

Performance measuring and monitoring devices (PMD)

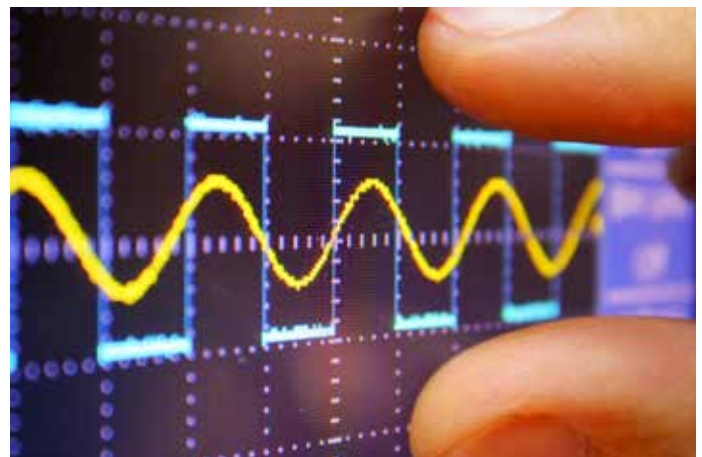
At many places in electrical networks, devices are positioned to monitor the required performances by measuring various parameters. Depending on the application this can be voltage, current or frequency, but also active & reactive power and energy. In other occasions, it may be interesting to look at voltage unbalance or voltage interruptions, harmonics, total harmonic distortion or flicker. Such performance measuring and monitoring devices (PMD) can be applied in relatively simple applications. Others may be used in heavy industrial environments like circuit breakers with built-in measuring equipment, where very high currents may occur. More and more there is a need to test and certify this type of devices.

IEC TC85 has developed a specific product standard for PMDs: the IEC 61557-12. This standard provides a basis by which such devices can be specified and described, and their performance evaluated. It is defined for single and three-phase a.c. or d.c. systems having rated voltages up to 1.000 V a.c. or up to 1.500 V d.c. The standard is intended to be used in conjunction with IEC 61557-1, which specifies the general requirements for measuring and monitoring equipment.

PMD STANDARD IEC 61557-12

The document contains requirements for various PMD versions. Depending on their construction they may measure voltage and current directly or via separate sensors. A PMD can also be designed for a number of different measuring functions. For each applicable measuring function the manufacturer can make a selection of the applicable performance class. The document contains a number of tests for every measuring function. The requirements for the following phenomena are included:

- active & reactive & apparent power and energy
- frequency
- r.m.s phase current, neutral current and r.m.s. voltage
- power factor
- short term flicker and long term flicker
- voltage dip, voltage swell and transients overvoltage
- voltage interruption and voltage unbalance
- voltage & current harmonics and THD
- minimum, maximum, peak, three-phases average and demand.



TESTING PMDs AT NMI

At NMI, a PMD can be examined in accordance with the IEC 61557-12 standard. During the examination, a check of the design of the meter is performed, including a documentation check. Furthermore, the meters are exposed to all the tests as described in the standard, for the measuring functions which are implemented in the device. This is done in combination with the IEC 61557-1 standard with the general requirements. The results of the examination are presented in a report listing the outcome for each individual test.

INTERESTED?

If you're interested in the examination of a PMD, we are happy to answer all your questions. Please feel free to contact us at nmi@nmi.nl. On our website, you can find more information about our services.

