

Temperature switch Model 972

Switzer data sheet TS-972

Applications

- Lube oil pumps and compressors
- Filters and evaporators
- Heat exchangers
- Hydraulic and marine equipments
- Circuit breakers
- HVAC
- Turbines and generators

Special features

- High repeatability
- Compact
- Tamperproof setpoint adjustment



Temperature switch, model 972

Model 972 gas filled temperature switch is specifically designed for OEMs using components of high reliability.

These compact instruments, incorporate mechanical movements restricted to absolute minimum which ensures long term stability.

Instrument is designed with pressure die cast aluminium housing which is best suited for outdoor mountings.

Standard version

Switch enclosure

GH style aluminium pressure die cast weatherproof as per IEC 60529

Repeatability

± 1% FSR (Note 1)

Permissible ambient temperature

(-)10 to 60°C

Permissible medium temperature

- 300°C for C009 & C010
- 110°C for C024

Connection to thermowell

- Standard: None
- Optional: Various sizes of instrument connection can be provided directly. Refer ordering code (Note 8)

Measuring element

Gas filled thermal system with Phosphor Bronze Bellows.

Wetted Parts

Copper bulb or 316 SS bulb

Range

Refer Ordering Matrix

Range adjustment

External with lock

Switching contacts with microswitch

- 1 × SPDT
- 2 × SPDT (Single pole double throw)

Switching function

Instrument quality snap acting micro switch (Note 5)

¹⁾ Packing gland size shall be M16 for switzer supplied thermowell

Electrical rating

- AC: 15A, 250V
- DC: 0.5A 110V / 0.25A 220V / 8A 24V (resistive)
0.2A 110V / 0.10A 220V / 7A 24V (inductive)

On-off differential

Narrowband adjustable

Electrical connection

1/2" NPTF Nylon Cable gland for 8mm OD cable standard

Ingress protection

IP66

Scale Accuracy

± 5% FSR

Mounting

Wall / Panel / Pipe

Conformity

Generally to BS 6134

Weight

Approx. 600 Gms.

Options

Thermowell: Standard

- Immersion length of 110 mm for 3M capillary
- Immersion length of 120 mm for 5M, 8M & 10M capillary (based on the length of the bulb).

Thermowell: Option

- Higher immersion lengths in multiples of 5 up to 300 mm
- Single line tag plate of size 0.5 mm thick; 15 mm × 70 mm

Response time

Sl. No.	Thermal System / Range code	Capillary length and temperature range	Response time	
			Without Thermowell	With Thermowell *
1	3C, 3S, 5C, 5S / C009, C024	Up to 6 meters and 100°C	15 sec.	45 sec.
2	3C, 3S, 5C, 5S / C010	Up to 6 meters and 300°C	25 sec.	75 sec.
3	8C, 8S, 10C, 10S / C009, C024	>6 ... 10 meters and 100°C	25 sec.	75 sec.
4	8C, 8S, 10C, 10S / C010	>6 ... 10 meters and 300°C	40 sec.	90 sec.

* Will vary depending on the design of the Thermowell and filling media.

Ordering matrix

Switch enclosure

Aluminium pressure die cast weatherproof to IP:66 ———— **GH**

On-off differential

Narrowband adjustable – standard ———— **972**

Range

Range	Differential (adj.) (Note 3)	MWT	
25 ... 90°C	5 ... 20°C	300°C	C009
70 ... 150°C	7 ... 30°C	300°C	C010
0 ... 60°C	8 ... 10°C	110°C	C024

Thermal system ★

3M Copper bulb and capillary with 304 SS armour	3C
5M Copper bulb and capillary with 304 SS armour	5C
8M Copper bulb and capillary with 304 SS armour	8C
3M 316 SS bulb and capillary with 304 SS armour	3S
5M 316 SS bulb and capillary with 304 SS armour	5S
8M 316 SS bulb and capillary with 304 SS armour	8S
10M 316 SS bulb and capillary with 304 SS armour	10S

★ Armour will be of 6 mm dia

Switch code

1 × SPDT	3
2 × SPDT (Note 5)	33

Instrument connection

None	0
1/2" BSPM	A
1/2" NPTM	B
3/8" BSPM	C
3/8" NPTM	D
3/4" BSPM	E
3/4" NPTM	F
M16 (applicable only for Thermowells supplied by Switzer)	G

Instrument connection material

None	0
Mild steel plated	C
304 SS	4

Electrical entry

1/2" NPTF	A
7 PIN connector	C

Thermowell

Not required	0
Required	TW
Special thermowell	STW

Thermowell process connection

None	ZZ
1/2" NPTM	B
1/2" BSPM	A
3/4" NPTM	F
3/4" BSPM	E
1" BSPM	H
1" NPTM	I

Thermowell material

Not applicable	ZZ
304 SS	4
316 SS	2

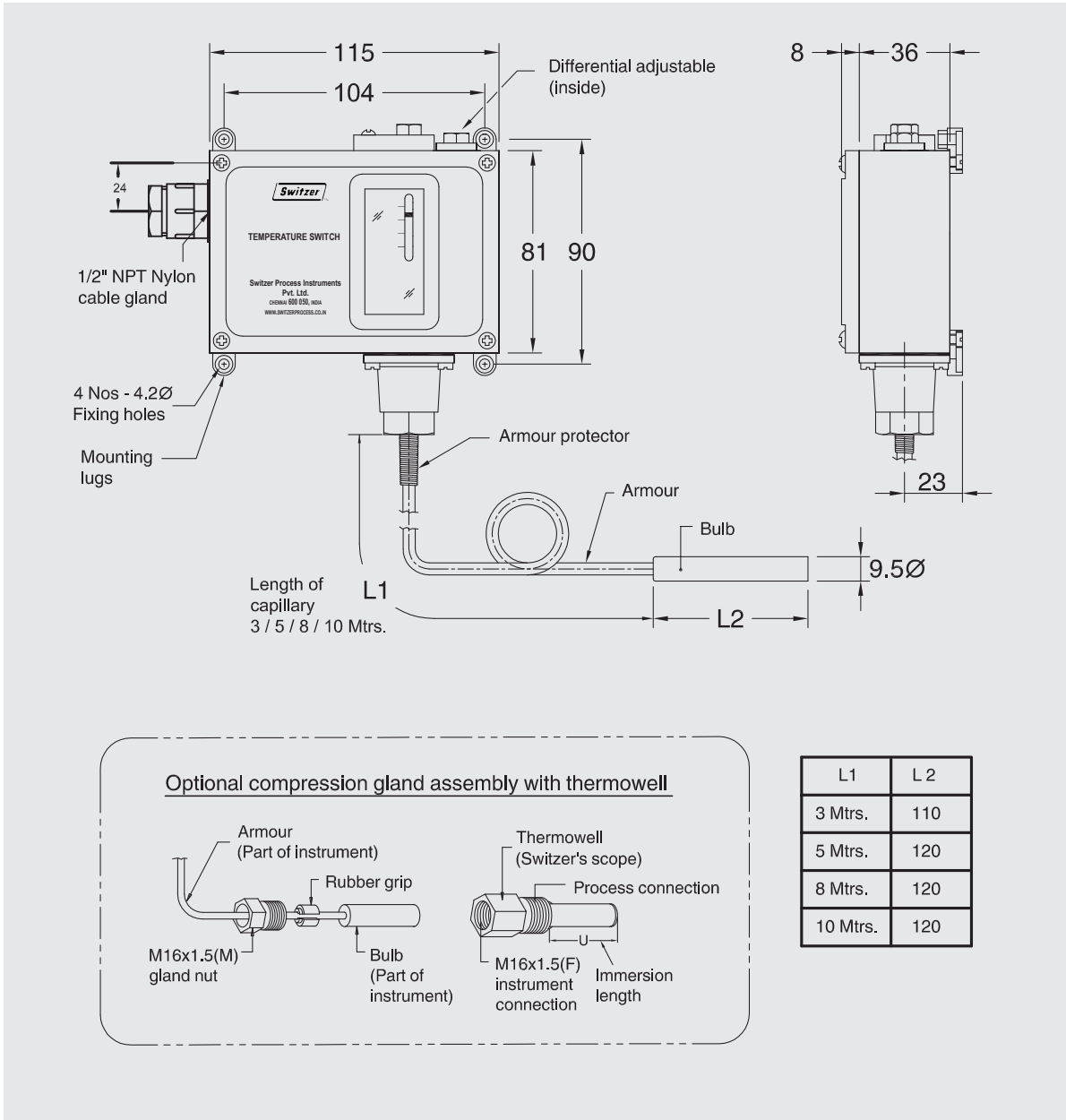
CE Conformity

Non CE conformity	ZZ
CE conformity	CE

Notes

1. Accuracy and repeatability are same for a Temperature Switch, which is a switching device and not a measuring / indicating instrument.
2. Select working range of the instrument such that the set temperature lies in the mid 35% of the range i.e., between 35% and 70% of range span.
3. Switching differentials are at midscale and will vary with range setting and operating conditions.
4. On and off settings should not exceed the upper and lower range value.
5. DPDT action is achieved by 2×SPDT switches synchronised to practical limits i.e., $\pm 2\%$ of FSR. Apply a multiplication factor of 1.5 to the minimum differential value for DPDT switching.
6. A more versatile and wide range of temperature switches are available in series 700.
7. A shift of $\pm 2\%$ may be observed when temperature falls from full Maximum Working Temperature.
8. For pressurized application, where line pressure is more than 1 bar, or, when temperature is higher than boiling point, thermowell is recommended to be used.

Dimensions in mm



Ordering information

Switch enclosure / On-off differential / Range / Thermal system / Switch code / Instrument connection / Instrument connection material / Electrical entry / Thermowell / Thermowell process connection / Thermowell material / Options

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