Single- and three-phase portable test devices from MTE are available over the complete range of accuracy classes for use in on-site testing or in laboratories.

They are light in weight and its user friendly operation layouts, design and menu-driven software make the devices easy to operate.

MTE follows the latest technologies and trends while carefully combining and embedding new features with well proved and tested operating principles and requirements in the field or laboratory.

MTE’s portable test equipment is your reliable and solid partner for the on-site or lab testing of different kind of meters and multiple applications:

- Revenue protection by periodic accuracy checks of installed meters and their installations
- Identification of wiring and other system errors
- Reduction of non-technical losses by detection of tampering, energy theft etc.
- Handling of customer’s complaints

For such of relevant applications MTE offers a broad range of different devices which vary in their complexity and accuracy class. However they all follow and fulfill the following values and principals:

- Long-lasting investment
- Dense service network and short response time
- Easy handling
- User friendly
- Light in weight
- Small in size
- Rigid design
- High accuracy and stability
In 2013 MTE set new standards by introducing its product generation genX and launching the new portable working standard PWS 2.3 genX. The genX user interface convinces with a modern look, easy handling and offers all kind of state-of-the-art functions such as USB interface or integrated SD card.

Moreover the genX concept pays attention to innovation such as offering WLAN (webserver) based remote controlling or device integrated user manuals to its customers. These key advantages, unique features and positive feedback from the market motivates MTE to roll-out the new generation steadily over the entire product portfolio.
Portable meter test equipment from MTE can be used in all kind of laboratory and field applications. Thanks to its comprehensive product portfolio MTE provides their users with dedicated, innovative devices for specific challenges. Over the last 20 years MTE has supplied more than 20,000 portables to different customers such as utilities, service companies, industries and meter manufacturers.

Challenges to be addressed with:
- Poor meter quality
- Damaged, inaccurate meters
- Tampering
- Energy theft

Challenges to be addressed with:
- Mistakes in meter connection
- Changing CT
- Tampering
- Energy theft
Advantages of MTE´s solutions for Portable Test Equipment

- Comprehensive range of products for various applications and challenges
- Proven and compact design, light in weight
- Easy handling, user friendly operation layouts and menu-driven software
- Modern, innovative features and different communication connection possibilities
- Long-lasting experience and application know-how from thousands of supplies to hundreds of different customers worldwide
Portable meter test equipment

Portable reference standards
Comprehensive and innovative range of reference standards, single- or three-phase, available in class 0.2 up to 0.01. Ideal devices for the overall investigation for testing electricity meters and their installations on-site.

Portable power sources
Reliable and stable three-phase current or current and voltage sources allowing in-depth testing over the complete range.

Portable test systems
Comprehensive portfolio of single- and three-phase meter test systems in class 0.2 up to 0.02 with current or current and voltage sources in different versions.

Software
CALegration is an all-in-one software package to operate MTE`s portable and stationary test equipment product lines with the same software and on a common database. It bundles the functionalities and advantages in a new comprehensive software solution.
Portable reference standards

K2006 Comparator
The K2006 is a high accuracy comparator of accuracy class 0.01, especially suitable for use in metrological institutes and high precision measuring laboratories. Its ability to compare directly to an external DC reference allows easy traceability to national standards. Comparators are regularly used for checking of reference standard meters, for the calibration of precision current and voltage sources and for the verification of electrical standard measurements and electricity test systems.

PRS 600.3 Portable reference standard
The PRS 600.3 is a combination of a three-phase portable reference standard of class 0.02 and an IEC 61000-4-30 class A compatible Power Quality Analyzer with 3 voltage and 3 current channels. The device is equipped with two 8.4" colour TFT VGA displays based on touch screen operation. The reference standard is used to test single- and three-phase meters, instrument transformers and installations on-site. The power quality analyzer is used to resolve disputes at contractual applications, for statistical surveys, including EN 50160 reporting, and for online troubleshooting of different kind of power quality problems.

CALPORT 300 Portable reference standard and instrument transformer test system
The CALPORT 300 is a portable reference standard of class 0.05 for the comprehensive investigation of all components of a modern metering installation. The facility provided in the CALPORT 300 for six current inputs, and the ability to accommodate flexible current clamps up to 3000 A, allows simultaneous measurements to be made of both primary and secondary currents in CT-connected metering systems. This function therefore permits a thorough check of the complete metering setup.
Portable working standards

PWS 3.3 Portable working standard
The PWS 3.3 is a combination of a three-phase portable working standard of class 0.05 or 0.1 and an IEC 61000-4-30 Class A compatible power quality analyzer with 3 voltage and 4 current channels.

The working standard is used to test single- and three-phase meters, instrument transformers and installations on site. The power quality analyzer is used to resolve disputes at contractual applications, for statistical surveys, including EN 50160 reporting, and for online troubleshooting of different kind of power quality problems.

The unit can be powered either from the measuring circuit or from an auxiliary single-phase supply. Power Quality Analysis is battery buffered during 15 minutes in case of an outage.

The unit can be used with various types of clamp-on CTs and current sensors. Therefore it is possible to easily and accurately test both CT and direct connected meters.

Equipped with WLAN and built-in web server the unit can be remote controlled by any smartphone, tablet or notebook PC.

PWS 2.3 genX Portable working standard
The PWS 2.3 genX portable working standard is a three-phase portable electronic meter test unit of accuracy class 0.1, used for testing single- and three-phase electricity meters on site. The PWS 2.3 genX allows checking of all meter installation parameters and associated circuits.

The unit with its 7" (800 x 600 pixels) TFT touch screen colour display can be used either with a direct connection in the range of 1 mA ... 12 A, or by using a UCT 120.3 set of 3 active 120 A error compensated clamp-on CT's (included in the standard accessories set) in the range 10 mA ... 120 A. It is therefore possible to easily and accurately measure both CT and direct connected meters.

Equipped with WLAN and built-in web server the unit can be remote controlled by any smartphone, tablet or notebook PC.
Portable standard meters

**CheckMeter 2.3 genX Portable standard meter**

The CheckMeter 2.3 genX Portable standard meter is a three-phase electronic meter test unit of accuracy class 0.2, used for testing single and three-phase electricity meters on-site.

A UCT 120.3 set of 3 active error compensated clamp-on CT’s in the range 10 mA … 120 A is included in the standard accessories.

The CheckMeter 2.3 genX can be upgraded to class 0.1, if the optional UCT I.3-12A input box for direct current connection is used.

Equipped with WLAN and built-in web server the unit can be remote controlled by any smart phone, tablet or notebook PC.

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**CheckMeter 2.1 Portable standard meter**

The CheckMeter 2.1 portable standard meter is a single-phase electronic meter test unit of accuracy class 0.2, used for testing single-phase electricity meters on site.

The unit can be used with an active error compensated clamp-on CT 100 A (range: 10 mA … 100 A / cable Ø: max. 10 mm).
CheckSource 2.3 Current source

The CheckSource 2.3 is a three-phase current source for currents up to 6 A. The test currents are generated with the same frequency and a user-defined phase shift to the voltages applied to the voltage inputs (phantom load). Alternatively the test currents can also be generated with a user defined frequency.

In addition, with a portable working standard, such as for example a PWS 2.3 genX it is an effective combination for the on-site testing of meters and installations (e.g. error measurement at defined load conditions).

PPS 400.3 Portable power source

The PPS 400.3 is a powerful and portable three-phase current and voltage source. All test values are generated absolutely synthetically with a high degree of accuracy and stability.

Following the different demands of customers, this source is available in two versions, for the supply of transformer meters with a maximum current up to 12 A as well as wider range source up to 120 A.

The PPS 400.3 portable power source may be used as enhancement of the reference standard PRS 600.3 (PTS 400.3 PLUS) as well as independently. The control software automatically recognizes the model. It may therefore immediately be taken into operation, and automatic measurement of a load curve of the meter may begin.
PTS 400.3 PLUS Portable test system
The portable, fully automatic test system PTS 400.3 PLUS consist of two separate modules. The highly accurate reference standard PRS 600.3 of class 0.02 and the programmable power source PPS 400.3, available in two versions of up to 12 A or 120 A.

The reference standard PRS 600.3 may be simply and quickly connected with the power source module PPS 400.3 thereby producing a portable test system with 1 up to 3 measurement positions. Operation of the system may begin immediately after connecting both modules.

In this combination, the reference standard and source are controlled via blue-tooth.

Due to the extended power quality analyzer functions of the reference standard PRS 600.3, the test system can also be used to resolve disputes at contractual applications, for statistical surveys, including EN 50160 reporting, and for online troubleshooting of different kind of power quality problems.

PTS 3.3 C Portable test system
The PTS 3.3 C portable test system consists of an integrated three-phase current and voltage source and a three-phase electronic reference standard of accuracy class 0.05. Characteristic features of the PTS 3.3 C are its wide measuring range, high accuracy and high tolerance to unwanted external influences.

The PTS 3.3 C allows the overall testing of meters and metering installations plus analysis of the local mains conditions.
The portable, fully automatic test system PTS 2.3 C with integrated current source and electronic reference standard is available as a three-phase model of class 0.1. The test system allows the monitoring of meter installations as well as analysis of the local mains conditions.

Our latest, three-phase portable and fully automatic test system PTS 2.3 genX with integrated current source and electronic reference standard in class 0.1 is coming with the well-known "genX" features such as graphical user interface, communication via USB, WLAN and ETHERNET and a built-in web server for the remote display of graphical user interface and remote control of the unit.

The CheckSystem 2.3 portable test system consists of an integrated three-phase electronic reference standard of accuracy class 0.2 and a current source up to 16 A. The CheckSystem 2.3 allows the monitoring of meter installations as well as analysis of the local mains conditions.

The CheckSystem 2.1 portable test system consists of an integrated single-phase electronic reference standard of accuracy class 0.2 and a current source up to 120 A. With a single-phase electronic reference standard of accuracy class 0.05 and an integrated single-phase current source up to 120 A, the CheckSystem 2.1 S offers its users an even wider voltage measuring range (up to 480 V), high accuracy and high tolerance to unwanted external influences.
CALegration® is an all-in-one software package designed to operate MTE’s portable and stationary test equipment product lines with the same software and on a common database. It bundles the functionalities and advantages in a new and comprehensive software solution.

Covering all requirements of the modern meter testing environment, CALegration® provides the flexibility to easily incorporate future meter testing requirements as well.

Tests can be carried out for simple or highly complex (smart) meters in accordance with customer requirements and national / international test and calibration regulations (e.g. PTB, IEC, BS, ANSI).

**Key advantages of CALegration®**

- **Reduced complexity** due to an all-in-one software for the entire MTE product portfolio
- **User-friendly operations** and clearly arranged user interface making the system easy understandable, also to operators with limited computer knowledge
- **SQL based database** with stable access, organized backups, extended database size and server installation support
- **Full database interchange** between portable devices and CALegration® with control of portable functions by external PC
- **Flexible access** to database and fast storage and interchange of new testing data packages
- **Fully-automatic test sequences** for meter testing with clearly laid out database structure
- **Manual control module** for testing various individual functions such as meter test, recording of load values, detection of installation errors and many more
- Prepared for **power quality testing** and analysis functions according to IEC 62586 and IEC 61000-4-30 for specific MTE devices
- **Transparent evaluation and presentation of results**,
  **statistics and schematic diagrams** of all relevant values in an individual created protocol
- **Modular system** allows the integration of customer specified applications
- Suitable for use with **various hardware combinations**
- **Data export** in standard format (e.g. MS Excel)
- **Operator interface available in several languages** and in different color profiles

The philosophy of CALegration® is to integrate all basic test elements (administration, database, operation, results) into one single software and to use it with both MTE’s portable devices.

While testing with CALegration®, the results are stored in a centralized SQL based database giving the user the flexibility to access the data wherever they are testing: On-site (portable test equipment), in the laboratory or in the meter production plant (stationary equipment).

Moreover, CALegration® provides the user with its database a complete history and overview of all tested meters, giving the opportunity to track the meters respectively their test results over its full life cycle.
Scanning Heads

The SH 2003 and SH 11 photoelectric scanning heads are suitable for scanning the marks of mechanical rotating disc meters or the detection of light emitting diodes (LED’s) of electronic meters plus simulated pulses on LCD displays (SH 11). Mode of operation is selectable via a switch.

Scanning Head Supports

The SCD 2003 scanning head support is for on-site meter testing with the SH 2003 photoelectric scanning head.

The TVU 7.2 scanning head support is for on-site meter testing with the SH 11 photoelectric scanning head.

Impulse interface adapter

The IMP-IF1 impulse interface adapter is suitable to interface MTE reference standards with meters having retransmitting contacts, open-collector transistor outputs or true S0-outputs to allow full testing of meters with these types of outputs interfaces.

Precision Current Clamps

Various clamp-on CTs for MTE’s portable test equipment are available:

- Error compensated precision current clamps for 120 A
- Precision current clamps for 1000 A
- Flexible current clamps FLEX 3000 up to 3000 A

Primary LiteWire Sensors

High voltage current and voltage sensors up to 2000 A and 40 kV
The following MTE leaflets are available:

Overviews:

Portable Test Equipment / Stationary Meter Test Systems
Automatic Test Systems / Transformer Monitoring / Company Portrait
K2006 Comparator / PRS 600.3 / CALPORT 300
PWS 3.3 / PWS 2.3 genX
CheckMeter 2.3 genX / CheckMeter 2.1
PTS 400.3 PLUS / PTS 3.3 C / PTS 2.3 C / PTS 2.3 genX
CheckSystem 2.3 / CheckSystem 2.1 / CheckSystem 2.1 S
PPS 400.3 / CheckSource 2.3

CALegration

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