

PRESYS®

Universal Process Calibrator

MCS-XV

www.mcsxv.com

MCS-XV is the new Presys advanced multifunction field calibrator and HART® communicator combining multiple software and hardware resources as well as communication features to achieve productivity gains in day-to-day calibration operation.



MCS-XV Portable Version



Direct Printing of Calibration Report (pass / fail)
(PDF or connected USB printer)

MCS-XV-DT Desktop Version

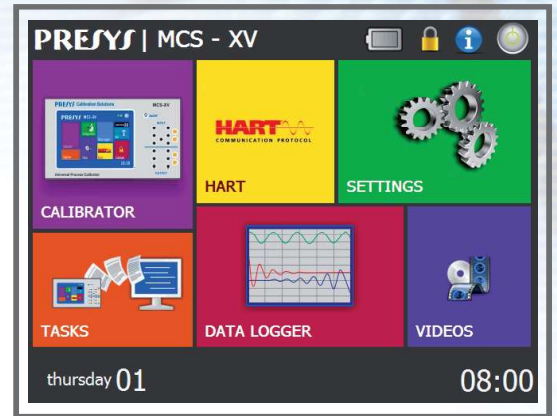


MCS-XV-RM Rack Mounting Version For use in 19" rack



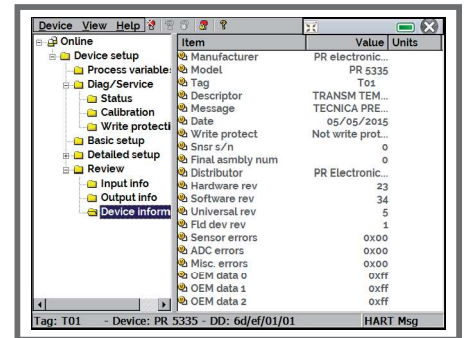
Universal Process Calibrator MCS-XV

- ✓ 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 ERR. |
|-----------|------------|------------|------------|-----------|
| 0.00 °C | 4.0000 mA | 3.9955 mA | -0.0045 mA | -0.028% |
| 25.00 °C | 8.0000 mA | 7.9907 mA | -0.0093 mA | -0.058% |
| 50.00 °C | 12.0000 mA | 11.9897 mA | -0.0103 mA | -0.064% |
| 75.00 °C | 16.0000 mA | 15.9934 mA | -0.0066 mA | -0.041% |
| 100.00 °C | 20.0000 mA | 19.9968 mA | -0.0032 mA | -0.020% |

| POINT | EXPECTED | OBTAINED | ABS. ERR. | SPAN ERR. |
|-----------|------------|------------|------------|-----------|
| 0.00 °C | 4.0000 mA | 4.0001 mA | 0.0001 mA | 0.001% |
| 25.00 °C | 8.0000 mA | 7.9949 mA | -0.0051 mA | -0.033% |
| 50.00 °C | 12.0000 mA | 11.9911 mA | -0.0089 mA | -0.056% |
| 75.00 °C | 16.0000 mA | 15.9932 mA | -0.0068 mA | -0.042% |
| 100.00 °C | 20.0000 mA | 19.9957 mA | -0.0043 mA | -0.027% |
| 100.00 °C | 20.0000 mA | 19.9983 mA | -0.0017 mA | -0.011% |
| 75.00 °C | 16.0000 mA | 15.9995 mA | -0.0005 mA | -0.003% |
| 50.00 °C | 12.0000 mA | 11.9924 mA | -0.0076 mA | -0.047% |
| 25.00 °C | 8.0000 mA | 7.9975 mA | -0.0025 mA | -0.016% |
| 0.00 °C | 4.0000 mA | 3.9981 mA | -0.0019 mA | -0.012% |

Calibration report for tag T01

TASK DETAILS
 CREATED IN: 03/02/2016
 INSTRUMENT DETAILS:
 TAG: T01
 SERIAL NUMBER: 0010115
 MODEL: PT100 Temperature
 MANUFACTURER: Presys
 INPUT RANGE: 0 TO 385 °C (RTD)
 QUANTITY: 10 TO 20 mA
 MAX ERROR: ± 0.1% SPAN (SPAN = 16 mA)
 LEAD TIME: 30 SECONDS

As-found performed by John A.

| POINT | EXPECTED | OBTAINED | ERROR | SPAN ERR. | PASS/FAIL |
|-----------|------------|------------|------------|-----------|-----------|
| 0.00 °C | 4.0000 mA | 3.9955 mA | -0.0045 mA | -0.028% | Pass |
| 25.00 °C | 8.0000 mA | 7.9907 mA | -0.0093 mA | -0.058% | Pass |
| 50.00 °C | 12.0000 mA | 11.9897 mA | -0.0103 mA | -0.064% | Pass |
| 75.00 °C | 16.0000 mA | 15.9934 mA | -0.0066 mA | -0.041% | Pass |
| 100.00 °C | 20.0000 mA | 19.9968 mA | -0.0032 mA | -0.020% | Pass |

As-left performed by John A.

| POINT | EXPECTED | OBTAINED | ERROR | SPAN ERR. | PASS/FAIL |
|-----------|------------|------------|------------|-----------|-----------|
| 0.00 °C | 4.0000 mA | 4.0001 mA | 0.0001 mA | 0.001% | Pass |
| 25.00 °C | 8.0000 mA | 7.9949 mA | -0.0051 mA | -0.033% | Pass |
| 50.00 °C | 12.0000 mA | 11.9911 mA | -0.0089 mA | -0.056% | Pass |
| 75.00 °C | 16.0000 mA | 15.9932 mA | -0.0068 mA | -0.042% | Pass |
| 100.00 °C | 20.0000 mA | 19.9957 mA | -0.0043 mA | -0.027% | Pass |
| 100.00 °C | 20.0000 mA | 19.9983 mA | -0.0017 mA | -0.011% | Pass |
| 75.00 °C | 16.0000 mA | 15.9995 mA | -0.0005 mA | -0.003% | Pass |
| 50.00 °C | 12.0000 mA | 11.9924 mA | -0.0076 mA | -0.047% | Pass |
| 25.00 °C | 8.0000 mA | 7.9975 mA | -0.0025 mA | -0.016% | Pass |
| 0.00 °C | 4.0000 mA | 3.9981 mA | -0.0019 mA | -0.012% | Pass |

Standard cert# number: 1324118
 Standard cert# number: 1324118/1815
 Operator signature: _____

Technical Specifications

Specifications - Inputs

| Input Ranges | Resolution | Accuracy | Remarks | |
|-------------------|---|--|--|--|
| millivolt | -150 to 150 mV -500 to -150 mV 150 to 2450 mV | 0,001 mV 0,01 mV 0,01 mV | $\pm 0,01\% \text{ FS}^{***}$ $\pm 0,02\% \text{ FS}$ $\pm 0,02\% \text{ FS}$ | $R_{\text{input}} > 10 \text{ M}\Omega$ auto-ranging |
| 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 400 to 2500 Ω | 0,01 Ω 0,01 Ω | $\pm 0,01\% \text{ FS}$ $\pm 0,03\% \text{ FS}$ | Excitation current 0,85 mA auto-ranging |
| frequency* | 0 to 600 Hz 600 to 1300 Hz 1300 to 5000 Hz | 0,01 Hz 0,1 Hz 1 Hz | $\pm 0,04 \text{ Hz}$ $\pm 0,2 \text{ Hz}$ $\pm 2 \text{ Hz}$ | $R_{\text{input}} > 50 \text{ k}\Omega$ Voltage DC _{max} = 30 V 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-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 |
| 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 -150 to 1370 °C / -238 to 2498 °F | 0,1 °C / 0,1 °F 0,1 °C / 0,1 °F | $\pm 0,5\% \text{ C} / \pm 1,0\% \text{ F}$ $\pm 0,2\% \text{ C} / \pm 0,4\% \text{ F}$ | IEC-584 |
| 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 | $\pm 0,6\% \text{ C} / \pm 1,2\% \text{ F}$ $\pm 0,4\% \text{ C} / \pm 0,8\% \text{ F}$ $\pm 0,2\% \text{ C} / \pm 0,4\% \text{ F}$ | IEC-584 |
| 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 | $\pm 2,5\% \text{ C} / \pm 5,0\% \text{ F}$ $\pm 1,5\% \text{ C} / \pm 3,0\% \text{ F}$ $\pm 1,0\% \text{ C} / \pm 2,0\% \text{ F}$ $\pm 0,7\% \text{ C} / \pm 1,4\% \text{ F}$ | IEC-584 |
| 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 | $\pm 1,0\% \text{ C} / \pm 2,0\% \text{ F}$ $\pm 0,7\% \text{ C} / \pm 1,4\% \text{ F}$ | IEC-584 |
| 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 | $\pm 1,0\% \text{ C} / \pm 2,0\% \text{ F}$ $\pm 0,7\% \text{ C} / \pm 1,4\% \text{ F}$ | IEC-584 |
| 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 | $\pm 0,3\% \text{ C} / \pm 0,6\% \text{ F}$ $\pm 0,1\% \text{ C} / \pm 0,2\% \text{ F}$ | IEC-584 |
| 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 | $\pm 1,0\% \text{ C} / \pm 2,0\% \text{ F}$ $\pm 0,4\% \text{ C} / \pm 0,8\% \text{ F}$ $\pm 0,2\% \text{ C} / \pm 0,4\% \text{ F}$ | IEC-584 |
| 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-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 | $\pm 0,5\% \text{ C} / \pm 1,0\% \text{ F}$ $\pm 0,7\% \text{ C} / \pm 1,4\% \text{ F}$ | W5Re / W26Re |

Special temperature sensor curve on request

(*) Accuracy valid 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 to 2500 Ω | 0,01 Ω 0,1 Ω | $\pm 0,02\% \text{ FS}$ $\pm 0,03\% \text{ FS}$ | For external excitation current of 1,0 mA |
| frequency | 0 to 100 Hz 0 to 10000 Hz | 0,01 Hz 1 Hz | $\pm 0,02 \text{ Hz}$ $\pm 2 \text{ Hz}$ | Peak value: 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-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 |
| 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 -150 to 1370 °C / -238 to 2498 °F | 0,1 °C / 0,1 °F 0,1 °C / 0,1 °F | $\pm 1,0\% \text{ C} / \pm 2,0\% \text{ F}$ $\pm 0,4\% \text{ C} / \pm 0,8\% \text{ F}$ | IEC-584 |
| 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 | $\pm 0,8\% \text{ C} / \pm 1,6\% \text{ F}$ $\pm 1,2\% \text{ C} / \pm 2,4\% \text{ F}$ $\pm 0,4\% \text{ C} / \pm 0,8\% \text{ F}$ | IEC-584 |
| 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 | $\pm 5,0\% \text{ C} / \pm 10,0\% \text{ F}$ $\pm 3,0\% \text{ C} / \pm 6,0\% \text{ F}$ $\pm 2,0\% \text{ C} / \pm 4,0\% \text{ F}$ $\pm 1,4\% \text{ C} / \pm 2,8\% \text{ F}$ | IEC-584 |
| 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 | $\pm 2,0\% \text{ C} / \pm 4,0\% \text{ F}$ $\pm 1,4\% \text{ C} / \pm 2,8\% \text{ F}$ | IEC-584 |
| 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 | $\pm 2,0\% \text{ C} / \pm 4,0\% \text{ F}$ $\pm 1,4\% \text{ C} / \pm 2,8\% \text{ F}$ | IEC-584 |
| 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 | $\pm 0,6\% \text{ C} / \pm 1,2\% \text{ F}$ $\pm 0,2\% \text{ C} / \pm 0,4\% \text{ F}$ | IEC-584 |
| 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 | $\pm 2,0\% \text{ C} / \pm 4,0\% \text{ F}$ $\pm 0,8\% \text{ C} / \pm 1,6\% \text{ F}$ $\pm 0,4\% \text{ C} / \pm 0,8\% \text{ F}$ | IEC-584 |
| 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-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 | $\pm 0,5\% \text{ C} / \pm 1,0\% \text{ F}$ $\pm 0,7\% \text{ C} / \pm 1,4\% \text{ F}$ | W5Re / W26Re |

Special temperature sensor curve on request

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 - Universal Process Calibrator MCS-XV Portable
MCS-XV-RM - Universal Process Calibrator MCS-XV Rack Mounting Version
MCS-XV-DT - Universal Process Calibrator MCS-XV Desktop Version

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 and one-year upgrade.

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) | 0 – 250 mmH ₂ O | 0.001 | ± 0.05 % FS* | Gage pressure |
| (1) | 0 – 1 psi | 0.0001 | ± 0.05 % FS | Used with air or inert gases |
| (2) | 0 – 5 psi | 0.0001 | ± 0.025 % FS | |
| (3) | 0 – 15 psi | 0.0001 | ± 0.025 % FS | Gage or absolute pressure |
| (4) | 0 – 30 psi | 0.0001 | ± 0.025 % FS | Used with fluids |
| (5) | 0 – 100 psi | 0.001 | ± 0.025 % FS | (Gases or liquids) |
| (6) | 0 – 250 psi | 0.001 | ± 0.025 % FS | compatible with 316 L stainless steel |
| (7) | 0 – 500 psi | 0.01 | ± 0.025 % FS | |
| (8) | 0 – 1000 psi | 0.01 | ± 0.025 % FS | |
| (9) | 0 – 3000 psi | 0.01 | ± 0.025 % FS | |
| (10) | 0 – 5000 psi | 0.1 | ± 0.025 % FS | |
| (11) | 0 – 10000 psi | 0.1 | ± 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) **C - Compound***** (Only for ranges 3 to 8)
G - Gage (Ranges 0 to 11) **D - Differential** (Only for ranges 0 to 2)
V - Vacuum (Only for range 3)

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) _____

Pressure Type Input 4** _____

Optional (Only for version with up to three sensors) _____

BR - Barometric Reference (15 psia)
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 -15 psi to full scale of range

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: Temperature: °C, °F, K, °R; Pressure: 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.

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 160 mm (HxWxD).

Weight: Portable: 2.6 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).

Optional accessories:

- Temperature Sensor: Probe 1/5 DIN R - Order code: 04.06.0101-21;
- Probe 1/5 DIN A - Order code: 04.06.0107-21;
- Probe 1/5 DIN AL - Order code: 04.06.0102-21.

EF0530-01