

DATASHEET Thermal Protector F05

Type series 05









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 carried by the spring snap-in disc (3) acting 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 without the contact pressure defined by the spring snap-in disc (3) diminishing. 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 opened. The temperature will now fall, the bimetallic disc (4) will only snap back upon reaching a defined reset temperature and the contact is closed 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	with always constant contact pres- sure up to the nominal switching point, resulting in low contact stress
Temperature resistance	by use of high temperature resistant materials and components



F05





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

Nominal switching temperature (NST) in 5 °C inci	rements 50 °C − 200 °C
Tolerance (standard)	±5 K
Reverse Switch Temperature (defined RST is possible at the customer's request)	UL \geq 30° C (\leq 75° C NST) -30 K \pm 15 K (\geq 80° C \leq 180° C NST)
	VDE ≥ 35 °C
Installation height	from 6,5 mm
Diameter	11,4 mm
Resistance to impregnation *	suitable
Suitable for installation in protection class	+
Pressure resistance to the switch housing *	300 N
Standard connection	Lead wire 0,5 mm ² / AWG20
Available approvals (please state)	IEC; ENEC; VDE; UL (appr.≤ 180°C); CSA; CQC
Operational voltage range AC/DC	up until 500 V AC / 14 V DC
Rated voltage AC	250 V (VDE) 277 V (UL)
Rated current AC $\cos \phi = 1.0$ /cycles	6,3 A / 10.000
Rated current AC $\cos \phi = 0.6/cycles$	4,0 A / 10.000
Max. switching current AC $\cos \phi = 1.0$ /cycles	10,0 A / 3.000 20,0 A / 300
Rated current AC $\cos \varphi = 0.4/cycles$	4,6 A / 10.000
Max. switching current AC $\cos \phi = 0.4/cycles$	18,4 A / 1.000
Rated voltage DC	12 V (VDE, UL)
Max. switching current DC/cycles	40,0 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 ²
	Marking example:
125. 05 0100 / 0100 	Trade mark — thermik Type / version — F05 NST [°C] . Tolerance [K] — 125.05

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

Ordering example: F05 - 125. 05 0100 / 0100 Type / version -NST[°C] -Tolerance [K] Lead lengths [mm]

Marking example: Trade mark -

More varieties of the type series 05:

- CO5 with connector cables; with or without epoxy; without insulation
- S05 with or without epoxy; insulation: Mylar®-Nomex®
- LO5 with connector cables; with epoxy; fully insulated in a screw on housing

www.thermik.de/data/C05 www.thermik.de/data/S05 www.thermik.de/data/L05

thermik Type / version ———— NST [°C] . Tolerance [K] — 125.05

