

PRESYS®

Universal
Process
Calibrators

Dry Block
Temperature
Calibrators

Automatic
Press

SMART



HART
COMMUNICATION PROTOCOL

**IS Intrinsically Safe
Advanced Multifunction
Process Calibrator
MCS-XV-IS**

www.presys.com.br

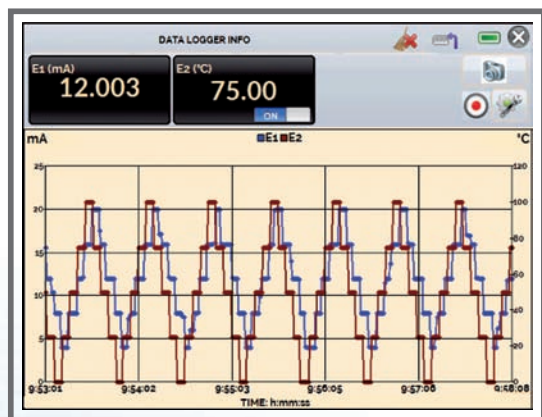
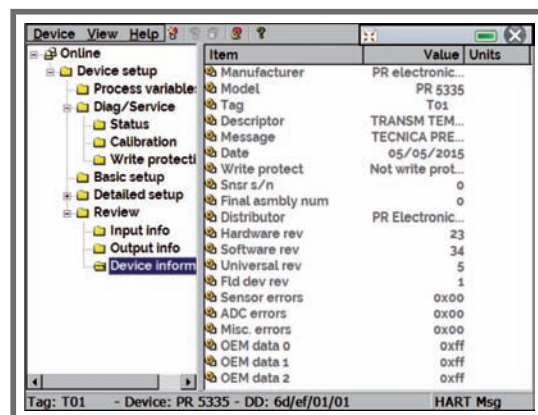
Universal Process Calibrator MCS-XV-IS

- ✓ Operates all instrumentation signals: electrical, temperature, frequency and pressure.
- ✓ Up to two 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.
- ✓ 15 Vdc power supply for 2-wire transmitters, 250 Ω internal resistor configurable.



- ✓ Data Logger function for data acquisition and graphical visualization.
- ✓ 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					
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)					
STANDARD:					
MANUFACTURER	SERIAL NUMBER	MODEL	NEXT CAL.	CERT. NUMBER	
PRESYS	209.0117	MCS-XV	08/01/21	R5550119	
As-Left performed by: John					
POINT	EXPECT ID	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 09/10/2019					
RESPONSIBLE		[Signature]			

Technical Specifications

Specifications - Inputs

Input Ranges		Resolution	Accuracy	Remarks
millivolt	-150 mV to 150 mV 150 mV to 2450 mV	0.001 mV 0.01 mV	± 0.01 % FS *** ± 0.02 % FS	R _{input} > 10 MΩ auto-range
volt	-0,5 V to 11 V 11 V to 30 V	0.0001 V 0.0001 V	± 0.02 % FS ± 0.02 % FS	R _{input} > 1 MΩ
mA	-5 mA to 24.5 mA	0.0001 mA	± 0.01 % FS	R _{input} < 120 Ω
frequency*	0 to 600 Hz 600 to 1300 Hz 1300 to 5000 Hz	0.01 Hz 0.1 Hz 1 Hz	± 0.04 Hz ± 0.2 Hz ± 2 Hz	R _{input} > 50 kΩ Voltage DC _{maximum} = 30 V AC Signal from 0.3 to 30 V auto-ranging
counter*	0 to 10 ⁵ -1 count	1 count		Same remark as frequency Pulse Frequency < 3000 Hz
resistance	0 to 400 Ω 400 to 2050 Ω	0.01 Ω 0.01 Ω	± 0.01 % FS ± 0.03 % FS	Excitation current 0.85 mA, auto-ranging
Pt-100	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	± 0.1 °C / ± 0.2 °F	IEC-60751
Pt-1000	-200 to 280 °C / -328 to 536 °F	0.1 °C / 0.1 °F	± 0.1 °C / ± 0.2 °F	IEC-60751
Cu-10	-200 to 260 °C / -328 to 500 °F	0.1 °C / 0.1 °F	± 2.0 °C / ± 4.0 °F	MINCO 16-9
Ni-100	-60 to 250 °C / -76 to 482 °F	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	DIN-43760
probe**	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	± 0.1 °C / ± 0.2 °F	IEC-60751
TC-J	-210 to 1200 °C / -346 to 2192 °F	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	IEC-60584
TC-K	-270 to -150 °C / -454 to -238 °F -150 to 1370 °C / -238 to 2498 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 0.5 °C / ± 1.0 °F ± 0.2 °C / ± 0.4 °F	IEC-60584
TC-T	-260 to -200 °C / -436 to -328 °F -200 to -75 °C / -328 to -103 °F -75 to 400 °C / -103 to 752 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 0.6 °C / ± 1.2 °F ± 0.4 °C / ± 0.8 °F ± 0.2 °C / ± 0.4 °F	IEC-60584
TC-B	50 to 250 °C / 122 to 482 °F 250 to 500 °C / 482 to 932 °F 500 to 1200 °C / 932 to 2192 °F 1200 to 1820 °C / 2192 to 3308 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 2.5 °C / ± 5.0 °F ± 1.5 °C / ± 3.0 °F ± 1.0 °C / ± 2.0 °F ± 0.7 °C / ± 1.4 °F	IEC-60584
TC-R	-50 to 300 °C / -58 to 572 °F 300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 1.0 °C / ± 2.0 °F ± 0.7 °C / ± 1.4 °F	IEC-60584
TC-S	-50 to 300 °C / -58 to 572 °F 300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 1.0 °C / ± 2.0 °F ± 0.7 °C / ± 1.4 °F	IEC-60584
TC-E	-270 to -150 °C / -454 to -238 °F -150 to 1000 °C / -238 to 1832 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 0.3 °C / ± 0.6 °F ± 0.1 °C / ± 0.2 °F	IEC-60584
TC-N	-260 to -200 °C / -436 to -328 °F -200 to -20 °C / -328 to -4 °F -20 to 1300 °C / -4 to 2372 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 1.0 °C / ± 2.0 °F ± 0.4 °C / ± 0.8 °F ± 0.2 °C / ± 0.4 °F	IEC-60584
TC-L	-200 to 900 °C / -328 to 1652 °F	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	DIN-43710
TC-C	0 to 1500 °C / 32 to 2732 °F 1500 to 2320 °C / 2732 to 4208 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 0.5 °C / ± 1.0 °F ± 0.7 °C / ± 1.4 °F	W5Re / W26Re W5Re / W26Re

(*) Accuracy since frequency output is not configured. (**) Probe is a spare input for a reference RTD in order to use as standard thermometer. The accuracy is related to calibrator only. (***) FS = Full Scale.

Specifications - Output

Output Ranges		Resolution	Accuracy	Remarks
millivolt	-10 mV to 110 mV	0.001 mV	± 0.02 % FS	R _{output} < 0.3 Ω
volt	-0.5 V to 12 V	0.0001 V	± 0.02 % FS	R _{output} < 0.3 Ω
mA	0 to 24 mA	0.0001 mA	± 0.02 % FS	R _{maximum} = 250 Ω
Two-wire transmitter (XTR)	4 to 24 mA	0.0001 mA	± 0.02 % FS	V _{maximum} = 60 V
frequency	0 to 100 Hz 0 to 10000 Hz	0.01 Hz 1 Hz	± 0.02 Hz ± 2 Hz	Peak Value: 22 V / 25 mA max.
pulse	0 to 10 ⁵ -1 pulse	1 pulse		Peak Value: 22 V / 25 mA max. Pulse Frequency up to 10000 Hz
resistance	0 to 400 Ω 0 to 2500 Ω	0.01 Ω 0.1 Ω	± 0.02 % FS ± 0.03 % FS	For external excitation current of 1 mA
Pt-100	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	± 0.2 °C / ± 0.4 °F	IEC-60751
Pt-1000	-200 to 400 °C / -328 to 752 °F	0.1 °C / 0.1 °F	± 0.1 °C / ± 0.2 °F	IEC-60751
Cu-10	-200 to 260 °C / -328 to 500 °F	0.1 °C / 0.1 °F	± 2.0 °C / ± 4.0 °F	MINCO 16-9
Ni-100	-60 to 250 °C / -76 to 482 °F	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	DIN-43760
TC-J	-210 to 1200 °C / -346 to 2192 °F	0.1 °C / 0.1 °F	± 0.4 °C / ± 0.8 °F	IEC-60584
TC-K	-270 to -150 °C / -454 to -238 °F -150 to 1370 °C / -238 to 2498 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 1.0 °C / ± 2.0 °F ± 0.4 °C / ± 0.8 °F	IEC-60584
TC-T	-260 to -200 °C / -436 to -328 °F -200 to -75 °C / -328 to -103 °F -75 to 400 °C / -103 to 752 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 1.2 °C / ± 2.4 °F ± 0.8 °C / ± 1.6 °F ± 0.4 °C / ± 0.8 °F	IEC-60584
TC-B	50 to 250 °C / 122 to 482 °F 250 to 500 °C / 482 to 932 °F 500 to 1200 °C / 932 to 2192 °F 1200 to 1820 °C / 2192 to 3308 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 5.0 °C / ± 10.0 °F ± 3.0 °C / ± 6.0 °F ± 2.0 °C / ± 4.0 °F ± 1.4 °C / ± 2.8 °F	IEC-60584
TC-R	-50 to 300 °C / -58 to 572 °F 300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 2.0 °C / ± 4.0 °F ± 1.4 °C / ± 2.8 °F	IEC-60584
TC-S	-50 to 300 °C / -58 to 572 °F 300 to 1760 °C / 572 to 3200 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 2.0 °C / ± 4.0 °F ± 1.4 °C / ± 2.8 °F	IEC-60584
TC-E	-270 to -150 °C / -454 to -238 °F -150 to 1000 °C / -238 to 1832 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 0.6 °C / ± 1.2 °F ± 0.2 °C / ± 0.4 °F	IEC-60584
TC-N	-260 to -200 °C / -436 to -328 °F -200 to -20 °C / -328 to -4 °F -20 to 1300 °C / -4 to 2372 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 2.0 °C / ± 4.0 °F ± 0.8 °C / ± 1.6 °F ± 0.4 °C / ± 0.8 °F	IEC-60584
TC-L	-200 to 900 °C / -328 to 1652 °F	0.1 °C / 0.1 °F	± 0.4 °C / ± 0.8 °F	DIN-43710
TC-C	0 to 1500 °C / 32 to 2732 °F 1500 to 2320 °C / 2732 to 4208 °F	0.1 °C / 0.1 °F 0.1 °C / 0.1 °F	± 1.0 °C / ± 2.0 °F ± 1.4 °C / ± 2.8 °F	W5Re / W26Re W5Re / W26Re

The accuracy is given for the MCS-XVIS only. Accuracy values are valid within one year and temperature range of 20 to 26 °C. Outside these limits add 0.001 % FS / °C, taking 23 °C as t_h reference temperature. For thermocouples using the internal cold junction compensation add a cold junction compensation error of ± 0.2 °C or ± 0.4 °F.

Order Code



Model

MCS-XV-IS - Calibrator MCS-XV-IS Portable

Hart® Communication

- NH** - No 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
- 1** - one sensor
- 2** - two sensors

RANGE	Input 1	RESOLUTION	ACCURACY*	REMARKS
(0)	25 mbar	0.0001	± 0.05 % FS*	Gauge 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	Gauge or absolute pressure
(4)	2 bar	0.00001	± 0.025 % FS	
(5)	7 bar	0.0001	± 0.025 % FS	Used with fluids
(6)	20 bar	0.0001	± 0.025 % FS	(Gases or liquids)
(7)	35 bar	0.001	± 0.025 % FS	compatible with 316 L stainless steel
(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 - Gauge** (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**

(*) 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: Pressure: psi, bar, mbar, MPa, kPa, hPa, Pa, atm, at, mmH₂O, mmH₂O@4°C, cmH₂O, cmH₂O@4°C, mH₂O, mH₂O@4°C, ftH₂O, ftH₂O@4°C, inH₂O, inH₂O@4°C, inH₂O@60°F, torr, mmHg, mmHg@0°C, cmHg, cmHg@0°C, inHg, 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: 137 mm x 227 mm x 73 mm (HxWxD)

Weight: 2.7 kg.

Warranty: 1 year.

Battery autonomy: 8 hours.

Included accessories:

- Technical manual;
- Bag;
- Set of test leads;
- Charger 100 - 240 Vac 50/60Hz;
- USB Cable / Touch Screen Pen.
- USB Wi-Fi Adapter - Order code: 06.04.0004-00.



Group IIC, Zone 0 / Ex ia IIC T4 Ga

