



Dry Block Calibrators for Large Calibration Volume T-25NL / T-45NL / T-660PL

- The T-25NL, T-45NL and T-660PL part of a family of calibrators designed for large calibration volume. This Calibrator family is ideal to calibrate sensors that require deep immersion.
- Model T-25NL and T-45NL are 3 in 1 temperature calibrators: dry block, stirred liquid bath for glass thermometers and any shape of temperature sensors and a Black Body source for infrared pyrometers. The T-660PL comes with a dry block and, optionally, a Black Body source.
- Optional temperature measurement and control by external probe with *Callendar-Van Dusen* coefficients.
- The T-660PL generates temperatures from ambient to 650 °C. The T-25NL and T-45NL generate temperatures from -25 °C to 140 °C and -45 °C to 140 °C, respectively, in ambient temperature of 23 °C.
- Stability of ± 0.02 °C for the T-25NL and T-45NL and ± 0.05 °C for the T-660PL model.

The T-25NL, T-45NL and T-660NL models control temperature over the bath or insert with high accuracy in order to calibrate thermocouples, thermoresistances, glass thermometers, thermostats etc. Besides that, the T-25NL and T-45NL may work as a stirred liquid bath and black body source and the T-660PL may work as a black body source. Besides providing high accuracy temperature values, they also allow the measurement of signals generated by the thermocouples, thermoresistances and thermostats, which are being calibrated. With the optional purchase of a probe to be connected to the external input, the calibrator controls the temperature using as reference a sensor inserted in the same measurement zone of the sensors under calibration increasing the accuracy and decreasing set point errors and loading effects. They present a wide range of programming resources, allowing them to perform automatic calibration of the sensors, with or without the use of a computer. With ISOPLAN® it is possible to register sensors and instruments of the factory, generating work orders, creating and printing calibration certificates and reports, i.e., it brings all the advantages of computer data management to the calibration environment.

Technical Specifications	T-25NL	T-45NL	T-660PL
Operating Range: ambient temperature: 23°C	-25 °C to 140 °C	-45 °C to 140 °C	from ambient temperature to 660 °C
Accuracy: Internal reference with external probe with external thermometer	± 0.1 °C	± 0.1 °C	± (0.1 °C + 0.1% of reading)
	± 0.07 °C	± 0.07 °C	± 0.10 °C
	± 0.05 °C	± 0.05 °C	± 0.05 °C
Resolution:	0.01 °C	0.01 °C	0.01 °C
Stability:	± 0.02 °C	± 0.02 °C	± 0.05 °C
Heating Time:	23 min (25 °C to 140 °C)	14 min (25 °C to 140 °C)	30 min (50 °C to 660 °C)
Cooling Time:	20 min (25 °C to -25 °C)	35 min (25 °C to -45 °C)	1h15 (660 °C to 200 °C)
Temperature Uniformity:	± 0.05 °C		
Weight:	12.0 kg		10.0 kg
Power Supply:	110 or 220 Vac, 50/60Hz		
Electric Power:	300 W	450 W	1000 W
Units / Temperature Scales:	°C or °F / IPTS-68 or ITS-90, user selectable		
Display:	Graphic vacuum fluorescent with contrast adjustment		
Well Diameter / Depth:	35 x 160 mm		36 x 155 mm
Dimension (HxWxD)	315 x 180 x 270 mm		
Warranty:	1 year, except for rechargeable battery and elements of Peltier effect		

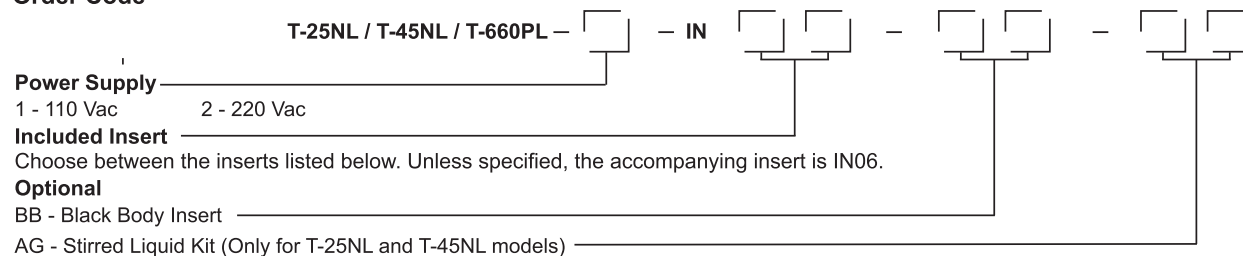
Electrical Input Ranges Specifications

Input Ranges	Resolution	Accuracy	Remarks
milivolt -150 to 150 mV -500 to -150 mV 150 to 2450 mV	0.001 mV	± 0.01 % FS	Rinput > 10 MΩ
	0.01 mV	± 0.02 % FS	auto-range
	0.01 mV	± 0.02 % FS	
mA -5 to 24.5 mA	0.0001 mA	± 0.02 % FS	Rinput < 160 Ω
	0.01 Ω	± 0.01 % FS	excitation current 0.9 mA
resistance 0 to 400 Ω 400 to 2500 Ω	0.01 Ω	± 0.03 % FS	auto-range
	0.01 Ω	± 0.03 % FS	
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
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	± 0.5 °C / ± 1.0 °F	IEC-60584
	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	
TC-T -260 to -200 °C / -436 to -328 °F -200 to -75 °C / -328 to -103 °F	0.1 °C / 0.1 °F	± 0.6 °C / ± 1.2 °F	IEC-60584
	0.1 °C / 0.1 °F	± 0.4 °C / ± 0.8 °F	
TC-E -75 to 400 °C / -103 to 752 °F -270 to -150 °C / -454 to -238 °F	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	IEC-60584
	0.1 °C / 0.1 °F	± 0.3 °C / ± 0.6 °F	
TC-N -150 to 1000 °C / -238 to 1832 °F -260 to -200 °C / -436 to -328 °F	0.1 °C / 0.1 °F	± 0.1 °C / ± 0.2 °F	IEC-60584
	0.1 °C / 0.1 °F	± 1.0 °C / ± 2.0 °F	
TC-L -200 to -20 °C / -328 to -4 °F -20 to 1300 °C / -4 to 2372 °F	0.1 °C / 0.1 °F	± 0.4 °C / ± 0.8 °F	IEC-60584
	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	DIN-43710
TC-L -200 to 900 °C / -328 to 1652 °F	0.1 °C / 0.1 °F	± 0.2 °C / ± 0.4 °F	DIN-43710

FS= Full Scale

Accuracy values are valid within one year and temperature range from 20 to 26 °C. Outside these limits add 0.001 % FS / °C, taking 23 °C as the reference temperature. For thermocouples with internal cold junction compensation, add a cold junction compensation error of ± 0.2 °C or ± 0.4 °F.

Order Code



Accessories

Inserts:	Holes	T-25NL / T-45NL	T-660PL
IN01	1x 3/4"	06.04.0041-00	06.04.0062-00
IN02	1x 1/2"	06.04.0042-00	06.04.0063-00
IN03	1x 6.0 mm and 3x 1/4"	06.04.0043-00	06.04.0064-00
IN04	3x 6.0 mm and 1x 1/4"	06.04.0044-00	06.04.0065-00
IN05	4x 6.0 mm	06.04.0045-00	06.04.0066-00
IN06	2x 6.0 mm and 2x 1/4"	06.04.0046-00	06.04.0067-00
IN07	1x 6.0 mm 1x 8.0 mm and 1x 3/8"	06.04.0047-00	06.04.0068-00
IN08	1x 6.0 mm 1x 3.0 mm and 2x 1/4"	06.04.0048-00	06.04.0069-00
IN09	Without hole, to be drilled by the client	06.04.0049-00	06.04.0070-00
IN10	Others, under ordering	06.04.0050-00	06.04.0071-00

Serial Communication: Modbus® RTU Protocol (RS-232/RS-485).

Included Items: carrying case, strap, insert (selectable), insert extractor tool, test leads, manual and power cord.

Optional Accessories:

Temperature Sensors:
 1/5 DIN A-L Probe - Order Code: 04.06.0002-21.
 Angular Probe (up to 660 °C) - Order Code: 04.06.0009-21.
 Communication Interface - Order Code: 06.02.0002-00.