

FAQs

Positioning and portfolio

1) How should we position EMpro?

Fundamentally, EMpro is a panel meter with many additional capabilities. For most customers, this feature set and the standard measurements the meter makes are more than sufficient to replace like-components.

EMpro can also displace much higher-priced components like power quality meters that include functionalities the customer does not use. That said, it is not a power quality meter and cannot be used for those advanced functions.

2) Will the legacy “EMpro I” parts become obsolete?

Yes, the existing line will be obsoleted sometime in 2021 – all new opportunities and all existing customers should begin to utilize the new portfolio immediately.

3) Is there a comparison available for EMpro I vs. EMpro II?

Yes, please see the launch folder or ask the Product Specialist for additional information

4) What meter styles are there?

EMpro is available in a standard panel-mount solution (96mm x 96mm cutout) or in a DIN rail package (90mm x 80mm). All panel-mount options have displays. DIN rail devices can be ordered with or without displays.

Measurement connections and electrical/measurement capabilities

5) What types of power systems will EMpro support?

EMpro is designed to support all common system configurations found globally. There are presently 8 configurations available during meter set-up, depending on the number of phases and CTs used. This includes support for single-phase, split-phase (120/240VAC single phase), 2-phase, 3-phase wye, and 3-phase delta systems.

6) How is current measurement integrated?

There are two options when selecting EMpro products – integration using traditional CTs that have 0-1A or 0-5A secondary currents, or direct connection of Rogowski coils.

7) Do Rogowski coil connections require a signal conditioning module?

No, the coils are connected directly to the meter, saving significant wiring time and DIN rail space while reducing component counts.

8) Can Rogowski coils from other manufacturers be used with EMpro?

Yes, connection with most standard Rogowski coils is possible with minimal setup effort. Phoenix Contact Rogowski coils are pre-programmed into the meter for streamlined installation.

9) What are the voltage input measurement ranges?

The meters will accept 35-690VAC directly or up to 2MVAC using potential transformers.

10) What are the current input measurement ranges?

CT versions: the meters will accept 6A directly or up to 20,000A using current transformers.

Rogowski versions: the meters will accept Rogowski signal inputs that support current measurement up to 10,000 A.

11) What is the power supply connection voltage of the meter?

Currently, all meters are powered by 100-440 V AC using a connection that is separate from the voltage measurement inputs. 24 V DC versions are in development and will be available soon.

12) What is the accuracy of the meter?

Voltage accuracy: 0.2%

Current accuracy, CT: 0.2%

Current accuracy, Rogowski coil: 0.5%

Real power accuracy: All CT-connected versions are Accuracy Class 0.5 S, which represents +/- 0.5% accuracy for real power measurement. This is suitable for revenue-grade metering in the US market.

Rogowski coil versions are Accuracy Class 1.0 (+/- 1% accuracy). This is suitable for all monitoring applications except revenue-grade metering and ultra-low currents.

FAQs (continued)

13) Do the meters have any accuracy certifications?

Yes, CT input versions are certified to ANSI C12.20 meters for Accuracy Class 0.5 revenue-grade metering. MID certification is also planned for the European market at a later time.

Networking, protocols, and web server

14) What networking protocols are available??

Modbus RTU, Modbus TCP, EtherNet/IP, and PROFINET

15) Are there additional protocols planned in the future?

Yes, PROFIBUS and BACnet options are currently in development.

16) How many Ethernet ports are on the energy meters?

The number depends on the package and options selected. All meters feature a dedicated Ethernet port for web server access and Modbus TCP support. PROFINET and EtherNet/IP variants have 2 additional Ethernet ports dedicated as read-only interfaces for data transmission to industrial controllers.

17) Do EtherNet/IP versions support DLR functionality?

No, not at this time – there is a known bug in the chipset used for these energy meters that prevents successful certification from the EtherNet/IP institute. Development efforts are underway at our supplier to fix the bug and integrate this functionality in a future revision of the chip.

18) What are EMpro’s cloud connection capabilities?

At the time of the U.S. launch, the EMpro supports standard industrial Ethernet protocols. In the very near future, ProfiCloud support will be offered, followed shortly by REST API integration, making EMpro meters capable of integration into all major cloud-based and IIoT services.

19) What functions can be performed using the web server?

The web server is the central interface through which all features of the meter can be accessed. The web server is used for streamlined configuration, monitoring, logging, visualization, alarming, device security access, import and export functions, alarm customization, tariff meters, and DI/DO configuration.

20) How is the web server accessed?

The web server can only be accessed using the dedicated Modbus TCP Ethernet port found on every meter – it is not possible to access the web server from the PROFINET, EtherNet/IP, or Modbus RTU interfaces.

21) How is Modbus RTU integrated on meters that are so equipped?

Modbus RTU is implemented using the RS-485 standard (2-wire). A selectable termination resistor is included for use when the meter is the last device on a serial bus network.

Additional product features

22) Are there tariff meters available?

Yes, 4 tariff meters are included in the meter. These additional energy meters can be used as a sort of stop-watch for energy consumption, being activated and deactivated at the user’s discretion.

23) Can the meters assist with peak energy demand planning?

Yes. The meter has three demand, or “averaging”, modes to assist in avoiding utility surcharges from excessive peak demand.

Fixed block mode: The average is calculated and reset on a user-defined time interval.

Sliding block mode: The average is a rolling average for a user-defined time interval (oldest values discarded as new measurements are made).

Rolling block mode: The average is calculated on two intervals – a long fixed block and sub-intervals. It is a combination of the two above modes.

FAQs (continued)

24) Do the meters have any predictive capabilities?

Yes, based on the averaging capabilities described above, it is possible for the meter to predict future trends based on real-time conditions. This is especially useful for taking proactive measures to avoid utility surcharges, such as load shedding and power factor correction.

25) What I/O is available on the meter?

All meters come with one 24 V DC digital input and one 24 V DC digital output. The input and output points are configurable for a variety of functions.

Digital input: use to activate impulse counters, tariff meters, average values, alarming, and utility synchronization.

Digital output: use to provide pulse or DO signal for impulse counting, device status, alarm state, phase order, manual operation (force on or off), or it can be deactivated.

26) Can the I/O be expanded?

No, the meter has a fixed I/O interface with 1 DI point and 1 DO point..

27) What are the alarming capabilities of the meter?

EMpro meters come with 4 built-in alarm functions that are user-defined. The user selects the parameter to monitor (i.e., voltage, current, power consumption, power factor), whether it should be a high, low, or window alarm, and the thresholds at which the alarm should operate.

The user can also assign alarm statuses to the digital output of the meter if desired. Logic gates can be added to the digital output so that it only toggles for a combination of alarm conditions. These operators include AND, NAND, OR, NOR, XOR, and NXOR.

28) What are the logging capabilities of the meter?

All meters come with integrated memory and a logging function included. Up to 8 parameters can be logged and stored on user-defined intervals as short as 1 minute per value stored. The memory is retentive and can be configured to either a circular buffer mode or a fill and stop mode. The user can also pause logging easily with the click of a button.

General information

29) What do the Type-Descriptions indicate about product attributes?

Example: EEM-MA771-EIP

EEM	MA	77	1	EIP
Electronic Energy Meter	MA: with display MB: without display	37: DIN rail-mounted 77: panel-mounted	0: CT connection 1: direct Rogowski connection	Blank: Modbus TCP R: Modbus RTU EIP: EtherNet/IP PN: PROFINET

30) Where can I find additional information, such as wiring, registration information, communications, and detailed technical data?

All of the necessary information and additional product attributes including detailed descriptions of device functions can be found in the User Manual on the Phoenix Contact website.

31) Where can I find these products on the US website?

Please visit www.phoenixcontact.com/EMpro.

32) Are there future updates planned for the EMpro portfolio?

Yes, EMpro has been designed in a modular manner that will allow for the continuous expansion of product features and communications protocols moving forward. There are also regularly-scheduled firmware updates that permit the integration of new features on existing meters as they become available.