

# The Eco93 and Eco94 New Range Economy of Temperature Controllers

## Auto-tuning P.I.D.

The Eco93 and Eco94 range of temperature controllers are designed to be easy to use, low cost and reliable in the most demanding applications, including plastics, packaging, drying and laboratory equipment.

Integrated auto-tune makes P.I.D. control simple and efficient, while the unique dAC function minimises overshoot problems associated with conventional P.I.D. Controllers.



**Eco93**  
48 x 24 mm  
(1/32<sup>ND</sup> DIN)

**Functionality:**

- Easy-to-use auto-tune program
- Simple menu-driven programming
- Full P.I.D. operation
- Single ramp/soak (dwell) program
- Heat/cool operation
- IP66 protection
- CE compliant



**Eco94**  
48 x 48 mm  
(1/16<sup>TH</sup> DIN)

**Inputs and Outputs:**

- Thermocouple and PT100 (2 wire)
- Two outputs: SSR driver and/or Relay
- 5 alarm modes, full scale (high or low), deviation (high or low) & band

## Ordering information

<b>Eco93, Eco94</b>		<b>Code</b>
<b>Model</b>	48 x 24 mm 48 x 48 mm dual display	Eco93 Eco94
<b>Outputs (Reversible)</b>	SSD / 2A relay 2A relay / 1A relay	00 11
<b>Unused</b>		00
<b>Comms</b>	None fitted	0
<b>Supply</b>	100-240V AC	0
<b>Unused</b>		00

**Ordering example 1**

Eco93 48x24mm,  
SSd / relay, 100 - 240 V AC

Eco 93	00	00	0	0	00
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**Ordering example 2**

Eco94 relay/relay outputs  
100-240VCA

Eco 94	11	0	0	0	00
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<b>Input</b>	
<b>Thermocouple</b>	9 types: Type B,E,J,K,L,N,R,S,T
Standards	IEC 584-1-1 : EN60584-1
CJC rejection	20:1 (0.05%/°C) typical
External resistance	100Ω maximum
<b>Resistance Temperature Detector – (RTD)</b>	<b>9300 / 9400:</b> PT100 2 wire
Standards	IEC751: EN60751 (100Ω 0°C/138.5Ω 100°C Pt)
Bulb current	0.2mA maximum
<b>Linear process inputs</b>	Analogue process inputs 0 to 50mV, +/- 0.1%
<b>Applicable to all Thermocouple and RTD inputs (SM =sensor maximum)</b>	
Calibration accuracy	±0.25%SM ±1°C
Sampling frequency	Input 10Hz, CJC 2 sec
Common mode rejection	Negligible effect up to 140dB, 240V, 50-60Hz
Series mode rejection	60dB, 50-60Hz
Temperature coefficient	<b>9300/ 9400:</b> 150ppm/°C SM
Reference conditions	22°C ±2°C, rated voltage after 15 minutes settling times
<b>Output devices</b>	
SSd	SSd1 and SSd2: Solid state relay driver: To switch a remote SSR 5Vdc (nominal) 15mA non-isolated
Miniature power relay	Relay 1,2,3 Miniature power relay: Form A/SPST contacts (AgCdO): 2A/250Vac resistive load. <b>9300/ 9400:</b> Relay 1, 2 only
<b>General</b>	
Displays	Main (upper) display: 4 digits high brightness green LED, 10mm high Lower display <b>9400:</b> 4 digits high brightness orange LED, 9mm high
LED output indicators	Flashing SP1 square, green, SP2 round red
Keypad	3 full travel elastomeric buttons
<b>Environmental</b>	
Safety	UL 873, EN 61010, CSA 22.2 No. 1010.1-92
Humidity	Max 80% non-condensing
Altitude	Up to 2000m
Installation	Categories II and III
Pollution	Degree II
Protection	NEMA 4X, IP66
EMC emission	EN50081-1, FCC Rules 15 subpart J Class A
EMC immunity	EN50082-2
Ambient	0-50°C
Mouldings	Flame retardant polycarbonate
<b>Dimensions</b>	
Front fascia Models	<b>9400:</b> 51.0 x 51.0mm (includes gasket). <b>9300:</b> 51.0 x 28.5 (includes gasket)
Controller depth All models	106.7mm (with gasket fitted)
Fascia dimensions	<b>9400:</b> 44.8 x 44.8mm, <b>9300:</b> 44.8 x 22.0mm
Overall length	All models – 116.2mm
Weights	<b>9300:</b> 110g, <b>9400:</b> 130g
Supply Voltage	100-240Vac, 50-60Hz +/- 10% maximum permitted fluctuation
<b>Approvals</b>	CE, UL, cUL, FM (3545)

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FT-Eco93/94-0703



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