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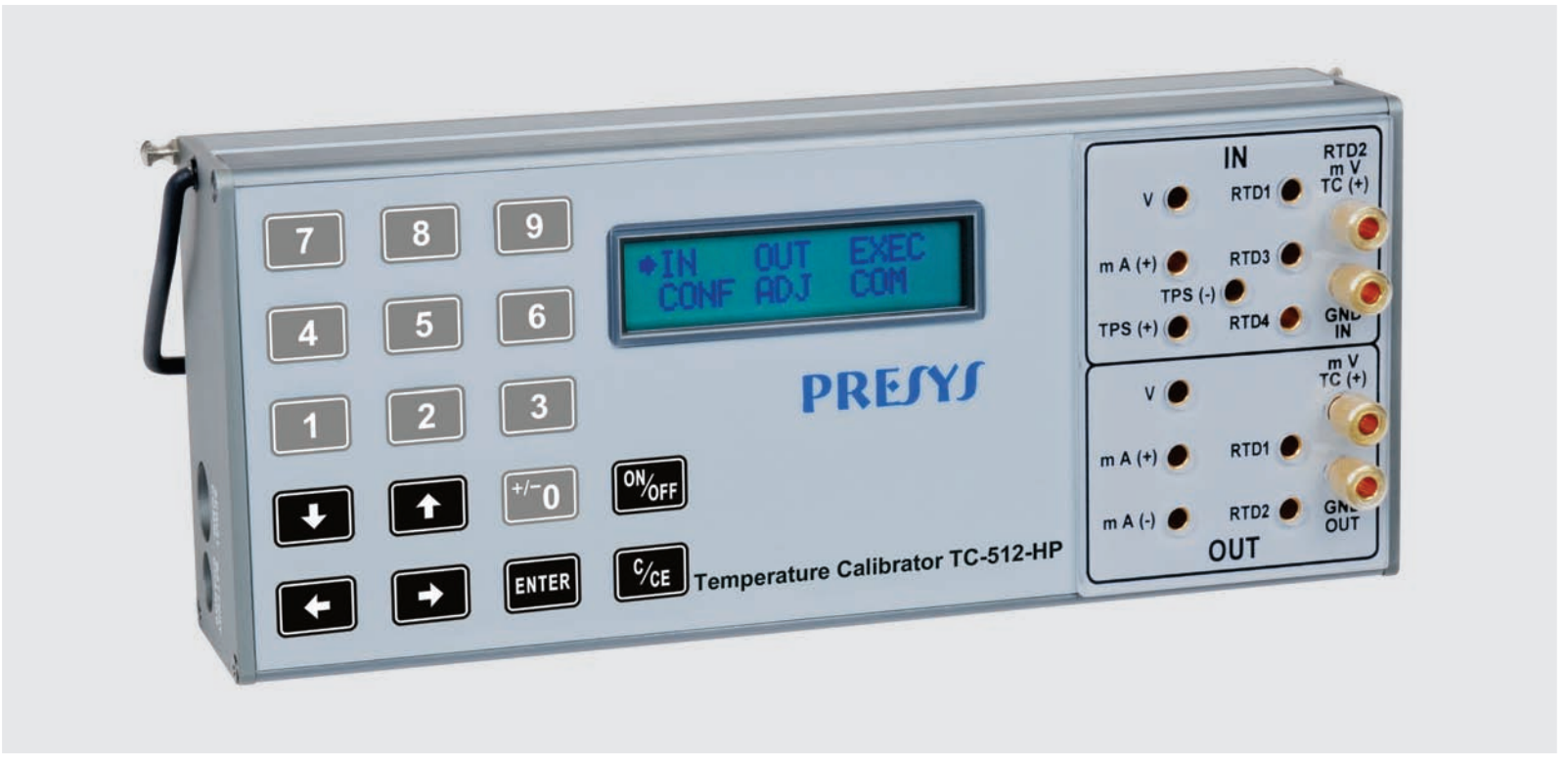

TC-512-HP

High Precision Temperature Calibrator for Instrumentation

- Complies with NADCAP and AMS2750 Heat Treatment standards.
- Measures and generates mA, mV, V, Ohms, RTD and TC.
- Simultaneous input and output operation.
- Callendar-Van Dusen coefficients for Probe input.
- Isolated input and output.

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Technical Specifications

Specifications - Inputs

Inputs Ranges		Resolution	Accuracy	Remarks
milivolt	-150 mV to 150 mV	0.0001 mV	± 0.005 % FS	R_{input} > 10 MΩ
	-500 mV to -150 mV	0.001 mV	± 0.01 % FS	auto-range
	150 mV to 2450 mV	0.001 mV	± 0.01 % FS	
volt	-10 V to 11 V	0.0001 V	± 0.02 % FS	R_{input} > 1 MΩ
	11 V to 45 V	0.0001 V	± 0.02 % FS	
mA	-5 mA to 24.5 mA	0.0001 mA	± 0.02 % FS	R_{input} < 160 Ω
resistance	0 to 400 Ω	0.01 Ω	± 0.01 % FS	Excitation current 0.85 mA,
	400 to 2500 Ω	0.01 Ω	± 0.03 % FS	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 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
probe*	-210 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	0.01 °C / 0.01 °F	± 0.10 °C / ± 0.20 °F	IEC-60584
TC-K	-270 to -150 °C / -454 to -238 °F	0.01 °C / 0.01 °F	± 0.25 °C / ± 0.50 °F	IEC-60584
	-150 to 1370 °C / -238 to 2498 °F	0.01 °C / 0.01 °F	± 0.10 °C / ± 0.20 °F	
TC-T	-260 to -200 °C / -436 to -328 °F	0.01 °C / 0.01 °F	± 0.30 °C / ± 0.60 °F	IEC-60584
	-200 to -75 °C / -328 to -103 °F	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	
	-75 to 400 °C / -103 to 752 °F	0.01 °C / 0.01 °F	± 0.10 °C / ± 0.20 °F	
TC-B	50 to 250 °C / 122 to 482 °F	0.01 °C / 0.01 °F	± 1.25 °C / ± 2.50 °F	IEC-60584
	250 to 500 °C / 482 to 932 °F	0.01 °C / 0.01 °F	± 0.75 °C / ± 1.50 °F	
	500 to 1200 °C / 932 to 2192 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	
	1200 to 1820 °C / 2192 to 3308 °F	0.01 °C / 0.01 °F	± 0.35°C / ± 0.70 °F	
TC-R	-50 to 300 °C / -58 to 572 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	IEC-60584
	300 to 1760 °C / 572 to 3200 °F	0.01 °C / 0.01 °F	± 0.35 °C / ± 0.70 °F	
TC-S	-50 to 300 °C / -58 to 572 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	IEC-60584
	300 to 1760 °C / 572 to 3200 °F	0.01 °C / 0.01 °F	± 0.35 °C / ± 0.70 °F	
TC-E	-270 to -150 °C / -454 to -238 °F	0.01 °C / 0.01 °F	± 0.15 °C / ± 0.30 °F	IEC-60584
	-150 to 1000 °C / -238 to 1832 °F	0.01 °C / 0.01 °F	± 0.05 °C / ± 0.10 °F	
TC-N	-260 to -200 °C / -436 to - 328 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	IEC-60584
	-200 to -20 °C / -328 to -4 °F	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	
	-20 to 1300 °C / -4 to 2372 °F	0.01 °C / 0.01 °F	± 0.10 °C / ± 0.20 °F	
TC-L	-200 to 900 °C / -328 to 1652 °F	0.01 °C / 0.01 °F	± 0.10 °C / ± 0.20 °F	DIN-43710
TC-C	0 to 1500 °C / 32 to 2732 °F	0.01 °C / 0.01 °F	± 0.25 °C / ± 0.50 °F	W5Re / W26Re
	1500 to 2320 °C / 2732 to 4208 °F	0.01 °C / 0.01 °F	± 0.35 °C / ± 0.70 °F	

(*) Probe is a spare input for a reference RTD in order to use as standard thermometer.
The accuracy is related to calibrator only.

Specifications - Output

Output Ranges		Resolution	Accuracy	Remarks
milivolt	-10 mV to 110 mV	0.0001 mV	± 0.01 % 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	$R_{maximum}$ = 700 Ω
2-wire transmitter (XTR)	4 to 24 mA	0.0001 mA	± 0.02 % FS	$V_{maximum}$ = 60 V
resistance	0 to 400 Ω	0.01 Ω	± 0.02 % FS	For external excitation current of 1.0 mA
	0 to 2500 Ω	0.1 Ω	± 0.03 % FS	
Pt-100	-200 to 850 °C / -328 to 1562 °F	0.01 °C / 0.01 °F	± 0.1 °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	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	IEC-60584
TC-K	-270 to -150 °C / -454 to -238 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	IEC-60584
	-150 to 1370 °C / -238 to 2498 °F	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	
TC-T	-260 to -200 °C / -436 to -328 °F	0.01 °C / 0.01 °F	± 0.60 °C / ± 1.20 °F	IEC-60584
	-200 to -75 °C / -328 to -103 °F	0.01 °C / 0.01 °F	± 0.40 °C / ± 0.80 °F	
	-75 to 400 °C / -103 to 752 °F	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	
TC-B	50 to 250 °C / 122 to 482 °F	0.01 °C / 0.01 °F	± 2.50 °C / ± 5.00 °F	IEC-60584
	250 to 500 °C / 482 to 932 °F	0.01 °C / 0.01 °F	± 1.50 °C / ± 3.00 °F	
	500 to 1200 °C / 932 to 2192 °F	0.01 °C / 0.01 °F	± 1.00 °C / ± 2.00 °F	
	1200 to 1820 °C / 2192 to 3308 °F	0.01 °C / 0.01 °F	± 0.70 °C / ± 1.40 °F	
TC-R	-50 to 300 °C / -58 to 572 °F	0.01 °C / 0.01 °F	± 1.00 °C / ± 2.00 °F	IEC-60584
	300 to 1760 °C / 572 to 3200 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	
TC-S	-50 to 300 °C / -58 to 572 °F	0.01 °C / 0.01 °F	± 1.00 °C / ± 2.00 °F	IEC-60584
	300 to 1760 °C / 572 to 3200 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	
TC-E	-270 to -150 °C / -454 to -238 °F	0.01 °C / 0.01 °F	± 0.30 °C / ± 0.60 °F	IEC-60584
	-150 to 1000 °C / -238 to 1832 °F	0.01 °C / 0.01 °F	± 0.10 °C / ± 0.20 °F	
TC-N	-260 to -200 °C / -436 to -328 °F	0.01 °C / 0.01 °F	± 1.00 °C / ± 2.00 °F	IEC-60584
	-200 to -20 °C / -328 to -4 °F	0.01 °C / 0.01 °F	± 0.40 °C / ± 0.80 °F	
	-20 to 1300 °C / -4 to 2372 °F	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	
TC-L	-200 to 900 °C / -328 to 1652 °F	0.01 °C / 0.01 °F	± 0.20 °C / ± 0.40 °F	DIN-43710
TC-C	0 to 1500 °C / 32 to 2732 °F	0.01 °C / 0.01 °F	± 0.50 °C / ± 1.00 °F	W5Re / W26Re
	1500 to 2320 °C / 2732 to 4208 °F	0.01 °C / 0.01 °F	± 0.70 °C / ± 1.40 °F	

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 the reference temperature.
For thermocouples using the internal cold junction compensation add a cold junction compensation error of ± 0.1 °C or ± 0.2 °F.

Serial Communication: Modbus® RTU Protocol (RS-232/RS-485).
Dimensions: 91 mm x 233 mm x 64 mm (HxWxD).
Weight: 1 kg approx.
Warranty: 1 year, except for rechargeable battery.
Included Items: carrying case, test leads, manual and battery charger.

Optional Accessories:
Cold Junction Compensation Block - Order Code: 06.22.0002-00;
Temperature Sensors: 1/5 DIN-R Probe - Order Code: 04.06.0001-00;
1/5 DIN-A Probe - Order Code: 04.06.0007-00;
1/5 DIN-A-L Probe - Order Code: 04.06.0002-00;
Communication Interface - Order Code: 06.02.0007-00.

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