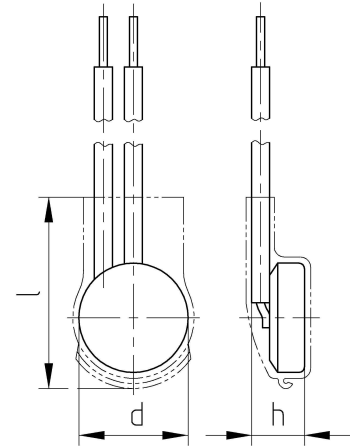


## Information 407 e

### Thermal Protectors Series 05 Types C05, C09 / S05, S09

#### Application:

Thermal Protectors (TP) of series 05 - types S05 and C05 with normally closed contacts are utilised for overheating protection of all kinds of electric equipment or devices, especially for electric motors, transformers and ballast. After overheating and subsequent cooling an automatic resetting is required. S09 and C09 are types with normally open contacts utilised to start fans, warning lamps or acoustic signals in case of overheating. They can either be attached on or embedded within coil windings. Due to their small dimensions, they will fit almost anywhere.



#### Design:

These switches are equipped with a high capacity contact mechanism, wherein the bimetallic disc can move freely, without the current flowing through it. An additional spring disc maintains constant contact pressure until reaching its switching temperature. The types C05 and C09 having a live uninsulated housing for best heat transfer can be used, where external insulation is either available or not necessary. The types S05 and S09 are covered by an additional insulation cap.

Diameter <b>d</b> with / without insulation cap	11.4 / 11.0 mm
Height <b>h</b> with / without insulation cap	5.8 / 5.4 mm
Length of insulation cap <b>l</b>	19.0 mm
dimensions (average)	

#### Operation:

If, in the case of overheating, the rated switching temperature of the bimetallic disc is reached, it suddenly snaps over and opens the contacts of types 05 or closes the contacts of types 09. After cooling down beyond their resetting temperature, the bimetallic disc resets and causes the contacts to reclose (types 05) or to reopen (types 09).

#### Features:

<b>Small dimensions</b>	: suitable for mounting into and onto windings
<b>Quick response sensitivity</b>	: featured by small protector mass and the metal-housing
<b>Excellent long term performance</b>	: due to instantaneous switching, fine-silver contacts, constant contact resistance and to electrically as well as mechanically unstressed bimetallic disc, reproducible switching temperature values
<b>Very short bouncing times</b>	: < 1 ms
<b>Instantaneous switching</b>	: with constant contact pressure over the whole temperature range
<b>Temperature resistance</b>	: by use of high temperature resistant materials and components

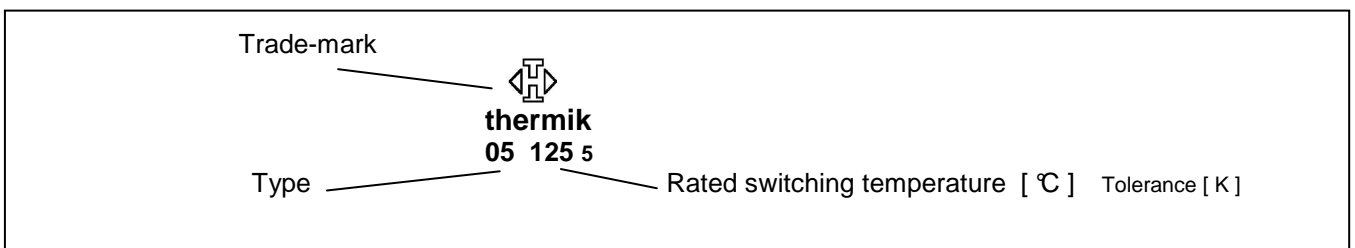
**Technical Data - Series 05**

Contact type	NC (C05, S05)	NO (C09, S09)
Nominal switching temperature (NST)	60 °C – 200 °C in steps of 5 K	
Standard tolerance	± 5 K	
Resetting temperature (RST) Standard:	RST = > 35°C (VDE)	
Resetting temperature (RST) UL:	RST = NST - 30K ± 15K	
Operating voltage	.. 500V AC; DC ratings available, corresponding values on inquiry	
Rated voltage AC	250 V AC (IEC,VDE,CSA); 277 V AC (UL)	
Rated current AC I <sub>NOM</sub>	6.3 A cos φ = 1.0	10,000 switching cycles
	4.0 A cos φ = 0.6	10,000 switching cycles
	4.6 A cos φ = 0.4 – 0.5	10,000 switching cycles
Max. switching current at 250V AC	10.0 A cos φ = 1.0	3,000 switching cycles (C05 / S05)
	10.0 A cos φ = 1.0	2,000 switching cycles (C09 / S09)
	20.0 A cos φ = 1.0	300 switching cycles (C05 / S05)
	18.4 A cos φ = 0.4 – 0.5	1,000 switching cycles (C05 / S05)
Contact bounce time	< 1 ms	
Impregnation resistance	suitable (acc. to Thermik-test)	
Contact resistance	< 50 mΩ with reference to MIL – STD. R 5757	
Vibration proof at 10 ..... 60 Hz	100 m/s <sup>2</sup>	
Pressure stability of housing	300 N	
Switch insulation (S05, S09)	Insulation cap: Mylar – Nomex ®	
Dielectric strength of the insulation cap	2 kV <sub>r.m.s.</sub>	
Standard connection leads	Multi strand wire 0.5 mm <sup>2</sup> / AWG 20	
Approvals acc. to design and order	VDE with reference to EN 60730-1 -2-9 and EN 60730-1 -2-3 CB *) with reference to EN 60730-1 -2-9 and EN 60730-1 -2-3 UL with reference to UL 2111 CSA with reference to C22.2-77 CQC with reference to GB 14536.1-1998; GB 14536.1-1998	

\*) The "European Accreditation CB Scheme" Certificate, named CB- Certificate, covers virtually all national approbations.

The data of this table refers to the standard version. For others - please inquire.

**Marking example of the insulation cap:**



**Ordering example:**

