

TAE-DIN 2-Stage Temperature Controllers

The TAE-DIN DIN rail mounted controller is a compact and cost effective solution for monitoring air or liquid temperature.

The units have two analogue outputs as standard, remote setpoint input, temperature sensor input, low limit sensor input and setback input. The outputs can be used to control various terminal devices ie. damper motors, valve actuators, step controllers, relay modules, power controllers etc.



Features

- 2 Analogue Outputs - Heating and/or Cooling
- Proportional and Integral Control
- Remote Setpoint Option (1..11kOhm)
- Adjustable Setback
- 0..10Vdc or 2..10Vdc Output
- Adjustable Proportionan Band and Integral Action
- Output Voltage can be displayed
- Low Limit and High Limit Temperature Control

| Model Types | Model | Description | |
|-----------------------|----------------------------------|---|-------------------------------------|
| | TAE-DIN | DIN-rail Mounted 2-Stage Temperature Controller | |
| Technical Data | Power Supply | 24Vac +/-10%, 24Vdc +10/-0% | |
| | Power Consumption | Typically 40mA (approx. 120mA when LCD in use) | |
| | Inputs | Control Temp | -10..+110°C NTC10k3 |
| | | Low Limit Temp | -20..+20°C NTC10k3 |
| | | External Setpoint | 1..11kOhm |
| | | Setback | Volt-free Contact or Open Collector |
| | Output Signal | 2 x 0..10Vdc or 2 x 2..10Vdc | |
| | LCD Display | 2 Line 8 Digit LCD (backlight switches off after 12 secs no use of buttons) | |
| | Buttons | Increase, Menu, Decrease | |
| | Settings | Setpoint | -10..+110°C |
| | | Low Limit | Off, -20..+20°C |
| | | Setback | 0..30°C |
| | | Deadband | 0..30°C |
| | | Proportional Band | 1..30°C |
| | | Integral Time | Off, 1..500 secs |
| Mode Select | | COOL-COOL, HEAT-COOL, HEAT-HEAT | |
| External Setpoint | | None, +/-4°C, +/-20°C | |
| Output Values | 0..10V or 2..10V | | |
| Temperature Element | NTC10k3A1 | | |
| Wiring Terminals | 0.5 to 2.5 mm ² cable | | |
| Protection Class | IP65 | | |
| Ambient Range | 0..+50°C | | |
| Weight | 0.085 kg | | |
| Mounting | DIN-rail Mounting | | |
| Overall size | Housing | 82W x 68H x 47D mm | |

CONTROLLER OPERATION

The TAE-DIN is a controller designed for use in one or two loop temperature control with two voltage outputs to control valves, dampers, thyristor controllers or similar devices. The unit is fully configurable via three menu buttons. There is also the option to have some control inputs (such as setpoint offset and setback) located remotely.

CONTROL TEMPERATURE

The control temperature measurement can be made using any of the standard range of 10K3A1 thermistor sensors. Most commonly used in this application are TEHR-NTC10 (space mounting), TEK-NTC10 (duct temperature) and TEKY-NTC10 (flying lead) and TEAT-NTC10 (immersion).

SETPOINT TEMPERATURE

The setpoint temperature is the value around which the space is required to be controlled. It can be setup via the LCD display.

REMOTE SETPOINT/OFFSET

Set up the required range on the LCD (+/-4 or +/-20 -as an offset) and connect up a 1-11K remote setpoint to terminals 6 and 7.

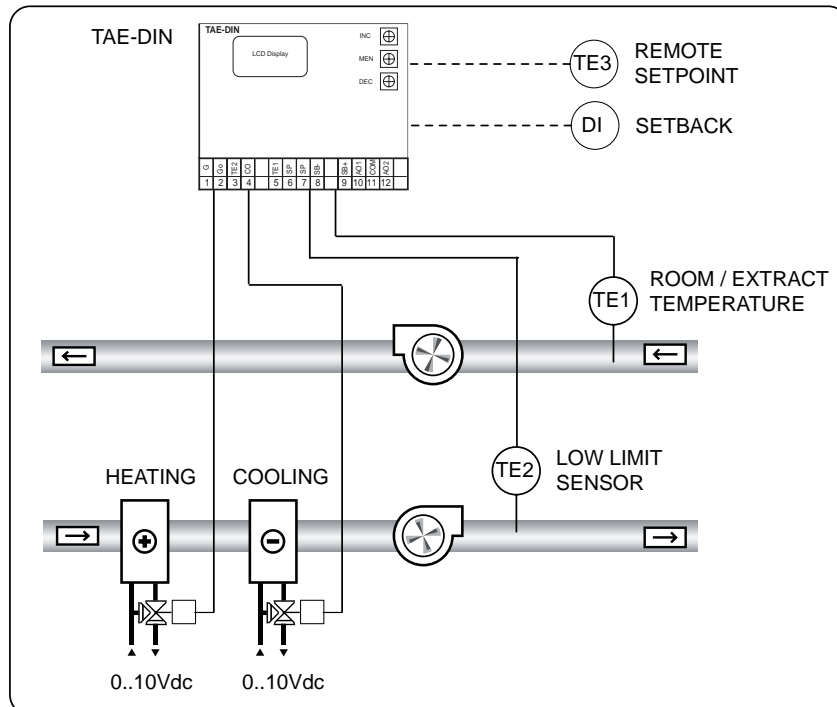
SETBACK FUNCTION

The setback function provides the facility to adjust the setpoint temperature by a fixed amount. The amount by which the setback facility reduces the setpoint temperature can be varied between 0°C to 30°C via the LCD and set up buttons. For example, when heating mode is selected- if the setback is set at 5°C and the setpoint temperature pot is at 22°C, then when the setback is in effect the actual setpoint will be 17°C.

NOTE: The setback function only works in either heating or cooling mode. (in heat-cool mode the cooling is disabled). If terminals 8 and 9 are short circuit, then setback is in operation. If terminals 8 and 9 are open circuit, then setback is not in operation.

To use the setback facility, connect either a volt-free relay or an open collector across terminals 8 and 9 (8 is the common terminal) Most common usage includes one or more of the following in series or parallel:

- External timer for setback
- Timer for night setback or Summer / Winter operation
- External occupancy sensor



LOW LIMIT TEMPERATURE OVERRIDE

If Low temperature override is enabled, you must provide a sensor connected across terminals 3 & 4.

Heating mode:

Low temperature > Low limit setpoint = no effect

Low temperature < Low limit setpoint = proportional control

which overrides the normal temperature proportional control.

Cooling mode:

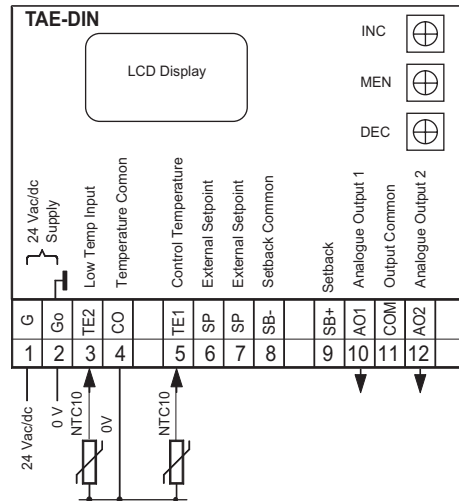
Low temperature > Low limit setpoint = no effect

Low temperature < Low limit setpoint = output falls to 0V

CONNECTION DIAGRAM

WARNING: The electrical installation, device connection and commissioning can only be carried out by qualified professionals and according to the local wiring regulations!

Connect all the inputs and outputs, taking care to observe polarities where applicable.



WARNING: If an AC supply is used, the 0v of the supply must be able to be grounded. Check to confirm that any other equipment which may be supplied from the same transformer will not be affected or damaged by this.

COMMISSIONING

Ensure that all the connections are correctly made. Do not apply power until pre-commissioning is completed. Make initial adjustments using the LCD and set up buttons.

To enter SETUP menu, ensure the Display shows the Actual temperature, Hold the Menu Button down for 10 seconds, the Display will initially show Low Limit but will change to Prop Band after ten seconds

| | Factory Setting | Range |
|--------------------------|-----------------|---|
| Setpoint | 25° | -10..+100°C |
| Low Limit | Off | Off, -20..+20°C |
| Setback | 0°C | 0..30°C (htg or clg mode only) |
| Deadband | 1°C | Off, 1..30°C |
| Proportional Band | 5°C | Off, 1..30°C |
| Integral Timer | 60 secs | 0..500secs |
| Mode Selection | HC | CC, HC, HH (if only 1 stage used set to COOL-COOL or HEAT-HEAT) |
| Remote Setpoint | None | None, +/-4°C, +/-20°C |
| Output Ranges | 0..10Vdc | 0..10V or 2..10V |

When all settings are complete note the temperature of the media being measured, eg. space temperature. Adjust the setpoint using the LCD and set up buttons to be the same as the measured temperature. There should be no heating or cooling output. Adjust the setpoint to the required level. If the temperature is below the effective setpoint and the controller is set to heating mode there will be a corresponding voltage output, dependent on the setting of the P-band.

If the temperature is above the effective setpoint and the controller is set to cooling mode there will be a corresponding voltage output, dependent on the setting of the P-band. Make any required changes to the P-band to achieve proportional control and that hunting does not occur. If hunting does occur, reduce the P-band value.

