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Certificate Number 351

InstCubeABS Over-Temperature Protection & Alarm (OTP1)

Temperature Control System

The *InstCube ABS OTP 1* is designed to add over-temperature protection and alarm functionality to existing thermal equipment that is fitted with a standard 13A UK mains plug.

Many laboratory ovens, furnaces and incubators that are left running unattended, often overnight, are not fitted with independent over-temperature protection as standard. This is a potentially dangerous Health and Safety risk and likely doesn't meet the Insurer's requirements. Retrofitting by the manufacturer, if offered, is expensive and takes the unit out of commission while the work is done.

The answer is "InstCube". With an Omron digital controller and power relay, it is a self-contained over-temperature protection unit, which just plugs into your existing system. No wiring, no fuss.

The compact ABS plastic enclosure is suitable for wall-mounting or bench-top use. The unit has a loud audible buzzer alarm with pulsing red light that can be configured independently of the output alarm (or disabled).

Universal model

Type K only model

The controller displays the current temperature measured by the temperature sensor. Two standard models are available, with connectors and configuration for different temperature sensors.

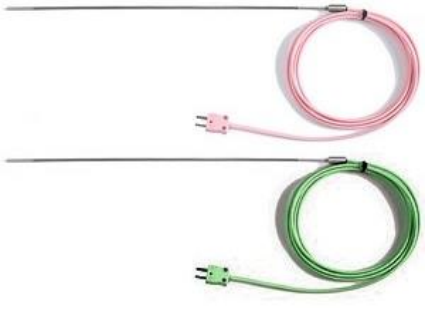
The unit can be configured to 'latch' if thermocouple input temperature goes above the controller's alarm value (the alarm will need to be acknowledged by the user before power is restored to the connected load) or to restore the power as soon as the input temperature goes below the controller's alarm value. Alarm values can be protected against unauthorised changes if needed.

Specifications

Universal model *(With Type N thermocouple)* **INSTCUBEABSOTP1**	2-wire thermocouple 2 or 3-wire Pt100 RTD via 3-pin miniature copper socket. Preconfigured for Type N thermocouple (-200 to 1300°C) by default, but can be reconfigured by the user to other thermocouples, Pt100, milliamps, volts, see the table on the next page for the common types and ranges.
Type K only model INSTCUBEABSOTP1-K	Type K Thermocouple via Universal size socket (takes mini or standard plug). -20.0 to 500.0°C (default) or -200 to 1300°C (if reconfigured). (This model has superior accuracy at lower temperatures, but only supports one sensor type.)

Controlled Output: 13A UK mains (BS 1363) socket — Display units: °C or °F
Supply Voltage: 230Vac (±10%), 50Hz, via 13A UK mains (BS 1363) plug (13A fused).
Dimensions: 200 x 150 x 110mm (W x H x D) — IP Rating: IP20

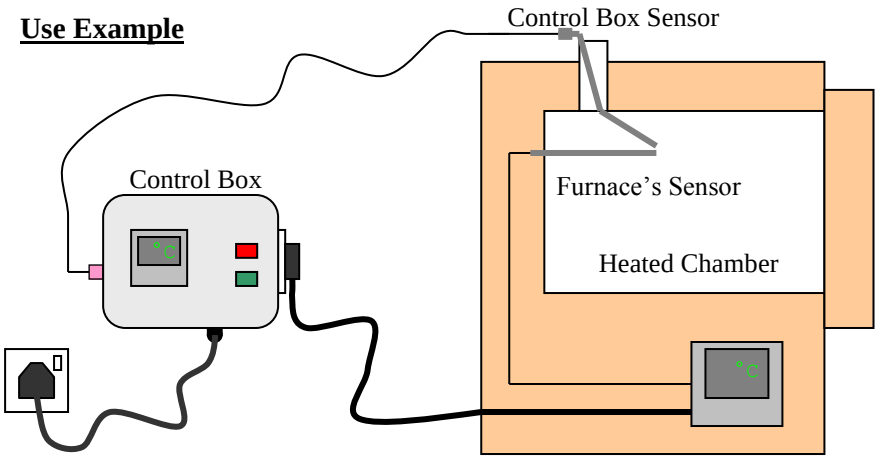
Supplied with a Type N or Type K thermocouple (as per the model), in a 3mm diameter mineral insulated sheath, 300mm long, terminated in a plain pot seal with a 2m long flexible lead with a miniature thermocouple plug. Suitable for 0 - 1100°C for continuous use.



A wide range of other standard and bespoke thermocouples and Pt100s are also available from TMS.

A 3-pin mini plug for a Pt100, mA or Volts input can be order separately, if required. TMS stock code: TCPLUG40

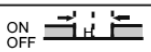
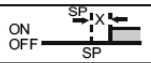
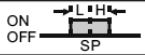
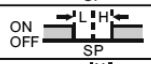
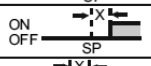
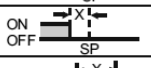
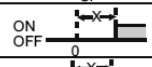
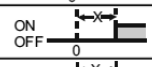
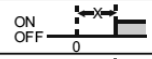
Use Example



As standard the Control Box is supplied with a Mineral Insulated Thermocouple, it can be bent to shape as required. Position the tip of the Input Temperature Sensor as close as practically possible to the tip of the control sensor in your device (or in an equally representative position), ensuring that it is not too close to the heating elements. Ensure the Control Box reads a similar temperature to the controller of your device.

Input	Setting range	
Pt100	-200 to 850 (°C)	/-300 to 1500 (°F)
	-199.9 to 500.0 (°C)	/-199.9 to 900.0 (°F)
	0.0 to 100.0 (°C)	/0.0 to 210.0 (°F)
K	-200 to 1300 (°C)	/-300 to 2300 (°F)
	-20.0 to 500.0 (°C)	/0.0 to 900.0 (°F)
J	-100 to 850 (°C)	/-100 to 1500 (°F)
	-20.0 to 400.0 (°C)	/0.0 to 750.0 (°F)
T	-200 to 400 (°C)	/-300 to 700 (°F)
	-199.9 to 400.0 (°C)	/-199.9 to 700.0 (°F)
N	-200 to 1300 (°C)	/-300 to 2300 (°F)
R	0 to 1700 (°C)	/0 to 3000 (°F)
S	0 to 1700 (°C)	/0 to 3000 (°F)
B	100 to 1800 (°C)	/300 to 3200 (°F)
4 to 20mA	Use the following ranges for scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99, -1.999 to 9.999	
0 to 20mA		
1 to 5V		
0 to 5V		
0 to 10V		

Other Alarm types can be set:

Alarm type	Alarm output function	
	Positive alarm value (X)	Negative alarm value (X)
No alarm function	Output off	
Deviation upper/lower limit		Vary with "L", "H" values
Deviation upper limit		
Deviation lower limit		
Deviation upper/lower range		Vary with "L", "H" values
Deviation upper/lower limit standby sequence ON		Vary with "L", "H" values
Deviation upper limit standby sequence ON		
Deviation lower limit standby sequence ON		
Absolute value upper limit		
Absolute value lower limit		
Absolute value upper limit standby sequence ON		
Absolute value lower limit standby sequence ON		
PV Change Rate Alarm		
SP absolute value upper limit		
SP absolute value lower limit		

Other over-temperature protection models

InstCubeABSOTP2 – for 16A

The same as the OTP1, but with round blue 16A 230V (IEC 60309) connectors on leads and a higher max load of 16A.

A 110V version is also available on request.

InstCube66OTP – for 16A & 32A loads

The *InstCube 66 OTP* series offers a compact yet robust IP40 rated metal body and is design for use with higher powered thermal equipment fitted with a standard industrial mains plug.

InstCube66OTP-1P-16A	Single Phase, 230V, 16A (blue).
InstCube66OTP-1P-32A	Single Phase, 230V, 32A (blue).
InstCube66OTP-3P-16A	3-Phase with neutral, 16A (red).
InstCube66OTP-3P-32A	3-Phase with neutral, 32A (red).

Bespoke units

In addition to our standard models, over the years TMS has produced a variety of customised units. These include units with 110V supply voltage and output. Voltage and current indication. Combined PID temperature control and over-temperature protection units. Typical lead-times on bespoke units are 3-8 weeks. Please contact us with your requirements for current pricing and availability.

InstCubeABS range from TMS Europe

			
InstCube Temperature Control 1	**InstCube Over-Temperature Protection & Alarm (OTP1)**	**InstCube Indicator & Alarm Units**	**InstCube nanodac Recorder Units**
INSTCUBEABSCTL1…	INSTCUBEABSOTP1…	INSTCUBEABSIND1...	
Precise PID temperature control of heating (or cooling) equipment. Applications including room temperature control for building material research, liquid mixtures on hotplates and small scale R&D projects.	Over-temperature protection alarm unit for retrofitting as a safeguard to existing equipment. No wiring, no fuss. Acts a 'policeman' to prevent the set temperature being exceeded by turning off the power. With audible and visual alarm indicators.	Temperature monitoring display, with audible and visual alarm indicators. Up to 3 alarms. Splash proof options.	4 channel temperature recorder with audible and visual alarm, using the Eurotherm nanodac. Data export via USB or RJ45 Ethernet.

MADE IN BRITAIN

TMS Europe Ltd was established in 1979 and has designed and manufactured the InstCube range in the UK since 2009.

Calibration

We can offer the option of UKAS calibration of the instrument and a temperature sensor, as a system, at your choice of temperature(s) with a calibration certificate issued reporting the tested system's measurement at each temperature. The typical lead-time is 6 - 10 working days. Please contact us with your requirements for a quotation.

UKAS CALIBRATION 0461

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).

After Sales Service & Warranty

Each unit has a 1 year return to base warranty against manufacturing defects from the date of purchase from TMS Europe and covers normal use of the unit in accordance with its instruction manual. Under the warranty any manufacturing defects will be rectified by TMS Europe at no charge. 'Return to base' means the customer is responsible for return of the unit to TMS Europe's factory (Derbyshire, UK) for assessment with a view to repairing under warranty. For any work performed that is solely covered by the warranty TMS Europe will provide return shipment of the unit within the UK and Republic of Ireland at no charge. Whilst TMS Europe stocks a range of spares and aims to resolve any warranty repairs quickly, typically within 3 - 8 working days, the warranty does not guarantee this or any provision of a loan unit while the customer's unit is with us.

Part of a range of thermal solutions from TMS Europe