T24-DM1 LCD Temperature Controller

Overview of product

LCD temperature controller T24-DM1 provides the foundation for modern single room concepts.

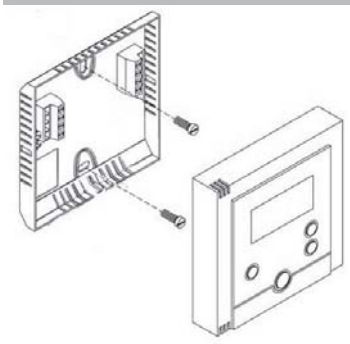
Features

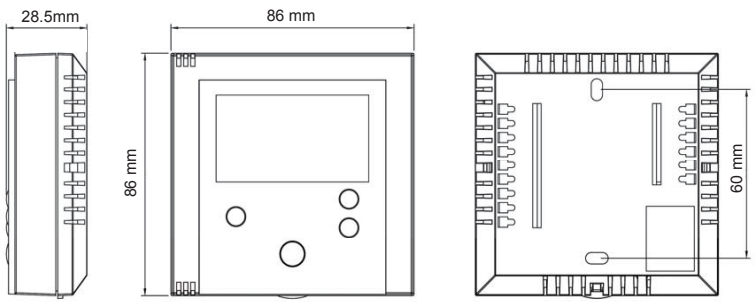
- LCD with white backlight
- Proportional output(s), DC 0...10V or 2...10V
- Adjustable P-band, I-time and setpoint range
- Display selection
- Unoccupancy mode
- Memory function after power failure
- Suits 2-pipe(T24-DM1) system
- External sensor TG-M10000(probe type) or TG-M10002(duct type)(optional)

Technical data

Model	T24-DM1(2-pipe)
Norminal voltage	AC 24V 50/60Hz (±15%, AC 20.4V...27.6V)
Power consumption	1VA@AC 24V
Output(s)	DC 0...10V or 2...10V by jumper setting
Built-in sensor	NTC thermistor, 10kΩ@25°C
External sensor	TG-M10000(probe type) or TG-M10002(duct type)(optional)
Temperature range	Display : 0...40°C Setpoint : 5...40°C, 0.5K per step
Mode	On / standby Cooling / heating
Proportional band	1K...10K adjustable (factory default 5K)
Integral time	0...300 seconds adjustable (factory default 60 seconds)
Display offset	±2K adjustable (-2, -1, 0, +1, +2) (factory default 0)
Switching differential	1K
Upper setpoint limit (USP) Lower setpoint limit (LSP)	9...40°C, adjustable (factory default 40°C) 5...35°C, adjustable (factory default 5°C)
Unoccupancy setpoint range	Cooling : 5...36°C (factory default 26°C) Heating : 9...40°C (factory default 16°C)
Unoccupancy contact input	Voltage free contact input
Connection	Screw terminals, maximum 1.0mm² or 18 AWG
Ambient humidity	Max. 90% RH, non-condensing
Body material	Self-extinguishing, molded ABS
Weight	120g
Dimensions (LxWxH)	86 x 86 x 28.5mm
Mounting	Wall mounted, holes separate 60mm vertically, 2x screws provided
Degree of protection	IP30
Agency approval	CE mark compliant to EMC Directive

Installation and dimensions





Setup menu

1. Enter setup menu	Switch the unit to 'standby' mode, press and hold " ↵", then press" - " , hold " - " and release "↵", keep holding " - " for 10s until " S-F " appears.
2. Select sub-menu " S-F " or " S-P "	After enter setup menu and " S-F " appears, press " + " or " - " to select " S-F " or " S-P ", confirm by "⏻".
3. Select function under sub-menu	Under sub-menu, press " ⏻ " key momentarily to select the functions sequentially.
4. Adjust parameters	Press " + " or " - " to adjust parameter value.
5. Save changes and go back to sub-menu selection	Press and hold " ↵" , then press" + " , hold " + " and release " ↵", keep holding " + " for 1s.
6. Exit setup menu	Under sub-menu, press " ↵" to exit.
7. Time out	If there is no key operation for 30 seconds, new setting will not be stored and exit automatically.

Sub-menu S-F

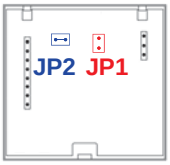
Firmware version	S	Display only	
Temperature display	t	Display in °C only	
Selection for unoccupancy mode	UA	To select UA1 or UA2	(factory default UA1)
Display selection	c	cAt = display ambient temperature cSP = display setpoint value	(factory default cAt)
Restore factory setting	rF	rFC = current setting rFS = restore factory setting	(factory default rFC)

Sub-menu S-P

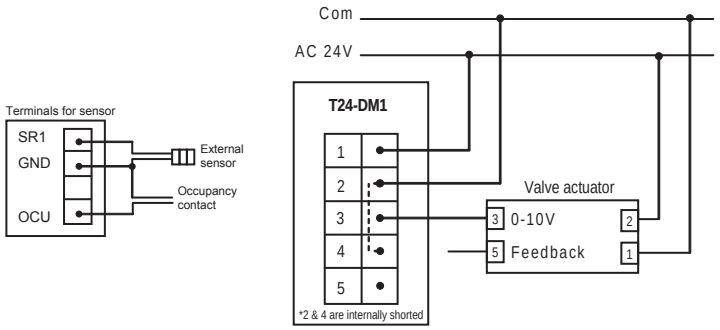
Proportional band	A	Adjustable, 1...10K	(factory default 5K)
Integral time	I	Adjustable, 0...30 (1=10s)	(factory default 6)
Upper setpoint limit	U	Adjustable, 9...40°C	(factory default 40°C)
Lower setpoint limit	L	Adjustable, 5...36°C	(factory default 5°C)
Unoccupancy setpoint range - cool	C	Adjustable, 5...40°C	(factory default 26°C)
Unoccupancy setpoint range - heat	H	Adjustable, 5...36°C	(factory default 16°C)
Display offset	n	Adjustable, -2,-1,0,+1,+2	(factory default 0)

Jumper setting

JP 1	Open		Use external sensor
	Close		Use built-in sensor (factory default)
JP 2	Open		DC 0...10V output
	Close		DC 2...10V output (factory default)



Wiring diagrams



Notes

- 22 or 24 AWG twisted shielded pair double insulated cable is recommended as sensor cable and its length must not exceed 25m.
- Do not bundle and run power cable and sensor cable in the same conduit.
- When using external sensor, run the cable away from any electric motor or power cable.
- Remove JP1 whenever using external sensor.
- Unoccupancy contact CLOSE activates unoccupancy mode.

Caution ⚠

- Unit to be opened by accredited servicing agents only.
- Electronic control - Type 2.B action (micro-disconnection operation).
- Separate collection for electrical and electronic equipment.

Error code

Error code will be displayed on LCD for following errors:

E-1 EEPROM read/write error
E-2 Temperature sensor open circuit
E-3 Temperature sensor short circuit

Remarks: If jumper JP1 is OPEN and external sensor is used, E-2 indicates external sensor may disconnected from terminals SR1 or GND. Check external sensor connection and resistance value.

Setup menu - description

Menu		Function	Description
Main	Sub		
S-F System function selection	S	MCU firmware (software) version	Appears once only after entering the setup mode
	t	Temperature unit	Fixed, °C Appear once only after entering setup mode
	UA	Activation selection for unoccupancy mode	UA1 = unoccupancy mode can be activated when thermostat is in operating mode (factory default) UA2 = unoccupancy mode can be activated when thermostat is in operating mode or standby mode
	c	Display selection	cAt = display ambient temperature (factory default) cSP = display setpoint value
	rF	Restore factory settings	rFC = Keep current settings (factory default) rFS = Restore factory settings
S-P System operating parameter setting	A	Proportional band	Set proportional band from 1K to 10K, in 1K per step (factory default 5K).
	I	Integral time for PI control	Set integral time from 0 (0s) to 30 (300s) in numeric 1 (10s) per step (factory default 6(60s)) Setting 0 means integral time turn off.
	U	Upper setpoint limit	Set upper setpoint limit, adjustable between current lower setpoint limit and 40°C (factory default 40°C). The program is set to always have a minimum separation of 4K maintained between upper setpoint limit and lower setpoint limit.
	L	Lower setpoint limit	Set lower setpoint limit, adjustable between current upper setpoint limit and 5°C (factory default 5°C). The program is set to always have a minimum separation of 4K maintained between upper setpoint limit and lower setpoint limit.
	C	Unoccupancy cooling setpoint	Set unoccupancy cooling setpoint, adjustable between current unoccupancy heating setpoint and 40°C (factory default 26°C). The program is set to always have a minimum separation of 4K maintained between unoccupancy cooling sepoint and unoccupancy heating setpoint.
	H	Unoccupancy heating setpoint	Set unoccupancy heating setpoint, adjustable between current unoccupancy cooling setpoint and 5°C (factory default 16°C). The program is set to always have a minimum separation of 4K maintained between unoccupancy cooling sepoint and unoccupancy heating setpoint.
	n	Offset adjustment of temperature display (field calibration of measured ambient temperature)	n 2 = temperature display plus 2 degrees n 1 = temperature display plus 1 degree n 0 = no offset (factory default) n-1 = temperature display minus 1 degree n-2 = temperature display minus 2 degrees