



Measuring Instrument Directive 2004/22/EC (MID) Information for Users of Electric Meters

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The following is a summary of frequently asked questions regarding MID, which correspond to the state of information and knowledge at the time the answers were formulated. No responsibility is accepted for the correctness or completeness of this information.

What does MID mean?

MID is the abbreviation for Measuring Instruments Directive. It refers to Directive 2004/22/EC of the European Parliament and of the Council of 31 March 2004 on measuring instruments.

What is the objective of MID?

- **EC wide regulation of market access for the effected measuring instruments**
 - ◆ Uniform approval procedure for all EU countries and a number of other countries as well
 - ◆ One-time only, uniform testing for approval
 - ◆ Uniform, transnational regulation for initial calibration

- **Uniform product identification**

- **Reduced number of tests and test costs**
 - ◆ Initial calibration confirmed by the manufacturer by means of a declaration of conformity
 - ◆ Separate calibration testing and calibration fees are eliminated
 - ◆ Shorter lead-times

- **Competitive equality by placing strict demands on product quality**
 - ◆ Additional requirements for accuracy in the low-load range
 - ◆ Stricter EMC requirements
 - ◆ More reflective of the current state-of-the-art in the field of measuring technology

What does MID regulate?

MID deals with ten type of measuring instruments in the area of legal measurement engineering and defines basic, as well as measuring instrument-specific requirements. It makes the manufacturer responsible for initial placing on the market (distribution) and putting into use (initial start-up) within the EU. National law applies thereafter.

The manufacturer must select one of the conformity assessment procedures specified in MID to this end, by means of which he assures compliance of the measuring instruments with MID under the supervision of a notified body. Only then may a measuring instrument which is subject to MID be placed on the market or put into use. Meters must be furnished with a declaration of conformity. This is frequently included in the operating instructions.

What do “placing on the market” and “putting into use” mean?

These terms are defined in the European Measuring Instruments Directive as follows:

- “Placing on the market” means making available for the first time in the European Community an instrument intended for an end user, whether for reward or free.
- “Putting into use” means the first use of an instrument intended for the end user for the purposes for which it was intended.

What is a “notified body”?

A notified body is a governmentally accredited and monitored institution under private law for defined products, which undertakes system or product audits by order of official authority. The manufacturer can select any notified body located in the EU.

When did MID come into force?

The stipulated deadline for incorporation of MID into national law within the EU was no later than the 30th of October, 2006.

Which measuring instruments are subject to MID?

MID is applicable to water meters, gas meters and volume conversion devices, active electrical energy meters, heat meters, measuring systems for continuous and dynamic measurement of quantities of liquids other than water, automatic weighing instruments, taximeters, material measures, dimensional measuring instruments and exhaust gas analyzers.

Which electric meters fall within the scope of MID?

MID applies to, amongst others, active power meter for household, commercial and light industrial applications. The directive is applicable to electronic meters which are connected directly or via a transformer, as well as to mechanical induction meters.

Attention! MID does not apply to:

- Electric meters for heavy industry
- Measurement of reactive or apparent consumption
- Measuring transducers and tariff devices which are either integrated into the meter or included externally

Which accuracy classes are specified by MID?

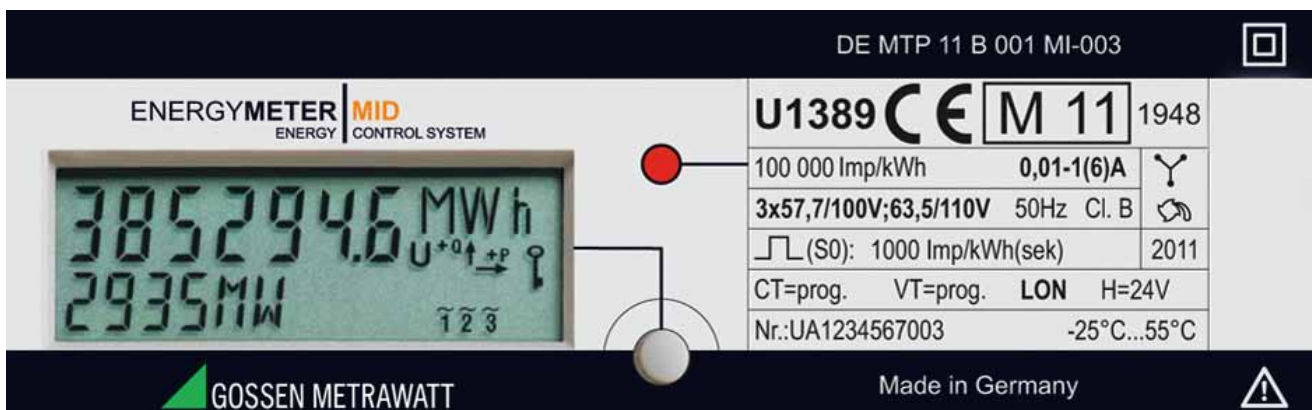
MID differentiates amongst accuracy classes A, B and C, which roughly correspond to classes 2, 1 and 0.5 in the well-known meter standards. They're suitable for the following applications:

- **Class A:** Household applications
- **Class B:** Industrial and commercial applications, as well as demanding household applications
- **Class C:** Highly demanding commercial and industrial applications

How are MID compliant devices identified?

The previous approval and calibration marks for initial calibration are replaced by the following printed entries:

- CE mark / metrology mark with the last two digits of the year [M11 for 2011]
- Registration number of the notified body [1948]
- Number of the preliminary or product type test certificate [DE MTP 11 B 001 MI-003]



Do new standards or regulations have to be taken into consideration for MID meters?

MID only describes basic requirements for measuring instruments. Conformity can be assumed if the measuring instruments fulfill certain specifications such as standards or normative documents. Publication of the specifications in the official European gazette with reference to the directive is a prerequisite.

The following standards apply to electric meters

- **EN 50470-1: Electricity metering equipment**
Part 1: General requirements, tests and test conditions – Metering equipment (class indexes A, B and C)
- **EN 50470-2: Electricity metering equipment**
Part 2: Particular requirements – Electromechanical meters for active energy (class indexes A and B)
- **EN 50470-3: Electricity metering equipment**
Part 3: Part 3: Particular requirements – Static meters for active energy (class indexes A, B and C)

Which new requirements for electric meters have to be observed in connection with MID?

In addition to other requirements, new current definitions have been introduced by MID, and specific proportions amongst them have been specified.

- I_{st} Lowest specified value for I, at which the meter measures active electrical energy at power factor 1 (multi-phase meter, symmetrical load)
- I_{min} Value for I above which deviation lies within the error limits (multi-phase meter, symmetrical load)
- I_{tr} Value for I above which deviation lies within the lowest error limits, which correspond to the accuracy class specified for the meter
- I_{max} Maximum value for I at which deviation lies within the error limits

Operating temperature must be selected within a range of -40°C to $+70^{\circ}\text{C}$ depending upon the application, and must be specified on the meter.

Requirements stipulated in the EN 50470 series of standards, which is currently valid for energy meters, must be fulfilled. If this is the case, it is assumed that compliance with MID is assured.

What is not regulated by MID with regard to electric meters?

MID does not include any regulations for electric meters used in heavy industry or the measurement of reactive and apparent consumption, as well as measuring transducers and tariff devices which are either integrated into the meter or included externally.

Does MID fully replace national regulations?

MID is only valid for certain groups of measuring instruments, for example active energy meters. National regulations still apply as well to reactive energy meters and meters with integrated additional functions such as load characteristic memory.

Are there any transitional periods for previously approved meters?

A transition period of ten years applies to energy meters with unrestricted national approvals which were issued prior to the 30th of October 2006. In the case of instruments with limited approval, MID is applicable no later than upon expiration of the existing approval.

How long is the calibration validity period for MID meters?

MID is no longer applicable upon placing on the market. National regulations apply, as in the past, after this point in time. In Germany, the calibration validity period is 16 years for electromechanical meters and 8 years for electronic meters. Meters must then be recalibrated, or calibration validity must be extended by means of random sample testing.

Under which conditions may MID meters be calibrated?

MID compliant meters may be calibrated or recalibrated at an time after placing on the market. The requirements specified in valid calibration regulations must be used as criteria to this end.

Which conformity assessment procedures are available for electric meters?

Basically, manufacturers of electric meters can choose from amongst conformity assessment modules B+F, B+D and H1. These procedures are equivalent and may not be specified when awarding contracts.

- **Module B:** Product type testing
- **Module D:** Quality assurance system for production
- **Module F:** Testing of the products (individual or random sample testing)
- **Module H1:** Comprehensive quality assurance system, supplemented with a design review

Which conformity assessment procedure does GMC-I Messtechnik use?

GMC-I Messtechnik uses module combination B+D as a conformity assessment procedure for electric meters.

Which tamper-proof seals are specified by MID?

MID does not specify any tamper-proof seals. However, EN50470-1 stipulates that meters must be equipped with a housing which can be sealed or locked such that internal parts can only be accessed after breaking the seals or the housing. The manufacturer is thus responsible for securing the meters, and coordinates stamping with the notified body.

Regulations regarding the security stamp for nationally calibrated instruments, as well as for recalibration, remain unchanged.

Links and Sources for Further Information

- MID Directive 2004/22/EC
 - ➔ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0357:FIN:EN:PDF>

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