

Technical Datasheet



Sentry Series Temperature Switch

Models: T02 & T03

Key Features

- SPDT & DPDT Switch Outputs
- Aluminium Epoxy Coated Weatherproof Enclosure IP66/NEMA4
- 316 Stainless Steel Capillary and Bulb
- Field Adjustable Set-Points Against a Reference Scale
- Temperature Ranges up to 350°C (660°F)
- Safety Vented Design as Standard

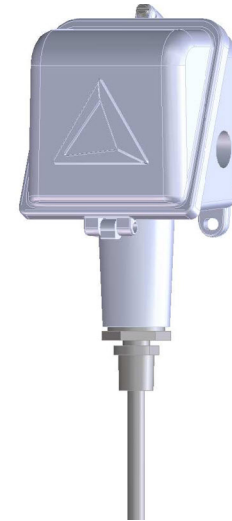
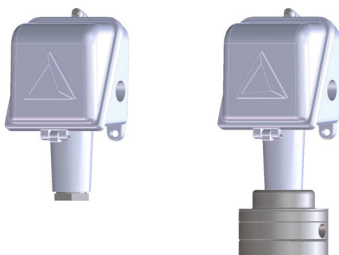
Series Overview

The Sentry Series offers exceptional performance and high build quality in a simple, safe and cost-effective package.

- Performance is assured by repackaging Delta's well proven sensor technologies in a new, simple, one-piece enclosure.
- Commissioning is made simple by the inclusion of a hinged lid that is held in place by a single captive screw.
- Safety is maintained by a vent that prevents the enclosure becoming pressurized in the event of a sensor being damaged.
- Cost is minimised through the selection of common standard options although, as with all Delta products, a variety of optional extras are available to tailor the product to specific needs.

Other products in the series include:

- Pressure Switches: Models P02 & P03
- Differential Pressure Switches: Models D02 & D03



Product applications

The Sentry Series is suitable for a wide range of applications in:

- Process plants
- OEM equipment

The choice of models available ensures that the Sentry Series is suitable for use in:

- General purpose applications

How can we help you?

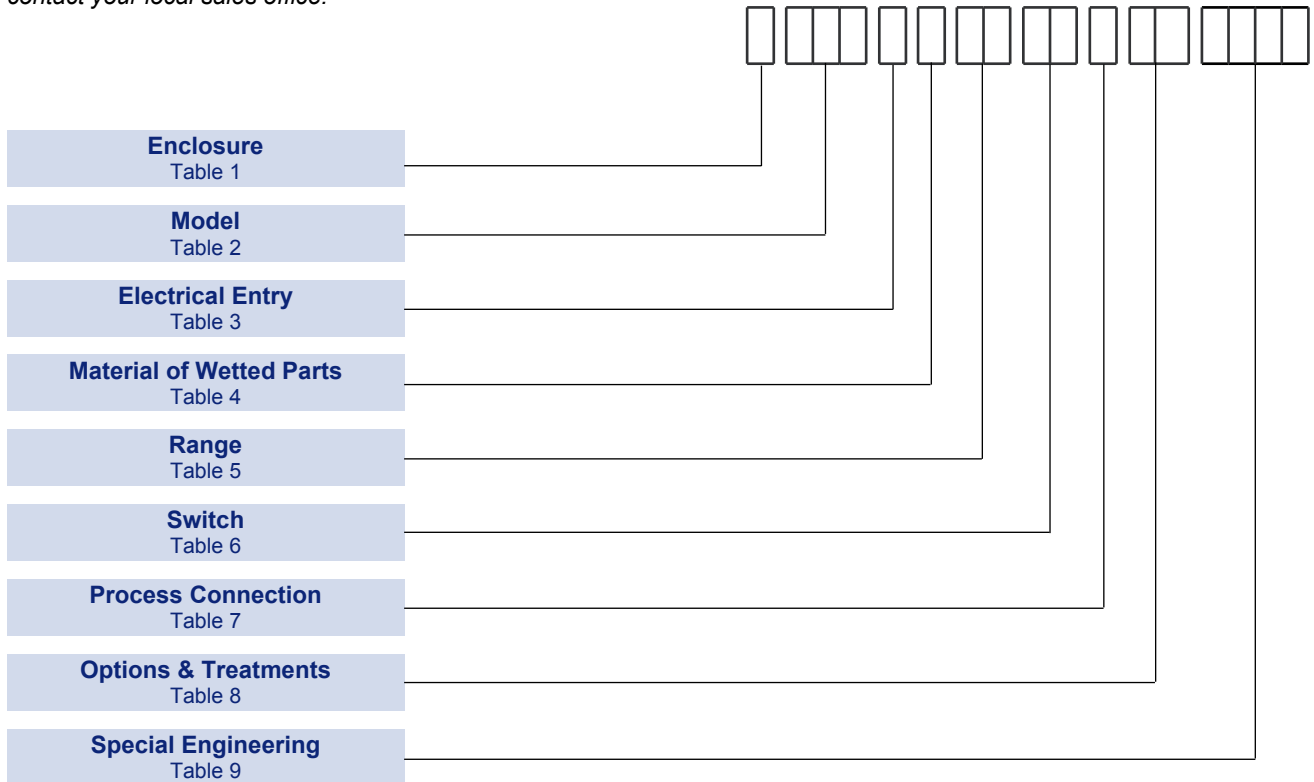
Delta Controls' offers fast, efficient and knowledgeable support when and where you need it. Please visit our web site at www.delta-controls.com to find your local support centre or call us on:

+44 (0) 20 8939 3500

Sentry Series
Models: T02 & T03

How to order

Switches can be configured by selecting codes representing the desired features from the tables that follow. The chart below, describes how the model code is built up. For assistance in configuring a switch that best suits your needs, please contact your local sales office.



NOTE: Options shaded in the following tables are the most common options and are available on the quickest lead-times and at the lowest cost.


NOTE: Only the most common options are shown in this data sheet. Should you require a feature that is not shown, please contact your local sales office for further details.

Technical Specification

Sentry Series
Models: T02 & T03


Accuracy:	Set point repeatability ± 1% of span at 20°C / 68°F
Storage Temperature:	-40 to +60°C / -40 to +140°F
Ambient Temperature:	-25 to +60°C / -13 to +140°F
Maximum Process Temperature:	See Table 5
Enclosure classification:	IP66 / NEMA 4
Switch output:	SPDT or DPDT snap action microswitch (standard) Environmentally sealed and hermetically sealed (optional)
Electrical rating:	See Table 6
Process Connection:	1/2" NPT M
Weight (approx):	0.9kg - 3.3kg depending on model

Enclosure

TABLE 1 

WEATHERPROOF ENCLOSURE	Code
General Purpose The basic enclosure is die-cast in aluminium, epoxy painted, with weather protection not less than NEMA type 4, IP66.	W

Models

TABLE 2 

T02
For applications up to 100°C (212°F), maximum working temperature 110°C (230°F).

T03
For applications up to 350°C (660°F), maximum working temperature 360°C (680°F).

		Code
Temperature	Rigid Stem Vapour Pressure	T02
Temperature	Flexible thermal system Vapour Pressure	T03

Electrical Entry

TABLE 3 

Description	Code
M20 x 1.5 Internal ISO Thread	0
½ NPT Internal Thread	2

Material of Wetted Parts

TABLE 4 

The flexible capillary version (codes N & P) comprises an armoured capillary attached to the sensing bulb via a semi-rigid extension on which a compression gland slides to enable various depths of thermowell (pocket) to be accommodated. All parts of thermal system are in 300 series stainless steel with the capillary and sensing bulb in 316 stainless steel.

The rigid stem version has an integral thread for direct mounting or via a thermowell. Material of probe 316 stainless steel.

Capillary Length		Semi Rigid Stem Length		Sensing Bulb Length		Code
Metres	Feet	mm	inches	mm	inches	
1.8	6	250	10	81	3.2	N
1.8	6	500	20	81	3.2	P
Rigid Stem Probe Total Length 216mm (8.5ins).				81	3.2	R

Sentry Series
Models: T02 & T03

Setting Ranges

* Deadband figures are typical for Code 10 SPDT 15A microswitches (see table 6) with falling set-points at mid-scale.

Deadbands for other microswitch options may differ.

Due to manufacturing tolerances the figures quoted are for guidance only.

Should the differential be critical for specific applications, our engineers should be consulted before ordering.

TABLE 5 

Availability		Range	Tmax	Deadband*	Code
T02	T03	°C	°C	°C	
✓	✓	-40 to + 60	70	4	H1
✓	✓	10 to 100	110	4	K4
x	✓	50 to 120	130	4	L4
x	✓	120 to 220	230	4	S4
x	✓	150 to 270	280	5	TH
x	✓	230 to 350	360	6	V9

Availability		Range	Tmax	Deadband*	Code
T02	T03	°F	°F	°F	
✓	✓	-40 to + 140	158	7	HA
✓	✓	50 to 212	230	7	KC
x	✓	120 to 250	270	7	LB
x	✓	250 to 430	450	7	SE
x	✓	300 to 518	540	9	TQ
x	✓	450 to 660	680	11	V0

Switch Options

TABLE 6 

UL/CSA Rating (RESISTIVE) §SEE NOTE	IEC 947-5-1/EN 60947-5-1 RATING							Contact	Code
	Designation & Utilization Category	Rated operational current I _e (A) at rated operational voltage U _e	U _i	U _{imp}	VA Rating				
					Make	Break			
5 A @110/250V AC Light Duty for AC only	AC14 D300	0.6/0.3 A @ 120/240V AC	250V	0.8kV	AC	432	72	SPDT	00
	DC13 R300	0.22/0.1A @ 125/250V DC			DC	28	28	DPDT	01
1 A @ 125V AC & §100 mA @ 30V DC gold alloy contacts for low voltage switching	1 A @ 125 VAC RESISTIVE (IEC 1058-1/EN 61058-1)							SPDT	04
								DPDT	05
§ 5 A @ 125/250V AC & 5 A @ 30V DC Environmentally sealed	6 A @ 250 VAC (EN 61058)							SPDT	08[†]
								DPDT	09[†]
15 Amp @ 125/250/480 V AC & 2 A @ 30V DC General purpose precision	AC14 D300	0.6/0.3 A @ 120/240V AC	250V	0.8kV	AC	432	72	SPDT	10
	DC13 R300	0.22/0.1A @ 125/250V DC	250V	0.8kV	DC	28	28	DPDT	11
0.1 A @ 125/250V AC and 30V DC Environmentally sealed with gold contacts	0.1 A @ 250 VAC (EN 61058)							SPDT	0G[†]
								DPDT	0H[†]
5 A @ 250V AC and 2 A @ 30V DC Hermetically sealed. Gold plated silver contacts.	AC14 D300	0.6/0.3 A @ 120/240V AC	250V	0.5kV	AC	432	72	SPDT	H2[†]
	DC13 R300	0.22/0.1 A @ 125/250V DC			DC	28	28	DPDT	H3[†] H6[†]

† 2 Single pole, double throw, simultaneous falling under pressure
 ‡ 2 Single pole, double throw, simultaneous rising under pressure
 ^Terminal Block supplied as standard
 Note: For Low energy circuits e.g 30V and up to 100mA, we recommend using gold alloy contact switches
 U_i = rated insulation voltage; U_{imp} = rated impulse to withstand voltage across contacts.
 In the absence of any verification by UL/CSA the microswitch § manufacturer's rating is stated in **italics and bold**.
 If in doubt seek guidance from the factory.

Sentry Series
Models: T02 & T03

Process Connection

TABLE 7 

	Code
½ - 14 NPT EXT: Sliding Gland (System code N & P)	J
½ NPT EXT: Direct Mounting (System code R)	J

Options & Treatments

TABLE 8 

	Code
Stainless steel permanently fixed tags	20
Stainless steel wired on tag	30
Applies when – no option is required and selection is made from special engineering (see table 9)	00

Special Engineering

TABLE 9 

Last 4 digits of model code only used when special engineering is required.

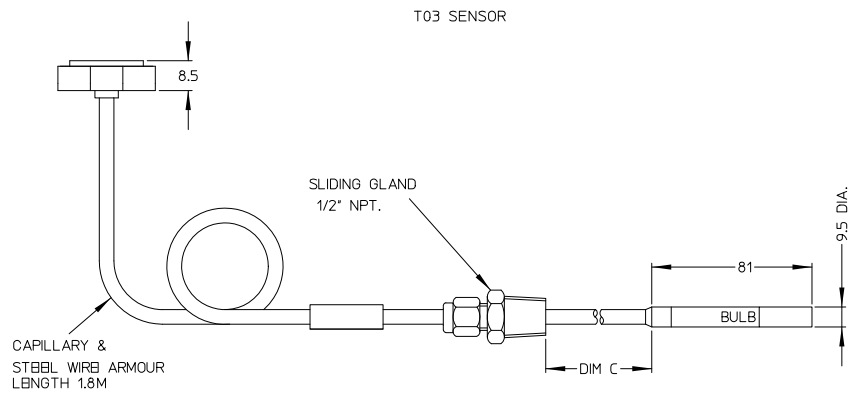
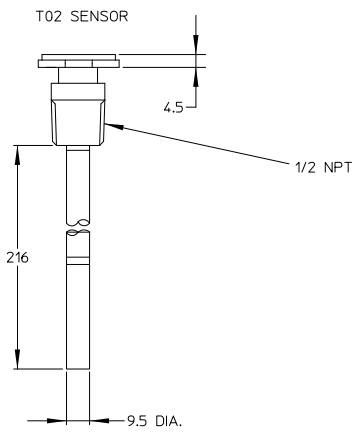
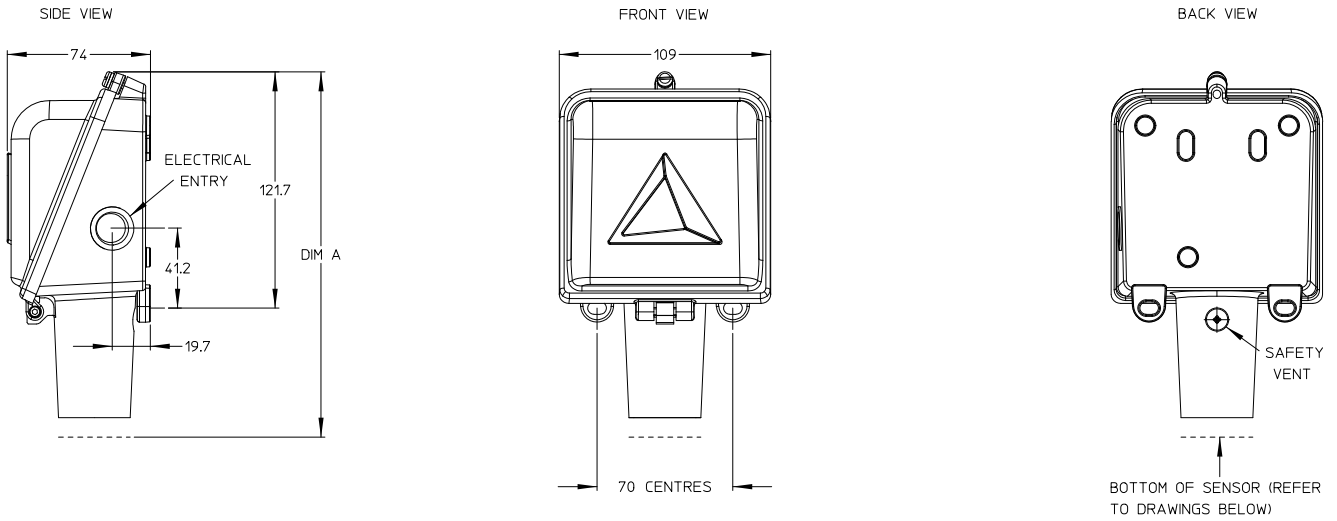
	Code
Please consult Delta sales engineering for special requirements	TBA

Approvals

CE Low voltage Directive (LVD) 2006/95/EC.
Compliant to LVD

Pressure Equipment Directive 97/23/EC:
This product has a process connection size <=DN25 and is therefore categorised as sound engineering practice under Cat 3.3 and therefore will not be CE marked under this directive or be accompanied by a declaration of conformity. It may however be CE marked where other directives have been applied e.g LVD.

Dimensions



Model	Thermal System Code	DIM A	DIM C
T02	R	183	-
T03	N	187	250
	P	187	500

Sentry Series
Models: T02 & T03

In the interest of development and improvement Delta Controls Ltd. reserves the right to amend, without notice, details contained in this publication. No legal liability will be accepted by Delta Controls Ltd for any errors, omissions or amendments.

Delta Controls Limited

Island Farm Avenue, West Molesey, Surrey KT8 2UZ, UK.

T+44 (0)20 8939 3500 F+44 (0)20 8783 1163 E sales@delta-controls.com W www.delta-controls.com

