Systems for standardised measured value recording of self-generation systems

PQ PLUS GmbH®

Our solutions for self-generation systems

Record, analyse, and document measured values in compliance with standards

Our measurement technology meets the requirements of a wide range of standards. As a result, it can be used for self-generation systems at all voltage levels. The universal measurement devices from PQ Plus in conjunction with the free ENVIS software not only let you capture and record the data, but also evaluate results in accordance with standards, display them graphically, and analyse them.

Recording and analysing power quality in compliance with standards using the UMD 913 and UMD 710 universal measurement devices

VDE-AR-N 4110 is binding upon installers of new systems. The fault recorder described there must record the power quality in accordance with DIN EN 50160 in class A. The UMD 913 and UMD 710 also meet the other requirements listed. The supraharmonics described in VDE-AR-N 4110 of 2 ... 9 kHz can be collected, recorded, and evaluated with the two universal measurement devices together with the optional SH firmware module.

The voltage can also be recorded via voltage sensors with our UMD 710MVU. This and the UMD 710EVU are suitable for CAT IV environments in accordance with EN 61010-1.

Application

Connection of self-generation systems to the medium-voltage grid

UMD 913 for control panel mounting 144 x 144 mm, mains quality in class A

Measurement inputs:
4x voltage, 4x current,
2x RCM, 1x Pt100

Voltage measurement:
up to 1530 V

Current measurement: 1 / 5 A

Measurement category:
CAT IV / 300 V

Scanning: 28.8 kHz

Refresh rate of
measured values: up to 200 ms

Harmonics:
up to 9 kHz
(180th harmonic)

Evaluation in accordance
with EN 50160:
Class A

Oscillogram recording:
Free parametrisation of triggers and recording duration

Accuracy of current and voltage measurement:
Class 0.1

Accuracy of active power/
energy: Class 0.2 / 0.2S

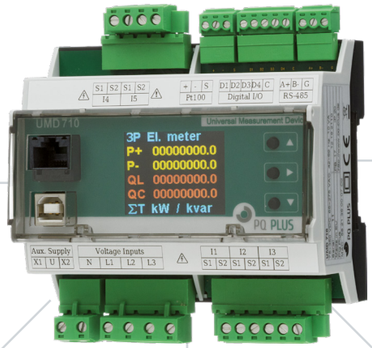
Accuracy of reactive power/
energy: Class 1 / 0.5S

Communication interfaces: Ethernet, RS485, front USB

Communication protocols:
e.g., Modbus,
IEC 60870-5-104

Connection of slave
devices: Storage, mapping,
and display of slave data

UMD 710 for DIN rail mounting, mains quality in class A



Measurement inputs:
3x voltage, 4x current,
1x RCM, 1x Pt100

Voltage measurement:
up to 1470 V

Current measurement: 1 / 5 A

Measurement category:
CAT III / 300 V

Scanning: 28.8 kHz

Refresh rate of
measured values: up to 200 ms

Harmonics: up to 9 kHz
(180th harmonic)

Evaluation in accordance
with EN 50160:
Class A

Oscillogram recording:
Free parametrisation of triggers and recording duration

Accuracy of current and voltage measurement:
Class 0.1

Accuracy of active power/
energy: Class 0.2 / 0.2S

Accuracy of reactive power/
energy: Class 1 / 0.5S

Communication interfaces:
Ethernet, RS485, front USB

Communication protocols:
e.g., Modbus,
IEC 60870-5-104

Connection of slave
devices: Storage and mapping
of slave data

Application

Rising demands regarding mains stability at increasing shares of regenerative energies in low-voltage grids render state-of-the-art measurement technology indispensable. Our universal measurement devices offer highest accuracy, quick data updates, and standard-compliant measurements, which makes them ideal for self-generation systems and SGS controllers. Since they are meeting, and often exceeding, all demands, our UMDs are listed as compatible for many SGS controllers.

Requirements and solutions

The demands to universal measurement devices in self-generation systems (SGS) usually are clearly defined:

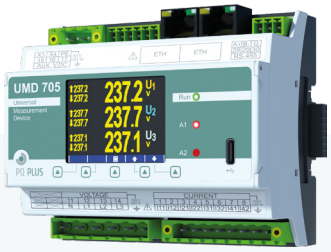
- **Measuring time:** Measured value changes must be recorded and provided after no more than 200 ms.
- **Accuracy:** Measurements often must be made with an accuracy of ±50 mHz within 200 ms.

However, many conventional universal measurement devices are not able to meet these requirements reliably yet! Our UMD universal measurement devices offer optimal solutions for this:

- **Higher precision:** ±10 mHz instead of the required ±50 mHz
- **Faster updating of measured values**: ≤200 ms – even faster, at 40 ms & 80 ms!

UMD 96EL

UMD 98RCM



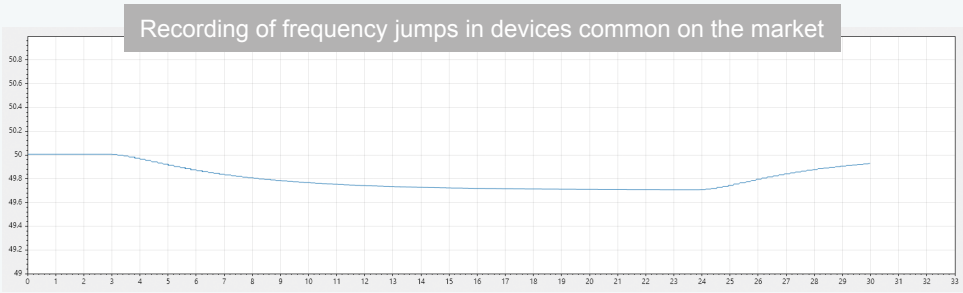
UMD 705

Our comparison measurements reflect the difference

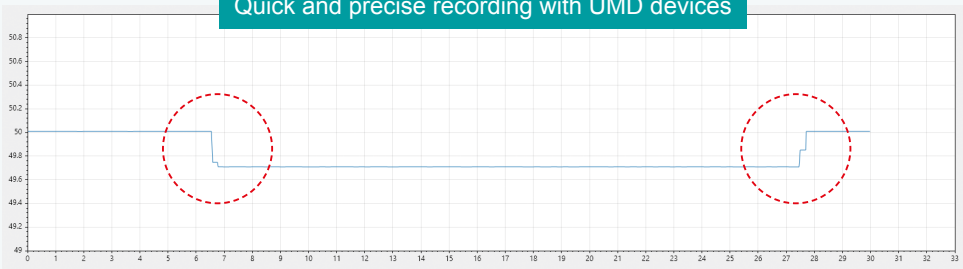
For example, the UMDs recognise frequency changes much more quickly than many other universal measurement devices and provide the data immediately. This way, the SGS controller will be able to take action more quickly by immediate adjustment.

Their high accuracy makes them perfect for their applications, where they surpass requirements in most cases!

Recording of frequency jumps in devices common on the market



Quick and precise recording with UMD devices



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