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Certificate Number 351

EzzyCal - 2750
Thermocouple Calibrator

TMS Europe's *EzzyCal – 2750* is a hand-held thermocouple calibrator that is highly accurate, robust and user-friendly. It simplifies commissioning and calibrating thermocouple temperature sensors, transmitters and instrumentation.

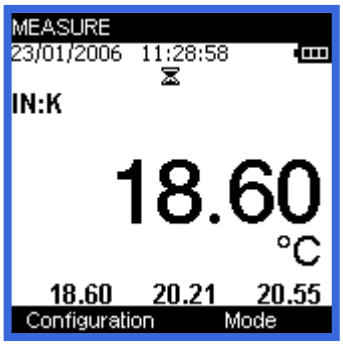
As process transmitters and other sensors become more and more reliable and accurate, the performance of thermocouple calibrators must also become more accurate and versatile. That's why the *EzzyCal - 2750* provides 0.02% accuracy and comes with its own, unique, UKAS (ISO 17025) certificate of calibration attesting to its accuracy.

It's at home in the standards laboratory, but will also stand up to the rigors of plant use without losing its inherent readability and accuracy.

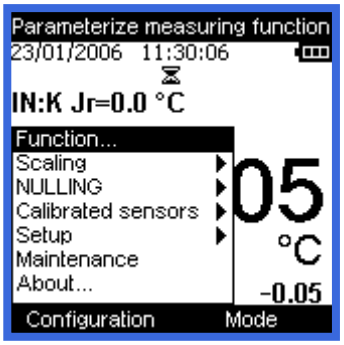
The *EzzyCal - 2750* is well suited to different process and calibration procedures thanks to its multiple ranges and advanced functions such scaling, preset ramping and steps, all of which can be quickly and easily configured by the user as the job requires.

Another of its advanced features is data logging, with the ability to look back at recorded temperature data as a list of results or a trend graph.

- Measurement and simulation of 14 thermocouple types.
- High accuracy: 0.02% of reading - to meet the most exacting specifications; including AMS 2750G Secondary Standard Instrument and Field Test Instrument accuracies*.
- Very low temperature coefficient: 10 ppm /°C, even in changing ambient temperature conditions accuracies are not compromised.
- Guaranteed to maintain its accuracy for 12 months (if not misused).
- Competitively priced UKAS (ISO 17025) re-calibration after 12 months (and optional adjustment to spec if required).
- The graphic LCD display, with backlight, makes programming the instrument and reading results easy.
- IP54 rated and rubber boot for extra protection
- Ergonomic design sits comfortably in the hand, with a wrist strap to protect against dropping.



Reading display



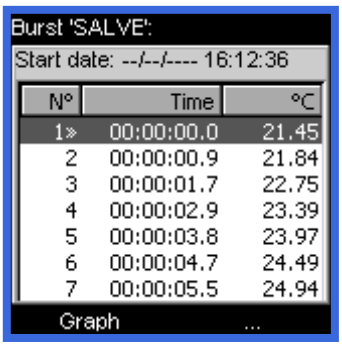
Function menu

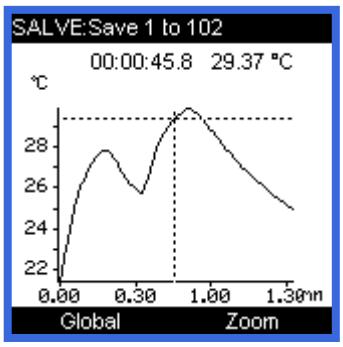
TMS Europe Ltd is a UKAS accredited calibration laboratory No. 0461. We are ISO 17025 accredited for calibration on site and in our laboratory, as defined in our Schedule Of Accreditation (see www.tmseurope.co.uk/soa).

* With our calibration and certification. Excluding Types R and S below 400°C for Secondary Standard Instrument. As AMS 2750G Table 7. Full specification on page 3.

Measurement Functions

Calibrated sensors: A database can be created to design curves for sensors after calibration in relation with the corrections showed on a calibration report.

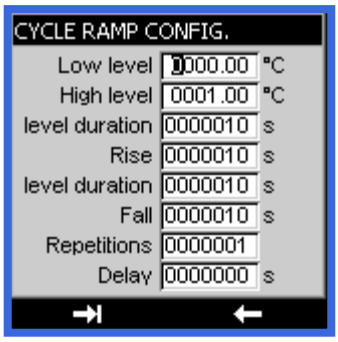




Scaling: Allows for correction of probes errors. Scaling is performed using up to 10 segments, in order to fit with the real calibrated value.

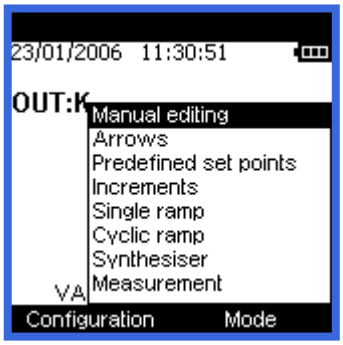
Data Logging: Data can be recorded manually, on event or automatically at timed intervals (1sec to 30min). The stored data is dated and can be displayed as lists or curves. Up to 10,000 values can be recorded in one burst. Up to 13,600 values can be saved in non-volatile memory.

Simulation Functions



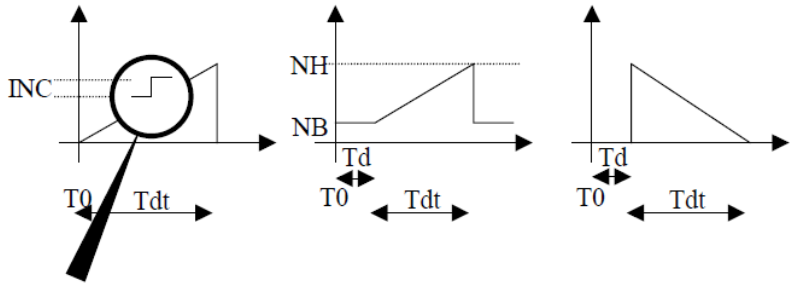
Ramps: (Increasing or decreasing the output value over time.)
Can be generated, with setting of low and high dwell, rising and falling times, and stabilisation and delay times. The delay time function (programmable between 1 and 3600 seconds (1 hour)) gives the engineer time to get to the instrument control panel being calibrated before the ramp begins.

Synthesizer mode: Allows the sending of predefined values at timed intervals.



Scaling: Allows for correction of thermocouple errors from their calibration certificates. Scaling is performed using up to 10 segments, in order to fit with the real calibrated value.

Steps mode: Allows sending of values with programmable amplitude and frequency.



To : Starting time, Td : Delay,
Tdt : Total time,
NB : Low level, NH : High level,
INC : Steps (Step value in °C or °F)

Other Functions

Display Screen: Contrast can be changed and the display has a back-light to help in dark conditions. The Back-light automatic turn off time is adjustable.

Display Resolution: 3 resolutions can be selected; high, middle or low, for up to 3 decimal places.

Time & Date: Are permanently shown at the top of the display.

Statistics: Minimum, maximum and average measured values are displayed at the bottom of the display. A reset function allows for re-calculating of the values, as required.

Hold: Freezes the displayed value.

Filter: Averages the measured value displayed, for when rapid fluctuation of the value is a problem. Filter duration can be set as desired.

Specification

At 23°C ±5°C and between 45% and 75% of relative humidity. Temperature Coefficient: <20ppm/°C from 0 to 18°C and 28 to 50°C.

	Input (Measure from Thermocouples)			**Output** (Simulate to Instruments)		
Type	**Input Range**	**Resolution**	**Accuracy / 1 yr**	**Output Range**	**Resolution**	**Accuracy / 1 yr**
J	- 210 to - 200°C - 200 to - 120°C - 120 to + 60°C + 60 to + 1200°C	0.05°C 0.05°C 0.05°C 0.05°C	0.30°C 0.25°C 0.020 % r+ 0.11°C 0.020 % r+ 0.09°C	- 210 to +50°C + 50 to + 500°C + 500 to + 1200°C	0.05°C 0.05°C 0.05°C	0.35°C 0.020 % r+ 0.11°C 0.020 % r+ 0.09°C
K	- 250 to - 200°C - 200 to - 120°C - 120 to - 50°C -50 to + 1372°C	0.2°C 0.1°C 0.05°C 0.05°C	0.9°C 0.3°C 0.02 % r+ 0.12°C 0.02 % r+ 0.11°C	- 240 to - 50°C - 50 to + 120°C +120 to + 1372°C	0.20°C 0.10°C 0.05°C	0.80°C 0.30°C 0.020 % r+ 0.11°C
N	- 240 to - 190°C - 190 to - 110°C - 110 to - 0°C + 0 to + 1300°C	0.2°C 0.1°C 0.05°C 0.05°C	0.60°C 0.25°C 0.15°C 0.020 % r+ 0.07°C	- 240 to + 10°C + 10 to + 250°C + 250 to + 1300°C	0.20°C 0.10°C 0.05°C	0.90C 0.20°C 0.020 % r+ 0.09°C
R	- 50 to + 400°C + 400 to + 550°C +550 to + 1768°C	0.5°C 0.2°C 0.1°C	0.95°C 0.40°C 0.020 % r+ 0.30°C	- 50 to + 350°C + 350 to + 900°C + 900 to + 1768°C	0.50°C 0.20°C 0.10°C	0.95°C 0.5°C 0.020 % r+ 0.30°C
S	- 50 to + 400°C + 400 to + 550°C +550 to + 1768°C	0.5°C 0.2°C 0.1°C	0.85°C 0.020 % r+ 0.4°C 0.020 % r+ 0.3°C	- 50 to + 350°C + 350 to + 900°C + 900 to + 1768°C	0.50°C 0.20°C 0.10°C	0.90°C 0.020 % r+ 0.40°C 0.020 % r+ 0.30°C
T	- 250 to - 200°C - 200 to - 50°C - 50 to + 400°C	0.2°C 0.05°C 0.05°C	0.80°C 0.25°C 0.02 % r+ 0.09°C	- 240 to - 100°C - 100 to - 40°C - 40 to + 400°C	0.20°C 0.05°C 0.05°C	0.50°C 0.25°C 0.020 % r+ 0.10°C
B	+ 400 to + 900°C +900 to + 1820°C	0.2°C 0.1°C	0.95°C 0.50°C	+ 400 to + 850°C + 850 to + 1820°C	0.20°C 0.10°C	0.95°C 0.50°C
E	- 250 to - 200°C - 200 to - 100°C - 100 to + 450°C +450 to + 1000°C	0.1°C 0.05°C 0.05°C 0.05°C	0.55°C 0.20C 0.020 % r+ 0.07°C 0.020 % r+ 0.05°C	- 240 to - 100°C - 100 to + 40°C + 40 to + 1000°C	0.1°C 0.1°C 0.05°C	0.55°C 0.20°C 0.020 % r+ 0.06°C
C	- 20 to + 900°C +900 to + 2310°C	0.1°C 0.1°C	0.30°C 0.020 % r+ 0.15°C	- 20 to + 900°C + 900 to + 2310°C	0.10°C 0.10°C	0.35°C 0.020 % r+ 0.15°C
L	- 200 to - 100°C - 100 to + 900°C	0.05°C 0.05°C	0.30°C 0.20°C	- 200 to - 70°C - 70 to +900°C	0.05°C 0.05°C	0.30°C 0.25°C
U	- 200 to - 100°C - 100 to + 600°C	0.05°C 0.05°C	0.35°C 0.20°C	- 200 to - 70°C - 70 to + 600°C	0.05°C 0.05°C	0.35°C 0.20°C
Platine	- 100 to + 1400°C	0.05°C	0.3°C	- 100 to + 1400°C	0.05°C	0.35°C
Mo	0 to + 1375°C	0.05°C	0.020 %r+ 0.10°C	+ 0 to + 1375°C	0.05°C	0.25°C
NiMo/ NiCo	- 50 to + 1410°C	0.05°C	0.020 %r+ 0.35°C	- 50 to + 1410°C	0.05°C	0.020 %r+ 0.35°C
mV	-10 to + 100mV	1µV	0.020% r + 3µV	-9.5 to + 80mV	1µV	0.020% r + 3µV

CJC (Cold Junction Compensation) Accuracy: ±0.3°C (% r = % of reading)

Standard Calibration Points (Additional points and ranges can also be performed at extra cost.)

Type K Measure & Simulate: 0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300°C, 1340°C
Type N Measure & Simulate: 0,100,200,300,400,500,600,700,800,900,1000,1100,1200,1300°C
Type R Measure & Simulate: 400,500,600,700,800,900,1000,1100,1200,1300,1400,1500,1600°C
milli Volt (mV) Measure: -10, 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100mV
milli Volt (mV) Simulate: -9.5, 0, 10, 20, 30, 40, 50, 60, 70, 80mV

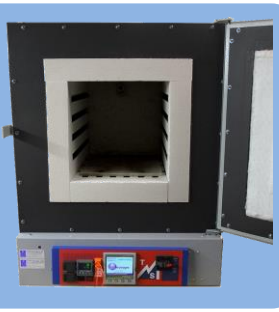
Connections: 1x thermocouple miniature socket and 2x 4mm 'banana' sockets
Dimensions (Without Protective Boot): 157 x 85 x 45mm Weight: 306g
Power Supply: 4x 1.5V AA size batteries.
Nominal working environment: -10°C to +50°C, relative humidity: 20% to 80% without condensation
Limit working environment: -10°C to +55°C, relative humidity: 10% to 80% (70% at 55°C)
Ingress Protection Rating: IP54 (water and dust resistant)
Languages: English, French, German, Italian or Spanish

These units are manufactured in the EU. With final testing, localisation, customisations, ISO 17025 accredited calibration and after-sale service are performed in the UK by TMS Europe Ltd. TMS was established in 1979 and has offered the EzzyCal - 2750 since 2010.

As an independent UK sensor manufacturer, TMS makes TUS thermocouples, batch calibrated in our ISO 17025 lab and so meet AMS 2750.

TMS also offers portable survey recorders, for TUS, complete with calibration by our ISO 17025 lab, meeting AMS 2750.

We manufacture enhanced versions of our ovens and furnaces meeting AMS 2750 and Nadcap compliant. Complete with calibration, under our ISO 17025 accreditation, and thermally surveyed before leaving our factory.



Part of a range of calibration solutions from TMS Europe