
Section 10

Accessories for immersion heaters

Fittings and gaskets, connection blocks

Thermostats

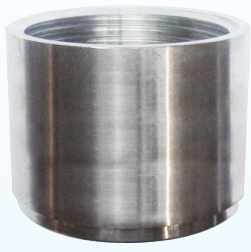
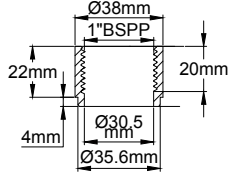
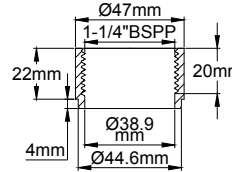
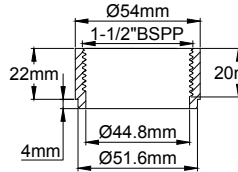
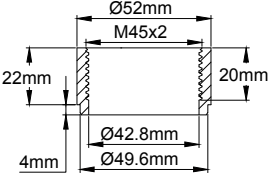
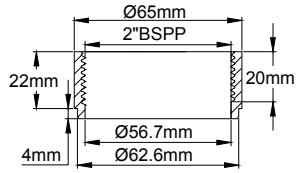
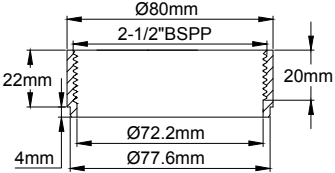
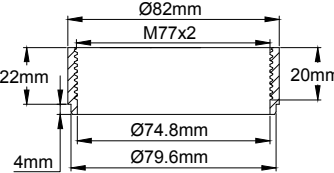
TCO









Accessories for immersion heaters.

304L* fitting for tank. Can be brazed or TIG welded





	1"	1"¼	1"½
			
	9BBRA3000ELH259A	9BBRA3000ELH144A	9BBRA3000ELH140A
M45x2	2"	2"½	M77x2
			
9BBRA3000ELH145A	9BBRA3000ELH146A	9BBRA3000ELH147A	9BBRA3000ELH148A

* Made on order only. Can also be made in 316L.

Connectors and terminals blocks for immersion heaters

Ground terminals. To screw on M4 or M5 threads on enclosures or fittings.	Small footprint standard connection blocks, PA66, 2.5mm²		
			
M4 terminal. For use with 1"½ and M45 stainless steel fittings and 1"¼, 1"½, M45, 2" brass fittings M5 : For use with 2"½ and M77 brass fitting	Black PA66 connection block, 2 × 2.5mm ² , backside mounting screws.	Black PA66 connection block, 3 × 2.5mm ² , backside mounting screws.	Black PA66 connection block, 2 × 2.5mm ² . 35mm raised bracket mounting.
References	Reference	Reference	Reference
M4 : 9BBSI10COELH010A M5 : 9BBSI10COELH011A	BE2E2000000CP000	BE3E3000000FP000	BE2E2000000HP000

Raised connection terminal blocks, PA66, 2.5mm². Are mounted above the heating element outputs.

			
Black PA66 connection block, 3 × 2.5mm ² . 27mm raised bracket mounting, for products with 1" fitting.	Black PA66 connection block, 5 × 2.5mm ² . 40mm raised bracket mounting. For use on products with 1"¼ ; 1"½ ; M45x2 fittings.	Black PA66 connection block, 5 × 2.5mm ² . 48mm raised bracket mounting ; with adapter for use on all enclosures, plastic or aluminum, with rotation fittings.	This 6 way elevated terminal block can be positioned above tubular heater terminals, and it fits inside 105 × 105mm square aluminum and stainless steel housing and also inside the 100mm diameter plastic housing.
Reference	Reference	Reference	Reference
BE3E3000000JP000	BE5E5000000KP000	BE5E5000000LP000	BE6E6000000MP000




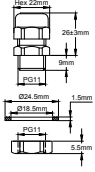

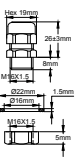

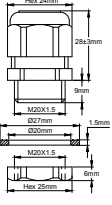

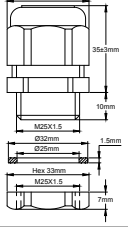
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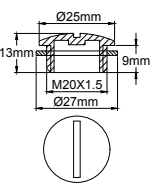
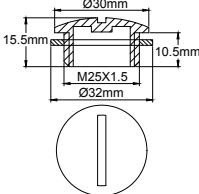
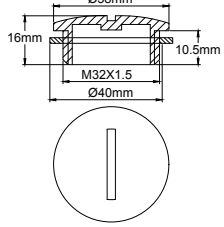
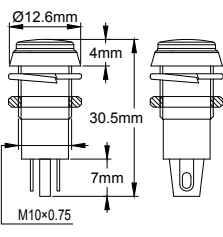
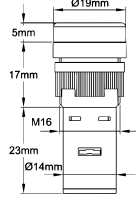
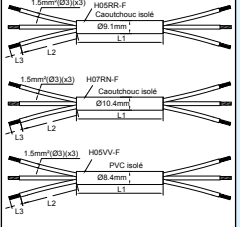
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Cat22-4-10-3

Immersion heaters

Cable glands. Black PA66 and nickel plated brass. Ingress protection IP66

							
PG11 cable gland, used only on the smallest enclosure of the range. For cables for 5 to 10mm dia. With gasket and nut.		M16 cable gland, for cables from 5 to 10mm dia. With gasket and nut.		M20 cable gland, for cables from 7.5 to 14mm dia. With gasket and nut.		M25 cable gland, for cables from 13 to 18mm dia. With gasket and nut.	
References		References		References		References	
PA66	6YTPEP11C050100	PA66	6YTPEM16C050100	PA66	6YTPEM20C075140	PA66	6YTPEM25C130180
Nickel plated brass	6YTPEP11L050100	Nickel plated brass	6YTPEL16L050100	Nickel plated brass	6YTPEM20L075140	Nickel plated brass	6YTPEM25L130180

Cable gland caps, black PA66 and nickel plated brass			Pilot lights (230V)		Various
					
M20 cap with gasket	M25 cap with gasket	M32 cap with gasket	Dia. 12mm, 10mm drill (Neon)	Dia. 19mm, 16mm drill (LED)	Electrical cords
References		References		References	
PA66	6YTPEM20B	PA66	6YTPEM25B	PA66	6YTPEM32B
Nickel plated brass	6YTPEM20PB	Nickel plated brass	6YTPEM25PB	Nickel plated brass	6YTPEM32PB
				Red	6YL10230RF00
				Green	6YL10230VF00
				Red	6YL16230RF00
				Green	6YL16230VF00
References upon request, depends of lengths L1, L2, L3 and insulation style (H05RR-F, H07RN-F, H05VV-F)					

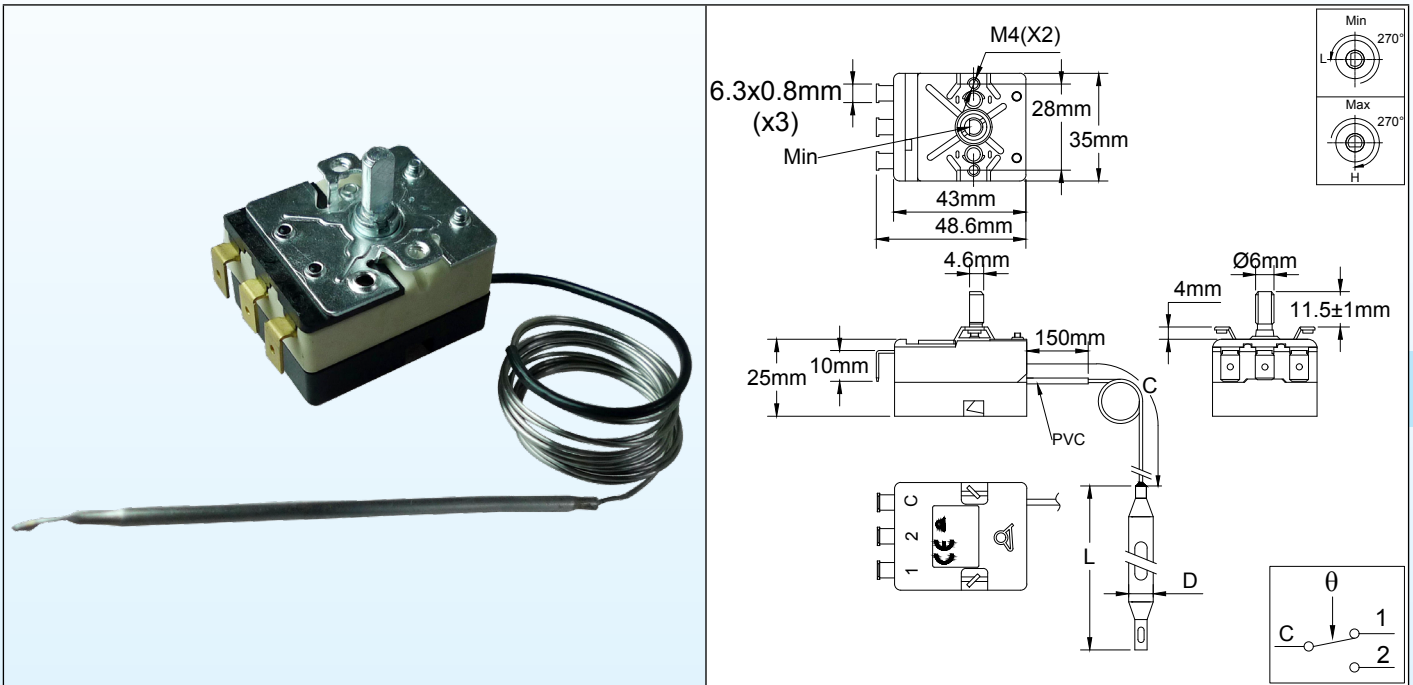
Because of permanent improvement of our products, drawings, descriptions, features used on these data sheets are for guidance only and can be modified without prior advice



Immersion heaters

Single pole control thermostat

Type 8G



Housing dimensions : 43 × 35 × 29mm (without terminals).

Bulb and capillary : stainless steel, 150mm long pvc sleeve on capillary. Capillary minimum bending radius 5mm.

Temperature sensing element : liquid filled bulb and capillary.

Terminals : 6.35 × 0.8 quick connect terminals. M4 screws also available on request.

Adjustment : Dia. 6mm shaft with 4.6mm flat, length 11.5mm. Other lengths, screw driver adjustment or fixed setting available on request.

Mounting : Front bracket with 2 × M4 threads, 28mm distance.

Contact : SPDT

Electrical rating :

- Open on temperature rise contact (C-1) 16A(2.6) 250VAC.
- Close on temperature rise contact (C-2) 6A(0.6) 250VAC.
- Electrical life >100.000 cycles.

Main references used in immersion heaters

Reference	Temperature range °C/ °F	Capillary length (mm)	Bulb diameter (mm)	Bulb length (mm)	Differential °C/ °F	Max temperature on bulb (°C/ °F)
8GB-35035AO60001	-35+35°C (-30+95°F)	1500	6	120±5	4±2°C (7±3.6°F)	60°C (140°F)
8GB-35035AA60001	-35+35°C (-30+95°F)	250	6	120±5	4±2°C (7±3.6°F)	60°C (140°F)
8GB-10040AO60001	-10+40°C (15-105°F)	1500	6	107±5	3±2°C (5.5±3.6°F)	70°C (158°F)
8GB-10040AA60001	-10+40°C (15-105°F)	250	6	107±5	3±2°C (5.5±3.6°F)	70°C (158°F)
8GB004040AO60001	4-40°C (40-105°F)	1500	6	120±5	3±2°C (5.5±3.6°F)	70°C (158°F)
8GB004040AA60001	4-40°C (40-105°F)	250	6	120±5	3±2°C (5.5±3.6°F)	70°C (158°F)
8GB000060AO60001	0-60°C (32-140°F)	1500	6	110±5	3±2°C (5.5±3.6°F)	80°C (176°F)
8GB000060AA60001	0-60°C (32-140°F)	250	6	110±5	3±2°C (5.5±3.6°F)	80°C (176°F)
8GB030090AO60001	30-90°C (85-195°F)	1500	6	98±5	4±3°C (7±5.5°F)	120°C (250°F)
8GB030090AA60001	30-90°C (85-195°F)	250	6	98±5	4±3°C (7±5.5°F)	120°C (250°F)
8GB030110AO60001	30-110°C (85-230°F)	1500	6	86±5	5±3°C (9±5.5°F)	140°C (284°F)
8GB030110AA60001	30-110°C (85-230°F)	1500	6	86±5	5±3°C (9±5.5°F)	140°C (284°F)



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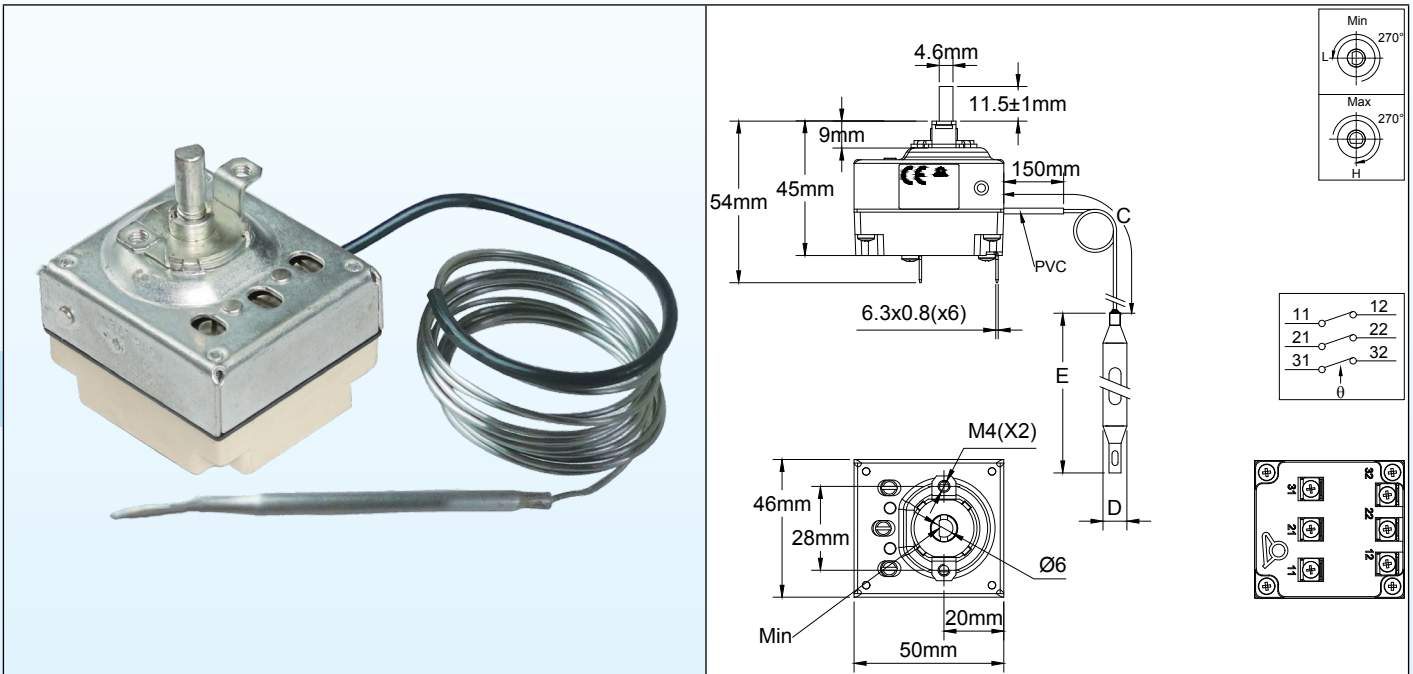
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Cat22-4-10-5

Immersion heaters

3 pole control thermostats

Type 8C



Housing dimensions : 46 × 50 × 45mm (without terminals)

Bulb and capillary : stainless steel, capillary length 250mm or 1500mm, 150mm long PVC sleeve on capillary. Capillary minimum bending radius 5mm.

Temperature sensing element : liquid filled bulb and capillary.

Terminals : 6.35 × 0.8 quick connect terminals. M4 screws also available on request.

Adjustment : Dia. 6mm shaft with 4.6mm flat, (other lengths or fixed setting available on request).

Mounting : Front bracket with 2 × M4 threads, 28mm distance

Rating : 3 × 16A(4) 250VAC, 10A 400VAC

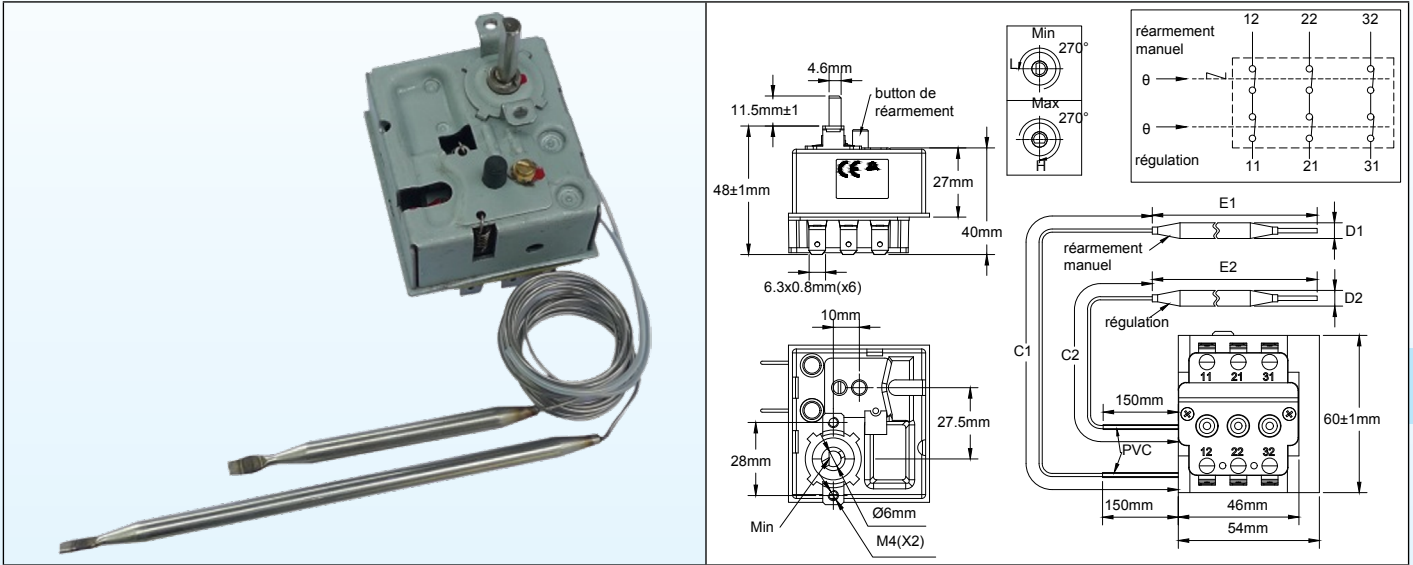
Contacts : 3 × ST with snap action contact, 3PDT available on request.

Main references used in immersion heaters

Reference	Temperature range (°C/ °F)	Capillary length (mm)	Bulb diameter (mm)	Bulb length (mm)	Differential (°C/ °F)	Max temperature on bulb (°C/ °F)
8CB-35035AO60001	-35+35°C (-30+95°F)	1500	6	95	4±2°C/ 7±3.6 °F	50°C/ 122°F
8CB-35035AA60001	-35+35°C (-30+95°F)	250	6	95	4±2°C/ 7±3.6 °F	50°C/ 122°F
8CB004040AO60001	4-40°C (40-105°F)	1500	6	160	4±2°C/ 7±3.6 °F	50°C/ 122°F
8CB004040AA60001	4-40°C (40-105°F)	250	6	160	4±2°C/ 7±3.6 °F	50°C/ 122°F
8CB030090AO60001	30-90°C (85-195°F)	1500	6	86	6±3°C/ 42.8±37.4°F	110°C/ 230°F
8CB030110AO60001	30-110°C (85-230°F)	1500	6	70	6±3°C/ 42.8±37.4°F	130°C/ 266°F

Immersion heaters

3 pole combined control thermostat Type 81



Housing dimensions : 60 × 54 × 48mm (without terminals)

Bulb and capillary : stainless steel, capillary length 1500mm, 150mm long PVC sleeve on capillary. Capillary minimum bending radius 5mm.

Temperature sensing element : liquid filled bulb and capillary.

Terminals : 6.35 × 0.8 quick connect terminals. M4 screws also available on request.

Adjustment : Dia. 6mm shaft with 4.6mm flat, (other lengths or fixed setting available on request).

Manual reset : fail safe, fixed setting, front access reset button

Fail safe contact action by low temperature : Temperatures under -15°C (5°F) will trigger the manual reset.

Mounting : Front bracket with 2 × M4 threads, 28mm distance

Rating : 3 × 16A 250VAC, 10A 400VAC (res.)

Contacts : 3 poles ST (snap action contact)

Main references

Reference	Temperature range (°C/ °F)	Capillary length	Bulb diameter (mm)	Bulb length (mm)	Differential (°C/ °F)	Max temperature on bulbs (°C/ °F)	Manual reset temperature (°C/ °F)
81C085110AO60001	30-85°C/ 86-185°F	1500	6	94 (E1) 129 (E2)	12 ±6°C/ 53.6±42.8°F	170°C/ 338°F (E1) 140°C/ 284°F (E2)	110°C+0/ -9 230°F+0/ -48.2

Other calibration values, ask our engineering department.



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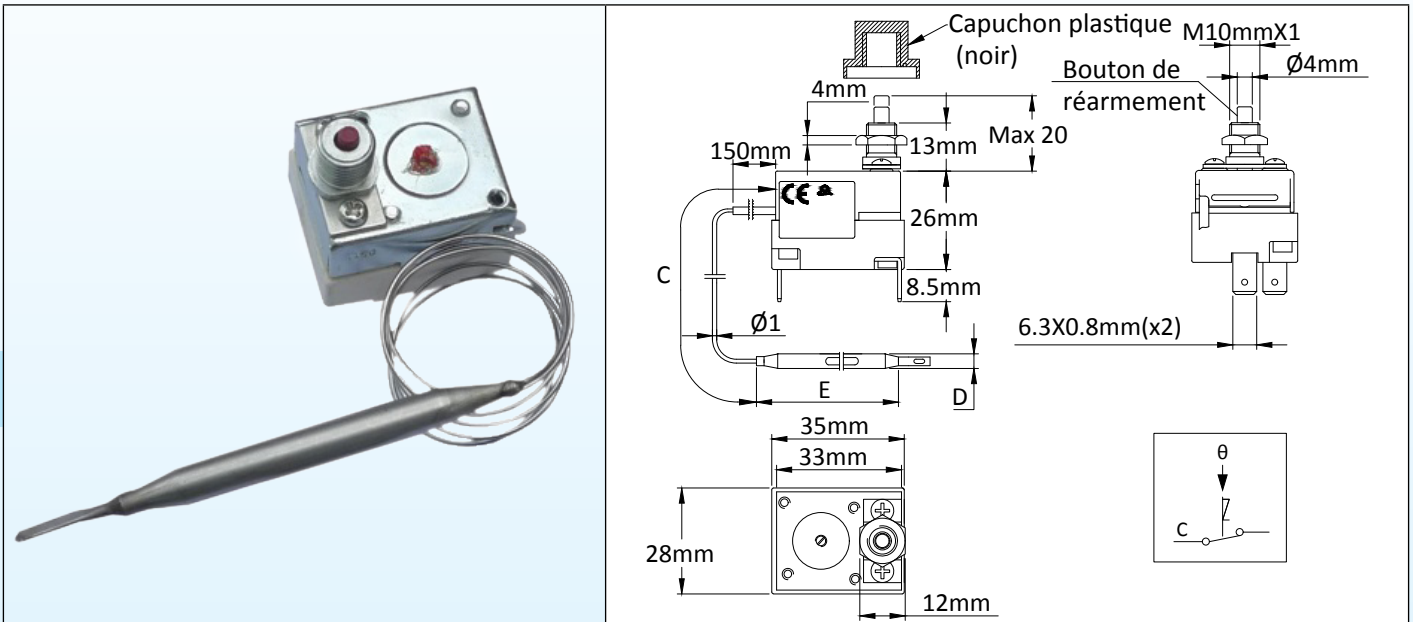
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Cat22-4-10-7

Immersion heaters

SPNC manual reset high limit, fail safe

Type 8L



Housing dimensions : 43 × 35 × 29mm (without terminals).

Bulb and capillary : stainless steel, capillary length 250mm or 1500mm, 150mm long PVC sleeve on capillary. Capillary minimum bending radius 5mm.

Temperature sensing element : liquid filled bulb and capillary.

Terminals : 6.35 × 0.8 quick connect terminals (M4 screws also available on request),

Adjustment : fixed setting, sealed.

Manual reset : fail safe, fixed setting, front access reset button.

Fail safe contact action by low temperature : Temperatures under -10°C (14°F) will trigger the manual reset.

Mounting : Front bushing, M10 × 1 thread.

Rating : 16A 250/ 400VAC.

Contacts : SPST (snap action contact).

Max ambient temperature on body : 150°C (302°F).

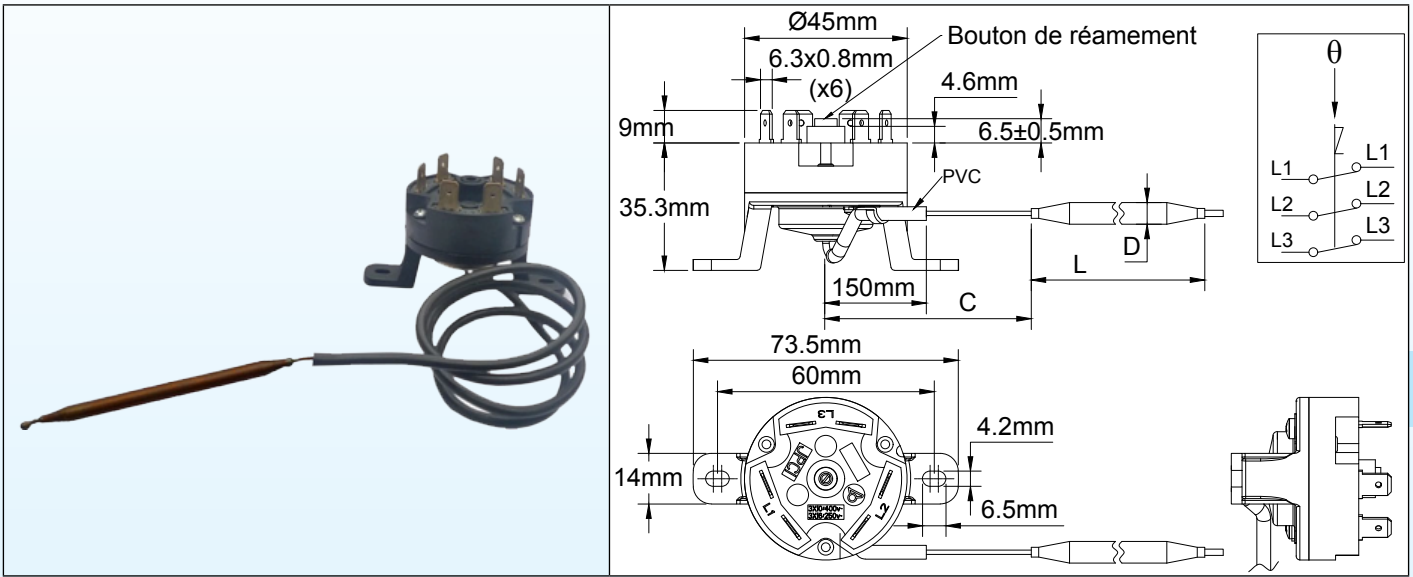
Main references

Reference	Calibration temperature (°C/ °F)	Minimum resettable temperature (°C/ °F)	Capillary length (mm)	Bulb diameter (mm)	Bulb length (mm)	Max temperature on bulb (°C/ °F)
8L0070105AO61001	70±8°C/ 158±14.4°F	52°C/ 125.6°F	1500	6	77	105°C/ 239°F
8L0080105AA61001	70±8°C/ 158±14.4°F	52°C/ 125.6°F	250	6	77	105°C/ 239°F
8L0080105AO61001	80±8°C/ 176±14.4°F	52°C/ 125.6°F	1500	6	77	105°C/ 239°F
8L0080105AA61001	80±8°C/ 176±14.4°F	52°C/ 125.6°F	250	6	77	105°C/ 239°F
8L0090115AO61001	90±8°C/ 194±14.4°F	60°C/ 140°F	1500	6	77	115°C/ 239°F
8L0090115AA61001	90±8°C/ 194±14.4°F	60°C/ 140°F	250	6	77	115°C/ 239°F
8L0100120AO61001	100±8°C/ 212±14.4°F	70°C/ 158°F	1500	6	77	120°C/ 248°F
8L0100120AA61001	100±8°C/ 212±14.4°F	70°C/ 158°F	250	6	77	120°C/ 248°F
8L0110135AO61001	110±8°C/ 230±14.4°F	75°C/ 167°F	1500	6	77	135°C/ 275°F
8L0110135AA61001	110±8°C/ 230±14.4°F	75°C/ 167°F	250	6	77	135°C/ 275°F
8L0120145AO61001	120±8°C/ 248±14.4°F	75°C/ 167°F	1500	6	77	145°C/ 293°F
8L0120145AA61001	120±8°C/ 248±14.4°F	75°C/ 167°F	250	6	77	145°C/ 293°F
8L0130155AO61001	130±8°C/ 266±14.4°F	80°C/ 176°F	1500	6	74	155°C/ 311°F
8L0130155AA61001	130±8°C/ 266±14.4°F	80°C/ 176°F	250	6	74	155°C/ 311°F
8L0150175AO61001	150±8°C/ 302±14.4°F	95°C/ 203°F	1500	6	74	175°C/ 347°F
8L0150175AA61001	150±8°C/ 302±14.4°F	95°C/ 203°F	250	6	74	175°C/ 347°F

Immersion heaters

3 pole manual reset high limit, fail safe

Type 82



Housing dimensions : dia. 45 × 44.3mm.

Capillary : copper, capillary length 250mm or 900mm, 150mm long PVC sleeve on capillary. Capillary minimum bending radius 5mm.

For technical reasons, we do not recommend to use capillary length longer than 900mm.

Bulb : copper, dia. 6mm.

Temperature sensing element : Liquid-filled thermostatic assembly whose boiling causes tripping of the contact. Therefore, unlike liquid filled systems, these thermostats are sensitive to atmospheric pressure, and their reaction time is slower.

Terminals : 6.35 × 0.8 quick connect terminals.

Adjustment : fixed setting.

Mounting : Backside legs, 2 M4 screws, holes distance 60mm.

Manual reset : fail safe action, center button.

Rating : 3 × 6A 250VAC, 3 × 10A 400VAC.

Contacts : ST, open on temperature rise (snap action contact).

Max ambient temperature on head : 150°C (302°F).

Main references

Reference	Calibration temperature (°C/ °F)	Minimum resettable temperature (°C/ °F)	Capillary length (mm)	Bulb length (mm)	Max temperature on bulb (°C/ °F)
820060090AI610F1	60±5°C/ 140±9°F	20°C/ 68°F	900	50	90°C/ 194°F
820060090AA610F1	60±5°C/ 140±9°F	20°C/ 68°F	250	50	90°C/ 194°F
820070100AI610F1	70±5°C/ 158±9°F	30°C/ 86°F	900	50	100°C/ 212°F
820080110AI610F1	80±5°C/ 176±9°F	40°C/ 104°F	900	50	110°C/ 230°F
820090120AI610F1	90±5°C/ 194±9°F	50°C/ 122°F	900	50	120°C/ 248°F
820110140AI610F1	110±5°C/ 230±9°F	70°C/ 158°F	900	50	140°C/ 284°F
820130160AI610F1	130±6°C/ 266±11°F	90°C/ 194°F	900	60*	160°C/ 320°F
820150180AI610F1	150±7°C/ 302±13°F	110°C/ 230°F	900	60*	180°C/ 356°F

* Cylinder bulb.



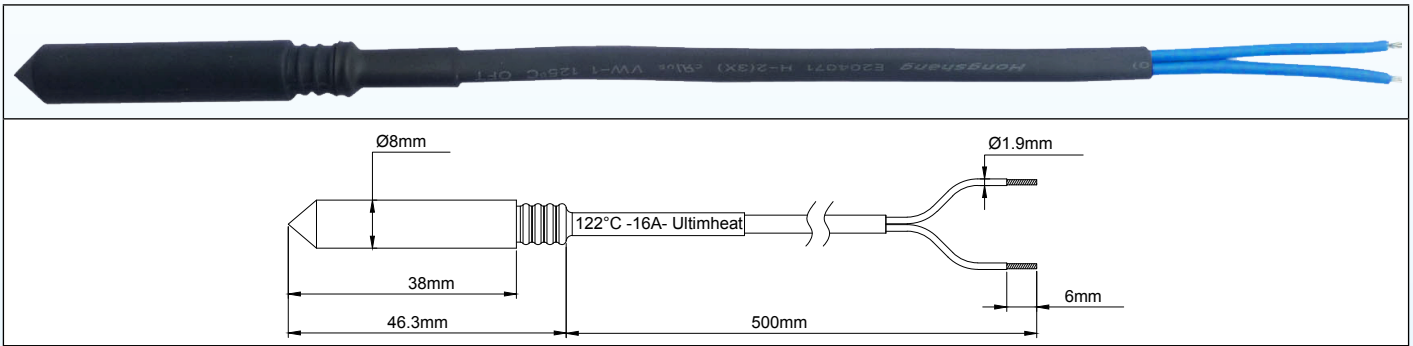
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Cat22-4-10-9

Immersion heaters

Wired thermal fuses, for insertion into 8.5mm I.D. thermowells Type 5MA 3-F



Applications : protection against overheating of equipment and heating elements.

Fusible pellet : organic compound.

Mechanism : movable pellet actuated of a spring released by the fusion of the pellet.

Protection : by electrical insulation silicone boot, dia. 8mm.

Nominal current rating : 16A 250V.

The nominal current rating is the maximum current the fuse can carry without opening or deteriorate when subjected to a temperature known as the «holding temperature» (Th) for a limited time.

Holding temperature (Th) : the fuse must not open or be destroyed when subjected to a temperature equal to Th-6°C for a period of 168 hours under nominal voltage and current.

Rated functioning temperature (Tf) : It is the opening temperature of the fuse in a calibration oven, when subjected to a current less than 10 mA, when temperature rises at a speed of 0.5 to 1°C/min. The opening temperature must not be lower than Tf-10°C or above Tf under these conditions. This is the operating temperature Tf which is printed on the fuse and the protective sheath external of the leads.

Maximum temperature (Tm) : it is the maximum temperature withstood by the fuse after opening without losing its insulating and mechanical properties.

This feature is critical in immersion heater applications, to determine the right position of the TCO to avoid its destruction and re-energization of the electrical circuit by high temperature overshoot.

Insulation voltage between open contacts : ≥ 500V.

Insulation resistance between open contacts : ≥ 0.2 MΩ @ 500V.

Lead lengths : 500mm.

Leads : FEP 300V primary insulation, 1mm² gauge (AWG18), in a polyolefin sheath.

In red : standard temperatures available from stock.

Main references

Reference	Rated functioning temperature °C/ °F (Tf)	Holding temperature °C/ °F (Th)	Maximum temperature °C/ °F (Tm)
5MA3SPF070F18500	73°C/ 163.4°F	45°C/ 113°F	115°C/ 239°F
5MA3SPF077F18500	79°C/ 174.2°F	52°C/ 125.6°F	125°C/ 257°F
5MA3SPF084F18500	85°C/ 185°F	57°C/ 134.6°F	125°C/ 257°F
5MA3SPF091F18500	94°C/ 201.2°F	66°C/ 150.8°F	140°C/ 284°F
5MA3SPF096F18500	99°C/ 210.2°F	71°C/ 159.8°F	140°C/ 284°F
5MA3SPF106F18500	108°C/ 226.4°F	77°C/ 170.6°F	145°C/ 293°F
5MA3SPF109F18500	113°C/ 235.4°F	84°C/ 183.2°F	150°C/ 302°F
5MA3SPF121F18500	122°C/ 251.6°F	94°C/ 201.2°F	175°C/ 347°F
5MA3SPF129F18500	133°C/ 271.4°F	101°C/ 213.8°F	175°C/ 347°F
5MA3SPF139F18500	142°C/ 287.6°F	114°C/ 237.2°F	185°C/ 365°F
5MA3SPF152F18500	157°C/ 314.6°F	127°C/ 260.6°F	195°C/ 383°F
5MA3SPF165F18500	167°C/ 332.6°F	130°C/ 266°F	205°C/ 401°F
5MA3SPF169F18500	172°C/ 341.6°F	145°C/ 293°F	215°C/ 419°F
5MA3SPF182F18500	184°C/ 363.2°F	156°C/ 312.8°F	225°C/ 437°F
5MA3SPF188F18500	192°C/ 377.6°F	164°C/ 327.2°F	245°C/ 473°F
5MA3SPF216F18500	216°C/ 420.8°F	189°C/ 372.2°F	280°C/ 536°F
5MA3SPF227F18500	227°C/ 440.6°F	190°C/ 374°F	295°C/ 563°F
5MA3SPF240F18500	240°C/ 464°F	190°C/ 374°F	305°C/ 581°F