

# MC5

All you need for field calibration.



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## **MC5 Multifunction Calibrator – all you need for field calibration.**

Accuracy meets versatility. You won't find this calibrator collecting dust on the shelf in your workshop; it is always on the go. Beamex's MC5 is the all-in-one documenting multifunction calibrator for calibrating pressure, temperature, electrical and frequency signals. The modular construction of the MC5 provides flexibility for user-specific requirements. For example, the MC5 can be ordered as a pressure or temperature stand-alone calibrator, and then later be expanded into a datalogging, versatile multifunction calibrator.

The MC5 is made for tough use. The robust IP65-rated casing, along with integrated impact protectors, makes MC5 an ideal calibrator for use in wet and dusty environments subject to wide temperature variations.

When accuracy, versatility and robustness are what you are looking for, MC5 is the solution.



## **Intrinsically safe MC5-IS – made for extreme environments.**

The ATEX certified MC5-IS is designed for use in potentially explosive environments, such as offshore platforms, oil refineries, chemical and petrochemical plants where inflammable gases may be present. There is probably no other intrinsically safe calibrator that can outperform the MC5-IS in terms of functionality. The MC5-IS is a documenting, multifunction calibrator that has calibration capabilities for pressure, temperature, electrical and frequency signals. Its modular design allows configuration based on your specific needs.



# MC5 and MC5-IS



MC5 Multifunction Calibrator



MC5-IS Intrinsically Safe Multifunction Calibrator



## MC5 Features

### MC5 Main Features

- Accurate, all-in-one calibrator – calibration capabilities for pressure, temperature, electrical and frequency signals
- Documenting – communicates perfectly with calibration software
- Field compatible, IP65-rated dust and waterproof casing
- Modular design allows configuration based on your needs
- Internal and/or external pressure modules
- HART® communication
- Foundation Fieldbus H1 or Profibus PA communication

## MC5-IS Features

### MC5-IS Main Features

- Designed for use in potentially explosive environments
- ATEX certified (Ex ia IIC T4 and ATEX directive II 1 G)
- Calibration capabilities for pressure, temperature, electrical and frequency signals
- Documenting – communicates perfectly with calibration software
- Modular design allows configuration based on your needs
- HART® Communication
- Foundation Fieldbus H1 or Profibus PA communication

## Common Features of the MC5 and MC5-IS

### Functions

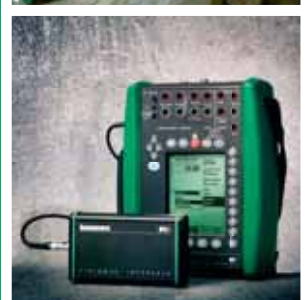
- Internal pressure modules
- External pressure modules
- RTD measurement / simulation
- Resistance measurement / simulation
- TC measurement / simulation
- Current measurement / generation
- Voltage measurement / generation
- Low voltage measurement / generation
- Frequency measurement / generation
- Pulse counting / generation
- Switch testing
- PRT sensor customization functionality

### Optional features

- Communication with software
- HART® communication
- Multichannel datalogging
- Pressure controller communication \*)
- Temperature dry-block communication \*)
- Foundation Fieldbus H1 or Profibus PA communication

\*) Excluding MC5-IS

# Features of MC5



## Accuracy guaranteed.

The MC5 is among the most accurate process calibrators available. As proof of this, each MC5 calibrator is delivered with a traceable, accredited calibration certificate.

## The MC5 is made for tough use.

The IP65-rated robust casing, along with integrated impact protectors, makes MC5 an ideal calibrator for use in wet and dusty environments subject to wide temperature variations.

## Modularity means versatility.

The MC5 is an extremely versatile calibrator with many different functions. The modular construction of MC5 provides flexibility for the user. For instance, the MC5 can be ordered as a pressure or temperature stand-alone calibrator, and then later expand it into a data-logging, documenting multifunction calibrator.

## Communication with calibration software.

Using the MC5 together with calibration software provides you with a complete documenting calibration system that produces calibration certificates automatically. The benefits of the system include automated calibration procedures and paperless calibration management.

## Make it safe with MC5-IS.

The MC5-IS is the intrinsically safe, ATEX certified (EEx ia IIC T4 and ATEX directive II 1 G) version of the MC5 Multifunction Calibrator. It is designed for use in potentially explosive environments, such as offshore platforms, oil refineries, chemical and petrochemical plants where inflammable gases may be present.

## Fieldbus instruments must also be calibrated.

Fieldbus installations are growing rapidly worldwide. Beamex is the first company in the world to answer to this demand: we have introduced the MC5 Fieldbus Calibrator, which can be used for calibrating Foundation Fieldbus H1 or Profibus PA transmitters. Also the MC5-IS provides capability for calibrating Foundation Fieldbus H1 or Profibus PA transmitters. It offers the safest possible way for calibrating fieldbus transmitters.

# General Specifications

## MC5 / MC5-IS General Specifications

General	
Display	96 x 72 mm (3.78" x 2.83"), 320 x 240 pixels, back lit <sup>*1)</sup> 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)
Keyboard	Membrane protected individual keys
Battery type	MC5; Rechargeable NiMH, 4000 mAh, 7.2V DC MC5-IS; Rechargeable NiMH, 1200 mAh, 8.4V DC
Battery operation	MC5; Average 10 hours MC5-IS; Average 5 hours
Charger supply	100...240 VAC, 50-60 Hz
Operating temperature	-10...50°C (14...122°F)
Storage temperature	-20 to 60°C (-4 to 140°F)
Humidity	0 to 80 % R.H. non-condensing
Measurement sample rate	2.5 / second
Warranty	Standard: 3 years for MC5; 1 year for battery pack. The warranty of the MC5 will be extended up to 6 years if the product is calibrated on a yearly basis at Beamex's Calibration Laboratory.

## Features of modules

Feature	INT	EXT	E	ET	RJ
Internal pressure modules	•				
External pressure modules		•			
Current measurement			•		
Voltage measurement			•		
Low voltage measurement			•		
Frequency measurement			•		
Pulse counting			•		
Switch sensing			•		
Internal 24 VDC loop supply <sup>*1)</sup>			•		
RTD measurement / simulation				•	
Resistance measurement / simulation				•	
TC measurement / simulation				•	
Low voltage measurement / generation				•	
Voltage generation				•	
Current generation <sup>*2)</sup>				•	
Frequency generation				•	
Pulse generation				•	
Internal TC reference junction compensation					•

INT = Internal pressure module  
 EXT = External pressure module  
 E = Electrical measuring module  
 ET = Electrical and temperature module  
 RJ = Thermocouple reference junction module

\*1) Excluding MC5-IS

\*2) Sink generation in MC5-IS (requires external supply)

# Pressure Measurement

## Internal & External Pressure Modules for MC5 and MC5-IS

Internal Modules <sup>1)</sup>	External Modules	Range <sup>2)</sup>	Resolution	Accuracy <sup>3)</sup> (±)	1 Year Uncertainty <sup>4)</sup> (±)
INT B INT B-IS	EXT B EXT B-IS	80 to 120 kPa a 800 to 1200 mbar a 11.6 to 17.4 psi a	0.01 0.1 0.001	0.03 kPa 0.3 mbar 0.0044 Psi	0.05 kPa 0.5 mbar 0.0073 psi
INT10mD INT10mD-IS	EXT10mD EXT10mD-IS	±1 kPa diff ±10 mbar diff ±4 iwc diff	0.0001 0.001 0.001	0.05 % Span	0.05 % Span + 0.1 % RDG
INT100m INT100m-IS	EXT100m EXT100m-IS	0 to 10 kPa 0 to 100 mbar 0 to 40 iwc	0.0001 0.001 0.001	0.015 % FS + 0.0125 % RDG	0.025 % FS + 0.025% RDG
INT400mC INT400mC-IS	EXT400mC EXT400mC-IS	±40 kPa ±400 mbar ±160 iwc	0.001 0.01 0.001	0.01 % FS + 0.0125 % RDG	0.02 % FS + 0.025% RDG
INT1C INT1C-IS	EXT1C EXT1C-IS	±100 kPa ±1 bar -14.5 to 15 psi	0.001 0.00001 0.0001	0.007 % FS + 0.0125 % RDG	0.015 % FS + 0.025% RDG
INT2C INT2C-IS	EXT2C EXT2C-IS	-100 to 200 kPa -1 to 2 bar -14.5 to 30 psi	0.001 0.00001 0.0001	0.005 % FS + 0.01 % RDG	0.01 % FS + 0.025% RDG
INT6C INT6C-IS	EXT6C EXT6C-IS	-100 to 600 kPa -1 to 6 bar -14.5 to 90 psi	0.01 0.0001 0.001	0.005 % FS + 0.01 % RDG	0.01 % FS + 0.025% RDG
INT20C INT20C-IS	EXT20C EXT20C-IS	-100 to 2000 kPa -1 to 20 bar -14.5 to 300 psi	0.01 0.0001 0.001	0.005 % FS + 0.01 % RDG	0.01 % FS + 0.025% RDG
INT60 INT60-IS	EXT60 EXT60-IS	0 to 6000 kPa 0 to 60 bar 0 to 900 psi	0.1 0.001 0.01	0.005 % FS + 0.0125 % RDG	0.01 % FS + 0.025% RDG
INT100 INT100-IS	EXT100 EXT100-IS	0 to 10 MPa 0 to 100 bar 0 to 1500 psi	0.0001 0.001 0.01	0.005 % FS + 0.0125 % RDG	0.01 % FS + 0.025% RDG
INT160 INT160-IS	EXT160 EXT160-IS	0 to 16 MPa 0 to 160 bar 0 to 2400 psi	0.0001 0.001 0.01	0.005 % FS + 0.0125 % RDG	0.01 % FS + 0.025% RDG
-	EXT250 EXT250-IS	0 to 25 MPa 0 to 250 bar 0 to 3700 psi	0.001 0.01 0.1	0.007 % FS + 0.0125 % RDG	0.015 % FS + 0.025% RDG
-	EXT600 EXT600-IS	0 to 60 MPa 0 to 600 bar 0 to 9000 psi	0.001 0.01 0.1	0.007 % FS + 0.01 % RDG	0.015 % FS + 0.025% RDG
-	EXT1000 EXT1000-IS	0 to 100 MPa 0 to 1000 bar 0 to 15000 psi	0.001 0.01 0.1	0.007 % FS + 0.01 % RDG	0.015 % FS + 0.025% RDG

Temperature coefficient ±0.001 % Rdg/°C outside 15 ... 35°C (59 ... 95 °F)  
INT10mD / INT10mD-IS / EXT10mD / EXT10mD-IS < ±0.002 % Span/°C outside 15 ... 35°C (59 ... 95°F)

- 1) The MC5 / MC5-IS Calibrators can hold three internal pressure modules.
- 2) Every internal/external pressure module's range may also be displayed in absolute pressure if the Barometric Module (B) is installed.
- 3) 'Accuracy' includes hysteresis, nonlinearity, repeatability and reference standard uncertainty (k=2).
- 4) '1 Year Uncertainty' includes hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period (k=2).

**All external pressure modules (EXT) are also compatible with Beamex MC2 and MC5P Calibrators.**

Supports the following pressure units as standard:

Pa, hPa, kPa, MPa, mbar, bar, lbf/ft<sup>2</sup>, psi, gf/cm<sup>2</sup>, kgf/cm<sup>2</sup>, kgf/cm<sup>2</sup>, kp/cm<sup>2</sup>, at, mmH<sub>2</sub>O, cmH<sub>2</sub>O, mH<sub>2</sub>O, iwc, ftH<sub>2</sub>O, mmHg, cmHg, mHg, inHg, mmHg(0°C), inHg(0°C), mmH<sub>2</sub>O(4°C), inH<sub>2</sub>O(4°C), ftH<sub>2</sub>O(4°C), inH<sub>2</sub>O(60°F), mmH<sub>2</sub>O(68°F), inH<sub>2</sub>O(68°F), ftH<sub>2</sub>O(68°F), torr, atm.

INT B / EXT B; M5 (10/32") female.

INT10mD and EXT10mD; Two M5 (10/32") female threads with a hose nipple included.

INT100m/EXT100m – INT20C/EXT20C; G1/8" (ISO228/1) female. A conical 1/8" BSP male with 60° internal cone adapter included for Beamex hose set.

INT60, INT100, INT160; G1/8" (ISO228/1) female. EXT60, EXT100, EXT160, EXT250, EXT600, EXT1000; G ¼" (ISO228/1) male.

Wetted parts AISI316 stainless steel, Hastelloy, Nitrile rubber.

Maximum overpressure;

B module; 1200 mbar abs. 10mD module; 200 mbar. EXT600; 900 bar. EXT1000; 1000 bar.

For all other modules, the maximum overpressure is twice the nominal range.

HART® is a registered trademark of HART® Communication Foundation.

# MC5 and MC5-IS

## Electrical Module (E)

Model	Function	Range	Resolution	1 Year Uncertainty <sup>(1)</sup> (±)
MC5	mV measurement <sup>(2)</sup>	±1000 mV	0.001 - 0.01 mV	0.02 % RDG + 5 µV
MC5-IS	mV measurement <sup>(2)</sup>	±250 mV	0.001 mV	0.02 % RDG + 5 µV
MC5	V measurement <sup>(3)</sup>	±50 V	0.00001 - 0.001 V	0.02 % RDG + 0.25 mV
MC5-IS	V measurement <sup>(3)</sup>	±30 V	0.00001 - 0.001 V	0.02 % RDG + 0.25 mV
MC5 & MC5-IS	mA measurement <sup>(4)</sup>	±100 mA	0.0001 - 0.001 mA	0.02 % RDG + 1.5 µA
MC5 & MC5-IS	Hz measurement <sup>(5)</sup>	0.0028 to 50000 Hz	0.000001 - 0.1 Hz	0.01 % RDG
MC5 & MC5-IS	Pulse counting <sup>(5)</sup>	0 to 9 999 999 pulses	1 pulse	N/A
MC5	mA generation <sup>(6)</sup>	0 to 25 mA	0.0001 mA	0.02 % RDG + 1.5 µA
MC5-IS	mA Sink	0 to 25 mA	0.0001 mA	0.02 % RDG + 1.5 µA

Temperature coefficient < ±0.001% RDG / °C outside of 15...35°C (59...95°F)

- 1) Uncertainty includes reference standard uncertainty, hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period (k=2).
- 2) Bias current <10 nA
- 3) Impedance >1 MΩ
- 4) Impedance < 7.5 Ω
- 5) MC5; Impedance > 1 MΩ. Frequency measurement minimum amplitude 0.5 Vpp (< 5 kHz), 1 Vpp (5...50 kHz). Pulse counting minimum amplitude 0.5 Vpp (pulse length > 100 µs), 1 Vpp (pulse length 100 µs...10 µs). Trigger level range -1...+15 V.
- 5) MC5-IS; Impedance > 1 MΩ. Frequency measurement minimum amplitude 1 Vpp (< 10 kHz), 3 Vpp (10...50 kHz). Pulse counting minimum amplitude 1 Vpp (pulse length > 50 µs), 3 Vpp (pulse length 50 µs...10 µs). Trigger level range -1...+15 V.
- 6) Maximum load impedance 800 Ω

## RTD Measurement and Simulation

Function	Range (°C)	Range (°C)	Measurement 1 Year Uncertainty <sup>(1)</sup> (±)	Simulation 1 Year Uncertainty <sup>(1)</sup> (±)
Pt-sensors	-200 to 850°C	-200 to 0°C	0.06°C	0.1°C
		0 to 850°C	0.025% RDG + 0.06°C	0.025% RDG + 0.1°C

1) Uncertainty includes reference standard uncertainty, hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period (k=2).

### RTD types available as standard:

Pt50 (385)	Pt400 (385)	Pt100 (3923)	Pt100 (3926)	Cu10 (427)
Pt100 (385)	Pt500 (385)	Pt100 (391)	Ni100 (618)	
Pt200 (385)	Pt1000 (385)	Pt100 (375)	Ni120 (672)	

To improve uncertainty with PRT (platinum RTD) sensors, the MC5 / MC5-IS includes a standard possibility that allows you to create customized PRT sensors using the Callendar van Dusen correction coefficients. The easy-to-use *Beamex PRT Tool* PC software is used to create the sensor and to send it to the MC5. Up to 100 customized PRT sensors can be stored in MC5 at one time.

This function may be also used to create new, non-supported PRT sensors in the MC5. Both measurement and simulation can be done with the customized sensors.

# MC5 and MC5-IS

## MC5 Temperature Electrical Module (ET)

Function	Range	Resolution	1 Year Uncertainty <sup>(1)</sup> (±)
mV generation <sup>(2)</sup>	±500 mV	0.001 - 0.01 mV	0.02 % RDG + 4 µV
V generation <sup>(3)</sup>	±12 V	0.00001 - 0.0001 V	0.02 % RDG + 0.1 mV
mA generation <sup>(4)</sup>	±25 mA	0.0001 mA	0.02 % RDG + 1 µA
Hz generation <sup>(5)</sup>	0.00028 to 50 000 Hz	0.000001 - 0.1 Hz	0.01 % RDG
Pulse generation <sup>(6)</sup>	0 to 9 999 999 pulses	1 puls	N/A
Ohm simulation <sup>(7)</sup>	1 to 4000 Ω	0.01 - 0.1 Ω	0.04 % RDG or 30 mΩ <sup>(8)</sup>
Ohm measurement <sup>(9)</sup>	0 to 4000 Ω	0.001 - 0.1 Ω	0.02 % RDG + 3.5 mΩ
mV measurement <sup>(10)</sup>	±500 mV	0.001 - 0.01 mV	0.02 % RDG + 4 µV

Temperature coefficient < ±0.001% RDG / °C outside of 15...35°C (59...95°F)

1) Uncertainty includes reference standard uncertainty, hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period. (k=2)

2) Load effect < 5 µV/mA. Maximum output current 5 mA.

3) Load effect < 100 µV/mA. Maximum output current 10 mA (0 ... 10 V), 3 mA (10 ... 12 V).

4) Maximum load impedance 400 Ω.

5) Amplitude range 0 ... 12 Vpp. Amplitude setting accuracy up to 5 kHz ±(200 mV + 5% of set value).

Waveforms: Square wave (positive / symmetric) and sinewave (above 40 Hz).

6) Pulse generation frequency range 0.1 ... 1000 Hz. Amplitude setting 0 ... 12 Vpp.

7) Valid with measurement current 0.2 ... 5 mA (1 ... 1000 Ω), 0.1 ... 1 mA (1 ... 4 kΩ). Ω/RTD simulation speed 1 ms.

8) Whichever is greater.

9) Specification valid with 4 wire connection. In 3 wire connection add 10 mΩ.

10) Bias current < 10 nA.

## MC5-IS Temperature Electrical Module (ET)

Function	Range	Resolution	1 Year Uncertainty <sup>(1)</sup> (±)
mV generation <sup>(2)</sup>	±250 mV	0.001 mV	0.02 % RDG + 4 µV
V generation <sup>(3)</sup>	-2.5 to 10 V	0.00001 - 0.0001 V	0.02 % RDG + 0.1 mV
mA sink	0 to 25 mA	0.0001 mA	0.02 % RDG + 1 µA
Hz generation <sup>(4)</sup>	0.00028 to 50 000 Hz	0.000001 - 0.1 Hz	0.01 % RDG
Pulse generation <sup>(5)</sup>	0 to 9 999 999 pulses	1 pulse	N/A
Ohm simulation <sup>(6)</sup>	1 to 4000 Ω	0.01 - 0.1 Ω	0.04 % RDG or 30 mΩ <sup>(7)</sup>
Ohm measurement <sup>(8)</sup>	0 to 4000 Ω	0.001 - 0.1 Ω	0.02 % RDG + 3.5 mΩ
mV measurement <sup>(9)</sup>	±250 mV	0.001 mV	0.02 % RDG + 4 µV

Temperature coefficient < ±0.001% RDG / °C outside of 15...35°C (59...95°F)

1) Uncertainty includes reference standard uncertainty, hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period. (k=2)

2) Load effect < 5 µV/mA. Maximum output current 1 mA.

3) Load effect < 100 µV/mA. Maximum output current 1 mA (0 ... 10 V)

4) Amplitude range 0 ... 5 Vpp (positive), 0 ... 5 V (symmetric). Amplitude setting accuracy up to 5kHz ±(200 mV + 5% of set value).

Waveforms: Square wave (positive / symmetric) and sinewave (above 40 Hz).

5) Pulse generation frequency range 0.1 ... 1000 Hz. Amplitude range 0 ... 5 Vpp (positive), 0 ... 5 V (symmetric).

6) Valid with measurement current 0.2 ... 2 mA (1 ... 250 Ω), 0.05 < I<sub>mess</sub> \* R<sub>sim</sub> < 0.5 V (250 ... 4000 Ω). Ω/RTD simulation settling time 1 ms.

7) Whichever is greater.

8) Specification valid with 4 wire connection. In 3 wire connection add 10 mΩ.

9) Bias current < 10 nA.



# MC5 and MC5-IS

## Thermocouple Measurement and Simulation

Type	Range (°C)	Range (°C)	1 Year Uncertainty <sup>(1)</sup> (±)
B <sup>(2)</sup>	0 ... 1820	0 ... 200	<sup>(3)</sup>
		200 ... 500	2.0 °C
		500 ... 800	0.8 °C
		800 ... 1820	0.6 °C
R <sup>(2)</sup>	-50 ... 1768	-50 ... 0	1.0 °C
		0 ... 150	0.7 °C
		150 ... 1400	0.5 °C
		1400 ... 1768	0.6 °C
S <sup>(2)</sup>	-50 ... 1768	-50 ... 0	1.0 °C
		0 ... 50	0.7 °C
		50 ... 1500	0.6 °C
		1500 ... 1768	0.7 °C
E <sup>(2)</sup>	-270 ... 1000	-270 ... -200	<sup>(3)</sup>
		-200 ... 0	0.08 % RDG + 0.07°C
		0 ... 600	0.015 % RDG + 0.07°C
		600 ... 1000	0.026 % RDG
J <sup>(2)</sup>	-210 ... 1200	-210 ... -200	<sup>(3)</sup>
		-200 ... 0	0.07 % RDG + 0.08°C
		0 ... 1200	0.02 % RDG + 0.08°C
K <sup>(2)</sup>	-270 ... 1372	-270 ... -200	<sup>(3)</sup>
		-200 ... 0	0.1 % RDG + 0.1 °C
		0 ... 1000	0.02 % RDG + 0.1 °C
		1000 ... 1372	0.03 % RDG
N <sup>(2)</sup>	-270 ... 1300	-270 ... -200	<sup>(3)</sup>
		-200 ... -100	0.2 % RDG
		-100 ... 0	0.05 % RDG + 0.15°C
		0 ... 750	0.01 % RDG + 0.15°C
T <sup>(2)</sup>	-270 ... 400	750 ... 1300	0.03 % RDG
		-270 ... -250	<sup>(3)</sup>
		-250 ... -200	0.7 °C
		-200 ... 0	0.1 % RDG + 0.1°C
U <sup>(4)</sup>	-200 ... 600	0 ... 400	0.01 % RDG + 0.1°C
		-200 ... 0	0.1 % RDG + 0.15°C
L <sup>(4)</sup>	-200 ... 900	0 ... 600	0.01 % RDG + 0.15°C
		-200 ... 0	0.07 % RDG + 0.13°C
C <sup>(5)</sup>	0 ... 2315	0 ... 900	0.4 °C
		900 ... 2000	0.045 % RDG
		2000 ... 2315	1.2 °C
G <sup>(6)</sup>	0 ... 2315	0 ... 70	<sup>(3)</sup>
		70 ... 200	1.0 °C
		200 ... 1600	0.5 °C
		1600 ... 2000	0.7°C
		2000 ... 2315	1.0 °C
D <sup>(5)</sup>	0 ... 2315	0 ... 1000	0.4 °C
		1000 ... 2000	0.04 % RDG
		2000 ... 2315	1.2 °C

Resolution 0.01°C.

With internal reference junction (module RJ) add 0.1°C uncertainty.

Other thermocouple types also available as an option.

1) Uncertainty includes reference standard uncertainty, hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period. (k=2)

2) IEC 584, NIST MN 175, BS 4937, ANSI MC96.1

3) ±(0.02 % of thermovoltage + 4 µV)

4) DIN 43710

5) ASTM E 988 - 96

6) ASTM E 1751 - 95e1

## Reference Junction Module (RJ)

Range (°C)	1 Year Uncertainty <sup>(1)</sup> (±)
-10 ... 50 °C	0.1 °C

1) Uncertainty includes reference standard uncertainty, hysteresis, nonlinearity, repeatability and typical long-term stability for mentioned period. (k=2)

# Fieldbus Calibration

## MC5 and MC5-IS as Fieldbus Calibrators

Fieldbus is becoming more and more common in today's instrumentation and fieldbus transmitters must also be calibrated. The MC5 and intrinsically safe MC5-IS calibrators are a combination of a multifunction calibrator and fieldbus configurator. Both MC5 and MC5-IS are compact, easy-to-use and field compatible calibration solutions that offer a lot of functionality. The fieldbus functionality includes reading the digital output of the fieldbus transmitter, changing the configurations of transmitters and transmitter trimming. Calibrating fieldbus transmitters with the MC5 or MC5-IS requires only one person and the calibration results are automatically documented. Being intrinsically safe, the MC5-IS offers the safest possible way for calibrating fieldbus transmitters.

Main Features
Calibrate Foundation Fieldbus H1 or Profibus PA transmitters
A calibrator and a fieldbus configurator in one unit
Make traceable calibrations
Calibrations can also be performed when the fieldbus is not yet functioning
Calibration results are automatically documented in the MC5 / MC5-IS
A compact, easy-to-use and field compatible calibration solution
Both MC5 and MC5-IS can be used for various other calibrations as well
The MC5-IS offers the safest possible way for calibrating fieldbus transmitters

With the MC5 or MC5-IS, you can:
Calibrate fieldbus transmitters (simultaneously measure/generate input and read the digital output)
Change transmitter configurations
Perform transmitter trimming



Beamex® MC5 Fieldbus Calibrator



Beamex® MC5-IS Intrinsically Safe Fieldbus Calibrator

# RELATED PRODUCTS AND SERVICES

## Calibration Software

### CMX Calibration Management Software

CMX is calibration management software that assists in documenting, planning, analyzing and, finally, optimizing calibration work. CMX's scalable technology and user configuration allows you to integrate it easily into other systems for a one-of-kind calibration system that fits your specific needs completely.

CMX also helps to meet the regulatory requirements, whether your plant's calibration system needs to comply with ISO 17025, cGMP or 21 CFR Part 11. By using CMX, you will have all your calibration results in a traceable and auditable form, either printed on paper or stored in electronic format in a database.



## Professional Services

### Re-calibration and Service

There are many benefits from using the services provided by Beamex's Accredited Calibration Laboratory on a regular basis. It ensures that the calibration equipment remains in excellent condition and you are also able to provide, if needed, up-to-date proof of the calibrator's measurement accuracy.

### Training and Installation

Beamex provides worldwide services for installation and training. This way you are able to have your new calibration system up and running in no time. You also learn about the capabilities of Beamex calibration equipment, how to use it and how your organization will benefit the most from it.



## Accessories

### PG-Series of Calibration Pumps

The PG series includes hand-held, lightweight pressure and vacuum sources for field use. The PG series of hand pumps are ideal pressure/vacuum generators to be used as accessories for pressure and vacuum calibration.

### External Pressure Modules

The external pressure modules introduce new configuration possibilities and add flexibility, as it is possible to calibrate even more pressure ranges with the same calibrator. This way, the Beamex calibration equipment meets your needs even better.





w w w . b e a m e x . c o m

Portable calibrators

Workstations

Calibration software

Professional services

Industry solutions

For more information, please visit [www.beamex.com](http://www.beamex.com) or contact [info@beamex.com](mailto:info@beamex.com)