



Multifunction

MC5 is the first of its kind modular ALL-IN-ONE multifunction calibrator. Within its compact and ergonomic case, MC5 provides calibration capability for pressure, temperature, electrical and frequency signals (including pulses). Therefore, MC5 offers calibration capability for virtually all types of process and other instruments.

Up to 3 internal pressure modules (each having internal overpressure protection) may be installed in the MC5 case. This together with the possibility to use external pressure modules, gives MC5 a unique pressure calibration capability.

A unit fitted with the barometric module allows a single pressure port to measure gauge, absolute and vacuum pressures.

Only a few modules are required to cover the pressure ranges and uncertainties demanded by modern industry.

UNIQUE MODULAR CONSTRUCTION

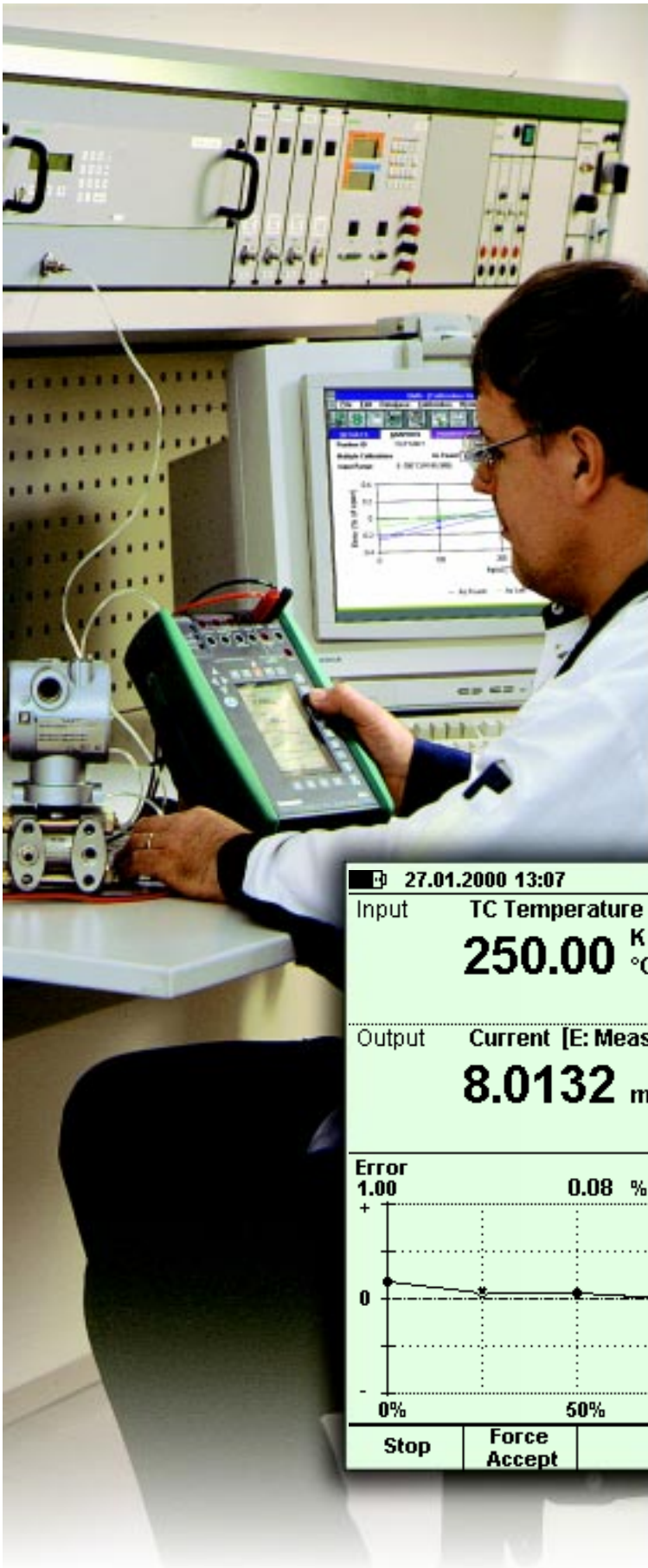
Modular

The modular construction of MC5 provides flexibility in user specific requirements. For example, MC5 can be ordered as a pressure or temperature stand-alone calibrator and then later be expanded into a datalogging documenting multifunction calibrator. Firmware updates are installed via the RS port (loaded from a user's computer), making it possible to upgrade existing MC5's with additional functionality as requirements arise.

True field compatibility

The lightweight MC5 is designed for use in tough field environments. Its rugged IP65-rated case, along with the integrated impact protectors, make MC5 the ideal portable calibrator for use in wet and dusty environments subject to wide temperature variations.

The advanced battery technology used by MC5 eliminates the typical concerns associated with portable calibrators. The powerful, easy to change NiMH rechargeable battery pack, provides many hours of field use. The battery pack can be rapidly charged while the MC5 is in use or when the battery pack is outside of the unit. Alternately, dry batteries (6 AA sized) may be used.



Accurate

MC5 is one of the most accurate field-portable calibrators available providing excellent measurement uncertainty in both laboratory and field environments. The latest in measurement technology and advanced compensation techniques are employed providing excellent accuracy even with large temperature variations. Additionally, good long term stability is achieved.

The reference junction (cold junction) module provides excellent versatility and accurate compensation for thermocouple measurement/simulation. Alternately, external and manual reference junction compensation may be performed.

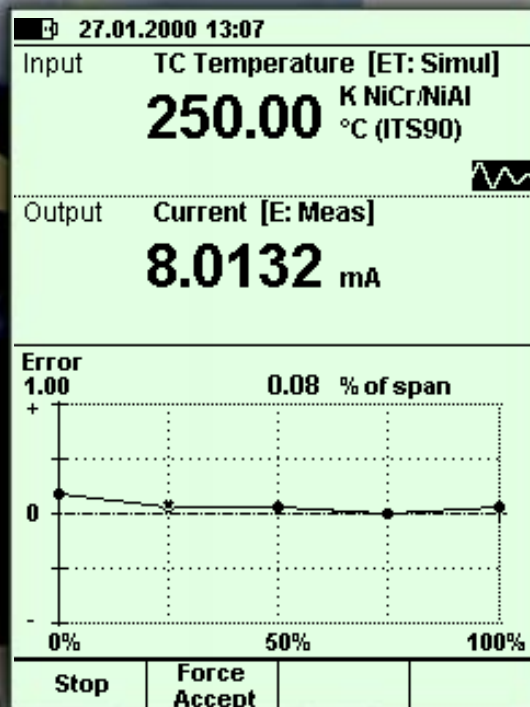
For detailed technical specifications please see MC5 Technical Data Sheet.

MULTICHANNEL DATALOGGING

Documenting

The MC5 has been designed to make it easier to comply with the ISO 9000 and ISO 14000 series of standards as well as regulatory agencies such as FDA, EPA, NRC and OSHA.

- Instrument data together with calibration procedures (including written instructions) can be downloaded to MC5 from QCAL[®] software (QM6 Quality Manager Software or QD3 Quality Documenter Software).
- Both as-found and as-left calibration results, along with user entered text comments, can be stored in the memory and up-loaded to software for hard copy print out in the workshop or in the field using the portable printer.
- User IDs and configurable password protection support the Electronic Records/Signature requirements for the Pharmaceutical Industry (21 CFR Part 11).
- The MC5 also performs as a field-entry device (FED) allowing for the recording of non-calibration related maintenance results, thereby documenting the performance of preventative maintenance.





Easy to use

The logical multilingual user interface makes MC5 very easy to use. Calibration procedures for various instrument types are provided as standard.

The user selects the instrument type via a menu list – MC5 is then automatically configured for the calibration. Alternately, the calibration procedure for specific instruments can be downloaded from the QCAL® System software (QM6 Quality Manager or QD3 Quality Documenter).

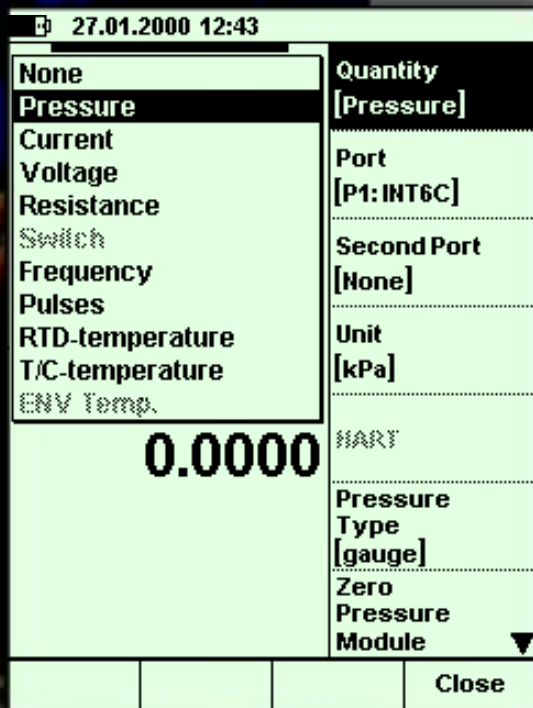
The large back-lit LCD display gives both as-found and as-left calibration results both in numerical and graphical form.

If needed, on-line help is available via a single key stroke.

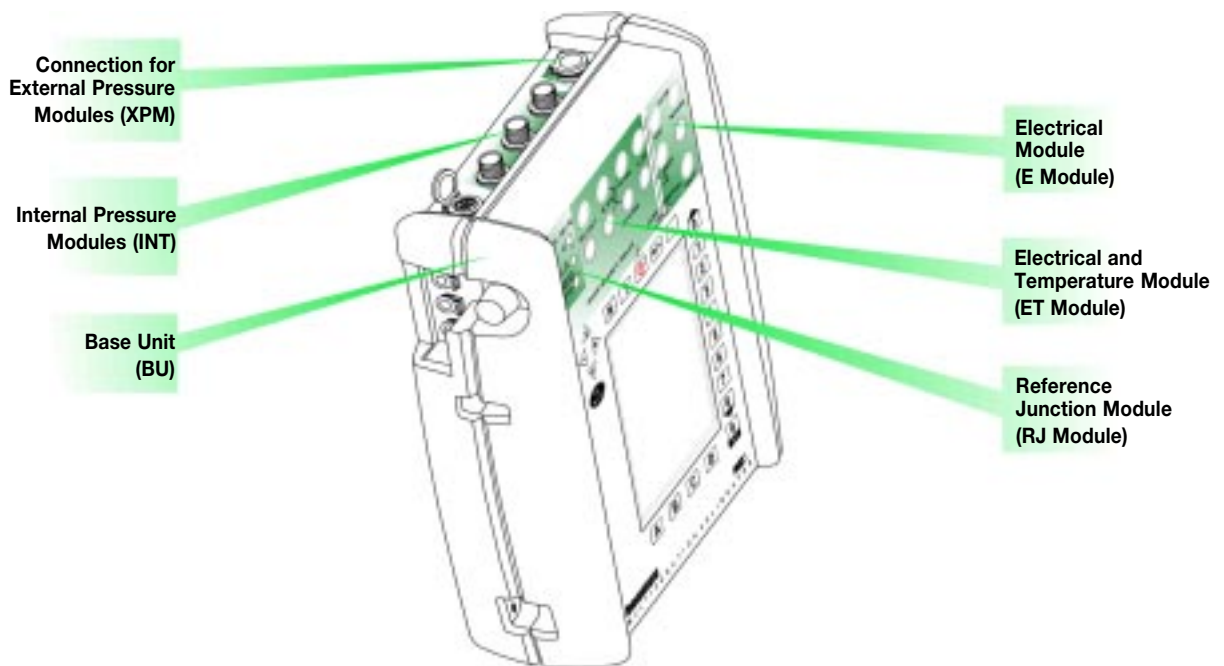
AUTOMATIC CALIBRATION

Additional features

- HART® communication using an internal modem.
- Communication with dry block temperature baths, thus offering true automatic temperature calibration.
- Automatic pressure calibration through communication with pressure controllers.
- Batch communication (field use) as well as on-line communication (workshop use) with QM6 QCAL® software.
- Transmitter simulation mode allowing MC5 to replace a transmitter.
- Configurable ramp and step generation.
- User configurable resolution and filter (damping) settings.



MC5 Multifunction Calibrator



MC5 Technical Specifications - Summary

General	
Display	96 x 72 mm (3.78" x 2.83"), 320 x 240 pixels, back-lit LCD
Weight	1.7 – 2.3 kg (3.7 – 5.1 lbs)
Dimensions	245 mm (9.6") x 192 mm (7.5") x 74 mm (2.9"), (d/w/h)
Case protection	IP65 (dust and water proof)
Battery operation	average 10 hours with the NiMH Battery Pack
Charger supply	100...240 VAC, 50-60 Hz
Operating temperature	-10...50 °C (14...122 °F)
Warranty	3 years as standard

Module	Function	Range	Uncertainty
INT	Internal Pressure Modules	-1bar (-14.5 psi) to 20bar (300 psi)	From 0.025 RDG + 0.01 % FS
EXT	External Pressure Modules	Up to 1000 bar (14500 psi)	From 0.04 % RDG + 0.01 % FS
E	mV measurement	± 1000 mV	0.02 % RDG + 5 µV
E	V measurement	± 50 V	0.02 % RDG + 0.25 mV
E	mA measurement	± 100 mA	0.02 % RDG + 1.5 µA
E	mA generation	0 ... 25 mA	0.02 % RDG + 1.5 µA
E	Hz measurement	0.0028 ... 50000 Hz	0.01 % RDG
E	Pulse counting	0 ... 9 999 999 pulses	N/A
ET	V generation	± 12 V	0.02 % RDG + 0.1 mV
ET	mA generation	± 25 mA	0.02 % RDG + 1 µA
ET	Hz generation	0.00028 ... 50000 Hz	0.01 % RDG
ET	Pulse generation	0 ... 9 999 999 pulses	N/A
ET	mV generation / measurement	± 500 mV	0.02 % RDG + 4 µV
ET	Ohm measurement / simulation	0 ... 4000 ohm / 1 ... 4000 ohm	From 0.02 % RDG + 3.5 mohm
ET	T/C measurement / simulation	G, D	From 0.02 % RDG + 0.1 °C
ET	RTD measurement / simulation	Pt100 + 13 other types	From 0.025 % RDG + 0.06 °C
RJ	T/C reference junction compensation	-10 ... 50 °C	0.1 °C

Specifications are subject to change without notice. For detailed technical specifications please see MC5 Technical Data Sheet.

Accessories:

Calibration pumps:

- PGV (-0.95 bar / -13.8 Psi...0 bar/psi)
- PGH (0 bar/psi...20 bar / 300 psi)
- PGXH (0 bar/psi...700 bar / 10000 psi)

Calibration software:

- QM6 Quality Manager
- QD3 Quality Documenter

Environmental temperature sensor

Portable printer

External Pressure Modules:

- EXT60 (60 bar / 900 psi)
- EXT100 (100 bar / 1500 psi)
- EXT160 (160 bar / 2400 psi)
- EXT250 (250 bar / 3700 psi)
- EXT600 (600 bar / 9000 psi)
- EXT1000 (1000 bar / 15000 psi)

Automatic pressure controllers (POC4)

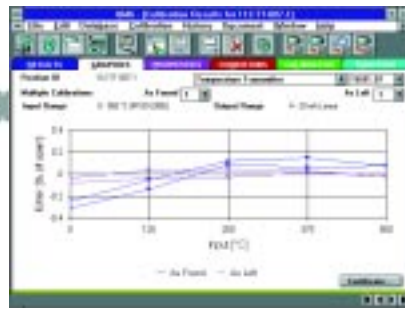
Carrying case (soft)

Dry battery cartridge

QCAL[®] - TOTAL CALIBRATION SYSTEM



Portable Calibrators



Calibration Database Software
(QM6 or QD3)



Workshop Range

QCAL[®] System

The QCAL[®] System is a complete calibration system comprising calibration database software, portable calibrators and calibration bench systems.



The QCAL[®] System performs both manual and automatic calibration according to given procedures providing complete documentation of results.

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