TEMPERATURE CONTROLLERS 0-10VDC PROPORTIONAL 1 - 2 STAGES

ETC..

These products can monitor the temperature inside buildings, rooms, ducts (return air), tanks, pipes etc and give a 0-10vdc output signal linear across the desired proportional band. Suitable to control damper motors, valve actuators, step controls, relay modules & thyristors etc. The duct unit should be mounted in the return air. If multi-stages of heating and cooling are required, use the ETC. 52 and 2 sets of relay modules ie. 2 x E2RM etc.

NTC thermistor sensor
Supply 24VAC/DC ±15%
Power consumption 15mA
Load >10KΩ
Adjustment under the cover
Enclosure Flammability
ETC-R.. = UL94-HB
ETC-D, ETC-I = UL94-V0

Type	Mounting	Range °C	Prop Band °C	Neutral Zone °C	Output Signal	Function	Sensor NTC	Enclosure
ETC-R50	Room	0/+50	1/10 adj.	-	0-10vdc	Htg or Clg	In-built	IP30
ETC-R52	Room	0/+50	1/10 adj.	1/6 adj.	2x0-10vdc	Htg + Clg	In-built	IP30
ETC-R30V	Room	15/30	1/10 adj.	-	0-10vdc	Htg or Clg	In-built	IP30
ETC-R32V	Room	15/30	1/10 adj.	1/6 adj.	2x0-10vdc	Htg + Clg	In-built	IP30
ETC-D50	Duct	-10/+50	1/10 adj.	-	0-10vdc	Htg or Clg	In-built	IP65
ETC-D52	Duct	-10/+50	1/10 adj.	1/6 adj.	2x0-10vdc	Htg + Clg	In-built	IP65
ETC-D95	Duct	25/95	1/10 adj.		0-10vdc	Htg or Clg	In-built	IP65
ETC-I50	Immersion	-10/+50	1/10 adj.	-	0-10vdc	Htg or Clg	In-built	IP65
ETC-I95	Immersion	25/95	1/10 adj.	-	0-10vdc	Htg or Clg	In-built	IP65

ORDER POCKET SEPARATELY – SEE BELOW

DIMENSIONS

ETC-I.. Approx 80dia x 55 Probe length 120mm

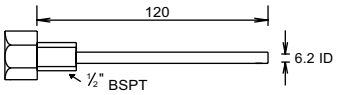
ETC-R.. 85H x 85W x 30D Can be mounted on square or round outlet box

ETC-D.. Approx 80dia x 55 Probe length 160mm

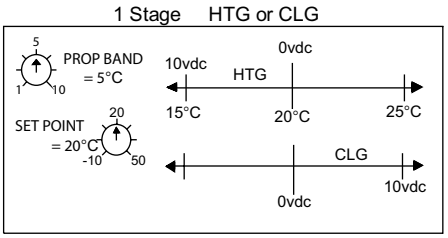
ACCESSORIES:

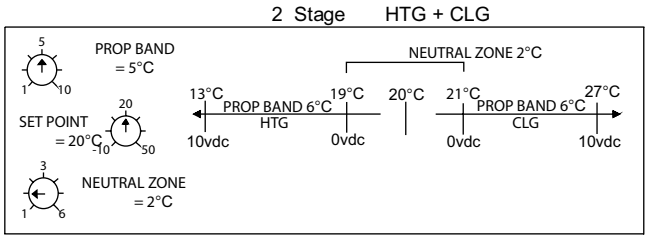
EE-2B ½" BSP x 120mm Brass pocket for ETC-I..

EE-STK ½" BSP x 120mm Stainless Steel pocket for ETC-I..



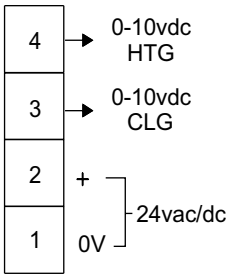
WIRING:





WIRING:

ETC..



INSTALLATION: Terminals 0.5-2.5mm² Max length 100m. Sensor cable size 7/0.2mm Screened cable is recommended. Keep away from power cables/units which may cause interference. The screen should be earthed at the controller end only .

TEMPERATURE CONTROLLERS 0-10VDC

PROPORTIONAL/INTEGRAL 1,2 OR 3 OUTPUTS

E15-PTL...

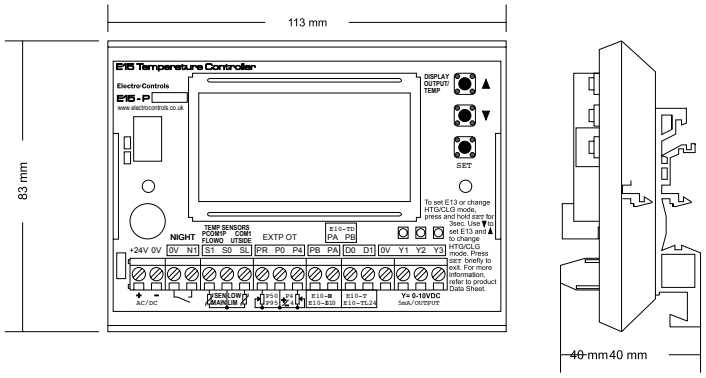
The E15 Temperature Controller is a fully digital controller which has 1, 2 or 3 0-10VDC proportional outputs. Integral, Low Limit and Night Setback is standard. Night Setback is via external time switch (not provided). A clear LCD display is provided to guide the user through set up and verification.
Temperature Sensors from the E10 family should be selected and accessories such as a Digital Set Point Adjuster, Digital Display and Room Sensors are available. This product is compatible with the functions and accessories of the E13 family. See the Accessories section of this data sheet for more information.

Temperature range	-10 to +95°C
Proportional band	0.5 to 50°C
Dead Band	0 to 15°C
Integral time	0 to 500 seconds
Low limit setting	0 to 30°C
Night setback	0 to 40°C (Ext. Time Switch)
Temp. Resolution	0.5°C
Power supply	24VAC/DC +/-15%
Power Consumption	2VA (without accessories)
IP rating	IP00

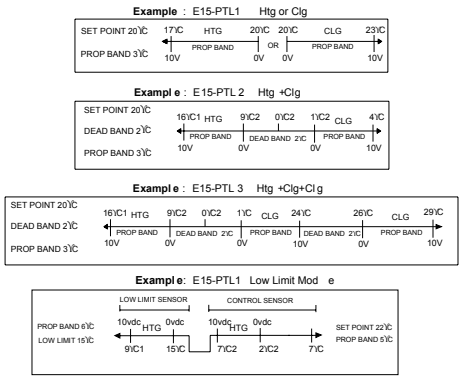
Type	Outputs	Functions	Mounting	Protection
E15-PTL1	1 x 0-10VDC	HTG or CLG	Din Rail	IP00
E15-PTL2	2 x 0-10VDC	HTG + CLG HTG + HTG or CLG +CLG	Din Rail	IP00
E15-PTL3	3 x 0-10VDC	CLG + CLG + CLG HTG + CLG + CLG HTG + HTG + CLG HTG + HTG + HTG	Din Rail	IP00

Note: If Low Limit Sensor is connected, only one Heating output will be available

DIMENSIONS/TERMINATION:



EXAMPLE TEMPERATURE DIAGRAMS:



SET UP:

Turn on the controller. Momentarily the display will show all the screen characters then the Product mode E 15 P1, E 13 P1 or E 13 P4 (only available in the E15-PTL1).
Press and hold the **SET** button for 3 seconds. The **SET CONTROL MODE**: will be displayed. Press the ▼ button to toggle between the E15 and E13, and ▲ button repeatedly to change the HTG/CLG mode required. Press **SET** to confirm the selection.
Briefly press **SET** repeatedly to select the required parameters i.e. SET POINT, PROP BAND, DEADBAND, INTEGRAL, LOW LIMIT, LOW LIMIT PROP BAND (if Low Limit Sensor is connected) and NIGHT SETBACK. The ▲▼ buttons can be used to set numerical value required.
Whilst setting the parameters, if the buttons are left for 10 seconds, the screen will return to the Temperature screen.
In the Temperature screen use ▲▼ buttons repeatedly to show TEMPERATURE LOW LIMIT (if Low Limit Sensor is connected), OUTPUT Y1%, Y2% and Y3%.

Reverting to the default settings

Start with the power off.
Hold the ▲ button down whilst turning on the power.
LOD EF and DEF LO will be displayed.
Turn off the power and turn on again. The controller will now be in its normal state.

Diagnostic messages

ERR S1 Main Sensor short circuit or not connected.
ERR SL Low Limit Sensor short circuit.

ACCESSORIES: See the table below for the valid accessories:

Accessory type	Accessory Part number	Selected product mode	
		E15-P1/2/3	E13-P1/2/3/4*
Temperature sensors	E10-B/C/D/DA/G/H/I/K/R/RA/S/V/X	✓	✓
Set Point adjuster	E10-P4,E10-P50 and E10-P95 (E13-P4 mode only)		✓
Digital Set Point Adjuster	E10-S110	✓	
Digital Room sensor	E10-RD	✓	
Analogue display	E10-T		✓
Digital Display	E10-TD	✓	
Enclosure	EE-M2T	✓	✓

* E13-P4 mode is only available in the E15-PTL1. The E13-PO4 and E13-PT4 are compatible with the E15-PTL1.

INSTALLATION: Sensor cable size 7/0.2mm.Screened cable is recommended with a maximum length of 100metres and earthed at the controller end only. Route all cables away from other power cables or devices which may cause interference.

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E14 TEMPERATURE CONTROLLER 0-10VDC PRODUCT SELECTION GUIDE

E14...

The E14 Temperature controller is a fully digital controller which can be configured with 1, 2 or 3 0-10VDC outputs and other features such as proportional + integral control and low limit. Night setback is standard.

A clear lcd display is provided to guide the user through set up and verification. The product is totally enclosed to IP54 as standard.

Temperature sensors from the E10 family should be selected and accessories such as a Digital Setpoint Adjuster and Digital Display are available for use with the E14.

E14-P..

SELECTION GUIDE:

Basic controller with proportional control and a single 0-10VDC output	**E14-P1**	Htg or Clg
With additional outputs 2 off 0-10VDC outputs	**E14-P2**	Htg+Clg or Htg+Htg or Clg+Clg
3 off 0-10VDC outputs	**E14-P3**	Htg+Htg+Htg or Htg+Htg+Clg or Clg+Clg+Clg or Htg+Clg+Clg
With proportional + integral control for	**E14-P1I**	Htg or Clg
	E14-P2I	Htg+ Clg or Htg+Htg or Clg+Clg
	E14-P3I	Htg+Htg+Htg or Htg+Htg+Clg or Clg+Clg+Clg or Htg+Clg+Clg
With Low Limit temperature control	**E14-P1LL**	Htg only
	E14-P2LL	Htg + Clg
	E14-P3LL	Htg + Clg + Clg

Add the sensors required-see page ……..

Add the accessories

Digital Set point adjuster	**E10-S110**
Digital Display	**E10-TD**
Room Sensor	**E10-RD**
Compensator version	**E14-PCOM1**

Add the sensors required (two)

Add the accessories

Digital flow setpoint adjuster

TEMPERATURE CONTROLLERS 0-10VDC

TEMPERATURE CONTROLLER 0-10VDC

E14-P..

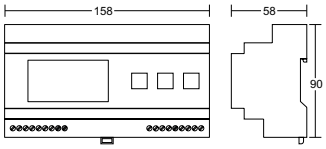
The E14 Temperature controller is a fully digital controller which can be configured with 1, 2 or 3 0-10VDC outputs and other optional features such as proportional + integral control and low limit. Night setback is standard (time switch not provided).

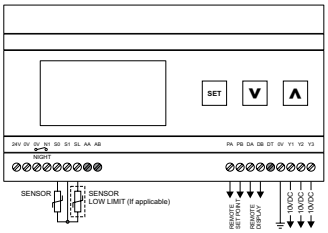
A clear lcd display is provided to guide the user through set up and verification. The product is totally enclosed to IP54 as standard.

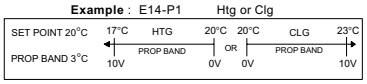
Temperature sensors from the E10 family should be selected and accessories such as a Digital Setpoint Adjuster and Digital Display and Room Sensor are available for use with the E14.

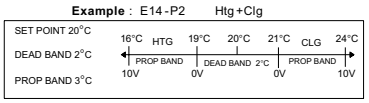
Supply	24VAC/DC
Temp range	-20 to 110deg C
Temp resolution	0.1deg C
Prop band	1 to 15degC
Dead band	0 to 10degC
Integral time	0 to 300s (E14-P..I only)
Output	1,2 or 3 x 0-10VDC
Output resolution	0.1VDC
Night setback range	-20 to 110 deg C
IP rating	IP54

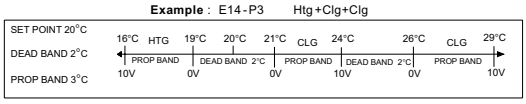
DIMENSIONS AND WIRING:

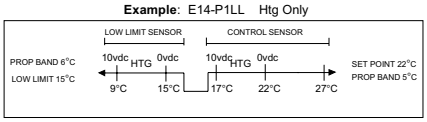












Sensor cables should be screened cable 7/0.2 mm max length 100m with the screen earthed at the controller end only.

SETTINGS:

Setting the Control mode

Whilst holding the ▼ push button turn the power on.
The display will show SET and CONTROL MODE.
Use the ▲ ▼ to scroll through the modes and confirm with the SET push button the mode required.
The controller will then begin to operate normally

Setting of Set Point, Proportional band etc

With the temperature indication displayed press the SET push button to step through the desired parameters and the value can be set using the ▲ and ▼ buttons.
By repeatedly pressing the SET button the parameters of:
SET POINT
PROPORTIONAL BAND Y1
PROPORTIONAL BAND Y2 (if applicable)
PROPORTIONAL BAND Y3 (if applicable)
DEADBAND Y1Y2 and Y2Y3 (if applicable)
INTEGRAL TIME (if applicable)
LOW LIMIT
LOW LIMIT PROPORTIONAL BAND
NIGHT SETBACK
can be set up.
After 10s the E14 will come out of the setting menu and operate normally.

Viewing the output data

With the temperature displayed press the ▲ to see the output of Y1displayed. Press the ▲ again for display of the Y2 output (if applicable) and press the ▲ a third time for display of the Y3 output (if applicable).
DC output values are shown in %. i.e 10VDC is 100%
This display will be maintained until the ▲ is pressed after the last output display after which the temperature will be displayed.

Reverting to default settings

Start with the power OFF
Hold the ▲ pushbutton down whilst turning on the power.
LoD and deFLd will be displayed followed by the display of temperature.
Turn off the power and turn on again.The controller will now be in its normal state.
More detailed instructions are shown on the Product Data sheet supplied with the product.

ACCESSORIES

E10…… Temperature sensor Select the type of sensor needed from the E10 range shown on page…….
E10-S110 Digital Setpoint adjuster
E10-TD Digital remote temperature display

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COMPENSATOR 0-10VDC FOR BOILERS OR MIXING VALVES

E14-PCOM1

- This compensator can be used to adjust boiler flow temperature in relation to changes in outside temperature.

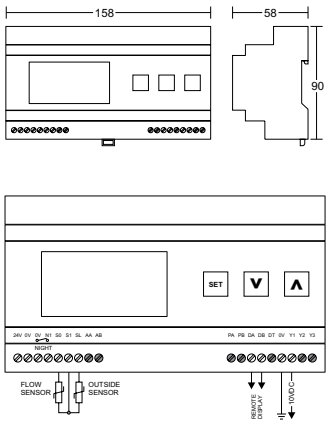
  The 0-10VDC output can be used to modulate an actuator/mixing valve.

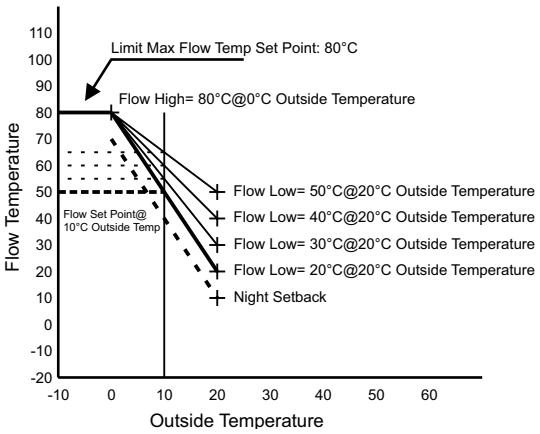
  Alternatively the 0-10VDC signal can be wired to a relay interface unit (E4RM for example) to switch several boilers in sequence.

This compensator must be used with an outside temperature sensor and a flow temperature sensor.

Supply	24VAC/DC
Temp range	-20 to 110 degC
Temp resolution	0.1deg C
Prop band	1 to 40degC
Integral time	0 to 300s
Output	0-10VDC
Output resolution	0.1VDC
IP rating	IP54

DIMENSIONS AND WIRING





Sensor cables should be screened cable 7/0.2mm max length 100m with the screen earthed at the controller end only.

SETTINGS:

Setting the Control mode

Whilst holding the V push button turn the power on.
The display will show SET and CONTROL MODE.
Use the ∧/V to scroll through the modes and confirm with the SET push button the mode required.
The controller will then begin to operate normally.

Setting of Flow temperatures, Proportional band etc

With the temperature indication displayed press the SET push button to step through the desired parameters and the value can be set using the (up arrow) and V buttons.
By repeatedly pressing the SET button the parameters of:
SET POINT CALCULATED (display only)
PROPORTIONAL BAND Y1
INTEGRAL TIME
FLOW HIGH
FLOW LOW
NIGHT SETBACK
Can be displayed and set up
After 10s the display will revert to the temperature indication.
Note: the set point does not have to be set up because this is calculated from the Flow low and Flow high.
The night setback is an offset subtracted from the calculated set point.

Viewing the output data

With the temperature displayed press the ∧ and the following temperatures will be displayed.
TEMP FLOW
TEMP OUTSIDE
Y1
The DC output value is shown in %. i.e 10VDC is 100%
This display will be maintained until the ∧ is pressed after which the temperature will be displayed again.

Reverting to default settings

Start with the power OFF
Hold the ∧ pushbutton down whilst turning on the power.
LoD and deFLd will be displayed followed by the display of temperature.
Turn off the power and turn on again. The controller will now be in its normal state.
More detailed instructions are shown on the Product Data sheet supplied with the product.

ACCESSORIES

E10-X	Outside temperature sensor
E10-I	Immersion temperature sensor
E10-TD	Digital remote temperature display

Note: The E10-S110 Digital Setpoint adjuster is not available with the E14-PCOM1