



PTS 3.3 C, class 0.05
Three-phase Stationary Test System

Three phase test system PTS 3.3 C

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.

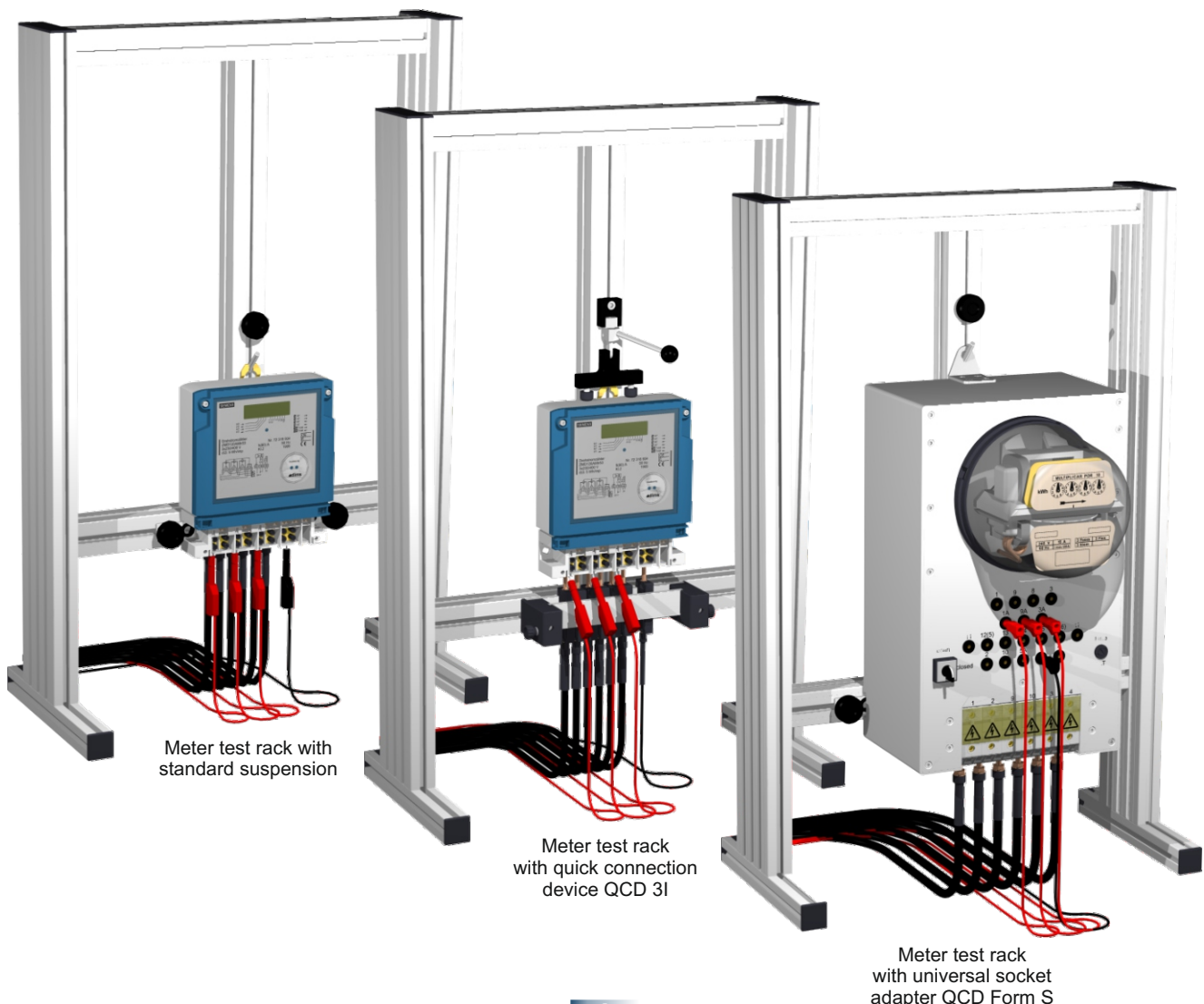
The PTS 3.3 C allows the overall testing of meters and metering installations plus analysis of the local mains conditions.

Advantages

- Easy verification of meters under precise load conditions, using the built-in, compact, current and voltage source
- Automatic operation with (programmable) predefined load points without the need of an external PC
- Exchangeable Compact Flash (CF) memory card for storage of measurement results and customer data
- Display of vector diagram and phase sequence for analysis of the supply conditions
- User-friendly system for data input and easy operation of combined source and reference meter
- The system may be used either as a stand-alone reference standard meter, or together with the integrated power source as a complete portable test system

Functions

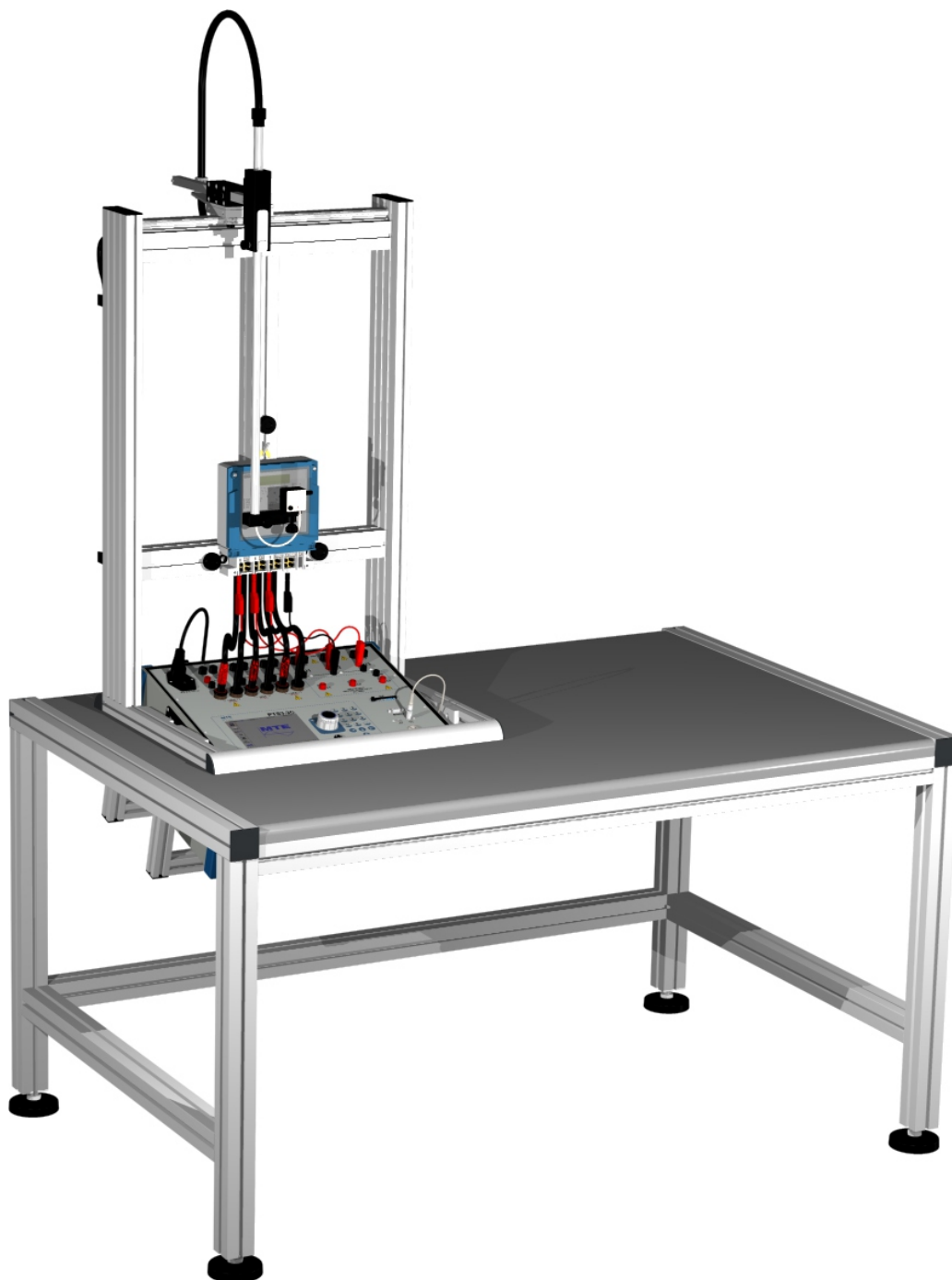
- Independent generation of single or three-phase loading conditions for verification of meters
- Active, reactive and apparent energy measurement for single phase, three phase, 3 wire or 4-wire, systems with integrated error calculator and pulse output
- Vector diagram, harmonics spectrum, wave form and rotary field display for analysis of the mains conditions
- Burden measurement of Current Transformer (CT) and Potential Transformer (PT)



Stationary single position test system PTS 3.3 C-1

The stationary system type PTS 3.3 C-1 allows the automatic testing of a single meter, without the need of an additional personal computer and has the following characteristics:

- Test system PTS 3.3 C-1 consists of a 3 phase reference standard, a 3 phase voltage and current source plus a single position meter suspension rack
- The suspension rack provides a fast and easy mounting of the meter
- Scanning head support SHC x.x with scanning head SH 2003 or SH 11 for scanning the marks of mechanical rotating disc meters or the detection of light emitting diodes (LED's) of electronic meters. The scanning head is adjustable in all 3 axis (left to right, up and down, in and out), as required to align with all normal configurations of meters

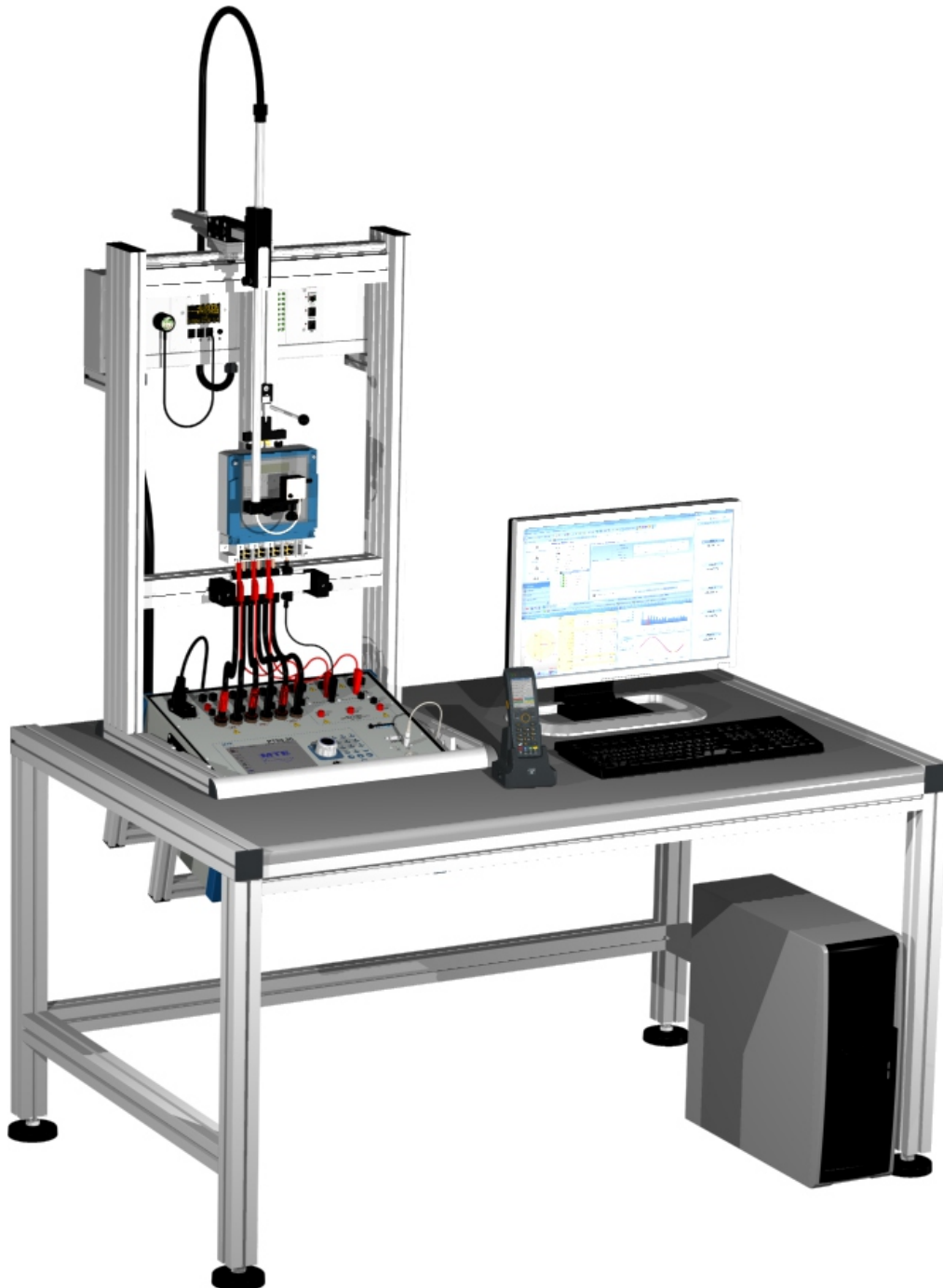


- The PTS 3.3 C is supplied with an integrated software, allowing automatic measuring runs with (programmable) predefined load points to be carried out
- Optional quick connection devices according to IEC- or ANSI standard, which allow fast suspension and connection of meters

Stationary single position test system PTS 3.3 C-2

The static system type PTS 3.3 C-2 allows the testing of a single, complex, multifunction meter fully automatically and has the following characteristics:

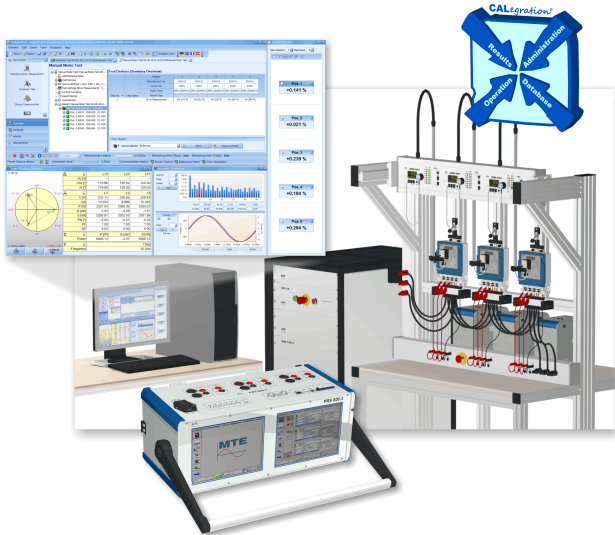
- Test system PTS 3.3 C-2 consists of a 3 phase reference standard, a 3 phase voltage and current source plus a single position meter suspension rack
- The suspension rack provides a fast and easy mounting of the meter
- Scanning head support SHC x.x with scanning head SH 2003 or SH 11 for scanning the marks of mechanical rotating disc meters or the detection of light emitting diodes (LED's) of electronic meters. The scanning head is adjustable in all 3 axis (left to right, up and down, in and out), as required to align with all normal configurations of meters



- Modular evaluation system SMM 400 for meter error display, inputs for the testing of output contacts or pulses plus a serial interface for meter communications and programming
- Software package CAMCAL® for Windows provides a PC controlled fully automatic measuring test system
- Optional quick connection devices according to IEC- or ANSI standard, which allow fast suspension and connection of meters

CALegration® is an all-in-one software package designed to control the latest MTE test equipment product line, including the recording and evaluation of meter and measurement data.

CALegration® bundles the functionalities and advantages in one brand new and comprehensive software package.



Covering all requirements of the modern meter testing environment **CALegration®** also provides the flexibility to easily incorporate future meter testing requirements.

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

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**

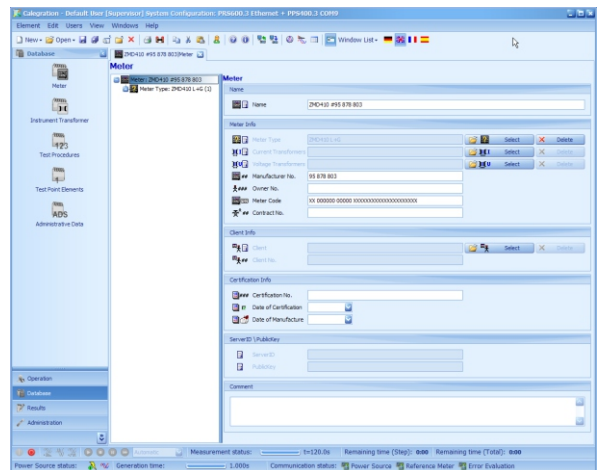
CALegration® combines the various functional modules required in modern stationary and portable test devices, with a common and consistent user interface.

The modular system allows control of various hardware units with a common software platform.

Automatic meter testing

Automatic meter tests are executed in three steps:

1. The user defines the meter and meter type, the test point elements and the test procedures
2. The test is executed and the results are stored in the database
3. The results can be presented in a simple test results form, or be post-processed for the presentation in form of a report



Meter and meter type definition

The meter and meter type definition function is used to define and administrate any kind of meters. The meter type definition contains the electrical und functional definitions of meters under test (connection values, meter constants registers etc.). The type definitions can further be called up and allocated to the meter stock / inventory of the customer (meter name, manufacturer number etc.).

For the tariff device communication, a communication module is assigned to the meter types. This defines the data to be selected or programmed plus the dispatching commands, adaptable by the customer, makes the fully automatic examination of high-functional meters and tariff devices possible.

The basic version supports the communication protocol in accordance with IEC 62056-21 Mode C standard. As an additional option the communication protocol is prepared according to dlms / COSEM.

Test procedure

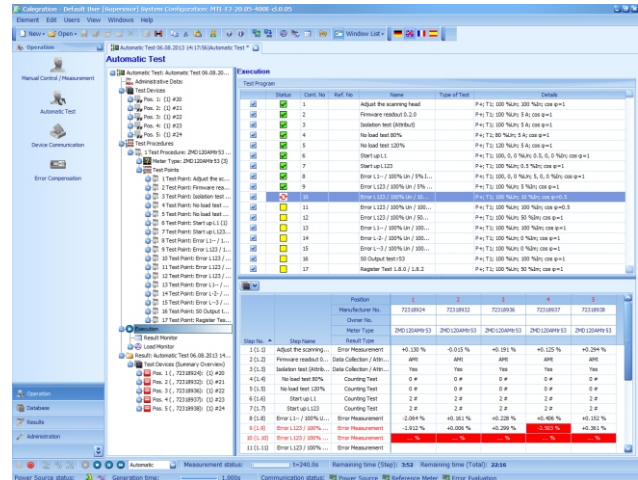
A test procedure or test sequence describes the order and content of different test point elements in a whole procedure. For each test step the desired source settings (current, voltage, phase angle, frequency etc.), test settings (e.g. error measurement) and control functions (e.g. automatic meter readout) can be specified.

In addition to the respective test method (e.g. error measurement, register tests etc.) each checkpoint can be linked with control commands. Control commands display for instance instructions to the operator, switching of tariff relays or dispatching of commands.

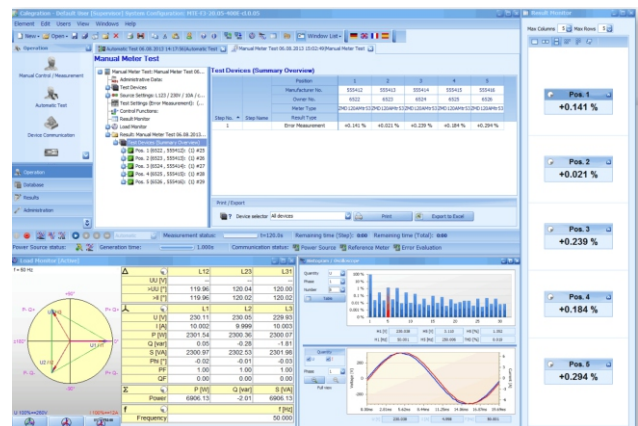
Meter testing

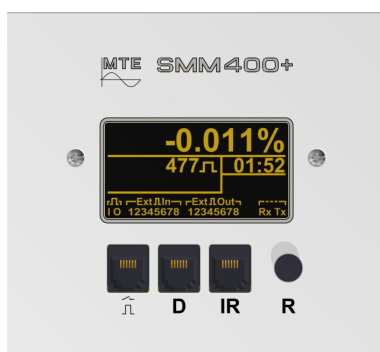
By undertaking an automatic test the user allocates to each active measurement position a meter type and selects a test procedure. Subsequently the user will comfortably be guided through the test.

The actual status of the test and active test point is clearly indicated at all times.



It is also possible to display simultaneously the actual test values, wave forms and results in their own windows using large, easily visible and configurable fonts.





Error evaluation system

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.



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.



Scanning head carriages SHC 1.2 and SHC 2.2

The SHC range of scanning head carriages has been designed for use with the SH 2003 and SH 11 model scanning heads. The range is user friendly and offers a high degree of flexibility.



Hand held terminal

The HT 2010 cordless hand held terminal with an integrated bar code reader is designed for recording meter specific data at meter test systems.