

## ST11 Series thermal protectors



### Features

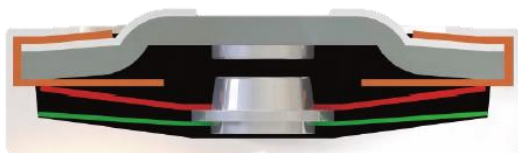
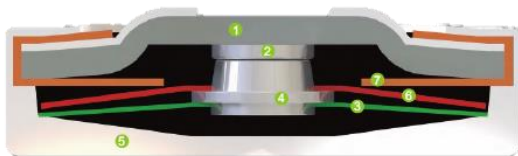
Specially flat design	to fit closely built-up circuits
Quick response sensitivity	Featured by small protector mass and the metal-housing
Excellent long term performance	due to instantaneous switching, fine silver contacts, constant contact resistance and to electrically as well as mechanically unstressed bimetallic disc, reproducible switching temperature values
Instantaneous switching	with always constant contact pressure up to the nominal switching point, resulting in low contact stress
Very short bounce times	< 1 ms
Temperature resistance	by use of high temperature resistant materials and components

### Main parts

- |                              |                     |
|------------------------------|---------------------|
| 1) Iron cover plate          | 5) housing          |
| 2) stationary silver contact | 6) bimetal disc     |
| 3) spring disc               | 7) Insulating paper |
| 4) movable contact           |                     |

### Construction

Stationary silver contact are riveted with iron cover plate. The bimetal disc and spring disc are combined by steps on the movable contact. The current passes through the stationary silver contact to the movable contact, and then connects the housing through the spring disc to form a loop.

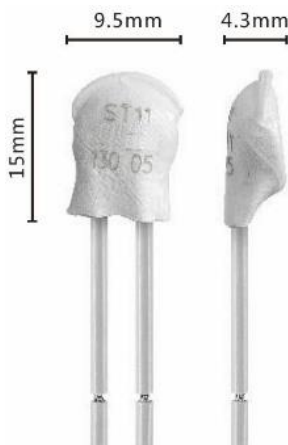


### Function

When the circuit is normal, the movable contact is in close contact with the stationary silver contact under the pre-pressure of the spring disc. When the rated operating temperature is reached, the bimetal disc is deformed by heat, snaps into its inverted position and pushes the spring disc downwards. The contact is abruptly opened and the temperature rise of the device to be protected is disrupted. 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 conduction state.

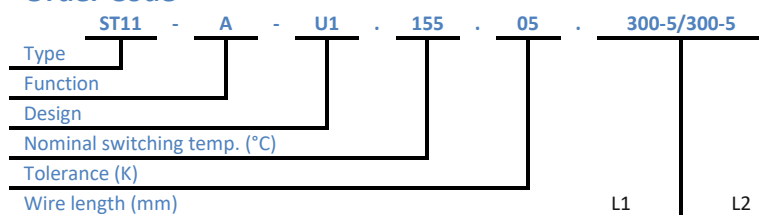
## ST11-U1

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



Nominal switching temperature (NST) in 5K	NC
Tolerance (standard)	(60-200°C) ±5K
	(205-250°C) ±10K
Reverse switch temperature (RST) tolerance	≥35°C (≤ 80°C NST)
	-35K±15K (≥ 85°C ≤ 180°C NST)
	-65K±15K (≥ 185°C ≤ 200°C NST)
	120°C±15K (>200°C NST)
Thickness	>4.3mm
Diameter	9.5mm
Length of the insulation cap	15mm
Resistance to impregnation	Suitable
Suitable for installation in protection class	I + II
Pressure resistance to the switch housing	500N
Standard connection	0.33 mm <sup>2</sup> / AWG22
Insulation voltage	2.0kV
Recognized standards	UL/VDE/CQC/CB
Operating voltage range AC/DC	up until 500 V AC / 14 V DC
<b>(60 ... 200°C) Operating temperature products</b>	
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC cos φ = 1.0 /cycles	2.5A / 10,000
Max. current AC cos φ = 1.0 /cycles	6.3 A / 3,000
	7.5 A / 300
Rated current AC cos φ = 0.6 /cycles	1.6A / 10,000
Rated voltage DC	12.0 V
Max. switching current DC /cycles	40.0 A / 5,000
<b>(205 ... 250°C) Operating temperature products</b>	
Rated current AC cos φ = 1.0 /cycles	2.5A / 1,000
Rated current AC cos φ = 0.6 /cycles	1.6 A / 1,000
Total bounce time	< 1 ms
Contact resistance	≤ 50 mΩ
Vibration resistance at 10 ... 60 Hz	100 m/s <sup>2</sup>

### Order Code



### Standard connection wires

Isolation material	Max. Temp.	Max. operating voltage	Size	UL-Style
XLPE	150°C	300V	AWG 22	3398
			AWG 24	
PFA	250°C	600V	AWG 22	10362
			AWG 24	

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	Switching °C	Reset °C	Switching °C	Reset °C
60 ± 5K	≥35	125 ± 5K	90 ± 15K	190 ± 5K	125 ± 15K
65 ± 5K	≥35	130 ± 5K	95 ± 15K	195 ± 5K	130 ± 15K
70 ± 5K	≥35	135 ± 5K	100 ± 15K	200 ± 5K	135 ± 15K
75 ± 5K	≥35	140 ± 5K	105 ± 15K	205 ± 10K	120 ± 15K
80 ± 5K	≥35	145 ± 5K	110 ± 15K	210 ± 10K	120 ± 15K
85 ± 5K	50 ± 15K	150 ± 5K	115 ± 15K	215 ± 10K	120 ± 15K
90 ± 5K	55 ± 15K	155 ± 5K	120 ± 15K	220 ± 10K	120 ± 15K
95 ± 5K	60 ± 15K	160 ± 5K	125 ± 15K	225 ± 10K	120 ± 15K
100 ± 5K	65 ± 15K	165 ± 5K	130 ± 15K	230 ± 10K	120 ± 15K
105 ± 5K	70 ± 15K	170 ± 5K	135 ± 15K	235 ± 10K	120 ± 15K
110 ± 5K	75 ± 15K	175 ± 5K	140 ± 15K	240 ± 10K	120 ± 15K
115 ± 5K	80 ± 15K	180 ± 5K	145 ± 15K	245 ± 10K	120 ± 15K
120 ± 5K	85 ± 15K	185 ± 5K	120 ± 15K	250 ± 10K	120 ± 15K

Errors and omissions excepted