●	●	●	-	-	-			UMD 701*	10.01.6004

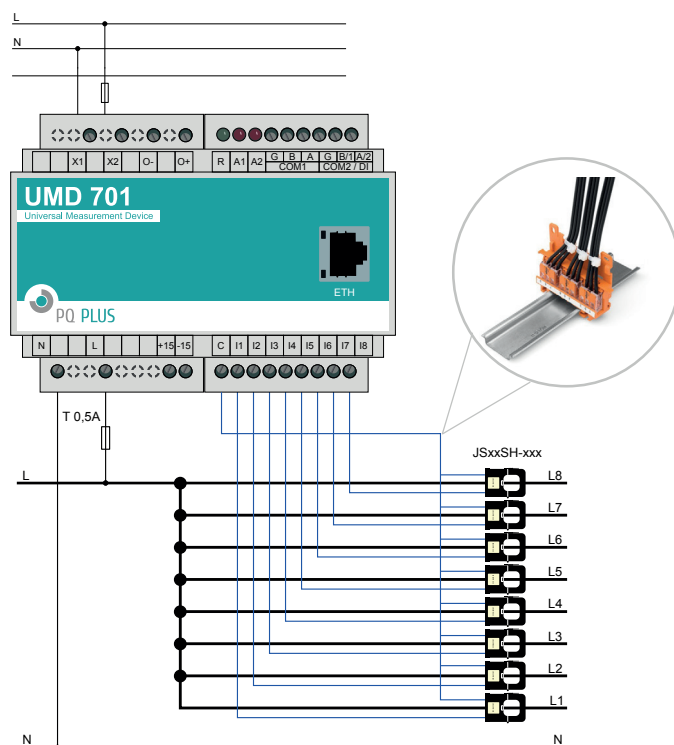
* preferred types (short delivery times)

Technical specifications – UMD 701

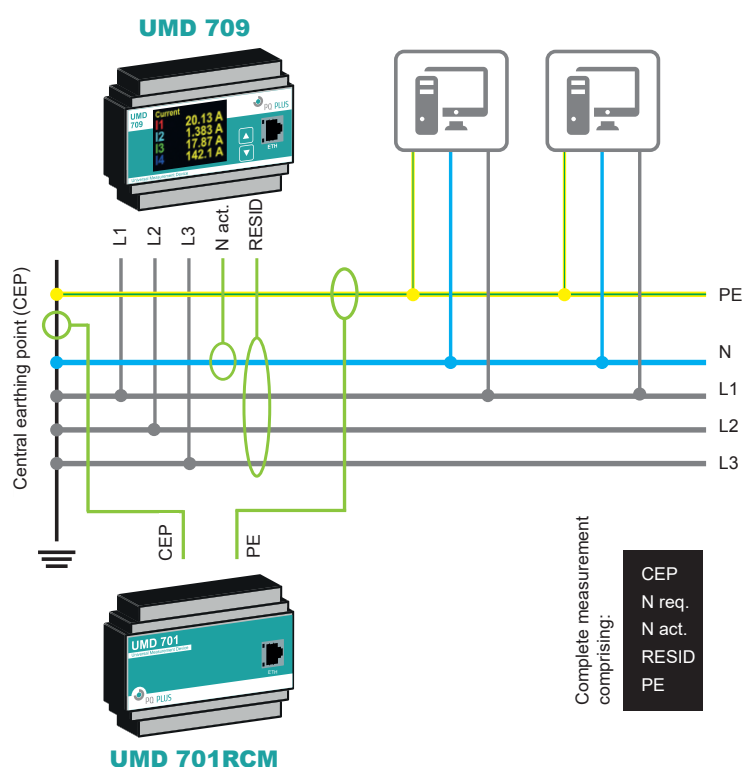
		UMD 701		UMD 701RCM			
Inputs and outputs	Digital inputs/outputs	2 inputs and 1 output		2 inputs and 1 output			
	Analogue inputs/outputs	None		None			
	Relay inputs/outputs	None		None			
	Residual current inputs	None		8 inputs			
	Temperature inputs	None		None			
Communication	Interfaces	RS485, Ethernet		RS485, Ethernet			
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 80 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage*	Predefined measured values with freely configurable averaging intervals					
Electrical connection	Supply voltage	230 V variant: 85 - 275 V AC / 80 - 350 V DC					
	Power input	14 VA / 6 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.2	Current:	Cl. 0.2	Frequency:	Cl. 0.05
		Active power:	Cl. 1	Reactive power:	Cl. 2	Apparent power:	Cl. 1
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 1	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 8 - 360 V AC					
	Overload voltage	Permanent U L-N: 1500 V AC / peak overload for max. 1 sec. U L-N: 2300 V AC					
	Input impedance voltage	3.24 MOhm					
	Input load voltage	< 0.03 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers*	8x 100 mA; RCM variant: 8x 40 mA					
	Overload current*	Permanent: 200 mA AC / peak overload for max. 1 sec: 1 A AC					
	Input impedance current*	< 0.5 Ohm					
	Input load current*	< 0.005 VA					
	Sampling rate	25.6 kHz					
	Harmonics per order*	1st - 50th for current and voltage					
	Measurement procedure	IEC 61000-4-30					
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	106 x 90 x 58 mm					
	Weight	0.25 kg					
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules							

* depending on the variant

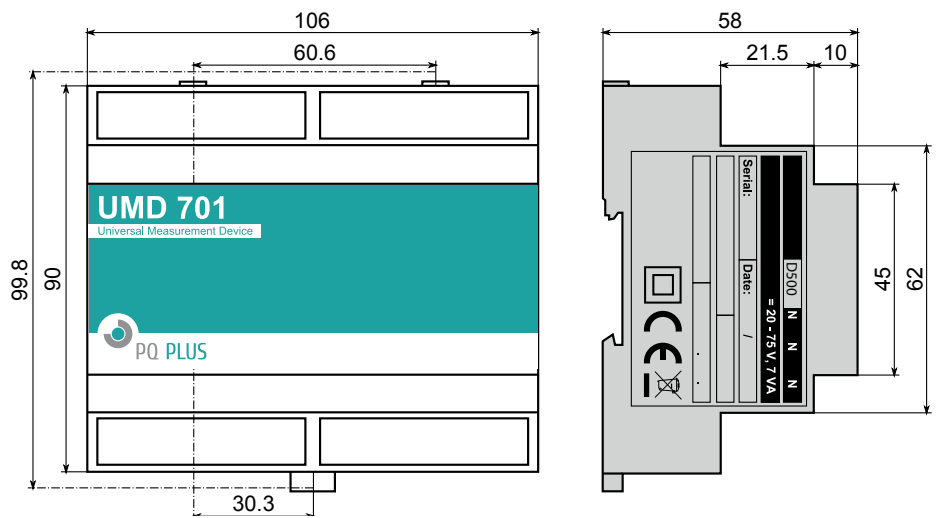
Typical connection variant - UMD 701



Typical connection variant - UMD 701RCM



Dimensional drawings - UMD 701



Accessories		Item no.
	5-pin connection terminal + fastening adapter	18.88.7015

UMD 704 – Measuring equipment for the DIN rail

Download
data sheet

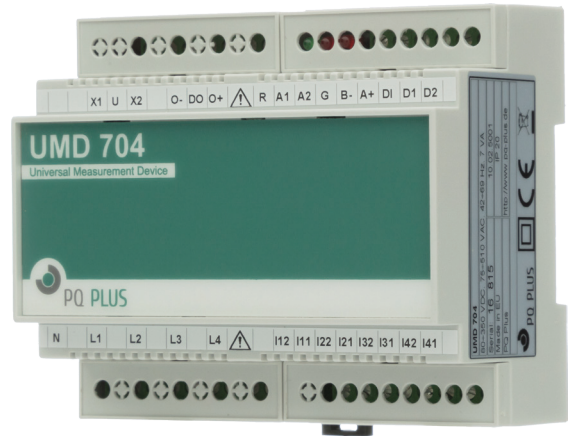


UMD 704

The UMD 704 is a compact network quality measurement device for online measurements and for installation on the DIN rail. It measures 4-phase current and voltage with up to 3 tariffs in 4-quadrant mode and the energy in class 0.2s, as well as all common network sizes such as harmonics up to the 50th harmonic. Digital inputs/outputs and a serial RS485 interface are integrated. The UMD 704 can also be equipped with an M bus interface. We recommend the 100 mA variant of JS transformers here.

Application

The device is used to continuously monitor the network quality in computing centres and in building automation, as well as consumption recording for ISO 50001.



Standard

INPUTS 4U, 4I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	STANDARDS IEC 61557-12	HARMONICS 50	INPUTS 2xDIGI	ETH
SAMPLING 25,6 kHz	RS485	MODBUS	STANDARDS class 0.5S IEC 62053-22	OUTPUTS 1xPULSE	CURRENT INPUT X/100mA	NTP	WEBSERVER

Optional

OUTPUTS 1xRELAY
SUPPLY 12V/24V/230V

Supply voltage		Measurement voltage	Rated current	Functions				Communication					Type	Item number
75 - 510 V AC 80 - 350 V DC	20 - 50 V AC 20 - 75 V DC	11 - 520 V LL	100 mA	Digital inputs	Digital outputs	Memory size in MB	Clock	RS485	Ethernet	Gateway Modbus master	M bus	USB		
•	-	•	•	2	1	-	-	•	•	-	-	-	UMD 704EL*	10.02.5004
-	•	•	•	2	1	-	-	•	•	-	-	-	UMD 704EL	10.02.7004

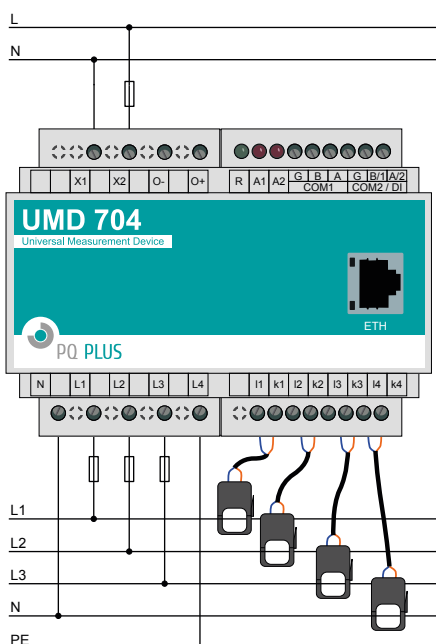
* preferred types (short delivery times)

Technical specifications – UMD 704

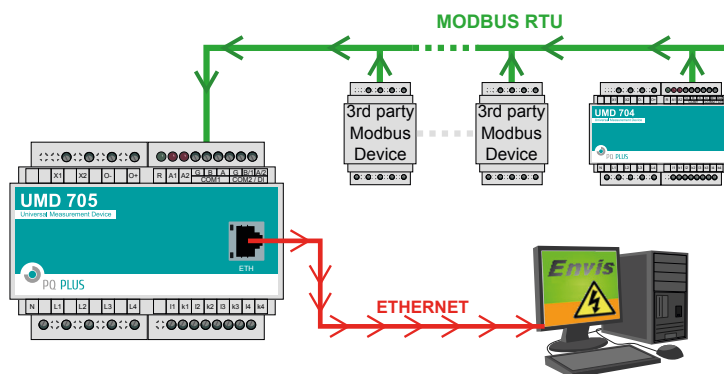
		UMD 704EL			
Inputs and outputs	Digital inputs/outputs	2 inputs / 1 output			
	Analogue inputs/outputs	None			
	Relay inputs/outputs	None			
	Residual current inputs	None			
	Temperature inputs	None			
Communication	Interfaces	RS485, Ethernet			
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON			
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values			
	Internal temperature measurement	None			
Data logger	Storage capacity and allocation	None			
	Measured value storage	Minimum and maximum storage			
Electrical connection	Supply voltage	230 V variant: 75 - 510 V AC / 80 - 350 V DC			
		24 V variant: 20 - 50 V AC / 20 - 75 V DC			
	Power input	7 VA / 3 W			
	Overvoltage category	CAT III / 300 V			
Accuracy classes		Voltage:	Cl. 0.2	Current:	Cl. 0.5
		Active power:	Cl. 1	Reactive power:	Cl. 1
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5
		Active energy:	Cl. 0.5S	Reactive energy:	Cl. 2
Measuring inputs	Voltage	U L-N: 6 - 300 V AC			
		U L-L: 11 - 520 V AC			
	Overload voltage	Permanent U L-N: 1300 V AC / peak overload for max. 1 sec. U L-N: 1950 V AC			
	Input impedance voltage	2.7 MOhm			
	Input load voltage	< 0.03 VA			
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)			
	Transformers	4x 100 mA			
	Overload current	Permanent: 200 mA AC / peak overload for max. 1 sec: 1 A AC			
	Input impedance current	< 0.5 Ohm			
	Input load current	0.005 VA			
	Sampling rate	25.6 kHz			
	Harmonics per order	1st - 50th for current and voltage			
	Measurement procedure	IEC 61000-4-30			
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity			
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity			
	Protection class front / total	IP 40 / IP 20			
	Dimensions WxHxD	106 x 90 x 58 mm			
	Weight	0.25 kg			
Internal real-time clock	Accuracy	None			
	Possible synchronisation	None			
FW modules					

* depending on the variant

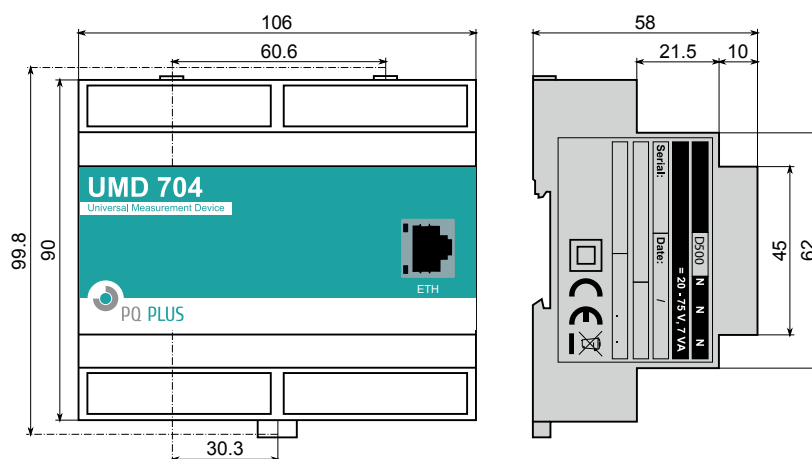
Typical connection variant - UMD 704



Modbus gateway - UMD 704 (slave)



Dimensional drawings - UMD 704



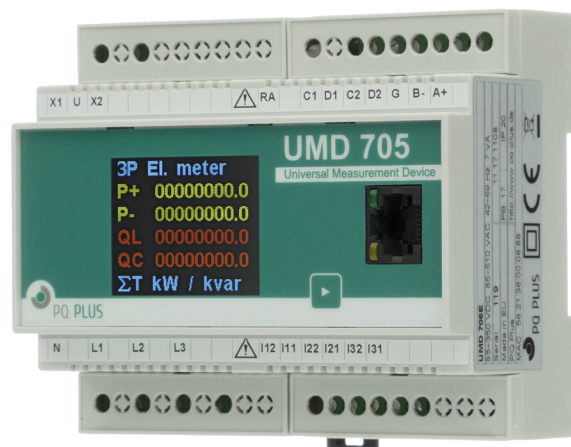
UMD 705 – Measuring equipment for the DIN rail, also for CAT IV environments

Download
data sheet



UMD 705

The UMD 705 is a compact network quality measurement device with data logger for installation on the DIN rail. It measures 3-phase current and voltage with up to 3 tariffs in 4-quadrant operation and the work in class 0.2, as well as all usual network quantities, e.g. harmonics up to the 50th harmonic. It optionally maps the network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12 with the PQ S firmware module. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols to also be read in and PLC systems and building management systems to be connected easily. Digital inputs and outputs, and a serial RS485 interface are integrated. The UMD 705 can also be used as a modbus master to connect up to 31 modbus slaves in network structures. The optional GO firmware module is used to activate oscilloscope functions for current and voltage, and to set trigger signals for limit value events. The 24 V variants have an internal buffer to bridge a power failure of up to 15 minutes.



Application

The device is used in building automation and the 24 V variant in CAT IV environments. A suitable CAT IV power supply unit is available in our accessories.

Standard

INPUTS 3U, 3I	MEASUREMENT U, I, P, Q	PF, cos, THD	+/- Wh, varh	HARMONICS 50	SUPPLY 230V
SAMPLING 25,6 kHz	FLASH 512MB	RS485	STANDARDS IEC 61557-12	STANDARDS class 0.5S IEC 62053-22	MODBUS
CURRENT INPUT X/5A					

Optional

WEBSERVER	OUTPUTS 2x RELAY	USB	ETH	NTP
STANDARDS EN 50160	STANDARDS class S IEC 61000-4-30	SUPPLY 12V/24V/230V	INTERNAL UPS	
INPUTS/OUTPUTS 2x DIGI	FIRMWARE GO	CAT IV		

Supply voltage		Measurement voltage	Functions					Communication				Type	Item number
85 - 510 V AC 85 - 350 V DC	20 - 75 V DC	7 - 720 V LL	CAT IV	Internal buffering	Digital inputs/outputs	Memory size in MB	Clock	RS485	Ethernet	Gateway Modbus master	USB		
•	-	•	-	-	2	512	•	•	-	-	•	UMD 705CBM*	11.17.1105
-	•	•	•	•	-	512	•	•	-	-	•	UMD 705CBM	11.17.3105
•	-	•	-	-	2	512	•	•	•	•	-	UMD 705E*	11.17.1104
-	•	•	•	•	-	512	•	•	•	•	-	UMD 705E	11.17.3104

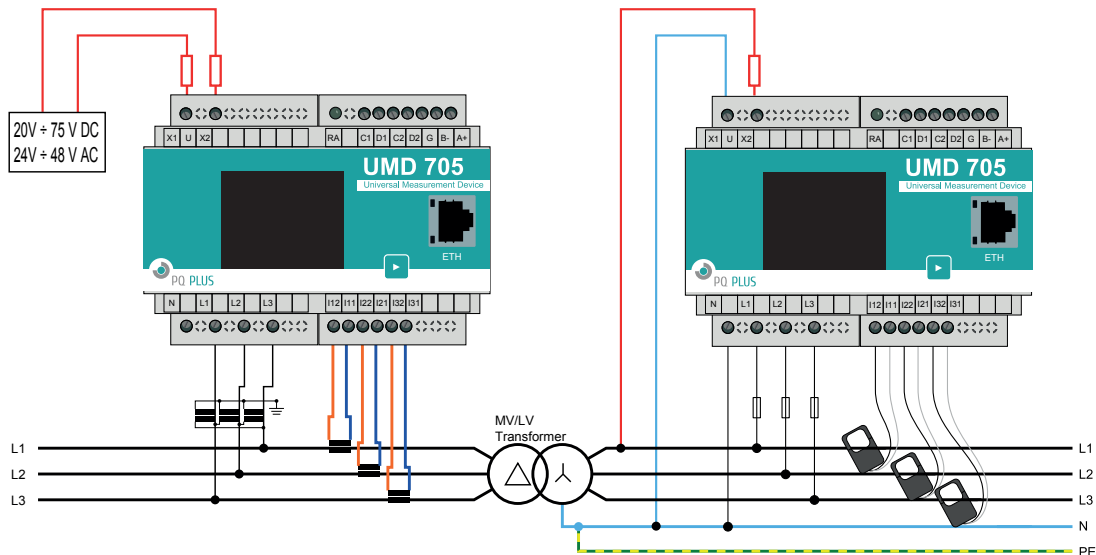
* preferred types (short delivery times)

Technical specifications – UMD 705

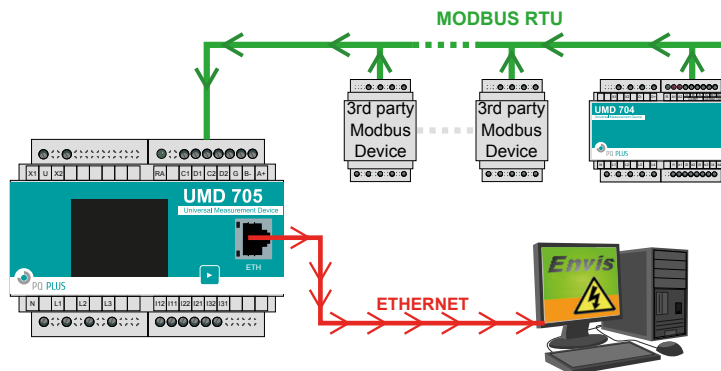
		UMD 705CBM		UMD 705E	
Inputs and outputs	Digital inputs/outputs	2 inputs/outputs*		2 inputs/outputs*	
	Analogue inputs/outputs	None		None	
	Relay inputs/outputs	None		None	
	Residual current inputs	None		None	
	Temperature inputs	None		None	
Communication	Interfaces	RS485, USB		RS485, Ethernet	
	Communication protocols*	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON			
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values			
	Internal temperature measurement	-40 - 80 °C			
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives			
	Measured value storage	Freely configurable measured values with different averaging intervals			
Electrical connection	Supply voltage	230 V variant: 85 - 510 V AC / 85 - 350 V DC			
		24 V variant: 20 - 75 V DC			
	Power input	7 VA / 3.5 W			
	Overvoltage category	230 V variant: CAT III / 300 V	24 V variant: CAT IV / 300 V		
Accuracy classes		Voltage: Cl. 0.2	Current: Cl. 0.5	Frequency: Cl. 0.05	
		Active power: Cl. 1	Reactive power: Cl. 1	Apparent power: Cl. 1	
		Harmonic oscillations: Cl. 2	Power factor: Cl. 0.5	cos phi: Cl. 0.5	
		Active energy: Cl. 0.5S	Reactive energy: Cl. 2	Apparent energy Cl. 0.5	
Measuring inputs	Voltage	U L-N: 4 - 420 V AC			
		U L-L: 7 - 720 V AC			
	Overload voltage	Permanent U L-N: 1252 V AC / peak overload for max. 1 sec. U L-N: 2800 V AC			
	Input impedance voltage	7.84 MOhm			
	Input load voltage	< 0.03 VA			
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)			
	Transformers	3x 1 / 5 A			
	Overload current	Permanent: 10 AAC / peak overload for max. 1 sec: 90 AAC			
	Input impedance current	< 0.1 Ohm			
	Input load current	< 0.001 VA			
	Sampling rate	25.6 kHz			
	Harmonics per order	1st - 50th for current and voltage			
	Measurement procedure	IEC 61000-4-30 Cl. S			
Mechanical attributes	Operating temperature range*	-25 - 70 °C at < 95 % relative humidity			
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity			
	Protection class front / total	IP 40 / IP 20			
	Dimensions WxHxD	106 x 90 x 58 mm			
	Weight	0.25 kg			
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C			
	Possible synchronisation*	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time			
FW modules		PQ S: optional	GO: optional	RCS: optional	
		MM: optional*	UDP: optional*		

* depending on the variant

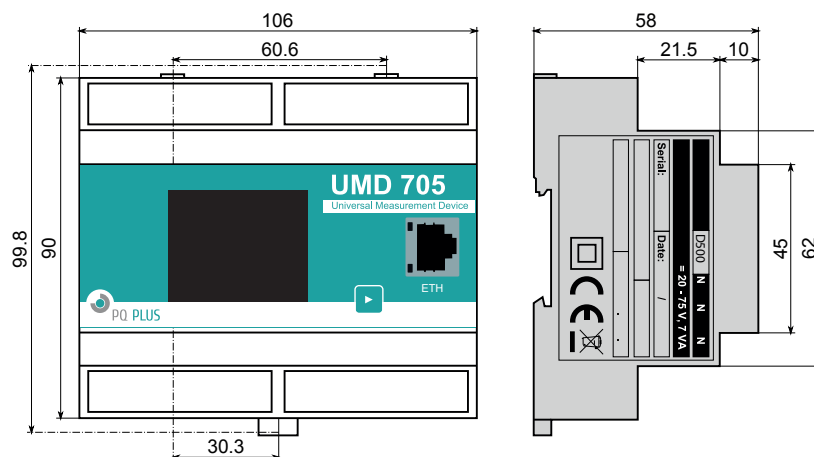
Typical connection variant - UMD 705



Modbus master firmware - UMD 705



Dimensional drawings - UMD 705



UMD 707RCM – Measuring equipment for the DIN rail

Download
data sheet



UMD 707RCM

The UMD 707RCM is a compact, high-end residual current measurement device for installation on the DIN rail. It measures 5-channel residual currents (type A) and the voltage quality (harmonics up to the 128th harmonic; voltage dips 40 µsec).

Measurement is performed via the RCM-CT residual current transformer.

The device has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. Therefore, internet protocols such as NTP can also be read in.

PLC systems and building management systems can be connected easily via modbus TCP. Digital inputs/outputs and a serial RS485 interface are integrated. The GO firmware module is used to activate oscilloscope functions for voltage, and to set trigger signals for limit value events. A PT100 input is also provided.



Application

The device is used to measure residual currents in outgoing lines/sub-distribution systems. Therefore continuous monitoring in accordance with VDE 0105-100/A1 can be established, resulting in measuring the insulation resistance according to DGUV V3 being redundant.

Standard

INPUTS 3U, 5I	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 230V	USB	ETH	NTP	INPUTS Pt100
INPUTS/OUTPUTS 4xDIGI	INPUTS RCM	WEBSERVER	BATTERY	FLASH 512MB	RS485	MODBUS	

Optional

STANDARDS class S IEC 61000-4-30	FIRMWARE GO	SUPRAHARMONICS 2 kHz...9 kHz
FIRMWARE RCS	STANDARDS EN 50160	

Supply voltage	Measurement voltage	Residual current measurement	Functions				Communication				Type	Item number
65 - 275 V AC 75 - 350 V DC	5 - 1470 V LL	Number	Digital inputs/outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	USB		
•	•	5	4	512	•	•	•	•	•	•	UMD 707RCM	13.25.1104

Technical specifications – UMD 707RCM

UMD 707RCM					
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs			
	Relay inputs/outputs	None			
	Analogue inputs/outputs	None			
	Residual current inputs	5 inputs			
	Temperature inputs	1 Pt100 input -50 - 170 °C			
Communication	Interfaces	RS485, Ethernet, front USB			
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON			
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values			
	Internal temperature measurement	-40 - 85 °C			
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives			
	Measured value storage	Freely configurable measured values with different averaging intervals			
Electrical connection	Supply voltage	230 V variant: 85 - 250 V AC / 85 - 270 V DC			
	Power input	10 VA / 5 W			
	Overvoltage category	CAT III / 300 V			
Accuracy classes		Voltage: Cl. 0.1	Current: Cl. 0.1	Frequency: Cl. 0.02	
		Harmonic oscillations: Cl. 1			
Measuring inputs	Voltage	U L-N: 3 - 850 V AC			
		U L-L: 5 - 1470 V AC			
	Overload voltage	Permanent U L-N: 1300 V AC / peak overload for max. 1 sec. U L-N: 2210 V AC			
	Input impedance voltage	3.9 MOhm			
	Input load voltage	< 0.1 VA			
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)			
	Transformers	5x RCM			
	Overload current	Permanent: 80 mA / peak overload for max. 1 sec: 120 mA			
	Input impedance current	100 Ohm			
	Input load current	< 0.2 VA			
	Sampling rate	28.8 kHz			
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz			
	Measurement procedure	IEC 61000-4-30 Cl. S			
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity			
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity			
	Protection class front / total	IP 40 / IP 20			
	Dimensions WxHxD	108 x 90 x 61 mm			
	Weight	0.3 kg			
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C			
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time			
FW modules		PQ S: optional	GO: optional	RCS: optional	
		MM: optional	UDP: optional	IEC104: optional	
		SH: optional			

* depending on the variant

UMD 707DC - Measuring equipment for the DIN rail

Download
data sheet



UMD 707DC

The UMD 707DC is a compact, high-end direct current measurement device for installation on the DIN rail. It measures 5-channel direct or alternating currents, as well as direct and alternating voltages, including the network quality (up to 128th harmonic) and voltage dips from 40 µsec.

The measurement is carried out via the JS H-series transformers (Hall effect). The device has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. Therefore, internet protocols such as NTP can also be read in.

PLC systems and building management systems can be connected easily via modbus TCP. Digital inputs/outputs and a serial RS485 interface are integrated. The GO firmware module is used to activate oscilloscope functions for current and voltage, and to set trigger signals for limit value events. A PT100 input is also provided.

A special power supply unit (15V) is required to supply power to the JS transformers (Hall effect). The DC Power Compact6 power supply unit is supplied as standard with the UMD 707DC.



Application

The device is mainly used for measuring direct and alternating currents.

Standard

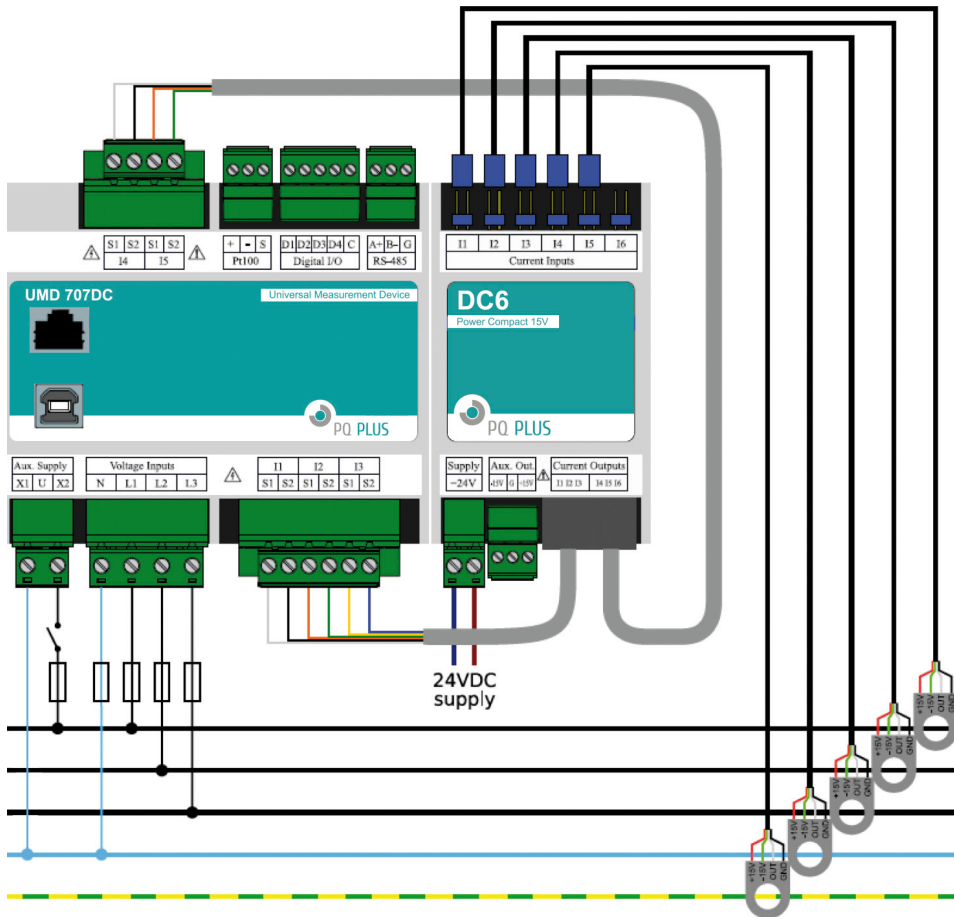
INPUTS 3U, 5I	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 230V	USB	ETH	NTP	INPUTS Pt100
INPUTS/OUTPUTS 4xDIGI	INPUTS DC	WEBSERVER	BATTERY	FLASH 512MB	RS485	MODBUS	

Optional

STANDARDS class S IEC 61000-4-30	FIRMWARE GO	SUPRAHARMONICS 2 kHz...9 kHz
FIRMWARE RCS	STANDARDS EN 50160	

Supply voltage	Measurement voltage	Transformer inputs	Functions				Communication				Type	Item number
65 - 275 V AC 75 - 350 V DC	5 - 1470 V LL 0 - 1200 V DC	Number	Digital inputs/ outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	USB		
•	•	5	4	512	•	•	•	•	•	•	UMD 707DC	11.45.2110

Typical connection variant - UMD 707DC



Technical specifications – UMD 707DC

UMD 707DC							
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	None					
	Temperature inputs	1 Pt100 input -50 - 170 °C					
Communication	Interfaces	RS485, Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	230 V variant: 85 - 250 V AC / 85 - 270 V DC					
	Power input	10 VA / 5 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2S	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 850 V AC / 0 - 1200 V DC					
		U L-L: 5 - 1470 V AC					
	Overload voltage	Permanent U L-N: 1300 V / peak overload for max. 1 sec. U L-N: 2210 V					
	Input impedance voltage	3.9 MOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	5x ±4 V					
	Overload current	Permanent: 12 V / peak overload for max. 1 sec: 50 V					
	Input impedance current	100 Ohm					
	Input load current	< 0.2 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. S					
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	108 x 90 x 61 mm					
	Weight	0.3 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ S: optional		GO: optional		RCS: optional	
		MM: optional		UDP: optional		IEC104: optional	
		SH: optional					

* depending on the variant

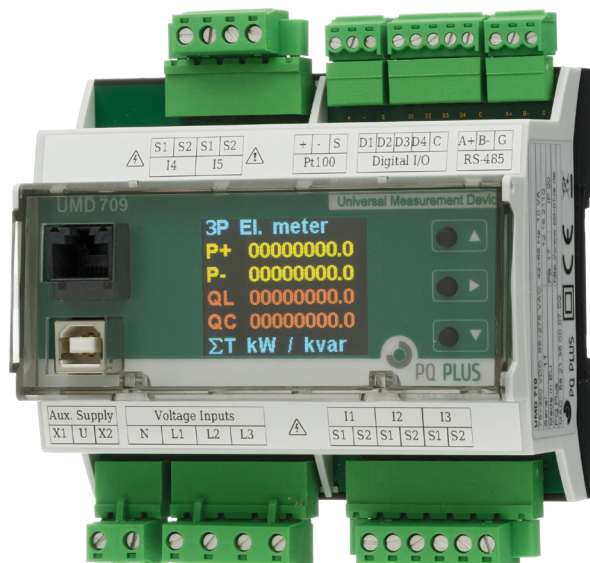
UMD 709 - Measuring equipment for the DIN rail

Download
data sheet



UMD 709

The UMD 709 is a compact, high-end power quality measuring device for installation on the DIN rail. It measures 3/4-phase current and voltage in 4-quadrant mode in class 0.05 and therefore the energy in class 0.2s, as well as all common network sizes such as harmonics up to the 128th harmonic, optionally supraharmonics from 2 kHz to 9 kHz. The 5th input enables residual currents to be measured continuously. The device maps network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12 and measures in class S according to EN 61000-4-30. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols such as NTP to also be read in and PLC systems and building management systems to be connected easily. Digital inputs/outputs and a serial RS485 interface are integrated. With the optional PQ S and GO firmware modules, the power quality is recorded and evaluated continuously, oscilloscope functions for current and voltage are activated and trigger signals for limit value events are set.



Application

The device is used to monitor the voltage quality in computing centres, buildings or at energy suppliers continuously. Furthermore, the UMD 709 is used with a corresponding residual transformer in order to detect fault currents / residual currents.

Standard

INPUTS 3U, 4I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 230V	USB
INPUTS/OUTPUTS 4xDIGI	INPUTS RCM	WEBSERVER	STANDARDS class 0.2S IEC 62053-22	STANDARDS IEC 61557-12	ETH	NTP	INPUTS Pt100
BATTERY	FLASH 512MB	RS485	MODBUS	CURRENT INPUT X/5A			

Optional

STANDARDS class S IEC 61000-4-30	FIRMWARE GO
FIRMWARE RCS	STANDARDS EN 50160
SUPRAHARMONICS 2 kHz...9 kHz	

Supply voltage	Measurement voltage	Residual current measurement	Functions				Communication					Type	Item number
65 - 275 V AC 75 - 350 V DC	5 - 1470 V LL	Number	Digital inputs/ outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	Class A	USB		
•	•	1	4	512	•	•	•	•	•	-	•	UMD 709	11.15.2110

Technical specifications – UMD 709

UMD 709							
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	1 input					
	Temperature inputs	1 Pt100 input -50 - 170 °C					
Communication	Interfaces	RS485, Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	230 V variant: 75 - 275 V AC / 75 - 300 V DC					
	Power input	10 VA / 5 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 850 V AC					
		U L-L: 5 - 1470 V AC					
	Overload voltage	Permanent U L-N: 1300 V AC / peak overload for max. 1 sec. U L-N: 2210 V AC					
	Input impedance voltage	3.9 MOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	4x 1 / 5 A					
	Overload current	Permanent: 15 AAC / peak overload for max. 1 sec: 70 AAC					
	Input impedance current	< 10 mOhm					
	Input load current	< 1 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. S					
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	108 x 90 x 61 mm					
	Weight	0.3 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ S: optional	GO: optional		RCS: optional		
		MM: optional	UDP: optional		IEC104: optional		
		SH: optional					

* depending on the variant

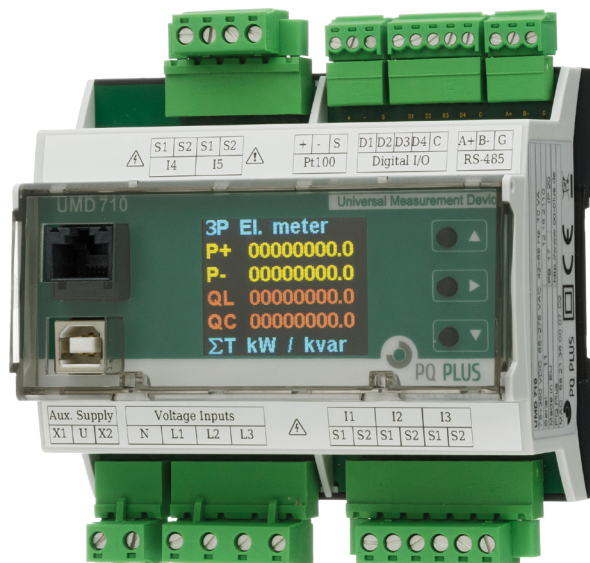
UMD 710A - Measuring equipment for the DIN rail

Download
data sheet



UMD 710A

The UMD 710A is a compact, high-end power quality measuring device for installation on the DIN rail. It measures 3/4-phase current and voltage in 4-quadrant mode in class 0.05 and therefore the energy in class 0.2s, as well as all common network sizes such as harmonics up to the 128th harmonic, optionally supraharmonics from 2 kHz to 9 kHz. The 5th input enables residual currents to be measured continuously. The device maps network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12 and measures in class S according to EN 61000-4-30. It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols such as NTP to also be read in and PLC systems and building management systems to be connected easily. Digital inputs/outputs and a serial RS485 interface are integrated. With the included PQ S and GO firmware modules, the power quality is recorded and evaluated continuously, oscilloscope functions for current and voltage are activated and trigger signals for limit value events are set.



Application

The device is used for continuous monitoring of the voltage quality in data centres, buildings or at energy suppliers as well as feed-in plants. Furthermore, the UMD 710A is used with a corresponding residual transformer to detect fault currents / residual currents.

Standard

INPUTS 3U, 4I	MEASUREMENT U, I, P, Q	PF, cos, THD	+/- Wh, varh	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 230V	USB
INPUTS/OUTPUTS 4xDIGI	STANDARDS class A IEC 61000-4-30	WEBSERVER	STANDARDS class 0.2S IEC 62053-22	STANDARDS IEC 61557-12	ETH	NTP	INPUTS Pt100
BATTERY	FLASH 512MB	RS485	MODBUS	CURRENT INPUT X/5A	INPUTS RCM	FIRMWARE GO	STANDARDS EN 50160

Optional

FIRMWARE RCS	SUPRAHARMONICS 2 kHz...9 kHz
-------------------------------	---

Supply voltage	Measurement voltage	Residual current measurement	Functions				Communication					Type	Item number
65 - 275 V AC 75 - 350 V DC	5 - 1470 V LL	Number	Digital inputs/outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	Class A	USB		
•	•	1	4	512	•	•	•	•	•	•	•	UMD 710A	12.16.2110

Technical specifications – UMD 710A

UMD 710A							
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	1 input					
	Temperature inputs	1 Pt100 input -50 - 170 °C					
Communication	Interfaces	RS485, Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	230 V variant: 75 - 275 V AC / 75 - 300 V DC					
	Power input	10 VA / 5 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2S	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 850 V AC					
		U L-L: 3 - 1470 V AC					
	Overload voltage	Permanent U L-N: 1300 V AC / peak overload for max. 1 sec. U L-N: 2210 V AC					
	Input impedance voltage	3.9 MOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	4x 1 / 5 A					
	Overload current	Permanent: 15 AAC / peak overload for max. 1 sec: 70 AAC					
	Input impedance current	< 10 mOhm					
	Input load current	< 1 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. A					
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	108 x 90 x 61 mm					
	Weight	0.3 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ A: included	GO: included		RCS: optional		
		MM: optional	UDP: optional		IEC104: optional		
		SH: optional					

* depending on the variant

UMD 710EVU - Measuring equipment for CAT IV environments

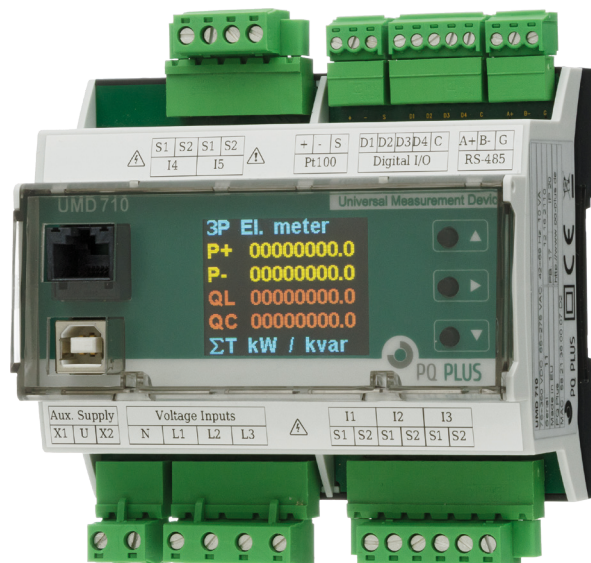
Download
data sheet



UMD 710EVU

The UMD 710EVU is a compact, high-end network quality measurement device for CAT IV environments for installation on the DIN rail. It measures 3-phase current and voltage with up to 3 tariffs in 4-quadrant mode in class 0.05 and therefore the energy in class 0.2s, as well as all common network sizes such as harmonics up to the 128th harmonic. The device maps network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4, EN 61000-2-12 and measures in class A according to EN 61000-4-30.

It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This enables internet protocols such as NTP to also be read in and PLC systems and building management systems to be connected easily. 4 digital inputs / outputs and a serial RS485 interface are integrated. The GO firmware module is used to activate oscilloscope functions for current and voltage, and to set trigger signals for limit value events. The PQ A firmware module can be used to record and evaluate the voltage quality continuously.



Application

The device is used in all CAT IV environments. A suitable CAT IV power supply unit is available in our accessories.

Standard

INPUTS 3U, 3I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 24V	USB
INPUTS/OUTPUTS 4xDIGI	INPUTS Pt100	WEBSERVER	STANDARDS class 0.2S IEC 62053-22	STANDARDS IEC 61557-12	ETH	NTP	CAT IV
FLASH 512MB	RS485	MODBUS	CURRENT INPUT X/5A	STANDARDS class A IEC 61000-4-30	FIRMWARE GO	STANDARDS EN 50160	

Optional

FIRMWARE RCS
SUPRAHARMONICS 2 kHz 9 kHz

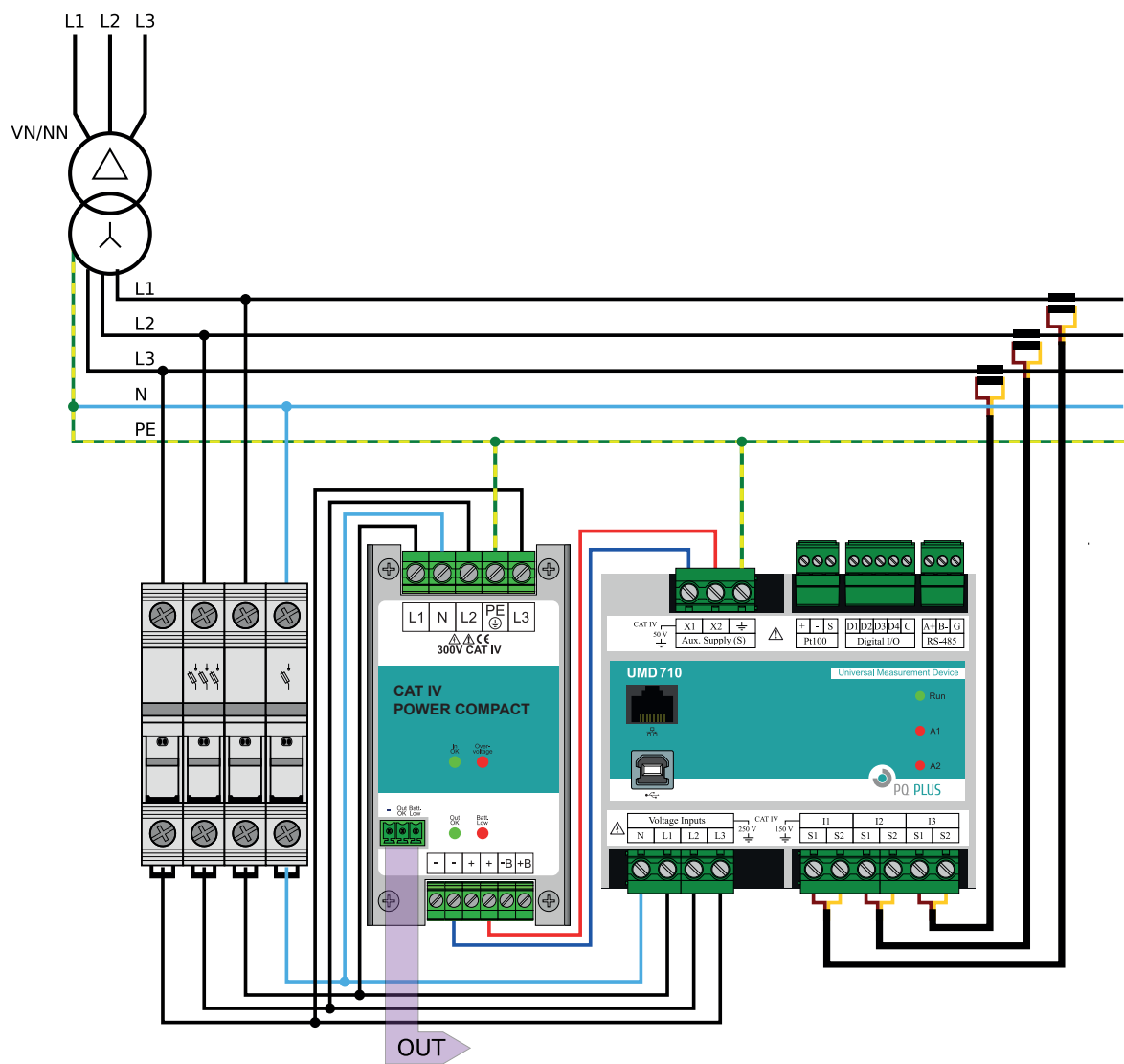
Supply voltage	Measurement voltage	Functions				Communication					Type	Item number
10 - 30 V DC	5 - 1470 V LL	Digital inputs/ outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	Class A	USB		
•	•	4	512	•	•	•	•	•	•	•	UMD 710EVU	12.32.4110

Technical specifications – UMD 710EVU

UMD 710EVU							
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	None					
	Temperature inputs	1 Pt100 input -50 - 170 °C					
Communication	Interfaces	RS485, Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage						
		24 V variant: 12 - 27 V AC / 10 - 30 V DC					
	Power input	7 VA / 3 W					
	Overvoltage category	CAT IV / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 3 - 850 V AC					
		U L-L: 5 - 1470 V AC					
	Overload voltage	Permanent U L-N: 4200 V AC / peak overload for max. 1 sec. U L-N: 5600 V AC					
	Input impedance voltage	8.96 MOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	4x 1 / 5 A					
	Overload current	Permanent: 15 AAC / peak overload for max. 1 sec: 70 AAC					
	Input impedance current	< 10 mOhm					
	Input load current	< 1 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. A					
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	108 x 90 x 61 mm					
	Weight	0.3 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQA: included	GO: included		RCS: optional		
		MM: optional	UDP: optional		IEC104: optional		
		SH: optional					

* depending on the variant

Typical connection variant - UMD 710EVU



UMD 710MVU – Measuring equipment for the DIN rail in CAT IV environments for medium voltage applications

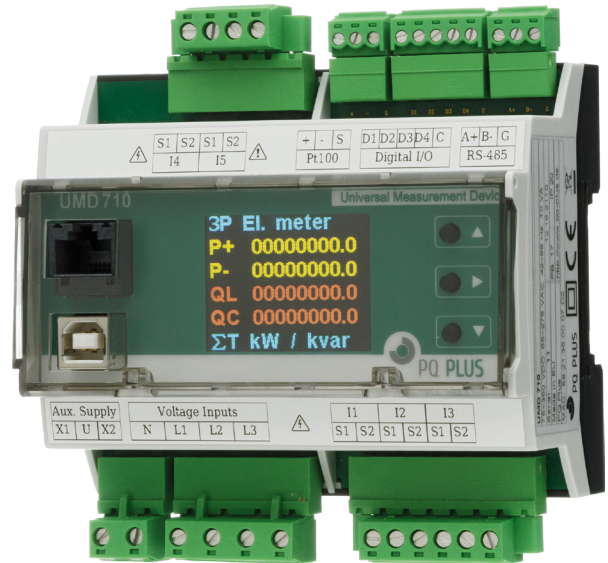
Download
data sheet



UMD 710MVU

The UMD 710MVU is a compact, high-end power quality measuring device for CAT IV environments for installation on the DIN rail. The UMD 710MVU is equipped with an extra-low voltage input to connect voltage sensors with an output signal of $3.25\text{ V} / \sqrt{3}$ directly. It measures 3-phase current and voltage with up to 3 tariffs in 4-quadrant mode in class 0.05 and therefore the energy in class 0.2s, as well as all common network sizes such as harmonics up to the 128th harmonic and optionally, supraharmonics from 2 kHz to 9 kHz. The device maps the network quality according to EN 50160, EN 61000-2-2, EN 61000-2-4 and EN 61000-2-12 and measures in class A according to EN 61000-4-30.

It has a large 512 MB memory. The device can be accessed via the Ethernet interface and live measured values can be observed using the web browser via the corresponding web server. This also allows internet protocols such as NTP to be read in and it is easy to connect PLC systems and building management systems. 4 digital inputs/outputs and a serial RS485 interface are integrated.



Application

The device is used in all CAT IV environments for connection to voltage sensors.

A suitable CAT IV power supply unit is available in our accessories.

Standard

INPUTS 3U, 3I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 128	SAMPLING 28,8 kHz	SUPPLY 24V	USB
INPUTS/OUTPUTS 4xDIGI	VOLTAGE INPUT 3,25/√3	WEBSERVER	STANDARDS class 0.2S IEC 62053-22	STANDARDS IEC 61557-12	ETH	NTP	INPUTS Pt100
FLASH 512MB	RS485	MODBUS	CURRENT INPUT X/5A	STANDARDS class A IEC 61000-4-30	FIRMWARE GO	STANDARDS EN 50160	CAT IV

Optional

FIRMWARE RCS
SUPRAHARMONICS 2 kHz 9 kHz

Supply voltage	Measurement voltage	Functions				Communication					Type	Item number
		Digital inputs/ outputs	Memory size in MB	Clock	Pt100 input	RS485	Ethernet	Gateway Modbus master	Class A	USB		
10 – 30 V DC	0.03 – 11.5 V	4	512	•	•	•	•	•	•	•	UMD 710MVU	12.52.4110

Technical specifications – UMD 710MVU

UMD 710MVU							
Inputs and outputs	Digital inputs/outputs	4 inputs/outputs					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	None					
	Temperature inputs	1 Pt100 input -50 - 170 °C					
Communication	Interfaces	RS485, Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 85 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage						
		24 V variant: 10 - 30 V DC					
	Power input	7 VA / 3 W					
	Overvoltage category	CAT IV / 300 V					
Accuracy classes		Voltage:	Cl. 0.1	Current:	Cl. 0.1	Frequency:	Cl. 0.02
		Active power:	Cl. 0.2	Reactive power:	Cl. 1	Apparent power:	Cl. 0.2
		Harmonic oscillations:	Cl. 1	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.2	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 0.02 - 11.5 V AC					
		U L-L: 0.04 - 20 V AC					
	Overload voltage	Permanent U L-N: 18 V AC / peak overload for max. 1 sec. U L-N: 30 V AC					
	Input impedance voltage	200 kOhm					
	Input load voltage	< 0.1 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	3x 1 / 5 A					
	Overload current	Permanent: 15 A AC / peak overload for max. 1 sec: 70 A AC					
	Input impedance current	< 10 mOhm					
	Input load current	< 1 VA					
	Sampling rate	28.8 kHz					
	Harmonics per order	1st - 128th for current and voltage; optional: Supraharmonics from 2 kHz - 9 kHz					
	Measurement procedure	IEC 61000-4-30 Cl. A					
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-30 - 80 °C at < 95 % relative humidity					
	Protection class front / total	IP 40 / IP 20					
	Dimensions WxHxD	108 x 90 x 61 mm					
	Weight	0.3 kg					
Internal real-time clock	Accuracy	+/- 0.2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ A: included		GO: included		RCS: optional	
		MM: optional		UDP: optional		IEC104: optional	
		SH: optional					

* depending on the variant

IO-M 500 - I/O hardware modules for UMD measuring devices

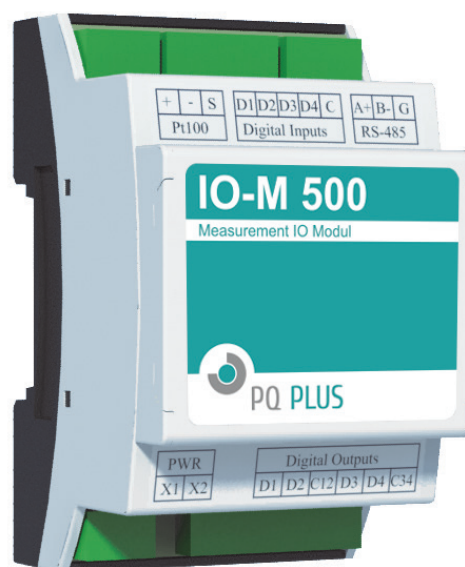
[Download data sheet](#)


IO-M 500

You can use the IO-M 500 modules to add digital inputs, relay outputs or temperature inputs to the UMD measurement devices. Therefore, in addition to the inputs/outputs present on the UMD, further signals can be recorded or output.

Application:

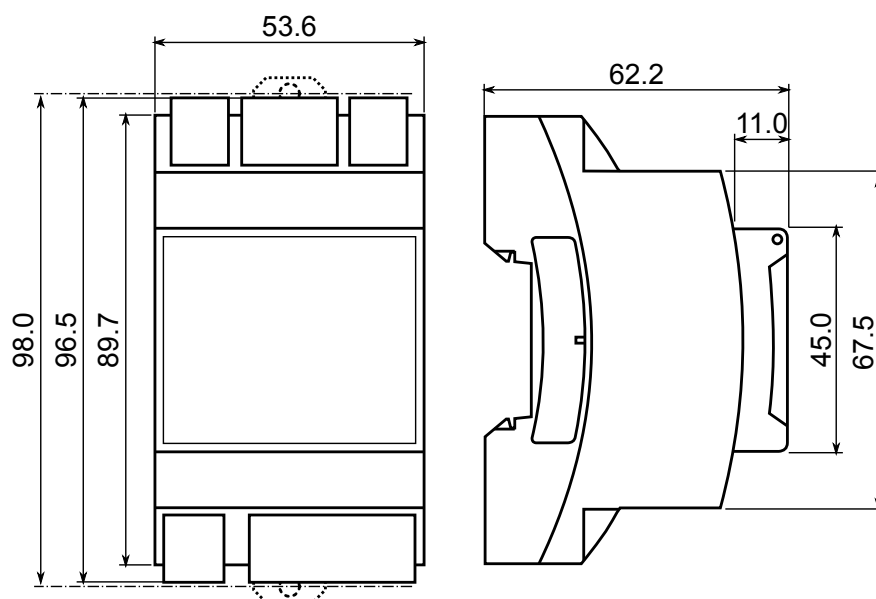
- Connection via RS485
- Pulse recording
- Status messages
- Alarm signals
- Temperature recording



Supply voltage	Functions			Communication	Type	Order no.
	Digital inputs	Relay outputs	PT100			
12-24 V DC	4*	-	-	RS485	IO-M 540	80.33.3802

* active inputs

Dimensional drawings



Firmware modules for function expansion for UMD measuring devices

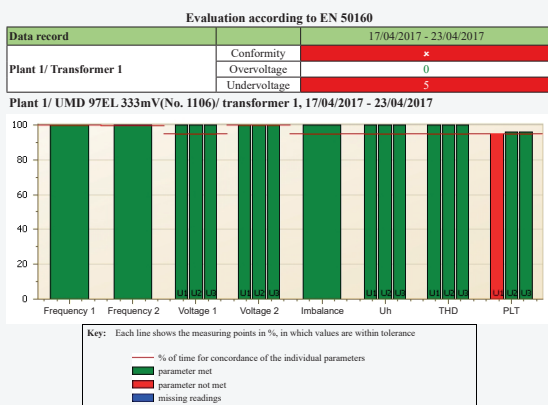
Download
data sheet



PQ A / PQ S (Power Quality in Class A / Class S)

These modules are for recording and evaluating the measured values according to EN 50160 or EN 61000-2-2, EN 61000-2-4, EN 61000-2-12. It extends the measurement to include flicker, voltage dips and interharmonics. The evaluation is stored in its own PQ archive.

Limit violations and voltage events (overvoltages, undervoltages, voltage interruptions) can be archived in a separate archive. Devices with this module become class A or class S power quality analysers according to IEC 61000-4-30.



Measuring points	Conditions according to EN 50160	Concordance	Met
Frequency 1	57266	100%	yes
Frequency 2	57266	99.5%	yes
Voltage 1	955	95%	yes
Voltage 2	955	100%	yes
Asymmetry	955	95%	yes
Uh	955	100%	yes
THD	955	95%	yes
PLT	955	94.76	no

Harmonics limits					
Odd harmonics			Even harmonics		
H #	Limit *	Concordance	H #	Limit *	Concordance
5	6.0 %	100.00	2	2.0 %	100.00
7	5.0 %	100.00	9	1.0 %	100.00
11	3.5 %	100.00	15	0.5 %	100.00
13	3.0 %	100.00	21	0.5 %	100.00
17	2.0 %	100.00	10	0.5 %	100.00
19	1.5 %	100.00	12	0.5 %	100.00
23	1.5 %	100.00	14	0.5 %	100.00
25	1.5 %	100.00	16	0.5 %	100.00

Voltage events in the DISDIP table							
10ms<t<100ms	100ms<t<200ms	200ms<t<500ms	500ms<t<1s	1s<t<3s	3s<t<20s	20s<t<1min	1min<t<3min
Overvoltage							
U>200	--	--	--	--	--	--	--
160<U<200	--	--	--	--	--	--	--
140<U<160	--	--	--	--	--	--	--
120<U<140	--	--	--	--	--	--	--
115<U<120	--	--	--	--	--	--	--
Undervoltage							
85<U<90	1	--	--	--	--	--	--
70<U<85	1	2	--	--	--	--	--
40<U<70	--	--	--	--	--	--	--
5<U<40	--	--	--	--	1	--	--
U<5	--	--	--	--	--	--	--

Start time	Duration	Phase	Type	Maximum
19/04/2017 14:09:42	11s 580ms	3p: 2 3	Undervoltage	67.29V
19/04/2017 14:09:42	20ms	3p: 3	Undervoltage	168.2V
20/04/2017 06:16:15	113ms	3p: 1 2 3	Undervoltage	179.6V
21/04/2017 06:44:45	110ms	3p: 2 3	Undervoltage	189.0V
17/04/2017 08:27:01	60ms	3p: 1	Undervoltage	197.2V

PQ Main archive (last 10000 rows) 11/01/2021 00:00:00 - 17/03/2021 10:00:00													
Met	Week	f	1	2	3	u2	1	2	3	1	2	3	1
Yes	22.02.2021	100	100	100	100	100	100	100	100	100	100	100	100
Yes	15.02.2021	100	100	100	100	100	100	100	100	100	100	100	100
Yes	08.02.2021	100	100	100	100	100	100	100	100	100	100	100	100
Yes	01.02.2021	100	100	100	100	100	100	100	100	100	100	100	100
Yes	25.01.2021	100	100	100	100	100	100	100	100	100	100	100	100
Yes	18.01.2021	100	100	100	100	100	100	100	100	100	100	100	100
Yes	11.01.2021	100	100	100	100	100	100	100	100	100	100	100	100

PQ - EN 50160 Week							
Mon	Tue	Wed	Thu	Fri	Sat	Sun	
03.04.	✓	✓	✓	✓	✓	✓	
27.03.	✓	✓	✓	✓	✓	✓	
20.03.	✓	✓	✓	✓	✓	✓	

PQ - Voltage dips					
U<%	0.2	0.5	1	5	60s
90					
80					
70					
40					
5					
U>%	0.5	5	60s	Delete	
120	4			06.03.17	
110	1			17:54:39	

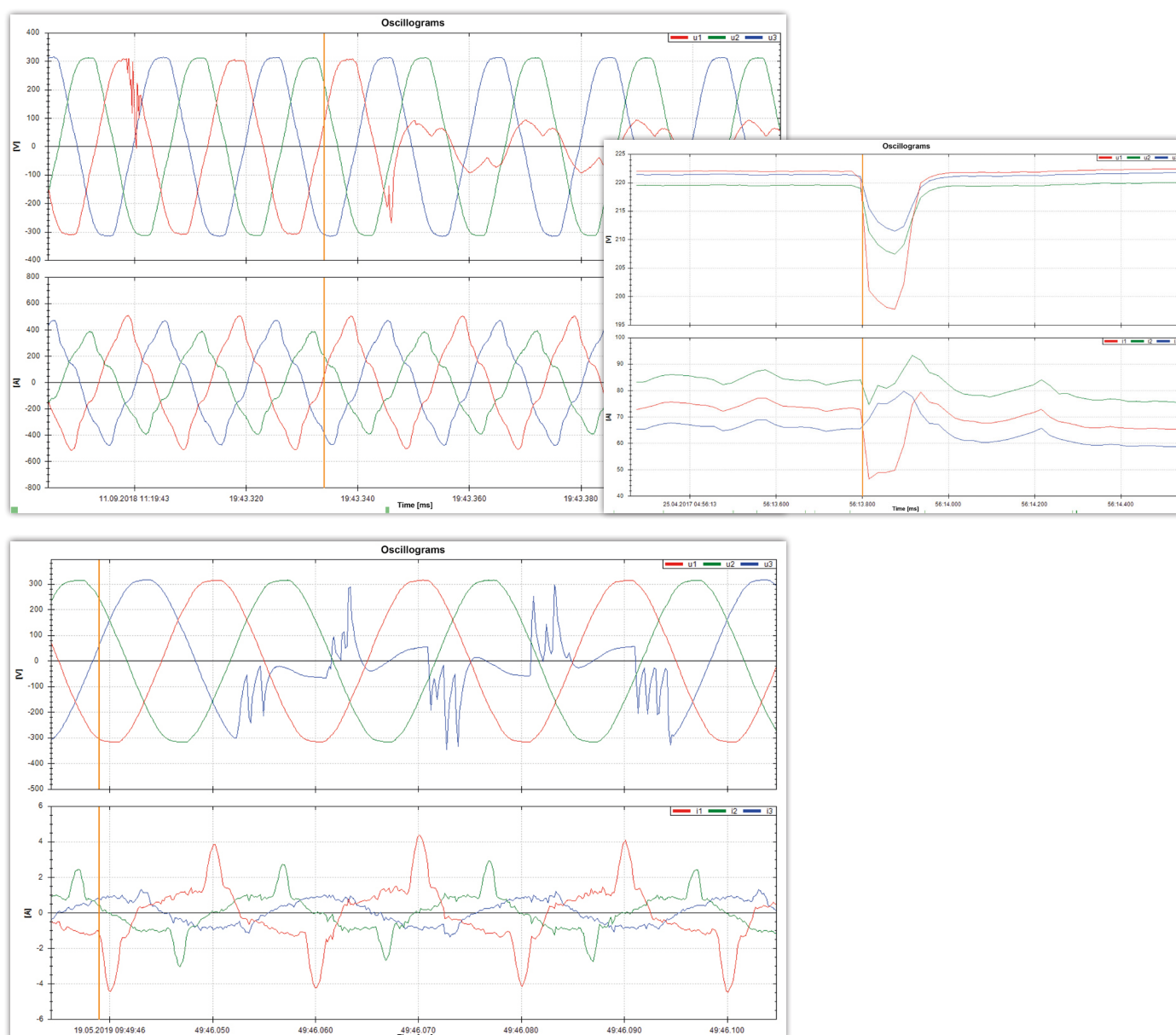
Designation	Description	Availability	Order no.
PQ A	DIN EN 50160 Cl. A	See technical specifications	52.22.1340
PQ S	DIN EN 50160 Cl. S	See technical specifications	52.21.1340

[Download data sheet](#)


GO (General Oscillogram)

Module for capturing and precise recording of various signal distortions and transient events. This module records the "oscillograms" of voltages and current with extended details (up to 288 samples per period) and trigger options in high resolution in the memory. Stored data can be processed in ENVIS or exported to .xls or .csv files for processing in any

third-party application. ENVIS not only allows calculation of the actual value of current and voltage, but also of harmonics, THDs and other values. Averaging of the calculated data can be configured from 1 period.



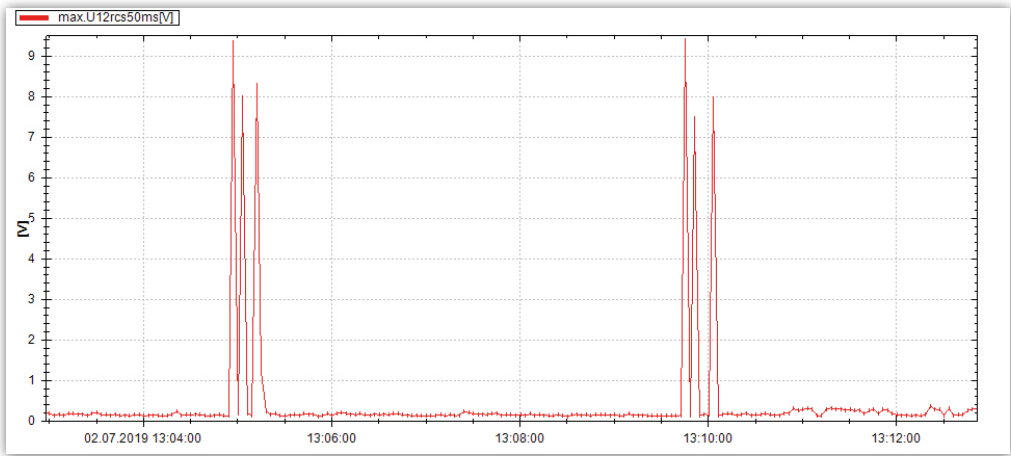
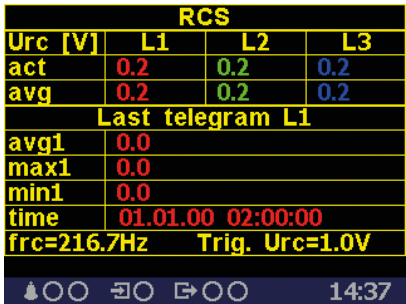
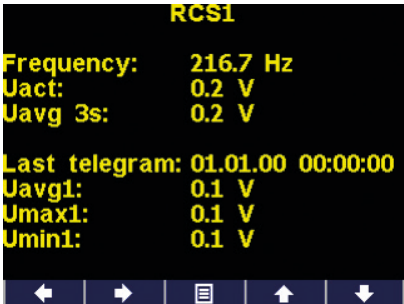
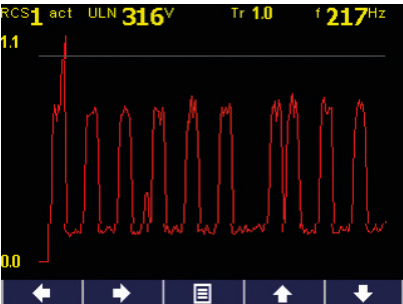
Designation	Description	Availability	Order no.
GO	Oscilloscope function	See technical specifications	53.21.1340

Download
data sheet



RCS (Ripple Control Signals)

The RCS module (for mains or signal voltage) activates the option to detect, evaluate, decode and save different ripple control signals on the monitored current network. The signal frequency can be adjusted manually. The signals are decoded and archived in the internal memory. The signal level can also be displayed live on devices with displays.



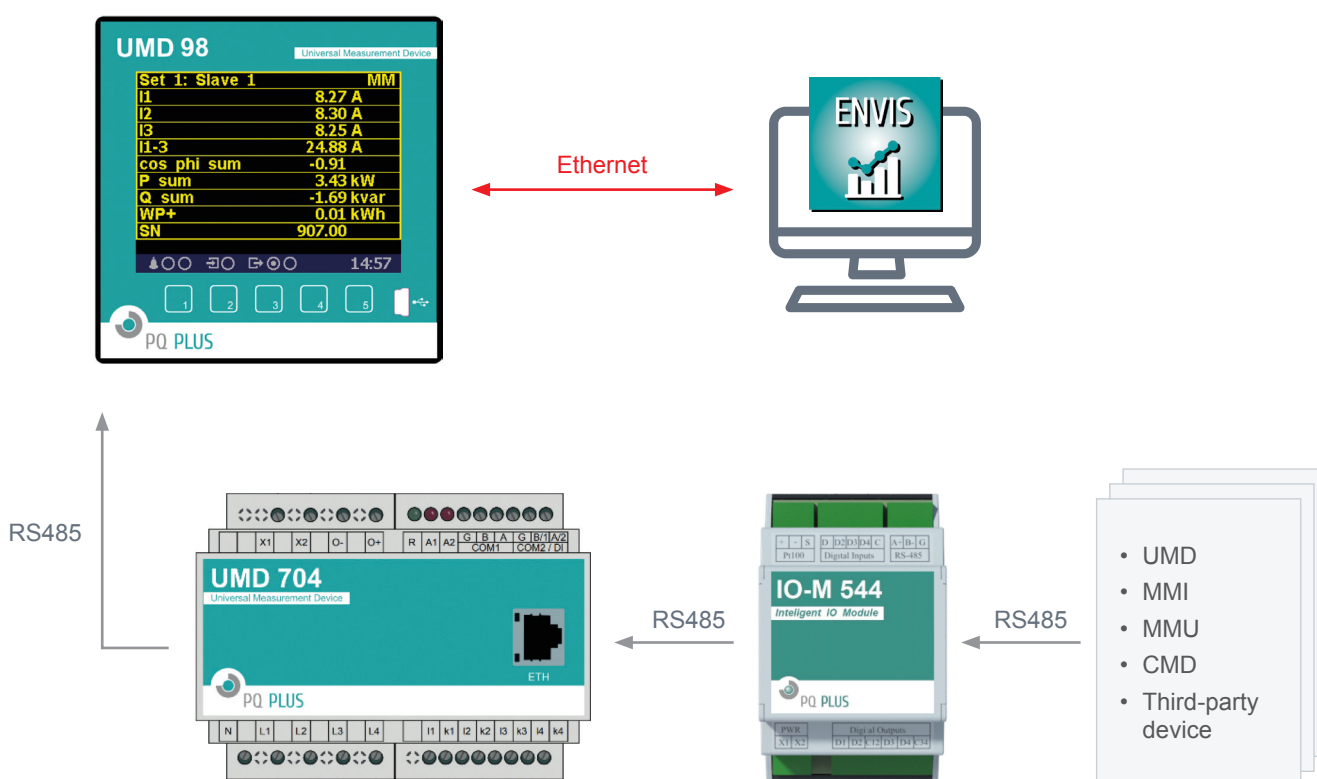
Designation	Description	Availability	Order no.
RCS	Ripple control signals	See technical specifications	54.21.1340

Download
data sheet



MM (ModbusMaster)

This firmware extension collects Modbus data from connected slaves and places it in new register addresses on the master. The slave data can be shown on the display of the master with some built-in door devices and can also be stored on some devices. The MM is required, for example, when using our IO-M extension modules or when connecting outgoing line measurements.



Designation	Mapping	Display	Saving	Availability	Order no.
MM	•	-	-	UMD 705E, UMD 807E	55.21.1340
	•	-	•	MMB 700, UMD 707, UMD 709, UMD 710	
	•	•	•	UMD 97E, UMD 98, UMD 913	

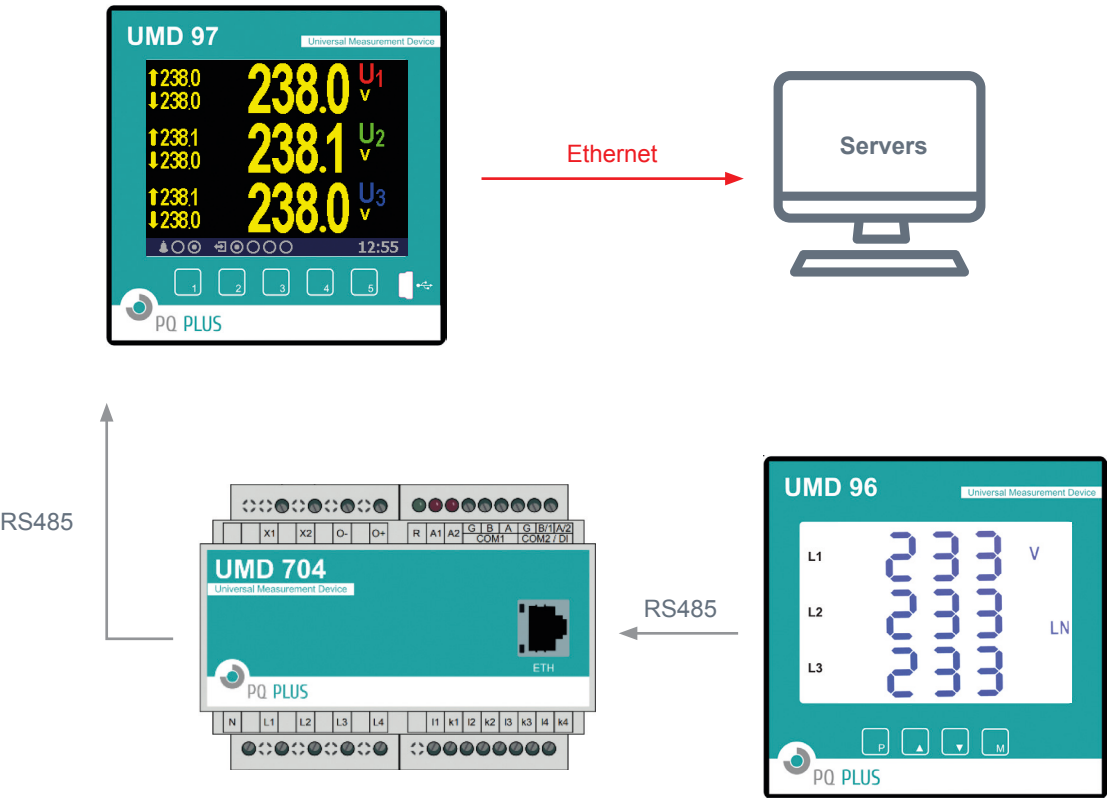
Download
data sheet



UDP Push

The UDP Push (UP module) transmits a defined interval of values for selected variables via the device's Ethernet interface to a specified server. The data receiver can be a normal built-in door device with a display on the cabinet door to show the current values, as well as a publicly accessible dedicated server. The UP module uses a simple open communication

protocol via UDP and does not require any incoming data (queries) on the server side to transmit data. The UP module also activates user-defined functions for reading out archive values via Modbus RTU or TCP on selected devices with internal memory.



Designation	Description	Availability	Order no.
UDP Push	UDP Push	See technical specifications	52.21.1343

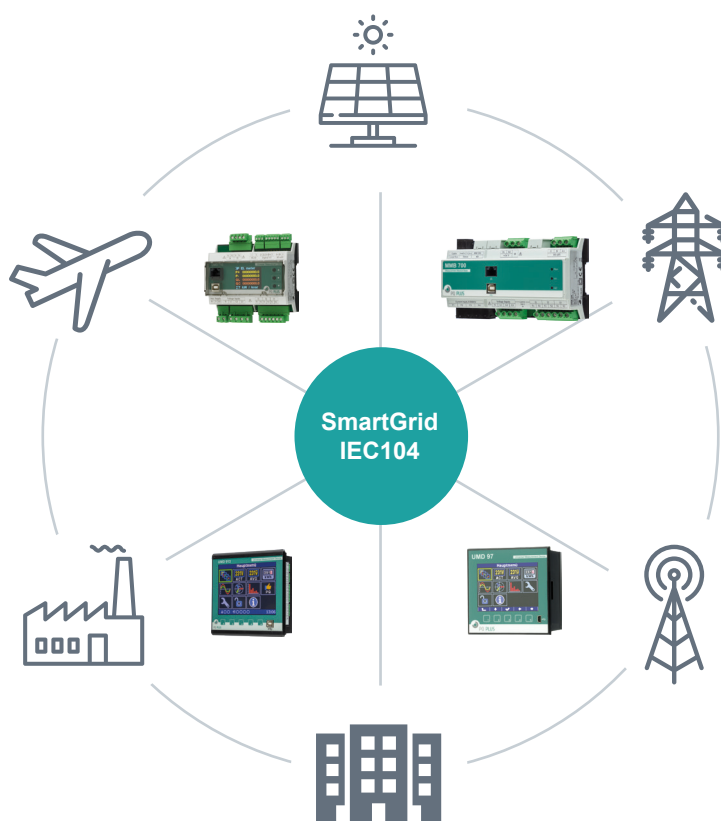
Download
data sheet



IEC104 (telecontrol protocol IEC 60870-5-104)

The smart grid-capable analysers optionally support a telecontrol protocol according to IEC 60870-5-104. The "104 protocol" is one of the most common and manufacturer-independent communication protocols to provide periodic data, as well as events for the monitoring SCADA system in modern power supply and industrial applications. This protocol uses Ethernet and TCP/IP for communication and requires only a simple configuration of the trigger criteria for the basic variables to be operated via this protocol. Each value can be configured independently to be sent periodically with a delta criterion or as a result of an event. For more

complex functionality, our flexible I/O management can also be used or even extended to implement even more demanding requirements. Standard data types and options are supported. Each instrument can also work with an RTU unit to implement other common smart grid and smart metering communication protocols such as DLMS and IEC 61850. The SNMP and MQTT protocols are used for IT infrastructure management and specifically for monitoring the energy of the IoT and the building or computer centre.



Designation	Description	Availability	Order no.
IEC 104	IEC 60870-5-104	See technical specifications	52.21.1345

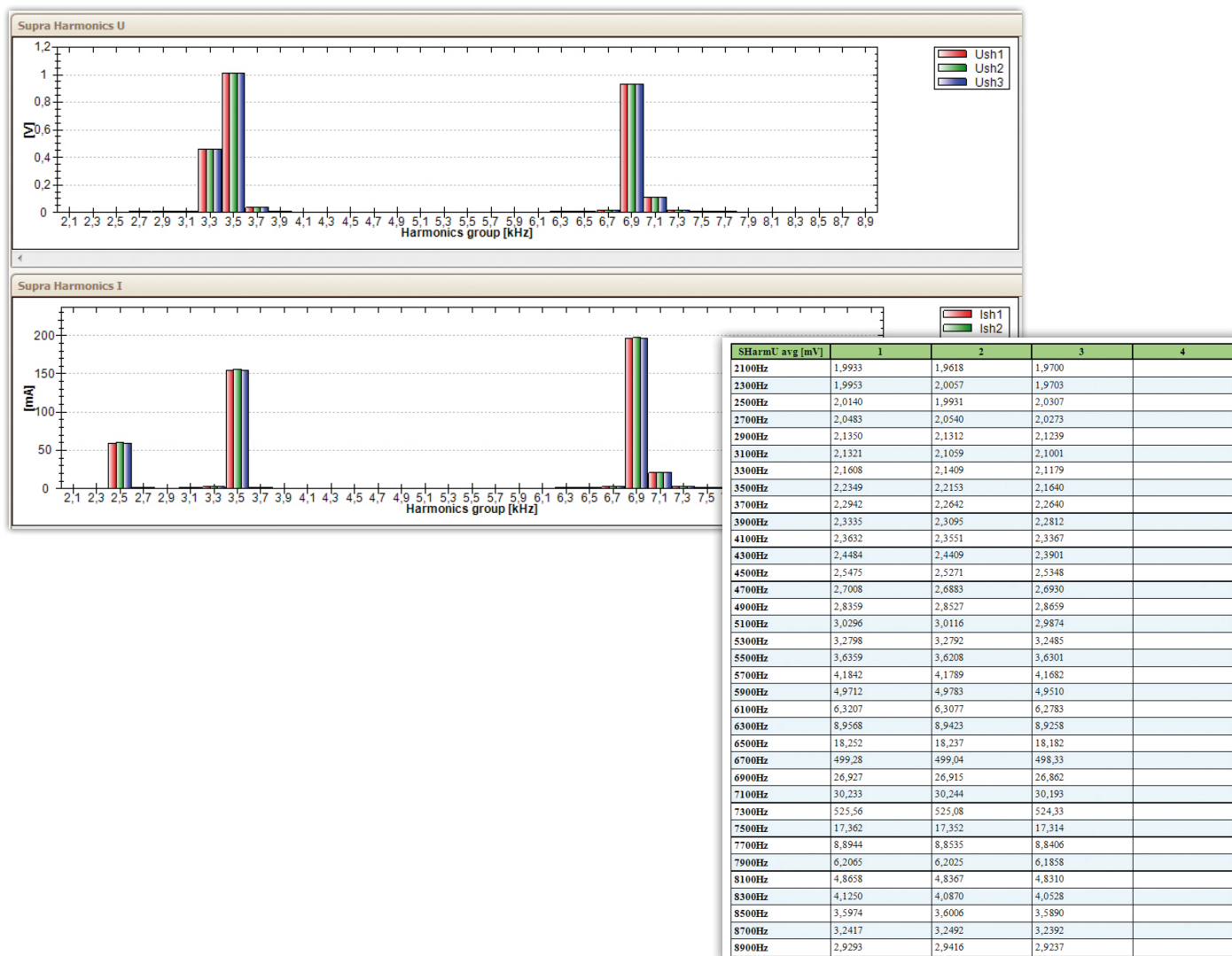
Download
data sheet



SH (Supraharmonic 2 kHz – 9 kHz)

With the SH module, the UMD can measure an extended range of harmonics from 2 kHz to 9 kHz. The “supraharmonics” of voltage and current are measured according to the EN 61000-4-7 ed.2 standard. The spectrum is subdivided into 35 frequency bands, each 200 Hz wide, from which the DFT is calculated by

default. Activating this module activates measurement of the 2 - 9 kHz harmonics and this is visualised in the live data. They are also part of the main archive integrated in the internal memory.



Designation	Description	Availability	Order no.
SH	Supraharmonics	See technical specifications	52.21.1346



Measurement of AC and DC networks

Analysers for frequencies from 0 to 500 Hz.



Aviation

16.7 Hz



Rail



Telecommunication

75 Hz

400 Hz



Military



Photovoltaics

DC



Computing centres



Marine



Charging columns



DC transfer

DC-500 - Option for measuring in networks with an extended frequency range

Our measurement devices are suitable for a range of applications such as power generation (photovoltaics), computing centres, transport (charging stations), telecommunications, aviation and space flight, marine, military (normally 400 Hz), rail in the form of trains and trams (DC, 16.7 Hz) and many more. The aforementioned systems are critical infrastructure and must therefore monitor the power and their power quality. Therefore, many of our devices are not only suitable for use in the usual 50 / 60 Hz networks, but also for DC networks or AC networks with 16.7 Hz, 75 Hz, 400 Hz - 500 Hz for example.

The "DC-500" function can be activated in our measuring devices in order to record voltages and their corresponding values in DC networks. This is possible with almost all UMDs. These devices can be used in networks of up to 500 Hz. For projects where DC currents also have to be measured, we recommend our UMD 701DC or the UMD 707DC. These devices enable Hall current sensors with x/4 V to be connected and therefore enable measurement of direct and alternating currents.

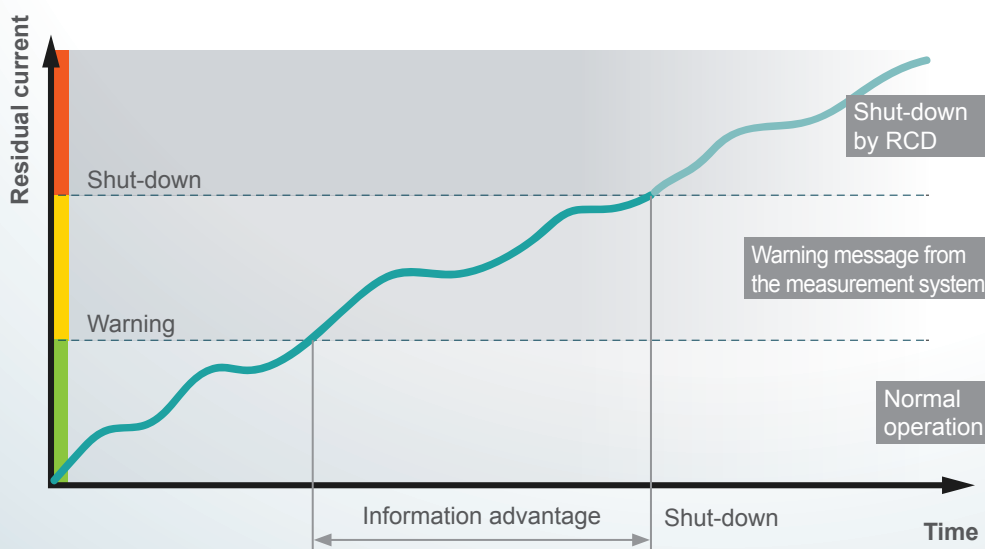
YOUR PLUS
FOR MORE
PERFORMANCE.

Residual current measurement



The residual current monitor calculates and monitors the residual currents in earthed low voltage networks. Calculation is performed as a vectorial sum of all active conductors. Residual currents typically occur due to leakage currents or insulation faults, which are normally due to mechanical faults, faulty components, etc.

By monitoring residual currents, it is possible to issue an error message at a user-defined limit value and to prevent an unwanted complete system shutdown before the residual current circuit breaker (RCCB, RCD) trips. This method can be used by the maintenance staff to perform maintenance and repair work in good time and to prevent unplanned interruptions to operation, which could be very costly.



YOUR PLUS
FOR MORE
PERFORMANCE.

MMD 97 – Mobile PQ measurement device



MMD 97

The MMD 97 mobile measuring case records all voltage quality parameters and logs this data as a single-phase or a three-phase measurement in the low voltage network (230/400 V_{AC}), in distribution networks, in transformer stations, switchgears and as direct consumption measurement on machines and in buildings.

An integrated UMD 97EL in an IP65 plastic housing is the heart.

The device uses the PQ S and GO firmware modules to map all voltage quality functions according to EN 50160.

Application

The case is used for mobile network quality measurements or for comparison measurements of existing measuring equipment.

Standard

INPUTS 3U, 3I	MEASUREMENT U,I,P,Q	PF,cos,THD	+/- Wh,varh	HARMONICS 50	WEBSERVER 	CURRENT INPUT 333mV	STANDARDS class S IEC 61000-4-30
SAMPLING 25,6 kHz	FLASH 512MB	USB 	STANDARDS IEC 61557-12	NTP 	ETH 	IP 65	STANDARDS EN 50160

Optional

FIRMWARE
RCS

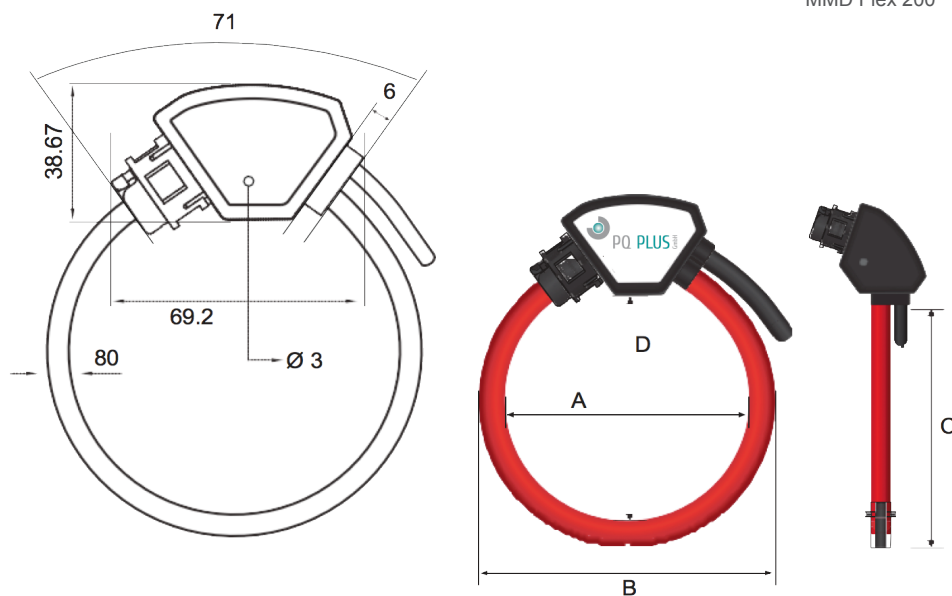
Designation	Functions	Communication	Item number
MMD 97	Network analysis up to the 50th harmonic order	Ethernet, USB	71.42.9110



Transformers

The measuring case is equipped with 333 mV voltage inputs. This enables type MMD Flex Set flexible Rogowski spools to be connected directly.

Model	A	B	C	D	
MMD Flex 80	80	96	285	80	mm
MMD Flex 115	115	141	385	115	mm
MMD Flex 200	200	240	628	200	mm



[3 x KBU FLEX]	I rated [A]	d [mm]	Connection	Auxiliary voltage	Overvoltage category	Item number
MMD FLEX SET 80	300	80	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.38.3336
MMD FLEX SET 115	1000	115	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.38.3337
MMD FLEX SET 115	2500	115	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.38.3338
MMD FLEX SET 200	3000	200	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.38.3341

Other sizes upon request.

Accessories

Magnetic measuring adapter. 4-piece set for voltage tap. Consisting of 1x blue test probe and 3x red test probe.



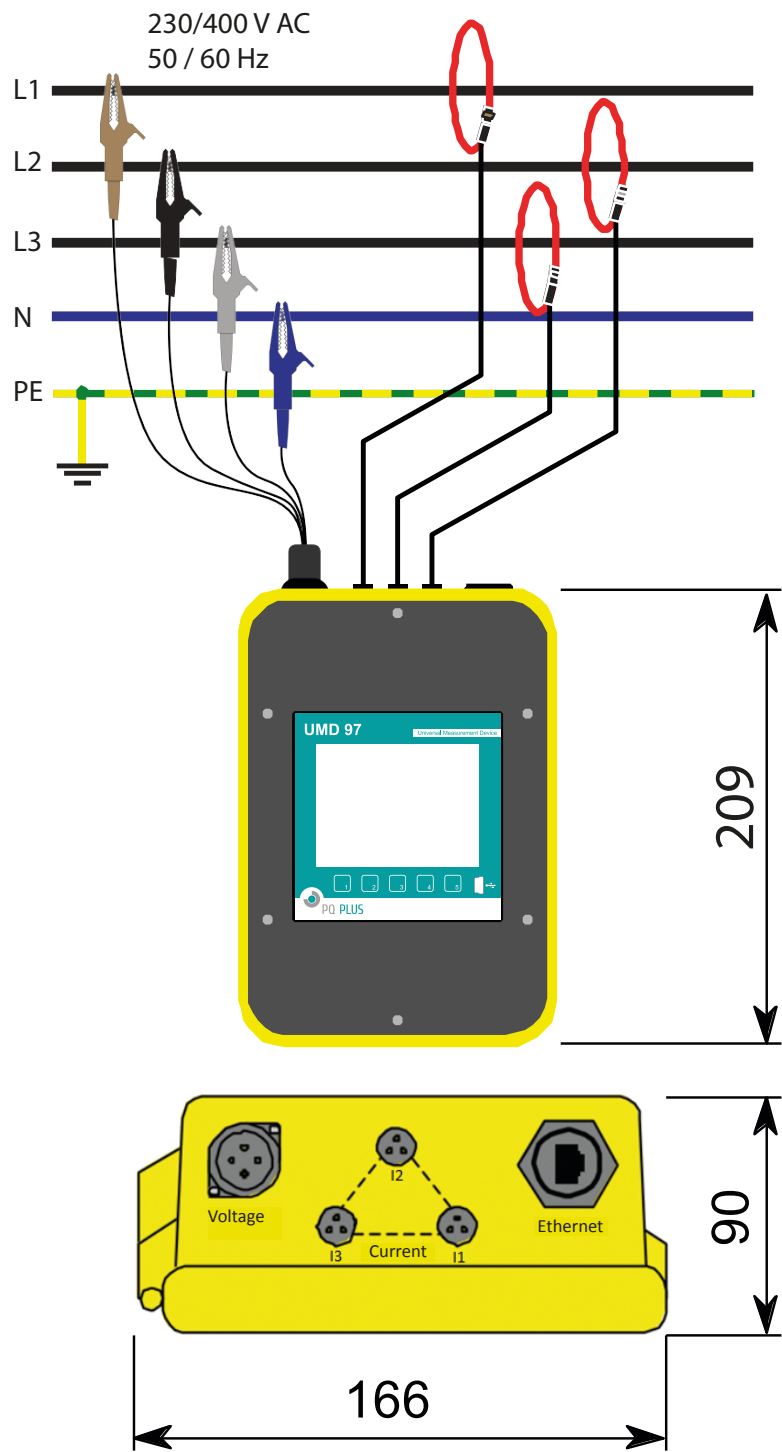
Designation	Socket Ø	Length	Tip Ø	Overvoltage category	Item number
Magnetic measuring adapter S	4 mm	53.6 mm	7 mm	CAT III 1000 V	03.38.4406
Magnetic measuring adapter L	4 mm	75 mm	7 mm	CAT IV 1000 V	03.38.4407

Technical specifications – MMD 97

MMD 97							
Inputs and outputs	Digital inputs/outputs	None					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	None					
	Residual current inputs	None					
	Temperature inputs	None					
Communication	Interfaces	Ethernet, front USB					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 80 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	Off Measurement voltage (L1): 100 - 500 V AC					
	Power input	8 VA / 3 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.2	Current:	Cl. 0.2	Frequency:	Cl. 0.02
		Active power:	Cl. 0.5	Reactive power:	Cl. 1	Apparent power:	Cl. 0.5
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.5	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 10 - 500 V AC					
		U L-L: 20 - 865 V AC					
	Overload voltage	Permanent U L-N: 1000 V AC / peak overload for max. 1 sec. U L-N: 2000 V AC					
	Input impedance voltage	6 MOhm					
	Input load voltage	< 0.05 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	3x 333 mV					
	Overload current	Permanent: 666 mV AC / peak overload for max. 1 sec: 3.33 V AC					
	Input impedance current	> 100 kOhm					
	Input load current	< 3 µVA					
	Sampling rate	25.6 kHz					
	Harmonics per order	1st - 50th for current and voltage					
	Measurement procedure	IEC 61000-4-30 Cl. S					
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity					
	Protection class open / closed	IP 40 / IP 65					
	Dimensions WxHxD	250 x 170 x 100 mm					
	Weight	Max. 2 kg					
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; system frequency; PC time					
FW modules		PQ S: included		GO: included		RCS: optional	
		UDP: optional					

* depending on the variant

Typical connection variant - MMD 97



MMD 98RCM – Mobile PQ measuring device

Download
data sheet

MMD 98RCM

The MMD 98RCM mobile measuring case records all voltage quality parameters and logs this data as single-, three- or four-phase measurement in the low-voltage network (230/400 VAC) in distribution networks in transformer stations, switchgears and as direct consumption measurement on machines and in buildings.

The heart of the system is a built-in UMD 98RCM in an IP65 plastic housing.

The device uses the PQ S and GO firmware modules to map all voltage quality functions according to EN 50160.

Application

The case is used for mobile network quality and residual current measurement, or for comparison measurements of existing measuring equipment.

Standard

INPUTS 3U, 4I	MEASUREMENT U, I, P, Q	PF, cos, THD	+/- Wh, varh	HARMONICS 50	WEBSERVER 	CURRENT INPUT 333mV	STANDARDS class S IEC 61000-4-30
SAMPLING 25,6 kHz	FLASH 512MB	USB 	STANDARDS IEC 61557-12	NTP 	ETH 	IP 65	STANDARDS EN 50160

Optional

FIRMWARE
RCS

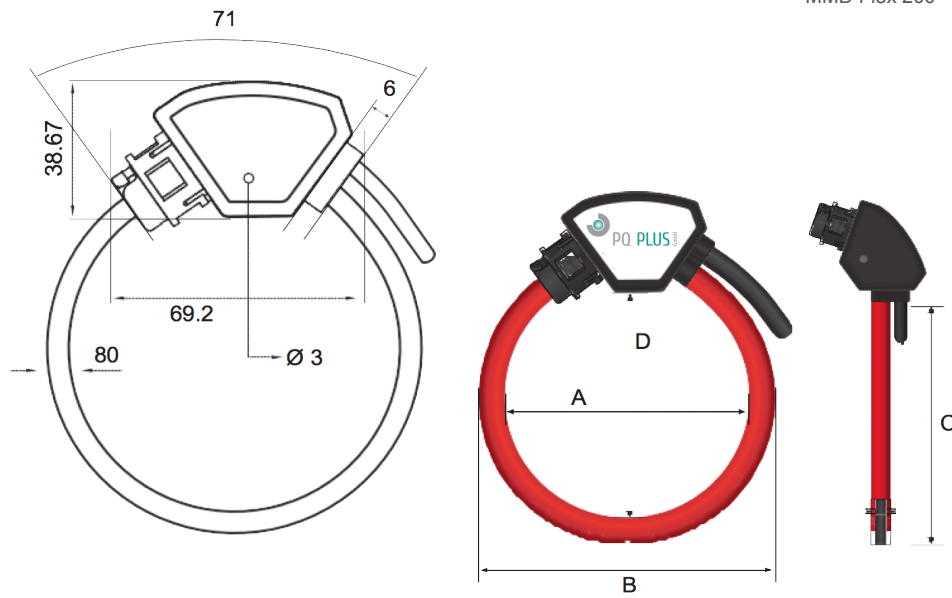
Designation	Functions	Communication	Item number
MMD 98RCM	Network analysis up to the 50th harmonic order	Ethernet, USB	72.56.9110



Transformers

The measuring case is equipped with 333 mV voltage inputs. This enables type MMD Flex Set Rogowski spools to be connected directly.

Model	A	B	C	D	
MMD Flex 80	80	96	285	80	mm
MMD Flex 115	115	141	385	115	mm
MMD Flex 200	200	240	628	200	mm



[4 x KBU FLEX]	I rated [A]	d [mm]	Connection	Auxiliary voltage	Overvoltage category	Item number
MMD 98 FLEX SET 80	300	80	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.39.3336
MMD 98 FLEX SET 115	1000	115	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.39.3337
MMD 98 FLEX SET 115	2500	115	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.39.3338
MMD 98 FLEX SET 200	3000	200	2 m cable	5 VDC 15 mA max	600 V CAT IV	03.39.3341

Other sizes upon request.

Accessories

Magnetic measuring adapter. 4-piece set for voltage tap. Consisting of 1x blue test probe and 3x red test probe.



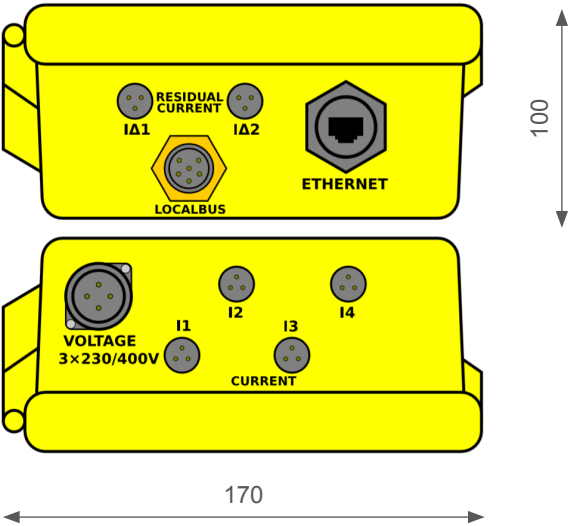
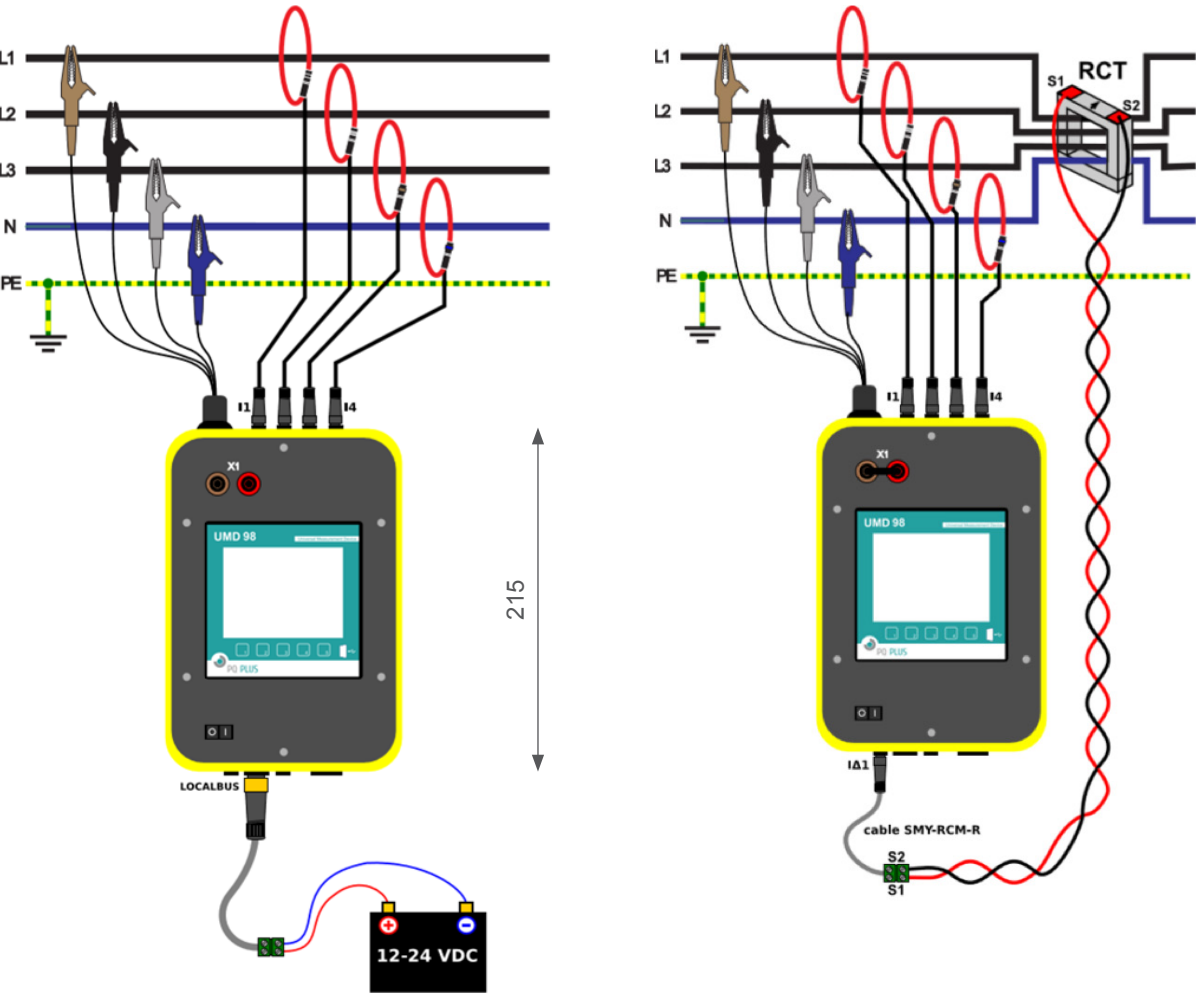
Designation	Socket Ø	Length	Tip Ø	Overvoltage category	Item number
Magnetic measuring adapter S	4 mm	53.6 mm	7 mm	CAT III 1000 V	03.38.4406
Magnetic measuring adapter L	4 mm	75 mm	7 mm	CAT IV 1000 V	03.38.4407

Technical specifications – MMD 98RCM

MMD 98RCM							
Inputs and outputs	Digital inputs/outputs	None					
	Relay inputs/outputs	None					
	Analogue inputs/outputs	2 inputs (for RCM or as 0/4 - 20 mA)					
	Residual current inputs						
	Temperature inputs	None					
Communication	Interfaces	Ethernet, front USB, local bus					
	Communication protocols	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 80 °C					
Data logger	Storage capacity and allocation	512 MB flash freely partitionable into several archives					
	Measured value storage	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	Over measurement voltage (L1): 100 - 500 V AC					
		External: 10 - 36 V DC					
	Power input	8 VA / 4 W; external: 5 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.2	Current:	Cl. 0.2	Frequency:	Cl. 0.02
		Active power:	Cl. 0.5	Reactive power:	Cl. 1	Apparent power:	Cl. 0.5
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.5	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 10 - 625 V AC (with external supply)					
		U L-L: 20 - 1090 V AC (with external supply)					
	Overload voltage	Permanent U L-N: 1000 V AC / peak overload for max. 1 sec. U L-N: 2000 V AC					
	Input impedance voltage	6 MOhm					
	Input load voltage	< 0.05 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	4x 333 mV					
	Overload current	Permanent: 666 mV AC / peak overload for max. 1 sec: 3.33 V AC					
	Input impedance current	> 100 kOhm					
	Input load current	< 3 µVA					
	Sampling rate	25.6 kHz					
	Harmonics per order	1st - 50th for current and voltage					
	Measurement procedure	IEC 61000-4-30 Cl. S					
Mechanical attributes	Operating temperature range	-25 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity					
	Protection class open / closed	IP 40 / IP 65					
	Dimensions WxHxD	250 x 170 x 100 mm					
	Weight	Max. 2 kg					
Internal real-time clock	Accuracy	+/- 2 s per day at 0 - 40 °C					
	Possible synchronisation	NTP/SNTP; system frequency; PC time					
FW modules		PQ S: included	GO: included		RCS: optional		
		UDP: optional	IEC104: optional				

* depending on the variant

Typical connection variant - MMD 98RCM



CMD 68-MID - Three-phase energy meter



The CMD 68-MID is a modern three-phase energy meter for the DIN rail. It determines active and reactive energy in class B, as well as other electrical measured values (U/I/P).

Features

- Electronic three-phase meter
- DIN35 rail installation
- Only 4 TE width
- Measures 3-phase current and voltage in 4-quadrant mode
- Transformer measurement or direct measurement up to 100 A
- Active and reactive energy recording of delivery and supply
- MID - Conformity for accounting purposes
- S0 - Pulse outputs for both energy directions
- Calibration validity period: 8 years
- Communication: S0, M bus or Modbus
- Use in 230 / 400 V networks
- 6.2 digit LCD display with backlight
- Convenient operation via function keys
- Resettable secondary counter
- 2 tariffs



Application

The device is used to measure consumption in low-voltage main distribution and sub-distribution systems for ISO 50001. It can also be used for sub-accounting according to MID. Interfaces can be used to use it in control systems for cost centre billing and to include it in energy management systems.

Designation	Functions	Communication	Item number
CMD 68-51MID	Transformer measurement N/1 and 5 A	2 S0 pulse outputs	26.68.0051
CMD 68-52MID	Transformer measurement N/1 and 5 A	Modbus + 2xS0	26.68.0052
CMD 68-53MID	Transformer measurement N/1 and 5 A	M bus + 2xS0	26.68.0053
CMD 68-101MID	100 A direct measurement	2 S0 pulse outputs	26.68.0101
CMD 68-102MID	100 A direct measurement	Modbus + 2xS0	26.68.0102
CMD 68-103MID	100 A direct measurement	M bus + 2xS0	26.68.0103
Programming software with IR probe and TK bracket			26.68.0001

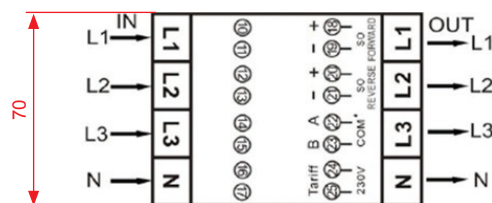
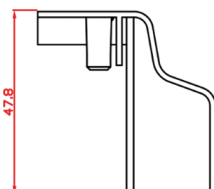
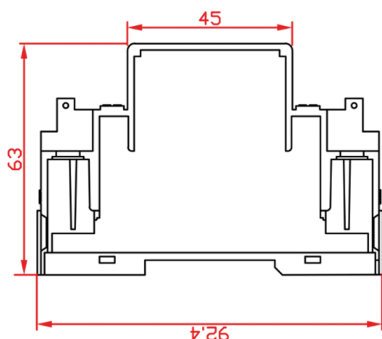
CMD 68-5MID - Three-phase energy meter

Download
data sheet



Transformer measurement N/1 and 5 A

Technical data	Type		
	CMD 68-51MID	CMD 68-52MID	CMD 68-53MID
Item number	26.68.0051	26.68.0052	26.68.0053
Communication	2 S0 pulse outputs	Modbus + 2x S0	M bus + 2x S0
Baud rate (bits/sec)	-	300-9600	300-9600
Voltage (U)	3x 230 / 400 V	3x 230 / 400 V	3x 230 / 400 V
Current (I)	1.5/6 A	1.5/6 A	1.5/6 A
Frequency (Hz)	50 Hz	50 Hz	50 Hz
Measurement size	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction
Meter type	illuminated LC display	illuminated LC display	illuminated LC display
Digits	5.3	5.3	5.3
Accuracy	B	B	B
Own consumption per phase	<2 W	<2 W	<2 W
Temperature range	-25 - 55 °C	-25 - 55 °C	-25 - 55 °C
Protection class	IP 51	IP 51	IP 51
Maximum wire cross section	10 mm²	10 mm²	10 mm²
Maximum wire cross section for additional terminals	2.5 mm²	2.5 mm²	2.5 mm²
Dimensions (WxHxD)	70 x 140 x 63 mm	70 x 140 x 63 mm	70 x 140 x 63 mm
Weight	0.28 kg	0.28 kg	0.28 kg
Non-return device	yes	yes	yes
Number of tariffs	2	2	2
Pulse outputs	10,000 pulses/ kWh	10,000 pulses/ kWh	10,000 pulses/ kWh

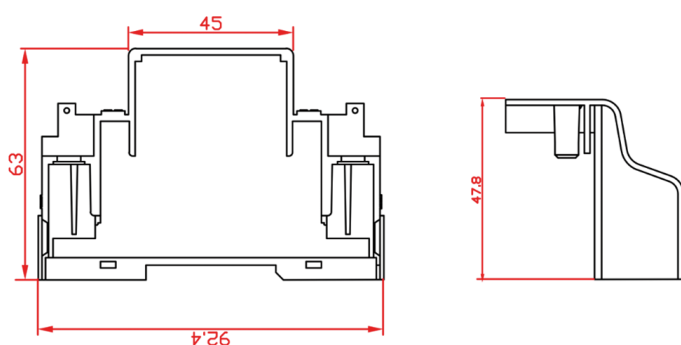


CMD 68-100MID - Three-phase energy meter

Download
data sheet

Direct measurement, 3-phase

Technical data	Type		
	CMD 68-101MID	CMD 68-102MID	CMD 68-103MID
Item number	26.68.0101	26.68.0102	26.68.0103
Communication	2 S0 pulse outputs	Modbus + 2x S0	M bus + 2x S0
Baud rate (bits/sec)	-	300-9600	300-9600
Voltage (U)	3x 230 / 400 V	3x 230 / 400 V	3x 230 / 400 V
Current (I)	5(100) A	5(100) A	5(100) A
Frequency (Hz)	50 Hz	50 Hz	50 Hz
Measurement size	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction
Meter type	illuminated LC display	illuminated LC display	illuminated LC display
Digits	6.2	6.2	6.2
Accuracy	B	B	B
Own consumption per phase	<2 W	<2 W	<2 W
Temperature range	-25 - 55 °C	-25 - 55 °C	-25 - 55 °C
Protection class	IP 51	IP 51	IP 51
Maximum wire cross section	35 mm ²	35 mm ²	35 mm ²
Maximum wire cross section for additional terminals	2.5 mm ²	2.5 mm ²	2.5 mm ²
Dimensions (WxHxD)	70 x 140 x 63 mm	70 x 140 x 63 mm	70 x 140 x 63 mm
Weight	0.34 kg	0.34 kg	0.34 kg
Non-return device	yes	yes	yes
Number of tariffs	2	2	2
Pulse outputs	1,000 pulses/ kWh	1,000 pulses/ kWh	1,000 pulses/ kWh



CMD 68M - Three-phase adapter meter

Download
data sheet



Direct measurement, 3-phase

- Electronic three-phase meter
- Active energy recording
- Single tariff
- with CEE plug and connector
- Can be used in any position
- Active and reactive energy recording
- Two-way measurement
- Additional display of:
Current, voltage, power, cos phi, frequency
- Communication on demand



Technical data	Type		
	CMD 68M-161	CMD 68M-321	CMD 68M-631
Item number	26.68.1101	26.68.2101	26.68.3101
Voltage (U)	3x 230 / 400 V	3x 230 / 400 V	3x 230 / 400 V
Current (I)	16 A	32 A	63 A
Frequency (Hz)	50 Hz	50 Hz	50 Hz
Measurement size	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction
Meter type	LC display with backlight	LC display with backlight	LC display with backlight
Digits	6.2	6.2	6.2
Accuracy	B	B	B
Own consumption	< 2 VA	< 2 VA	< 2 VA
Temperature range	-25 - 55 °C	-25 - 55 °C	-25 - 55 °C
Protection class	IP 44	IP 44	IP 44
Weight	1.1 kg	1.1 kg	1.1 kg
Maximum wire cross section	2.5 mm²	2.5 mm²	2.5 mm²
Dimensions (WxHxD)	85 x 230 x 110 mm	85 x 230 x 110 mm	85 x 230 x 110 mm
Plug design	CEE plug	CEE plug	CEE plug
Additional equipment			
Non-return device	yes	yes	yes
Number of tariff structures	1	1	1
Pulse output	on request	on request	on request
M bus	on request	on request	on request
KNX bus	on request	on request	on request
LAN (TCP/IP)	on request	on request	on request
RS 485	on request	on request	on request
Usability for accounting purposes			
Approval	MID conformity	MID conformity	MID conformity
Calibration validity period	8 years	8 years	8 years

CMD 68-45x - Alternating current energy meter

Download
data sheet



The CMD 68 45xMID is a modern alternating current energy meter for the DIN rail. It determines active and reactive energy in class B, as well as other electrical measured values (U/I/P).

Features

- Electronic alternating current meter
- DIN35 rail installation
- 1 TE width
- Measures 1-phase current and voltage in 4-quadrant mode
- Direct measurement up to 45 A
- Active and reactive energy recording of delivery and supply
- MID - Conformity for accounting purposes
- S0 - Pulse output for both energy directions
- Calibration validity period: 8 years
- Communication: S0, M bus or Modbus
- Use in 230 V networks
- 6.2 digit LCD display with backlight
- Convenient operation via function keys
- Resettable secondary counter
- 2 tariffs



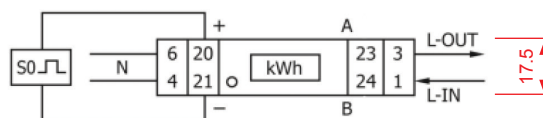
Application

The device is used to measure consumption in low-voltage main distribution and sub-distribution systems for ISO 50001. It can also be used for sub-accounting according to MID. Interfaces can be used to use it in control systems for cost centre billing and to include it in energy management systems.

Designation	Functions	Communication	Item number
CMD 68-451	45 A direct measurement	1 S0 pulse output	26.68.0451
CMD 68-452	45 A direct measurement	Modbus + 1x S0	26.68.0452
CMD 68-453	45 A direct measurement	M bus + 1x S0	26.68.0453

Technical drawing of a mechanical part showing front and side views with dimensions:

- Front View (Left):**
 - Overall width: 90
 - Top width: 45
 - Overall height: 63
 - Height of the lower section: 46.8
- Side View (Right):**
 - Overall height: 48
 - Top width: 15
 - Bottom width: 35.5
 - Bottom-most width: 13



CMD 68M-451 - Alternating current adapter meter

[Download data sheet](#)


Direct measurement, 1-phase

- Electronic alternating current meter
- LC display with backlight
- Active and reactive energy recording in delivery and supply direction
- Display of energy quality characteristics (current, voltage and power per phase)
- Single tariff
- with Schuko plug and connector
- Cable length: 2 x 50 cm
- Communication on demand



	Type
Technical data	CMD 68M-451
Item number	26.68.1451
Voltage (U)	230 V
Current (I)	16 A
Frequency (Hz)	50 Hz
Measurement size	Active and reactive energy in delivery and supply direction
Meter type	LC display with backlight
Digits	5.2
Accuracy	B
Own consumption	< 2 W
Temperature range	-25 - 55 °C
Protection class	IP 44 (cable) IP54 (housing)
Weight	0.9 kg
Maximum wire cross section	2.5 mm ²
Dimensions (WxHxD)	85 x 155 x 50 mm
Plug design	Schuko
Additional equipment	
Non-return device	yes
Number of tariff structures	1
Pulse output	no
KNX bus	no
LAN (TCP/IP)	no
RS 485	no
Usability for accounting purposes	
Approval	MID conformity
Calibration validity period	8 years

CMD 68-V2 MID - Network energy meter

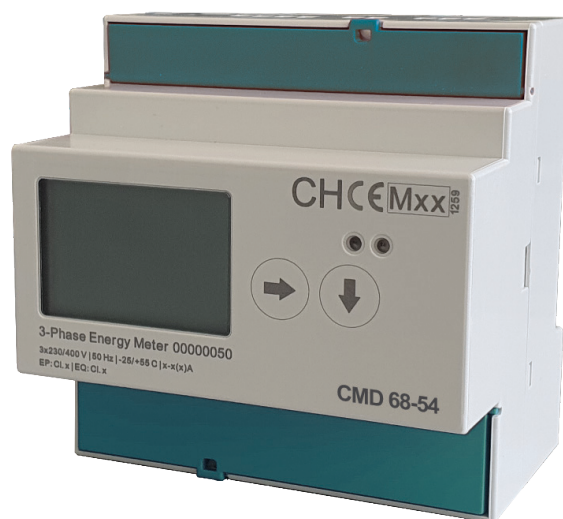
Download
data sheet



Transformer measurement N/1 and N/5 A Direct measurement up to 100 A

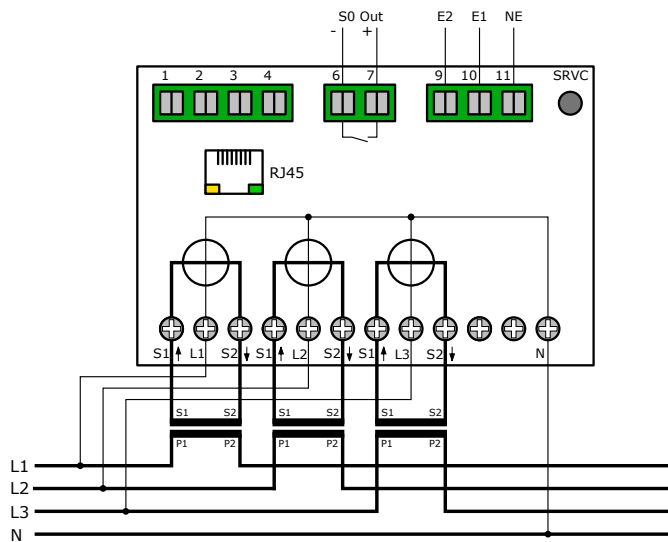
Features

- MID B+D approval
- 15-minute load profile storage with memory depth of over 3 years
- TCP/IP interface with integrated web server, NTP, Modbus TCP and API
- Obtaining the network configuration via DHCP
- Log book for calibration-relevant events and configuration changes
- Illuminated, large and easy-to-read LCD display
- Environmental classes: E2, M2

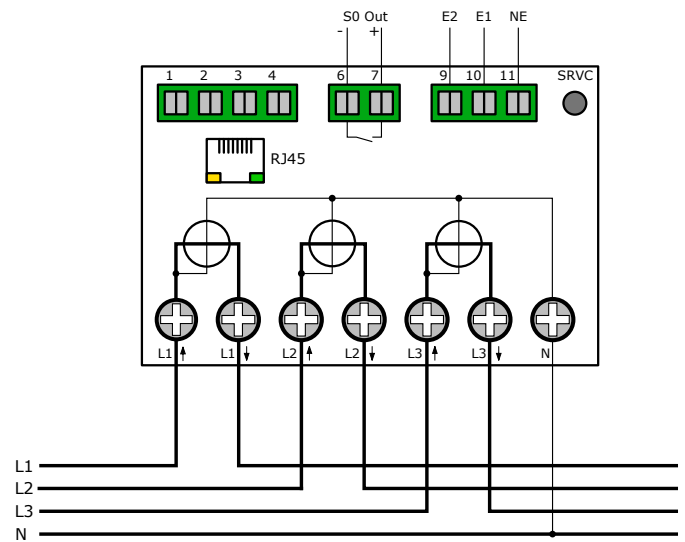


Technical data	Type	
	CMD 68-54V2 MID	CMD 68-104V2 MID
Item number	26.68.4054	26.68.4104
Communication	Modbus TCP + 1x S0	Modbus TCP + 1x S0
Voltage (U)	3x 230 / 400 V	3x 230 / 400 V
Current (I)	1 / 5 A	100 A
Frequency (Hz)	50 Hz	50 Hz
Measurement size	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction
Meter type	illuminated LC display	illuminated LC display
Digits	7.1	7.1
Accuracy	B	B
Own consumption per phase	0.8 W	0.8 W
Temperature range	-25 - 55 °C	-25 - 55 °C
Terminal / housing protection class	IP20 / IP51	IP20 / IP51
Maximum wire cross section	6 mm²	35 mm²
Maximum wire cross section for additional terminals	2.5 mm²	2.5 mm²
Dimensions (WxHxD)	90 x 91 x 72 mm	90 x 91 x 72 mm
Weight	0.33 kg	0.33 kg
Non-return device	yes	yes
Number of tariffs	4	4
Pulse outputs	0.001 to 10,000 pulses / kWh Configurable via keys	0.001 to 10,000 pulses / kWh Configurable via keys

Typical connection variant

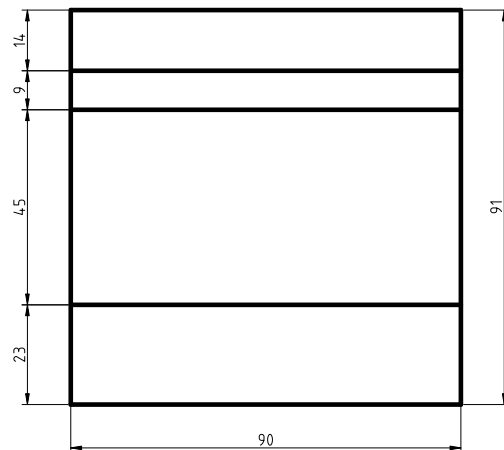
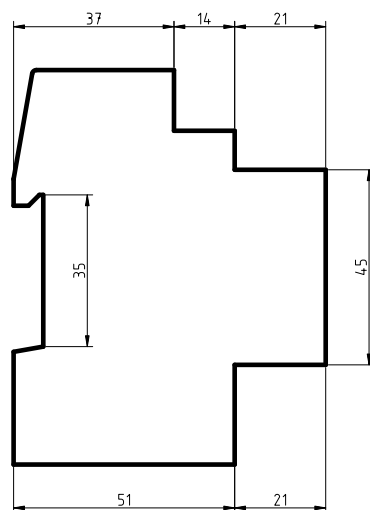


CMD 68-54V2 MID



CMD 68-104V2 MID

Dimensional drawings



CMD EEG-CLP - Load profile meter

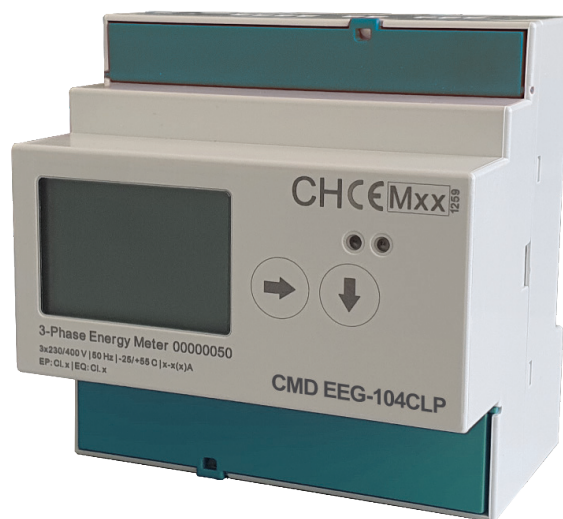
Download
data sheet



Transformer measurement N/1 and N/5 A Direct measurement up to 100 A

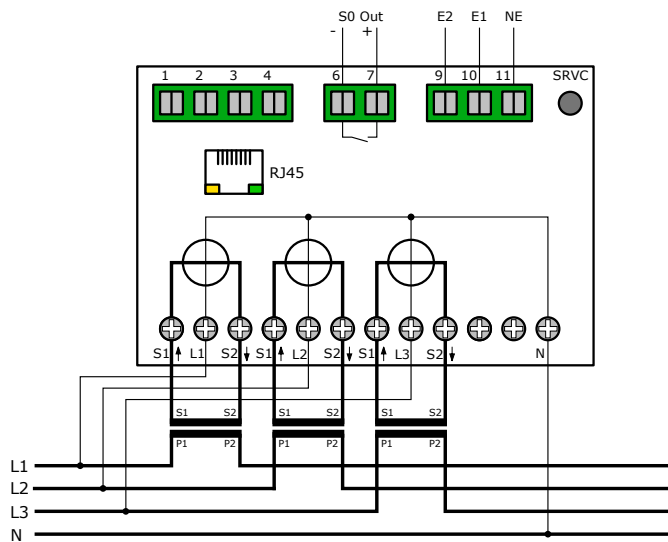
Features

- PTB-A 20.1 and PTB-A 50.7 approval
- MID B+D approval
- 15-minute load profile storage with memory depth of over 3 years
- TCP/IP interface with integrated web server, NTP, Modbus TCP and API
- Log book for calibration-relevant events and configuration changes
- Illuminated, large and easy-to-read LCD display
- Environmental classes: E2, M2

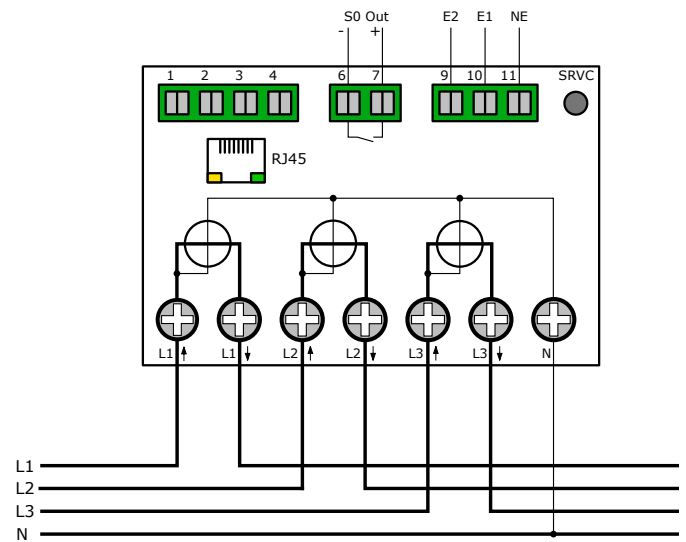


Technical data	Type	
	CMD EEG-54CLP	CMD EEG-104CLP
Item number	26.70.0054	26.70.0104
Communication	Modbus TCP + 1x S0	Modbus TCP + 1x S0
Voltage (U)	3x 230 / 400 V	3x 230 / 400 V
Current (I)	1 / 5 A	100 A
Frequency (Hz)	50 Hz	50 Hz
Measurement size	Active and reactive energy in delivery and supply direction	Active and reactive energy in delivery and supply direction
Meter type	illuminated LC display	illuminated LC display
Digits	7.1	7.1
Accuracy	B	B
Own consumption per phase	0.8 W	0.8 W
Temperature range	-25 - 55 °C	-25 - 55 °C
Terminal / housing protection class	IP20 / IP51	IP20 / IP51
Maximum wire cross section	6 mm²	35 mm²
Maximum wire cross section for additional terminals	2.5 mm²	2.5 mm²
Dimensions (WxHxD)	90 x 91 x 72 mm	90 x 91 x 72 mm
Weight	0.33 kg	0.33 kg
Non-return device	yes	yes
Number of tariffs	4	4
Pulse outputs	0.001 to 10,000 pulses / kWh Configurable via keys	0.001 to 10,000 pulses / kWh Configurable via keys

Typical connection variant

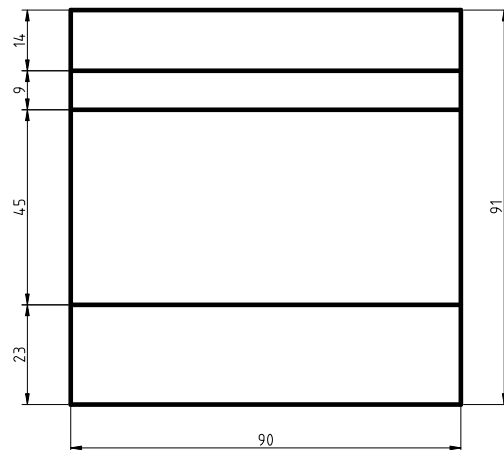
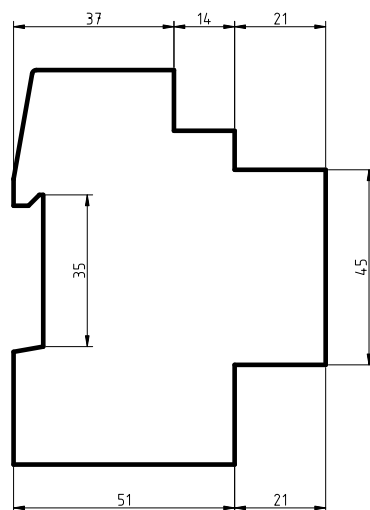


CMD EEG-54CLP



CMD EEG-104CLP

Dimensional drawings



PQ M centre

Download
data sheet



PQ M centre

Automated meter reading guarantees fault-free and continuous data recording for later analysis and billing according to ISO 50001. All energy meters (e.g. electricity, water, heat, gas) with an M bus interface according to EN 13757-2,-3 are read out via a 2-wire line. A corresponding, simple user interface is used for configuration and data evaluation via an IP address with any common web browser.

In addition to the MID energy meters, the UMD 96M and UMD 704M can be connected to the PQ M centre. There is enough space for your energy data on the micro SD card (16 / 32 GB).

Features

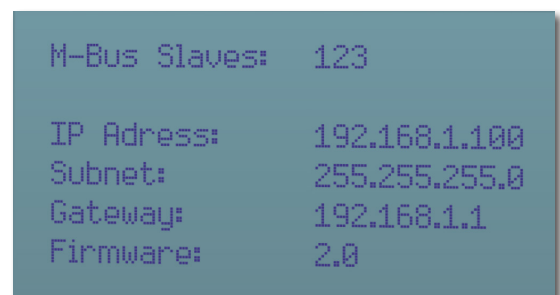
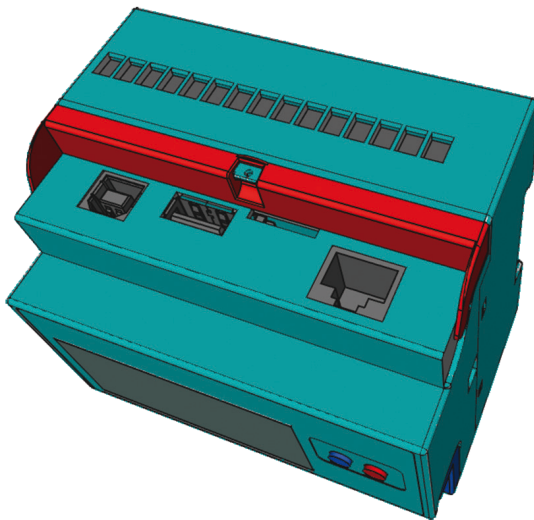
- Web server for graphical evaluation and professional data processing
- CSV, JSON, FTP upload
- IoT & Industry 4.0 ready
- M bus to BACnet IP gateway
- Firmware update & backup

Connections



Graphical LCD

Graphical 60x30 mm graphical LCD with background lighting for user-friendly configuration of the network settings.



Interfaces	1 x USB type A 1 x USB type B 1 x Ethernet 10/100 base RJ45
Inputs	3 x M bus 4 x S0 pulse input 2 x temperature PT1000
outputs	2 x relay
Operating voltage	24 VDC
Current consumption	Max. 1 A

Designation	Number of devices	Item number
PQ M centre 20	up to 20 M bus devices	26.68.1020
PQ M centre 60	up to 60 M bus devices	26.68.1060
PQ M centre 120	up to 120 M bus devices	26.68.1120
PQ M centre 250	up to 250 M bus devices	26.68.1250

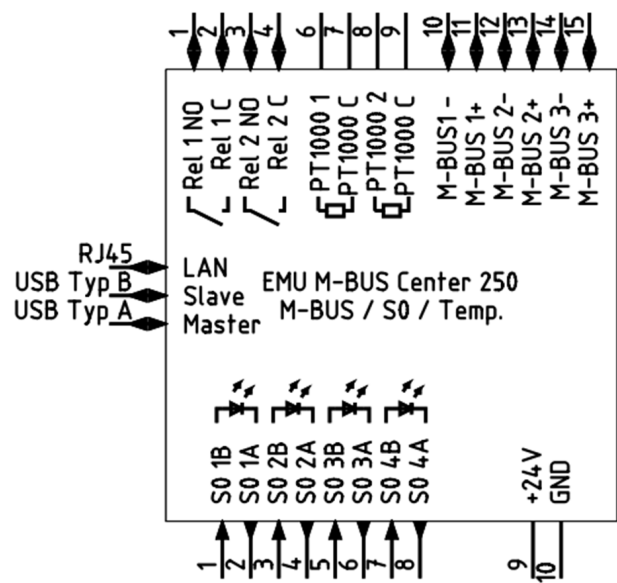
PQ M centre

Technical specifications

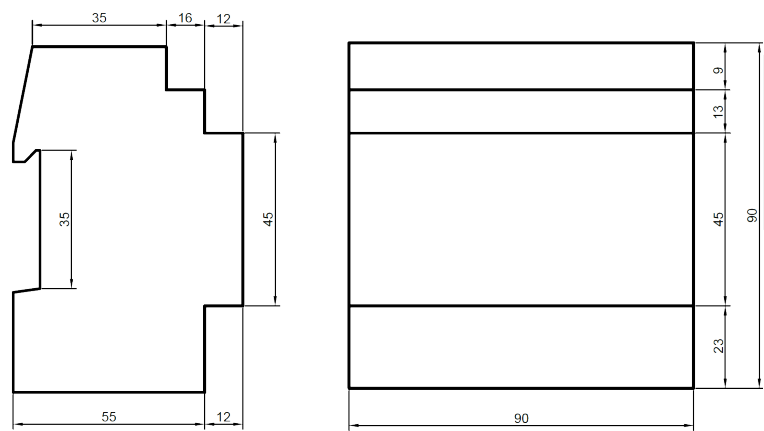
PQ M centre		
Inputs and outputs	Digital inputs/outputs	4 pulse inputs
	Relay inputs/outputs	2 outputs
	Analogue inputs/outputs	None
	Residual current inputs	None
	Temperature inputs	2 Pt1000 inputs -10 - 60 °C
Communication	Interfaces	3x M bus, Ethernet, USB-A, USB-B
	Communication protocols	M bus, BACnet IP, JSON, FTP
Further functions	Level converter	High-performance level converter integrated
	Data exports	.csv and JSON file, other formats upon request
Data logger	Storage capacity*	16 GB / 32 GB microSD card
	Measured value storage	Freely configurable measured values at different intervals
Electrical connection	Supply voltage	24 V variant: 20 - 28 V DC
	Power input	Max. 24 W
	Overvoltage category	CAT III / 300 V
M bus	Compatibility	Electric, heat, water, gas meters with M bus specified according to EN 13757-2, -3
	Max. current load*	375 mA (250x 1.5 mA)
	Baud rates	300, 600, 1200, 2400, 4800, 9600
	Addressing	Primary or secondary addressing
	Send application reset code	Yes (can be deactivated)
	Send SND_NKE	Yes (can be deactivated)
BACnet IP	Device profile	B-ASC
	Function	M bus to BACnet IP gateway
	Additional function	BBMD
Mechanical attributes	Operating temperature range	0 - 55 °C at < 95 % relative humidity
	Protection class	IP 20
	Dimensions WxHxD	90 x 90 x 67 mm
	Weight	0.4 kg
Internal real-time clock	Possible synchronisation	NTP/SNTP

* depending on the variant

Typical connection variant



Dimensional drawings



Solution for complete digitisation
of the energy distribution network



Your digitally
tailored suit that
grows with you

Digital
distribution
network

Complete solution for
the modern energy supplier

The first coordinated system solution for hardware and software.
From the local substation to the network control room, digitisation
is economical, efficient and future-oriented.

System solution

What is GridCal?

GridCal supports you on your way to the economic and efficient digitisation of your distribution network. The secret lies in the combination of decentralised and centralised components that provide the best of both worlds for you.

Decentrally, the GridCal node in the network station, together with the local network, forms a single cell that acts independently of the control centre.

In each cell,...

... all important information is recorded continuously in high resolution, processed meaningfully, evaluated and stored for on-demand retrieval.

... different employee requirements for the network information are prepared individually and displayed via a web browser.

... the networks are simulated simultaneously, monitored and participants in the network are controlled in real time.

In the control centre, the Grid-Cal operator supports you in collecting all essential information from the individual grid cells. The high-resolution raw data remains in the local network station.

With GridCal, you exchange estimates and assumptions for real knowledge based on real measurement data.

from a single source

Our development guidelines:

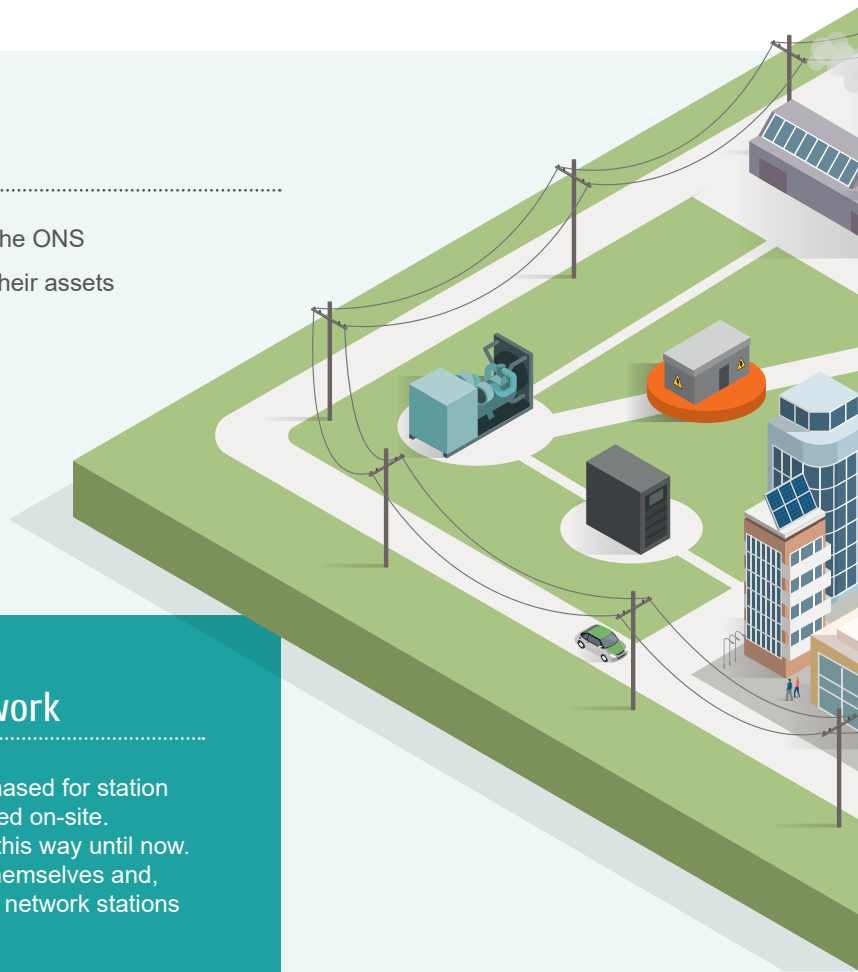
- Decentralised processing of high-resolution data on site in the ONS
- Scalability through central management of all stations and their assets
- Creating a cellular system without the need for a cloud
- Enable the network operator to operate the system itself
- Overall system flexible based on the modular principle
- Security by design according to BSI guidelines
- Data sovereignty lies with the operator from the outset
- Developed by experts for experts

Your path to the digital distribution network

Up to now, numerous individual components had to be purchased for station digitisation and then laboriously assembled and commissioned on-site. Economical digitisation in the area has not been possible in this way until now. The GridCal components create synergistic effects among themselves and, thanks to the modular and scalable approach, allow different network stations to be equipped economically.

The value for money, as well as assembly and operating processes were therefore able to be optimised over years in the field under real conditions.

GridCal also relies on open source software and established hardware, which avoids the risk of dependence on cloud systems or proprietary hardware.



Flexible and secure:

- Start immediately and get results on day one with maximum security.
- Hardware and software components can be selected individually for each station.
- With the central software update you are always prepared no matter what else comes along.
- Integrate the network control rooms, e.g. with the 104 protocol, at any time as soon as all important coordination processes have taken place.

Efficient:

- Decentralised tasks can still be solved decentrally in the network station.
- Only transmit information that is actually needed.
- Each station becomes an autonomous unit based on the cellular approach.
- Save your mobile phone and IT resources.
- Optionally, you can monitor the power quality in accordance with EN 50160 directly in each station.

Scalable:

- With GridCal Operator, you orchestrate hundreds or thousands of digitised stations from one location.
- Keep an eye on the digital twin of your distribution network and all important information with GridCal Operator.
- Dramatically reduce the time required for data-based decisions through the use of various assistance systems.



Redispatch
Conventional generation
plants > 10 MW

Redispatch “2.0”
All generation plants > 100 kW
and plants that can be remotely
controlled at any time < 100 kW

Into the future with security

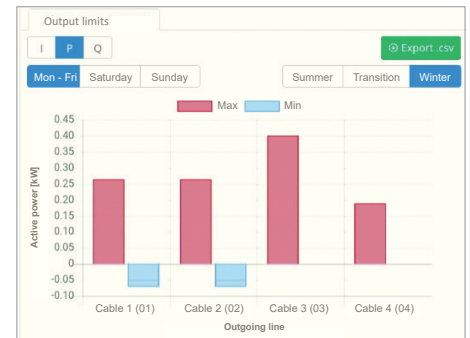
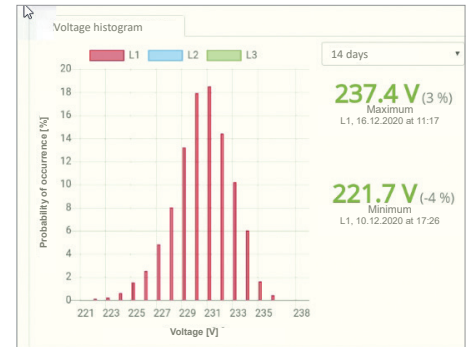
GridCal is based on independent open source software and is therefore flexible enough to cope with future tasks. The hardware used gives you a secure grip on the physics on site, and functions can be reloaded with remotely updatable software.

A good and secure database is the foundation for numerous further optimisations. Position yourself today for the implementation of future tasks. You as the user set the pace and the direction.

GridCal already supports processes related to Redispatch 2.0 and its further expansion stages.

Advantages of GridCal:

- Usable for all network operators in every stage of digitisation
- 100% data sovereignty from the first minute. Your network, your data!
- Secure, flexible and scalable
- Device independence through the use of modern web technologies
- No dependence on cloud systems or proprietary hardware
- More transparency in the distribution network immediately
- More reliability through more measurement data
- Increase the network connection capacities by controlling the network subscribers
- Rapid error analysis
- Simplified and faster connection tests
- Avoidance of network expansion measures
- Support processes like Redispatch 2.0
- Build up a wide range control
- Optional continuous monitoring of power quality according to EN 50160



Our quote: We will digitise your network station in just a few minutes.

The data is immediately available to you without the use of your own IT and without a cloud. Interest piqued?

- See for yourself and make an appointment with our **free demo kit**
- Or directly on-site at a power supply company that already has the system solution in use on a large scale.
- We will support you in the regulatory optimisation of your digitisation strategy.
- Benefit from an ROI in just a few years.



Software solutions

ENVIS Software Suite

Energy management and PQ analysis tool



PQ PLUS GmbH



Key features:

- Data recording and storage in binary files (.xls / .csv) or SQL databases
- Visualisation of live values, trends, input states, transients, consumptions, etc.
- Analysis of measured values, statistics, exports (PDF, XML, etc.).
- Evaluation of the power quality according to DIN EN 50160.
- Analysis of consumption data
- Easy manual or automatic reporting of the recorded data
- Support for many different measuring and control devices

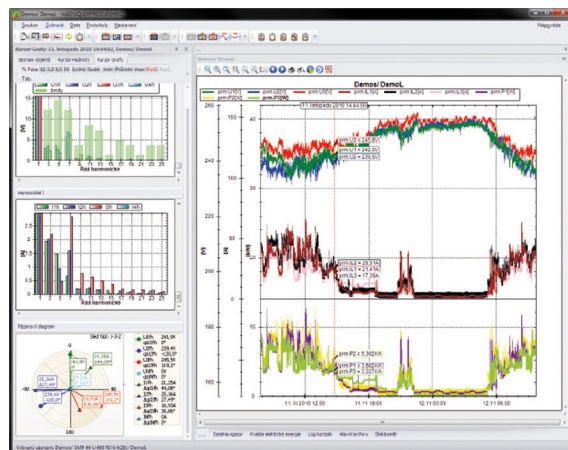
The ENVIS software is a system for monitoring and evaluating energy management and power quality monitoring systems. The measured information is managed and made available for analysis here. ENVIS is a basic energy management tool to record data for grid analysers. The software provides simple and convenient visualisation and analysis of the archived data.

Energy management and PQ analysis – ENVIS

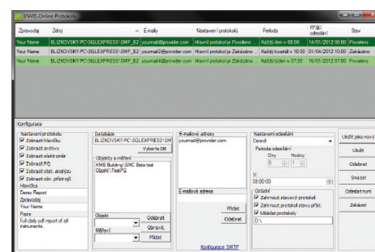
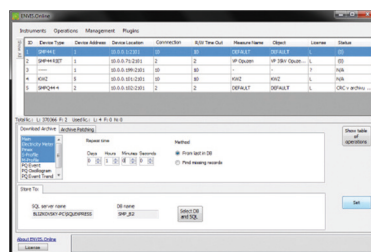


ENVIS is the convenient graphical tool for visualising, storing and evaluating all measured values relating to power quality analysis according to EN 50160 and energy efficiency. It visualises the recorded measurement data from files or SQL databases.

This allows times to be assigned to events such as mains interruptions, voltage fluctuations and harmonic assessment. It therefore supports actions to increase security of supply.

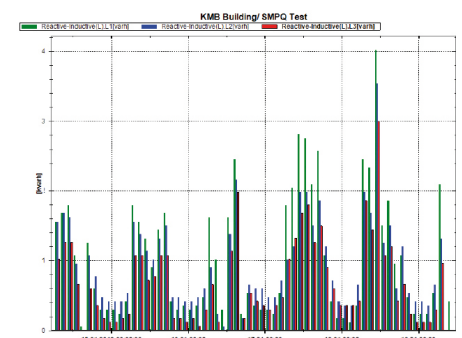


Statistical evaluations of all data collected automatically or manually can be carried out. ENVIS also has an interface with export/import function from and to Excel files. The basic version is available as a free package for monitoring energy efficiency, network quality and online/offline reading of the measuring devices. At the same time, ENVIS is used as a configuration tool for the universal measuring devices.



Envis enables measures to be taken to optimise load flows and consumer behaviour. The system therefore supports the introduction and continuation of ISO 16247 and ISO 50001 certified processes. It enables billing according to cost centres and key figures and therefore provides a transparent analysis of consumption behaviour.

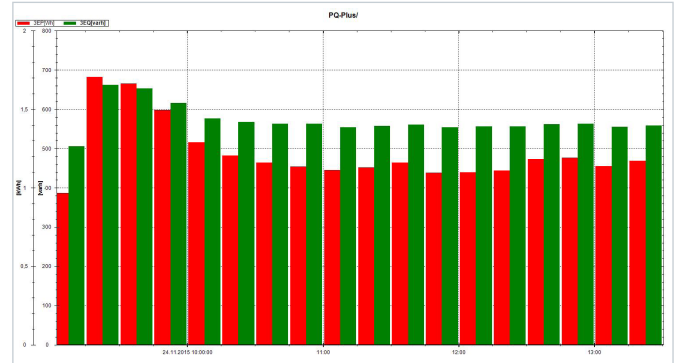
ENVIS is a smart building automation solution and supports operators of buildings and properties with automatic reporting. It supports all universal measuring devices and UMC reactive power controllers, as well as some third-party devices with Modbus communication.



The ENVIS installation package contains several applications:

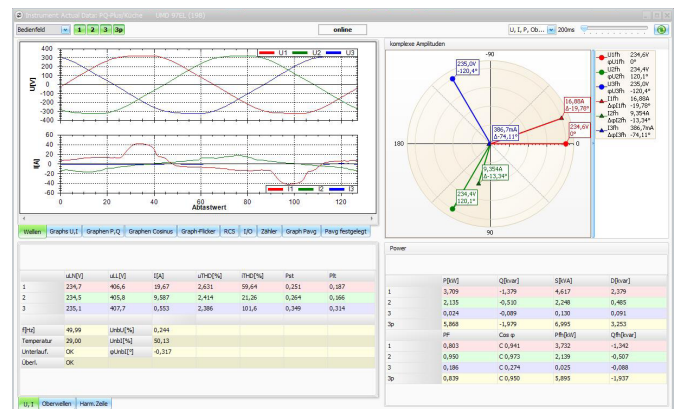
The basic version of ENVIS is available free of charge with every device purchased or can be requested from info@pq-plus.de / www.pq-plus.de.

ENVIS is used to process and analyse the archived measurement data. Data records can be displayed in graphs and tables, or evaluated in the predefined reports. The application supports all of our universal measuring devices including the mobile measuring case, the UMC reactive power controllers and various Modbus devices.



ENVIS.Daq

ENVIS.Daq is used to configure and manage the universal measuring devices and power factor controllers. Current live data can also be displayed. The data can be downloaded to a binary file (export to .xml / .csv) or saved directly to an SQL database. ENVIS.Daq is included in the ENVIS installation.



ENVIS.Online

ENVIS.Online is a system service that regularly reads the universal measuring device memories from the connected devices or retrieves live data and stores it in an SQL database. Reports can be sent automatically by e-mail. Alarm management provides an alarm via e-mail. Third-party devices with Modbus protocols can also be integrated and saved.

Designation	Number of devices	Function	Additional functions	Item number
ENVIS - Basic	unlimited	Device configuration, data recording, measurement data management, reports, power quality evaluation according to DIN EN 50160, virtual devices	-	52.11.1300
ENVIS - Base	unlimited	Network quality DIN EN 50160, measurement data management, data recording, historical data, evaluations, automatic reports	Histogram Scatter plot PQ DIFF Export to IEEE Std. 1159.3 PQDIFF file	52.11.1301
ENVIS.Online licence	per device	Licence for one measuring device with integrated memory for automatic readout or online recording of the measurement data	-	52.21.1341
ENVIS.Online General licence	unlimited	Licence for an unlimited number of measuring devices with integrated memory for automatic readout or online recording of the measurement data	-	53.21.1350



General information

With our energy management system according to ISO 50001, you can monitor all consumption data and create utility bills at the touch of a button. The EMS can be integrated into existing IT landscapes quickly and scaled to an unlimited number of meters or locations.

Energy meters, data loggers and energy management software directly from the manufacturer - all from a single source.

Requirements for energy management systems

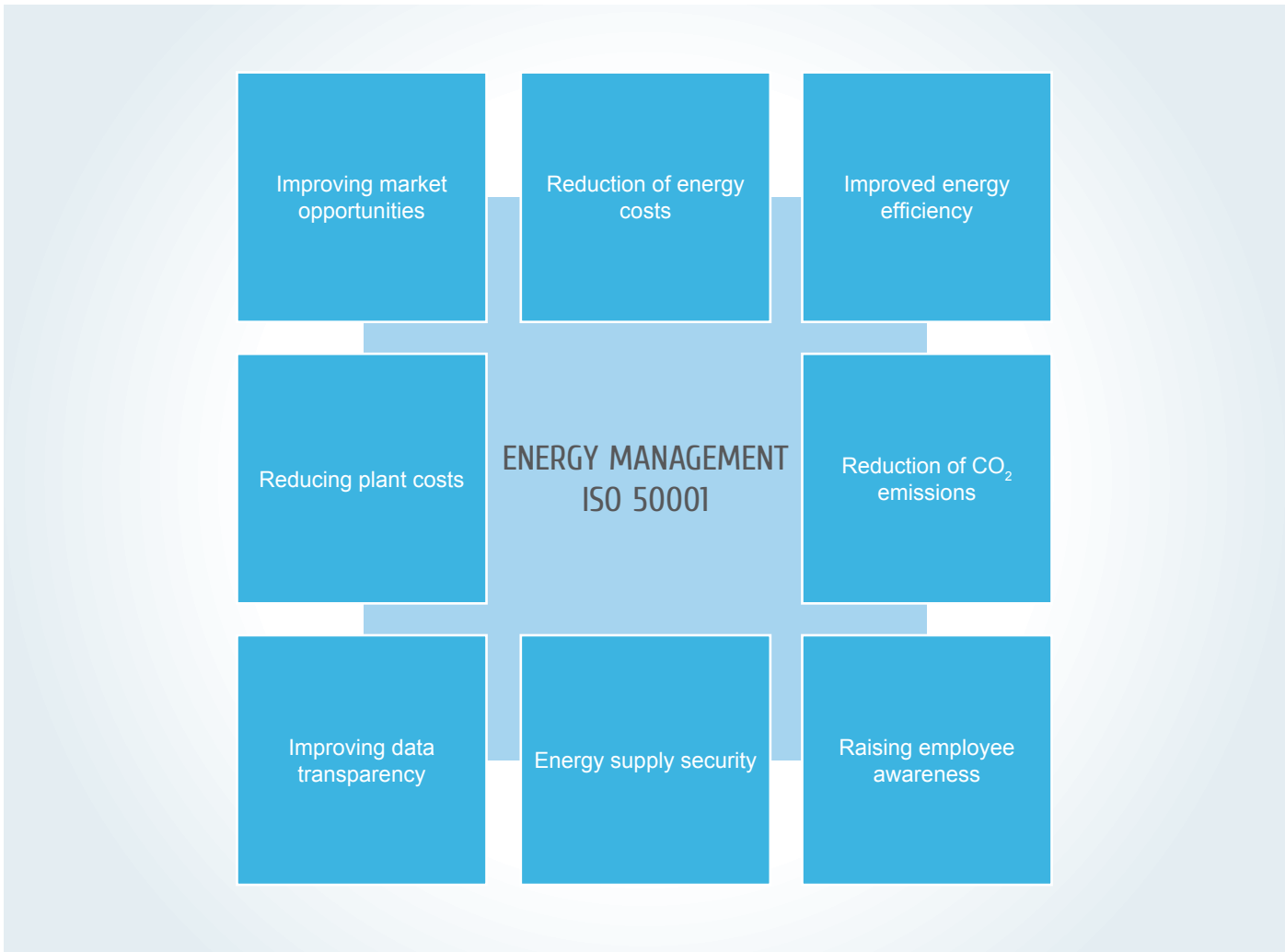
- Exploiting energy saving potentials
- Reducing energy costs and CO₂ emissions
- Ensuring provision of a continuous energy supply
- Efficiency increase in the production process
- Process optimisation
- Continuous recording of energy flows
- Integration of all consumption media

Customer benefits

- Automated reporting for bills, cost centre assignments, annual evaluations and much more.
- Energy consumption is presented transparently for targeted measures
- Multi-site software
- Individual login area for employees
- Presentation of data points via project tree structure
- Avoidance of load peaks

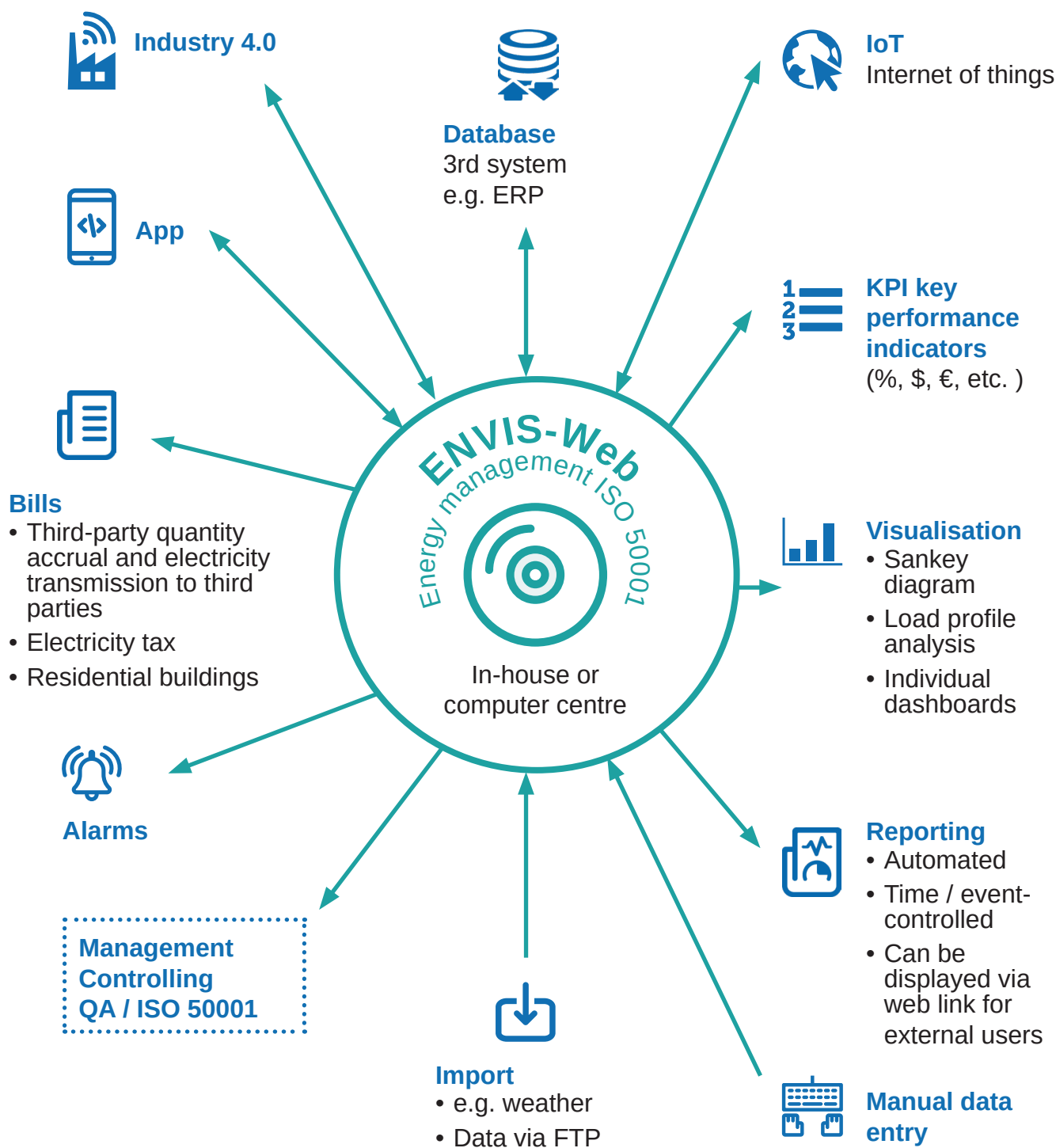
Energy management: Optimising resources and costs

Our energy management system is the basis for optimising the available energy. Continuous recording and evaluation of all relevant energy and process data allows decisions to be made in a timely manner in order to adapt processes so that energy flows can be optimised. Furthermore, the measured energy values are assigned to the respective consumer automatically in order to present a bill for energy costs.



Transparency in the company

The basis for any efficiency improvement is transparency. The more precisely you keep an eye on your energy flows, the more potential for savings you can tap. Large companies have numerous sites, use a variety of energy sources and have a diverse infrastructure of measuring devices, networks and data sources. Centralising and processing all this energy data requires a highly flexible and powerful platform and a specialist like PQ PLUS.



ENVIS Web

Keep your company agile and powerful

- Support on your premises by professional EMS experts
- You can use the EMS software flexibly from the cloud or install it locally. Both variants are easy to implement and highly scalable for your business.
- Keep an eye on consumption and key performance indicators at all times

1

Installation

The energy management software is integrated into the existing IT infrastructure as a virtual machine (VMware or MS HyperV). The basic configuration is completed in a few minutes and the system is ready for use immediately. We will supply the complete server hardware or host and maintain your EMS in the computer centre upon request.

2

Plug & play configuration

Energy meters can be integrated via M bus, M bus central, Modbus TCP or as CSV import easily and quickly with a few clicks thanks to pre-installed device templates.

3

Consultation and service

From the concept of the optimum measuring device infrastructure including accessories, to commissioning and training users, we'll take complete care of you.

4

Updates

New functions and improvements are included in regular updates. The integrated update mechanism guarantees a smooth installation.



Access any time and anywhere

You can access your energy management software at any time and from almost anywhere - via web browser, without local client installation, with agile and scalable IT infrastructure.

5

Highest availability and security

You decide where your data is stored. Whether locally in the company or in the data centre according to applicable data protection laws. This guarantees maximum security and availability. Service plus points: The software creates back-ups automatically. In case of problems, all data is available and recoverable.

6

Measured values - Media

As an open and holistic energy management system, all measurable quantitative media, energy and process data are integrated. Concerning electricity, water, heat, gas, fuels, steam, compressed air and many more. In addition to active and reactive energy, the PQ PLUS energy meters also provide a variety of other measured values, e.g. current, voltage, power, cos phi, frequency, etc. Of course, these measured values are archived and evaluated. Individual key performance indicators / conversions can be formed from all measured values.

7

Modular design | OEM solutions

The lean system architecture and modular integration of functions / applications guarantees flexibility. Individual functions as well as OEM solutions can be implemented in a short time.

ENVIS Web – Key features

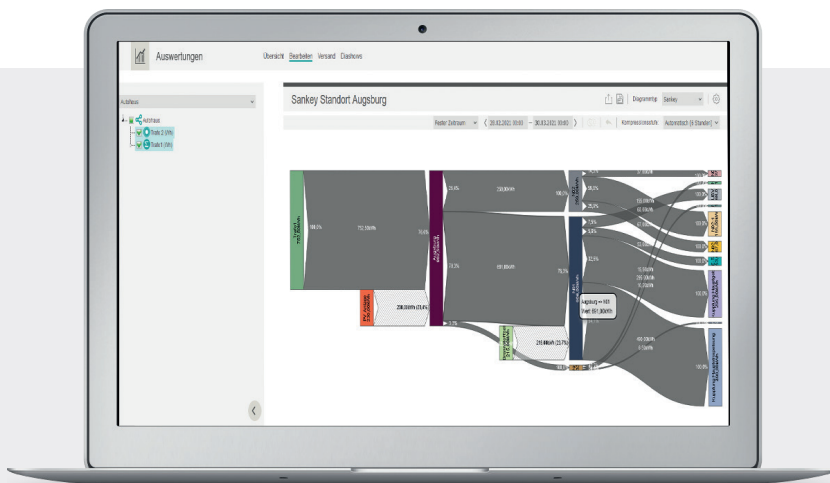
General menu navigation

- Home page with user-friendly display
- Overview of all meters
- Configuration of the meter measuring devices
- Backup and data export



Integration into existing systems

- Data import of measurement data (.csv)
- Data export of measurement data (.csv, FTP)
- Manual data recording, e.g. meters without communication



Visualisation

- Line chart
- Bar chart
- Sankey diagram
- Load profile analysis
- Individual chart adjustment
- Any measured values per chart
- Individual dashboards

Support & commissioning

- Training
- Software setup and maintenance
- Support (hotline and e-mail)
- Update service (maintenance contract)

Data evaluation

- Output of totals, mean values and extreme values
- Creation of key performance indicators
- Energy consumption
- Specific energy consumptions
- Energy consumption per reference quantity
- Calculations (CO₂, costs, etc.)
- Resolution in freely definable time intervals
- Free definition of key figures

Energiemanagement

Infrastruktur

Auswertungsstruktur

Auswertungen

Energiemanagement

Benutzerverwaltung

Administration

Objekte

Rechnungen

Dashboard

Dokumentenmanagement

KEY FEATURES

Reporting

- Scheduled reports e.g. daily, monthly
- Event-driven reports
- Individual report contents
- E-mailed in a common format, e.g. PDF

Alarms

- Individual definition of threshold values
- Individual definition of tolerance bands
- E-mail transmission of the alarm

ENVIS Web - Reporting

Automated and standardised

Design your individual reporting system. The system masters all common report types that modern energy management requires. On the simple and intuitive user interface, you design your evaluations and generate meaningful reports from complex energy and process data.

Through the integration of comparison periods, the effects of the implemented improvement measures become visible immediately.

The reports are sent automatically to users (groups) by e-mail and can be generated and exported manually in the software at any time.



Erstellen

Allgemeine Information

Name

Monatliche Stromsteuerauswertung

Auswertungseinstellungen

Auswertung

El. Arbeit aktueller Monat

Diagramm einbinden

☒

Breite

1,024

Höhe

768

CSV einbinden

☒

Datenintervall

Automatisch

Feldtrenner

Komma

Dezimaltrennzeichen

Punkt

Auslieferungsfrequenz

Nächster Sendezeitpunkt

01.11.2021 00:00

Frequenz

Monatlich

Aktiviert

☒

Benachrichtigungseinstellungen

E-Mail

☒

E-Mail Empfänger

info@pq-plus.de

E-Mail-Betreff

Stromsteuerabrechnung

E-Mail-Inhalt

Abrechnung zur Stromsteuerabgrenzung

Sprache

Deutsch

Bildformat

Pdf

Nachricht

☒

Benutzergruppe

PQ Plus GmbH

Nachrichtenbetreff

Stromsteuer akt. Monat

Nachrichteninhalt

Abrechnung zur Stromsteuerabgrenzung

FTP

☒

Host

Benutzername

Passwort

Zielverzeichnis

steuer/stromsteuer/werk1

Sprache

Deutsch

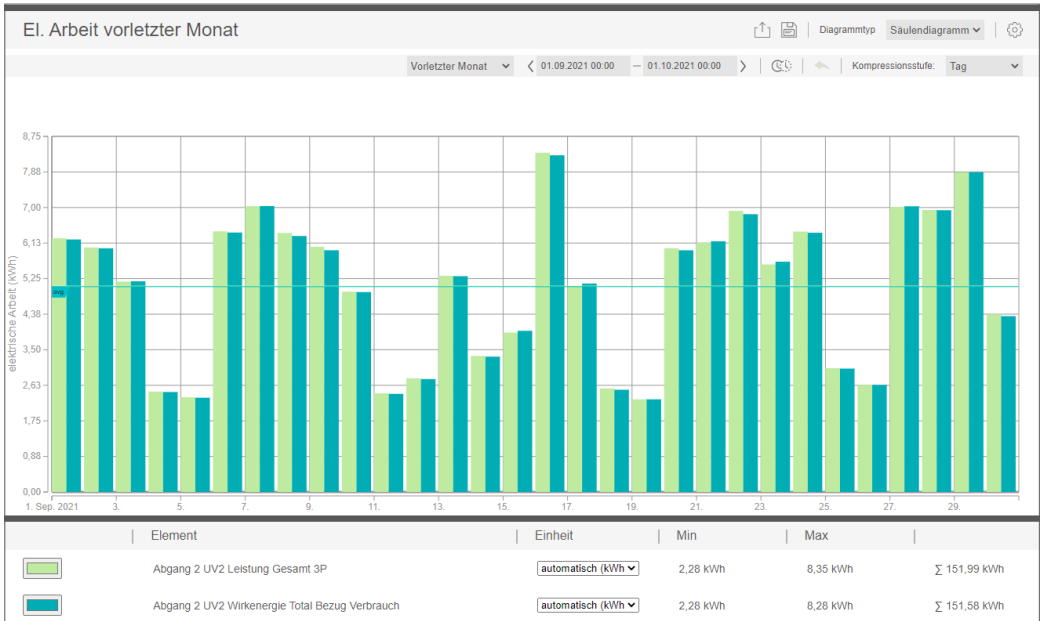
Bildformat

Pdf

Test

Abbrechen

Erstellen



ENVIS Web - Management

Flexible management of the infrastructure

The integrated measurement point and infrastructure management enables individual measurement points to be combined into hierarchical groups (measurement point structures). The structures contain individual measurement points, entire hierarchy or sum nodes, complex formulas or existing measurement point structures, as well as data imports from ERP and production systems for example.

Complex data recording becomes clear and comprehensible.

Conversion factors (e.g. currency per kWh), as well as the company-specific key performance indicators (KPI) make reports understandable for all users and internal stakeholders.

Infrastruktur [Geräte](#) [Gerätevorlagen](#) [Datenlogger-Zertifikat](#)

ZÄHLER: Trafo 2 / UMD 97

INFORMATIONEN

Host: 87.191.209.195
 Port: 3443
 Abfrageintervall: 15min
 Slave ID: 255

REGISTER

Adresse	Datenpunktname	System-Einheit	Zählerstand	letzter Wert	letzter Import	verbundenes Objekt
4352	Trafo 2 / UMD 97 Büro 2 UMD 97 Spannung L1	Spannung	nein	234,29	25.10.2021 16:30	-
4354	Büro 2 UMD 97 Spannung L2	Spannung	nein	234,44	25.10.2021 16:30	-
4356	Büro 2 UMD 97 Spannung L3	Spannung	nein	232,51	25.10.2021 16:30	-
4608	Trafo 2 / UMD 97 Büro 2 UMD 97 Strom L1	Stromstärke	nein	1.288,37	25.10.2021 16:30	-
4610	Trafo 2 / UMD 97 Büro 2 UMD 97 Strom L2	Stromstärke	nein	186,88	25.10.2021 16:30	-
4612	Trafo 2 / UMD 97 Büro 2 UMD 97 Strom L3	Stromstärke	nein	6.620,83	25.10.2021 16:30	-
4878	Büro 2 UMD 97 cosPhi L2	Wirkfaktor	nein	-0,84	25.10.2021 16:30	-
4880	Büro 2 UMD 97 cosPhi L3	Wirkfaktor	nein	0,99	25.10.2021 16:30	-
4884	Büro 2 UMD 97 Wirkleistung L123	Leistung	nein	219.074,89	25.10.2021 16:30	-
4896	Büro 2 UMD 97 Wirkleistung L1	Leistung	nein	124.944,16	25.10.2021 16:30	-
4898	Büro 2 UMD 97 Wirkleistung L2	Leistung	nein	17.092,43	25.10.2021 16:30	-
4900	Büro 2 UMD 97 Wirkleistung L3	Leistung	nein	77.191,45	25.10.2021 16:30	-
8192	Büro 2 UMD 97 Wirkenergie Total Bezug	elektrische Arbeit	ja	781.297.620,39	25.10.2021 16:30	-

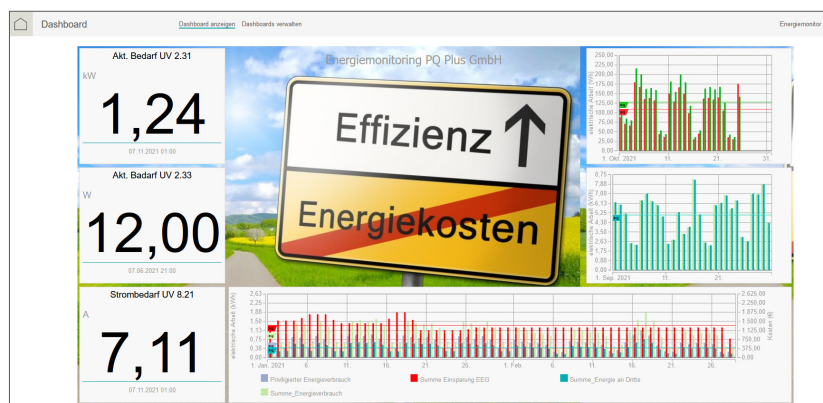
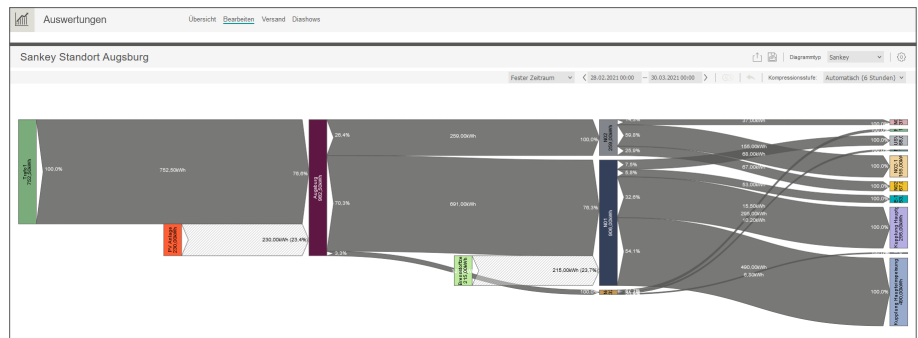
Aktionen

- Datenquelle anlegen
- Modbus Gerät bearbeiten
- Modbus Register hinzufügen
- Eigenschaften bearbeiten
- Als Gerätevorlage speichern
- Modbus Gerät löschen
- Modbus Register bearbeiten
- Objektverbindung bearbeiten
- Register-Eigenschaften bearbeiten
- CSV importieren
- Modbus Register löschen

ENVIS Web – Graphical evaluation

Sankey diagram for ISO 50001

A Sankey diagram is a graphical presentation of quantity flows. Sankey diagrams are important tools for presenting energy and material flows, as well as for efficiency assessment.

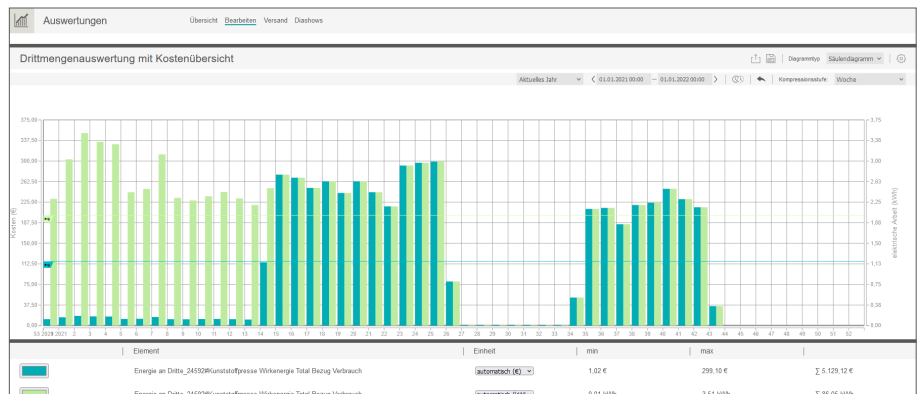


Dashboard

The dashboard offers the possibility of presenting a needs-based data analysis at a glance. Parameters for the user interface can be set without restrictions.

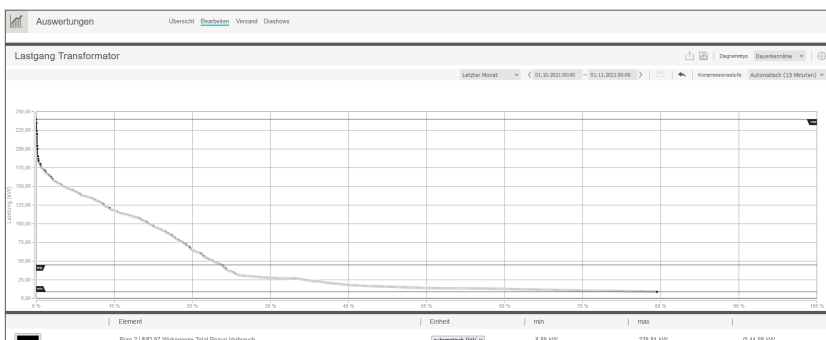
Consumption and cost overview

Energy consumption (e.g. kWh or m³) is conveniently set in relation to costs or CO₂ in bar charts.



Load profile analysis and 15 minute peak load

The load curve analysis visualises a continuous line of your measurement data. This shows the proportion of time over the total period that a particular service is in demand. This can be used to find ways of reducing power peaks and therefore lowering energy costs, e.g. by shifting the timing of process sequences. In addition, the load curve analysis shows the potential savings that can be achieved by permanently reducing the base load.



ENVIS Web – Utility bills

Utility bills

With just a few clicks, you can define invoices for cost centres or utility bills for offices and residential buildings. The bills are created automatically or manually, e.g. monthly or quarterly. We would be happy to prepare the bills for you - so you can concentrate on your core business.

Features

- Bill creation at the push of a button
- Virtual meters and units
- History of all invoices
- Suitable for electricity, water, heat and gas
- Bills for cost centres & residential buildings as PDF

App for residents

All residents have their own login to monitor their own consumption via smartphone, tablet or PC.

Service on site

- Commissioning and configuration
- Preparation of the bills according to the specifications
- Monitoring the system
- Preparation of bills for residential and commercial properties



Upon request, all residents receive their own login and are informed about energy consumption at all times.

Reference project: ETH HWW Livingscience

- More than 1300 meters (electric, water and heat)
- Reading via M bus centre
- Web-based access for more than 400 users, multilingual
- Individual software expansion

The management has an overview of energy consumption and deviations at all times. Shortly after commissioning, the energy management software discovered a deviation (increased water consumption) and prevented additional costs.

ENVIS Web – Services

Management

Conveniently manage multiple properties and residential buildings centrally in the web-based software. Additional billers and owners are opened immediately. Contact people, payment conditions and bank details are defined individually.

Rechnungsaussteller erstellen

Adressinformationen

Name	Wohnung AG
Namenszusatz	c/o Verwaltung AG
Straße	Via Maistra
Hausnummer	20
Postleitzahl	7500
Stadt	St. Moritz
Bundesland	GR
Land	Schweiz

Conversions – Meaningful for all users

Conversion factors enable the appropriate presentation for all users and stakeholders. The changes to the conversion factors (e.g. costs per kWh) are adopted in the reports and evaluations.

NEUEN UMRECHNUNGSFAKTOR ANLEGEN

Name: kWh in €

Start-Messgröße: kWh

Ziel-Messgröße: €

Create

Key Performance Indicators (KPI)

DIN EN ISO 50001 and efficient energy management require meaningful key performance indicators, suitable for the company. This makes comparisons within the industry or company possible. The formula editor is used to create key performance indicators from all possible data sources, e.g. reading out measuring devices and importing from ERP.

Formel

Name	Kennzahl 1
Messeinheit	Leistung
Messfaktor	kW
Formel	if (TA < TB) {TA + 10}{TB + 10}

✓ Die eingegebene Formel ist gültig.

Abbrechen Erzeugen

User management

Each user receives his or her individual password-protected login. Any number of users and groups can be created and appropriate access rights (e.g. cost centres, measuring devices or evaluations) can be granted. Notification groups are suitable for automatically generated reports and messages / alarms.

Erstellen

Logindaten
E-Mail Adresse: info@pq-plus.de

Profil
Anrede: Frau
Akademischer Titel:
Vorname: Lieschen
Nachname: Müller
Festnetznummer: 09133 60640-0
Handynummer:

Rechte
Rollen: x Admin

Einstellungen
Sprache: Deutsch

Abbrechen OK

Tariffs

Tariffs and conversion factors enable individual billing of all energy consumption. Separate tariff and tariff groups can be defined for billing 15 minute peak loads.

Erstellen

Name: Externer Stromtarif
Währung: Euro (€)
Rundungsregel: 0,01
Abrechnungsintervall: Monatlich
Steuern: Keine

TARIFE
Bitte wählen Sie welche Tarife zur Tarifliste hinzugefügt werden sollen.

Tarifposition hinzufügen

Abbrechen Erstellen

Multilingual

As energy management and billing software that is used internationally, additional translations are constantly being added. Each user can select the desired language in the account settings.

Export

All evaluations and invoices are exported and archived in common formats, e.g. PDF and CSV with just a few clicks.

Internal messaging system

All reports, alarms and system messages can be sent and archived in the internal messaging system.

ENVIS Web

	Designation	Item number
Local installation / in-house solution Update period 2 years	ENVIS Web L-30 Installation: Local, licence for 30 measuring devices	52.12.1400
	ENVIS Web L-80 Installation: Local, licence for 80 measuring devices	52.12.1402
	ENVIS Web L-150 Installation: Local, licence for 150 measuring devices	52.12.1404
	ENVIS Web L-250 Installation: Local, licence for 250 measuring devices	52.12.1403

	Designation	Item number
Update extensions	ENVIS-Web L-30 update extension for one more year	52.12.1410
	ENVIS-Web L-80 update extension for one more year	52.12.1412
	ENVIS-Web L-150 update extension for one more year	52.21.1414
	ENVIS-Web L-250 update extension for one more year	52.12.1413

	Designation	Item number
Installation in the computer centre Update period 2 years	ENVIS Web DC-30 Installation in the computer centre, licence for 30 measuring devices	52.12.1500
	ENVIS Web DC-80 Installation in the computer centre, licence for 80 measuring devices	52.12.1502
	ENVIS Web DC-150 Installation in the computer centre, licence for 150 measuring devices	52.12.1504
	ENVIS Web DC-250 Installation in the computer centre, licence for 250 measuring devices	52.12.1503

	Designation	Item number
Update extensions / hosting	ENVIS-Web DC-30 update extension & hosting for one more year	52.12.1510
	ENVIS-Web DC-80 update extension & hosting for one more year	52.12.1512
	ENVIS-Web DC-150 update extension & hosting for one more year	52.12.1514
	ENVIS-Web DC-250 update extension & hosting for one more year	52.12.1513

	Designation	Item number
Services	ENVIS Web L-30 commissioning Installing + commissioning up to 30 measuring devices	PQ1400
	ENVIS Web L-80 commissioning Installing + commissioning up to 80 measuring devices	PQ1402
	ENVIS Web L-150 commissioning Installing + commissioning up to 150 measuring devices	PQ1404
	ENVIS Web L-250 commissioning Installing + commissioning up to 250 measuring devices	PQ1403
	ENVIS Web DC-30 commissioning Installing + commissioning up to 30 measuring devices	PQ1500
	ENVIS Web DC-80 commissioning Installing + commissioning up to 80 measuring devices	PQ1502
	ENVIS Web DC150 commissioning Installing + commissioning up to 150 measuring devices	PQ1504
	ENVIS Web DC-250 commissioning Installing + commissioning up to 250 measuring devices	PQ1503

Would you like to evaluate and monitor **more than 250 measuring devices**? We would be happy to define the optimum solution and licensing together with you.

Drivers for UMD measuring equipment

Connecting UMD measuring devices to S7 and S7-compatible control systems

To avoid unnecessary Profinet/Profibus connections, the “Simatic Drive” type universal drivers allow the UMD measuring devices to be connected directly to your automation via Ethernet with Modbus TCP. These interfaces are available on the PLCs as standard.

As UMD measuring devices do not usually generate control-relevant, real-time data, conventional communication is sufficient. This means that expensive add-ons can be dispensed with. The data is entered directly into data blocks.

The Modbus TCP interface of the UMD Ethernet measuring devices (UMD 96, UMD 97, UMD 807, etc.) maps all process data as floating point numbers (32 or 64 bit) in input registers in pairs or in groups of 4. The configuration data is mapped into holding registers.

- Simatic Drive serves as a Modbus TCP client driver module and uses the system modules for sending and receiving via TCP/IP, and remains unchanged.
- Connection ID number, account number (UID), Modbus command (function code 1, 2, 3, 4, 6, 15 or 16) and user data pointer are transferred as parameters.
- All local variables of the “Simatic Drive” communication driver module, as well as send and receive data are located in the associated instance data module.

Your benefits:

No unnecessary capacities are used on your PLC, therefore preventing sluggishness on your control system. Fast connection through the Ethernet interface, no unnecessary accessories such as Profibus plugs, Profibus cables. Direct access to the meter (integrated web server). High cost savings and flexible use.

Single licence: Licence can be used by an end customer for an unlimited period.

Designation	Control type S7 driver	Project planning	Order no.
Simatic Drive S7OB	S7-CPU3xx/4xx Profinet OnBoard	Simatic Step 7	52.22.0001
Simatic Drive S7CP	S7-CPU3xx/4xx Profinet via CP 343	Simatic Step 7	52.22.0002
Simatic Drive OB*	S7-CPU3xx/4xx Profinet OnBoard	Simatic TIA	52.22.0004
Simatic Drive 12*	S7-1200-TIA	Simatic TIA	52.22.0011
Simatic Drive 15*	S7-1500-TIA	Simatic TIA	52.22.0012

* Please state the TIA version number when ordering

Company licence: Unlimited use for various end customers.

Designation	Control type S7 driver	Project planning	Order no.
Simatic Drive XL S7OB	S7-CPU3xx/4xx Profinet OnBoard	Simatic Step 7	52.22.1001
Simatic Drive XL S7CP	S7-CPU3xx/4xx Profinet via CP 343	Simatic Step 7	52.22.1002
Simatic Drive XL OB*	S7-CPU3xx/4xx Profinet OnBoard	Simatic TIA	52.22.1004
Simatic Drive XL 12*	S7-1200-TIA	Simatic TIA	52.22.1011
Simatic Drive XL 15*	S7-1500-TIA	Simatic TIA	52.22.1012

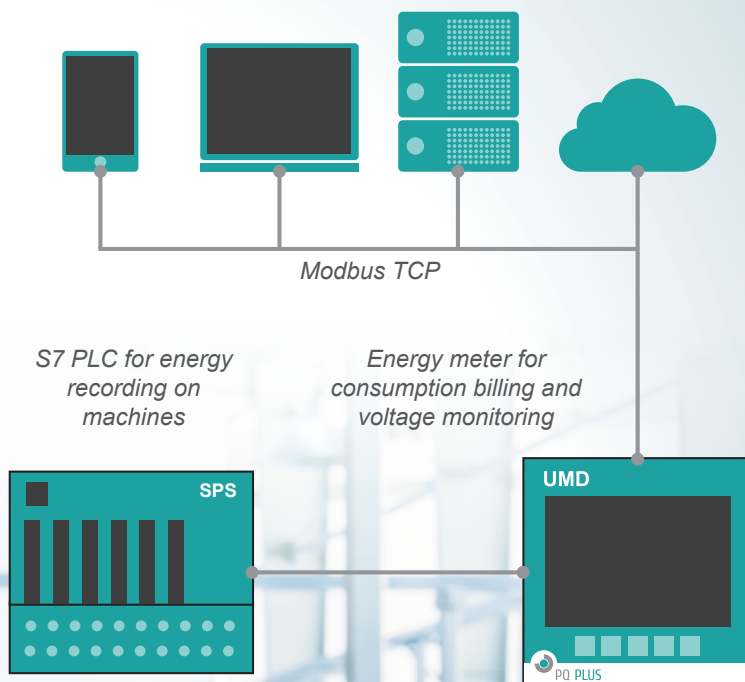
* Please state the TIA version number when ordering

Our solutions for universal multi-connectivity

To avoid unnecessary Profinet/Profibus connections, the "Simatic Drive" type universal drivers allow the UMD measuring devices to be connected directly to your automation via Ethernet with Modbus TCP. These interfaces are available on the PLCs as standard.

As UMD measuring devices do not usually generate control-relevant, real-time data, conventional communication is sufficient. This means that expensive add-ons can be dispensed with. The data is entered directly into data blocks.

The Modbus TCP interface of the UMD Ethernet measuring devices (UMD 96EL, UMD 97EL, UMD 807EL) maps all process data as floating point numbers (32 or 64 bit) in input registers in pairs or in groups of 4. The configuration data is mapped into holding registers.



Your benefits:

No unnecessary capacities are used on your PLC, therefore preventing sluggishness on your control system. Fast connection through the Ethernet interface, no unnecessary accessories such as Profibus plugs, Profibus cables. Direct access to the meter (integrated web server). High cost savings and flexible use.

Your plus
for more
performance.

Transformers

KBR – Cable conversion transformer

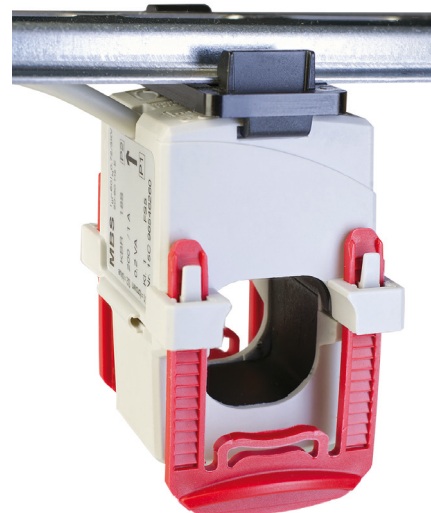
Download
data sheet



With its separable measuring core, the KBR series cable transformer enables existing systems to be retrofitted. The KBR covers secondary rated currents in 5 A and 1 A and primary rated currents from 50 A to 1000 A. The accuracy classes are 1 and 3.

For installation, the transformer's locking mechanism is opened, the transformer is placed around the primary conductor and audibly engaged again. After connecting the secondary lines, the measuring set-up is ready for operation immediately.

- Cable transformers are mainly used for retrofitting in order to avoid cutting the primary conductors.
- Due to its dimensions and easy handling, the compact KBR cable converter is particularly suitable for use in places that are difficult to access or where space is limited.
- The “click” system in conjunction with the fixing clips even allows for “single-handed” installation.
- As standard, the secondary 1 A version is delivered with a 2.5 m connection line (colour-coded; S1 = brown; S2 = blue). The secondary 5 A version is supplied with a 0.5 m connection line.
- Other cable lengths are possible on request.
- For use as a current sensor, the KBR is optionally available with 0 - 333 mV voltage output (min. load resistance $\geq 1 \text{ k}\Omega$)
- The KBR 32 and KBR 44 are also available as measuring transducers with a measuring output of 4 - 20 mA DC
- Working temperature range: -5 - 50 °C
- Storage temperature range: -25 - 70 °C



Type	Current range	Round conductor	Dimensions (W x H x D)
KBR 18S	60 - 250 A	18.5 mm	36 x 51.1 x 50 mm
KBR 18	60 - 250 A	18.5 mm	41.6 x 64.5 x 68 mm
KBR 18L	100 - 250 A	18.4 mm	49 x 68.8 x 59 mm
KBR 28	200 - 500 A	27.9 mm	49 x 68.2 x 59 mm
KBR 32	100 - 600 A	32.5 mm	59.2 x 96.4 x 90 mm
KBR 42	250 - 1000 A	42.4 mm	67 x 96 x 59 mm
KBR 42L	250 - 1000 A	2 x 42.4 mm	67 x 139 x 69 mm
KBR 44	150 - 1000 A	44.0 mm	72.2 x 120.6 x 98 mm

PQ Plus also offers the complete KBR transformer series as XKBR for measurements of up to 20 kHz, which on the one hand ensures highly accurate transmission up to 20 kHz and, on the other hand, is designed thermally for use in networks subject to harmonics. The output signals are 1 or 5 A, as usual for inductive transformers according to IEC 61869-2. The power specifications also correspond to the usual values. The transformer can therefore also be used in conventional 50 Hz applications. The frequency transmission behaviour is defined via an additional rating plate.

Further information on the XKBR is available on request, in our “Transformers” brochure and on our website.

KBR – Cable conversion transformer

KBR 18S

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
60	1	0.4	3	03.18S.0001
75	1	0.5	3	03.18S.0002
100	1	0.75	3	03.18S.0003
150	1	1	3	03.18S.0005

KBR 18

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
50	1	1	3	03.18.0001
75	1	1	3	03.18.0006
100	1	1.25	3	03.18.0011
200	1	1	1	03.18.0027

KBR 18L

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
100	1	0.3	1	03.18L.0001
150	1	1	1	03.18L.0003
200	5	1.5	1	03.18L.5002
250	5	1	0.5	03.18L.5003

KBR 28

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
250	1	1	1	03.28.0002
250	5	1	1	03.28.5001
400	1	2.5	1	03.28.0005
400	5	2.5	1	03.28.5003

KBR 32

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
100	5	1.5	3	03.32.5011
200	1	5	3	03.32.0026
400	5	5	1	03.32.5037
600	1	5	1	03.32.0041

KBR 42

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
400	1	5	1	03.42.0004
500	5	5	1	03.42.5003
600	5	5	1	03.42.5005
1000	1	5	1	03.42.0014

KBR 42L

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
400	5	5	1	03.42L.5002
500	5	5	1	03.42L.5003
600	5	5	1	03.42L.5005
1000	5	5	1	03.42L.5011

KBR 44

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
400	5	5	1	03.44.5011
500	5	5	1	03.44.5016
750	5	5	1	03.44.5026
1000	5	5	1	03.44.5036

KBU – Cable conversion transformer

Download
data sheet



With its separable measuring core, the KBU series cable transformer enables existing systems to be retrofitted. The KBU covers secondary rated currents in 5 A and 1 A and primary rated currents from 100 A to 5000 A. The accuracy classes are 0.5, 1 and 3.

After connecting the secondary lines, the measuring set-up is ready for operation immediately. For installation, the transformer's locking mechanism is opened, the transformer is placed around the primary conductor and audibly engaged again.

The transformer is completely insulated and can therefore also be operated on non-insulated CU rails.

- Cable transformers are mainly used for retrofitting in order to avoid cutting the primary conductors.
- Due to its all-round insulation, the KBU cable converter is particularly suitable for use on CU rails.
- Simple and secure attachment – transformer audibly latches into place
- Working temperature range: -5 - 40 °C
- Storage temperature range: -25 - 70 °C



Type	Current range	Rail	Round conductor	Dimensions (W x H x D)
KBU 23	100 - 400 A	20 x 30 mm	20 mm	93 x 106 x 58 mm
KBU 58	250 - 1000 A	50 x 80 mm	50 mm	125 x 158 x 58 mm
KBU 812	250 - 1500 A	80 x 120 mm	80 mm	155 x 198 x 58 mm
KBU 816	1000 - 5000 A	80 x 160 mm	80 mm	195 x 243 x 79 mm

PQ Plus also offers the complete KBU transformer series as XKBU for measurements up to 20 kHz, which on the one hand ensures highly accurate transmission up to 20 kHz and, on the other hand, is designed thermally for use in networks subject to harmonics. The output signals are 1 or 5 A, as usual for inductive transformers according to IEC 61869-2. The power specifications also correspond to the usual values. The transformer can therefore also be used in conventional 50 Hz applications. The frequency transmission behaviour is defined via an additional rating plate.

Further information on the XKBU is available on request, in our “Transformers” brochure and on our website.

KBU – Cable conversion transformer

KBU 23

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
100	1	1.25	3	03.23.0248
150	1	1.5	1	03.23.0230
250	5	1.5	1	03.23.0044
400	5	5	1	03.23.0046

KBU 58

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
250	1	1.5	1	03.58.0261
400	1	2.5	1	03.58.0263
500	5	2.5	0.5	03.58.0054
750	5	2.5	0.5	03.58.0056

KBU 812

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
750	1	5	1	03.81.0296
1000	1	5	0.5	03.81.0278
1250	5	15	1	03.81.0100
1500	5	7.5	0.5	03.81.0081

KBU 816

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
1000	5	15	1	03.81.6141
1500	5	10	0.5	03.81.6112
2000	5	15	1	03.81.6149
4000	5	15	0.5	03.81.6123

CTB – Clip-on transformer

Download
data sheet



In addition to a higher maximum operating voltage ($U_m < 1.2 \text{ kV}$), the CTB clip-on transformer also offers a higher insulation test voltage (6 kV Ueff, 1 min., 50 Hz), as well as a higher operating temperature range (-5 - 50 °C).

The transformer is equipped with maintenance-free cage clamp technology. This makes the transformer maintenance-free. The new transformer type is manufactured in accordance with the technical requirements specified in DIN EN 61869-1/2, VDE 0414-9-1/2 and DIN 42600.

- UL-certified; certificate number: 20100426-E336996
- World's first transformer with screwless connection technology
- Innovative, time-saving connection option (front or top) for solid and flexible conductors (max. 4 mm² - wire end ferrules can be omitted)
- Shockproof and vibration-proof, high mechanical retention forces
- Maintenance-free, gas-tight connection
- High current carrying capacity
- Therm. rated continuous current I_{cth} : 1.2 x IN
- Low-voltage transformer for max. operating voltages up to 1.2 kV; use in 690 V mains possible



Type	Current range	Rail 1	Rail 2	Round conductor	Dimensions (W x H x D)
CTB 31.35	50 - 750 A	30 x 10 mm	25 x 12 mm	25.7 mm	60 x 80.9 x 52 mm
CTB 41.35	75 - 1000 A	40 x 10 mm	30 x 15 mm	31.8 mm	70 x 91.15 x 52 mm
CTB 51.35	100 - 1250 A	50 x 12 mm	40 x 30 mm	43.7 mm	85 x 105.25 x 52 mm
CTB 61.35	200 - 1600 A	63 x 10 mm	50 x 30 mm	43.7 mm	95 x 114.86 x 52 mm
CTB 81.35	400 - 2000 A	80 x 10 mm	60 x 30 mm	54.7 mm	120 x 134.66 x 52 mm
CTB 101.35	400 - 2500 A	100 x 10 mm	80 x 30 mm	70.0 mm	130 x 147.49 x 52 mm

PQ Plus also offers the complete CTB transformer series as XCTB for measurements up to 20 kHz, which on the one hand ensures highly accurate transmission up to 20 kHz and, on the other hand, is designed thermally for use in networks subject to harmonics. The output signals are 1 or 5 A, as usual for inductive transformers according to IEC 61869-2. The power specifications also correspond to the usual values. The transformer can therefore also be used in conventional 50 Hz applications. The frequency transmission behaviour is defined via an additional rating plate.

Further information on the XCTB is available on request, in our “Transformers” brochure and on our website.

All CTB transformers are also available in an ECTB version, tested according to the MID conformity assessment procedure and approved for billing purposes.

CTB – Clip-on transformer

CTB 31.35

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
60	5	1.25	1	03.50.0017
100	5	2.5	1	03.50.0002
200	5	5	1	03.50.0005
400	5	10	1	03.50.0010

CTB 41.35

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
125	5	2.5	1	03.50.0053
250	5	5	1	03.50.0056
400	5	5	1	03.50.0058
750	5	5	1	03.50.0063

CTB 51.35

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
125	5	2.5	1	03.50.0101
150	5	2.5	1	03.50.0102
250	5	5	1	03.50.0104
400	5	5	1	03.50.0106

CTB 61.35

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
1000	5	5	1	03.50.0160
1000	1	5	0.5	03.50.2180
1500	5	5	1	03.50.0164
1500	1	5	0.5	03.50.2186

CTB 81.35

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
750	5	5	1	03.50.0193
1000	5	5	1	03.50.0197
1250	5	5	1	03.50.0199
1500	5	5	1	03.50.0201

CTB 101.35

Primary current [A]	Secondary current [A]	Load [VA]	Class	Item number
400	5	5	1	03.50.0230
1000	5	10	1	03.50.0238
1250	5	5	1	03.50.0239
2000	5	10	1	03.50.0245

All CTB transformers are also available in an ECTB version, tested according to the MID conformity assessment procedure and approved for billing purposes.

J3CT - Three-phase transformer set (MMI 12 - MMB 700)

Download
data sheet

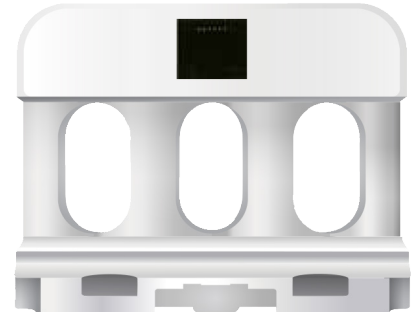


The J3CT series is a three-phase transformer set for installation on the DIN rail or mounting plate.

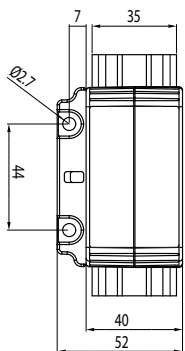
The transformer set is especially suitable for use with the MMI 12 modules and the MMB 700. The measuring ranges are from 30 A to 630 A rated current. The transformers can be connected to the MMI 12 / MMB 700 quickly and without errors via the RJ12 plug connections.

Properties

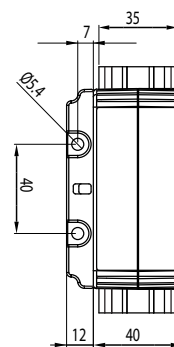
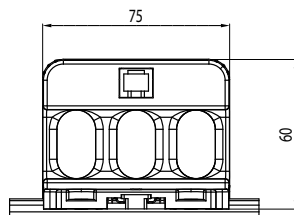
- Three-phase transformer
- Measuring ranges (30 A - 630 A)
- Cable openings (15.5 mm x 27 mm; 17 mm x 28 mm; 21 mm x 25 mm; 31 mm x 36 mm)
- Installation on the DIN rail or mounting plate
- RJ12 connection socket



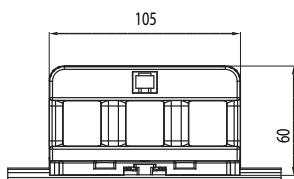
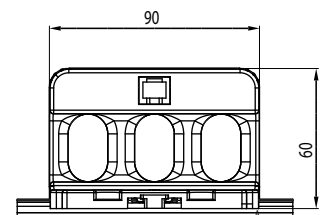
Type	Inner diameter [mm]	Structural width [mm]	Structural height [mm]	Total structural depth [mm]
J3CT075	15.5 x 27	75	60	52
J3CT090	17 x 28	90	60	52
J3CT105	21 x 25	105	60	52
J3CT140	31 x 36	140	60	52



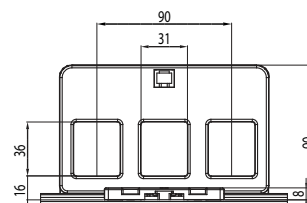
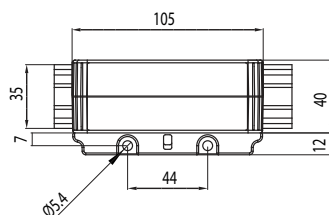
J3CT075



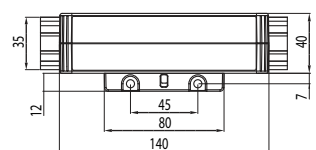
J3CT090



J3CT105



J3CT140



J3CT075

Primary current [A]	Voltage output [mV]	Class	Type	Item number
30	333	1	J3CT075	03.75.0030
60	333	0.5 s	J3CT075	03.75.0060
100	333	0.2 s	J3CT075	03.75.0100

J3CT090

Primary current [A]	Voltage output [mV]	Class	Type	Item number
125	333	0.2 s	J3CT090	03.90.0125
160	333	0.2 s	J3CT090	03.90.0160

J3CT105

Primary current [A]	Voltage output [mV]	Class	Type	Item number
160	333	0.2 s	J3CT105	03.91.0160
250	333	0.2 s	J3CT105	03.91.0250

J3CT140

Primary current [A]	Voltage output [mV]	Class	Type	Item number
400	333	0.2 s	J3CT140	03.92.0400
630	333	0.2 s	J3CT140	03.92.0630

Connection cable for J3CT transformer

The cables are especially suitable for connecting the J3CT transformer type. They are equipped with an RJ12 connector on both sides.

Cable length [metres]	Connection type	Type	Item number
0.3	RJ12-RJ12	Cable RJ12-3CT 0.3m	80.33.0030
0.5	RJ12-RJ12	Cable RJ12-3CT 0.5m	80.33.0050
1	RJ12-RJ12	Cable RJ12-3CT 1m	80.33.0100
3	RJ12-RJ12	Cable RJ12-3CT 3m	80.33.0300

J6CT - 2 x three-phase transformer set (MMI 12 - MMB 700)

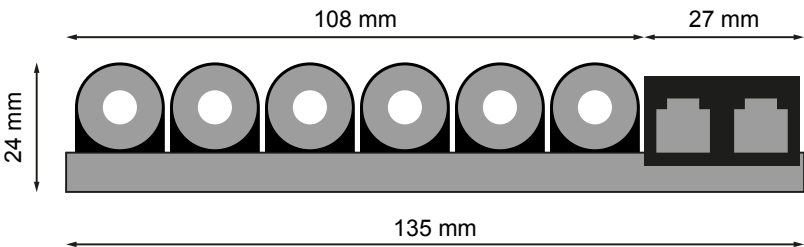
The J6CT is a 6-way transformer strip which allows existing 5A transformers to be converted to 333mV. The transformer strip can be connected to the MMI 12 / MMB 700 quickly and without errors via the RJ12 plug connections.

Download data sheet



Properties

- 2 x three-phase transformer
- Converts existing 5 A transformer to 333 mV
- Cable opening 6 x Ø 12 mm
- 2 x RJ12 socket



J6CT05

Primary current [A]	Voltage output [mV]	Class	Item number
5	333	1	03.06.0005

JC – Cable conversion transformer (MMI 12 – MMB 700)

Download
data sheet



The JC series is a separable transformer that is extremely small and light. The transformer is especially suitable for use with the MMI 12 modules and the MMB 700. The measuring ranges are from 5 A to 600 A rated current.

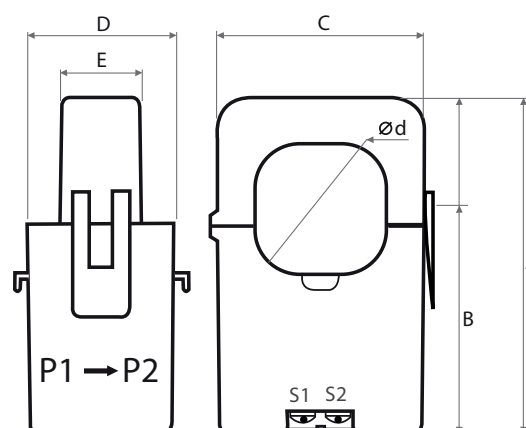
Properties

- Separable transformer
- Extremely small and light
- Measuring ranges (5 A - 600 A)
- Cable openings (10 mm, 16 mm, 24 mm, 36 mm)
- Easy installation



Technical specifications

Accuracy classes	Depending on type, see table
Output connections	2 x M3 screws with connection cover
Overload resistance	100 % continuous, 150 % (1 min.)
Operating temperature range	-20 - 50°C
Relative humidity	≤ 85 %, no condensation
Insulation category	CAT III
Supply voltage	Self-supply



Type	Inner diameter [mm]	Structural width [mm]	Structural height [mm]	Total structural depth [mm]
J10F	10	23	50	26
JC16F	16	29.5	55	31
JC24F	24	45	74.5	34
JC36S	36	57	91	40.5

JC10F

Primary current [A]	Voltage output [mV]	Class	Type	Item number
5	333	3	JC10F	03.10.0005
20	333	3	JC10F	03.10.0020
30	333	3	JC10F	03.10.0030
50	333	3	JC10F	03.10.0050

JC16F

Primary current [A]	Voltage output [mV]	Class	Type	Item number
70	333	1	JC16F	03.16.0070
100	333	1	JC16F	03.16.0100

JC24F

Primary current [A]	Voltage output [mV]	Class	Type	Item number
200	333	1	JC24F	03.25.0300

JC36S

Primary current [A]	Voltage output [mV]	Class	Type	Item number
300	333	1	JC36S	03.37.0300
600	333	1	JC36S	03.37.0600

Connection cable for 3 x JC transformer

The cables are especially suitable for connecting the JC transformer type. They are equipped with an RJ12 connector on one side.

Cable length [metres]	Connection type	Type	Item number
0.3	RJ12-0.5/6	Cable RJ12-JC 0.3m	80.13.0030
0.5	RJ12-0.5/6	Cable RJ12-JC 0.5m	80.13.0050
1	RJ12-0.5/6	Cable RJ12-JC 1m	80.13.0100
3	RJ12-0.5/6	Cable RJ12-JC 3m	80.13.0300

JS – Separable universal transformer (Hall effect)

Download
data sheet



The Hall sensors (H series) consist of laminated folding cores with an integrated Hall measurement in the form of an open circuit. Due to the minimised tolerance in the separation range, the sensors are insensitive to vibrations and shock even at low currents. The flip-up mechanism allows easy installation for fast, secure and uninterrupted current recording with almost any curve shape. The measuring ranges with rated currents from 50 A to 500 A are designed for accuracy class 1.0. The EN61010-1 standard is fulfilled.

The transformers are designed especially for measuring DC currents. They are very precise and are ideally suited for use with the MMI 12DC or the UMD 707DC.

Properties

- Open / close with one movement
- Direct current and broadband alternating current measurement

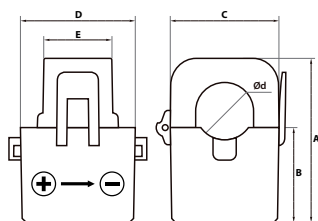
Notes

- The offset values depend on the overcurrent that occurred previously (core hysteresis)
- Due to the possible offset fluctuations, the smallest recordable measured value is defined as 5 % of the rated value
- Cable length 35 cm (extension on request)



Technical specifications

Output voltage (RL ≥ 10 kΩ)	±0.2 - ±4 V
Residual output voltage (JS16NH)	< ±30 mV
Residual output voltage (JS24NH, JS36NH)	< ±20 mV
Output interference voltage (JS16NH)	< 20 mVss
Output interference voltage (JS24NH, JS36NH)	< 10 mVss
Output linearity	< ±1.0 % of rated value
Transient response	< 3 μs (di / dt = NW / 2 μs)
Output voltage temp. coeff. (JS16NH-020)	± 0.2 % / °C
Output voltage temp. coeff. (JS16NH-025, JSNH24, JSNH36)	± 0.1 % / °C
Supply voltage / current	±15 V ±5 % / 25 mA
Insulation resistance	500 V DC / 500 MΩ (between feed-through and terminal)
Power-frequency withstand voltage	1500 V for 1 min (between feed-through and connection)
Operating conditions	-15 - 65 °C at max. 85 % rel. humidity, non-condensing



Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø d [mm]
JS10NH	40.5	23	23.7	26.6	14.5	10
JS16NH	45	26	30	31.6	18.8	16
JS24NH	65	37.5	45	33.7	21.1	24
JS36NH	82.4	48	57.1	40.2	21.1	36

JS10NH

Primary current [A]	Voltage output [V]	Maximum current [A]	Type	Item number
5	4	7.5	JS10NH	04.10.0005
10	4	15	JS10NH	04.10.0010
15	4	22.5	JS15NH	04.10.0015
20	4	30	JS10NH	04.10.0020
25	4	37.5	JS10NH	04.10.0025
50	4	75	JS10NH	04.10.0050

JS16NH

Primary current [A]	Voltage output [V]	Maximum current [A]	Type	Item number
5	4	7.5	JS16NH	04.16.0005
10	4	15	JS16NH	04.16.0010
15	4	22.5	JS16NH	04.16.0015
20	4	30	JS16NH	04.16.0020
25	4	37.5	JS16NH	04.16.0025
50	4	75	JS16NH	04.16.0050
75	4	112.5	JS16NH	04.16.0075
100	4	150	JS16NH	04.16.0100

JS24NH/SH

Primary current [A]	Voltage output [V]	Maximum current [A]	Type	Item number
150	4	225	JS24NH	04.24.0150
200	4	300	JS24NH	04.24.0200
250	4	375	JS24SH	04.24.0250
300	4	450	JS24SH	04.24.0300

JS36SH

Primary current [A]	Voltage output [V]	Maximum current [A]	Type	Item number
400	4	600	JS36SH	04.36.0400
500	4	750	JS36SH	04.36.0500

JS - Cable conversion transformer

Download
data sheet



Properties

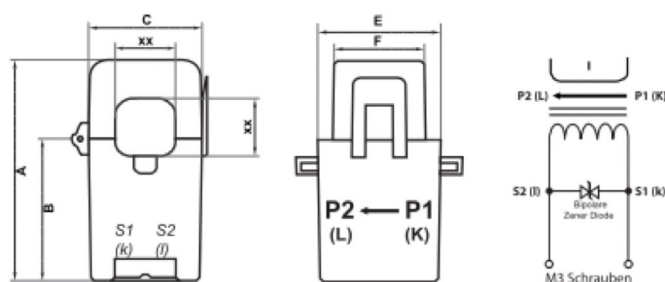
- Open / close with one movement
- Articulated hinge for long service life
- Output overvoltage protection
- Insulating polycarbonate housing for both core halves
- UL and EN 61010-1 certified (CE)
- Output connection terminals

Technical specifications

Accuracy classes	Depending on type, see table
Output connections	2 x M3 screws with connection cover
Max. operating voltage	720 V AC
Overload resistance	Continuous current: 1.2 times the rated value
Conformity	IEC/EN 60044-1, IEC 61010-1
Operating temperature range	-20 - 55 °C
Relative humidity	≤ 85 %, no condensation
Insulation voltage	3 kV for 1 minute
Operating frequency	50/60 Hz
Installation category	CAT II or CAT III 600 V AC
Protection level	bipolar 3.0 Vs



These hinged core transformers provide a secondary output current of 1 A, 5 A and 100 mA respectively, based on the recorded rated input currents, which makes cable lengths non-critical. They can be used for electricity meters and power meters in power distribution systems, control panels, switchgear and other equipment.



Type	A [mm]	B [mm]	C [mm]	xx [mm]	E [mm]	F [mm]
JS17F	64.1	41.1	33.1	17.0	35.8	26.2
JS17S	64.1	41.1	33.1	17.0	35.8	26.2
JS24F	74.5	47.0	45.0	24.0	33.7	21.1
JS24S	74.5	47.0	45.0	24.0	33.7	21.1
JS36S	91.4	57.0	57.1	36.0	40.2	21.1

JS – Cable conversion transformer

JS17S/F

Primary current [A]	Secondary current [A]	Load [VA]	Class	Type	Item number
60	1 A	1	3	JS17S	03.17.1001
75	1 A	1	3	JS17S	03.17.1002
100	1 A	1.25	3	JS17S	03.17.1003
125	1 A	1.5	3	JS17S	03.17.1004
150	1 A	2	3	JS17S	03.17.1005
200	1 A	3	3	JS17S	03.17.1006
150	5 A	1.5	3	JS17S	03.17.5001
50	100 mA	0.01	1	JS17F	03.17.0001
100	100 mA	0.01	1	JS17F	03.17.0002
125	100 mA	0.01	1	JS17F	03.17.0003
150	100 mA	0.01	0.5	JS17F	03.17.0004
200	100 mA	0.01	0.5	JS17S	03.17.0005

JS24S/F

Primary current [A]	Secondary current [A]	Load [VA]	Class	Type	Item number
100	1 A	1	3	JS24S	03.24.1001
125	1 A	1	3	JS24S	03.24.1002
150	1 A	1	3	JS24S	03.24.1003
200	1 A	0.5	1	JS24S	03.24.1004
250	1 A	1	1	JS24S	03.24.1005
300	1 A	1.5	1	JS24S	03.24.1006
100	5 A	1.5	3	JS24S	03.24.5001
150	5 A	1.5	3	JS24S	03.24.5002
200	5 A	0.5	1	JS24S	03.24.5003
250	5 A	0.5	1	JS24S	03.24.5004
300	5 A	0.5	1	JS24S	03.24.5005
400	5 A	0.5	1	JS24S	03.24.5006
200	100 mA	0.01	0.5	JS24F	03.24.0001
250	100 mA	0.01	0.5	JS24S	03.24.0002
300	100 mA	0.01	0.5	JS24S	03.24.0003

JS36S

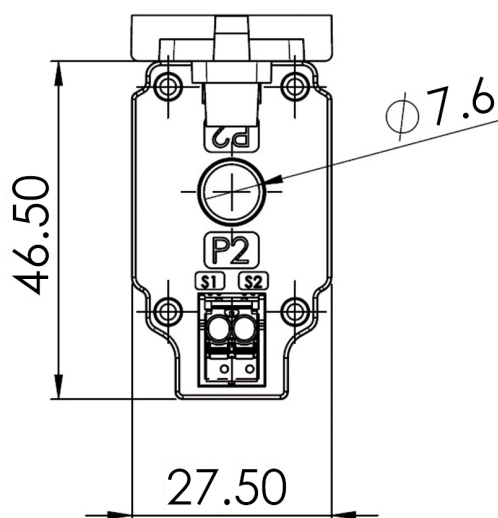
Primary current [A]	Secondary current [A]	Load [VA]	Class	Type	Item number
300	1 A	1.5	1	JS36S	03.36.1001
400	1 A	0.5	0.5	JS36S	03.36.1002
500	1 A	0.5	0.5	JS36S	03.36.1003
600	1 A	0.5	0.5	JS36S	03.36.1004
200	5 A	2.5	3	JS36S	03.36.5001
250	5 A	0.5	1	JS36S	03.36.5002
300	5 A	0.5	1	JS36S	03.36.5003
400	5 A	2.5	1	JS36S	03.36.5004
500	5 A	2.5	1	JS36S	03.36.5005
600	5 A	2.5	1	JS36S	03.36.5006
300	100 mA	0.01	0.5	JS36S	03.36.0001
400	100 mA	0.01	0.5	JS36S	03.36.0002
500	100 mA	0.01	0.5	JS36S	03.36.0003
600	100 mA	0.01	0.5	JS36S	03.36.0004

CTM 7 - Clip-on mini current transformer

Download
data sheet



- Extremely small and compact design
- Thanks to small current range, ideal for use e.g. in computer centres
- Installation directly on 3-phase line circuit breakers possible
- Quick and easy installation of all 3 converters on DIN rail possible
- Simple connection via "picoMAX®" secondary terminals



Round conductor 7.6 mm
Structural width 27.5 mm
Structural height 46.5 mm
Total structural depth 19 mm

Primary current [A]	Secondary current [A]	Load [VA]	Class	Type	Item number
32	1	0.2	1	CTM 7	03.77.0001
35	1	0.2	1	CTM 7	03.77.0002
40	1	0.3	1	CTM 7	03.77.0003
50	1	0.4	1	CTM 7	03.77.0004
60	1	0.4	1	CTM 7	03.77.0005
64	1	0.5	1	CTM 7	03.77.0006

Accessories

Designation	DIN top adapter for CTM 7
Item number	03.05.5018

RCM-CT - Clip-on residual transformer / fault current transformer (type A)

Download
data sheet

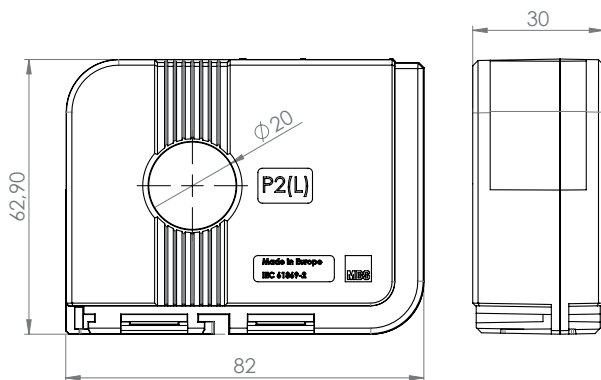


The new generation, the residual /fault current transformer.
Especially suitable for the type UMD RCM measuring devices.

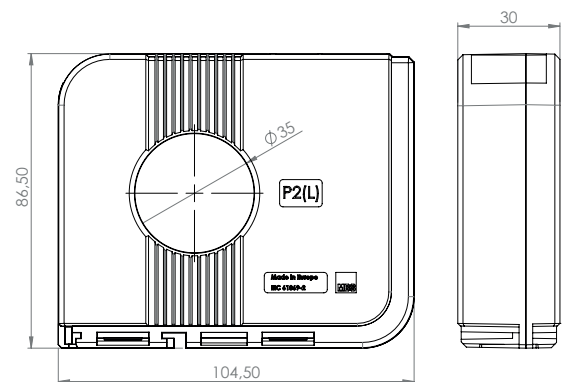
The transformer detects very small currents (0.0167 A) and
therefore, in conjunction with a UMD (RCM), enables residual
and fault currents to be measured.



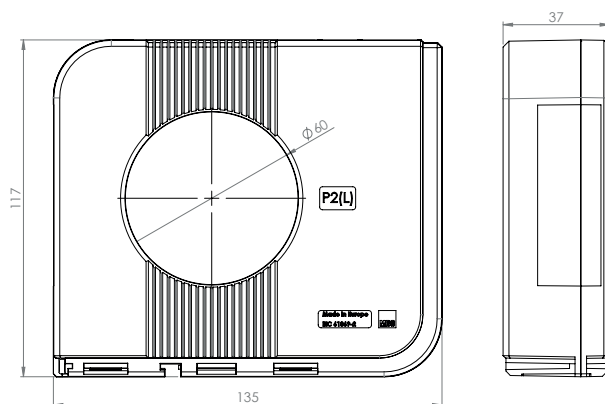
RCM-CT20



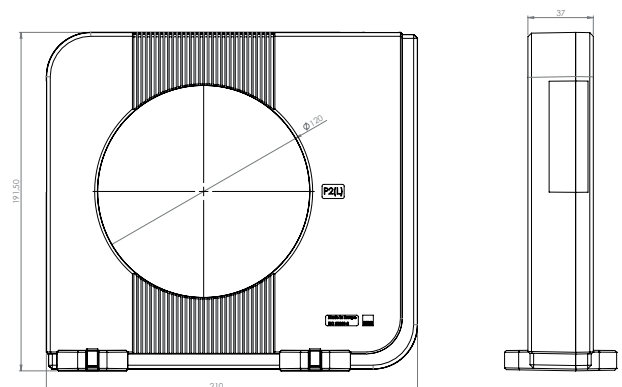
RCM-CT35



RCM-CT60



RCM-CT120



RCM-CT - Clip-on residual transformer / fault current transformer (type A)

	RCM-CT20	RCM-CT35	RCM-CT60	RCM-CT120
Item number	03.38.1020	03.38.1035	03.38.1060	03.38.1120
Data	Residual transformer type A			
Mechanical				
Housing material	Coycoloy C2100HF; RAL 3020; UL 94-VO			
Primary conductor opening	Ø 20 mm	Ø 35 mm	Ø 60 mm	Ø 120 mm
Dimensions [mm]	82 x 63 x 30	104.5 x 86.5 x 30	135 x 117 x 37	210 x 191.5 x 37
Weight	approx. 145 g	approx. 240 g	approx. 390 g	approx. 950 g
Operating temperature range	-10 - 70 °C			
Insulation class	E			
Secondary connection	Spring-loaded terminals, WAGO terminal 741-901; 4-pole; 0,08-2.5 mm ² Stripping length of the connecting wires 5-6 mm			
Electrical insulation coordinates IEC60664-1 / IEC60664-3				
Rated voltage	800 V			
Rated impulse voltage / Pollution level	8 kV / III			
Primary rated residual current I _{ΔN}	10 A	10 A	10 A	10 A
Secondary rated residual current	0.0167 A	0.0167 A	0.0167 A	0.0167 A
Transmission ratio	600/1	600/1	600/1	600/1
Design load	180 Ω / 50.2 mVA	180 Ω / 50.2 mVA	180 Ω / 50.2 mVA	180 Ω / 50.2 mVA
Working frequency range	30 Hz - 3 kHz	30 Hz - 3 kHz	30 Hz - 3 kHz	30 Hz - 3 kHz
Secondary overvoltage protection (integrated)	Suppressor diode P6KE68VA	Suppressor diode P6KE68VA	Suppressor diode P6KE68VA	Suppressor diode P6KE68VA
Measuring range	0.03 - 40 A	0.03 - 40 A	0.03 - 40 A	0.03 - 40 A
Thermal rated continuous residual current I _{cth}	40 A	40 A	40 A	40 A
Thermal rated short-time current I _{th}	60xI _{ΔN} / 1 s	60xI _{ΔN} / 1 s	60xI _{ΔN} / 1 s	60xI _{ΔN} / 1 s
R _{ct} (75°C)	5-8 Ω	5-8 Ω	5-8 Ω	5-8 Ω
L(U _{sek} =100mV; 50 Hz)	8-12 H	8-12 H	8-12 H	5-12 H
Accuracy class	3	3	3	3
Connection lines	Single wire: ≥ 0.75 mm ² Single wires (twisted): ≥ 0.75 mm ² Shield cable: ≥ 0.50 mm ² Recommendation: J-Y(St)Y ≥ 2 x 0.80 mm ²			
Climate classes (IEC 60721)				
Stationary use (IEC 60721-3-3)	3K5 (without condensation and ice formation)			
Transport (IEC 60721-3-2)	2K5 (without condensation and ice formation)			
Long-term storage (IEC 60721-3-1)	1K5 (without condensation and ice formation)			
Protection class				
Housing	IP 40			
Terminals	IP 20			

KBU...D – Cable conversion residual transformer / fault current transformer (type A)

Download
data sheet



Transformer with separable measuring core for recording residual currents. The separable measurement system enables simple, subsequent installation in existing systems, with minimal assembly effort.

For installation, the transformer's locking mechanism is opened, the transformer is placed around the primary conductor and audibly engaged again. After connecting the secondary lines, the measuring set-up is ready for operation immediately.

- Simple and inexpensive installation
- Practical locking system: No need to cut and disconnect the primary conductors
- Available in various dimensions
- Suitable for a wide range of measuring devices



Technical specifications

Design	Low-voltage residual transformers
Housing material	Polycarbonate, grey RAL 7035
Max. voltage for electrical operating equipment	$U_m < 0.72 \text{ kV}$
Insulation test voltage	3 kV Ueff.; 50 Hz; 1 min
Rated frequency	50 Hz
Secondary connections	Brass profile, nickel-plated, max. 4.0 mm ²
Rated transmission ratio I_{pn} / I_{sn}	10 / 0.0167 A
Working frequency range	30 - 1000 Hz
Secondary load	100 - 180 Ohm
Operating temperature range	-5 - 45 °C
Max. temperature of the primary conductor	90 °C

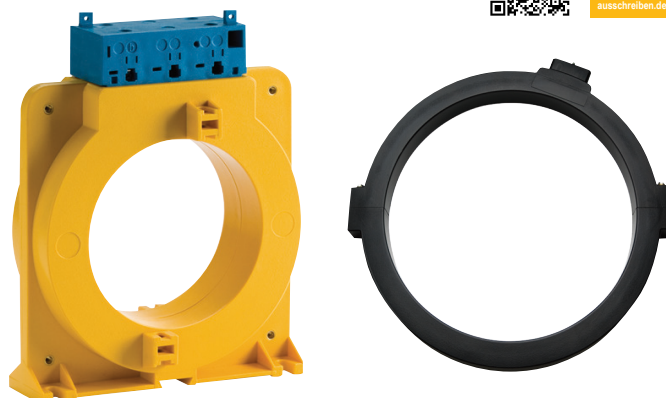
Type	Current range	Transmission ratio	Max. primary residual current [mA]	Rail	Round conductor	Dimensions (W x H x D)	Item number
KBU 23D	100 - 400 A	600/1	18000	20 x 30 mm	20 mm	93 x 106 x 58 mm	03.23.0600
KBU 58D	250 - 1000 A	600/1	18000	50 x 80 mm	50 mm	125 x 152 x 58 mm	03.58.0600
KBU 812D	250 - 1500 A	600/1	18000	80 x 120 mm	80 mm	155 x 198 x 58 mm	03.81.2600

RCM-CT V2 / RCM-SCT – residual transformer / fault current transformer (type A)

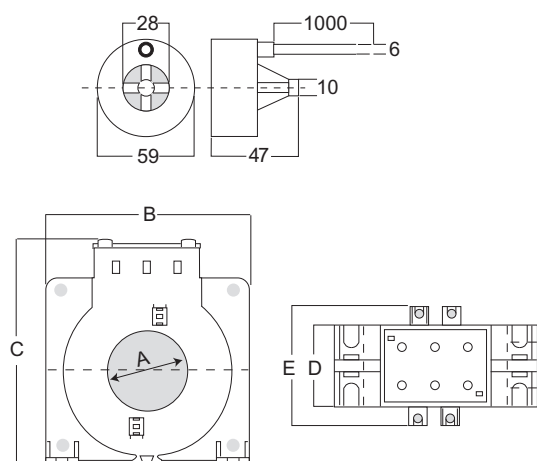
The second generation of residual / fault current transformers. Suitable for all measuring devices with residual current input from PQ Plus. In the variants with closed and open core.

The transformers detect very small currents and therefore enable measuring, storing and evaluating residual and fault currents using a measuring device with residual current input.

Download
data sheet

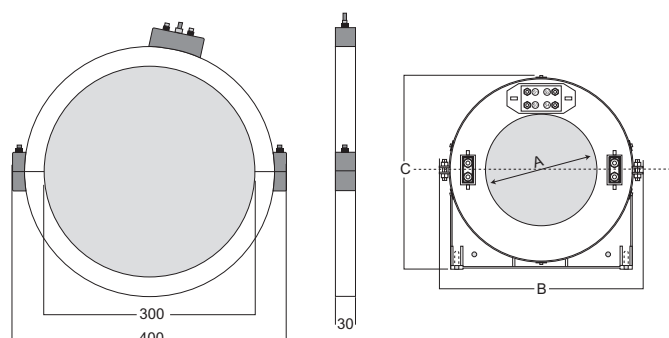


RCM-CT V2



Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Weight
RCM-CT V2 35	35	92	113	36	56	250 g
RCM-CT V2 60	60	105	138	36	56	300 g
RCM-CT V2 80	80	125	160	36	56	350 g
RCM-CT V2 110	110	165	198	36	56	500 g
RCM-CT V2 140	140	200	234	36	56	700 g
RCM-CT V2 210	210	290	323	44	64	1200g

RCM-SCT



Type	A [mm]	B [mm]	C [mm]	Weight
RCM-SCT 110	110	235	219	250 g
RCM-SCT 150	150	275	259	300 g
RCM-SCT 300	300	425	409	500 g

Image: All rights reserved
by legrand
RCM SCT = TDA...
RCM CT = TDG...

RCM-CT V2/ RCM-SCT – Residual transformer / fault current transformer (type A)

Closed core

	RCM-CT-V2 35	RCM-CT-V2 60	RCM-CT-V2 80	RCM-CT-V2 110	RCM-CT-V2 140	RCM-CT-V2 210
Item number	03.38.3035	03.38.3060	03.38.3080	03.38.3110	03.38.3140	03.38.3210
Data	Residual transformer type A (closed core)					
Mechanical						
Housing material	PC V0 self-extinguishing according to UL94					
Primary conductor opening	Ø 35 mm	Ø 60 mm	Ø 80 mm	Ø 110 mm	Ø 140 mm	Ø 210 mm
Dimensions [mm]	92 x 113 x 36	105 x 138 x 36	125 x 160 x 36	165 x 198 x 36	200 x 234 x 36	290 x 323 x 36
Weight	approx. 250 g	approx. 300 g	approx. 350 g	approx. 500 g	approx. 700 g	approx. 1200 g
Operating temperature	-5 - 55 °C					
Storage temperature	-40 - 70 °C					
Secondary connection	Screw mounting with terminal cover					
Electrical insulation coordinates						
Rated voltage of the test core Un	720 V L-N					
Dielectric strength at mains frequency	3 kV (50 Hz / 1 min)					
Rated impulse withstand voltage	8 kV 1.2/50 µs					
Properties						
Primary to secondary conversion measurement ratio	700/1					
Primary current	Protection of the current conductors routed through the toroidal transformer					
Test current 6 In	Imax (the values only apply to conductors that are routed through the centre of the ring transformer.					
Thermal continuous current Ith	90 kA according to EN/IEC 61869-1, 61869-2					

Separable core

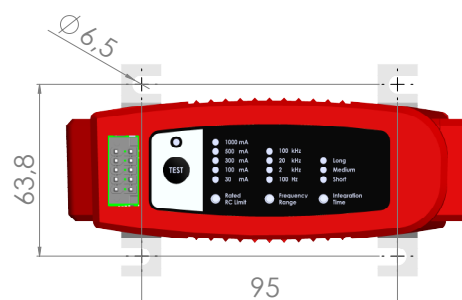
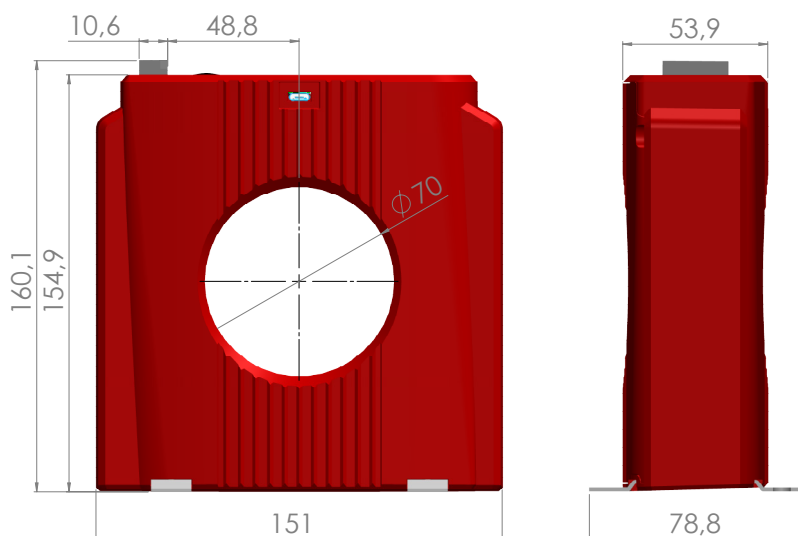
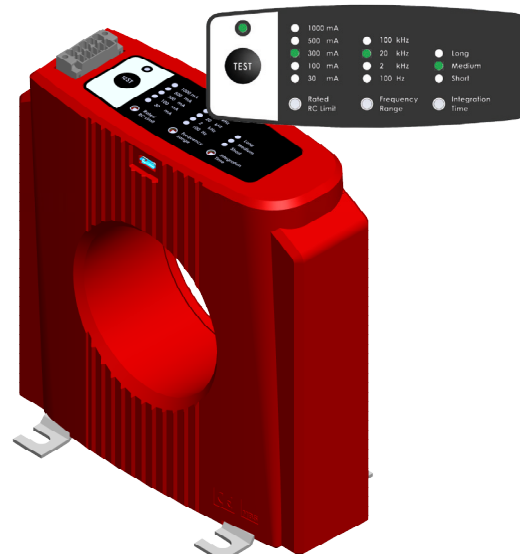
	RCM-SCT110	RCM-SCT150	RCM-SCT300
Item number	03.38.4110	03.38.4150	03.38.4310
Data	Residual transformer type A (separable core)		
Mechanical			
Housing material	PC V0 self-extinguishing according to UL94		
Primary conductor opening	Ø 110 mm	Ø 150 mm	Ø 310 mm
Dimensions [mm]	235 x 219 x 79	275 x 259 x 79	425 x 409 x 79
Weight	approx. 250 g	approx. 300 g	approx. 500 g
Operating temperature	-5 - 55 °C		
Storage temperature	-40 - 70 °C		
Secondary connection	Screw mounting with terminal cover		
Electrical insulation coordinates			
Rated voltage of the test core Un	720 V L-N		
Dielectric strength at mains frequency	3 kV (50 Hz / 1 min)		
Rated impulse withstand voltage	8 kV 1.2/50 µs		
Properties			
Primary to secondary conversion measurement ratio	700/1		
Primary current	Protection of the current conductors routed through the toroidal transformer		
Test current 6 In	Imax (the values only apply to conductors that are routed through the centre of the ring transformer.		
Thermal continuous current Ith	90 kA according to EN/IEC 61869-1, 61869-2		

RCM-CT-V2 Type B/B+ – Residual current monitor all-current sensitive (Type B/B+)

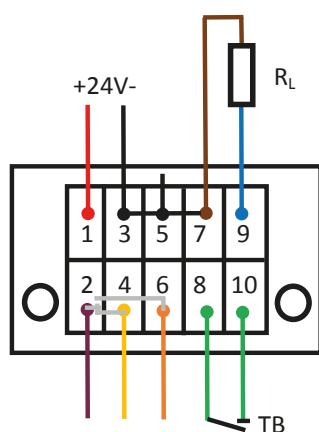
Download
data sheet

The RCM-CT-V2 type B/B+ residual current monitor can measure DC and AC residual currents with frequencies of up to 100 kHz. The true RMS value (TRMS) is converted into a standard 4-20 mA DC signal, therefore offering the user a wide range of connection options. As a rule, the RCM-CT-V2 type B/B+ is connected to a universal measuring device. As the RCM-CT-V2 type B/B+ already complies with DIN 62020, the connected devices only have to be able to process the standard signal.

In addition to the 4-20 mA DC output, the device has a built-in relay that switches between 50 and 100 % of the rated residual current like conventional RCDs. These contacts can switch external audible or visual warning devices. However, it can also be used to disconnect the circuit breaker. The status of the relay output is indicated via the status LED. A 24 VDC supply voltage is provided for the power supply.



Typical connection variant



- 1: 24 V DC
- 2: Common relay contact
- 3: 0V DC
- 4: Relay NC, @Alarm: closed
- 5: 0 V DC
- 6: Relay NO, @Alarm: open
- 7: 0 V DC
- 8: External test button, contact 1
- 9: Analogue 4 - 20 mA output
- 10: External test button, contact 2

Image source: MBS AG

Technical data

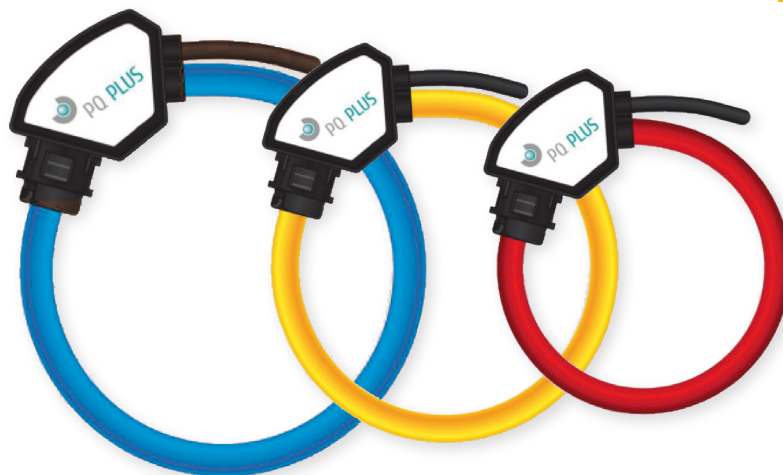
Type	RCM-CT-V2 70 Type B/B+	
Item number	03.38.2170	
Response residual current character		Type B / B+
Rated voltage range of the monitored circuit	U_n	0 - 690 Vrms
Rated frequency of the monitored circuit	f_n	50 / 60 Hz
Applicable rated frequency range of the monitored circuit	f_n	0 - 400 Hz
Rated current	I_n	100 A ($I_{\Delta n}=30$ mA); 300 A ($I_{\Delta n}=100$ - 1000 mA)
Max. overcurrent with regard to non-tripping	I_{max}	600 A ($I_{\Delta n}=30$ mA); 1800 A ($I_{\Delta n}=100$ - 1000 mA)
Thermal rated short-time residual current	$I_{\Delta th}$	200 A
Thermal rated continuous residual current	$I_{\Delta cth}$	100 A
Rated surge residual current	$I_{\Delta dyn}$	10 kA
Rated insulation voltage	U_i	700 V
Rated impulse withstand voltage	U_{imp}	8 kV
Overvoltage category	OVC	IV
Pollution level	PD	3
Current output 4 - 20 mA		
Current output 0 - 0.4 Arms / 0 - 2 Arms	I_{out}	4 - 20 mA DC
Current output at 0 % $I_{\Delta n}$	0 %	4 - 4.2 mA DC
Current output at 0.4 Arms / 2 Arms	100 %	19 - 21 mA DC
Peak-to-peak noise	pk-pk	≤ 0.25 %
Resolution	Res_{out}	0.01 mA
Short-circuit current	$I_{s,out}$	< 25 mA DC, short-circuit proof
Load resistance / load	$R_{t,max}$	$\leq 900 \Omega$
Typical load resistance	R_{type}	250 Ω
Voltage at the open terminals	$U_{oc,out}$	24 V DC
Response time 1x $I_{\Delta n}$, step response 10 - 90 %	$t_{10-90\%}$	$\leq T_i$
Response time 1x $I_{\Delta n}$, step response 0 - 50 %	$t_{0-50\%}$	$\leq T_i/2$
Response time 5x $I_{\Delta n}$, step response 10 - 90%	$5 \times t_{10-90\%}$	$\leq T_i/30$
Response time 5x $I_{\Delta n}$, step response 0 - 50%	$5 \times t_{0-50\%}$	$\leq T_i/50$
Residual current data		
Rated residual current relay at 50/60 Hz - selectable	$I_{\Delta n}$	30 mA - 100 mA - 300 mA - 500 mA - 1000 mA
Residual current frequency range - selectable	$f_{\Delta n}$	DC, 100 Hz, 2 kHz, 20 kHz, and 100 kHz
Rated response residual current output at 50/60 Hz	$I_{\Delta n}$	100 % $I_{\Delta n}$ +0 - 20 %
Rated non-response residual current relay at 50/60 Hz	$I_{\Delta no}$	50 % $I_{\Delta n}$ 20 - 0%
Frequency dependence of the rated response residual current	$I_{\Delta n, freq}$	150 Hz: $2.4 \cdot I_{\Delta n}$; ; 400 Hz: $6 \cdot I_{\Delta n}$; 1000 Hz: $14 \cdot I_{\Delta n}$ (or 2 Arms max)

Supply voltage		
Rated voltage	U_e	20.4 - 26.4 V DC
Overvoltage category	OVC_e	III
Rated impulse withstand voltage	U_{impe}	1.5 kV
Rated insulation voltage	U_{le}	30 V
Own consumption	P_e	< 4 W
Relay output		
Contact type		1 changeover contact (NC+NO)
Rated voltage	U_r	30 V AC/DC
Rated current	I_r	1 A AC/DC
Maximum response time $1 \times I_{\Delta n}$	$t_r, 1 \times I_{\Delta n}$	$\leq T_i$
Maximum response time $5 \times I_{\Delta n}$	$t_r, 5 \times I_{\Delta n}$	$\leq T_i/2$
Response threshold $I_{\Delta n}$		100 %; 0 - 20 %
Locking function with reset (int/ext)		Yes
Shortest non-trigger time	$t_{nr}, 1 \times I_{\Delta n}$	$\leq T_i/2$
Switching operations		> 20,000
External test button and reset button		
Cable length for external test button	L_{lk}	0 - 10 m
Short-circuit current	$I_{sc,lk}$	< 4 mA DC, short-circuit proof
Voltage at the open terminals:	$U_{oc,lk}$	24 V DC
Test current	I_{test}	$I_{\Delta n}$, max. ± 20 %
Environment / mechanical parameters		
Operating temperature range		-20 - 55 °C
Storage temperature range		-40 - 85 °C
Relative humidity		≤ 80 %; non-condensing
Weight		0.750 kg
Plug socket		Phoenix Contact DFMC DFMC 1.5/ 5-ST-3.5-LR — PN: 1790519 or compatible
Design specification		EN / IEC 62020-1:2020

KBU Flex 80 / 115 / 200 – Flexible transformers

The KBU Flex is a Rogowski coil for exact measurement of alternating currents with an output signal of 333 mV and therefore for direct connection to UMD measuring devices with a 333 mV input.

Download
data sheet



Type	KBU FLEX 80	KBU FLEX 115	KBU FLEX 200
Item number	03.38.3332	03.38.3333	03.38.3334
Rogowski coil length [mm]	285	385	628
Coil diameter in installed condition [mm]	80	115	200
Rated currents	300 A	1000 A	3000 A
Current ranges	100, 150, 200, 250, 400, 500, 600, 1.2K, 1.5K, 2.4K, 2.5K, 4K, 5K, 6K, on request		
Max. output	1.3 V _{AC}		
Accuracy	< 1 % between 2 % and 120 % of the rated current		
Output signal	333 mV _{AC}		
Power requirement	< 0.1 W (maximum 15 mA at +5 V DC)		
Connection line	2 m		
Phase angle	< 1 ° of the rated current		
Frequency	50 / 60 Hz		
Linearity	± 0.2 %		
Position error	max. ± 1 %		
Ambient temperature	-30 - 80 °C		
Rated insulation	CAT III 1000 V; CAT IV 600 V		

KBU FLEX SET – Flexible transformers

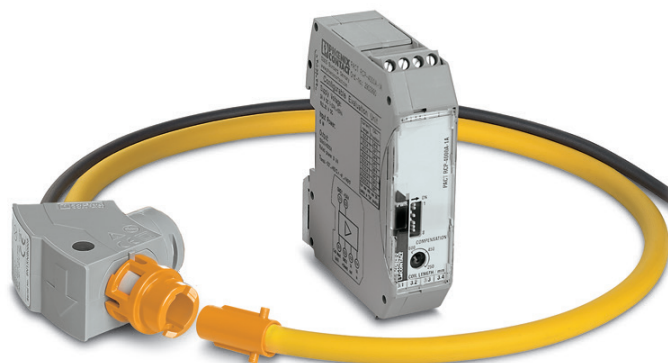
Download
data sheet



The set consists of two components:

- a 1 A measuring transducer and
- a Rogowski coil.

This is available in three different sizes.
The Rogowski coil is used for AC current
measurement of busbars and power lines.



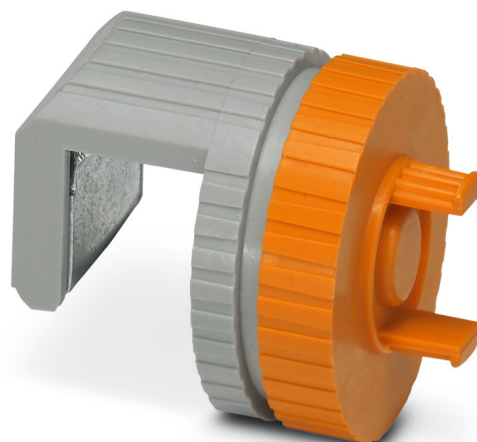
Type	KBU FLEX SET 300	KBU FLEX SET 450	KBU FLEX SET 600
Item number	03.38.2130	03.38.2140	03.38.2160
Rogowski coil length [mm]	300	450	600
Coil diameter in installed condition [mm]	95	140	190

Further technical data		
Transducer power supply	Rated supply voltage	19.2 - 30 V DC
	Rated supply voltage range	19.2 - 30 V DC
	Maximum current consumption	190 mA
	Power input	4 W
Measuring coil input data	Frequency measurement range	40 - 20000 Hz
	Position error	< 1 %
	Linearity error	0.1 %
Transducer input data	Measurement ranges (current)	100 A, 250 A, 400 A, 630 A, 1000 A, 1500 A, 2000 A, 4000 A
	Configurable/programmable	via DIP switches
	Phase angle	< 1 °
	Rated power	1.5 VA
Transducer signal input	Input signal (at 50 Hz)	100 mV (1000 A)
	Input impedance	27 kΩ (smallest measuring range)
Measuring coil signal output	Output signal (at 50 Hz)	100 mV (without load, at 1000 A)
	Output voltage (in no-load operation)	$V_{OUT} = M \cdot di/dt$
	Output voltage (sinusoidal, no-load)	100 mV ($V_{OUT} = 2 \cdot \pi \cdot M \cdot f \cdot I$ ($M = 0.318 \mu H$; Example: at 50 Hz; $I = 1000 A$))
	Length of the signal line	3000 mm
Transducer signal output	Current output signal	0 - 1 A (AC)
	Load	0 - 1.5 Ω
	Operating voltage display	LED green
General data	Standards/Regulations	IEC 61010-1, IEC 61010-2-032

KBU FLEX SET accessories – FLEX holder

A retainer that secures the Rogowski coil to busbars, with a thickness of 10 - 15 mm. During installation, the coil housing is pushed onto the retainer flange and engages automatically.

Designation	FLEX holder
Item number	03.38.2215
Suitable for all coil lengths	



Reactive power compensation

UMC 26 – Reactive power controller

Download
data sheet

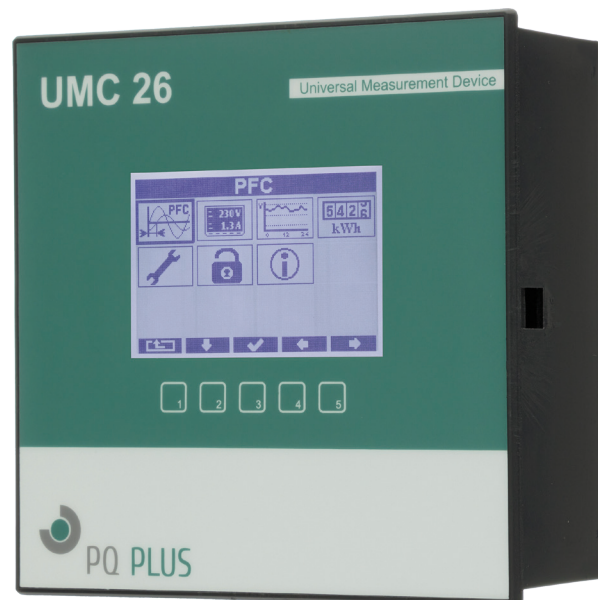


UMC 26

The UMC 26 is a powerful front panel measuring device and 1/3-phase reactive power controller, and replaces all analogue measuring devices and individual controllers. It measures 3-phase current and voltage in 4-quadrant operation in class 0.2 and therefore the work in class 0.5, as well as all usual network quantities, e.g. harmonics up to the 50th harmonic.

As a reactive power controller, it regulates compliance with contractually agreed cos phi ratios by switching off/on capacitor stages. It can be connected via transformers with N/5 A and N/1 A. It has a bright, large and easy-to-read digital display. It is easy to operate via 4 function keys. It is used in both 400 V networks and 690 V networks.

Relay output versions with 7; 9; 16 and 18 outputs are available. These can also be used as alarm outputs. It can also be equipped with an Ethernet interface and a web server. PLC systems and building management systems can therefore be connected easily. Digital inputs/outputs and a serial RS485 connection with Modbus are integrated. The ENVIS software is used to set parameters for the device and to visualise it.



Application

As a reactive power controller in compensation systems.

Standard

MEASUREMENT 3U, 3I	OUTPUTS 18xRELAY	AUTOMATIC SETUP	CAPACITORS PROTECT	SENSITIVITY 5mA	ALARMS	SUPPLY AC DC SEPARATE
MEASUREMENT U, I, P, Q	PF, cos, THD	+/- Wh, varh	POWER IMPORT EXPORT	HARMONICS 50	SAMPLING 6,4kHz	THERMOMETER
CAPACITORS 1p, 2p, 3p	CHOKES 1p, 2p, 3p					

Optional

ETH	WEBSERVER	USB
RS485	MODBUS	FLASH 512MB
INPUTS 2nd RATE	INPUTS Pt100	

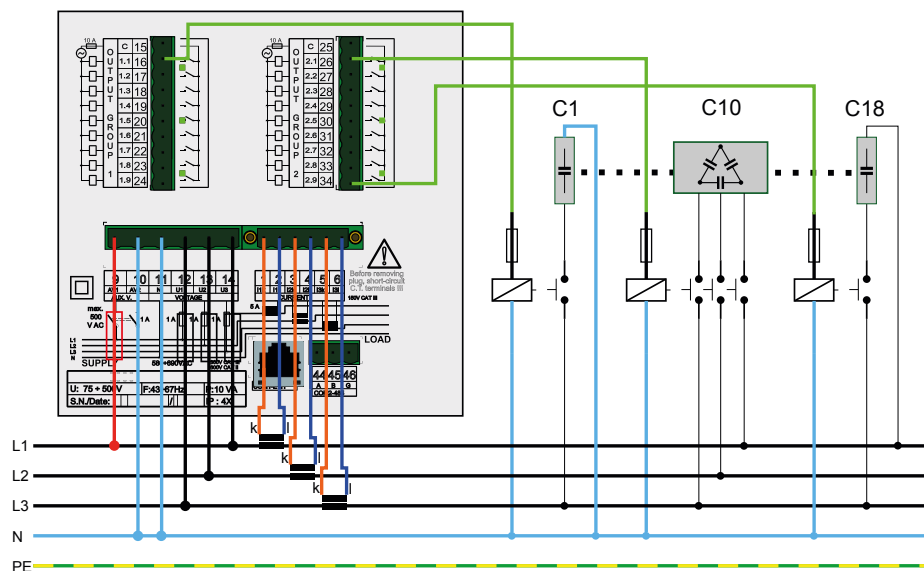
Supply voltage	Measurement voltage	Functions					Communication					Type	Item number
75 - 500 V AC 90 - 600 DC	20 - 1090 V	max. relay voltage / switching voltage V AC	Digital inputs	Relay outputs	Memory size in MB	Clock	RS485	Ethernet	Gateway Modbus master	M bus	USB		
•	•	250	1	7	-	-	-	-	-	-	-	UMC 2607	10.10.0700
•	•	250	1	7	-	-	-	•	-	-	-	UMC 2607 E	10.10.0702
•	•	400	1	7	512	•	•	•	-	-	•	UMC 2607 ME	10.10.0710
•	•	250	1	16	-	-	-	-	-	-	-	UMC 2616	10.10.1600
•	•	250	1	16	-	-	-	•	-	-	-	UMC 2616 E	10.10.1602
•	•	400	1	16	512	•	•	•	-	-	•	UMC 2616 ME	10.10.1610

Technical specifications – UMC 26

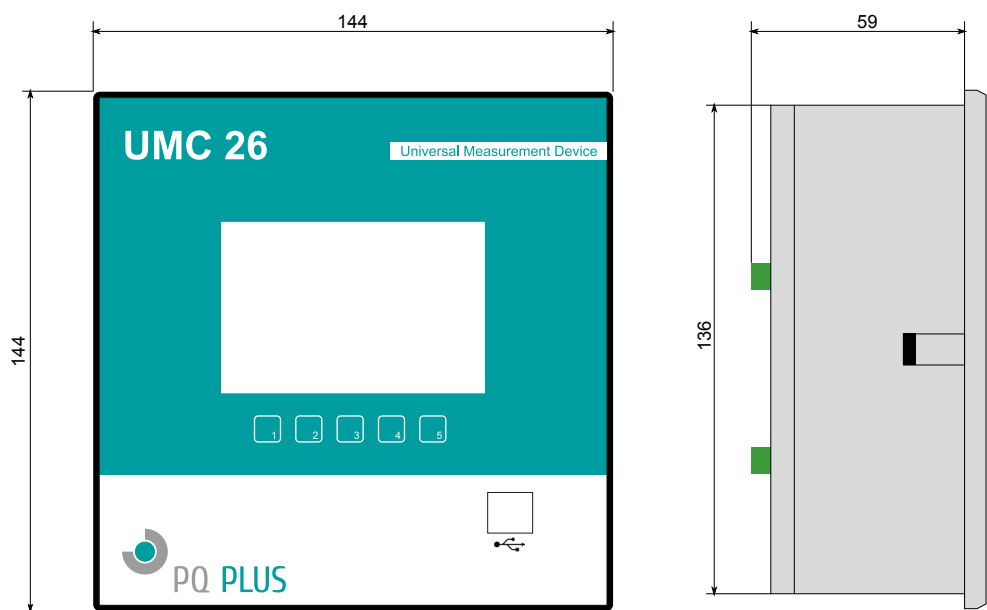
		UMC 2607 / 2616		UMC 2607E / 2616E		UMC 2607ME / 2616ME	
Inputs and outputs	Digital inputs/outputs	1 input		1 input		1 input	
	Relay inputs/outputs	7 / 16 outputs		7 / 16 outputs		7 / 16 outputs	
	Analogue inputs/outputs	None		None		None	
	Residual current inputs	None		None		None	
	Temperature inputs	None		None		None	
Communication	Interfaces	None		Ethernet		RS485, Ethernet, front USB	
	Communication protocols*	Modbus RTU, Modbus TCP/IP, SMTP, SNMP, DHCP, JSON					
Further functions	Alarms*	Integrated logic: Limit values for exceeding/falling below freely defined values					
	Internal temperature measurement	-40 - 80 °C					
Data logger	Storage capacity and allocation*	512 MB flash freely partitionable into several archives					
	Measured value storage*	Freely configurable measured values with different averaging intervals					
Electrical connection	Supply voltage	230 V variant: 75 - 415 V AC / 100 - 500 V DC					
	Power input	20 VA / 8 W					
	Overvoltage category	CAT III / 300 V					
Accuracy classes		Voltage:	Cl. 0.5	Current:	Cl. 0.5	Frequency:	Cl. 0.05
		Active power:	Cl. 0.5	Reactive power:	Cl. 1	Apparent power:	Cl. 0.5
		Harmonic oscillations:	Cl. 2	Power factor:	Cl. 0.5	cos phi:	Cl. 0.5
		Active energy:	Cl. 0.5	Reactive energy:	Cl. 2	Apparent energy	Cl. 0.5
Measuring inputs	Voltage	U L-N: 10 - 625 V AC					
		U L-L: 20 - 1090 V AC					
	Overload voltage	Permanent U L-N: 1000 V AC / peak overload for max. 1 sec. U L-N: 2000 V AC					
	Input impedance voltage	6 MOhm					
	Input load voltage	< 0.05 VA					
	Frequency	40 - 70 Hz (DC-500 mode: 0 - 500 Hz)					
	Transformers	3x 1 / 5 A					
	Overload current	Permanent: 7.5 AAC / peak overload for max. 1 sec: 70 AAC					
	Input impedance current	< 10 mOhm					
	Input load current	< 0.5 VA					
	Sampling rate	6.4 kHz					
	Harmonics per order	1st - 50th for current and voltage					
	Measurement procedure	IEC 61000-4-30 Cl. S					
Mechanical attributes	Operating temperature range	-20 - 60 °C at < 95 % relative humidity					
	Bearing temperature range	-40 - 80 °C at < 95 % relative humidity					
	Protection class front / rear	IP 40 / IP 20					
	Dimensions WxHxD	144 x 144 x 80 mm					
	Weight	0.8 kg					
Internal real-time clock	Accuracy*	+/- 2 s per day at 0 - 40 °C					
	Possible synchronisation*	NTP/SNTP; external GPS receiver; external pulses; system frequency; PC time					
FW modules		PQ S: optional*		GO: optional*		RCS: optional*	
		MM: optional*		UDP: optional*			

* depending on the variant

Typical connection variant – UMC 26



Dimensional drawings – UMC 26



Power capacitors

PFCs are used for fixed compensation on motors, pumps and transformers. They are designed as MKP capacitors with M12 thread in dry technology and therefore have a long service life and low power loss. They are supplied with integrated discharge resistors.

Application:

Fixed compensation and in compensation systems

Download
data sheet



Rated power in kvar at a rated voltage of:		Capacitance in µF	[A]	Filling	Dimensions in mm*	Weight kg	Protective cap	Type	Item no.
400 V	440 V								
2.07	2.50	3×13.70	3×3.3	Gas	Ø85x175/223	0.6	CO85	CSADG – 0.44/2.5-HD	40.44.0002
2.60	3.15	3×17.26	3×4.1	Gas	Ø85x175/223	0.6	CO85	CSADG – 0.44/3.15-HD	40.44.0003
4.13	5.00	3×27.40	3×6.6	Gas	Ø85x175/223	0.7	CO85	CSADG – 0.44/5-HD	40.44.0005
5.17	6.25	3×34.25	3×8.2	Gas	Ø85x175/223	0.8	CO85	CSADG – 0.44/6.25-HD	40.44.0006
8.26	10.00	3×54.81	3×13.1	Gas	Ø85x245/293	1.2	CO85	CSADG – 0.44/10-HD	40.44.0010
10.33	12.50	3×68.51	3×16.4	Gas	Ø85x245/293	1.2	CO85	CSADG – 0.44/12.5-HD	40.44.0012
12.40	15.00	3×82.21	3×19.7	Gas	Ø85x245/293	1.4	CO85	CSADG – 0.44/15-HD	40.44.0015
15.04	18.20	3×99.75	3×23.9	Gas	Ø85x245/293	1.7	CO85	CSADG – 0.44/18.2-HD	40.44.0018
16.53	20.00	3×109.61	3×26.3	Gas	Ø85x245/293	1.8	CO85	CSADG – 0.44/20-HD	40.44.0020
20.66	25.00	3×137.01	3×32.8	Gas	Ø100x245/293	1.9	-	CSADG – 0.44/25-HD	40.44.0025
23.22	28.10	3×154.00	3×36.9	Gas	Ø116x245/296	2.1	-	CSADG – 0.44/28.1-HD	40.44.0028
24.79	30.00	3×164.42	3×39.4	Gas	Ø116x245/296	2.2	-	CSADG – 0.44/30-HD	40.44.0030
33.06	40.00	3×219.22	3×52.5	Gas	Ø136x261/323	3.8	-	CSADG – 0.44/40-HD	40.44.0040
41.32	50.00	3×274.03	3×65.7	Gas	Ø136x355/418	5.5	-	CSADG – 0.44/50-HD	40.44.0050

Rated power in kvar at a rated voltage of:		Capacitance in µF	[A]	Filling	Dimensions in mm*	Weight kg	Protective cap	Type	Item no.
400 V	440 V								
2.5	-	3×16.58	3×3.6	Gas	Ø85x175/223	0.6	CO85	CSADG – 0.4/2.5-HD	40.40.0002
3.15	-	3×20.89	3×4.6	Gas	Ø85x175/223	0.7	CO85	CSADG – 0.4/3.15-HD	40.40.0003
5	-	3×33.16	3×7.2	Gas	Ø85x175/223	0.9	CO85	CSADG – 0.4/5-HD	40.40.0005
6.25	-	3×41.45	3×9.0	Gas	Ø85x175/223	1	CO85	CSADG – 0.4/6.25-HD	40.40.0006
10	-	3×66.31	3×14.5	Gas	Ø85x245/293	1.2	CO85	CSADG – 0.4/10-HD	40.40.0010
12.5	-	3×82.89	3×18.1	Gas	Ø85x245/293	1.4	CO85	CSADG – 0.4/12.5-HD	40.40.0012
15	-	3×99.47	3×21.7	Gas	Ø85x245/293	1.5	CO85	CSADG – 0.4/15-HD	40.40.0015
20	-	3×132.63	3×28.9	Gas	Ø100x245/293	1.9	CO85	CSADG – 0.4/20-HD	40.40.0020
25	-	3×165.79	3×36.1	Gas	Ø116x245/296	2.2	-	CSADG – 0.4/25-HD	40.40.0025
30	-	3×198.94	3×43.4	Gas	Ø116x245/296	2.5	-	CSADG – 0.4/30-HD	40.40.0030
40	-	3×265.26	3×57.8	Gas	Ø136x261/323	3.8	-	CSADG – 0.4/40-HD	40.40.0040
50	-	3×331.57	3×72.3	Gas	Ø136x355/418	5.5	-	CSADG – 0.4/50-HD	40.40.0050

* D x H / total H = height of the cup without connecting piece and without fastening/earthing screw

Further types on request

Protective cap	Type	Description	Item no.
Protective cap with cable entry IP54	CO85	For power capacitors with a diameter of 85mm and a cable entry PG16	40.19.0008

Accessories

PQ.touch – Web panel

The PQ.touch web panel can be used to visualise the web server of all network-capable universal measuring devices and other network participants. The web panels have an automation browser and are therefore customisable. PQ.touch is impressive thanks to its elegant design and the capacitive touch display.

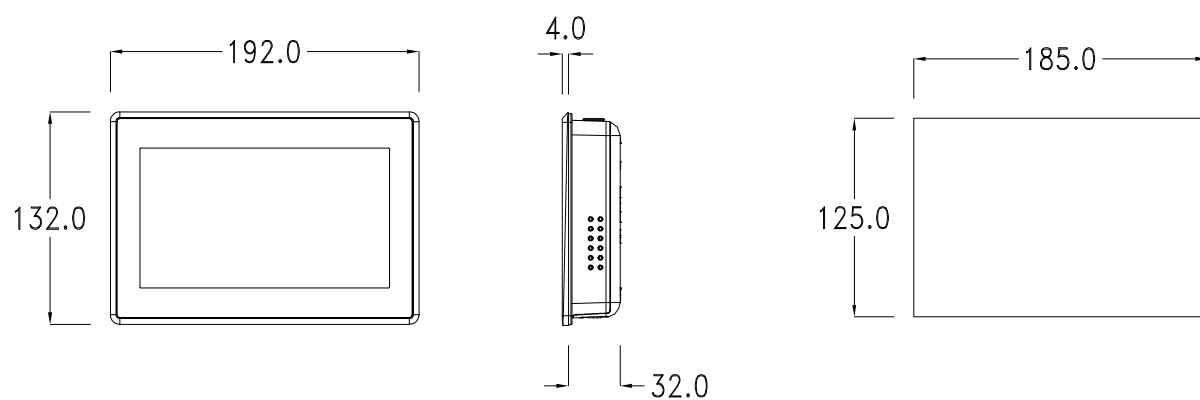


Download
data sheet

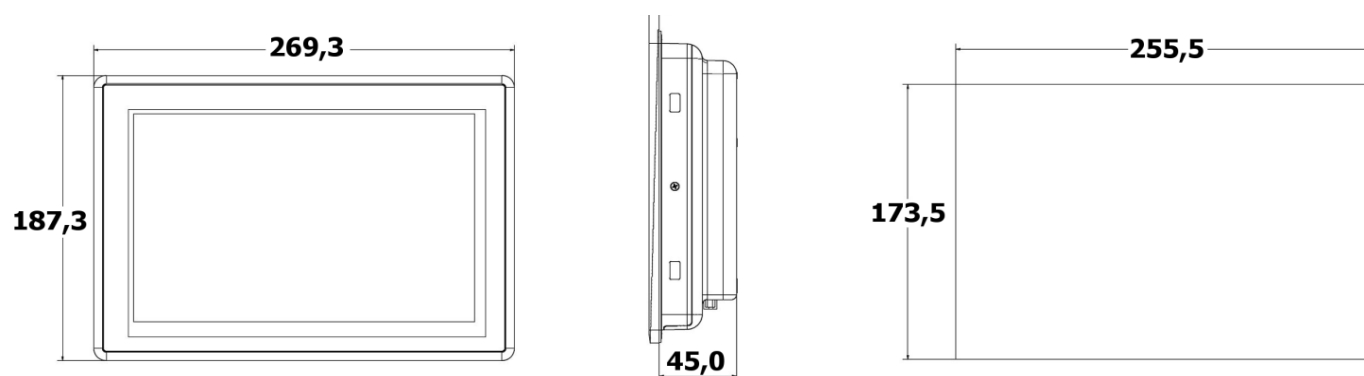


Designation	PQ.touch 7	PQ.touch 10	PQ.touch 15
Item number	17.16.3107	17.16.3110	17.16.3115
Display size	7"	10.3"	15.6"
Display resolution	1024 x 600 pixels	1280 x 800 pixels	1366 x 768 pixels
Display technology	Touch screen capacitive, TFT wide screen with 16 million colours		
Backlight	LED dimmable - 50,000 hours of use		
Brightness	500 cd/m ²		
Processor	ARM Cortex A9 Quad-Core		
RAM working memory	2 GB DDR3L		
Flash memory	8 GB eMMC		
Browser	Automation Browser, Google Chrome, Android WEBViewer		
Communication	1 x RS232/485 + 1 x 1 RJ45 Ethernet GB + 1 x RJ45 Ethernet 10/100 MB + 2 x USB 2.0 + 1 x SDHC card slot + 1 x mini PCI express slot		
Supply voltage	12 - 32 V DC		
Own consumption	7 W		
Operating temperature	-10 - 50 °C		
Storage temperature	-20 - 65 °C		
Front protection class	IP 66		
Weight	0.5 kg	2.5 kg	3.7 kg
Certificates	CE / EN60068-2-6 / EN60068-2-27 / humidity EN60068-2-30		

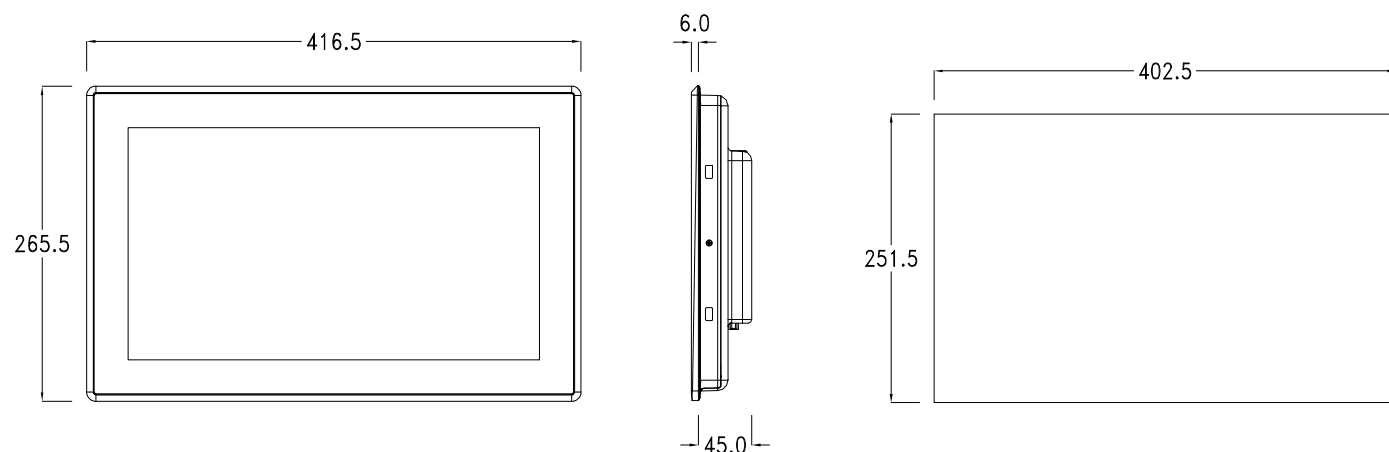
PQ-touch 7 dimensional drawings



PQ.touch 10 dimensional drawings



PQ.touch 15 dimensional drawings



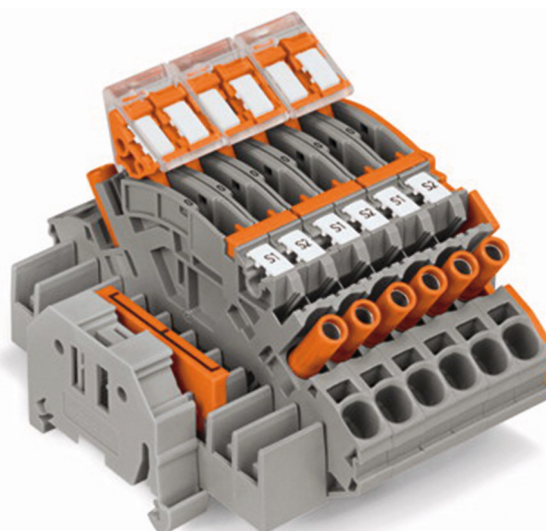
Terminal block systems

Download
data sheet



TOPJOB®S – Terminal block – Series 2007 – for transformers

- With the TOPJOB®S terminal block, you can short-circuit current transformers, for example. A measuring device can only be connected to the test socket on the measuring device side after the circuits have been completely disconnected.
- For mounting on DIN35 rail
- Intuitive and convenient operation as well as precise display of the switching status
- High functionality with small dimensions
- All 2007 series terminals are rated for 30 A/500 V IEC and 300 V UL.
- With a terminal width of 8 mm, the maximum connectible cross-section is 10 mm² (AWG 8) for single and fine-stranded conductors, and 6 mm² (AWG 10) when using wire end ferrules.
- Touch-proof test sockets for Ø 4 mm test plugs on the transformer and meter side



Device types

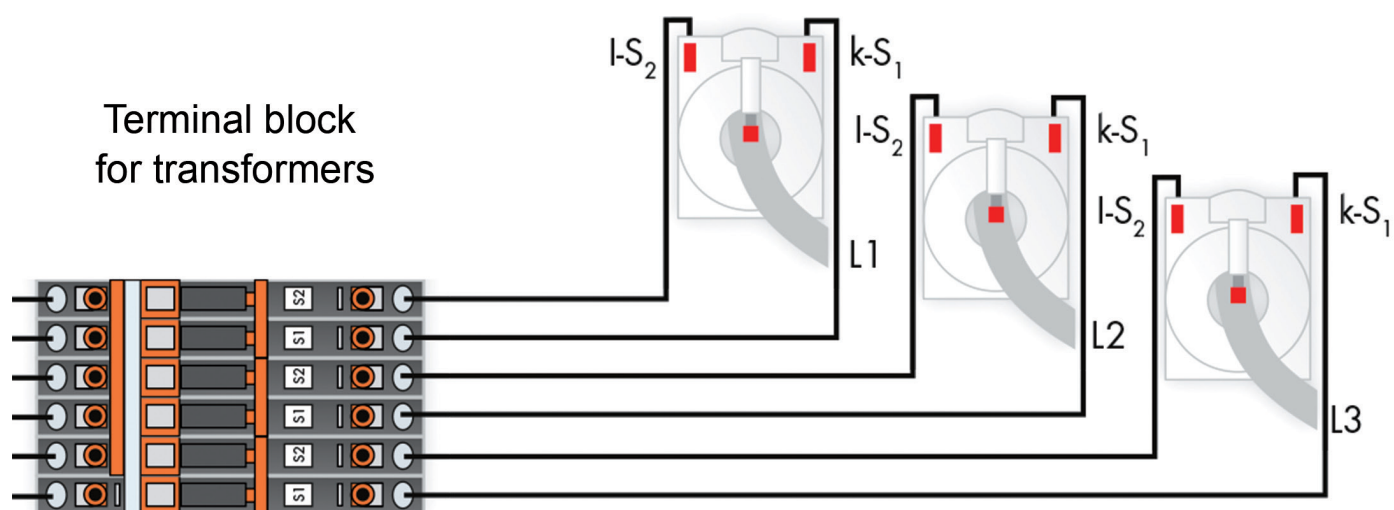
Designation	TOPJOB®S 8875	TOPJOB®S 8877
Item number	18.88.0075	18.88.0077
Field of application	3-phase transformer circuit	4-phase transformer circuit
Structural width	70.0 mm	86 mm
Colour	Grey	Grey
Screwless end clamp, 10 mm wide	2	2
2-wire protective conductor terminal, with touch-proof test socket, for Ø 4 mm test plug	6	8
End and separating plate, 1.5 mm thick, without sealing option	1	1

Technical data

Pollution level (1)	3
Rated voltage EN (1) [V]	500
Rated impulse withstand voltage (1) [kV]	6
Connection technology 1	Push-in CAGE CLAM®
Nominal cross section 1	6 mm ²
single-wire, connectible 1	0.5 - 10 mm ² / 20 - 8 AWG
solid, directly pluggable 1	1 - 10 mm ² / 14 - 8 AWG
Flexible with wire end ferrule without plastic collar 1	1.5 - 6 mm ² / 16 - 10 AWG
Flexible with min. wire end ferrule, directly pluggable 1	1.5 mm ² / 16 AWG
Stripping length 1	13 - 15 mm / 0.51 - 0.59 in

Image: All rights reserved by WAGO

Connection variants – Terminal block

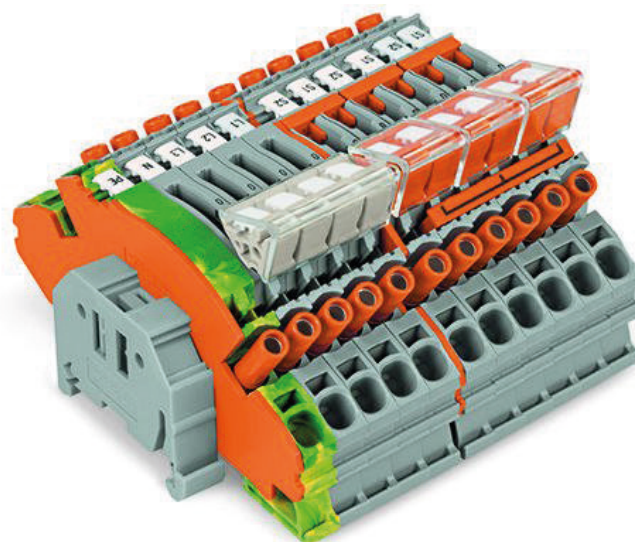


Download
data sheet



TOPJOB®S – Terminal block – Series 2007 – for current and voltage transformers

- With the TOPJOB®S terminal block for current and voltage transformers, the voltage can be tapped in addition to short-circuiting the transformers. A measuring device can only be connected to the test socket on the measuring device side after the circuits have been completely disconnected.
- For mounting on DIN35 rail
- Intuitive and convenient operation as well as precise display of the switching status
- High functionality with small dimensions
- All 2007 series terminals are rated for 30 A/500 V IEC and 300 V UL.
- With a terminal width of 8 mm, the maximum connectible cross-section is 10 mm² (AWG 8) for single and fine-stranded conductors, and 6 mm² (AWG 10) when using wire end ferrules.
- Touch-proof test sockets for Ø 4 mm test plugs on the transformer and meter side



Device types

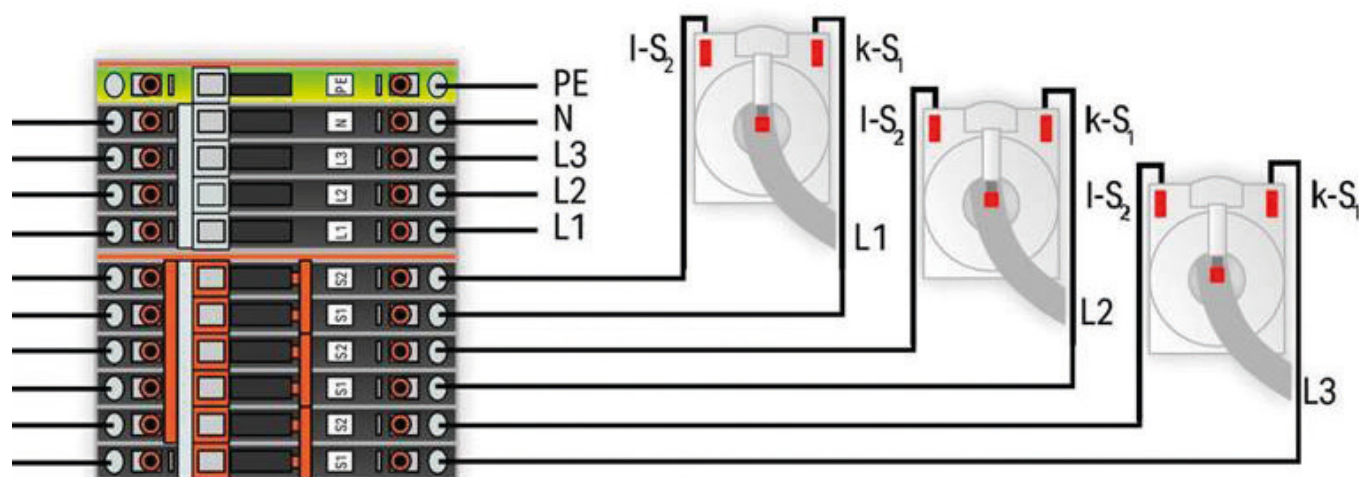
Designation	TOPJOB®S
Item number	18.89.0075
Field of application	3-phase current transformer circuit with voltage tap
Structural width	112.0 mm
Colour	Grey
Screwless end clamp, 10 mm wide	2
2-conductor protective terminal, with touch-proof test socket, for Ø 4mm test plug	1
2-wire disconnect and measuring terminal, with touch-proof test socket, for Ø 4 mm test plug	6
End and separating plate, 1.5 mm thick, without sealing option	1

Technical data

Pollution level (1)	3
Rated voltage EN (1) [V]	500
Rated impulse withstand voltage (1) [kV]	6
Connection technology 1	Push-in CAGE CLAM®
Nominal cross section 1	6 mm ²
single-wire, connectible 1	0.5 - 10 mm ² / 20 - 8 AWG
solid, directly pluggable 1	1 - 10 mm ² / 14 - 8 AWG
Flexible with wire end ferrule without plastic collar 1	2.5mm-6 mm ² / 16-25 AWG
Flexible with min. wire end ferrule, directly pluggable 1	1.5 mm ² / 16 AWG
Stripping length 1	13 - 15 mm / 0.51 - 0.59 in

Image: All rights reserved by WAGO

Connection variants – Terminal block for current and voltage transformers



EPSITRON® CLASSIC Power – Industrial power supply unit

- Primary switched power supply
- Protection class II
- Self-cooling by natural convection with horizontal installation position
- Encapsulated, for control cabinet installation
- Bounce-free switching signal (DC O. K.)
- Parallel switchable, series switchable
- Galvanically isolated output voltage (SELV) according to EN 60903.50.1/UL 60903.50.1

Type	EPSITRON® CLASSIC Power
Item number	14.10.0024
Output voltage/current	24 V DC / 1 A

Download
data sheet



Technical specifications – EPSITRON® CLASSIC Power

Input:	
AC input voltage	100 - 240 V
DC input voltage	120 - 372 V
Input voltage derating	-2.5 % (< 95 V AC)
Frequency	47 - 63 Hz
Input current I _e	0.2 A (240 V AC) 0.43 A (100 V AC)
Inrush current	< 30 A
Power failure bypass	120 ms (230 V AC) 20 ms (100 V AC)
Output:	
Output voltage U _a rated	24 V DC (SELV)
Output voltage range	23 - 28.5 V DC adjustable
Output current I _a	1 A at 24 V DC (1.2 A up to 40 °C)
Preset	24 V DC
Control deviation	< 1 %
Residual ripple	20 mV (peak-to-peak)
Current limitation	1.1 x 1 A type.
Behaviour in the event of an overload	Constant current
Operating display	Green LED (U _a)
Signalling	1 x current signal output 24V DC, 20 mA
Efficiency/ power loss:	
Efficiency	86 % type.
Power loss P _V	< 1 W (230 V AC, no-load) 3.9 W (230 V AC, rated load)
Max. power loss P _V	4.2 W type. (100 V AC / 24 V DC, 1 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
Recommended back-up fuse	Circuit breaker 6 A, 10 A, 16 A, characteristic B or C; for DC input voltage, an external DC fuse is required

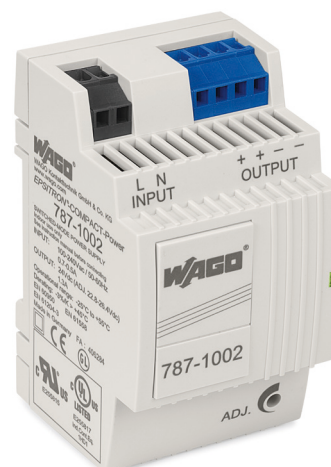
Ambient conditions:	
Ambient temperature	-25 - 70 °C Start-up at -40 °C type-tested
Storage temperature	-25 - 85 °C
Relative humidity	30 - 85 % (no condensation permitted)
Derating	-3 % / K (>50 °C)
Pollution level	2 (according to EN 50178)
Climate class	3K3 (according to EN 60721)
Safety and protection:	
Pri./sec. test voltage	4.2 kV DC
Protection class	II
Protection class	IP20 according to EN 60529
Surge protection	Varistor (input side: internal protective circuitry) < 39 V DC (on the output side: in the event of a fault)
Short-circuit proof	Yes
Open-circuit proof	Yes
Reverse power feedback strength	max. 35 V DC
Parallel switchable	yes
Series switchable	yes
MTFB	> 50,000 h (according to IEC 61709)
Connection and fixing:	
Connection technology	Input / output / signalling: WAGO 721 Series
Cross sections	Input / output / signalling: 0.08 - 2.5 mm² / AWG 28 - 12
Stripping lengths	Input / output / signalling: 8 - 9 mm / 0.31 - 0.35 in
Mounting type	DIN rail mounting (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x D	22.5 x 90 x 107.5 Depth from top edge of DIN rail
Weight	128 g
Standards and regulations:	
Standards/regulations	EN 60903.50.1, EN 61204-3, EN 60335-1, UL 60903.50.1, UL 508

Image: All rights reserved by WAGO

EPSITRON® COMPACT Power – Industrial power supply unit

- Primary switched power supply
- Prepared for devices and systems in protection class II
- Self-cooling by natural convection with horizontal installation position
- Step profile, ideal for installation distributors or system distributors
- Parallel switchable, series switchable
- Galvanically isolated output voltage (SELV) according to EN 60903.50.1/UL 60903.50.1

Download
data sheet



Type	EPSITRON® COMPACT Power
Item number	14.13.0024
Output voltage/current	24 V DC / 1.3 A

Technical specifications – EPSITRON® COMPACT Power

Input:	
AC input voltage	100 - 240 V
DC input voltage	120 - 372 V
Input voltage derating	<100 V AC: I _a max.: 1 A
Frequency	44 - 66 Hz
Input current I _e	0.5 A (230 V AC) 0.7 A (110 V AC)
Leakage current	1 mA type.
Inrush current	< 30 A, NTC
Power failure bypass	>80 ms (230 V AC) >10 ms (110 V AC)
Output:	
Output voltage U _a rated	24 V DC (SELV)
Output voltage range	22.8 - 26.4 V DC adjustable
Output current I _a	1.3 A at 24 V DC Max. 0.9 A with any mounting position
Preset	24 V DC
Control deviation	2 %
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Current limitation	1.1 x 1 A type.
Behaviour in the event of an overload	Constant current
Operating display	Green LED (U _a)
Efficiency/ power loss:	
Efficiency	82 % type.
Power loss P _V	2.6 W (230 V AC, no-load) 7.0 W (230 V AC, rated load)
Max. power loss P _V	7.3 W type. (100 V AC / 24 V DC, 1.3 A)
Fuse protection:	
Internal fuse	T 2 A / 250 V
Recommended back-up fuse	Circuit breaker 10 A, 16 A, characteristic B or C; an external DC fuse is required for DC input voltage

Ambient conditions:	
Ambient temperature	-25 - 60 °C (UL: -25 - 55 °C) Start-up at -40 °C type-tested
Storage temperature	-25 - 80 °C
Relative humidity	5 - 96 % (no condensation permitted)
Derating	- 3 % / K (> 45 °C)
Pollution level	2 (according to EN 60721)
Climate class	3K3 (according to EN 60721)
Safety and protection:	
Housing	Plastic, light grey Flammability class V0 acc. to UL94
Pri./sec. test voltage	4.2 kV DC
Protection class	Prepared for protection class II
Protection class	IP20 according to EN 60529
Surge protection	< 40 V DC (in the event of a fault)
Short-circuit proof	yes
Open-circuit proof	yes
Reverse power feedback strength	max. 30 V DC
Parallel switchable	yes
Series switchable	yes
MTBF	50,000 h
Connection and fixing:	
Connection technology	Input / Output: WAGO-Ser. 740
Cross sections	Input / Output: 0.08 - 2.5 mm² / AWG 25 - 12
Stripping lengths	Input / Output: 6 - 7 mm / 0.24 - 0.28 in
Mounting type	DIN rail mounting (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x D	54 x 89 x 59 Depth: 55 mm from top edge of DIN rail
Weight	180 g
Standards and regulations:	
Standards/regulations	EN 60950, EN 61204-3, UL 60950, UL 508; GL

Image: All rights reserved by WAGO

EPSITRON® ECO Power – Industrial power supply unit

Download
data sheet



- Primary switched power supply
- Prepared for devices and systems in protection class II
- Self-cooling by natural convection with horizontal installation position
- Encapsulated, for control cabinet installation
- Parallel switchable, series switchable
- Galvanically isolated output voltage (SELV) according to EN 60903.50.1/UL 60903.50.1

Type	EPSITRON® ECO Power
Item number	14.25.0024
Output voltage/current	24 V DC / 2.5 A



Technical specifications – EPSITRON® ECO Power

Input:	
AC input voltage	110 - 240 V
DC input voltage	130 - 373 V
Frequency	47 - 63 Hz
Input current I _e	0.7 A type at 230 V AC; 1.2 A at 115 V AC
Leakage current	< 1 mA
Inrush current	< 30 A
Power failure bypass	>10 ms at 110 V AC
Output:	
Output voltage U _a rated	24 V DC (SELV)
Output voltage range	22 - 28 V DC adjustable
Output current I _a	2.5 A at 24 V DC
Preset	24 V DC
Control deviation	1 %
Residual ripple	< 100 mV (peak-to-peak) at 20 MHz
Behaviour in the event of an overload	Constant power (in overload range 1.15 - 1.4 x I _a) in the event of a short circuit switch-off and automatic restart
Operating display	Green LED (24 V DC O.K.) Red LED (overload)
Efficiency/ power loss:	
Efficiency	82 % type.
Power loss P _V	8.3 W (at 230 V AC and 2.5 A)
Max. power loss P _V	11.5 W (at 110 V AC and 2.75 A)
Fuse protection:	
Internal fuse	F 2.5 A / 250 V
Recommended back-up fuse	Circuit breaker 10 A, 16 A, characteristic B, C; an external DC fuse is required for DC input voltage

Ambient conditions:	
Ambient temperature	-10 - 70 °C
Storage temperature	-25 - 85 °C
Relative humidity	95 % (no condensation permitted)
Derating	- 3.3 % / K (> 50 °C at 230 V AC)
Pollution level	2 (according to EN 50178)
Climate class	3K3 (according to EN 60721)
Safety and protection:	
Test voltage	3 kV AC / 1.5 kV AC / 0.5 kV AC
Pri.-Sec. / Pri.-PE / Sec.-PE	
Protection class	Prepared for protection class I
Protection class	IP20 according to EN 60529
Surge protection	By varistor in the primary circuit
Short-circuit proof	Yes
Open-circuit proof	Yes
Reverse power feedback strength	28 V DC
Parallel switchable	Yes
Series switchable	Yes
MTBF	48,000 h (acc. to IEC 61709)
Connection and fixing:	
Connection technology	CAGE CLAMP® (WAGO 745 Series)
Cross sections	0.08 - 4 mm² / AWG 28 - 12 (THHN, THWN)
Stripping lengths	8 - 9 mm / 0.33 in
Mounting type	DIN rail mounting (EN 60715)
Dimensions and weight:	
Dimensions (mm)	54 x 89 x 59
W x H x D	Height from top edge of DIN rail
Weight	596 g
Standards and regulations:	
Standards/regulations	EN 60950, EN 61000-6-2, EN 61000-6-3, UL 60950, UL 508, ANSI/ISA 12.12.01 (Class I Div.2), ATEX, IEC Ex

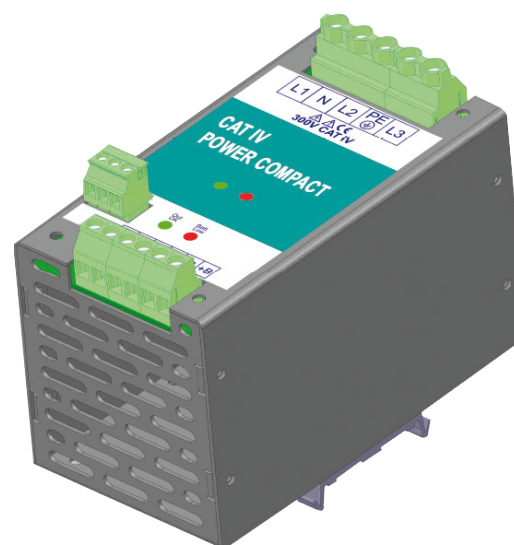
Image: All rights reserved by WAGO

CAT IV Power Compact – Industrial power supply unit

Download
data sheet



- Especially designed for operating the UMD 97EVU, UMD 710EVU, UMD 710MVU and MMB 700 measuring devices in CAT IV environments
- Overvoltage category 300 V / CAT IV according to EN 61010-1
- Parallel switchable, series switchable
- Galvanically isolated output voltage (SELV)



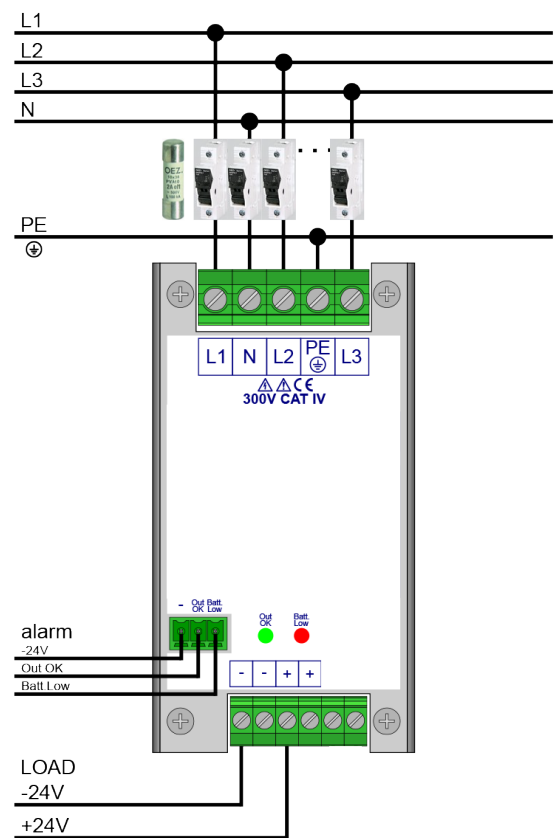
Type	CAT IV Power Compact
Item number	80.42.3024
Output voltage/current	24 V DC / 1.45 A

Technical specifications – CAT IV Power Compact

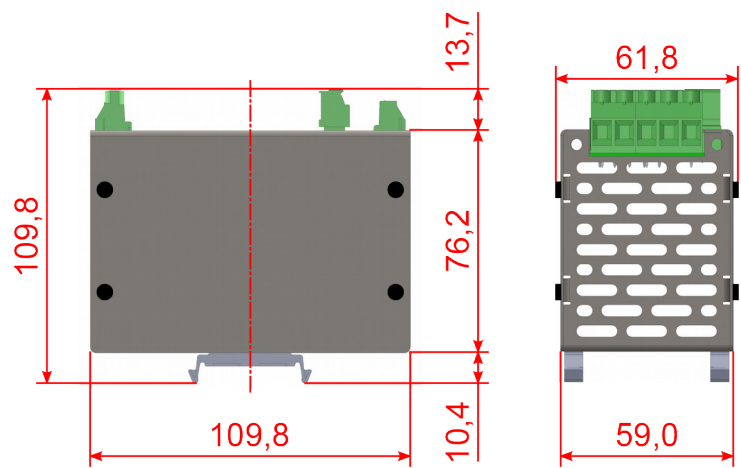
Input:	
AC input voltage	90 - 460 V
DC input voltage	127 - 340 V
Frequency	47 - 63 Hz
Overvoltage category	300 V CAT IV, EN 61010-1, 60950-1 Safety class I, c,
Inrush current	60 A
Power failure bypass	50 ms at 230 V AC
Insulation voltage	3 kV ~/1min, reinforced insulation > 100 MΩ / 500 V
Output:	
DC output voltage	24 V (SELV)
Output current I _a	1.45 A
Control deviation	±1 %
Residual ripple	240 mV (peak-to-peak)
Overvoltage protection	27.6 V
Overload safety	300 %
Efficiency/ power loss:	
Efficiency	88 %
Power loss PV	4 VA, 1.2 W
Fuse protection:	
Internal fuse	Galvanically isolated from the supply voltage
SSR output	~ 30 mA / 24 V=, against 0 pole

Ambient conditions:	
Ambient temperature	-30 - 70 °C
Storage temperature	-40 - 85 °C
Relative humidity	95 % (no condensation permitted)
EMC resistance	EN 55011. EN 61000-3-2/-3-class B
Safety and protection:	
Protection class	IP20
Surge protection	By varistor in the primary circuit
Dimensions and weight:	
Dimensions (mm) W x H x D	58.6 x 109.4 x 104.9
Weight	250 g

Typical connection variant – CAT IV Power Compact



Dimensional drawings – CAT IV Power Compact



Industrial ECO Switch 5-Ports 10/100Base-TX – Industrial switch

Download
data sheet



The ECO Switch 5-Ports is an industrial ETHERNET switch with 5 ports 10/100 Base-TX, auto-negotiation and auto/MDI/MDI-X detection on all ports.

The switch's five ports allow multiple segments to be created to reduce network congestion, and each user node can be allocated its own bandwidth. The 852-111 is a cost-effective solution to respond to the growing demand for IP-based industrial communications.

The switch is easy to configure and install, and is particularly suitable for small and medium-sized networks.

- 5-ETHERNET-Ports 10/100 Mbps Auto-negotiation
- Diagnostic LEDs on the front
- Supports Auto-MDI/MDI-X functions
- Half or full duplex transmission mode per port
- Store-and-forward switching method
- Integrated address look-up table, supports up to 2000 absolute MAC addresses
- Surge protection
- IEEE 802.3x data flow control for full duplex operation
- For DIN 35 rail



Type	5-Port 100Base-TX Industrial ECO Switch
Item number	19.24.0005
Supply voltage	18 - 30 V DC

Technical specifications – Industrial ECO Switch 5-Ports

Ports	5 x 10/100Base-TX (RJ-45)
Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/FX IEEE 802.3x Flow Control
Topology	Star
LED	per device: 1 x Power (PWR), green; per port: 1 x link/activity (LNK/ACT), green; 1 x 10/100 Mbps, green
Max. power consumption	3 W
Operating temperature	-40 - 70 °C DNV: -25 - 70°C
Storage temperature	-40 - 80 °C
Relative humidity (without condensation)	95 %
Dimensions [mm] W x H x D	23.4 x 73.8 x 109.2 Height from top edge of DIN rail
Fastening	TS 35
Weight	190 g
Approvals	Conformity marking CE UL 508

Image: All rights reserved by WAGO

Industrial ECO Switch 8-Ports 10/100Base-TX – Industrial switch

Download
data sheet



The ECO Switch 8-Ports is an industrial ETHERNET switch with 8 ports 10/100Base-TX, auto-negotiation and auto-MDI/MDI-X detection on each port. It is a cost-effective solution to respond to the growing demand for IP-based industrial communications.

The switch is easy to configure and install, and is particularly suitable for small and medium-sized networks.

- 8-ETHERNET-Ports 10/100 Mbps Auto-negotiation
- Diagnostic LEDs on the front
- Supports Auto-MDI/MDI-X functions
- Half or full duplex transmission mode per port
- Store-and-forward switching method
- Integrated address look-up table, supports up to 2000 absolute MAC addresses
- Surge protection
- IEEE 802.3x data flow control for full duplex operation
- For DIN 35 rail



Type	8-Port 100Base-TX Industrial ECO Switch
Item number	19.24.0008
Supply voltage	18 - 30 V DC

Technical specifications – Industrial ECO Switch 8-Ports

Ports	8 x 10/100Base-TX (RJ45)
Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/FX IEEE 802.3x Flow Control
Topology	Star
LED	per device: 1 x Power (PWR), green; per port: 1 x link/activity (LNK/ACT), green; 1 x 10/100 Mbps, green
Max. power consumption	3 W
Operating temperature	-40 - 70 °C
Storage temperature	-20 - 80 °C
Relative humidity (without condensation)	95 %
Dimensions [mm] W x H x D	109.2 x 23.4 x 73.8 Height from top edge of DIN rail
Fastening	TS 35
Weight	415 g
Approvals	Conformity marking CE UL 508

Image: All rights reserved by WAGO

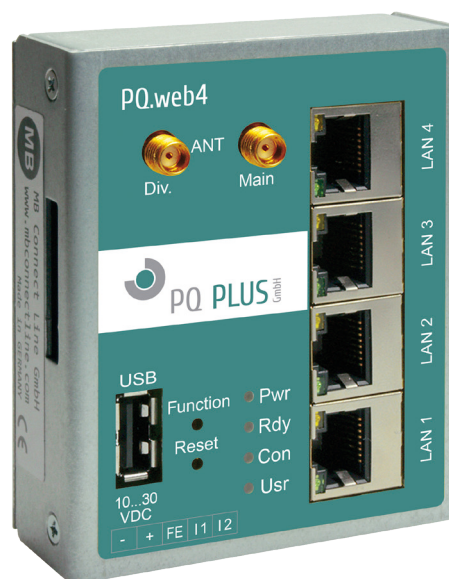
PQ.web4 – Router

Download
data sheet



The PQ.web router is a particularly compact industrial router for installation on the DIN rail. It provides secure, IP-based access to our Ethernet devices via a remote service platform. This not only allows you to call up the power quality and consumption data remotely, but also to set parameters and configure your devices.

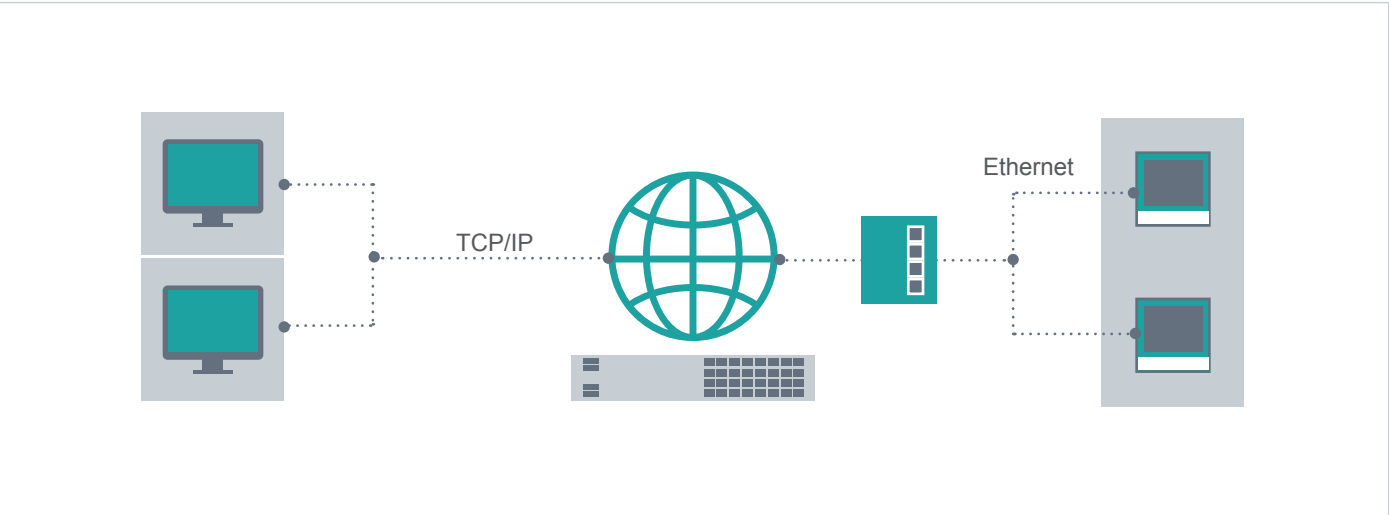
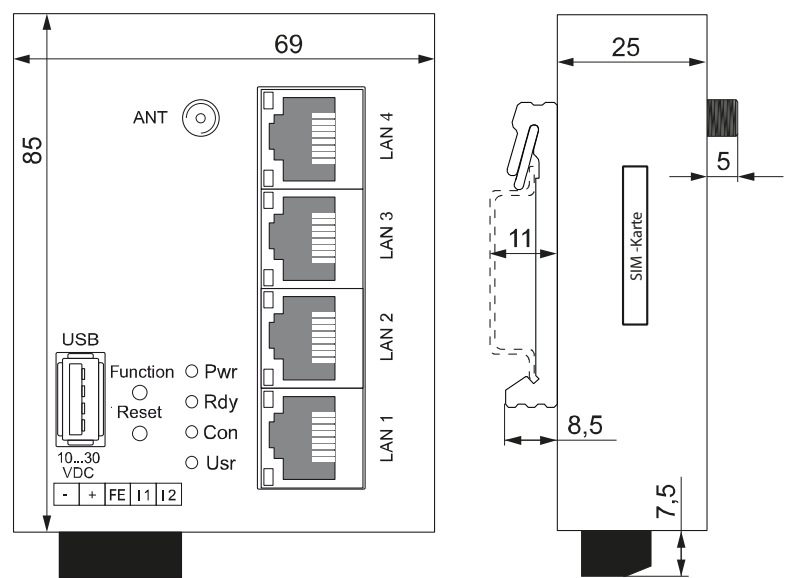
- Integrated Ethernet switch (4-port)
- Supports GPRS, EDGE, UMTS and HSPA+
- 2 digital inputs to establish a connection to the remote service platform
- OpenVPN security protocol
- Ideal for M2M applications
- Robust metal housing for installation on the DIN rail



PQ.web4

Supply voltage	Functions		Communication					Type	Item no.
	Remote maintenance	Digital inputs	Modem	Antenna	LAN	WLAN	USB		
10 - 30 V DC	•	2	2//3G/4G (LTE)	•	4	-	•	PQ.web4	57.00.0804

Dimensional drawings



Technical data

Designation	PQ.web4.0
Voltage	10 - 30 V DC (SELV and Limited Energy circuit)
Current consumption	max. 250 mA @ 24 V
Protection class IP	IP 20
Area of application	Dry environment
Temperature (operation)	0 - 50 °C
Temperature (operation) HW1*	-40 - 75 °C
Temperature (storage)	-20 - 60 °C
Temperature (storage) HW1*	-40 - 85 °C
Humidity	0 - 95 % non-condensing
Dimensions W x H x D [mm]	69 x 38.5 x 92.5
Weight	240 g
Assembly	Installation on the DIN rail
Interfaces	
USB interface	1 x
Digital input	2 x
LAN interface	4 x
SIM card reader (for mini SIM)	1 x
SMA socket	2 x
RP-SMA socket	-
GSM modem 3G (UMTS)	-
GSM modem 4G (LTE)	1 x
WLAN modem	-
Interface description	
LAN interface	10/100 MBit/s full and half duplex operation, automatic patch cable detection / cross-over cable (auto-detection)
USB interface	USB Host 2.0
Digital input	10 - 30 V DC (Low 0 - 3.2 V DC, High 8 - 30 V DC)
VPN	
VPN protocol	OpenVPN, 1 Tunnel
Encryption method	Blowfish
Encryption algorithms	MD5, SHA1
Authentication	Pre-Shared-Key, X.509
Network/Security	
Firewall	1:1 NAT, IP filter, port forwarding, stateful inspection
IP router	NAT-IP, TCP/IP routing, IP forwarding
Services	DHCP-Client, NTP-Client
Time alignment	NTP server
Communication	
GSM/GPRS/ EDGE	900, 1800 MHz; max. 236 kbps
HSxPA	850, 900, 2100 MHz; downlink max. 42 Mbps, uplink max. 5.76 Mbps
FCC	FCC ID: R17LE910NA
LTE	800 (B20), 1800 (B3), 2600 (B7) MHz; Downlink max. 100 Mbps, Uplink max. 50 Mbps

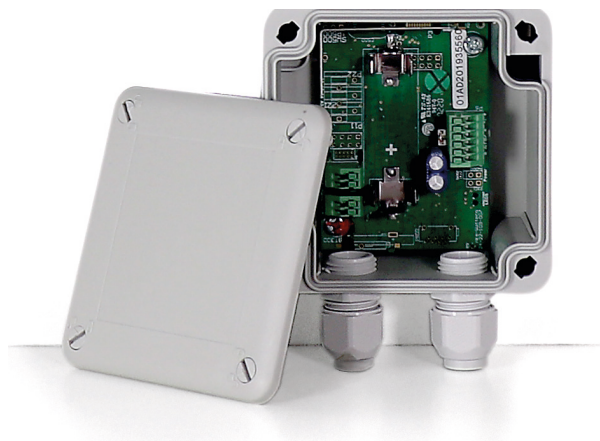
IoT - LoRaWAN Interface

Connecting the universal measuring devices and energy meters to Modbus RTU via LoRaWAN. The IoT-LoRaWAN interface is a class C device and is connected to the measuring devices via the RS485 interface. The configuration can be done wirelessly via downlink packages. The open software interfaces enable easy integration of the system into the existing LoRaWAN infrastructure.

Download
data sheet



Type	IoT-LoRaWAN Interface
Item number	60.06.0863



Technical specifications

RF transceiver		Field bus interface	
Frequency range	863 MHz – 870 MHz (EU frequency band)	Physical interface	RS-485
Transmission power	+14 dBm	Protocol / mode	Modbus / RTU
Receiver sensitivity	-140 dBm	Data rate	1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 115.2 kbit/s
LoRaWAN properties		Supply voltage	
Wireless interface	LoRaWAN V1.0 class C (class A optional)	Voltage range	- DC: 9 - 24 V - Optional: Integrated lithium battery
LoRaWAN activation method	- Activation by personalisation (ABP) - Over-the-air activation (OTAA)	Power input	100 mW
Data encryption	AES-128	Ambient conditions	
LoRaWAN interface		Rated temperature range in operation	-10 - 50 °C
Data transmission	- Uplink to the LoRaWAN server - Downlink to the IoT interface	Foreign object and water protection	IP 65
Data transmission to the LoRaWAN server (uplink)	- Periodic (configurable): 1 min - several days/weeks - Event-based (configurable): Transmission when exceeding or falling below dedicated measured values	Housing fire resistance	Non-flammable housing: UL94-V0HB
Data transmission to the IoT interface (downlink): (transmission takes place via downlink packets)	- Settings on the LoRaWAN interface - Settings on the connected measuring device	Mechanical data	
Number of measured values per data packet: (Measured values can also be divided into several data packets)	max. 10 measured values (depending on the data type of the measured values)	Dimensions [mm]	84 x 82 x 85
LoRaWAN duty cycle	The LoRaWAN Remote Server must comply with the legal regulations according to ESTI EN 300-220-1 with regard to duty cycle. This regulatory restriction may limit the volume of data transmission in time.	Installation/assembly	- With 2 screws and dowels (supplied as standard) - With optional mounting clips for installation on the DIN rail
		Transport and storage	
		The following information applies to devices that are transported or stored in their original packaging.	
		Temperature range	-10 - 30 °C
		Standards and approvals	
		IoT interface:	EN 61000-4-2, EN 300-220-1 V2-4-1, EN 301 489 V1-6-1, RoHS, Radio Equipment Directive (RED), CE certified

PFS – NH fuse-switch disconnecter

Download
data sheet



The PFS NH fuse-switch disconnectors can be used flexibly. The strip can be rotated conveniently so that connection is possible both from below and from above. The strips are available in 1-pole or 3-pole switchable versions.

For our modular outgoing feeder measurement system, we offer a variant with 333 mV small signal converters and preparation for connection to our MMI current modules.

The transformers are already installed in the base of the strip. These are wired through to a connector on the back of the bar. From there, you can wire on to our modules or other measuring equipment with flexible leads of different lengths.

The strips are suitable for 400 V / 690 V operating voltage. With the transformer x / 1 A variant, you can directly measure 690 V rated voltage in conjunction with our measuring devices with an extended measuring range.

When the switch cover is opened, it is disconnected simultaneously. This enables easier switching to dual separation and increases the service life, as well as safety for the operator. The voltage is measured on the contact blade of the NH fuse, which means that you are not dependent on the handle lugs used.

The slotted feed angles ensure easy installation. In addition, there is the option to mount the strips via contact hooks without drilling and regardless of the hole spacing, also with transformers.

A fuse monitoring system is offered as a further accessory. Via a connected measuring device with network connection, the switching status can also be communicated via the network interface just like all measured values. The switchgear therefore becomes an Industry 4.0 component.



Technical data

Design:	
Screw fixing on busbars for vertical mounting	
Connection option	Outgoing line at the top or bottom, by turning the switch cover
Full protection according to DGUV V3	
Dimensions:	
Width	100 mm
Height	675 mm
Total depth closed:	190 mm
Total depth open:	295 mm
Separating position	250 mm

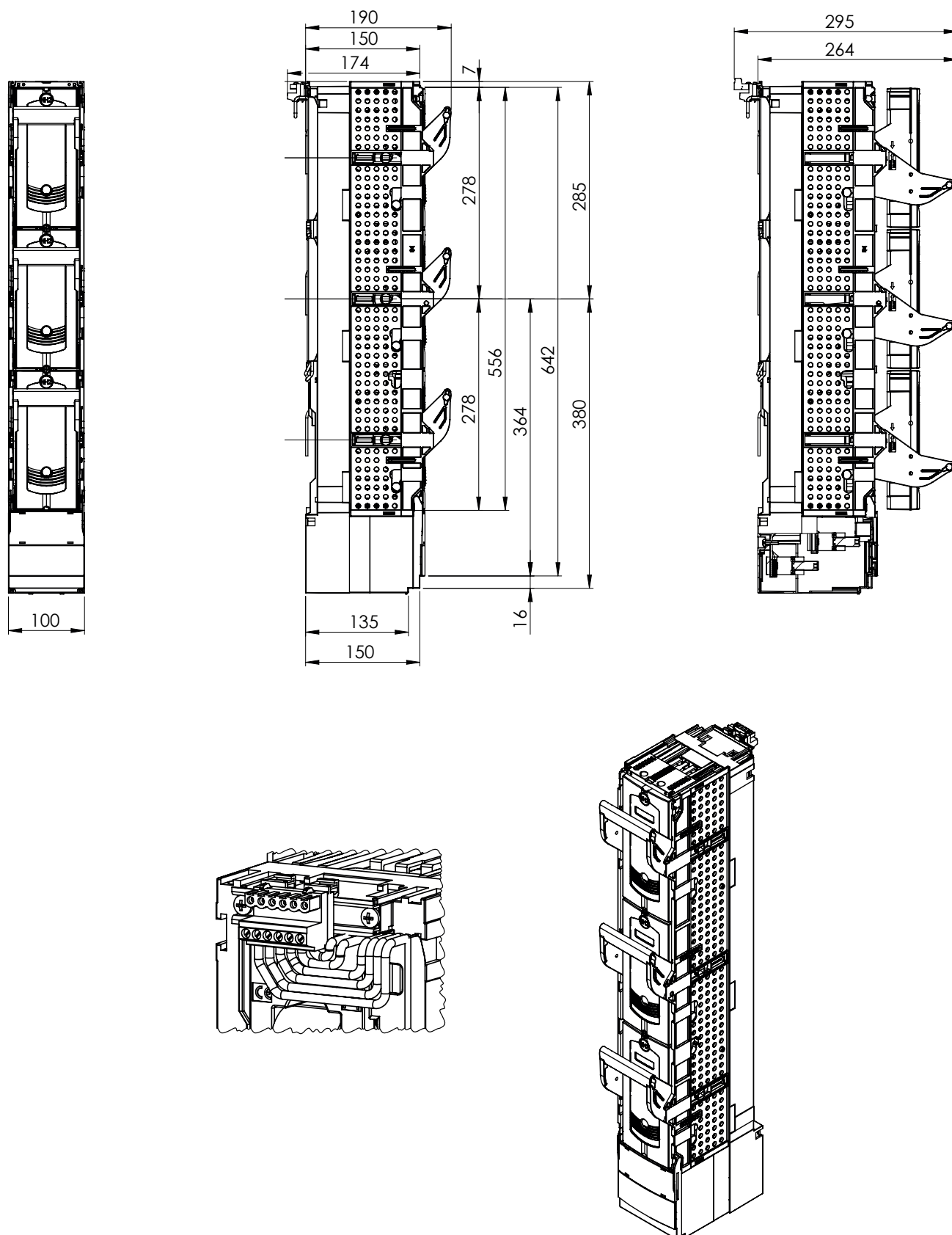
Technical data

	PFS1-01	PFS1-02	PFS1-03
Rated operational current	250 A	400 A	630 A
Conventional thermal current with separating knife I _{th}	400 A	630 A	800 A
Rated operational voltage U _e	690 V		
Rated insulation voltage U _i	1000 V		
Rated impulse withstand voltage U _{imp}	12 kV		
Rated frequency	50 - 60 Hz		
Conditional rated short-circuit current at 500 V / 690 V	120 kA / 100 kA		
Utilisation category	AC-23B at U _e = 400 V		
Mechanical life	1400 switching cycles	800 switching cycles	800 switching cycles
Electrical life	200 switching cycles		
Power output (without fuse links)	27 W	56 W	111 W
Max. permissible power output per fuse link	23 W	34 W	48 W
Protection class	IP20		
Ambient temperature	-25 - 55 °C		
Rated operating mode	Continuous operation		
Pollution level	3		
Overvoltage category	CAT IV		
V-clamp terminal cross-section mm ²	25 - 300 mm ²		
Tightening torque	35 Nm		

Connection	Switchable	Size	Transformers	Type	Item number
V-clamp	1-pole		Primary / Secondary		
•	•	1	250 A / 333 mV	PFS1-01-250 A-333 mV	60.71.0100
•	•	2	400 A / 333 mV	PFS1-02-400 A-333 mV	60.71.0200
•	•	3	600 A / 333 mV	PFS1-03-600 A-333 mV	60.71.0310
•	•	1	250 A / 1 A	PFS1-01-250 A-1 A	60.71.0101
•	•	2	400 A / 1 A	PFS1-02-400 A-1 A	60.71.0202
•	•	3	600 A / 1 A	PFS1-03-600 A-1 A	60.71.0312

* further variants on request

Dimensional drawings



Services

Your partner for expert engineering services

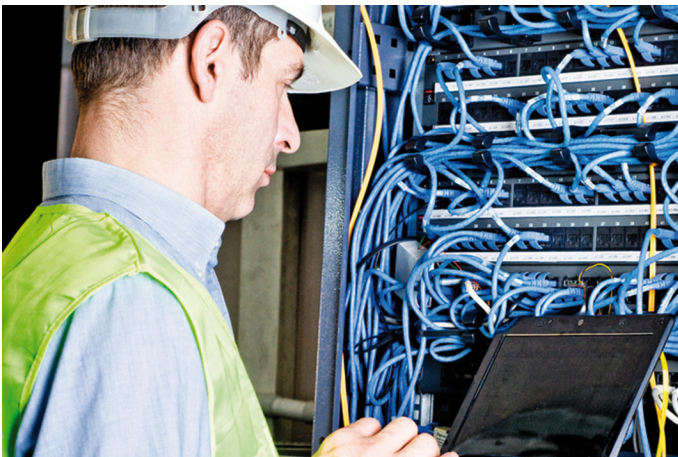
We have been your reliable partner for expert engineering services for over 25 years. Our extensive expertise is divided into the following areas:

- Consultations
- Conceptualisation
- Commissioning
- Training



Competent. Reliable. On-site.

- With comprehensive expertise gained from more than 25 years of professional experience, we offer competent advice and conceptualisation right through to the commissioning of customised solutions to meet all of our customers' wishes and requirements.
- In a trusting conversation, we will work out your individual solution in the on-site analysis and subsequent evaluation, for which we will always provide you with the best quote. As a system integrator, we provide you with solutions from a single source.

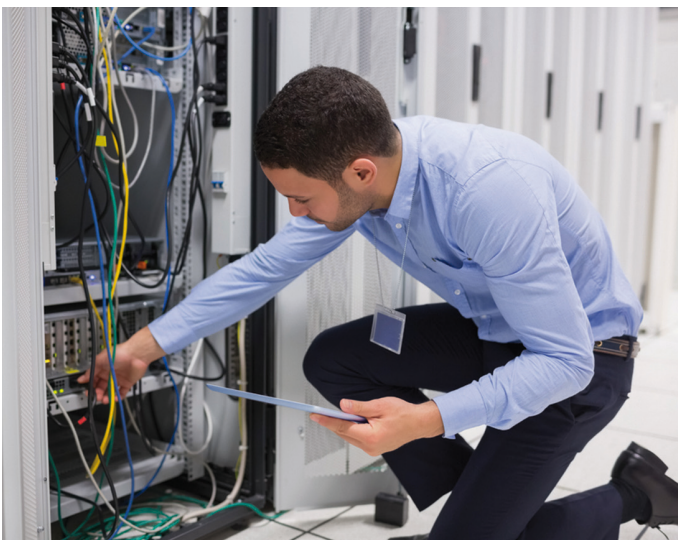


Commissioning and training

- We accompany you from project planning and commissioning to training on your energy monitoring or power quality monitoring system.
- Our quote includes discussing and analysing the current situation on site, developing a customised solution, integrating the measuring devices into an existing IT structure, setting up the database and staff training.

This includes:

- Setting parameters for the hardware and software
- Creating projects
- Communication check
- Training



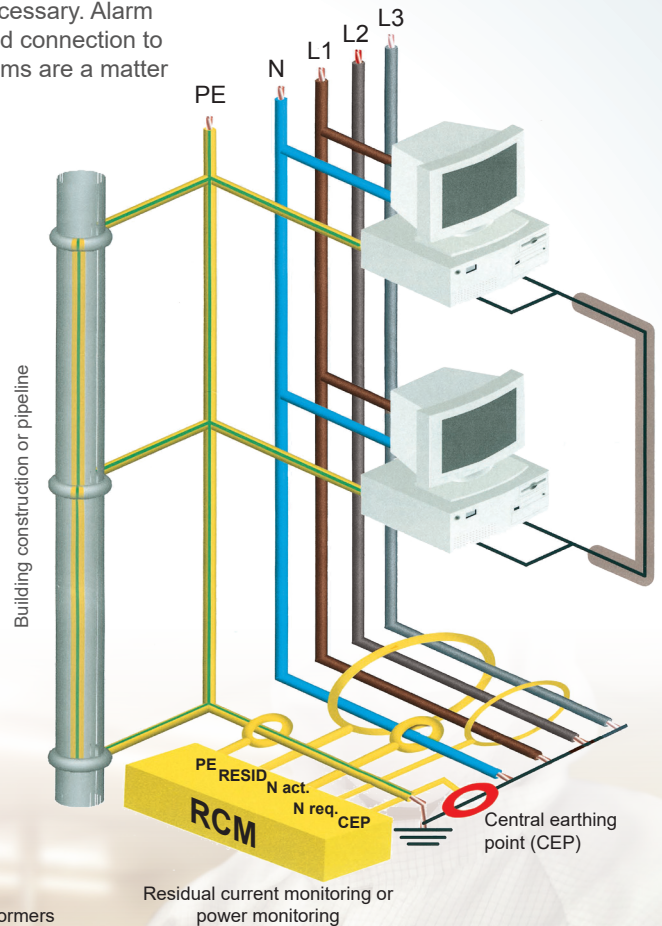
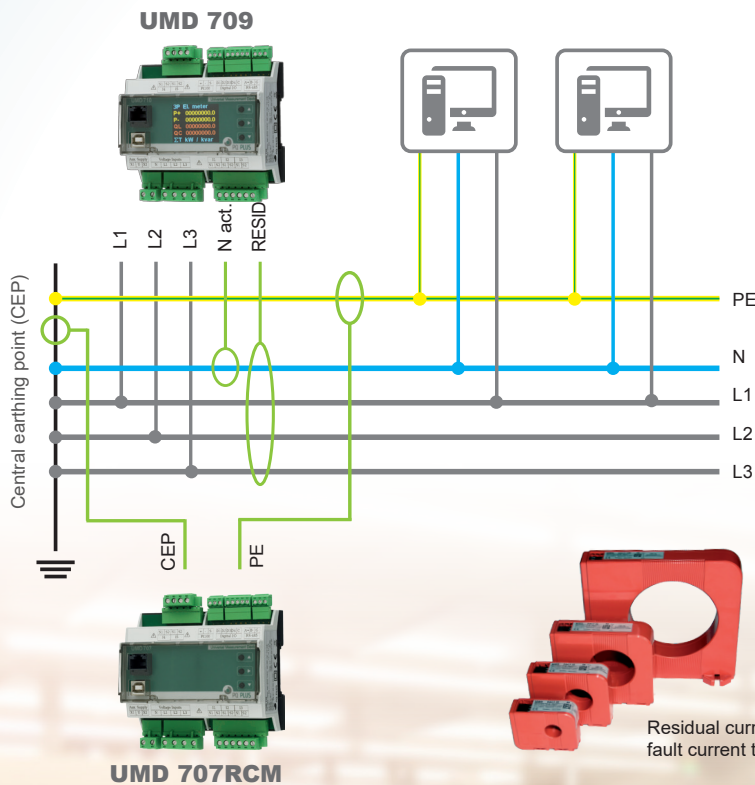
Network analyses according to EN 50160 / EN 61000

- The mobile measuring devices are used to carry out extensive power quality analyses and record all events. The evaluation is carried out using the ENVIS software.
- This allows you to evaluate the network quality according to EN 50160 or EN 61000-2-2/2-4/2-12, which contain the critical network parameters (including harmonics, flickers, transients). However, you also have an overview of all common measurement data from your network and can evaluate it.
- With the measurement results, compensation designs can be carried out or a targeted quality improvement in the network can be achieved. You can either borrow the measuring case or purchase it.

Our solutions for industry and building automation

With our measuring devices, we supply value for money tools for modern metrological equipment in power distribution. Transparency in the network and safeguarding residual current monitoring at all times - with the UMD from PQ PLUS.

Measure both the input and all outputs continuously, as granularly as necessary. Alarm management and connection to telecontrol systems are a matter of course.



Record consumption, mains quality and residual currents and monitor all feeders ...

... compete with the UMD 707 and the UMD 709 in industry. With our products, we offer you a complete range for solving all measurement tasks and therefore, instruments to use electrical energy sustainably. Communication possible via Ethernet, RS485 and USB.

Your plus
for more
performance.

Our solutions for feed-in systems



VDE AR-N 4110 / 4105 is binding for installers of new systems. The disturbance recorder described there must record the voltage quality according to DIN EN 50160 in class A. Other requirements listed are also fulfilled by the UMD 913 and the UMD 710A.

The supraharmonics listed in VDE AR-N 4110 / 4105 (2 - 9 kHz) can be captured, recorded and evaluated with the two universal measuring devices together with the optional firmware module SH.



Verify voltage quality according to standards

Our measurement technology for generation plants in the medium-voltage grid continuously records and checks the voltage quality. With the UMD 913 and UMD 710A universal measuring devices in conjunction with the free ENVIS software, you can implement complete verification.

Your plus
for more
performance.

Adapter meter for third-party operators



Modern energy management systems according to ISO 50001 or DIN EN 16247 record all consumption in a property. For tax rebates, the exclusion of third-party consumers is mandatory. Therefore, use the CMD 68M electronic three-phase and alternating current meters to record the active energy as a single-rate measurement and also bill your external consumers legally with an MID measurement.

The unit is built into a robust plastic housing and is prepared with a CEE plug and coupling for installation in any position. The measurement is carried out for purchase and supply and includes the active and reactive energy. Furthermore, current, voltage, power, cos phi and frequency can be measured. The devices are available for direct measurement in three-phase networks and for alternating current.



Extremely simple installation, flexible use, legally compliant

Simply plug the CMD 68M adapter meter from PQ PLUS for three-phase and alternating current (CMD 68M-451) between your mains and the external consumer.

Your plus
for more
performance.

The data contained in the product catalogue has been compiled to the best of our knowledge and ability. Changes and errors are expressly reserved. Illustrations similar to these do not represent contractual conditions within the meaning of Section 305 I of the BGB (German Civil Code). They are references without independent regulatory content which merely express that the information contained in the catalogue is provisional and non-binding to the extent that it can still be corrected before or upon conclusion of a contract. No contractual regulatory content, in particular any limitation of the rights of the contractual partner with respect to liability or warranty law, can be inferred from these references.

PQ PLUS GmbH delivers according to the green delivery terms and conditions of the German Electrical & Electronic Industry (ZVEI).

PQ Plus GmbH

Hagenauer Straße 6
91094 Langensendelbach, Germany

Tel: (+49) 9133-60640-0
Fax: (+49) 9133-60640-100
E-mail: info@pq-plus.de
Internet: <http://www.pq-plus.de>

Managing Director:
Daniel Fierus-Beyer

VAT identification number:
DE 301 767 284

You can find more information and the current catalogue on our website:
<http://www.pq-plus.de>

Date: 2022/04
Subject to technical changes.

Cover photo: [petrmalinak/Shutterstock.com](https://www.shutterstock.com/author/petrmalinak)