

TEMPERATURE/ELECTRICAL

CALIBRATOR TC305

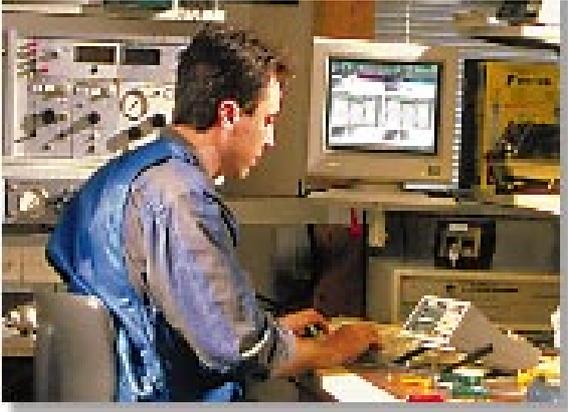
QUALITY
CALIBRATION

LOCAL



beamex

TEMPERATURE CALIBRATOR TC305



The TC305 Gold Line temperature calibrator is designed for calibration of modern temperature/electric instruments both in laboratory/workshop and on-site. This extremely high precision calibrator meets the most stringent requirements of today's instrument specialists.

TC305 FEATURES:

- Measurement/generation of T/C, RTD, ohm, mV, V and mA signals
- Reads input and output signals simultaneously
- Direct display of transmitter/converter error in percentage
- Versatile step and ramp output modes
- Test function for temperature and electrical switches (optional)
- Unique and precise cold junction compensation block
- The optional frequency module FM1 allows generation and measurement of sine/square waves
- Full QCAL[®] System compatibility

DESCRIPTION:

An accurate temperature/electrical calibrator with versatile features to facilitate and expedite the instrument calibration either on-site or in the laboratory.

Equipped with practical features like direct indication of transmitter error, practical scalings, switch test function (optional), step and ramp functions, RTD measurement in 2, 3 or 4 wire connection, integral 24 VDC loop supply (optional) etc. Large back lit LCD digits offer best readability.

HIGH ACCURACY

The TC305 calibrator is developed to calibrate today's most advanced instruments. The highly accurate calibrator ensures calibration of T/C, RTD, mV, V and mA instruments against a highly accurate calibration standard.

UNIQUE REFERENCE JUNCTION COMPENSATION

The special multi-use connection terminal for thermocouples. Internal reference junction compensation to ± 0.1 °C. This is at least twice as accurate as compensation with conventional connection terminals.

AUTOMATIC TEST FUNCTION

Fully automatic test function for transmitters and other electrical converters. The automatic step function tests the instrument under test and stores the calibration results - just connect the instrument to the calibrator.

TRANSMITTER ERROR INDICATION

The clear dual display indicates both transmitter input and output values. The calibrator also indicates the transmitter error - which is the most vital piece of information when carrying out the calibration.

MEMORY FUNCTION - PAPERLESS ON-SITE DOCUMENTATION

The internal memory (optional) allows storing of both calibration instructions and calibration results. The documenting paper work is thus completely replaced by automatic data collection and storage procedure.

SOFTWARE PACKAGES

The Beamex QCAL System calibrators communicate with PC's with either DOS or Windows based true relational calibration database software. The powerful calibration software allows complete easy-to-use computer-aided ISO 9000 compatible calibration management.

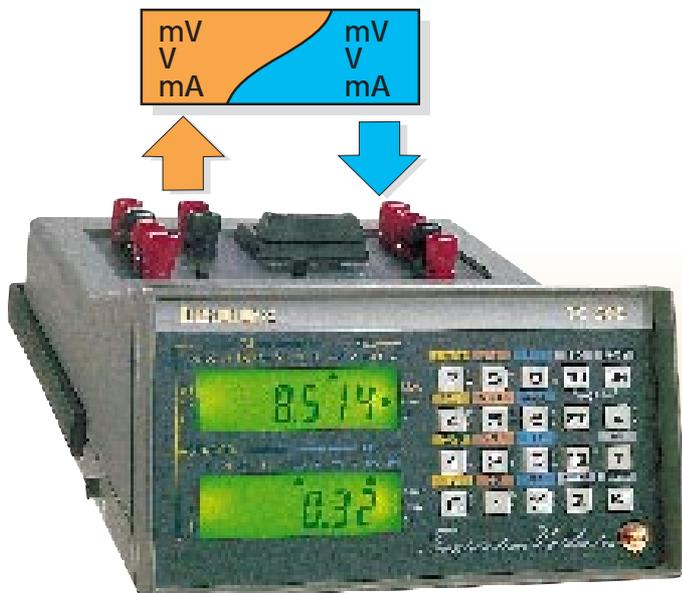
APPLICATIONS



Calibration of temperature transmitters

The upper display indicates the simulated T/C or RTD signal.

The lower display indicates the transmitter output error in % of span (or in selected eng. unit).



Calibration of electrical converters

The upper display indicates the generated electrical signal.

The lower display indicates the converter output error in % of span (or in selected eng. unit).

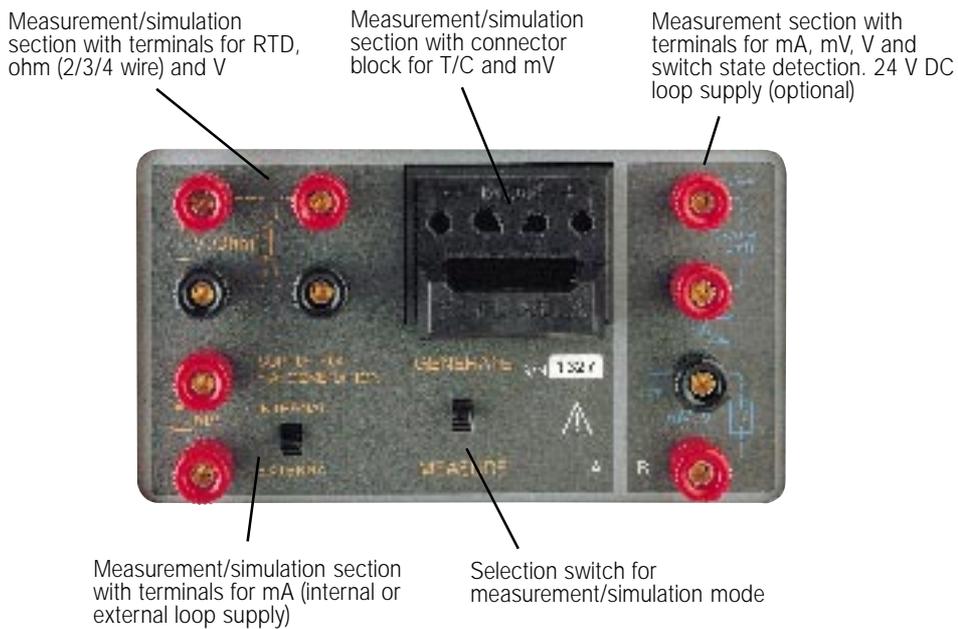
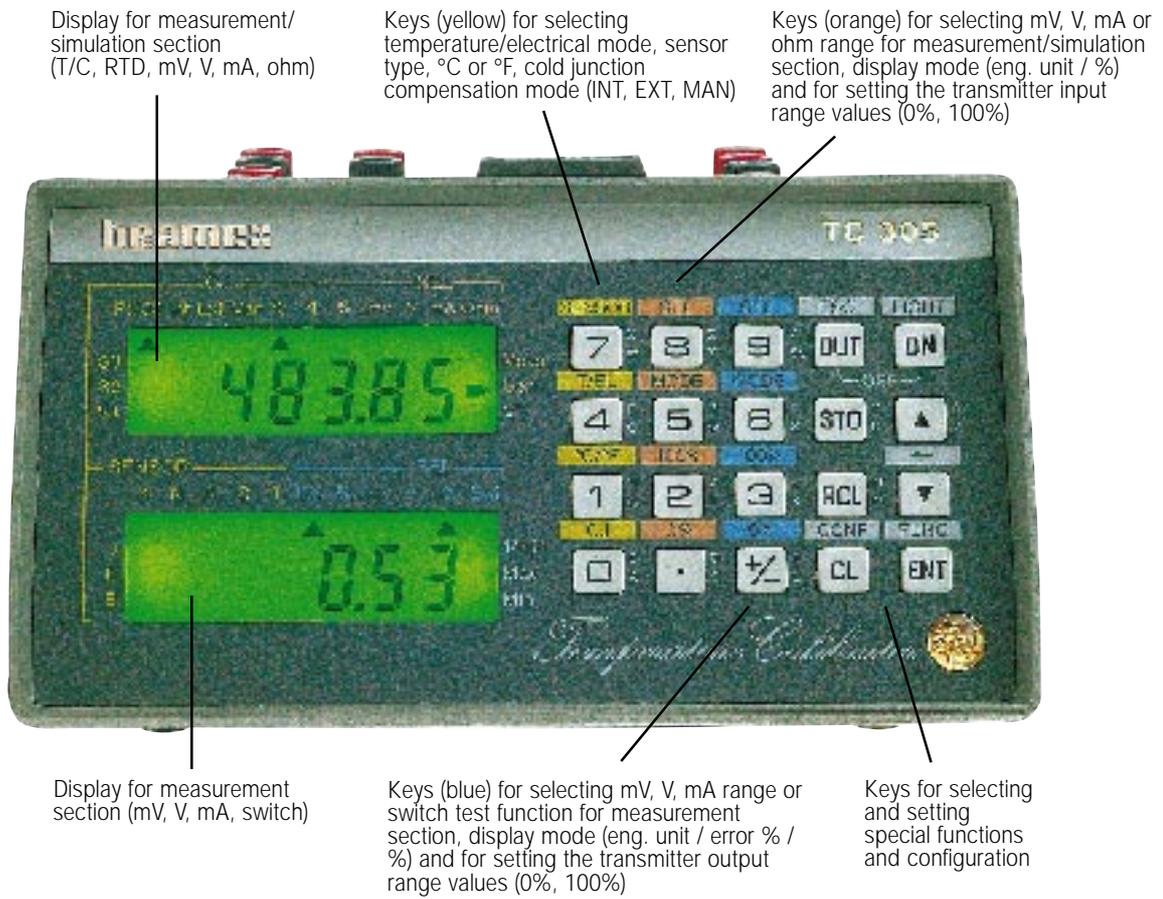


Testing of temperature switches

The upper display indicates the temperature in the bath (measured by T/C or RTD probe).

The lower display indicates the temperature at which the switch changed its state.

FUNCTIONS



TECHNICAL SPECIFICATIONS

GENERAL

Display:	2 x 6 digit LCD 10.5 mm high, illuminated
Reading time:	2.5 readings / sec.
Battery operation:	20 hrs with rechargeable batteries (supplied)
Dimensions:	310 (d) x 205 (w) x 130 (h) mm 12.4" (d) x 8.4" (w) x 5.2" (h)
Input impedance:	more than 10 Mohm (mV, T/C measurement)
Power requirements:	230/110 V \pm 10 %, 50/60 Hz
Weight:	2.15 kg (less than 5 lbs)

OPERATING CONDITIONS

Storage temperature:	-20 to +60 °C, -4 to +140 °F
Operating temperature:	-10 to +50 °C, +14 to +122 °F
Humidity range:	0 to 80 % R.H. non-condensing
Temperature coefficient:	\pm 0.002 % RDG/°C, \pm 0.001 % RDG/°F

MEASUREMENT & SIMULATION SECTION

FUNCTION	RANGE	RESOLUTION	UNCERTAINTY
Measurement and Simulation	B	+50 ...+1820 °C	\pm (0.02 % RDG + 0.003 mV) ¹⁾
	E	-270...+1000 °C	
	J	-210...+1200 °C	
	K	-270...+1372 °C	
	N	-270...+1300 °C	
	R	-50 ...+1768 °C	
	S	-50 ...+1768 °C	
T	-270... +400 °C	0.1 °C	
Measurement RTD (Pt100)	-200... +850 °C	0.01/0.05 °C	\pm (0.02 % RDG + 0.01 ohm) ^{2) 3)}
Simulation RTD (Pt100)	-200... +850 °C	0.01 °C	\pm 0.05 ohm ^{3) 4) 5)}
Measurement mV	-10 ... +120 mV	0.002 mV, 0.005 mV	\pm (0.02 % RDG + 0.003 mV)
Output mV	-10 ... +120 mV	0.001 mV	\pm (0.02 % RDG + 0.003 mV)
Measurement V	-1,3... +12 V	0.0002 V, 0.0005 V	\pm (0.02 % RDG + 0.0004 V)
Output V	-1,3... +12 V	0.0001 V	\pm (0.02 % RDG + 0.0004 V)
Measurement mA	-5 ... +60 mA	0.001 mA, 0.002 mA	\pm (0.02 % RDG + 0.002 mA)
Output mA	0 ... +60 mA	0.001 mA	\pm (0.02 % RDG + 0.002 mA)
Measurement ohm	0 ... 4000 ohm	0.005 to 0.2 ohm	\pm (0.02 % RDG + 0.010 ohm) ²⁾
Output ohm	5 ... 392 ohm	0.01 ohm	\pm 0.05 ohm ^{4) 5)}
	392...4000 ohm	0.1 ohm	\pm 0.5 ohm ^{4) 6)}

1) Linearity error \pm 0.05 °C, for internal ref. junction: \pm 0.1°C

2) 4 wire connection (add 0.010 ohm if 3 wires are used)

3) Linearity error \pm 0.02 °C

4) At I meas. = + 1 mA \pm 10%

5) I meas. range = \pm (0.1 to 11 mA)

6) I meas. range = \pm (0.1 to 1.1 mA)

STANDARDS:

B, E, J, K, N, R, S, T conform to international standard IEC 584-1 and Pt-100 conforms to IEC 751.

Both temperature scalings IPTS-68 and ITS-90 are included (selectable).

MEASUREMENT SECTION

FUNCTION	RANGE	RESOLUTION	UNCERTAINTY
Measurement mV	-40 ... +130 mV	0.005 mV	\pm (0.02 % RDG + 0.01 mV)
Measurement V	-5 ... +48 V	0.2, 0.5, 0.002 V	\pm (0.02 % RDG + 0.0004 V)
Measurement mA	-5 ... +60 mA	0.001 mA, 0.002 mA	\pm (0.02 % RDG + 0.002 mA)

Note: Specifications are subject to change without prior notice. Complete specifications are available from Beamex.

ORDERING INFORMATION

THE STANDARD TC305 INCLUDES

- 2 year warranty
- carrying case
- test leads
- power supply 230/110 V, 50/60 Hz
- instruction manual
- traceable calibration certificate

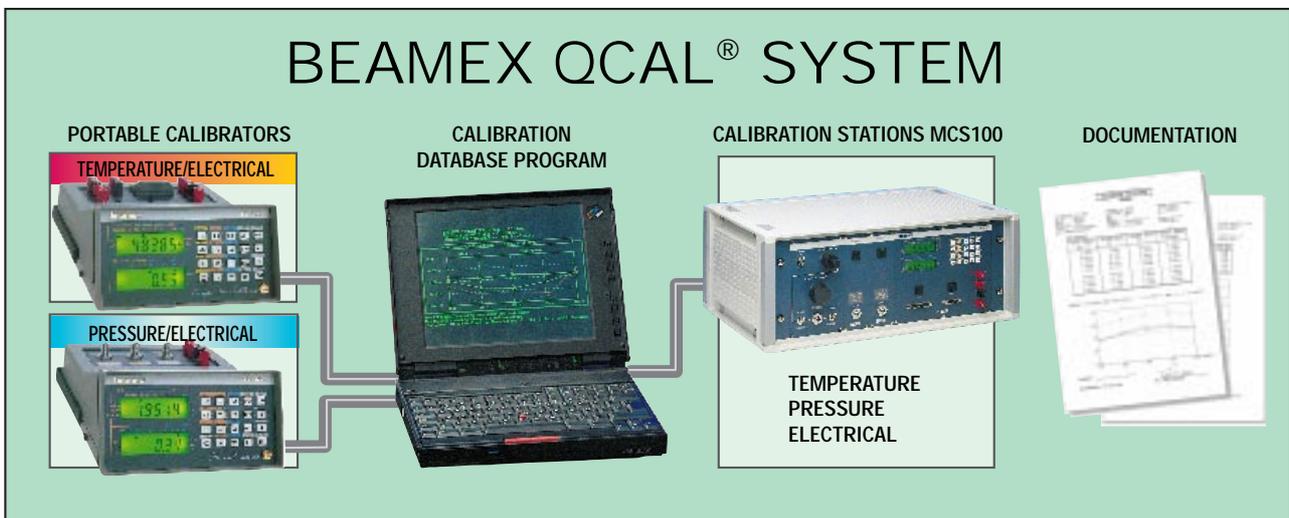
OPTIONS

- D: temp. switch function
- S: customer defined sensors
- E: 24 V DC loop supply
- TCAL Expansion

ACCESSORIES

- RS1A: RS232 Interface (non isolated)
- RS2A: RS232 interface (isolated)
- FM1: frequency module (0...50,000 Hz)
- CALDB3/HISDB3, QM6

Beamex's powerful calibration database software packages CALDB3/HISDB3 (DOS) and QM6 (Windows) allow ISO 9000 compatible calibration management and documentation. The history function of these software packages make trend analyzing over the whole instrument lifetime easy.



Specifications subject to change without notice. Ask your local sales representative or Beamex office for more technical details.

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