neptronic®
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HVAC Controls   Electric Actuators   Actuated Valves
Humidifiers   Electric Heaters

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ISO 9001:2008

Keep it Fresh

Below 0ºC (32ºF) Fresh Air Application Controllers

The default controller sold for fresh air applications is the TRO5404. This controller is made for interior temperature conditions and is often used to replace our discontinued PTA models The operating temperature range of this controller is 0°C to 50°C (32°F to 122°F) and the setpoint range is 10°C to 35°C (50°F to 95°F). When it comes to temperatures below 0°C (32°F), you must use another controller with an *EXT*ended temperature range.

If the controller does not feature the appropriate operating temperature range, it will inevitably put the system in alarm and stop operating as soon as the temperature drops below the limit. If, for any reason, you already have a TRO5404 installed in an application where temperature may drop below 0°C (32°F), you must change the controller as soon as possible to avoid this kind of situation.

Neptronic has developed two models that are able to satisfy those below zero applications: The TMA54-EXT1 and the TRO24-EXT1.

Our controls experts have prepared a comprehensive outline (see next page) of the main features and differences between the two controllers to help you choose the right one for your application.

Make sure to know the operating temperatures before making a selection. If you have any question, comment, or if you still need support to ensure you make the right decision, feel free to contact us at 1-800-361-2308.

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Feature	TMA54-EXT1	TRO24-EXT1
Applications	• Make-up air units • Electric heaters in fresh air applications • To replace TRO5404 or PTA	• VAV box applications with extended setpoint range, which include low supply air temperature inlet. • Pressure dependent or independent.
Control ramp	PID loop (for dedicated heater output only)	PI loop (no derivative)
Analog outputs	2 heat / 2 cool	2 configurable
TRIAC outputs	None	4 configurable
Pulse output	22Vdc (can be used to replace the pulse signal for the PTA or TRO5404)	Optional 24Vac (22Vdc pulse signal not supported in the case of a replacement)
Inputs	1 dedicated night set back (NSB) 1 dedicated external temperature sensor (10kΩ)	3 configurable Select from: changeover by external sensor, changeover by contact (NO/NC), external temperature sensor, differential pressure sensor, velocity pressure sensor, or night set back (NSB)
Ext temp range	-40°C to 100°C (-40°F to 212°F)	-40°C to 100°C (-40°F to 212°F)
Setpoint range	0°C to 60°C (32°F to 140°F)	-30°C to 90°C (-22°F to 194°F)
Fan output/control	None	None

TMA54-EXT1:

Considerations:

- o Same inputs and outputs as the PTA and the TRO5404.
- o When replacing a PTA or TRO5404, make sure to verify the external temperature sensor's thermistor type. The PTA uses 3.3kΩ thermistor and TRO5404 can use either the 3.3kΩ or the 10kΩ thermistors.
- o No changeover input. It must be done with the SCC80 (replacement of the COT100).
- o Input options are limited to external sensor and night setback.

TRO24-EXT1

Considerations:

- o 22Vdc pulse signal not supported in the case of a replacement
- o For replacement purposes, the controller format requires to change the base.
- o Increased flexibility for applications requiring more elaborate configurations.
- o Inputs and outputs configuration required when replacing TRO5404 or PTA

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