

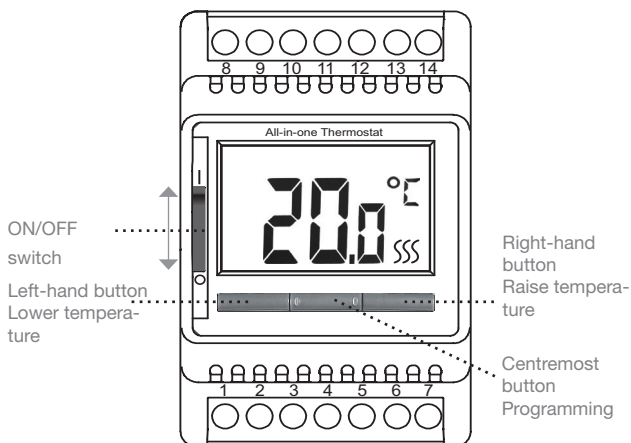
Contents

Introduction	1	Scale.....	2
Thermostat operation	1	Temperature reading.....	2
Temperature setting	1	Offset.....	2
Settings	1	Control method.....	2
Max. temperature	2	PWM cycle time.....	2
Min. temperature	2	Differential temperature	2
Max. limit temperature.....	2	Backlighting.....	2
Min. limit temperature.....	2	Relay function.....	2
Frost protection	2	Program version	3
Night setback / energy-saving function.....	2	Child lock	3
Measured floor temperature.....	2	Control signal	3
Measured room temperature.....	2	Factory settings	3
Application.....	2	Error messages	3

Introduction

ETN4-1999 is an all-in-one thermostat for DIN-rail mounting in an approved cabinet. It covers the needs of a variety of applications in which maximum comfort and minimum energy consumption are required, e.g. electric floor heating, frost protection, cooling, etc. The thermostat allows a required temperature to be set within the range -19.5 to +70 °C. The large backlit display provides a clear view of status, while the three navigation buttons allow easy menu operation.

ETN4-1999 THERMOSTAT



Thermostat operation

The ON/OFF button is used to turn the thermostat off “0” or on “I”. When the ON/OFF switch is in position “0”, the relay is deactivated. All settings are saved.

The thermostat is easily operated using the navigation buttons. Basic functions like temperature and thermostat settings are simple to perform. Whenever a button is pressed, the backlighting will come on and stay lit for 30 seconds after a button is last pressed.

Temperature setting

The thermostat has a temperature setting range of -19.5 to +70 °C. The menu allows limits to be defined for the range within temperature may be set (factory setting = 0-40 °C). The required temperature is set using the left- or right-hand button. The temperature setting flashes on the display. Five seconds after the setting has been made, the required temperature will be shown on the display continuously.

Settings

To set parameter values, press and hold the centremost button for three seconds. **SCA** ⇒ **Hi** ⇒ **40** will appear on the display. Firstly, **SCA** will be displayed for 1 second, followed by **Hi**, and finally **40**. The required value can now be set using the navigation buttons. To access the next parameter, press the programming button again. If no button is pressed for 30 seconds, the program returns to the initial display.

Parameter	Shown on display	Factory settings
Max. temperature	SCA ⇒ Hi ⇒ 40	40 °C (-19.5/+70 °C)
Min. temperature	SCA ⇒ Lo ⇒ 0	0 °C (-19.5/+70 °C)
Max. limit temperature FLOOR *1	Li ⇒ Hi ⇒ 28	28 °C (-19.5/+70 °C + OFF)
Min. limit temperature FLOOR *1	Li ⇒ Lo ⇒ 15	15 °C (-19.5/+70 °C + OFF)
Min. limit temperature Limit function *2	Li ⇒ Lo ⇒ -19,5	-19,5 °C (-19.5/0 °C + OFF)
Frost protection	dEF ⇒ 8.0	8 °C (0/+10 °C)
Night setback	nSb ⇒ -5.0	-5 °C (-19.5/+30 °C)
Measured floor temperature	FLo ⇒ 24.5 (example) *3	
Measured room temperature	ro ⇒ 21.5 (example) *3	
Application	APp ⇒ F (Floor sensor) ⇒ A (Room sensor) ⇒ AF (Room sensor with floor temperature limits) ⇒ C : Regulator	F : Floor
Scale	LCd ⇒ C	C = Celsius (nU = numerical)
Temperature reading in start display	dF ⇒ SP	SP = Setpoint (tP = actual temp.)
Offset	OFF ⇒ 0	0 (+/- 10 °C)
Control method	PWM ⇒ On	On (OFF)
PWM cycle time *4	cyc ⇒ 20	20 minutes (10-60 min)
Differential temperature *5	dIF ⇒ 0.3	0.3 °C (0.3/10 °C)
Relay function	rEL ⇒ no	no = normally open (nc = normally closed)
Software version	SU ⇒ 1.0	
*1 : Only available if APp ⇒ AF is selected under Application. *2 : Only available if APp ⇒ Li is selected under Application. *3 : With no or disconnected sensor, - - is shown on the display *4 : Only available if PWM is ON under Control Method. *5 : Only available if PWM is OFF under Control Method.		
If Regulator (C) is selected under Application, the floor and room sensors are disconnected and heating is controlled on a scale of 0-10, corresponding to 0-100% of full power.		

Max. temperature

The highest temperature to which the thermostat can be set.

Min. temperature

The lowest temperature to which the thermostat can be set.

Max. limit temperature

Allows the highest permissible floor temperature to be set for wooden and other floor types when control type has been set to room sensor with floor limit (AF).

Min. limit temperature - Floor

Allows the lowest permissible floor temperature to be set for tiled and other floor types when control type has been set to room sensor with floor limit (AF).

Min. limit temperature - Limit function

Allows the lowest permissible temperature to be set in Limit function.

Frost protection

The lowest temperature for frost protection when the function is activated via an external signal (fig. 4 in instructions).

Example: The setpoint is 25 °C.

Frost protection = 8 °C means temp. setting = 8 °C.

Night setback / energy-saving function

The number of degrees the temperature setting is to be reduced. The night setback setting must be preceded by a minus sign (-). Is controlled via an external signal (fig. 3 in instructions).

Example: The setpoint is 25 °C.

Energy-saving function = -5 °C means temp. setting = 20 °C.

Energy-saving function = +3 °C means temp. setting = 28 °C.

Measured floor temperature

Displays actual floor temperature (if a floor sensor is fitted).

Measured room temperature

Displays actual room temperature.

Application

Sets thermostat function. Select the required control type. Four alternatives exist:

Floor (F): The thermostat controls floor temperature alone.

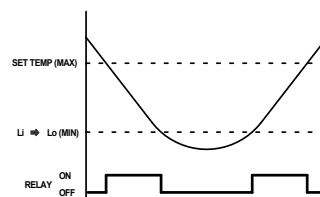
A floor sensor must be fitted.

Room (A): The thermostat controls room temperature alone.

Room/limit (AF): The thermostat controls room temperature while respecting min. and max. limits for floor temperature. A floor sensor must be fitted.

Regulator (C): The thermostat functions as a simple regulator and no sensors are used. The setting is in per cent.

Limit function (Li): Controls only on floor sensor temperature with min. and max. limits. (Li ⇒ Lo = -19,5/0 °C)



Scale

Choose between degrees Celsius and a numerical scale. If the numerical scale is selected, temperature is set on a scale from 0.0 to 10.0 where 0.0 corresponds to min. temperature (SCA ⇒ Lo) and 10.0 corresponds to max. temperature (SCA ⇒ Hi).

Temperature reading

Defines which temperature is to be shown on the start display: the setpoint (SP) or the actual, measured temperature.

Offset

If the actual temperature (measured using a thermometer) differs from that displayed by the thermostat, the thermostat can be adjusted to offset the difference.

Control method

PWM or ON/OFF control can be selected. PWM is an advanced control method which calculates the most effective and economical way to heat homes and other buildings. ON/OFF control is traditional differential control (e.g. 0.3 °C) for other tasks.

PWM cycle time

Allows cycle time to be set when using PWM control. At least 20 min is recommended.

Differential temperature

Allows temperature differential to be set when using ON/OFF control. The higher the differential temperature, the lower the number of relay operations.

Relay function

When used for heating purposes, the relay should be in normally open position (NO). If the thermostat is used for cooling purposes, the relay should be turned to normally closed (NC).

Software version

Displays thermostat software version.

Child lock

Allows thermostats in public and other places to be locked, thus preventing unauthorised alteration of the settings. Press and hold the left- and right-hand buttons simultaneously for 10 seconds. A symbol indicates that the thermostat is locked.

The child lock can be released by pressing the left- and right-hand buttons simultaneously for 10 seconds.

Factory settings

Allows factory settings to be restored. Your personal settings will be deleted from the thermostat.

Press and hold the centremost button for 10 seconds. The display is switched off and then on again. Application is shown on the display (APp ⇨F) followed by the temperature setting.

Error messages

If a fault occurs, the master/thermostat will display one of the following error codes:

Error code	Fault	Remedy
E0	Internal fault. Thermostat defective.	Replace thermostat.
E1	External room sensor defective or short-circuited (terminals 10-11).	Replace sensor/sensor cable. To continue to operate the system without sensor, set control type to Regulator under Application (APp ⇨C).
E2	External floor sensor defective or short-circuited (terminals 8-9).	Replace sensor/sensor cable. To continue to operate the system without sensor, set control type to Regulator under Application (APp ⇨C).
E5	Internal overheating. Thermostat shuts off heating.	Check installations. Check that heating cables are not overloaded or that ambient temperature is excessive. When internal temperature drops, the thermostat automatically reactivates.