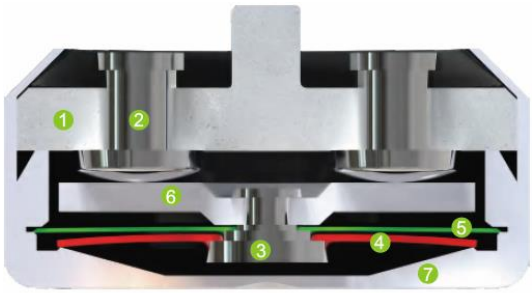
STH6 Series thermal protectors

Features

High switching capacity	Maximum switching current 35 A
High sensitivity	due to brass housing and low switch mass
Excellent long-term stability	silver contacts. Reproducible switching temperature values thanks to thermally tempered, mechanically and electrically unloaded bimetal disc
Very short bounce times	< 1 ms
Momentary switching	with always the same contact pressure up to the nominal switching time; therefore less contact wear
Temperature resistance	by use of high temperature resistant materials and components

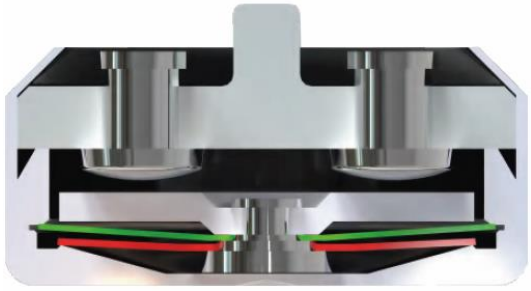
Main parts



1) Iron cover plate
2) stationary silver contact
3) shaft pin
4) bimetal disc
5) spring disc
6) moveable contact
7) housing

Construction

Stationary silver contact and ceramic covers are riveted together; The movable contact, bimetal disc and spring disc are riveted together by shaft pins. The movable contact is in close contact with the stationary silver contact under the pre-pressure of the spring disc; The current passes through the stationary silver contact and the movable contact to form a loop.



Function

When the circuit works normally, the movable contact and the stationary silver contact are in a closed state. When the rated operating temperature is reached, the bimetal disc is deformed by heat, and the spring disc is pushed downward through the riveting shaft pin, so that the movable and stationary silver contact are abruptly opened. After the circuit is disconnected, the ambient temperature begins to fall. When it reaches the defined reset temperature, the bimetal disc and the spring disc snaps back into its start position, the contacts will close again, and the circuit returns to the normal working state.

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STH6-U1

Normally closed; reset automatically; with connector cables; with epoxy; insulation: Mylar-Nomex

Nominal switching temperature (NST) in 5K	NC
Tolerance (standard)	(60 … 140°C) ±5K
	(145 … 200°C) ±10K
Reverse switch temperature (RST) tolerance	≥35°C (≤ 130°C NST)
	-85K±15K (≥ 135°C ≤ 190°C NST)
	-90K±15K (≥ 195°C ≤ 200°C NST)
Thickness	6.8mm
Diameter	9.5mm
Length of the insulation cap	16mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	600N
Standard connection	1.0 mm² / AWG17
Insulation voltage	2.0kV
Recognized standards	UL/VDE/CQC
Operating voltage range AC/DC	up until 500 V AC / 28 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	13.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	35 A / 2,000
Rated current AC cos φ = 0.6 /cycles	9A / 10,000
Rated voltage DC	24.0 V
Max. switching current DC /cycles	60.0 A / 3,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 … 60 Hz	100 m/s²

Order Code

STH6	-	A	-	U1	.	155	.	05	.	300-5/300-5
Type										
		Function								
				Design						
						Nominal switching temp. (°C)				
								Tolerance (K)		
										Wire length (mm)

L1 L2

Standard connection wires

Isolation material	Max. Temp.	Max. operating voltage	Size	UL-Style
XLPE	150°C	300V	AWG 17	3398
PFA	250°C	600V	AWG 17	10362

Up to 150°C, white XLPE wires in AWG 22 used as standard. (UL3398)
Above 150°C, yellow PFA wire in AWG 22 used as standard. (UL10362)

Available switching & reset temperatures

Switching °C	Reset °C
60 ± 5K	≥35
65 ± 5K	≥35
70 ± 5K	≥35
75 ± 5K	≥35
80 ± 5K	≥35
85 ± 5K	≥35
90 ± 5K	≥35
95 ± 5K	≥35
100 ± 5K	≥35
105 ± 5K	≥35

Switching °C	Reset °C
110 ± 5K	≥35
115 ± 5K	≥35
120 ± 5K	≥35
125 ± 5K	≥35
130 ± 5K	≥35
135 ± 5K	50 ± 15K
140 ± 5K	55 ± 15K
145 ± 10K	60 ± 15K
150 ± 10K	65 ± 15K
155 ± 10K	70 ± 15K

Switching °C	Reset °C
160 ± 10K	75 ± 15K
165 ± 10K	80 ± 15K
170 ± 10K	85 ± 15K
175 ± 10K	90 ± 15K
180 ± 10K	95 ± 15K
185 ± 10K	100 ± 15K
190 ± 10K	105 ± 15K
195 ± 10K	105 ± 15K
200 ± 10K	110 ± 15K

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