

PRESYS®

Dry Block
Temperature
Calibrators

Universal
Process
Calibrators

Automatic
Pressure
Calibrators

SMART CALIBRATORS

Field Version



Desktop Version



Ready for Metrology 4.0

HART
COMMUNICATION PROTOCOL



Rack Mounting Version
For use in 19" rack

MCS-XV Advanced Multifunction Process Calibrator

Integrating real advanced documenting
and communication functions

www.presys.com.br

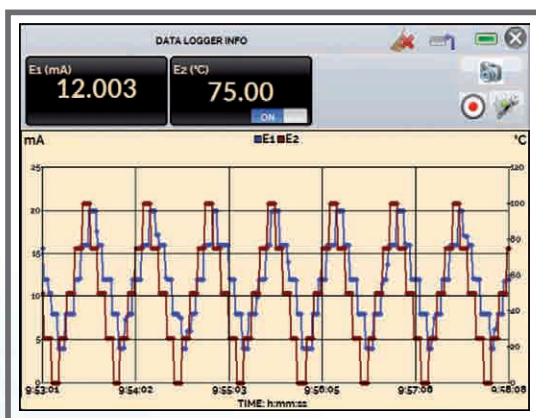
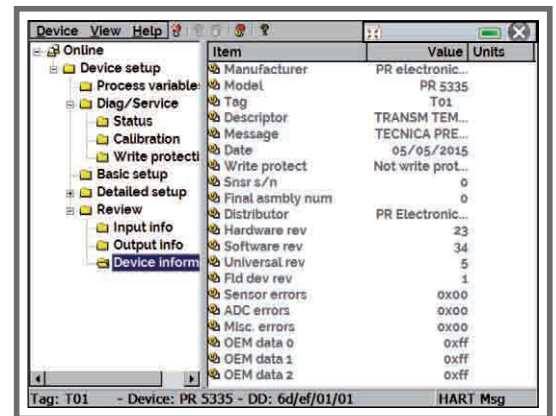
Universal Process Calibrator MCS-XV

- ✓ Operates all instrumentation signals: electrical, temperature, frequency and pressure.
- ✓ Up to four pressure sensors from 250 mmH₂O to 10,000 psi.
- ✓ Optional Barometric Reference.



- ✓ Touch Screen display provides easy-to-read data and showing 2 simultaneous variables.
- ✓ Intuitive menu navigation helps in identifying calibrator information for any operational mode.

- ✓ Full Hart configurator (optional), which configures all available HART® devices, with DD library from FieldComm Group.
- ✓ 24 Vdc power supply for 2-wire transmitters, 250 Ω internal resistor configurable.



- ✓ Data Logger function for data acquisition and graphical visualization.
- ✓ Ethernet, Wi-Fi, Pen drive, Hart, USB connection Host / Device.

- ✓ Automated calibrations and generation of calibration report on direct connected USB printer or generation of PDF file.

POINT	EXPECTED	OBTAINED	ABS. ERR.	SPAN E
0.00 °C	4.0000 mA	3.9998 mA	-0.0002 mA	-0.001
25.00 °C	8.0000 mA	8.0007 mA	0.0007 mA	0.004
50.00 °C	12.0000 mA	12.0012 mA	0.0012 mA	0.007
75.00 °C	16.0000 mA	16.0003 mA	0.0003 mA	0.002
100.00 °C	20.0000 mA	20.0006 mA	0.0006 mA	0.004

CALIBRATION REPORT FOR TAG TT-0101 **PRESYS**

CUSTOMER: Presys Instruments

TAG: TT-0101 MODEL: Temperature Transmitter

SERIAL NUMBER: 100919 MANUFACTURER: Presys

OUTPUT RANGE: 4 to 20 mA MAX ERROR = 1% SPAN (SPAN = 16 mA)

INPUT RANGE: 0 to 100 °C (RTD)

MANUFACTURER	SERIAL NUMBER	MODEL	NEXT CAL.	CERT. NUMBER
PRESYS	269.01.17	MCS-XV	08/01/21	RS555.01.19

As-td performed by: John DATE: 18/9/2019

POINT	EXPECTED	OBTAINED	ERROR	SPAN ERR.	PASS/FAIL
0.00 °C	4.0000 mA	3.9998 mA	-0.0002 mA	-0.001%	Pass
25.00 °C	8.0000 mA	8.0007 mA	0.0007 mA	0.004%	Pass
50.00 °C	12.0000 mA	12.0012 mA	0.0012 mA	0.007%	Pass
75.00 °C	16.0000 mA	16.0003 mA	0.0003 mA	0.002%	Pass
100.00 °C	20.0000 mA	20.0006 mA	0.0006 mA	0.004%	Pass

DOCUMENT CREATED ON: 09/18/2019 RESPONSIBLE: *John*

Technical Specifications

Specifications - Inputs

Input Ranges	Resolution	Accuracy	Remarks	
millivolt	-150 to 150 mV	0.001 mV	$\pm 0.01\% \text{ FS}^{***}$	$R_{\text{input}} > 10 \text{ M}\Omega$
	-500 to -150 mV	0.01 mV	$\pm 0.02\% \text{ FS}$	auto-ranging
	150 to 2450 mV	0.01 mV	$\pm 0.02\% \text{ FS}$	
volt	-10 to 45 V	0.0001 V	$\pm 0.02\% \text{ FS}$	$R_{\text{input}} > 1 \text{ M}\Omega$
mA	-5 to 24.5 mA	0.0001 mA	$\pm 0.01\% \text{ FS}$	$R_{\text{input}} < 120 \Omega$
resistance	0 to 400 Ω	0.01 Ω	$\pm 0.01\% \text{ FS}$	Excitation current 0.85 mA
	400 to 2500 Ω	0.01 Ω	$\pm 0.03\% \text{ FS}$	auto-ranging
frequency*	0 to 600 Hz	0.01 Hz	$\pm 0.04 \text{ Hz}$	$R_{\text{input}} > 50 \text{ k}\Omega$
	600 to 1300 Hz	0.1 Hz	$\pm 0.2 \text{ Hz}$	Voltage DC _{max} = 30 V
	1300 to 5000 Hz	1 Hz	$\pm 2 \text{ Hz}$	AC Signal from 0.3 to 30 V auto-ranging
counter*	0 to $10^8 - 1$ count	1 count	—	The same remark as frequency Pulses Frequency < 3000 Hz
Pt-100	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	$\pm 0.1\% \text{ C} / \pm 0.2\% \text{ F}$	IEC-751
Pt-500	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	$\pm 0.1\% \text{ C} / \pm 0.1\% \text{ F}$	IEC-751
Pt-1000	-200 to 400 °C / -328 to 752 °F	0.1 °C / 0.1 °F	$\pm 0.1\% \text{ C} / \pm 0.2\% \text{ F}$	IEC-751
Cu-10	-200 to 260 °C / -328 to 500 °F	0.1 °C / 0.1 °F	$\pm 2.0\% \text{ C} / \pm 4.0\% \text{ F}$	Minco 16-9
Ni-100	-60 to 250 °C / -76 to 482 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	DIN-43760
Ni-120	-80 to 260 °C / -112 to 500 °F	0.1 °C / 0.1 °F	$\pm 0.01\% \text{ C} / \pm 0.1\% \text{ F}$	DIN-43760
probe**	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	$\pm 0.1\% \text{ C} / \pm 0.2\% \text{ F}$	IEC-751
TC-J	-210 to 1200 °C / -346 to 2192 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	IEC-584
TC-K	-270 to -150 °C / -454 to -238 °F	0.1 °C / 0.1 °F	$\pm 0.5\% \text{ C} / \pm 1.0\% \text{ F}$	IEC-584
	-150 to 1370 °C / -238 to 2498 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	
TC-T	-260 to -200 °C / -436 to -328 °F	0.1 °C / 0.1 °F	$\pm 0.6\% \text{ C} / \pm 1.2\% \text{ F}$	IEC-584
	-200 to -75 °C / -328 to -103 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	
	-75 to 400 °C / -103 to 752 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	
TC-B	50 to 250 °C / 122 to 482 °F	0.1 °C / 0.1 °F	$\pm 2.5\% \text{ C} / \pm 5.0\% \text{ F}$	IEC-584
	250 to 500 °C / 482 to 932 °F	0.1 °C / 0.1 °F	$\pm 1.5\% \text{ C} / \pm 3.0\% \text{ F}$	
	500 to 1200 °C / 932 to 2192 °F	0.1 °C / 0.1 °F	$\pm 1.0\% \text{ C} / \pm 2.0\% \text{ F}$	
	1200 to 1820 °C / 2192 to 3308 °F	0.1 °C / 0.1 °F	$\pm 0.7\% \text{ C} / \pm 1.4\% \text{ F}$	
TC-R	-50 to 300 °C / -58 to 572 °F	0.1 °C / 0.1 °F	$\pm 1.0\% \text{ C} / \pm 2.0\% \text{ F}$	IEC-584
	300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F	$\pm 0.7\% \text{ C} / \pm 1.4\% \text{ F}$	
TC-S	-50 to 300 °C / -58 to 572 °F	0.1 °C / 0.1 °F	$\pm 1.0\% \text{ C} / \pm 2.0\% \text{ F}$	IEC-584
	300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F	$\pm 0.7\% \text{ C} / \pm 1.4\% \text{ F}$	
TC-E	-270 to -150 °C / -454 to -238 °F	0.1 °C / 0.1 °F	$\pm 0.3\% \text{ C} / \pm 0.6\% \text{ F}$	IEC-584
	-150 to 1000 °C / -238 to 1832 °F	0.1 °C / 0.1 °F	$\pm 0.1\% \text{ C} / \pm 0.2\% \text{ F}$	
TC-N	-260 to -200 °C / -436 to -328 °F	0.1 °C / 0.1 °F	$\pm 1.0\% \text{ C} / \pm 2.0\% \text{ F}$	IEC-584
	-200 to -20 °C / -328 to -4 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	
	-20 to 1300 °C / -4 to 2372 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	
TC-L	-200 to 900 °C / -328 to 1652 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	DIN-43710
TC-U	-200 to 600 °C / -328 to 1112 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	DIN-43710
TC-C	0 to 1500 °C / 32 to 2732 °F	0.1 °C / 0.1 °F	$\pm 0.5\% \text{ C} / \pm 1.0\% \text{ F}$	W5Re / W26Re
	1500 to 2320 °C / 2732 to 4208 °F	0.1 °C / 0.1 °F	$\pm 0.7\% \text{ C} / \pm 1.4\% \text{ F}$	

Special temperature sensor curve on request.

(*) Function available since the frequency output is not configured.

(**) The Probe is a separate input used as reference thermometer. The related accuracy is relative only to the MCS-XV.

(***) FS = Full Scale.

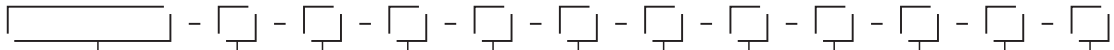
Specifications - Outputs

Outputs Ranges	Resolution	Accuracy	Remarks	
millivolt	-10 to 110 mV	0.001 mV	$\pm 0.02\% \text{ FS}^{**}$	$R_{\text{out}} < 0,3 \Omega$
volt	-0.5 to 12 V	0.0001 V	$\pm 0.02\% \text{ FS}$	$R_{\text{out}} < 0,3 \Omega$
mA	0 to 24 mA	0.0001 mA	$\pm 0.02\% \text{ FS}$	$R_{\text{max}} = 700 \Omega$
2-wire transmitter (XTR)	4 to 24 mA	0.0001 mA	$\pm 0.02\% \text{ FS}$	$V_{\text{max}} = 60 \text{ V}$
resistance	0 to 400 Ω	0.01 Ω	$\pm 0.02\% \text{ FS}$	For external excitation current of 1.0 mA
	0 to 2500 Ω	0.1 Ω	$\pm 0.03\% \text{ FS}$	
frequency*	0 to 100 Hz	0.01 Hz	$\pm 0.02 \text{ Hz}$	Peak value:
	0 to 10000 Hz	1 Hz	$\pm 2 \text{ Hz}$	22 V / 25 mA max.
pulse*	0 to $10^8 - 1$ pulse	1 pulse	—	Peak value:
				22 V / 25 mA max.
				Pulses frequency up to 10000 Hz
Pt-100	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	IEC-751
Pt-500	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	IEC-751
Pt-1000	-200 to 400 °C / -328 to 752 °F	0.1 °C / 0.1 °F	$\pm 0.1\% \text{ C} / \pm 0.2\% \text{ F}$	IEC-751
Cu-10	-200 to 260 °C / -328 to 500 °F	0.1 °C / 0.1 °F	$\pm 2.0\% \text{ C} / \pm 4.0\% \text{ F}$	Minco 16-9
Ni-100	-60 to 250 °C / -76 to 482 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	DIN-43760
Ni-120	-80 to 260 °C / -112 to 500 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	DIN-43760
TC-J	-210 to 1200 °C / -346 to 2192 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	IEC-584
TC-K	-270 to -150 °C / -454 to -238 °F	0.1 °C / 0.1 °F	$\pm 1.0\% \text{ C} / \pm 2.0\% \text{ F}$	IEC-584
	-150 to 1370 °C / -238 to 2498 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	
TC-T	-260 to -200 °C / -436 to -328 °F	0.1 °C / 0.1 °F	$\pm 1.2\% \text{ C} / \pm 2.4\% \text{ F}$	IEC-584
	-200 to -75 °C / -328 to -103 °F	0.1 °C / 0.1 °F	$\pm 0.8\% \text{ C} / \pm 1.6\% \text{ F}$	
	-75 to 400 °C / -103 to 752 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	
TC-B	50 to 250 °C / 122 to 482 °F	0.1 °C / 0.1 °F	$\pm 5.0\% \text{ C} / \pm 10.0\% \text{ F}$	IEC-584
	250 to 500 °C / 482 to 932 °F	0.1 °C / 0.1 °F	$\pm 3.0\% \text{ C} / \pm 6.0\% \text{ F}$	
	500 to 1200 °C / 932 to 2192 °F	0.1 °C / 0.1 °F	$\pm 2.0\% \text{ C} / \pm 4.0\% \text{ F}$	
	1200 to 1820 °C / 2192 to 3308 °F	0.1 °C / 0.1 °F	$\pm 1.4\% \text{ C} / \pm 2.8\% \text{ F}$	
TC-R	-50 to 300 °C / -58 to 572 °F	0.1 °C / 0.1 °F	$\pm 2.0\% \text{ C} / \pm 4.0\% \text{ F}$	IEC-584
	300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F	$\pm 1.4\% \text{ C} / \pm 2.8\% \text{ F}$	
TC-S	-50 to 300 °C / -58 to 572 °F	0.1 °C / 0.1 °F	$\pm 2.0\% \text{ C} / \pm 4.0\% \text{ F}$	IEC-584
	300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F	$\pm 1.4\% \text{ C} / \pm 2.8\% \text{ F}$	
TC-E	-270 to -150 °C / -454 to -238 °F	0.1 °C / 0.1 °F	$\pm 0.6\% \text{ C} / \pm 1.2\% \text{ F}$	IEC-584
	-150 to 1000 °C / -238 to 1832 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	
TC-N	-260 to -200 °C / -436 to -328 °F	0.1 °C / 0.1 °F	$\pm 2.0\% \text{ C} / \pm 4.0\% \text{ F}$	IEC-584
	-200 to -20 °C / -328 to -4 °F	0.1 °C / 0.1 °F	$\pm 0.8\% \text{ C} / \pm 1.6\% \text{ F}$	
	-20 to 1300 °C / -4 to 2372 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	
TC-L	-200 to 900 °C / -328 to 1652 °F	0.1 °C / 0.1 °F	$\pm 0.4\% \text{ C} / \pm 0.8\% \text{ F}$	DIN-43710
TC-U	-200 to 600 °C / -328 to 1112 °F	0.1 °C / 0.1 °F	$\pm 0.2\% \text{ C} / \pm 0.4\% \text{ F}$	DIN-43710
TC-C	0 to 1500 °C / 32 to 2732 °F	0.1 °C / 0.1 °F	$\pm 0.5\% \text{ C} / \pm 1.0\% \text{ F}$	W5Re / W26Re
	1500 to 2320 °C / 2732 to 4208 °F	0.1 °C / 0.1 °F	$\pm 0.7\% \text{ C} / \pm 1.4\% \text{ F}$	

(*) Function available since the frequency input is not configured. (**) FS = Full Scale.

The values of accuracy cover one year period and for a temperature range between 20 and 26 °C. Outside this range, the thermal stability is 0.001% FS / °C with reference to 23 °C. Thermocouple with internal cold junction compensation, one must consider the error of this cold junction compensation of up to $\pm 0.2\% \text{ C}$ or $\pm 0.4\% \text{ F}$.

Order Code



Model

- MCS-XV** - Calibrator MCS-XV Portable
- MCS-XV-RM** - Calibrator MCS-XV Rack Mounting Version
- MCS-XV-DT** - Calibrator MCS-XV Desktop Version

Hart® Communication

- CH** - Hart® Calibrator (basic commands: zero, span, trim mA)
- FH** - Full-Hart® Configurator, with DD library from FieldComm Group.

Number of Pressure Inputs

- 0** - no pressure sensors **3** - three sensors
- 1** - one sensor **4** - four sensors
- 2** - two sensors

RANGE Input 1	RESOLUTION	ACCURACY*	REMARKS
(0) 25 mbar	0.0001	± 0.05 % FS*	Gage pressure
(1) 70 mbar	0.001	± 0.05 % FS	Used with air or inert gases
(2) 350 mbar	0.01	± 0.025 % FS	
(3) 1 bar	0.00001	± 0.025 % FS	Gage or absolute pressure
(4) 2 bar	0.00001	± 0.025 % FS	
(5) 7 bar	0.0001	± 0.025 % FS	Used with fluids (Gases or liquids) compatible with 316 L stainless steel
(6) 20 bar	0.0001	± 0.025 % FS	
(7) 35 bar	0.001	± 0.025 % FS	
(8) 70 bar	0.001	± 0.025 % FS	
(9) 210 bar	0.001	± 0.025 % FS	
(10) 350 bar	0.01	± 0.025 % FS	
(11) 700 bar	0.01	± 0.05 % FS	
(12) Others on request			

Pressure Type Input 1 (Only for version with one sensor or more)

- A - Absolute** (Only for ranges 3 to 8)
- G - Gage** (Ranges 0 to 11)
- V - Vacuum** (Only for range 3)
- C - Compound****** (Only for ranges 3 to 8)
- D - Differential******* (Only for ranges 0 to 2)

RANGE Input 2** (Only for version with two sensors or more)

Pressure Type Input 2**

RANGE Input 3** (Only for version with three sensors or more)

Pressure Type Input 3**

RANGE Input 4** (Only for version with four sensors or more)

Pressure Type Input 4**

Optional (Only for version with up to three sensors)

- BR** - Barometric Reference (1 barA - Accuracy: 0.2 mbar)
Sensor for ambient pressure measurement. Can be used for simulated indication of absolute pressure on the other sensors.

(*) Percentage of full scale (**) Same code as input 1

(***) From -1 bar to full scale of range (****) The differential sensor occupies two pressure outlets.

Accuracy values are valid within a year and for a temperature range between 20 and 26 °C. Outside these limits add 0.005 % FS / °C, taking 23 °C as the reference temperature.

Engineering units: Presion: psi, bar, mbar, MPa, kPa, Pa, atm, at, mmH₂O@4°C, cmH₂O@4°C, ftH₂O@4°C, inH₂O@4°C, inH₂O@60°F, torr, mmHg@0°C, cmHg@0°C, inHg@0°C, inHg@60°F, gf/cm², kgf/cm², kgf/m². Temperature: °C, °F, K.

Pneumatic Connection: 1/4" NPTF (Note: 1/8" NPTF only for range 0 - 10000 psi).

Overpressure: up to twice the sensor full scale pressure (for capsules to 5000 psi).

Operating ambient: 0 to 50 °C and 90 % maximum relative humidity.

Dimensions: Portable: 140 mm x 250 mm x 80 mm (HxWxD) / Desktop: 132 mm x 308 mm x 275 mm (HxWxD) / Rack Mounting: 132 mm x 483 mm x 250 mm (HxWxD).

Weight: Portable: 1.7 kg approx. / Desktop: 3.0 kg approx. / Rack Mounting: 2.0 kg approx.

Warranty: 1 year, except for battery.

Included accessories:

- Technical manual;
- Carrying bag (only for portable version);
- Set of test leads;
- Fuse;
- Charger 100 - 240 Vac 50/60Hz (only for portable version).
- Ethernet Cable / USB Cable / Touch Screen Pen.
- USB Wi-Fi Adapter - Order code: 06.04.0004-00.

Optional accessories:

- Temperature Sensor: Probe 1/5 DIN R - Order code: 04.06.0101-00;
- Probe 1/5 DIN A - Order code: 04.06.0107-00;
- Probe 1/5 DIN A-L - Order code: 04.06.0102-00.



DELTA STRUMENTI S.r.l
Via Mattei 6 - 21036 GEMONIO (VA)
Tel 0332 604.667 - Fax 0332 610.511
info@deltastrumenti.it - www.deltastrumenti.it

