

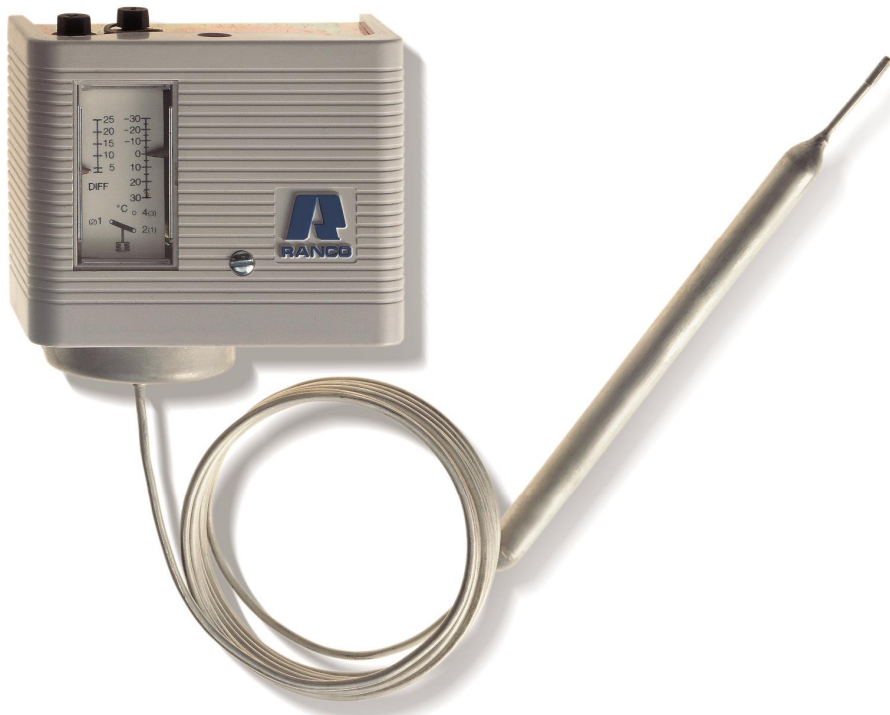
RANCO

O Temperature Controls



Schneider
Electric™

"O" SERIES TEMPERATURE CONTROL S



COLD/AMBIENT AIR THERMOSTATS

These units incorporate a small air sensing coil, and are used where the requirement is to mount the complete control within the area being monitored. Since the majority of commercial refrigeration applications involve cold rooms, ice and occasional defrosting, it is often recommended that air coil thermostats have splash proof enclosures to IP66. O52 range is therefore very popular in these applications. Ranco air coil thermostats are available with fixed or adjustable differentials (narrow differentials are popular on air coil thermostats, as opposed to pressure controls where wide differentials are popular to avoid short compressor cycles).

STRAIGHT AND COILED CAPILLARY THERMOSTATS

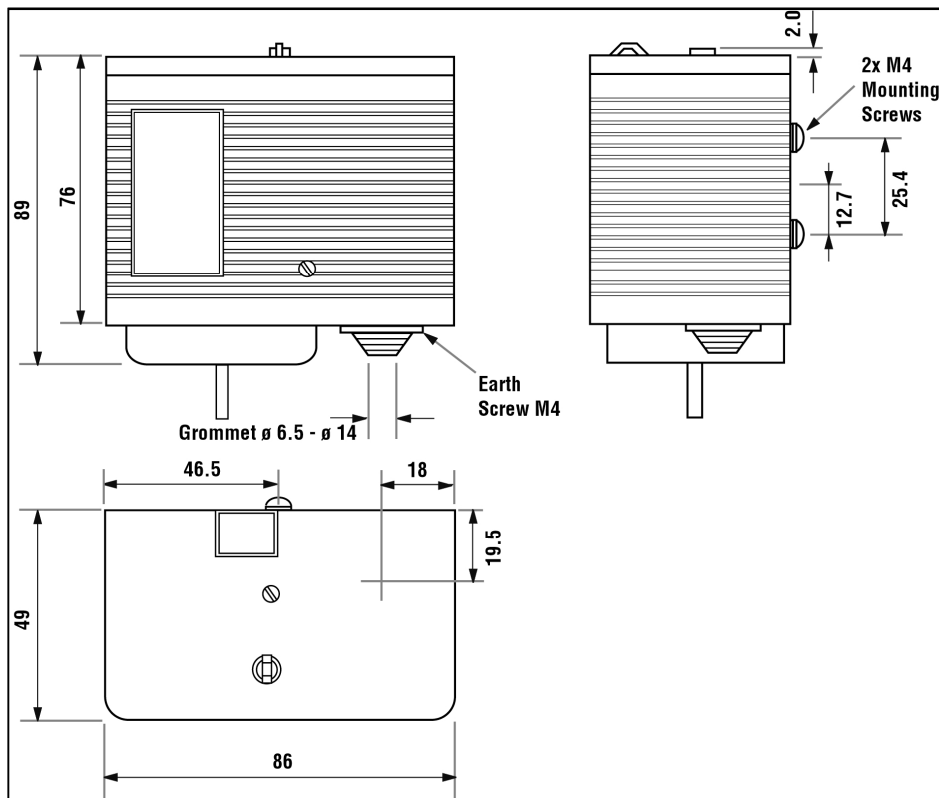
These controls are used on applications where it can be guaranteed that the sensing element is always colder than the control head. The sensing element used senses along the complete length. Where local sensing is required the coiled end version is used, whereas the straight version is used to sense over longer distance, e.g. across an evaporator coil. The only difference between the straight and coiled capillary thermostats is the coiling of the last few centimetres of sensing element. Available in standard (IP44), or splash proof (IP66) housing, and with adjustable differentials. Models with built-in 'stop' switches can be selected where a shut-down of the system from the thermostat location is required, without altering the setting.

CROSS AMBIENT THERMOSTATS

These thermostats have a capillary and remote bulb. Unlike the straight or coiled capillary modules, these controls sense only at the bulb. They should be used on all applications where it is possible that the control head or capillary can be at a lower temperature than the sensing bulb, e.g. external applications where the bulb senses a defrosting coil. Ranco cross ambient thermostats fall into two categories/ narrow range, narrow differential and wide range, wide differential. Please note that these have different bulb sizes. Special ranges, differentials and bulb sizes can be made, subject to normal commercial considerations.



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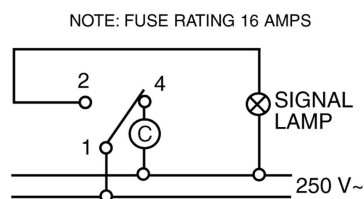


O16 Dimensions

APPLICATIONS

Commercial Refrigeration applications including:
 Vending Machines
 Cold Rooms
 Cool Stores
 Air conditioning Units
 Refrigeration Compressor Controls
 Ice banks

WIRING DIAGRAM



INSTALLATION CONSIDERATIONS:

1. mount control on a flat surface to prevent distortion of the control case. Ensure sufficient room to connect capillaries and adjust controls;
2. mount control in an environment commensurate with the control enclosure;
3. wiring should be routed to prevent the possibility of water running along cables into the control;
4. wiring should conform to any applicable approvals, codes and industry practice. Electrical ratings must not be exceeded;
5. capillaries should be secured to prevent excessive vibration, and must not be twisted or kinked. Any bends must have a min. radius of 25 mm (1 inch);
6. the bellows must be held with a spanner while tightening flare-nut(s);
7. if mounting brackets not manufactured by Ranco are used, ensure gauge of material used is sufficient to avoid amplification of any vibration.



DESIGN FEATURES

Optional Lockable top plate

Enclosure Rating - Standard IP44, IP66 version available code 052

Cover screw - allows easy cover removal without possible Screw loss

Universal mounting

O16 Manual reset trip free to prevent dangerous 'jamming' by unauthorised personnel

O16 "Toggling" Lever allows simple manual operation, avoiding damage or electric shocks

Adjustment screws Range and differential screws (knob available as optional extra for all models)

Setting indicator for increased accuracy

Bellows Laser welded capsulated stainless steel on temperature controls

Chassis Heavy duty plated steel frame, tempered steel mechanisms, and precision ground springs

No CFC or toxic gas filled temperature actuators

TECHNICAL DATA

Cold Room / Ambient Air

Thermostats

Scale: °C

Temperature Sensor

Dimensions: Aircoil 49 mm max. x 43 mm max

Straight and Coiled

Scale: °C

Capillary Thermostats

Capillary Length: Straight 2000 mm

Coiled 2000 mm + Coil

Temperature Sensor

Dimensions: Coiled Capillary 9,5 mm x 38 mm Cross

Ambient

Cross Ambient Thermostats

Scale: °C

Capillary Length: 1800 mm including bulb

Temperature Sensor

Dimensions: Cross Ambient Fill 14.5x140 mm

Wide range 9.5x152 mm

DIFFERENTIAL

The differential is the difference between the cut-in and cut-out point for a given setting. Because of the characteristics of the 'fill' of version, the differential can vary across the range.

ADJUSTMENT

By hexagonal nut incorporating cross headed screwdriver slot on both range and differential spindles. An adjustable knob is available and is standard on some O52 temperature versions.

TERMINALS

O16 and O52:

1 Common

2 Break on rise

4 Make on rise

CABLE ENTRY

O16 14 MM Grommet

O52 P.G. 16 Connector

REFRIGERANTS

Suitable for use on all gases

MOUNTING

Two tapped holes on reverse of control to accept M4x6 mm screw (provided)

ELECTRICAL RATINGS

The SPDT switch used on all O16 controls, is rated at:
16 (16)A 250V~ Normally open or normally close.
1 (1)A 250V~ on other side

Due to local approval requirements governing certain applications the approval ratings by country are:
Germany (VDE)
Denmark (DEMKO)
Norway (NEMKO)
Finland (FEI) 16 (16)A 250V~
Switzerland (SEV)
Sweden (SEMKO) 16 (12)A 250V~

Special Versions Only:

USA (UL)

Canada (CSA) 17 FLA 102 LRA 250V~

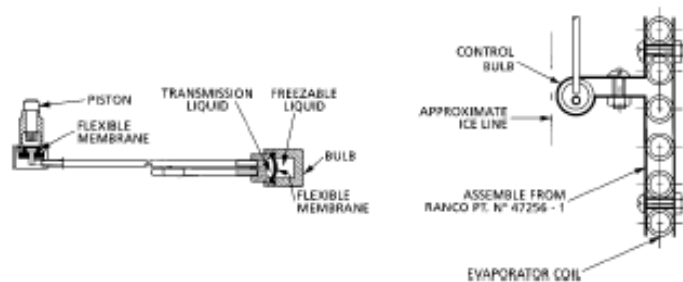


ICE BANK CONTROL O16-H6999

On systems which use an "ice bank" for thermal storage, an ice bank control is used to cycle the system.

This unique control uses a bulb filled with water. When the ice grows and surrounds the bulb, the water in the bulb freezes and expands. This expansion is transmitted to the control mechanism through a liquid filled capillary to open the control switch. The switch may cycle the compressor directly, or on larger systems close the refrigerant solenoid valve to start the pump-down cycle. Ice banks are used to provide reserve thermal capacity on medium temperature refrigeration or air conditioning equipment. By building a reserve

of ice during the off-peak periods, the system can use this "cooling" reserve during peak operating periods. By drawing on the ice bank, the system can use a much smaller compressor than would be needed normally to meet the peak demand. Ice storage is generally used for applications such as drink dispensers or milk coolers. In general, however, ice banks can be used for many medium temperature applications where cooling demand fluctuates widely.



Ranco O-Series Temperature Controls Specifications

O-Series Model	Schneider Part Number	Temperature Range	Differential Range	Differential Type	Capillary Type	Bulb/Coil Dimension	Capillary Length
Ambient Thermostats - with air coil attached							
O16-6904	O16H6904198	-35 to +7	1 to 10	Adjustable	Air Coil	Ø49mm X 43mm	--
O16-6905	O16H6905198	-18 to +13	1 to 10	Adjustable	Air Coil	Ø49mm X 43mm	--
O16-6907	O16H6907198	-35 to +9	1 to 12	Adjustable	Air Coil	Ø49mm X 43mm	--
Cross-Ambient Thermostats - with capillary and bulb							
O16-6930	O16H6930198	-34 to +32	3 to 22	Adjustable	Bulb	Ø9.5mm X 152mm	1800 mm
O16-6980	O16H6980198	-18 to +13	2 to 12	Adjustable	Bulb	Ø14.5mm X 140mm	1800 mm
O16-6981	O16H6981198	-5 to +25	2 to 12	Adjustable	Bulb	Ø14.5mm X 140mm	1800 mm
O16-6983	O16H6983198	-10 to +40	2 to 12	Adjustable	Bulb	Ø14.5mm X 140mm	1800 mm
Cross-Ambient Thermostats - with straight capillary or coiled end							
O16-6921	O16H6921198	-35 to -7	2 to 12	Adjustable	Straight	--	2000 mm
O16-6922	O16H6922198	-18 to +13	2 to 12	Adjustable	Straight	--	2000 mm
O16-6924	O16H6924198	-5 to +25	2 to 12	Adjustable	Straight	--	2000 mm
O16-6950	O16H6950198	-35 to -7	2 to 12	Adjustable	Coiled End	Ø9.5mm X 38mm	2000 mm
O16-6951	O16H6951198	-18 to +13	2 to 12	Adjustable	Coiled End	Ø9.5mm X 38mm	2000 mm
O16-6954	O16H6954198	-5 to +25	2 to 12	Adjustable	Coiled End	Ø9.5mm X 38mm	2000 mm
O16-8900	O16H8900198	-18 to +13	4 to 30	Adjustable	Coiled End	Ø9.5mm X 38mm	2000 mm

All Temperatures and Differentials in Degrees Celsius



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Information subject to change without notice.