

First additional letter

Additional letters that can be appended to classify only the level of protection against access to hazardous parts by persons

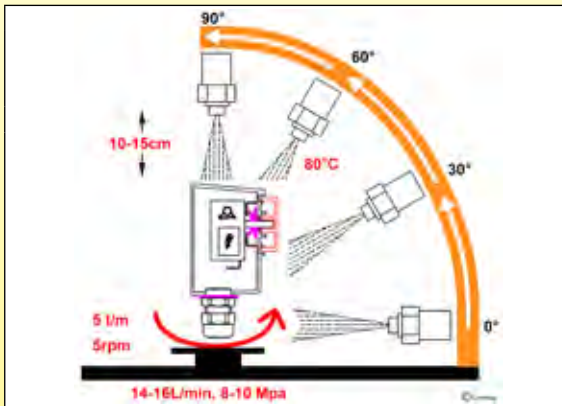
Letter	Protected against access to hazardous parts with
A	Back of hand
B	Fingers
C	Tools
D	Wires

Second additional letter

Further letters can be appended to provide additional information related to the protection of the device

Letter	Meaning
H	High voltage device
M	Device moving during water test
S	Device standing still during water test
W	Weather conditions

IP69K (DIN 40050-9)



Description
Specific ingress protection rating for high-pressure, high-temperature washing applications. Such enclosures must not only be dust tight (IP6X), but also able to withstand high-pressure and steam cleaning.
Test description
<ul style="list-style-type: none"> - Water volume: 14-16L liters per minute - Water temperature: 80°C - Pressure: 8-10 Mpa (80-100 bar) - Distance: 10 to 15cm from the tested device at angles of 0°, 30°, 60° and 90° for 30s each. The test device sits on a turntable that rotates once every 12s

Examples of ingress protection ratings requested by standards and applications

An IP protection rating may be required by specific standards such as NF15100 (domestic electrical installation rules), EN60335-xx (design rules for electrical appliances) and machine-specific standards. Hereafter are the main specifications extracted from these standards.

Bath rooms, swimming pools and assimilated	These rooms are divided in 4 area volumes: 0,1,2,3. These volumes and installation rules are described in the French standard NFC15100, International standard Cenelec HD384 and European standard IEC 60364.
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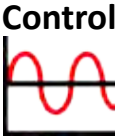

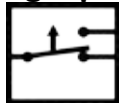

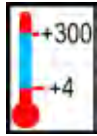
Areas	Minimal IP requirements	Electrical protection
0	All electric heaters are prohibited. Other equipments: Bathrooms: IPX7 Pools and similar: IPX8	SELV limited to 12V DC or 30V AC
1	All electric heaters are prohibited. Other equipments: Bathrooms: IPX4, but IPX5 if this volume can be subjected to water jets for cleaning in public baths. Pools and similar: IPX5	SELV limited to 12V DC or 30V AC
2	Bathrooms: IP24 mini heaters are authorized Other equipments: IPX3, but IPX5 if this volume can be subjected to water jets for cleaning in public baths. Indoors Pools: IP24 mini heaters authorized Other equipments: IPX2, but IPX5 if this volume can be subjected to water jets for cleaning. Outdoors Pools: IPX5	<ul style="list-style-type: none"> - Class 2 devices - Controls should not be accessible from the shower or bath. - Heaters must not be powered by a wall mounted socket. - Line must be protected by a 30 mA residual current circuit breaker
3	Bathrooms: IP21 mini heaters are authorized Other equipments: IPX1 Pools: Heaters authorized IP21 mini Other equipments: IPX1, but IPX5 if this volume can be subjected to water jets for cleaning. Outdoors Pools: IPX5	<ul style="list-style-type: none"> - Class 1 or Class 2 devices - Heaters must not be powered by a wall mounted socket. - Line must be protected by a 30 mA residual current circuit breaker

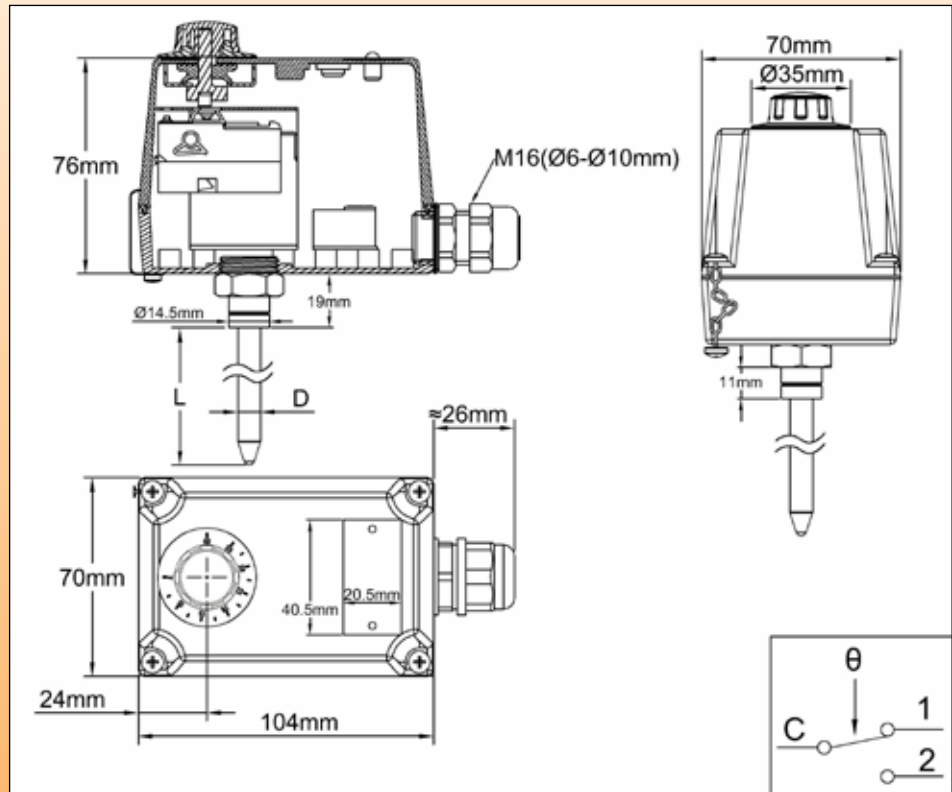
Saunas	Electrical equipment must have an IP 24 minimum protection rating
Under floor heating	The heating elements intended to be embedded in a concrete or other similar material must be IPX7
Electrical devices that are permanently outdoor	The degree of protection shall be at least IPX4.
Residential, Offices, Schools	Generally clean, dry and free from harmful deposits of dust, but some condensate may be present due to atmospheric conditions. Minimum protection is typically IP2X for dry conditions.
Control rooms/ Sub-Stations	Generally dry and free from harmful deposits of dust, but some condensate may be present due to atmospheric conditions. Where access is restricted to skilled or instructed persons, IP2X is the typical minimum requirement for dry conditions.
Commercial, Light Industrial	These premises may not be clean, but normally dry and free from harmful deposits of dust. Suitable minimum protection: <ul style="list-style-type: none"> - Where condensate is not present: IP2X - Where condensate may be present: IP21. - Equipment installed within range of fire sprinkler systems: IP22.



The Y1 range of thermostats with IP65 enclosures

Rod thermostats (Liquid expansion measurement)

Type	Adjustment	Contact	Measurement	Range °C	Model
Control 	External Knob 	Single pole 	Rod 		Y1T Thermostat 8G



Applications:

These **liquid expansion** rod thermostats can be installed inside pockets as immersion thermostats in pipelines and containers, and for monitoring temperature in air ducts, in usual industrial application and environment. (Not suitable for hazardous areas).

- External knob adjustment is convenient for products that must be frequently adjusted, but reduces IK impact resistance, and does not protect against malicious actions.
- Insensibility to strong vibrations

Standard electrical and mechanical life model

Housing: Aluminum, IP65, IK10, 104 x 70 x 76mm. Grey RAL7032 epoxy painting

Set point adjustment ranges: 4-40°C (40-105°F), 30-90°C (85-195°F), 30-110°C (85-230°F), 50-200°C (120-390°F), 50-300°C (120-570°F).

Temperature adjustment: Set point adjustable by temperature printed **internal knob**. Shipped with °C printed skirt fitted on the knob, and °F printed skirt in spare part. Printed skirt is replaceable without tool.

Action: temperature control.

Sensing element: Liquid expansion rod. This rod has a non-temperature sensing zone named dead zone which allows thermal insulation crossing. An increased diameter under the thermostat head allows mounting pockets or brackets (See pockets in the accessories section)

Electrical connections: on screw terminal connection block

Earthing: on internal screw terminal

Cable output: M16 cable gland, PA66, for cables up to 10 mm dia.

Mounting: On pockets for liquid immersion or brackets for air ducts

Identification: 20 x 40 mm stainless steel identification label, riveted.

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.

Cannot be used in 400VAC

Minimum Storage temperature: -35°C (-30°F)

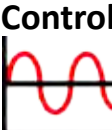
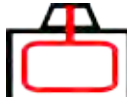
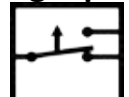

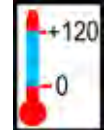
Main references

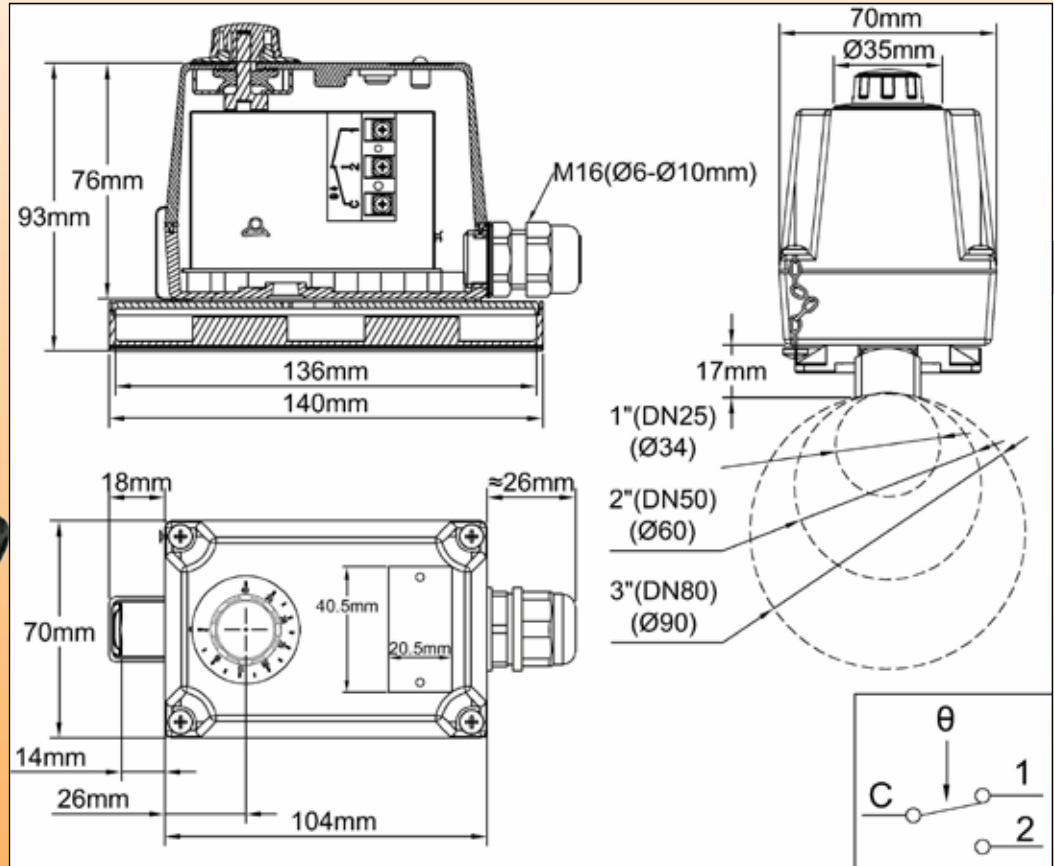
Temperature adjustment ranges °C (°F)	References	Differential °C (°F)	Rod length (C, mm)	Rod diameter (D, mm)	Temperature sensing length (E, mm)	Max. temperature on rod °C (°F)
4-40°C (40-105°F)	Y1T8GB004040023C	3±2°C (5.5±3.6 °F)	230	10	140	60°C (140°F)
4-40°C (40-105°F)	Y1T8GB004040030C	3±2°C (5.5±3.6 °F)	300	10	140	60°C (140°F)
30-90°C (85-195°F)	Y1T8GB030090011C	4±3°C (7±5.5 °F)	110	10	87	120°C (250°F)
30-90°C (85-195°F)	Y1T8GB030090023C	4±3°C (7±5.5 °F)	230	10	87	120°C (250°F)
30-90°C (85-195°F)	Y1T8GB030090030C	4±3°C (7±5.5 °F)	300	10	87	120°C (250°F)
30-110°C (85-230°F)	Y1T8GB030110011C	5±3°C (9±5.5 °F)	110	10	83	150°C (300°F)
30-110°C (85-230°F)	Y1T8GB030110023C	5±3°C (9±5.5 °F)	230	10	83	150°C (300°F)
30-110°C (85-230°F)	Y1T8GB030110030C	5±3°C (9±5.5 °F)	300	10	83	150°C (300°F)
50-200°C (120-390°F)	Y1T8GB050200023C	8±5°C (14.5±9 °F)	230	10	59	250°C (480°F)
50-200°C (120-390°F)	Y1T8GB050200030C	8±5°C (14.5±9 °F)	300	10	59	250°C (480°F)
50-200°C (120-390°F)	Y1T8GB050200045C	8±5°C (14.5±9 °F)	450	10	59	250°C (480°F)
50-300°C (120-570°F)	Y1T8GB050300823C	10±5°C (18±9 °F)	230	8	165	350°C (660°F)
50-300°C (120-570°F)	Y1T8GB050300830C	10±5°C (18±9 °F)	300	8	165	350°C (660°F)
50-300°C (120-570°F)	Y1T8GB050300845C	10±5°C (18±9 °F)	450	8	165	350°C (660°F)



The Y1 range of thermostats with IP65 enclosures

Pipe temperature control thermostats (Liquid expansion measurement)

Type	Adjustment	Contact	Measurement	Range °C	Model
Control 	External Knob 	Single pole 	Pipe mounting 		Y12 Thermostat KR, KU



Applications:

Pipe surface temperature control in usual industrial application and environment, (Not suitable for hazardous areas)

- External knob adjustment is convenient for products that must be frequently adjusted, but reduces IK impact resistance, and does not protect against malicious actions.

- Insensibility to strong vibrations

Withstand very low ambient temperatures

Long electrical and mechanical life model

Housing: Aluminum, IP65, IK10, 104 x 102 x 86 mm, with backside pipe mounting temperature sensing aluminum bracket Grey RAL7032 epoxy painting

Set point adjustment ranges: -0-50°C (32-120°F), 0-70°C (32-160°F), 20-90°C (70-195°F), 20-120°C (68-248°F).

Temperature adjustment: Set point adjustable by temperature printed external knob. Shipped with °C printed skirt fitted on the knob, and °F printed skirt in spare part. Printed skirt is replaceable without tool.

Action: Temperature control.

Sensing element: Liquid expansion bulb inside aluminum bracket in contact with the pipe surface.

The bracket design provides optimized thermal contact with 34 mm (1", DN25), 60 mm (2", DN50) and 90 mm (3", DN80) outside diameter tubes. For intermediate sizes, we recommend the use of thermal grease

Electrical connections: Internal, on screw terminal connection block

Earthing: On internal screw terminal

Cable output: M16 cable gland, PA66, for cables up to 10 mm dia.

Mounting: The thermostat housing can be fixed on the pipe by worm drive hose clamps (DIN3017), nylon cable ties (Tie wraps upon EN50146, for applications at permanent temperature lower than 85°C), or specific stainless steel punched band (see accessories at the end of this catalog)

Identification: 20 x 40 mm stainless steel identification label, riveted.

Contact: SPDT

Rating: 15A res. 230/400VAC, electrical life >500.000 cycles.

Reduced differential models cannot be used in 400VAC

Storage minimum temperature: -50°C (-60°F)

Main references

Temperature range °C (°F)	Standard differential		Reduced differential		Max. temperature on tube °C (°F)
	References	Differential °C (°F)	References	Differential °C (°F)	
0-50°C (32-120°F)	Y12KRA000050200T	3±2°C (5.5±3.6 °F)	Y12KUA000050200T	2±1°C (3.6±1.8 °F)	60°C (140°F)
0-70°C (32-160°F)	Y12KRA000070500T	5±3°C (9±5.4°F)	Y12KUA000070500T	3±2°C (5.5±3.6 °F)	160°C (320°F)
20-90°C (70-195°F)	Y12KRA020090500T	5±3°C (9±5.4°F)	Y12KUA020090500T	3±2°C (5.5±3.6 °F)	160°C (320°F)
20-120°C (68-248°F)	Y12KRA020120500T	5±3°C (9±5.4°F)	Y12KUA020120500T	3±2°C (5.5±3.6 °F)	160°C (320°F)

