MTE

Meter Test Equipment



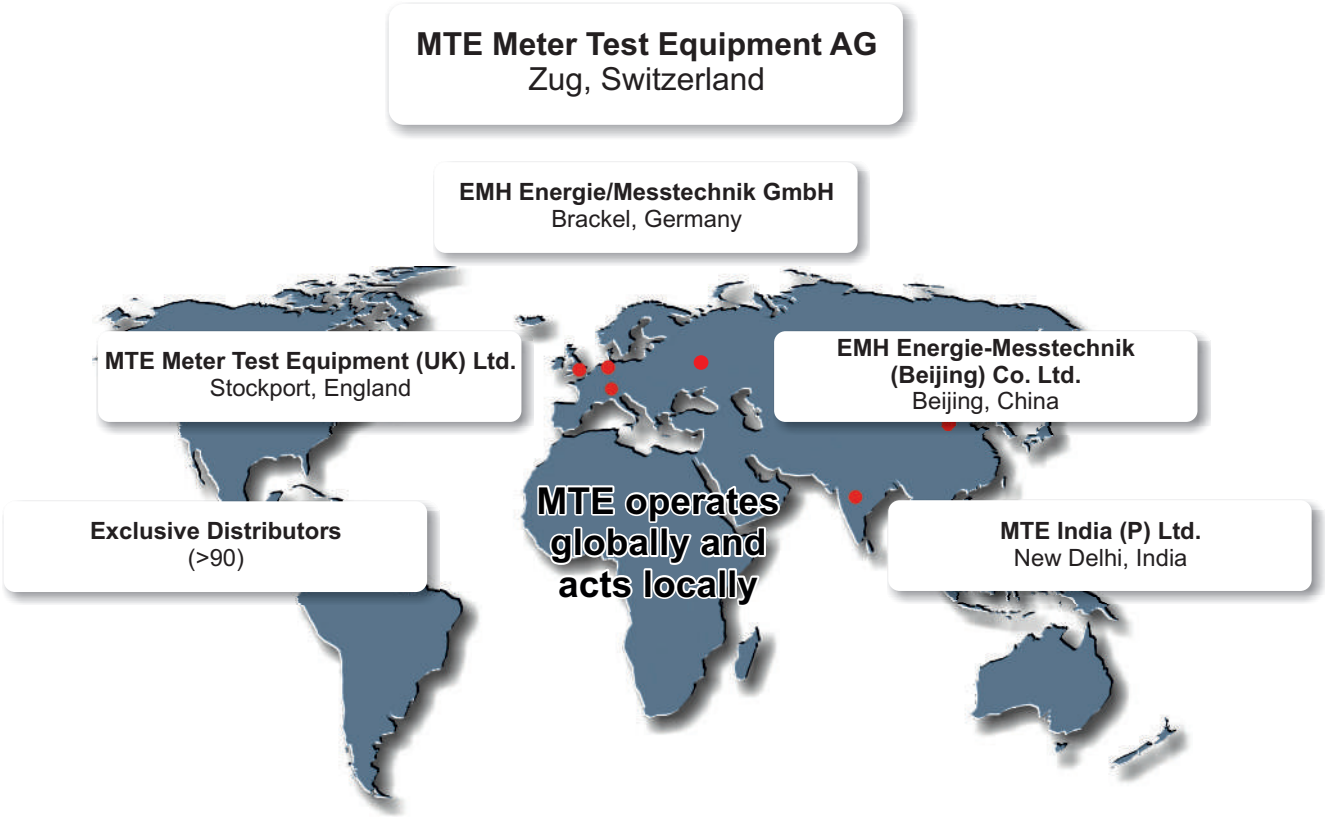
Company Portrait

About us

Since 1996 the name MTE has been synonymous with innovation, accuracy and quality in manufacturing **test equipment and systems for the measurement and certification of electricity meters** and **transformer monitoring systems.**

MTE offers a broad range of high precision test and monitoring systems for customers such as utilities, meter test laboratories, industries, meter and transformer manufacturers. More than 5´000 successful installations world wide are evidence for excellence, experience and satisfied customers.

The MTE Group is seen as the undisputed global leader in the field of meter testing, providing reliable and innovative measuring equipment. The comprehensive product range reaches from power sources, comparators, reference and working standards for meter testing in different accuracy classes, to sophisticated, customised electronic meter test systems. The product line includes both stationary and portable meter test equipment as well as transformer monitoring systems.



Backing up this product range are the skills of first-class hardware and software engineers and a sales and service team that cares about customers and their needs. This combination of a superb range of products and responsive, efficient service is aimed at contributing to the efficiency and profitability of utilities, meter manufacturers, test laboratories and other industries that we are proud to have as our customers.

Although MTE has a global strategy we act locally maintaining an experienced marketing, sales and service network of more than 75 carefully chosen exclusive distributor companies and 5 owned sub-sidiaries in Europe, Africa, Asia, Australia and the Americas. Whatever the needs, wherever the customers, MTE has the innovative solutions and the focus to contribute to the efficiency, profitability and quality of our customers.

MTE`s products are manufactured in accordance with DIN EN ISO 9001:2008

Stationary meter test equipment



With its innovative, effective and customized test systems, MTE meets the challenges in the smart energy world and the changing requirements of the customers.

Meters measured and calibrated with high precision devices and systems protect utilities and customers against loss of revenue or over billing.

MTE´s stationary test equipment covers all legal metrological test requirements for simple meters, high precision multifunction meters, smart meters and reference standards.

MTE offers and respects the importance to upgrade existing test systems and provides solutions to gradually replace existing systems with modern components.

Portable meter test equipment



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

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

MTE´s portable test equipment is your reliable and solid partner for the on-site testing of different kind of meters:

- Accuracy checks of installed meters
- Identification of wiring and other system errors
- Periodic checks of meters used in industrial applications
- Handling customer´s complaints

Transformer monitoring systems



Analysis of the gases dissolved in power transformer oil is recognized as the most useful tool for early detection and diagnosis of incipient faults in transformers. The cost effectiveness of online dissolved gas analysis (DGA) and control systems are gaining importance worldwide.

With its comprehensive product range for the online monitoring of transformers, MTE offers both the enhancing of the transformer lifetime and the contribution to a more secure high-voltage power transmission.

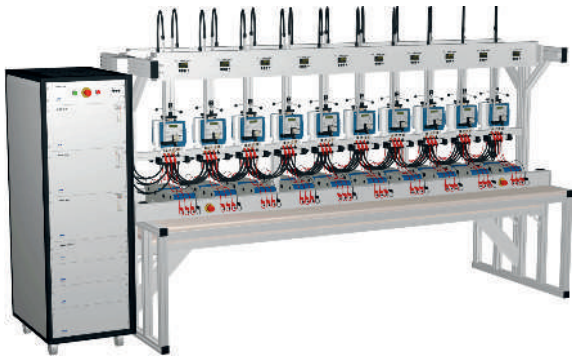
Innovation has a name – MTE

Universal meter test systems

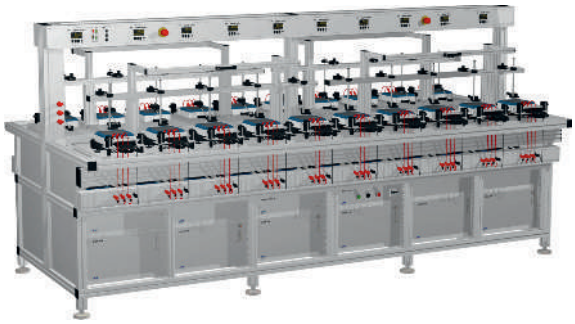
MTE`s universal meter test systems cover all state-of-the-art test requirements for modern single- and three-phase meters following IEC- and ANSI-standard. They perform fully automatic the meter calibration and verification procedures for meters with or without test link. Meter communication is integrated too, using different protocols. Thanks to the modular design, the number of measurement positions can be adapted to specific customer`s needs up to 80 positions. Special test procedures can be easily implemented, such as:

- Type approval tests by generating special signals (e.g. harmonics, voltage dip, interruptions, half-waveform tests)
- Transmitter and receiver test
- Memory check
- Electronic tariff register test
- Load profile register test
- Test of anti-tampering meters
- Test of meter's communication interfaces

The system is capable to test both mechanical meters up to high sophisticated electronic type meters. The accuracy of the used reference standard is 0.05% (optionally 0.02% or 0.01%).



Meter test system with ICT 2.3 for the testing of 20 three-phase meters with closed links



Meter test system with 20 positions for electronic DIN, ANSI and rail meters

Solutions for meter manufacturers

For the substantial throughput of single- and three-phase meters (volume production) MTE offers the horizontal alignment of the meters under test in an automatic or fully automatic sledge loading system.

Whilst the test of the meters of the first load is running, a second load of meters can already be assembled on another sledge. In addition, due to the more stabilized horizontal positioning of the scanning heads without any readjustments, the efficiency of the whole testing process can be increased significantly.



Automatic test system with MSVT for the efficient testing of 48 single-phase meters

Standard meter test systems up to tailored solutions for meter manufacturers

The individual system components of a MTE meter test system are modularly developed and can be combined in any order for testing of single- and three-phase meters with or without closed I-P links.

This modular design gives flexibility and enables MTE to provide the optimal customer orientated solutions.



Modularity provides flexibility

Stationary reference standards and Stationary power sources



SRS 121.3 Stationary reference standard, accuracy 0.05 %
SRS 400.3 Stationary reference standard, accuracy 0.02 %

Stationary reference standards

The electronic system reference standards in 0.05% or 0.02% accuracy are precision measurement units for all AC values, which are used in the measurement of energy. The wide measurement range and the high precision are the main characteristics of the reference standards.

SRS 121.3, accuracy 0.05 %

Current range: 1 mA ... 120 A or 1 mA ... 200 A

SRS 400.3, accuracy 0.02 %

Current range: 1 mA ... 120 A or 1 mA ... 200 A



Stationary power sources

The single- or three-phase computer controlled voltage and current sources, are designed for use in meter test systems and in laboratories.

The voltage and current sources generate a potential-free, variable alternating voltage and current, which has transformer decoupling. The output values are stabilized by an internal feedback loop and an overlaid digital control loop for amplitude, phase angle and distortion factor. Harmonics and ripple control can be added to the fundamental wave. Several stationary power sources are available:

SPE 120.3 three-phase, computer controlled voltage and current source with 300 or 600 VA output power per phase

SQE 120.3 three-phase, computer controlled voltage and current source for power quality signal generation with 600 VA output power per phase

PSP 10 single-phase, computer controlled voltage and current source with 800 VA (voltage) and 1200 VA (current) output power

PSU 10 single-phase, computer controlled voltage source with 1000 / 2000 / 4000 VA output power

PSI 10 single-phase, computer controlled current source with 1000 / 2000 / 4000 VA output power

Reference standards and power sources in various accuracies and output power



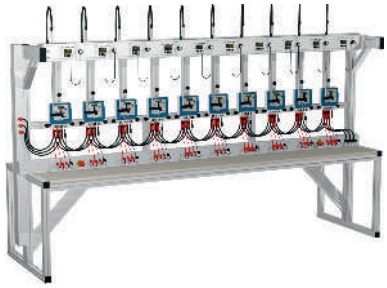
SMM 400 Basic meter error calculator
SMM 400+ Standard evaluation system

Error evaluation systems

The modular **evaluation system SMM 400** performs error calculation, testing of emitting contacts and communication to tariff device units to the meter under test.

Four different versions covering customer´s requirements are available:

- **Meter error calculator** with SMM 400 bus-master without error display;
- **Basic meter error calculator** with SMM 400 bus-master and SMM 400 error calculator module
- **Standard evaluation system** with SMM 400 bus-master and SMM 400+ system evaluation module
- **Extended evaluation system** with SMM 400 bus-master, SMM 400+ system evaluation module and addition IN/OUT module for 8 in- and 8 outputs and / or COMM communication module



Vertical aligned test rack for 10 measuring positions

Meter test racks

The meter test racks are made of robust aluminum profiles.

The standard rack consists of a working table, equipped with attachments for single- or three-phase meters.

The quick connection devices for the meters under test can be arranged vertical or in the horizontal way.

Each meter position is equipped with an error evaluation system, safety sockets for the connection of the measuring voltage and movable scanning head carriages.



Scanning heads SH 11 and SH 2003

Scanning heads

The SH 2003 and SH 11 photoelectric scanning heads are suitable for use with both LED impulses from static / electronic meters and also for detecting the marks on mechanical rotating disc meters plus simulated pulses on LCD displays (SH 11). The choice of operation mode with mechanical or electronic meters is made by a simple selection switch.

With the integrated teach function of the scanning head SH 11, the optimal set-up is automatically learned. The teach function can be activated by the rotary switch or an external control signal.



Isolation current transformer ICT 2.3

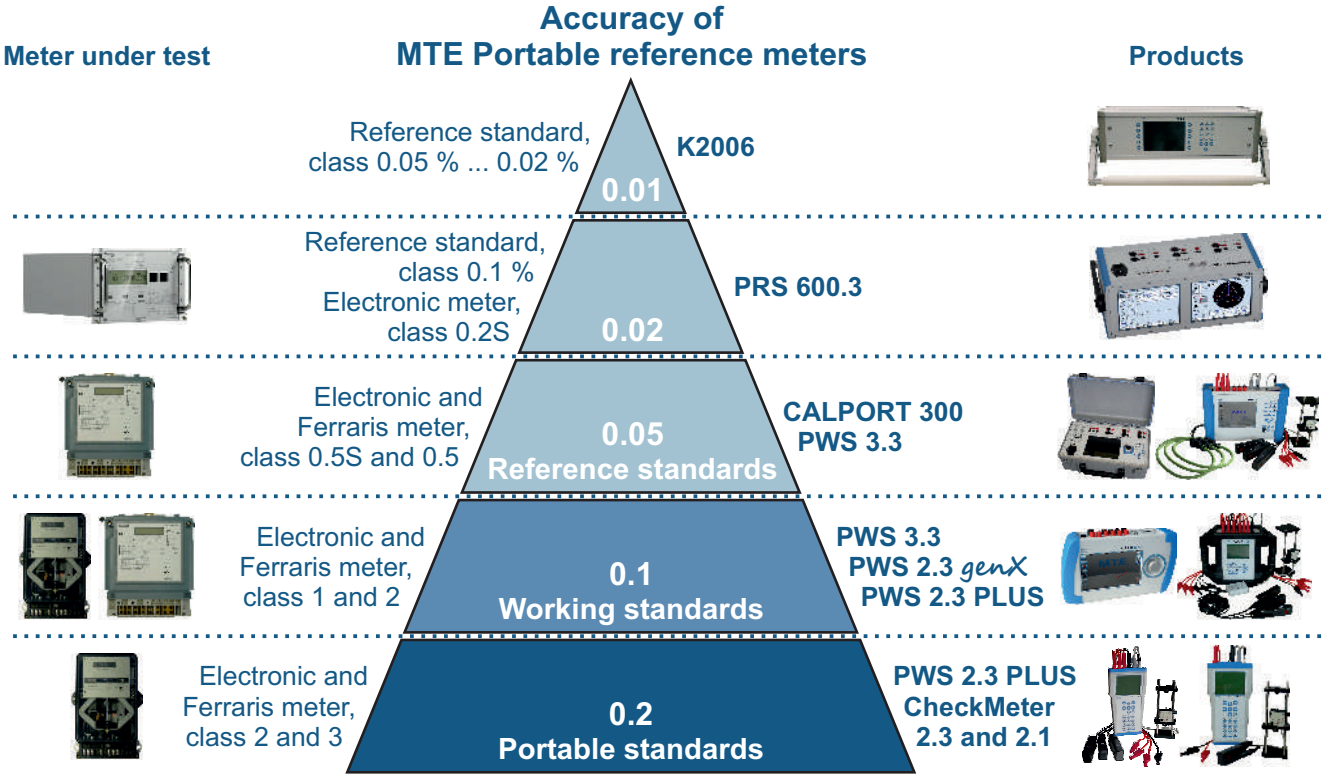
Isolation current transformer ICT 2.3

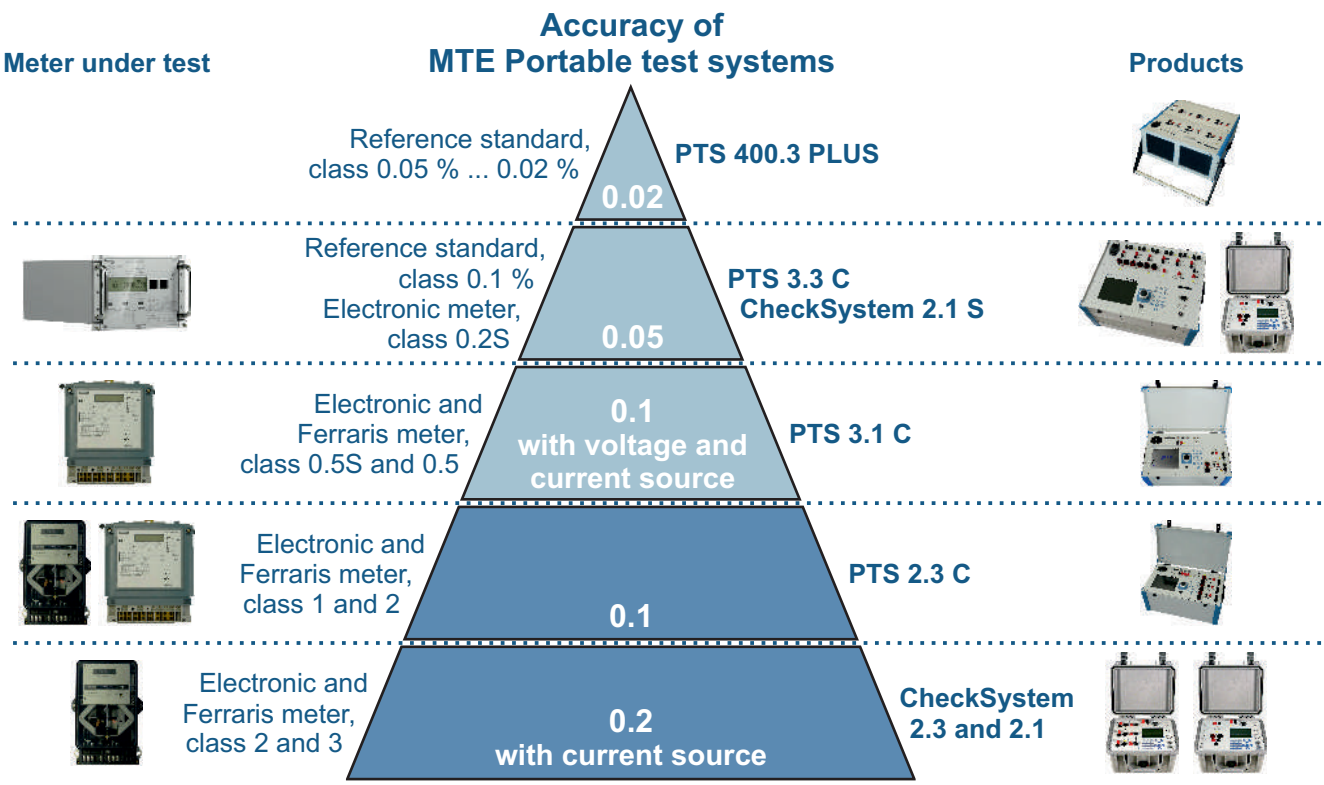
The ICT 2.3 three-phase Isolation Current Transformer is used on multi position test benches for testing three-phase meters with closed links between the current and voltage measuring circuits (C-P-links).

Meters of this type are produced and used with increasing frequency.

Wide system components range provide options to customers

Portable meter test equipment





Accuracy of reference meters and test systems match all kind of meters under test



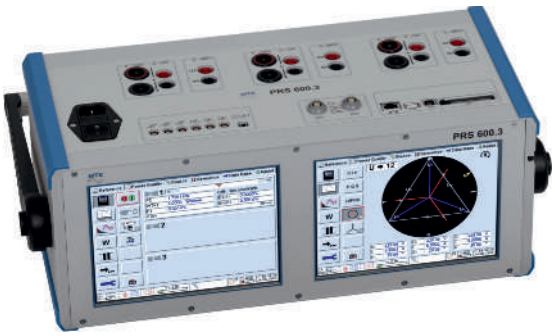
K2006 Three-phase comparator, accuracy class 0.01

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, accuracy class 0.02

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, accuracy class 0.05

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 set-up.

Portable high accuracy reference standards for measurements in the smart grid ...



PWS 3.3 Portable working standard, accuracy classes 0.05 or 0.1

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.



PWS 2.3 *genX* Portable working standard, accuracy class 0.1

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 set of 3 active 100 A error compensated clamp-on CT's (included in the standard accessories set) in the range 10 mA …100 A. It is therefore possible to easily and accurately measure both CT and direct connected meters.



PWS 2.3 PLUS Portable working standard, accuracy classes 0.1 or 0.2

PWS 2.3 PLUS Portable working standard

The PWS 2.3 PLUS portable working standard is a three-phase portable electronic meter test unit, used for testing single- and three-phase electricity meters on site. The PWS2.3 PLUS allows checking of all meter installation parameters and associated circuits. The PWS 2.3 PLUS, with integrated instrument transformer test functions, is available in accuracy classes 0.1 or 0.2.

... are followed by portable working standards ...



CheckMeter 2.3 Portable standard meter, accuracy class 0.2

CheckMeter 2.3 Portable standard meter

The CheckMeter 2.3 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.

The unit can be used with a set of 3 active error compensated clamp-on CT 100 A (range: 10 mA … 100 A / cable Ø: max. 10 mm).

The CheckMeter 2.3 is available with or without integrated printer.



CheckMeter 2.1 Portable standard meter, accuracy class 0.2

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).

... and portable standard meters for on-site testing of smart meters



PTS 400.3 PLUS Three-phase test system, accuracy class 0.02

PTS 400.3 PLUS Portable test system

The portable, fully automatic test system PTS 400.3 PLUS consist of two seperate 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 Three-phase test system, accuracy class 0.05
PTS 3.1 C Single-phase test system, accuracy class 0.1

PTS 3.3 C / 3.1 C Portable test systems

The portable, fully automatic test systems with integrated current and voltage source and electronic reference standard are available as a three-phase model (PTS 3.3 C) of class 0.05, and as a single-phase model (PTS 3.1 C) of class 0.1.

Their compact design allows the devices to be used either as a portable test system, or as a stationary system for automatic testing of complex, multifunction meters in conjunction with a suitable personal computer.

Portable test systems with reference meters and voltage and current source ...



PTS 2.3 C Three-phase test system, accuracy class 0.1

PTS 2.3 C Portable test system

The portable, fully automatic test system 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.



CheckSystem 2.3 Portable test system, accuracy class 0.2

CheckSystem 2.3 Portable test system

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.



CheckSystem 2.1 Portable test system, accuracy class 0.2
CheckSystem 2.1 S Portable test system, accuracy class 0.05

CheckSystem 2.1 Portable test system

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 measuring range, high accuracy and high tolerance to unwanted external influences.

Both CheckSystems 2.1 / 2.1 S allow the monitoring of meter installations as well as analysis of local mains conditions.

... as well as portable test systems with current source ...



CheckSource 2.3, Three-phase current source

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 PLUS, it is an effective combination for the on-site testing of meters and installations (e.g. error measurement at defined load conditions).



PPS 3.3 C, Three-phase current and voltage source

PPS 3.3 C Current and voltage source

The PPS 3.3 C provides three-phase test currents up to 120 A and voltages up to 480 V allowing not only the testing over the complete load range, but also assists the operator in the installation of combined transformer and meter systems.



PPS 400.3-120 A, Three-phase current and voltage source

PPS 400.3 Portable power source

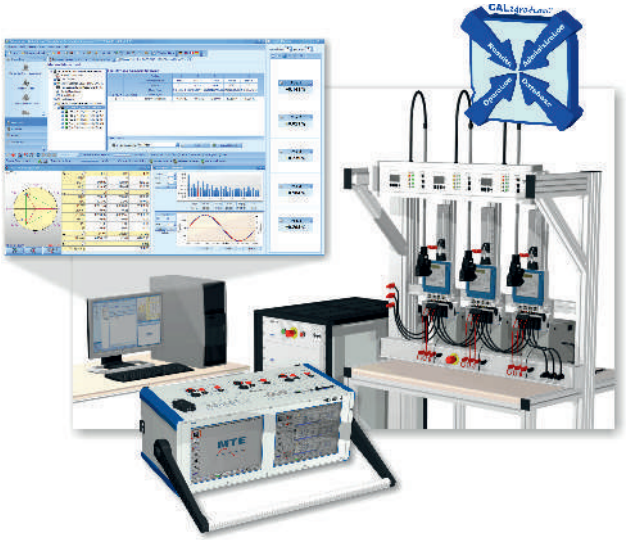
The PPS 400.3 is a powerful and portable three-phase current and voltage source. All test values are generated absolutely synthetically with a high degree of accuracy and stability.

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.

... and stand-alone portable power sources

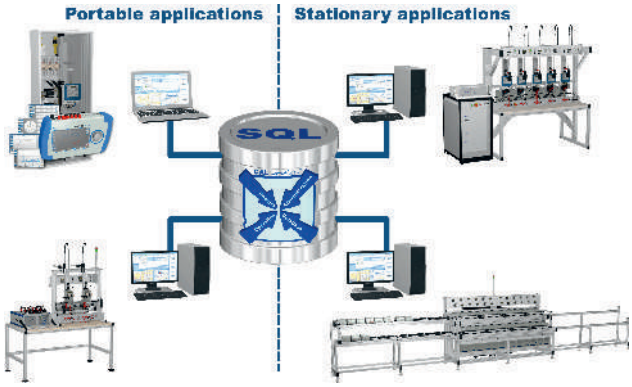
CALegration® is an all-in-one software pack-age designed to operate MTE´s portable and stationary test equipment product lines with the same software and on a common data-base. It bundles the functionalities and ad-vantages in a new and comprehensive soft-ware solution.



The philosophy of CALegration® is to integrate all basic test elements (administration, data-base, operation, results) into one single soft-ware and to use it with both MTE´s portable and stationary test devices.

While testing with CALegration®, the results are stored in a centralized SQL based data-base 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.



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

Tests can be carried out for simple or highly complex (smart) meters in accordance with cus-tomer 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 soft-ware for the entire MTE product portfolio
- **User-friendly operations** and clearly arranged user interface making the system easy under-standable, also to operators with limited com-puter knowledge
- **SQL based database** with stable access, orga-nized backups, extended database size and server installation support
- **Full database interchange** between portable devices and CALegration® with control of porta-ble functions by external PC
- **Flexible access** to database and **fast storage and interchange** of new testing data packages
- **Fully-automatic test sequences** for meter test-ing with clearly laid out database structure
- **Manual control module** for testing various indi-vidual functions such as meter test, recording of load values, detection of installation errors and many more
- Prepared for **power quality testing** and analy-sis 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 proto-col
- **Modular system** allows the integration of cus-tomer specified applications
- Suitable for use with **various hardware combi-nations**
- **Data export** in standard format (e.g. MS Excel)
- Operator interface available in **several lan-guages** and in different **color profiles**

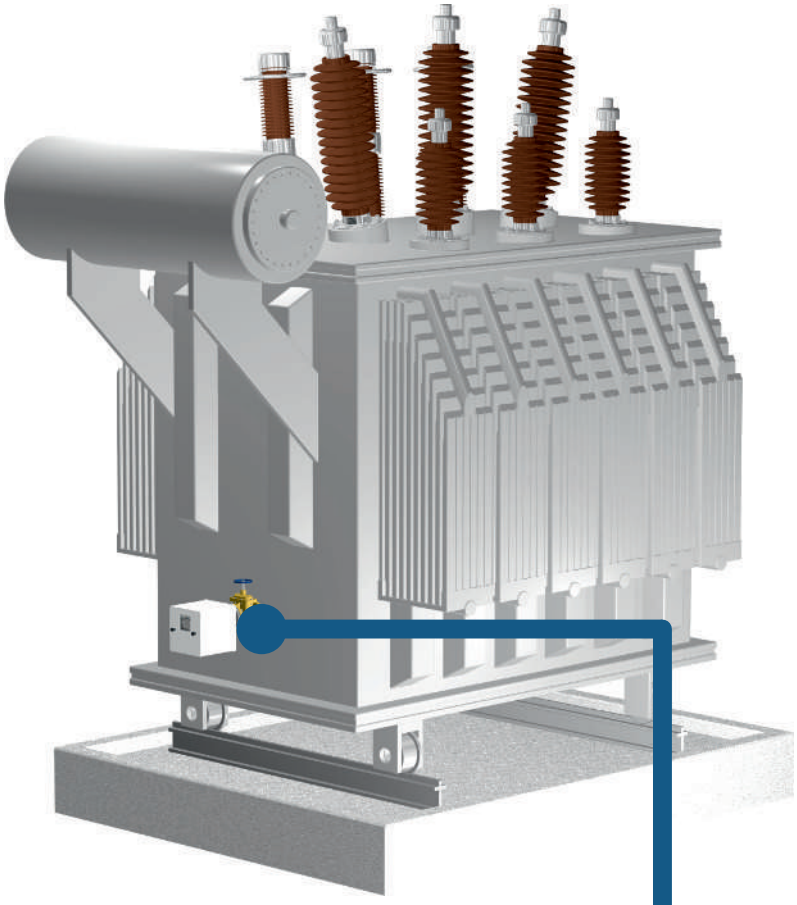
MTE´s software platform

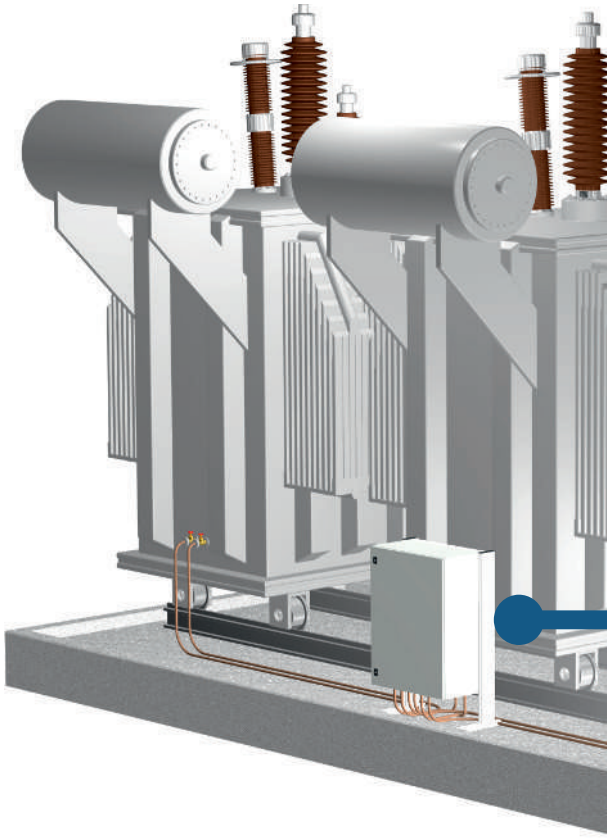
Transformer monitoring systems

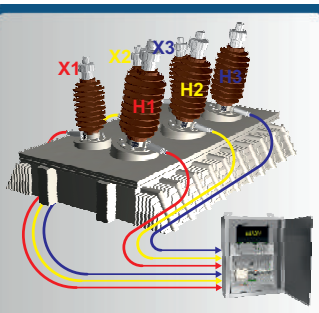
Transformers are crucial for failure-free and stabilized operation of high-voltage power transmission. Transformer failures or disruptions can result in costly power outages or even in the total loss of expensive plant assets. Moreover transformers are the most cost intensive single component asset in high-voltage power transmission and should therefore be supervised with special care.

Analysis of the gases dissolved in power transformer oil is recognized as the most useful tool for early detection and diagnosis of incipient faults in transformers. The cost effectiveness of online dissolved gas analysis (DGA) and control systems are gaining importance worldwide.

With its comprehensive product range for the online monitoring of transformers, MTE offers both the extension of the transformer lifetime and the contribution to a more secure high-voltage power transmission.



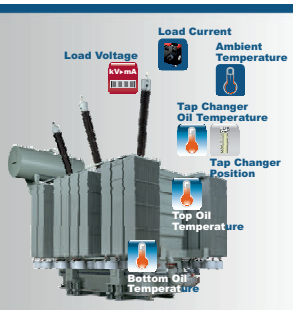




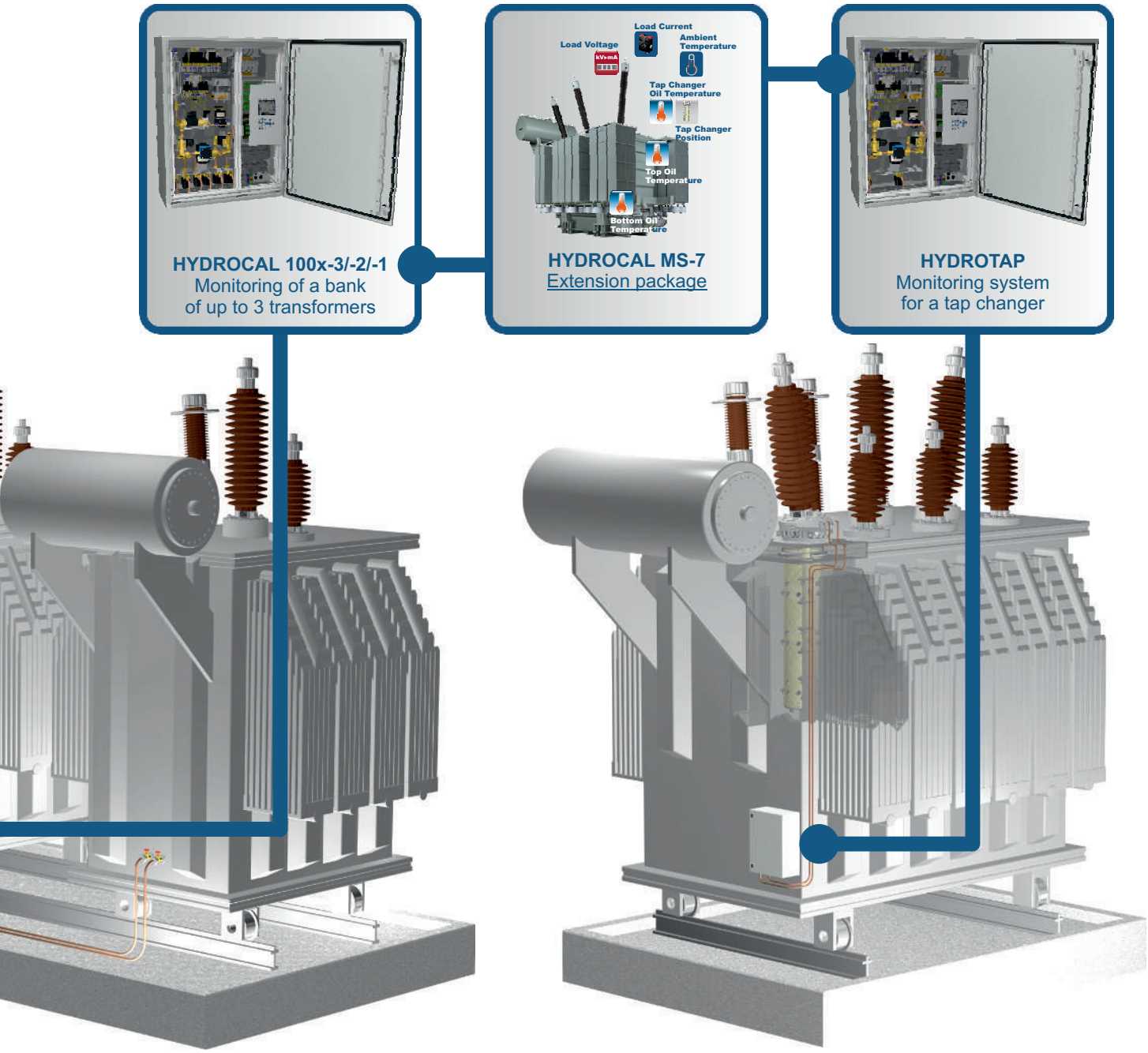
Bushing Monitor ZVCM-1001
Extension package



HYDROCAL 100x
Online DGA up to 7 fault gases and moisture



HYDROCAL MS-7
Extension package



Advantages of MTE´s solutions for Transformer Monitoring

- Permanent online monitoring of the transformer condition
- Early warning
- Less risk of expensive power outages
- Reduced on-site inspections
- Maintenance free system
- Extending transformer life time due to improved preventative maintenance and faster reaction time in case of failures
- Modular system components and extension packages for the specific customer requirements
- Easy and fast mounting on the operating transformer (HYDROCAL 100x and Offshore versions)
- Approved solutions with more than 2´000 successful installations

MTE´s HYDROCAL product portfolio

MTE offers a broad range of products and solutions for the online gas-in-oil monitoring of transformers. With its individual and modular system components MTE provides the optimal customer oriented solution for utilities, industries and transformer manufacturers.

	HYDROCAL 1001+	HYDROCAL 1003	HYDROCAL 1005	HYDROCAL 1008	HYDROCAL 100x-3/-2/-1	HYDROTAP
						
Gas-in-oil analysis	H_2 CO CH_4 C_2H_2 C_2H_4 C_2H_6 (composite)	H_2 CO (individual)	H_2 CO C_2H_2 C_2H_4 (individual)	H_2 CO CO_2 CH_4 C_2H_2 C_2H_4 C_2H_6 (individual)	H_2 CO CO_2 CH_4 C_2H_2 C_2H_4 C_2H_6 (individual)	H_2 CO CO_2 CH_4 C_2H_2 C_2H_4 C_2H_6 (individual)
Moisture in oil analysis (H_2O)	✓	✓	✓	✓	✓	✓
Transformer monitoring inputs / outputs	✗	✓	✓	✓	✓	✓
Offshore suitable [1]	✗	✓	✓	✓	✗	✗
HYDROCAL MS-7 [2]	✗	✓	✓	✓	✓	✓
Bushing Monitor ZVCM-1001 [2]	✗	✗	✓	✓	✗	✗
Monitoring of multiple transformers	✗	✗	✗	✗	✓	✗

1) Special version with corrosively protection for the installation on offshore platforms
2) Extension packages (options)



HYDROCAL 1001+

The HYDROCAL 1001+ is a permanently installed composite gas in oil sensor for the Total Dissolved Combustible Gases (TDCG) analysis of the key fault gases Hydrogen (H_2), Carbon Monoxide (CO), Methane (CH_4), Acetylene (C_2H_2), Ethylene (C_2H_4) and Ethane (C_2H_6).

To detect an even wider range of potential transformer faults, the HYDROCAL 1001+ analyses additionally the content of Moisture (H_2O) in the transformer oil.

The HYDROCAL 1001+ is a fully integrated (6 key fault gases and Moisture in oil) compact and cost effective device used in particular for early transformer fault detection and preventative maintenance.

Key advantages:

- Cost effective and comprehensive monitoring of 6 fault gases
- Measurement of Moisture (H_2O) in the transformer oil
- Easy and fast installation while the transformer is operating
- Compact and resistant design for long lasting usage
- ETHERNET and RS 485 interfaces to support MODBUS®TCP proprietary communication



HYDROCAL 1003

The HYDROCAL 1003 is an online transformer monitoring device for the dissolved gas analysis (DGA) of the key fault gases Hydrogen (H_2) and Carbon Monoxide (CO).

In addition, water contamination deteriorates the performance of the oil as high moisture content increases the risk of corrosion and overheating.

The HYDROCAL 1003 reacts on this issue and provides its users the analysis of Moisture (H_2O) in the transformer oil to achieve an even higher safety standard.

Key advantages:

- Maintenance free system
- Easy to mount on the operating transformer without any operational interruption
- ETHERNET (Option), RS 232 and RS 485 interfaces to support MODBUS®RTU/ASCII, DNP3 proprietary communication and IEC 61850 protocols
- Option: Offshore version



HYDROCAL 1005

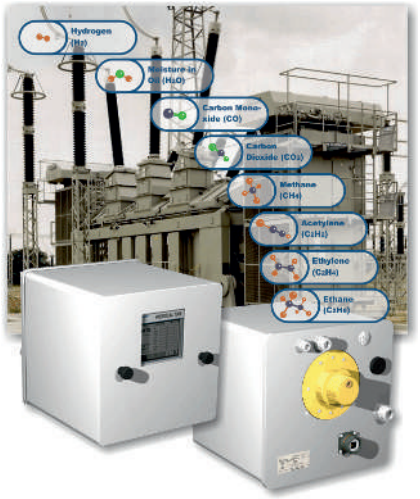
The HYDROCAL 1005 is a permanently installed multi-gas-in-oil analysis system with transformer monitoring functions. It individually measures Moisture in oil (H_2O) and the key gases Hydrogen (H_2), Carbon Monoxide (CO), Acetylene (C_2H_2) and Ethylene (C_2H_4) dissolved in the transformer oil.

Especially the presence and increase of Acetylene (C_2H_2) and Ethylene (C_2H_4) further classifies the nature of a fault as overheating, partial discharge or high energy arcing.

The HYDROCAL 1005 offers as a compact transformer monitoring system by the integration of other sensors present on a transformer (HYDROCAL MS-7 and / or bushing monitoring ZVCM-1001 extension packages).

Key advantages:

- Maintenance free system
- Easy to mount on the operating transformer without any operational interruption
- ETHERNET and RS 485 interfaces to support MODBUS®RTU/ASCII, MODBUS®TCP, DNP3 proprietary communication and IEC 61850 protocols
- Option: Offshore version



HYDROCAL 1008

The HYDROCAL 1008 is a permanently installed multi-gas-in-oil analysis system with transformer monitoring functions. It individually measures Moisture in oil (H_2O) and the key gases Hydrogen (H_2), Carbon Monoxide (CO), Carbon Dioxide (CO_2), Methane(CH_4), Acetylene (C_2H_2), Ethylene (C_2H_4) and Ethane (C_2H_6) dissolved in the transformer oil.

With the accurate analysis of 7 fault gases plus Moisture in oil, the HYDROCAL 1008 is MTE´s most comprehensive transformer monitoring system, which can be even expanded with different extension packages (HYDROCAL MS-7 and / or Bushing Monitor ZVCM-1001).

Key advantages:

- Maintenance free system
- Easy to mount on the operating transformer without any operational interruption
- ETHERNET and RS 485 interfaces to support MODBUS®RTU/ASCII, MODBUS®TCP, DNP3 proprietary communication and IEC 61850 protocols
- Option: Offshore version

The following MTE leaflets are available:

Stationary Meter Test Systems:	Overview Meter Test Systems Fixed Rack Systems / Automatic Test Systems
Portable Reference Standards:	K2006 Comparator / PRS 600.3 / CALPORT 300
Portable Working Standards:	PWS 3.3 / PWS 2.3 *genX* / PWS 2.3 PLUS
Portable Standard Meters:	CheckMeter 2.3 / CheckMeter 2.1
Portable Test Systems:	PTS 400.3 PLUS / PTS 3.3 C / PTS 3.1 C / PTS 2.3 C / CheckSystem 2.3 / CheckSystem 2.1 / CheckSystem 2.1S
Portable Power Sources:	PPS 400.3 / PPS 3.3 C / CheckSource 2.3
Transformer Monitoring:	Overview Transformer Monitoring
Software:	Camcal® for Windows / CALSOFT I/II / CAL*egration*®

MTE Meter Test Equipment

MTE Meter Test Equipment AG
Dammstrasse 16
P.O. box 4544
CH-6304 Zug, Switzerland
Phone: +41 (41) 724 24 48
Fax: +41 (41) 724 24 25
Internet: www.mte.ch
e-mail: info@mte.ch

EMH Energie-Messtechnik GmbH
Vor dem Hassel 2
D-21438 Brackel, Germany
Phone: +49 (4185) 58 57 0
Fax: +49 (4185) 58 57 68
Internet: www.emh.de
e-mail: info@emh.de

MTE India (P) Ltd.
D-9 II Floor, Soami Nagar
New Delhi - 110017, India
Phone: +91 11 410 27957
Mobile: +91 98 113 39363
Fax: +91 11 410 27964
E-Mail: prasanna.sahoo@mteindia.in

EMH Energie-Messtechnik (Beijing) Co. Ltd.
Section 305, Building 2, Ke-Ji-Yuan
Nr.1 Shangdi-Si-Jie, Shangdi-Information-Industry-Base
Haidian District
Beijing 100 085
P.R. China
Phone: +86 (10) 629 81 227
Mobile: +86 (139) 0 103 6875
Fax: +86 (10) 629 88 689
e-mail: guo@emh.com.cn

MTE Meter Test Equipment (UK) Ltd
4 Oval View
Woodley Stockport
Cheshire SK6 1JW, England
Phone: +44 (161) 406 9604
Fax: +44 (161) 406 9605
Internet: www.mte.ch
e-mail: info@mte.uk.net

Test it!