



**Sensata**  
Technologies



# TH10

## Thermal Cut-Out

Sensata Technologies has developed the TH10 temperature cut-out to respond to the need of increasing power of heating and personal care appliances. As a result of this, Sensata Technologies has further established its leading position in the worldwide thermal protection market.

### Design and operating principles

The TH10 consists of two nickel-plated supports, held together with ceramic pins. One support holds the high performance Klixon® bimetal disc, which, in combination with the sophisticated contact system, provides superior cycling performance. For self-hold versions see TH11/21. A wide temperature range, standard 5K tolerance, different bimetal resistivity, plus optional terminal configurations make the TH10 suitable for a very wide range of applications.

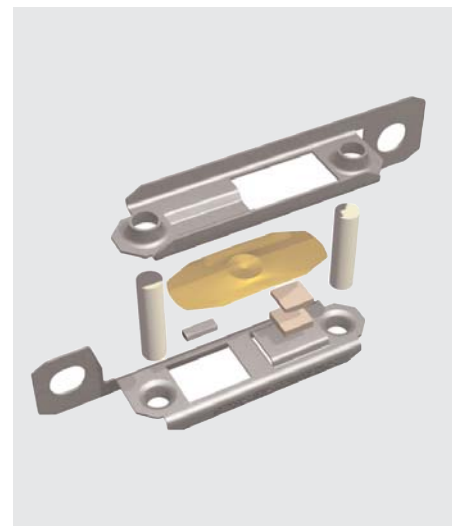
The operating principle of the TH10 is simple and effective. A current flows through the resistive Klixon® bimetal disc. When a fault condition occurs, the increased ambient temperature causes the bimetal disc to snap open the contacts. As the device cools down to a safe temperature again, the contacts will automatically reset.

### Applications

The TH10 operates as a sensitive power cut-out for:

- Hair dryers
- Fan heaters
- Convector heaters
- Transformers
- Hand dryers

and various other applications. With the TH10 Sensata Technologies provides you with cost-effective protection while offering superior quality and reliability.



## KEY BENEFITS

### Flexible mounting:

3 terminal configurations available

### Robust design:

The bimetal disc is protected by the metal support

### Full automated live:

Provides stable setting values

### Low price:

The particular design provides high competitiveness

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### Certifications:

Agency: ENEC

File number: 2014531.14

Rating: 13(2)A 250 Vac @ 30.000 cycles, 30(5)A 250 Vac @ 3.000 cycles

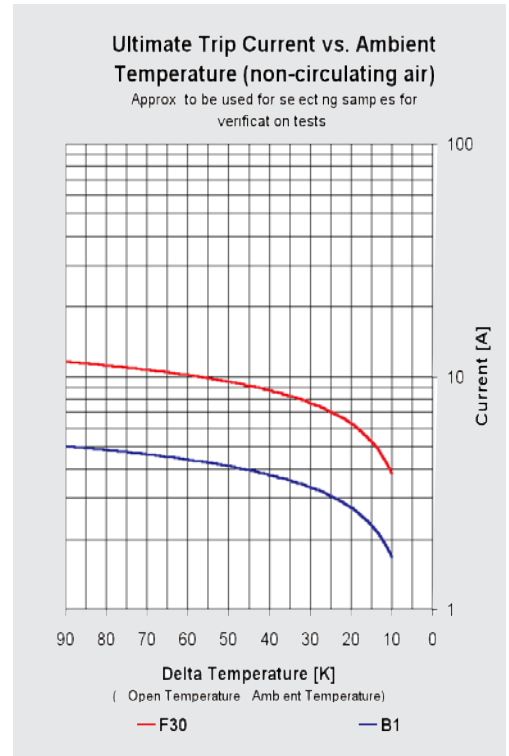
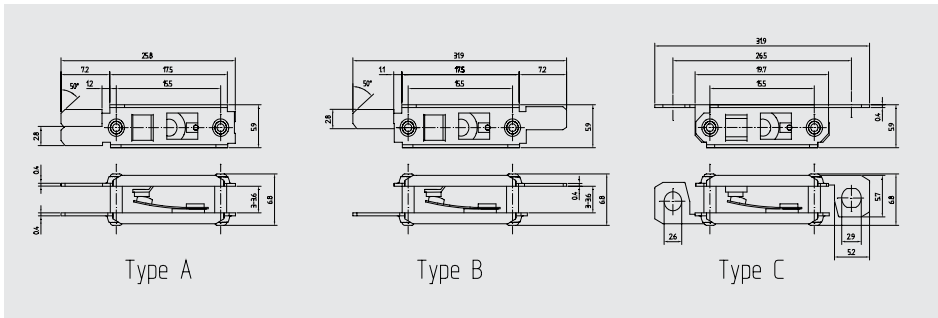
Standard: EN60730-2-9, EN60730-2-2, EN60730-1

Agency: UL

File number: E54813



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**Coding System**

TH 10    C    A    101

Terminal Configuration		Disc and contact support material		Standard opening temperature		
Code	Terminals	Code	Material	Operating Temp.	Low resistivity bimetal disc (F30)	High resistivity bimetal disc (B1)
A	Terminals on same end	A	Nickel plated steel	60°C	031	035
B	Terminals on opposite end			65°C	041	045
				70°C	051	055
				75°C	061	065
C	Terminals on opposite end (with holes)			80°C	071	075
				85°C	081	085
				90°C	091	095
				95°C	101	105
				100°C	111	115
				105°C	121	125
				110°C	131	135
				115°C	141	145
				120°C	151	155
				125°C	161	165
				130°C	171	175
				135°C	181	185
				140°C	191	195
				145°C	201	205
				150°C	211	215
				170°C		255

**Specifications**

Standard operating temperature range	from 45°C - 170°C
Max. Ambient temperature	200°C
Tolerance on open temperature	± 5K

**Declarations**

Declarations to EN60730-2-9		Declarations to EN60730-2-2	
Purpose of the control	Thermal Cut-Out	Purpose of the control	Thermal Motorprotector
Construction	Incorporated, non-electronic		
Degree of protection	IP00		
Terminals for ext. conductors	For internal conductors only		
Method of (dis) connection of terminals	Riveting, soldering, spotwelding, springloaded contacting		
Details for terminals for internal conductors	Insulation of conductors used by OEM's must be able to withstand the operating temperatures in normal usage		
Temperature limits of the switchhead	200°C		
PTI of insulation materials	PTI 250	PTI of insulation materials	PTI 250
Method of mounting	By various means in conjunction with (holes in) terminals, such that adequate creepage and clearance distances are maintained between live parts and accessible metal parts	Method of mounting	By various means in conjunction with (holes in) terminals, such that adequate creepage and clearance distances are maintained between live parts and accessible metal parts
Operating time	For continuous operation		
Type of action	Type 2B	Type of action	Type 3C
Reset characteristic	Automatic	Reset characteristic	Automatic
Extent of sensing element	Whole control		
Control pollution degree	Degree 2	Control pollution degree	Degree 2

**TECHNICAL / SALES SUPPORT**



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## TH11 and TH21

### Self-hold Thermal Cut-Outs

Sensata Technologies has developed the electrical self-hold temperature cut-out in order to offer a non-self resetting device, suitable for high current applications, thus fulfilling the growing need for higher safety.

#### Design and operating principles

The TH11 and TH21 consists of two nickel-plated supports, held together with ceramic pins. One support holds the high-performance Klixon® bimetal disc, which, in combination with the sophisticated contact system, guarantees the superior cycling performance. One ceramic pin has a layer of resistive material, functioning as a small heater when a voltage is supplied. A wide temperature range, standard 5K tolerance, different bimetal resistivity and various optional terminal configurations make the TH11 and TH21 suitable for a wide range of applications. Whereas the TH11 operates at 230 Vac. The TH21 is designed for 120 Vac applications. Because of their identical dimensions, the TH11 and TH21 can be easily exchanged with the auto reset thermal protector TH10.

The operating principle of the TH-series is both simple and effective. A current flows through the resistive Klixon® bimetal disc. When a fault condition occurs, the increased ambient temperature causes the bimetal disc to snap open the contacts. The resistive layer spots the voltage over the open contacts and

a current flows through the resistor, generating sufficient heat to keep the bimetal warm and the contacts open. When the power is switched off, the device cools down to a safe temperature and the contacts will close.

#### Applications

The TH11 and TH21 are temperature resistive cut-outs for such applications as:

- Fan heaters
- Convector heaters
- Hair dryers

and various other applications which require a non-self resetting protector like transformers, cable reels etc.

### KEY BENEFITS

#### Flexible mounting:

3 terminal configurations available

#### Robust design:

The bimetal disc is protected by the metal support

#### Full automated live:

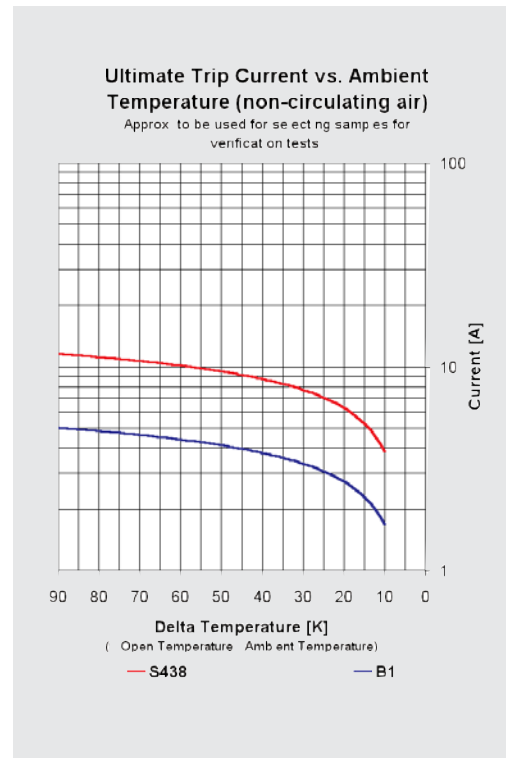
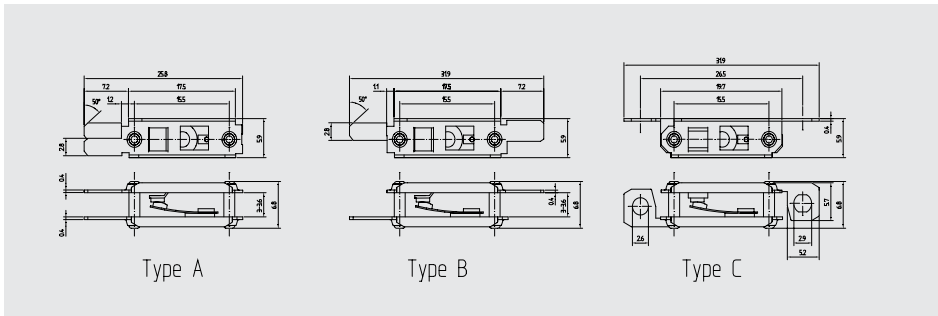
Provides stable setting values

#### Low price:

The particular design provides high competitiveness

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**Coding System**

TH 11      C      A      101

Function		Terminal Configuration		Disc and contact support material		Standard opening temperature		
Code	Rating	Code	Terminals	Code	Material	Operating Temp.	Low resistivity bimetal disc (F30)	High resistivity bimetal disc (B1)
11	220V selfhold	A	Terminals on same end	A	Steel	60°C	031	035
21	110V selfhold	B	Terminals on opposite end			65°C	041	045
		C	Terminals on opposite end (with holes)			70°C	051	055
						75°C	061	065
						80°C	071	075
						85°C	081	085
						90°C	091	095
						95°C	101	105
						100°C	111	115
						105°C	121	125
						110°C	131	135
						115°C	141	145
						120°C	151	155
						125°C	161	165
						130°C	171	175
						135°C	181	
						140°C	191	
						145°C	201	
						150°C	211	

**Declarations TH11**

Declarations to EN60730-2-9

Purpose of the control	Voltage maintained Thermal Cut-Out
Construction	Incorporated, non-electronic
Degree of protection	IP00
Terminals for ext. conductors	For internal conductors only
Method of (dis) connection of terminals	Riveting, soldering, spotwelding, spring loaded contacting
Temperature limits of the switchhead	200°C
PTI of insulation materials	PTI 250
Method of mounting	By various means in conjunction with (holes in) terminals such that adequate creepage and clearance distances are maintained between live parts and accessible metal parts
Operating time	For continuous operation
Type of action	Type 2B
Reset characteristic	Voltage maintained off-position thru heat from the heaterfilm on one ceramic pin. Device resets by interrupting the power supply
Extent of sensing element	Whole control
Control pollution degree	Degree 2

**Specifications**

Standard operating temperature range	from 60°C - 150°C TH11 from 60°C - 130°C TH21
Max. Ambient temperature	200°C
Tolerance on open temperature	± 5K
Selfhold function in still-air	> -20°C TH11 > -35°C TH21

**Certifications:**  
 Agency: ENEC  
 Filenumber: 2014531.14  
 Rating: 16(2)A 250 Vac @ 1.000 cycles  
 Standard: EN60730-2-9, EN60730-2-2, EN60730-1

Agency: UL  
 Filenumber: E54813



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