

First additional letter

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

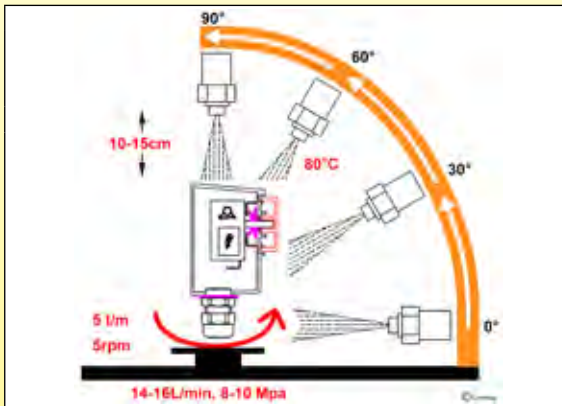
Letter	Protected against access to hazardous parts with
A	Back of hand
B	Fingers
C	Tools
D	Wires

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.
---	---

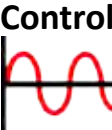

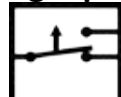

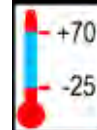
Areas	Minimal IP requirements	Electrical protection
0	All electric heaters are prohibited. Other equipments: Bathrooms: IPX7 Pools and similar: IPX8	SELV limited to 12V DC or 30V AC
1	All electric heaters are prohibited. Other equipments: Bathrooms: IPX4, but IPX5 if this volume can be subjected to water 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

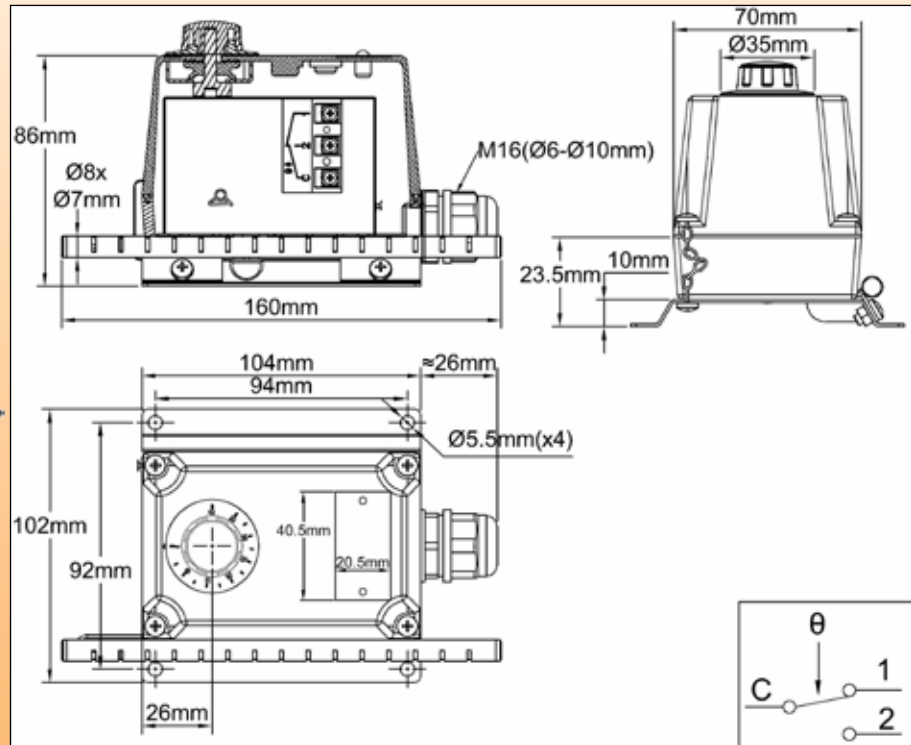
Saunas	Electrical equipment must have an IP 24 minimum protection rating
Under floor heating	The heating elements intended to be embedded in a concrete or other similar material must be IPX7
Electrical devices that are permanently outdoor	The degree of protection shall be at least IPX4.
Residential, 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

Ambient and antifreeze

Type	Adjustment	Contact	Measurement	Range °C	Model
Control 	External Knob 	Single pole 	Ambient 		Y1C Thermostat KR, KU



Applications:

- Wall mounting for indoor temperature control of cold room
- Temperature control of industrial or commercial premises.
- Outdoor temperature control of antifreeze heaters,
- Green houses and livestock stables temperature control

Withstand very low ambient temperatures

Housing: Aluminum, IP65, IK6, 104 x 102 x 86 mm. Mounted on a SUS304 stainless steel wall mounting plate which keeps temperature sensing element away from the wall. Grey RAL7032 epoxy painting

Set point adjustment ranges: -25+25°C (-15+80°F), -10+15°C (15-60°F), 0-50°C (32-120°F), 0-70°C (32-160°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.

There are no electrical wires between the cover and the thermostat mounted on the bottom of the enclosure. The knob is attached to the cover, and has a coupler for its connection to the thermostat.

Action: temperature control.

Sensing element: Liquid filled bulb. Temperature measurement is made by bulb located on the side of the mounting bracket, under protection tube

Electrical connections: Inside, on screw terminal connection block

Earthing: on internal screw terminal

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

Mounting: Wall mounting, by 4 holes for screws dia. 4 to 5 mm, 94 x 92 mm distance

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)

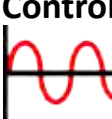

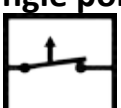


Main references

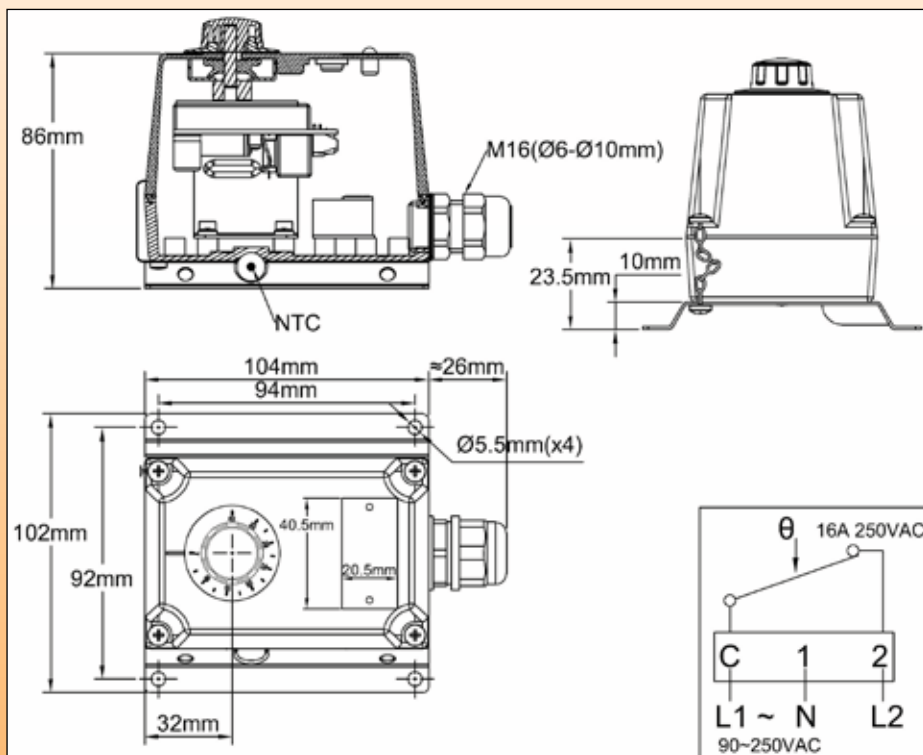
Temperature adjustment ranges °C (°F)	Standard differential		Reduced differential		Maximum ambient temperature °C (°F)
	References	Differential °C (°F)	References	Differential °C (°F)	
-25+25°C (-15+80°F)	Y1CKRA-25025220E	3±1°C (5.5±1.8 °F)	Y1CKUA-25025220E	2±1°C (3.6±1.8 °F)	60°C (140°F)
-10+15°C (15-60°F)	Y1CKRA-10015200E	3±1°C (5.5±1.8 °F)	Y1CKUA-10015200E	2±1°C (3.6±1.8 °F)	60°C (140°F)
0-50°C (32-120°F)	Y1CKRA000050200E	3±1°C (5.5±1.8 °F)	Y1CKUA000050200E	2±1°C (3.6±1.8 °F)	60°C (140°F)
0-70°C (32-160°F)	Y1CKRA000070500E	5±2°C (9±3.6 °F)	Y1CKUA000070500E	3±1°C (5.5±1.8 °F)	80°C (180°F)



The Y1 range of thermostats with IP65 enclosures

Ambient and antifreeze

Type	Adjustment	Contact	Measurement	Range °C	Model
Control 	External knob 	Single pole 	Ambient 		Y1F Thermostat 2PE2N6



Applications:

- Wall mounting for indoor temperature control of cold room
- Temperature control of industrial or commercial premises.
- Outdoor temperature control of antifreeze heaters,
- Green houses and livestock stables temperature control

This electronic model allows temperature control with smaller differential than liquid expansion

Housing: Aluminum, IP65, IK10, 104 x 102 x 86 mm. Mounted on a SUS304 stainless steel wall mounting plate which keeps temperature sensing element away from the wall. Grey RAL7032 epoxy painting

Set point adjustment ranges: -35+35°C (-30+95°F), 0-10°C (32-50°F), 4-40°C (40-105°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.

No electrical wires between the cover and the thermostat mounted on the bottom of the enclosure. Knob is attached to the cover, and has a coupler for its connection to the thermostat

Sensing element: NTC sensor located on the side of the mounting bracket, under waterproof silicone protection cap.

Action: electronic temperature control, on off action

Differential: Adjustable by potentiometer located under the internal knob

Electrical connections: Inside, on screw terminal connection block

Earthing: on internal screw terminal

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

Mounting: Wall mounting, by 4 holes for screws dia. 4 to 5 mm, 94 x 92 mm distance

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

Contact: open on temperature rise or close on temperature rise. Selection is made with a switch, with access after removing internal knob.

Power supply: universal, from 90 to 240V, 50Hz or 60Hz

Electrical rating: 16A 250VAC res.

- Electrical life >100.000 cycles.

Cannot be used in 400VAC

Minimum Storage temperature: -20°C (-5°F)

Main references

Temperature adjustment ranges °C (°F)	Differential °C (°F)	Maximum ambient temperature °C (°F)	References
-35+35°C (-30+95°F)	0.5~5.5°C (0.9~10°F)	50°C (120°F)	Y1F2PE2N6-35035E
0-10°C (32-50°F)	0.5~2.5°C (0.9~4.5°F)	50°C (120°F)	Y1F2PE2N6000010E
4-40°C (40-105°F)	0.5~2.5°C (0.9~4.5°F)	50°C (120°F)	Y1F2PE2N6004040E

