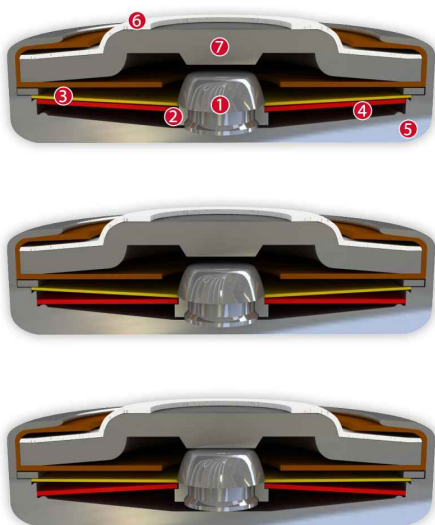


# DATASHEET

## Thermal Protector F09

### Type series 09



### Construction and function

Switchgear consisting of a movable silver contact (1), a contact bearer (2), a spring snap-in disc (3) and a bimetallic disc (4) which is riveted into one another, undetachable and fixed in a positive lock and self-aligning between a conductive, heat-transferring housing (5) and a contact cap made of steel (6) that is insulated from it, plus a stationary countercontact (7). At the same time, the switchgear is held open by the spring snap-in disc (3) used as a transfer element for electric current which is held between a supporting collar and a circumferential ring. As such, the bimetallic disc (4) underlying it, that is also stuck out from the movable contact (1), can continuously work (exposed) by mechanical loads. As soon as the bimetallic disc (4) reaches its rated switching temperature, it effectively springs against the throw force of the spring snap-in disc (3) into its inverted position. The contact is abruptly closed. The spring snap-in disc (3) is now a transfer element for electric current and as such, it enables the bimetallic disc (5) to continue to work on a continuous basis. When the spring back temperature is reached, the bimetallic disc snaps back into its start position and the contact is opened again.



### Features:

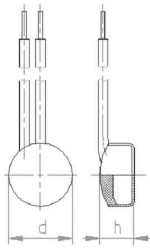
Small dimensions	suitable for mounting into and onto windings
Quick response sensitivity	featured by small protector mass and the metal-housing
Excellent long term performance	due to instantaneous switching, fine-silver contacts, constant contact resistance and to electrically as well as mechanically unstressed bimetallic disc, reproducible switching temperature values
Very short bouncing times	< 1 ms
Instantaneous switching	always with the same contact pressure up to reset point; resulting in low contact stress
Temperature resistance	by use of high temperature resistant materials and components

## Technical Data Type F09

The listed products are an extract from our standard range. Other versions and customised manufacturing are available upon request.

F09

Type: Normally open; resets automatically; with connector cables; with epoxy; fully insulated in a Nomex® cap



Diameter d 11,4 mm  
Installation height h from 6,5 mm

Nominal switching temperature (NST) in 5 °C increments	50 °C - 180 °C	
Tolerance (standard)	±5 K	
Reverse Switch Temperature (defined RST is possible at the customer's request)	UL	≥ 30° C (≤ 75° C NST)
	VDE	-30 K ± 15 K (≥ 80° C ≤ 180° C NST)
		≥ 35 °C
Installation height	from 6,5 mm	
Diameter	11,4 mm	
Resistance to impregnation *	suitable	
Suitable for installation in protection class	I + II	
Pressure resistance to the switch housing *	300 N	
Standard connection	Lead wire 0,5 mm <sup>2</sup> / AWG20	
Available approvals (please state)	IEC; ENEC; VDE; UL (appr. ≤ 180°C); CSA; CQC	
Operating voltage range AC	up until 500 V AC	
Rated voltage AC	250 V (VDE) 277 V (UL)	
Rated current AC cos φ = 1.0/cycles	6,3 A / 10.000	
Rated current AC cos φ = 0.6/cycles	4,0 A / 10.000	
High voltage resistance	2,0 kV	
Total bounce time	< 1 ms	
Contact resistance (according to MIL-STD. R5757)	≤ 50 mΩ	
Vibration resistance at 10 ... 60 Hz	100 m/s <sup>2</sup>	

### Ordering example:

F09 - 125. 05 0100/ 0100

Type / version \_\_\_\_\_  
 NST [ °C ] \_\_\_\_\_  
 Tolerance [ K ] \_\_\_\_\_  
 Lead lengths [ mm ] \_\_\_\_\_ L<sub>1</sub> L<sub>2</sub>

### Marking example:

Trade mark  thermik  
 Type / version \_\_\_\_\_ **F09**  
 NST [ °C ] . Tolerance [ K ] \_\_\_\_\_ **125.05**

### More varieties of the type serie 09:

- S09 – with connector cables; with or without epoxy; insulation: Mylar®-Nomex®
- L09 – with connector cables; with epoxy; fully insulated in a screw on housing
- C09 – with connector cables; with or without epoxy; without insulation

[www.thermik.de/data/S09](http://www.thermik.de/data/S09)

[www.thermik.de/data/L09](http://www.thermik.de/data/L09)

[www.thermik.de/data/C09](http://www.thermik.de/data/C09)

\*In accordance with the Thermik test - Specifications relating to part applications (on the part of the buyer) which deviate from our standards are not checked for their capacity to support an application and/or conformity with standards. The responsibility for using the products for such applications falls upon the user. - Slight deviations are possible in terms of dimensions/ appearance, depending on the manufacturing process. - We reserve the right to make technical changes in the course of further development. - Details concerning construction, measurement methods, applications, approvals, etc. can be supplied upon request.