

COMPLETE line



Products and services for managing your energy

Easy energy management

Key to success in energy efficiency – Transparent energy monitoring


Energy efficiency is truly a key to economic success. Therefore, an energy management system must be easy to implement. Our innovative and coordinated portfolio of sensor technology and measurement technology products can save you a great deal when it comes to energy data acquisition. Future-oriented communication solutions and digital services help you to integrate, manage, and process your data.

COMPLETE line

The new standard for
the control cabinet.
More information on
pages 34 to 35.

Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.

 **Web code:** #1234 (example)

Or use the direct link:
phoenixcontact.net/webcode/#1234



Stromschiene 2



Stromschiene 2
OG - Achse M
ELT UV 21
132Q1



EMpro
R_DEM_001_07Z_002





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Products and measuring devices for managing your energy

Whether complex energy measurements or simple cost center billing: the broad range of multifunctional energy measuring devices and MID-certified energy meters has a product for every application. Furthermore, there is a large selection of current transformers available, also for retrofitting. All products meet high demands for comfortable installation.



Multi-functional EMpro energy measuring devices

EMpro energy measuring devices acquire your energy data and communicate it to superordinate control and management systems. These products can be configured and integrated into your network in minutes.



EMPro energy meters with MID certification

EMpro energy meters enable cost-center-specific energy data billing. Established communication interfaces enable easy integration into existing bus and network structures.

Embedded tools and services

A wide range of practice-oriented web server and device functions simplifies installation, startup, monitoring, and servicing.



PACT RCP current transformers for retrofitting

PACT RCP current transformers are the perfect replacement current transformers for retrofitting. Install the Rogowski coil conveniently even where space is too tight for a split core current transformer.



PACT plug-in and winding current transformers

The PACT current transformer product family features a complete range for converting high alternating currents into 1 A and 5 A secondary currents. Versions with Push-in connection simplify your wiring.

EMpro multi-functional energy measuring devices

The fastest way to measure energy

EMpro energy measuring devices can be configured and integrated into your network in minutes. Save on wiring outlay, thanks to the direct connection of manufacturer-independent current sensors, and benefit from the many practice-oriented web server and device functions.

i Web code: #1267



Front panel device

Measuring devices for front panel installation enable you to access to your data and to configure directly via the operating keys or remotely via the integrated web server.



DIN rail device

Measuring devices for DIN rail mounting enable you to access to your data and to configure directly via the operating keys or remotely via the integrated web server.

Your advantages

- ✓ Energy measurement in just three steps, thanks to an intuitive installation wizard
- ✓ Direct connection of commercially available Rogowski coils saves wiring and configuration effort
- ✓ Easy to maintain, thanks to smart web server and display functions
- ✓ Operating elements and interfaces can be disabled to ensure data security

EtherNet/IP™

PROFINET®

Modbus

Flexible network connection

You can integrate your energy measuring devices into the most common industrial network structures and fieldbus systems. Additionally, a Modbus/TCP interface is integrated into every product.

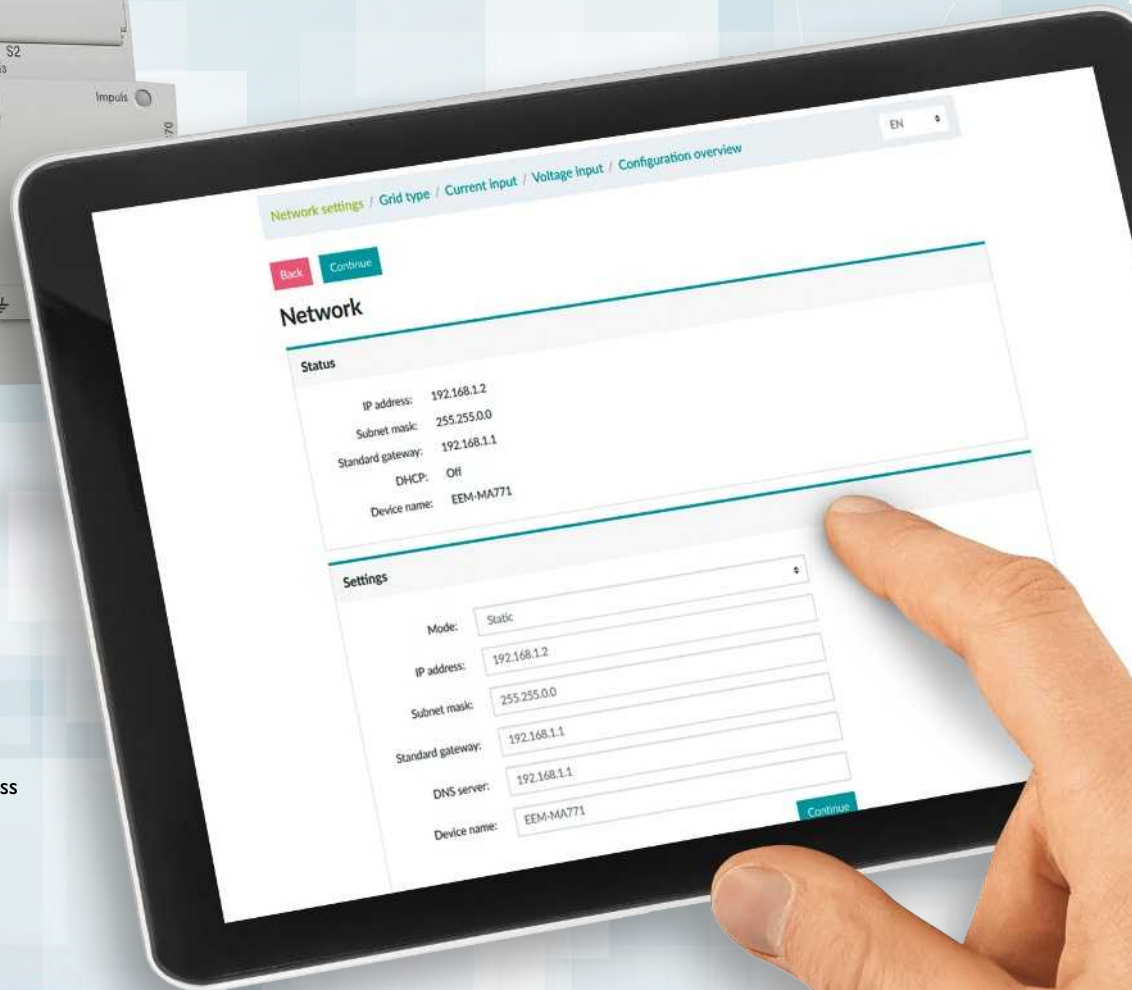
User-guided web server

The user-guided installation wizard enables you to configure and start the device up intuitively.



DIN rail device without display

DIN rail devices without display are designed solely for network integration and enable you to access your data and to configure via the integrated web server.



Intuitive installation wizard

Just three steps to energy measurement

Set up the communication interface, select the grid type, configure the measuring input. The EMpro energy measuring devices can be intuitively configured and integrated into the network in just three steps. You can also perform the basic configuration directly on the device via the user-guided operating keys.



Intuitive configuration

Configure and integrate devices quickly and intuitively via the web-based, user-guided installation wizard, even in the case of complex applications.



Complex made easy

The self-explanatory structure of web server functions guides you to your individual parameter settings quickly, even in complex applications.



Transfer parameters with ease

Simply send the settings for selected parameters to other energy measuring devices in the same network via the web server.



Intuitive configuration on the device

You also have the option to perform the basic configuration directly on the device via the operating keys. The clear menu guide takes you to your destination intuitively.

Smart web server and device functions

Smart web server and device functions lighten your daily workload. In addition, they simplify monitoring the correct operation of the system, as well as troubleshooting in the event of service and support.



Easy maintenance

Recognize errors as they are occurring via a color change on the display as soon as the configured thresholds are violated.



Rapid troubleshooting

Export configuration data along with historical signal and error lists. This allows you to quickly gain initial insights into troubleshooting.



Always up to date

Through firmware updates, your device is always at the latest state of the art. Take advantage of our focus on continuously developing usability.



Superior protection

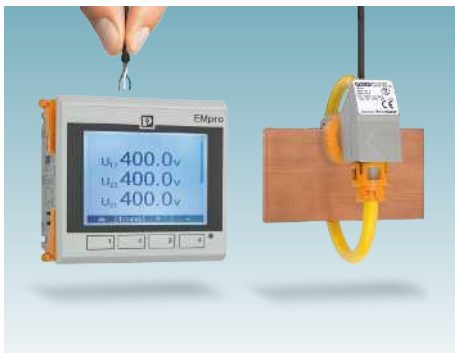
Smart disabling of hardware controls and communication interfaces protects your energy data from unauthorized access.

Flexible current measuring input Fast wiring and configuration

EMpro energy measuring devices measure the current either via external current transformers or Rogowski coils. The highlight: you can directly connect any commercially available Rogowski coil, regardless of manufacturer. This gives you maximum flexibility and saves you a great deal of time during wiring.

Flexible and time-saving

The Rogowski measuring input saves you a great deal of time during wiring and configuration. Directly connect any commercially available Rogowski coil from any manufacturer and dispense with the measuring transducer usually required otherwise.



Just one click with PACT RCP

Our PACT RCP Rogowski coil makes things even easier: you can configure the current input with just one click – the coil parameters are already saved in the web server.



Flexible current transformer input

Whether it's 1 amp or 5 amps, flexibly set devices with a current transformer input to the transformer secondary current.



Smart mismatch inversion

Did you accidentally reverse the current input polarity on a particularly hectic day? No problem: simply invert the input via the web server. No local rewiring required.

Energy meters with EMpro MID approval Record, communicate, bill

EMpro energy meters are MID-certified in accordance with EN 50470 and enable cost-center-specific energy data billing. The measuring devices record the most important electrical parameters and make the data available to superordinate control systems via common communication interfaces.

i Web code: #1267



Energy meters with M-Bus interface

Energy meters with M-Bus interface are suitable for use in building technology.



Energy meters with Modbus/RTU interface

Energy meters with Modbus/RTU interface are particularly well-suited for billing-related electromobility energy data acquisition.

M-Bus



Flexible network connection

Incorporate energy measuring devices into the most common industrial network structures.

Your advantages

- ✓ Simple bus and network connection via M-Bus, Modbus/RTU or Modbus/TCP interface
- ✓ Narrow on the DIN rail, thanks to an overall width of just 72 mm
- ✓ Save time and money: versions with direct current measurement up to 80 A
- ✓ Simple Modbus integration, thanks to uniform index tables with existing EMpro energy measuring devices
- ✓ Remote data access, storage, and export with Ethernet-based devices



Flexible current measurement

All product types are available either with a measurement input for an external current transformer or with an input for direct measurement. The current transformer measurement input is configurable for 1 A or 5 A transformers. The transformer ratio can also be configured. Currents up to 80 A are captured directly via an internal current transformer. This saves you additional time and money during installation.

Energy meters with Modbus/TCP interface

Energy meters with Modbus/TCP interface are particularly suitable for central data collection in industrial applications.

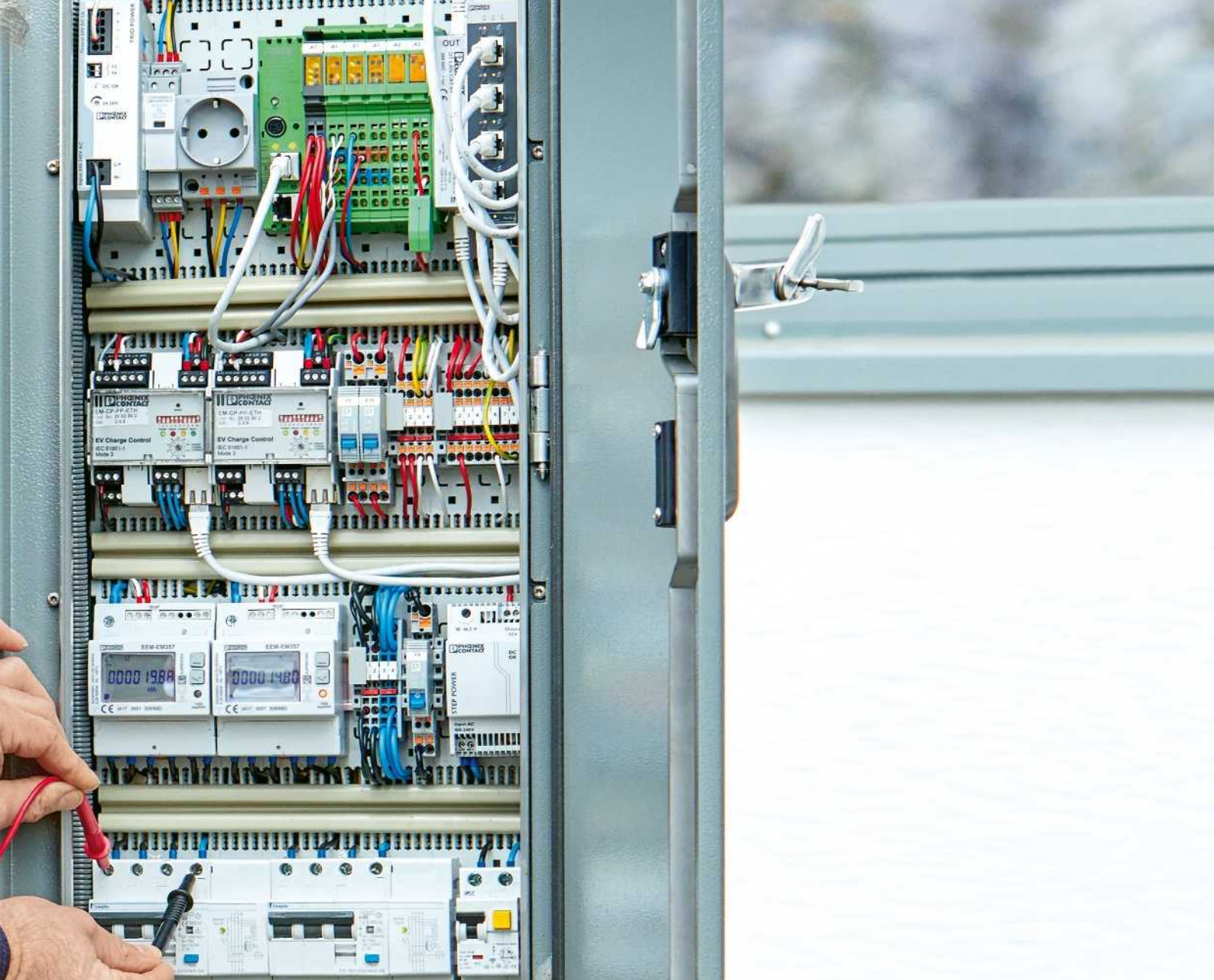
A man with grey hair and glasses, wearing a blue work shirt, is working on a green electrical cabinet. He is looking down at his work. The background is slightly blurred, showing what appears to be a parking lot with a car wheel visible on the left.

European Measuring Instruments Directive (MID)

With the MID-certified measuring devices from the EMpro product family, you can easily and cost-effectively measure energy data and bill energy consumption in accordance with the European Measuring Instruments Directive.

Record, communicate, bill

EMpro energy meters record currents, voltages, power factors, powers, and energy values in all four quadrants and provide the data to superordinate control systems.



Save time and money

Current measurement is either via external current transformer or directly via internal current transformer up to 80 A. Direct connection saves you time and money.



Web server

The web server integrated into the Ethernet-based measuring devices allows you to perform remote configuration, access data remotely, and save energy data in a circular buffer memory.



A good basis for your audit

EMpro energy meters are the equivalent of legally calibrated meters. The continuous data acquisition provides you with the basic data you need for your energy audit.



PACT current sensors


Easy retrofitting, quick wiring

PACT RCP current transformers based on the Rogowski coil are the perfect replacement current transformer for retrofitting without having to remove system parts. The PACT current transformer product family features a complete range for converting high alternating currents into 1 A and 5 A secondary currents. Versions with Push-in connection help you perform your wiring quickly and safely.



Current transformers
for retrofitting with
UV protection

PACT RCP current transformers for retrofitting with UV protection are specially designed for permanent outdoor use.

 Web code: #1145

Your advantages

- ✓ Easily retrofit current measuring technology with the PACT RCP set without having to remove system parts
- ✓ Transform alternating currents up to 4,000 A using a single universal PACT RCP measuring system
- ✓ For permanent use in outdoor settings: Rogowski coil with UV protection for housings and cables
- ✓ Fast, reliable and tool-free installation: plug-in current transformers with Push-in Technology



Push-in Technology^{PT}
Designed by PHOENIX CONTACT

Current transformers for retrofitting

The PACT RCP current transformers for retrofitting enable you to capture currents up to 4,000 A and convert them into a secondary alternating current of 1 A or into an analog standard signal of 4...20 mA, for example.

i Web code: #1145



Push-in Technology^{PT}
Designed by PHOENIX CONTACT

Plug-in and winding current transformers

The PACT current transformer product family features a complete range for converting high alternating currents into 1 A and 5 A secondary currents.

i Web code: #1264

A man with a beard and glasses, wearing a light blue shirt, is looking at a rack of electrical equipment. The equipment includes a white unit with a digital display and various ports, and a blue unit with a digital display. The background is a light-colored wall.

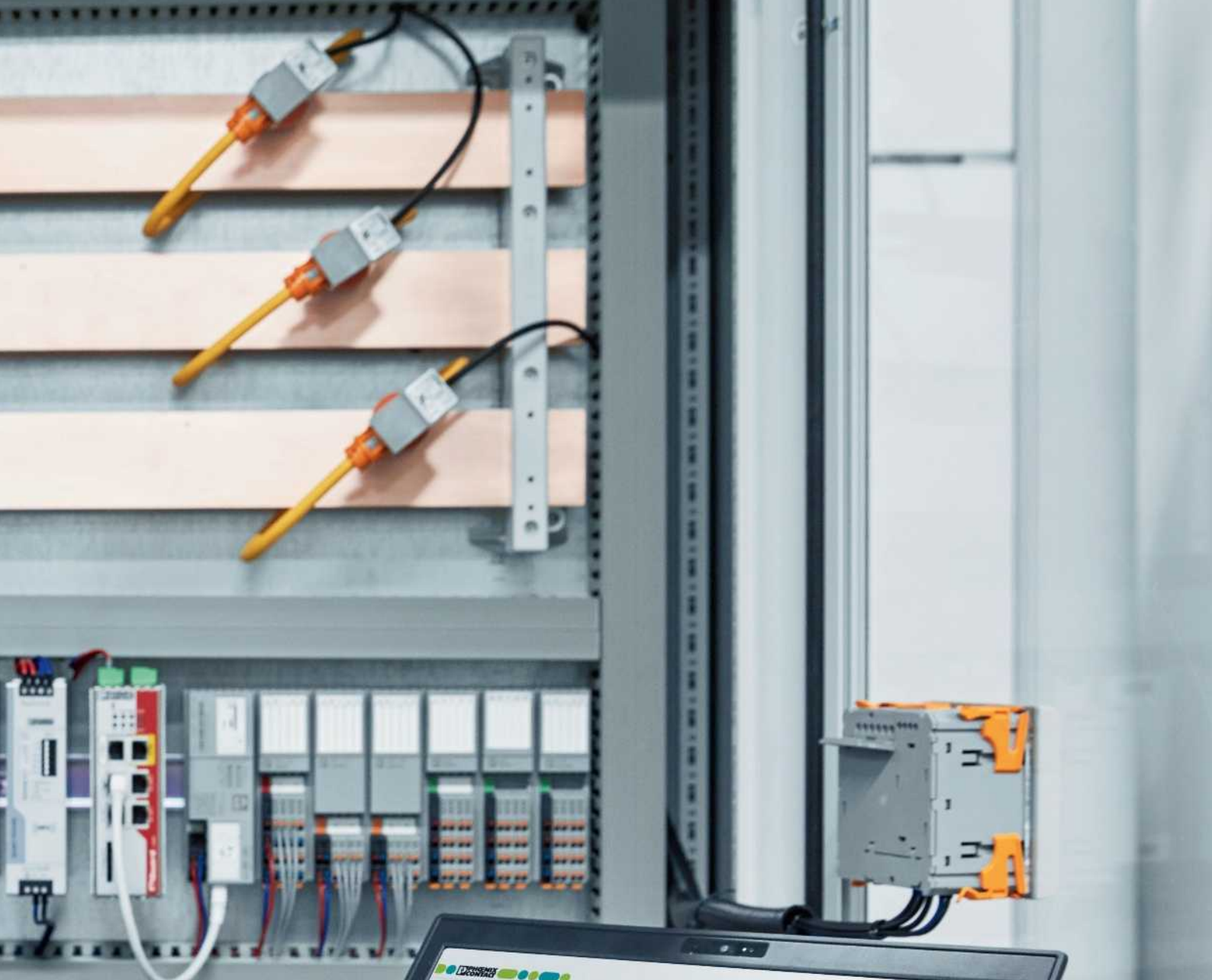
Current transformers for retrofitting

Fast installation in a confined space

PACT RCP current transformers for retrofitting can be conveniently mounted where there is not enough space for split core current transformers. Capture AC currents up to 4,000 A and convert them into a secondary alternating current of 1 A or into an analog standard signal of 4...20 mA, for example, depending on the type of downstream measuring transducer.

Handy replacement current transformer

For versions with current output, the downstream measuring transducer supplies an output current of 0 ... 1 A AC. The phase angle is equal to the primary current. Connect these currents to the energy measuring device current inputs to calculate electrical variables.



Quick and secure installation

The compact Rogowski coil can be placed quickly around busbars and circular conductors. The professional attachment provides for secure seating. Choose from three different coil lengths for the ideal fit.



Well protected



The Rogowski coil for outdoor use is equipped with a UV-resistant housing and UV-protected cables. This provides the right protection for permanent outdoor installation.



Eight current measuring ranges

Choose between eight different current measuring ranges using DIP switches. For ideal measuring accuracy, compensate for the different coil lengths simply via potentiometer.

Energy measuring devices: Product overview

EMpro energy measuring devices				
				
Description	Front panel installation		DIN rail installation	
Measurement via	Current transformer	Rogowski coil	Current transformer	Rogowski coil
Modbus/TCP	Type Order No.	EEM-MA770 2907945	EEM-MA771 2908286	EEM-MA370 2907983
Modbus/RTU	Type Order No.	EEM-MA770-R 2907944	EEM-MA771-R 2908285	EEM-MA371 2908307
PROFINET	Type Order No.	EEM-MA770-PN 2907946	EEM-MA771-PN 2908301	–
EtherNet/IP™	Type Order No.	EEM-MA770-EIP 2907953	EEM-MA771-EIP 2908302	–
Input data				
Measuring principle	True r.m.s. value measurement (TRMS)		True r.m.s. value measurement (TRMS)	
Acquisition of harmonics	Up to 63rd harmonic		Up to 63rd harmonic	
Measurement value	AC sine (50/60 Hz)		AC sine (50/60 Hz)	
Voltage measurement input (input voltage range)				
Direct	35 V AC ... 690 V AC (phase/phase) 20 V AC ... 400 V AC (phase/neutral conductor)		35 V AC ... 690 V AC (phase/phase) 20 V AC ... 400 V AC (phase/neutral conductor)	
Via external transformer	60 V AC ... 2,000,000 V AC (primary) 60 V AC ... 400 V AC (secondary)		60 V AC ... 2,000,000 V AC (primary) 60 V AC ... 400 V AC (secondary)	
Accuracy	0.20%		0.20%	
Current measuring input L1, L2, L3				
Input current range	Secondary: 1 A/5 A	4,000 A	Secondary: 1 A/5 A	4,000 A
Overload capacity	6 A (I_{max})	–	6 A (I_{max})	–
Accuracy	0.20%	<1%	0.20%	<1%
Power measurement				
Accuracy	0.50%	<1%	0.50%	<1%
Active energy	Class 0.5 S (IEC 62053-22)	Class 1 (IEC 62053-21)	Class 0.5 S (IEC 62053-22)	Class 1 (IEC 62053-21)
Reactive energy (IEC 62053-23)	Class 2		Class 2	
Digital input in accordance with IEC/EN 61131-2 (type 3)				
Voltage input signal	24 V DC 0 V DC ... 30 V DC		24 V DC 0 V DC ... 30 V DC	
Digital output in accordance with IEC/EN 61131-2 (type 3)				
Voltage output signal	24 V DC		24 V DC	
Current output signal	≤120 mA		≤120 mA	
Supply voltage range				
Supply voltage range	100 V AC ... 400 V AC (±20%) 150 V DC ... 250 V DC (± 20%)		100 V AC ... 230 V AC (±20%) 150 V DC ... 250 V DC (± 20%)	
Conformity				
Conformity	CE-compliant		CE-compliant	

EMpro energy measuring devices without display

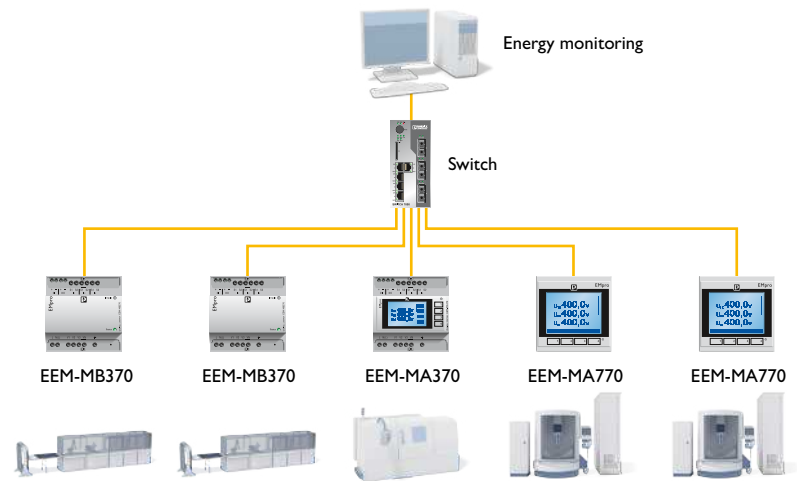


Description			DIN rail installation without display	
Measurement via		Current transformer	Rogowski coil	
Modbus/TCP	Type Order No.	EEM-MB370 2907954	EEM-MB371 2907955	
Modbus/RTU	Type Order No.	–	–	
PROFINET	Type Order No.	EEM-MB370-PN 2907984	EEM-MB371-PN 2908308	
EtherNet/IP™	Type Order No.	EEM-MB370-EIP 2907971	EEM-MB371-EIP 2907976	
Input data				
Measuring principle	True r.m.s. value measurement (TRMS)			
Acquisition of harmonics	Up to 63rd harmonic			
Measurement value	AC sine (50/60 Hz)			
Voltage measurement input (input voltage range)				
Direct	35 V AC ... 690 V AC (phase/phase) 20 V AC ... 400 V AC (phase/neutral conductor)			
Via external transformer	60 V AC ... 2,000,000 V AC (primary) 60 V AC ... 400 V AC (secondary)			
Accuracy	0.20%			
Current measuring input L1, L2, L3				
Input current range	1 A/5 A (secondary)	4,000 A		
Overload capacity	6 A (I_{max})	–		
Accuracy	0.20%	<1%		
Power measurement				
Accuracy	0.50%	<1%		
Active energy	Class 0.5 S (IEC 62053-22)	Class 1 (IEC 62053-21)		
Reactive energy (IEC 62053-23)	Class 2			
Digital input in accordance with IEC/EN 61131-2 (type 3)				
Voltage input signal	24 V DC 0 V DC ... 30 V DC			
Digital output in accordance with IEC/EN 61131-2 (type 3)				
Voltage output signal	24 V DC			
Current output signal	≤120 mA			
Supply voltage range				
Supply voltage range	100 V AC ... 230 V AC (±20%) 150 V DC ... 250 V DC (± 20%)			
Conformity				
Conformity	CE-compliant			

Energy measuring devices: Application examples

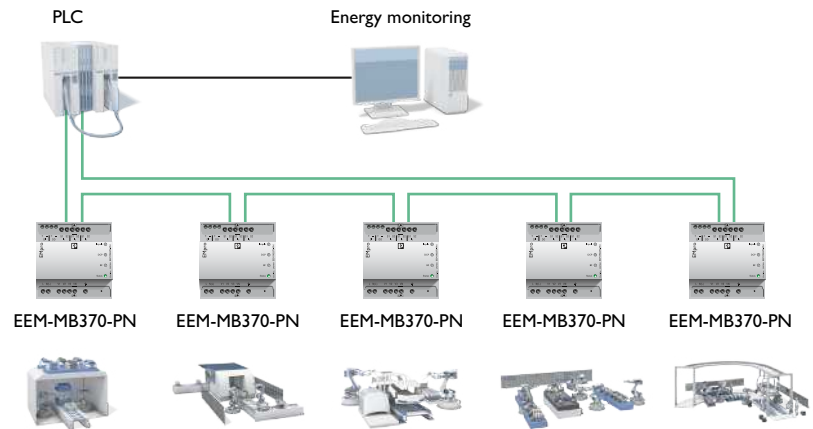
Application example 1

Energy data acquisition in a Modbus/TCP network



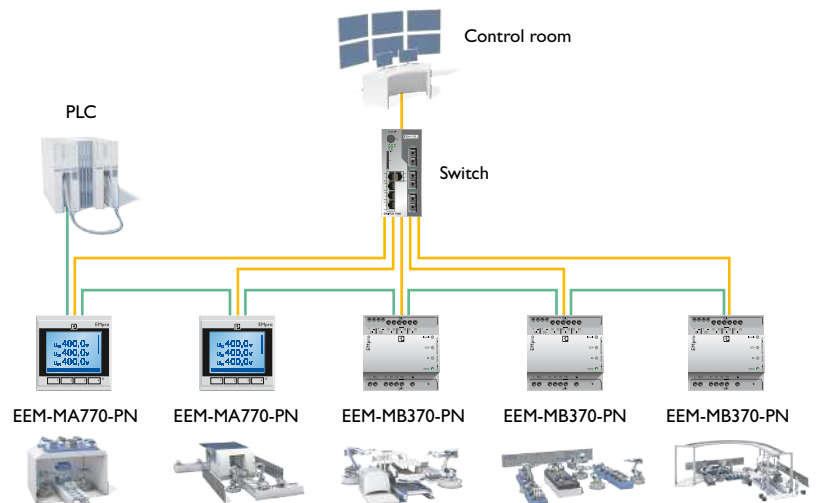
Application example 2

Energy data acquisition in a PROFINET network



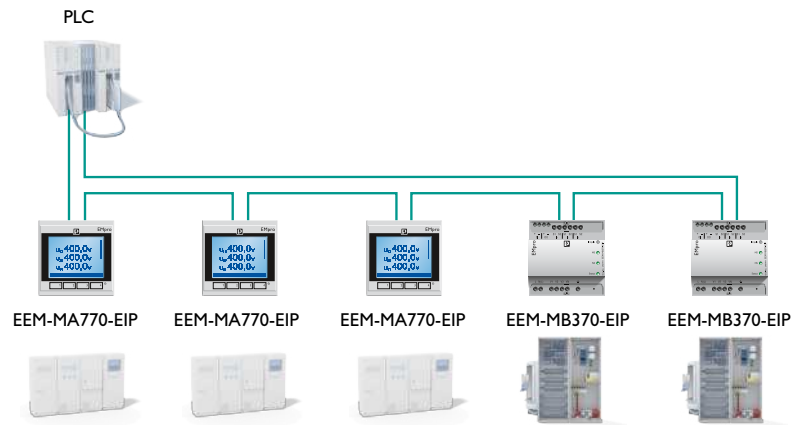
Application example 3

Energy data acquisition in a Modbus/TCP network with simultaneous PROFINET connection



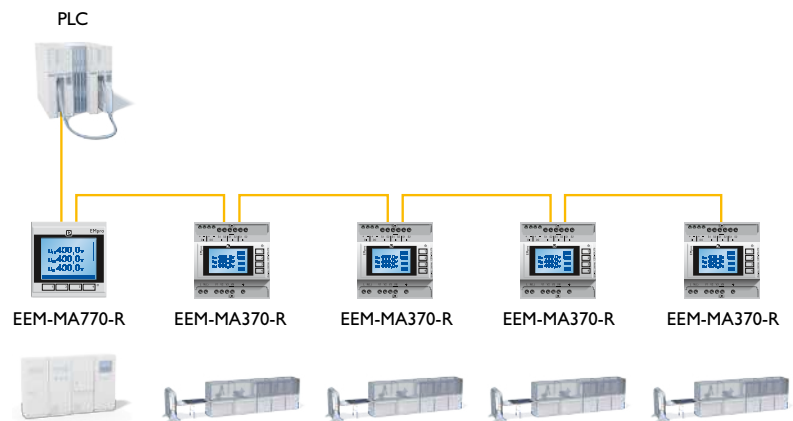
Application example 4

Energy data acquisition in an EtherNet/IP™ network






Application example 5

Energy data acquisition in a Modbus master gateway architecture



EMpro energy meters: Product overview and application examples

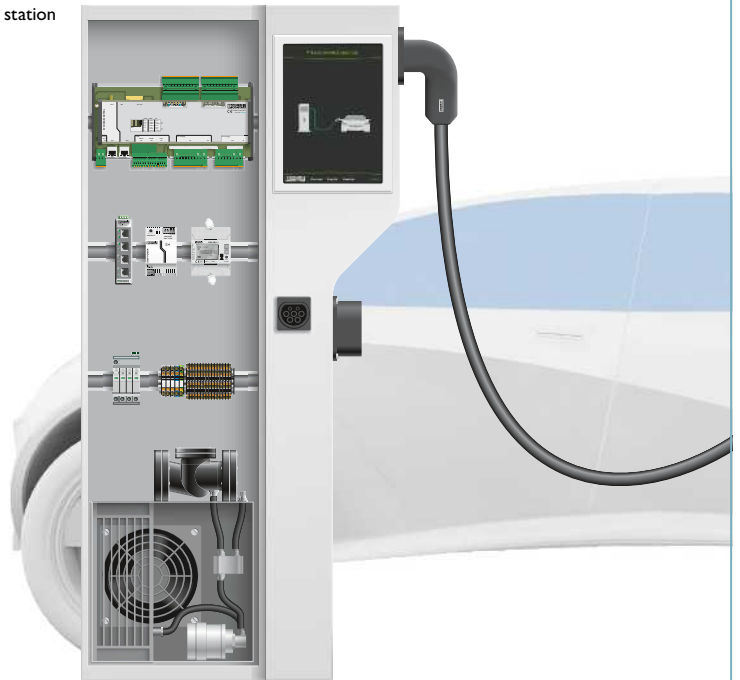
EMpro energy meters with MID approval						
						
Description	Energy meters with M-Bus interface		Energy meters with Modbus/RTU interface		Energy meters with Modbus/TCP interface	
Measurement via	Current transformer	Direct, up to 80 A	Current transformer	Direct, up to 80 A	Current transformer	Direct, up to 80 A
Tariff input	Yes	Yes	Yes	Yes	–	–
Web-based management	–	–	–	–	Yes	Yes
Type Order No.	EEM-EM325 2908576	EM-EM327 2908586	EEM-EM355 2908578	EEM-EM357 2908588	EEM-EM375 2908581	EEM-EM377 2908590
Input data						
Input voltage range	3x 184 V ... 288 V (320 V ... 500 V)		3x 184 V ... 288 V (320 V ... 500 V)		3x 184 V ... 288 V (320 V ... 500 V)	
Frequency range	45 Hz ... 65 Hz		45 Hz ... 65 Hz		45 Hz ... 65 Hz	
Start current I _{st}	0.002 A	0.02 A	0.002 A	0.02 A	0.002 A	0.02 A
Nominal current I _{ref}	1 A	5 A	1 A	5 A	1 A	5 A
Maximum current I _{max}	6 A	80 A	6 A	80 A	6 A	80 A
Communication interface						
Communication protocol	M-Bus		Modbus/RTU		Modbus/TCP	
Communication standard	EN 13757-1-2-3		RS-485		IEEE 802.3	
Transmission speed	300 bps ... 9600 bps		300 bps ... 57,600 bps		10 Mbps ... 100 Mbps	
Measurement connection						
Screw connection: conductor cross section solid/stranded/AVWG	1.5 ... 6 mm ²	1.5 ... 35 mm ²	1.5 ... 6 mm ²	1.5 ... 35 mm ²	1.5 ... 6 mm ²	1.5 ... 35 mm ²
Supply voltage range						
Supply	Supplied by the measuring circuit					
Conformity						
Conformity	CE-compliant, MID-compliant					
Standards/regulations	EN 50470-1 / EN 50470-3					

Application example 1

Energy data acquisition in electromobility

Energy meters with Modbus/RTU interface and direct measurement of up to 80 A are particularly well suited for billing-related energy data acquisition.

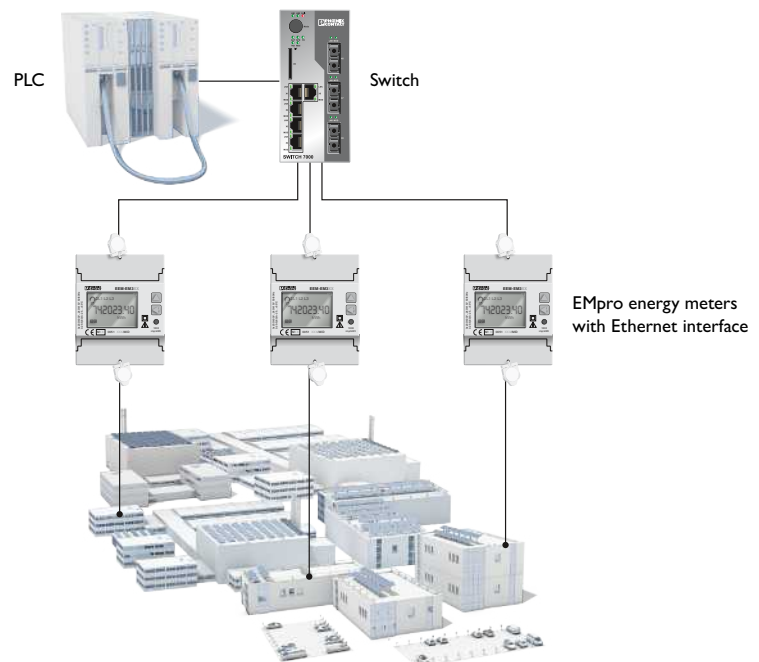
Charging station





Application example 2

Central data collection in building technology




For energy management, easily configure the time intervals you want for storing measurement values, e.g., every 10 seconds or 15 minutes. The energy meters and mean values are saved in a circular buffer memory and are available for several months for calling up, depending on the device setting. Ethernet-based devices offer data access along with storage and export via web-based management.




PACT RCP current transformers: Product overview

PACT RCP current transformers for retrofitting				
				
Description		Rogowski coil and measuring transducer		Rogowski coil and measuring transducer
Application		For energy measurement		For current measurement
Connection method		Screw		Screw / Push-in
Meas. coil 300 mm Signal line 3 m	Type Order No.	PACT RCP-4000A-1A-D95 2904921	PACT RCP-4000A-UIRO-D95 2906231	PACT RCP-4000A-UIRO-PT-D95 2906234
Meas. coil 450 mm Signal line 3 m	Type Order No.	PACT RCP-4000A-1A-D140 2904922	PACT RCP-4000A-UIRO-D140 2906232	PACT RCP-4000A-UIRO-PT-D140 2906235
Meas. coil 600 mm Signal line 3 m	Type Order No.	PACT RCP-4000A-1A-D190 2904923	PACT RCP-4000A-UIRO-D190 2906233	PACT RCP-4000A-UIRO-PT-D190 2906236
Meas. coil 300 mm Signal line 5 m	Type Order No.	PACT RCP-4000A-1A-D95-5M 2910325	–	–
Meas. coil 300 mm Signal line 10 m	Type Order No.	PACT RCP-4000A-1A-D95-10M 2910326	–	–
Meas. coil 450 mm Signal line 10 m	Type Order No.	PACT RCP-4000A-1A-D140-10M 1033483	–	–
Meas. coil 600 mm Signal line 10 m	Type Order No.	PACT RCP-4000A-1A-D190-10M 2910327	–	–
Measuring coil technical data				
Frequency range		40 Hz ... 20,000 Hz		
Position error		<1%		
Rated insulation voltage		1,000 V AC (rms CAT III) / 600 V AC (rms CAT IV)		
Test voltage		10.45 kV (DC/1 min.)		
Ambient temperature operation		-30°C ... +80°C		
Ambient temperature storage/transport		-40°C ... +80°C		
Measuring transducer technical data				
Measuring ranges (current) via DIP switch		0 ... 100 A, 250 A, 400 A, 630 A, 1,000 A, 1,500 A, 2,000 A, 4,000 A		
Current output signal		1 A AC (effective at sine)	0 ... 20 mA, 4 ... 20 mA, 0 ... 10 mA, 2 ... 10 mA, 0 ... 21 mA	
Voltage output signal		–	0 ... 10 V, 2 ... 10 V, 0 ... 5 V, 1 ... 5 V, 0 ... 10,5 V	
Nominal supply voltage range		19.2 V DC ... 30 V DC	19.2 V DC ... 30 V DC	
Maximum transmission error		≤0.5%	≤0.5%	
Rated power		1.5 VA	–	
Frequency range		45 Hz ... 65 Hz	16 Hz ... 1,000 Hz	
Ambient temperature operation		-20°C ... +70°C	-20°C ... +70°C	
Ambient temperature storage/transport		-25°C ... +85°C	-25°C ... +85°C	

PACT RCP Rogowski coils

				
Description		Measuring coil, length 300 mm	Measuring coil, length 450 mm	Measuring coil, length 600 mm
Signal line 3 m	Type Order No.	PACT RCP-D95 2904890	PACT RCP-D140 2904891	PACT RCP-D190 2904892
Signal line 5 m	Type Order No.	PACT RCP-D95-5M 2910322	–	–
Signal line 10 m	Type Order No.	PACT RCP-D95-10M 2910323	PACT RCP-D140-10M 1033482	PACT RCP-D190-10M 2910324

PACT RCP current transformers for retrofitting

		
Description		Rogowski coil and measuring transducer, current output 1 A
Application		With UV protection for outdoor use
Connection method		Screw
Meas. coil 600 mm Signal line 3 m	Type Order No.	PACT RCP-4000A-1A-D190-3M-UV 1033485
Measuring coil technical data		
Frequency range		40 Hz ... 20,000 Hz
Position error		<1%
Rated insulation voltage		1,000 V AC (rms CAT III) / 600 V AC (rms CAT IV)
Test voltage		10.45 kV (DC/1 min.)
Ambient temperature operation		-30°C ... +80°C
Ambient temperature storage/transport		-40°C ... +80°C
Measuring transducer technical data		
Measuring ranges (current) via DIP switch		0 ... 100 A, 250 A, 400 A, 630 A, 1,000 A, 1,500 A, 2,000 A, 4,000 A
Current output signal		1 A AC (effective at sine)
Nominal supply voltage range		9.6 V DC ... 30 V DC
Maximum transmission error		≤0.5%
Rated power		–
Frequency range		16 Hz ... 1,000 Hz
Ambient temperature operation		-40°C ... +70°C
Ambient temperature storage/transport		-40°C ... +85°C

Accessories

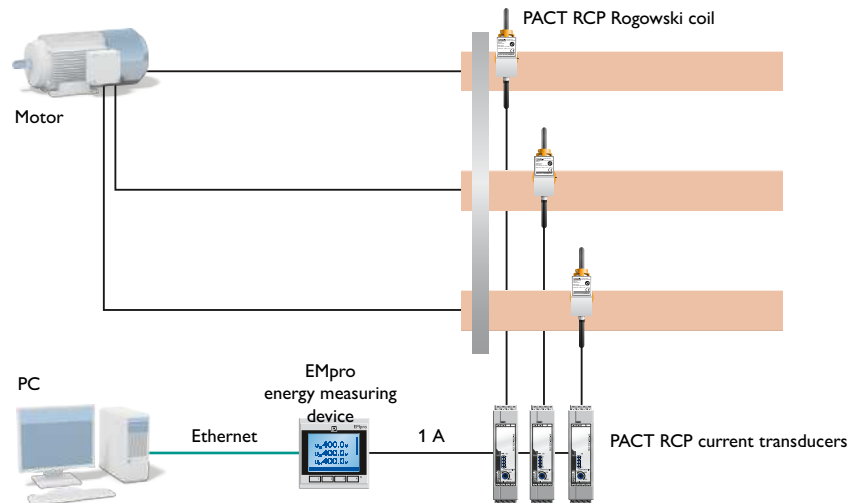
		
Holder for busbars		
Busbar thicknesses:		10 ... 15 mm
Type:		PACT RCP-CLAMP
Order No.:		2904895
Busbar thicknesses:		5 ... 10 mm
Type:		PACT RCP-CLAMP-5-10
Order No.:		2907888

PACT current transformers: Product overview and application examples

PACT current transformers						
						
Description	Current transformer					
Circular conductor dimensions	Ø 21 mm		Ø 28 mm		Ø 33 mm	
Rail dimensions	–		30 x 15 mm 20 x 20 mm		40 x 12 mm 2 x 30 x 10 mm	
Secondary current I_{sn}	1 A/5 A		1 A/5 A		1 A/5 A	
Accuracy class	C05 = 0.5/C10 = 1		C05 = 0.5/C10 = 1		C05 = 0.5/C10 = 1	
Screw connection	Type Order No.	PACT MCR-V1-21-44 2277268		PACT MCR-V2- 3015- 60 2277271		PACT MCR-V2- 4012- 70 2277284
Push-in connection	Type Order No.	–		PACT MCR-V2-3015-60-PT 2907413		PACT MCR-V2-4012-70-PT 2907414
Technical data						
Primary rated current and rated power	I_{pn}	S_n	I_{pn}	S_n	I_{pn}	S_n
I_{sn} : 1 A/Class: 0.5	100 ... 200 A	1.25 ... 5 VA	100 ... 400 A	1.25 ... 5 VA	150 ... 600 A	2.5 ... 5 VA
I_{sn} : 1 A/Class: 1	50 ... 200 A	1.25 ... 5 VA	60 ... 750 A	1.25 ... 7.5 VA	100 ... 600 A	2.5 ... 10 VA
I_{sn} : 5 A/Class: 0.5	100 ... 200 A	1.25 ... 3.75 VA	200 ... 400 A	3.75 ... 10 VA	150 ... 600 A	2.5 ... 10 VA
I_{sn} : 5 A/Class: 1	50 ... 400 A	1.25 ... 10 VA	60 ... 750 A	1.25 ... 10 VA	100 ... 1,000 A	2.5 ... 10 VA

Central energy data acquisition

Central energy data acquisition with the PACT RCP-4000A-1A set and one EMpro energy measuring device.





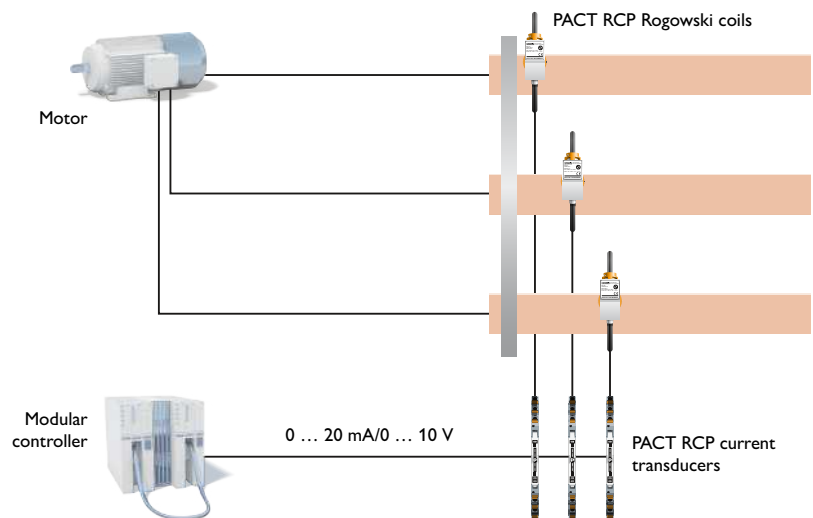
Current transformers

Ø 42 mm	Ø 52 mm	Ø 85 mm	–
50 x 12 mm 2 x 40 x 10 mm	60 x 15 mm, 2 x 50 x 10 mm 40 x 40 mm	2 x 100 x 10 mm 80 x 64 mm	–
1 A/5 A	1 A/5 A	1 A/5 A	1 A/5 A
$C05 = 0.5/C10 = 1$	$C05 = 0.5/C10 = 1$	$C05 = 0.5/C10 = 1$	$C05 = 0.5/C10 = 1$
PACT MCR-V2- 5012- 85 2277297	PACT MCR-V2- 6015- 85 2277336	PACT MCR-V2C-10020-129 2277514	PACT MCR-V3-60 2277417
PACT MCR-V2-5012-85-PT 2907416	PACT MCR-V2-6015-85-PT 2907417	–	–

I_{pn}	S_n	I_{pn}	S_n	I_{pn}	S_n	I_{pn}	S_n
150 ... 1,250 A	1.25 ... 10 VA	300 ... 1,000 A	1.25 ... 2.5 VA	1,000 ... 3,000 A	5 ... 15 VA	1 ... 40 A	2.5 ... 5 VA
100 ... 1,250 A	1.25 ... 15 VA	300 ... 1,250 A	2.5 ... 3.75 VA	1,000 ... 3,000 A	10 ... 30 VA	5 ... 40 A	2.5 ... 5 VA
150 ... 1,000 A	1.25 ... 10 VA	600 ... 1,250 A	5 ... 15 VA	1,500 ... 4,000 A	5 ... 25 VA	5 ... 40 A	2.5 ... 5 VA
100 ... 1,500 A	1.25 ... 15 VA	200 ... 1,500 A	2.5 ... 15 VA	800 ... 3,000 A	10 ... 25 VA	5 ... 40 A	2.5 ... 5 VA

Standard signal generation

Standard signal generation with the PACT RCP-4000A-UIRO set



Current and voltage transducers

AC/DC current transducers

MCR AC/DC current transducers measure direct and alternating currents of any waveform.

Choose between adjustable devices for precise mapping of small measuring ranges up to 55 A or compact devices in graded measuring ranges for measuring high currents up to 600 A.

Your advantages

- Suitable for every waveform, thanks to true r.m.s. value measurement (TRMS)
- Lossless current measurement without shunt using Hall sensor
- Optimum mapping of the measuring range up to 55 A, thanks to software-programmable upper and lower limits
- Decentral current measurement up to 600 A using particularly compact devices with variable mounting options

i Web code: #1265



Current transducers up to 600 A AC/DC



Programmable current transducers up to 100 A AC/DC

AC current transducers

MCR AC current transducers can also be used to acquire distorted alternating currents and convert them into a standard analog signal.

There are two product ranges: one with adjustable versions with a variable supply concept, and one with versions with a hinged Rogowski sensor for easy installation and retrofitting.

Your advantages

- Precise acquisition of sinusoidal alternating currents using adjustable AC measuring transducers up to 12 A that can be supplied flexibly
- Convenient installation or retrofitting even when measuring distorted currents, thanks to hinged AC measuring transducer up to 200 A

i Web code: #2269



Current transducers up to 400 A AC, distorted



Current transducers up to 12 A AC, sinusoidal

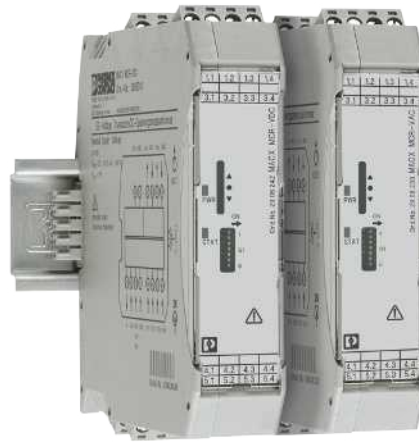
Voltage transducers

MCR voltage transducers can be used to acquire DC and AC voltages in various signal ranges and convert them into standard analog signals.

Your advantages

- Bidirectional output signals
- Eight finely graded voltage measuring ranges for optimum measurement accuracy
- ZERO/SPAN adjustment $\pm 20\%$
- High operational safety, thanks to 3-way electrical isolation

i Web code: #2270



Voltage measuring transducers for DC voltages

Voltage measuring transducers for AC voltages

PV string monitoring

SOLARCHECK provides reliable information on the status of your photovoltaic system. This enables you to respond to problems in individual strings promptly and take appropriate countermeasures.

Your advantages

- Low cost and wiring outlay, without additional power supply unit in the device connection box
- Space-saving installation, thanks to the compact design
- Easy integration into monitoring systems, thanks to Modbus/RTU communication
- Monitoring of remote indication contacts, thanks to an additional digital input
- Flexible expansion, thanks to optional voltage measurement of up to 1,500 V DC

i Web code: #1925

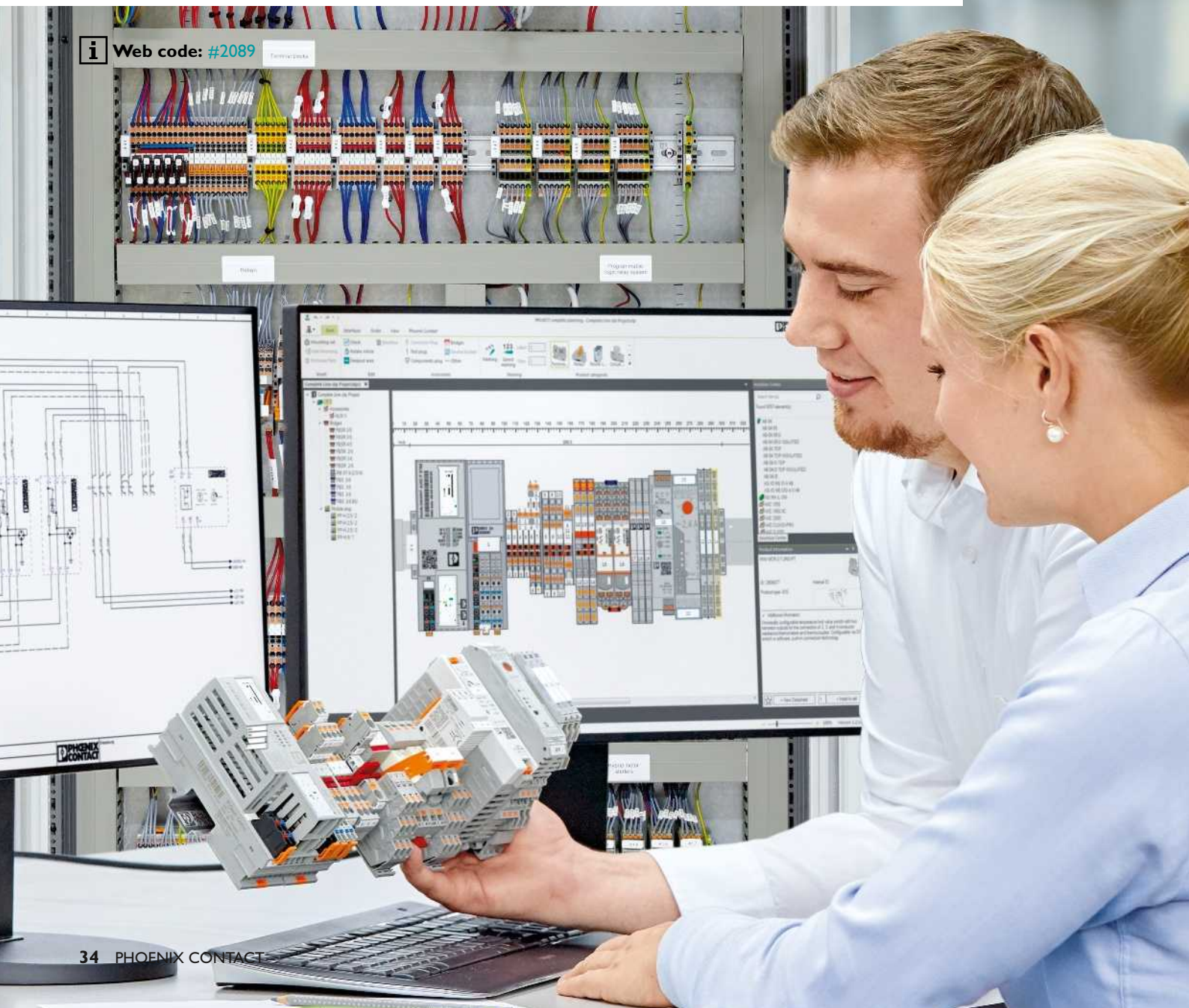


Measuring module for string current

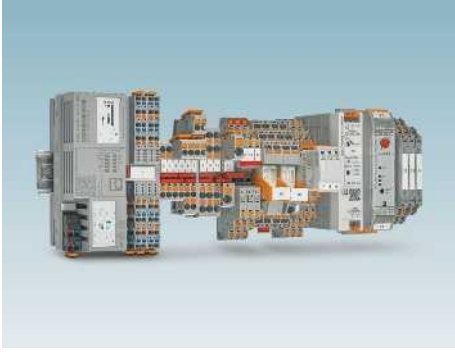
Communication module

COMPLETE line – The comprehensive solution for the control cabinet

COMPLETE line is a system comprising technologically leading and coordinated hardware and software products, consulting services, and system solutions that help you optimize your processes in control cabinet manufacturing. Engineering, purchasing, installation, and operation become significantly easier for you.



Your advantages in detail:



Comprehensive product portfolio

With COMPLETE line, we offer a complete product portfolio of technologically leading products. This includes:

- Controllers and I/O modules
- Power supplies and device circuit breakers
- Terminal blocks and distribution blocks
- Relay modules and motor starters
- Signal conditioners
- Safety technology
- Surge protection
- Heavy-duty connectors



Intuitive handling

Thanks to the simple, intuitive handling of the coordinated hardware components, you will save time during installation, startup, and maintenance. Push-in connection technology enables you to wire applications quickly – without using tools. The broad, technologically leading product portfolio will always provide you with the right product for standard or special applications.



Time savings across the entire engineering process

The PROJECT complete planning and marking software supports the entire process of control cabinet manufacturing. The program features an intuitive user interface that enables the individual planning, automatic checking, and direct ordering of terminal strips.



Reduced logistics costs

Reduced variety of parts, thanks to standardized marking, bridging, and testing accessories. The COMPLETE line system coordinates products, design, and accessories so that you benefit from maximum reusability and thus reduce your logistics costs.



Optimized processes in control cabinet manufacturing

COMPLETE line supports you, from engineering through to manufacturing, in designing your control cabinet production as efficient as possible. Thus, your customized concept for optimizing your processes in control cabinet manufacturing is created. Our terminal strip production helps you to flexibly manage order peaks or to supply your control cabinet production with fully assembled DIN rails just in time.



The new standard for the control cabinet

Discover the extensive COMPLETE line product portfolio and find out more about COMPLETE line and your comprehensive solutions for the control cabinet.

Visit our website:
phoenixcontact.com/completeline

In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 17,400 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.



You will find our complete product range at:
phoenixcontact.com

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