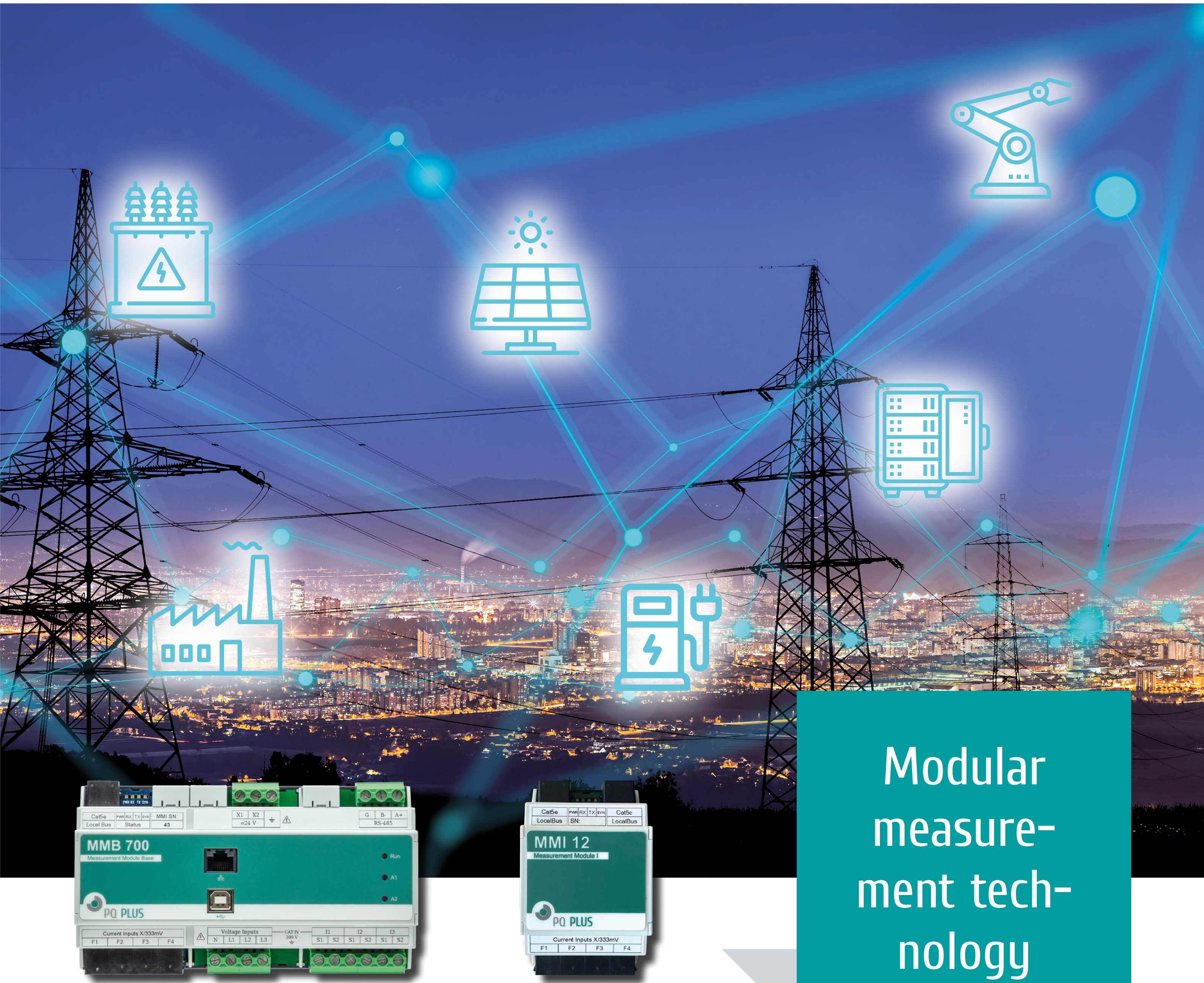
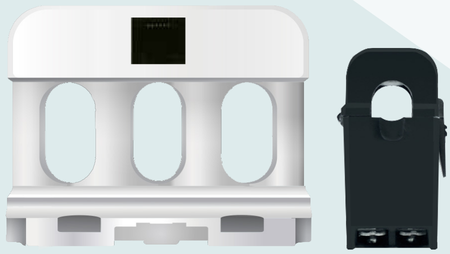
Infeed measurement and recording of measured values at all outlets with compact measuring modules



Modular measurement technology

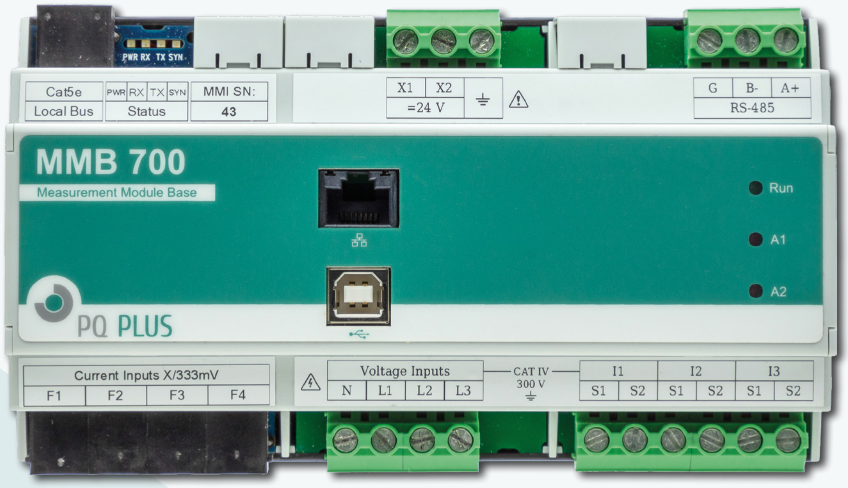
The modular system for all requirements of modern energy measurement technology

Different currents can be recorded and analysed using different types of current transformer with the various modules. The possibility of combining the different modules with our various master devices ensures almost limitless variety. This allows you to record, visualise, and evaluate both the infeed measurement in accordance with DIN EN 50160 in class A or class S and the energy data of all outlets. A maximum of 5 modules can be connected to one master device. This means that up to 60 currents (e.g., 20 x 3-phase loads) can be recorded.



Current transformers J3CT and JC

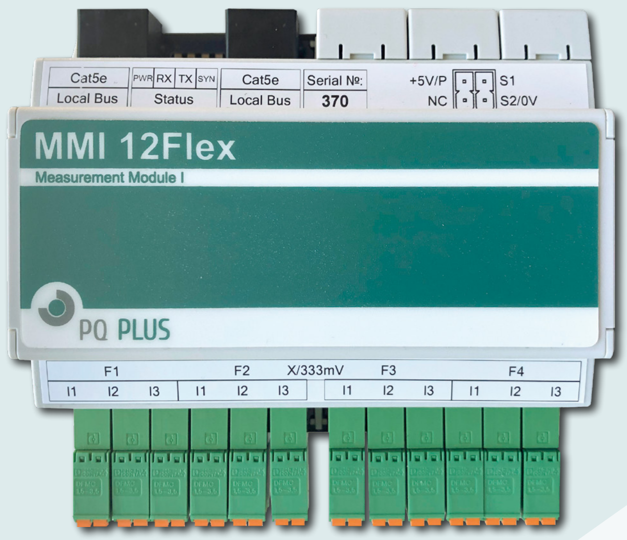
The current inputs for the outgoing measurement on the MMB 700 and the MMI 12 are designed for our J3CT current transformers (3-phase current transformer set) or the JC (1-phase cable conversion transformer) with 333 mV and offer a connection via plug-in connectors. The current transformers are available with a wide range of primary currents.



MMB 700

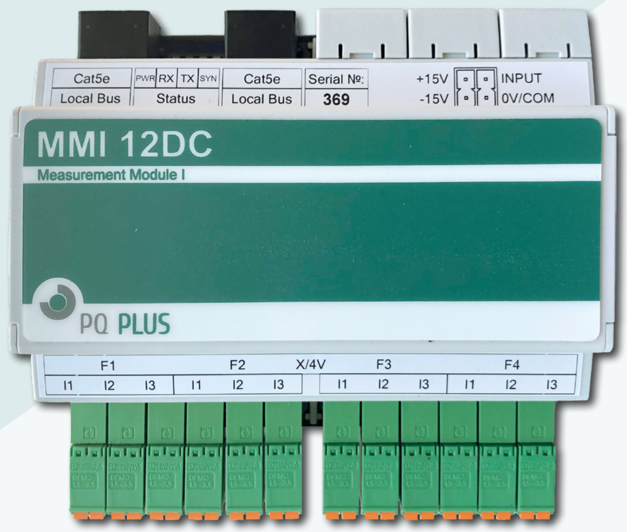
The MMB 700 is a DIN rail power quality analyser with 3 voltages and a total of 15 current measurement channels. It has an integrated memory for power quality in accordance with DIN EN 50160 in class A, oscilloscopes, outgoing measurements, etc.

Access can be via Ethernet, RS485, or USB. Modbus RTU and TCP/IP are the standard communication protocols. The universal measurement devices from PQ Plus also support the SNMP grid protocol. Three current inputs are provided for infeed measurement with 1 / 5 A current transformers and 12 further current channels for outgoing measurements with 333 mV transformers via the integrated MMI.



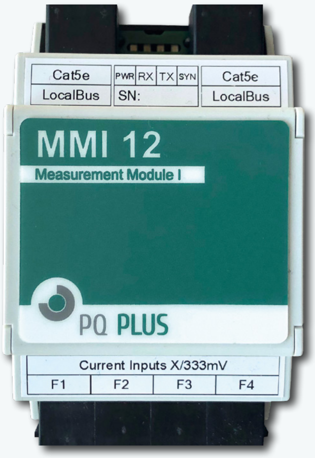
MMI 12Flex

The MMI 12Flex is a module for recording up to 12 operating currents of individual outlets via flexible Rogowski coils. Single-phase or three-phase loads with or without neutral conductor current can be recorded here. This can be configured using the free ENVIS software. The Rogowski coils are connected via 4-pin plug-in connectors. The power supply of +5 V_{DC} for the Rogowski coils is integrated into the module.



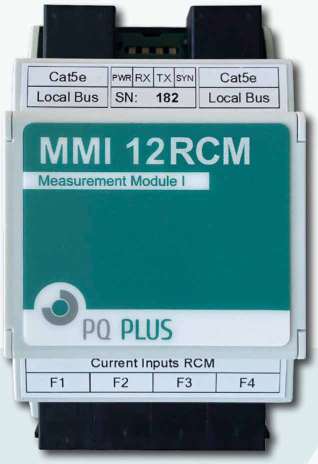
MMI 12DC

The MMI 12DC is a module for recording up to 12 direct or alternating currents of individual outlets such as DC distribution cabinets. The Hall sensors or direct current transformers are connected via 4-pin plug-in connectors. The secondary signal of the transformers and sensors must be ± 4 V. The power supply of ± 15 V_{DC} for the connected Hall sensors is integrated into the module.



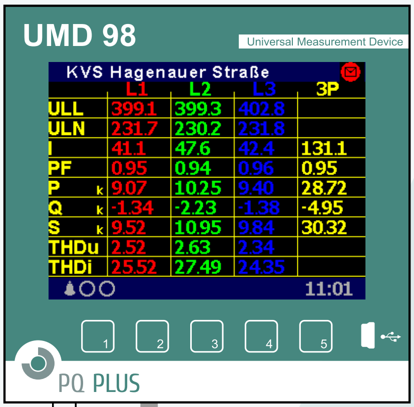
MMI 12

The MMI 12 is a module for recording up to 12 operating currents of individual outlets. Single-phase or three-phase loads with or without neutral conductor current can be recorded here. This can be configured using the free ENVIS software. The 333 mV transformers are connected to the MMI 12 using plug-in connectors.



MMI 12RCM

The MMI 12RCM is a module for the continuous recording of up to 12 differential currents. The differential current transformers are connected to the MMI 12RCM using plug-in connectors. Permanent differential current monitoring ensures a high level of personal and system protection. This also reduces the time and effort required for DGUV V3 inspections.

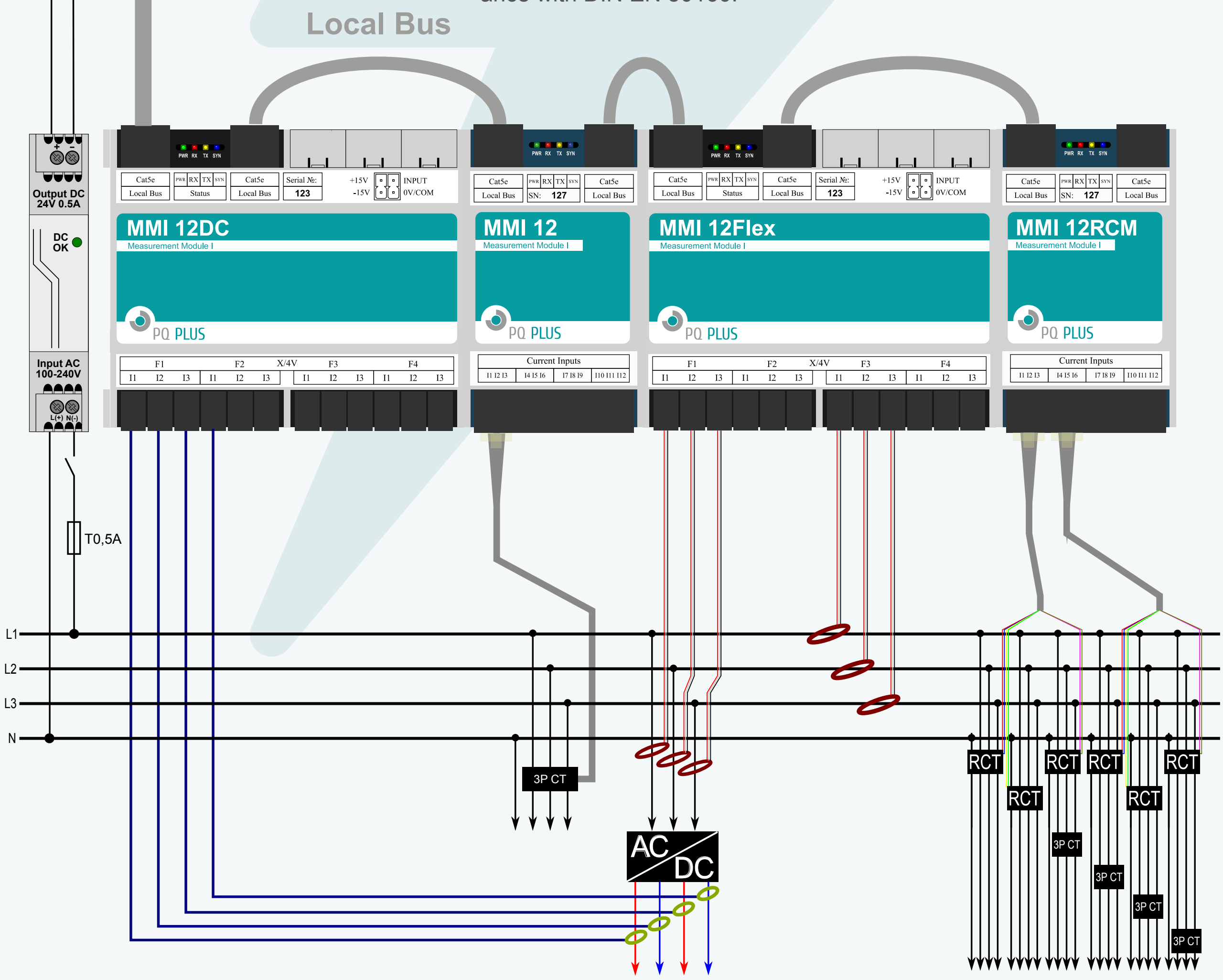


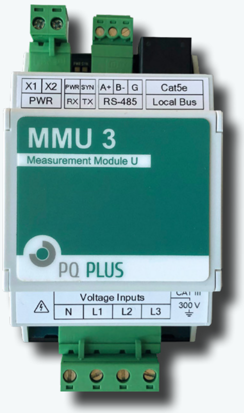
Modular measurement technology on the UMD 98LB

The UMD 98LB can be used as a master as an alternative to the MMB 700. This means that the outgoing measured data are not only logged, but also shown on the UMD's display.

The various MMI modules are connected directly to the UMD 98LB via RJ45 cables. The power modules can be installed where they are needed in the distribution board due to the simple RJ45 cable connection between the MMI modules. The measured data are made available at the local bus interface.

The UMDs record the measured values, save them, and visualise them via the display and the integrated web server. The UMD itself enables further measurement (e.g., infeed) via 1 / 5 A current transformers.
Optionally, the power quality can be fully recorded and analysed in accordance with DIN EN 50160.





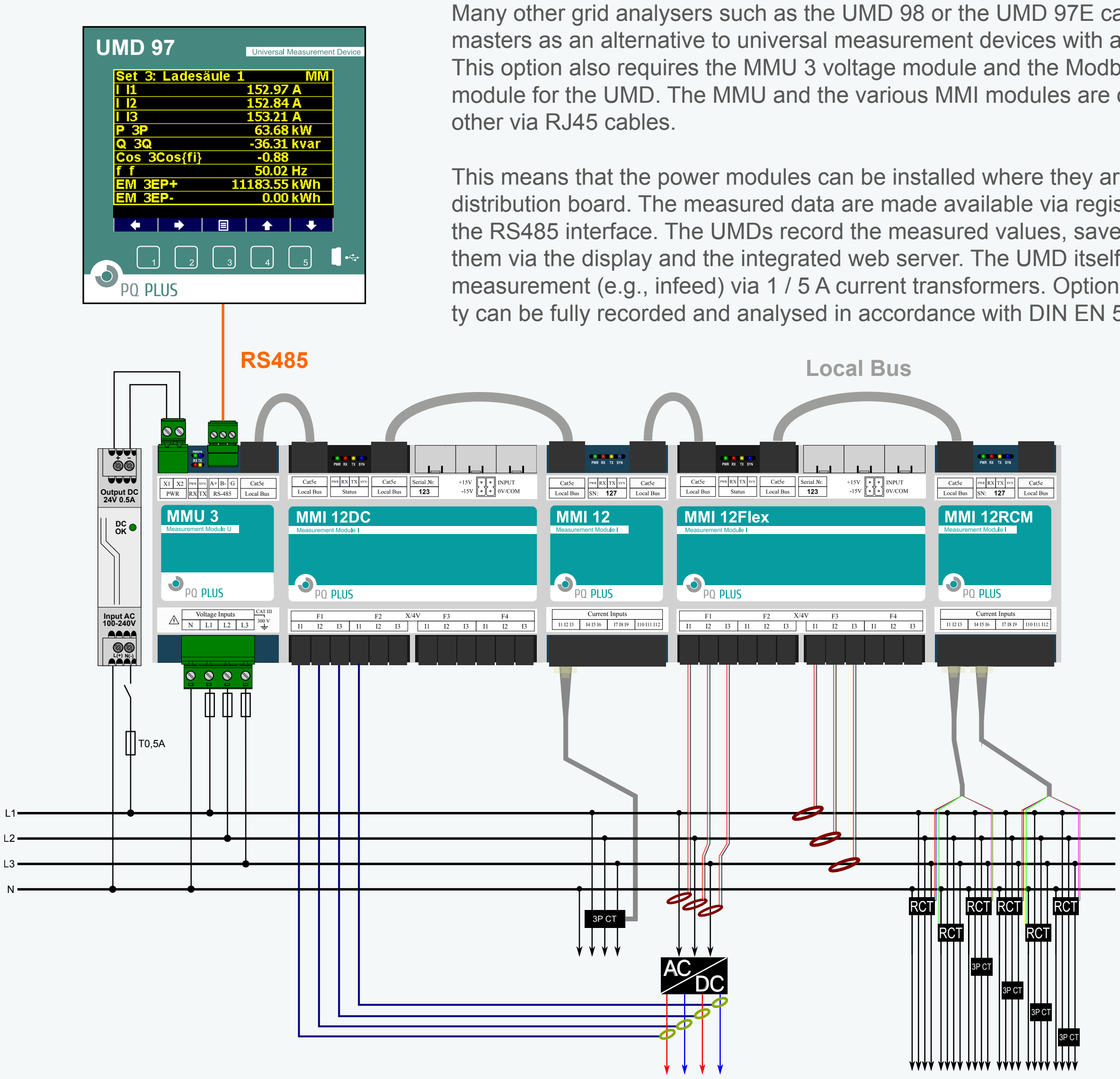
MMU 3

The MMU 3 is a module for recording the voltage. This is required when using the MMIs on UMD universal measurement devices without a local bus connection. All measured data from the MMU 3 and the connected MMI modules can be sent to the master via the RS485 interface or tapped directly using Modbus RTU.

Modular measurement technology on the UMD without local bus connection

Many other grid analysers such as the UMD 98 or the UMD 97E can be used as masters as an alternative to universal measurement devices with a local bus interface. This option also requires the MMU 3 voltage module and the Modbus Master firmware module for the UMD. The MMU and the various MMI modules are connected to each other via RJ45 cables.

This means that the power modules can be installed where they are needed in the distribution board. The measured data are made available via register addresses on the RS485 interface. The UMDs record the measured values, save them, and visualise them via the display and the integrated web server. The UMD itself enables further measurement (e.g., infeed) via 1 / 5 A current transformers. Optionally, the power quality can be fully recorded and analysed in accordance with DIN EN 50160.



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