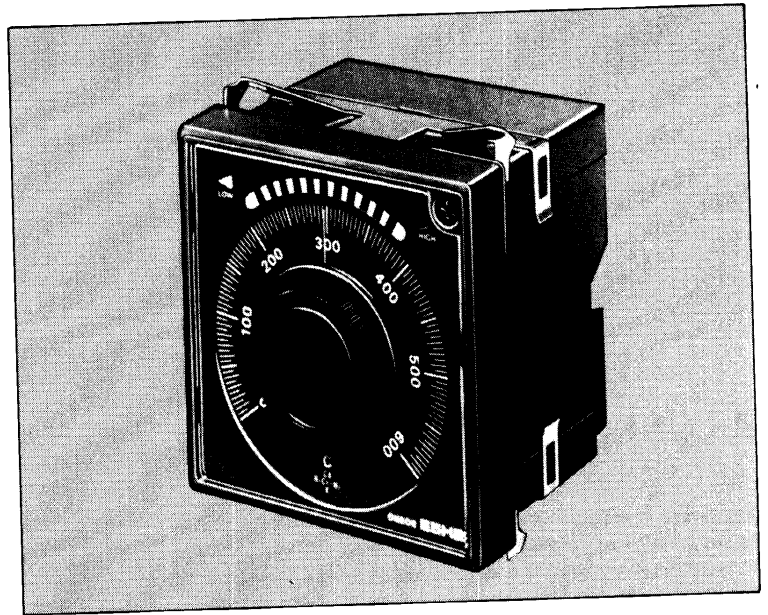


Low Cost DIN96 Electronic Temperature Control with LED Deviation Indication

■ FEATURES

- CA, IC, PT sensor input.
- Resets to cooling mode if thermocouple open circuits.
- Cold junction compensation.
- LED deviation indication RED/GREEN.
- Choice of two proportional periods.
- Long life solid state relay output.
- Lock on setting dial.



■ AVAILABLE TYPES

Control Mode \ Sensor	Chromel Alumel K	Iron Constantan J	Platinum Resistance Thermometer Pt 100
ON-OFF	E5H2-YCA-DIN	E5H2-YIC-DIN	E5H2-YPT-DIN
Proportional Derivative PD	E5H2-Y4CA-DIN	E5H2-Y4IC-DIN	E5H2-Y4PT-DIN

■ SPECIFICATIONS

• RATINGS

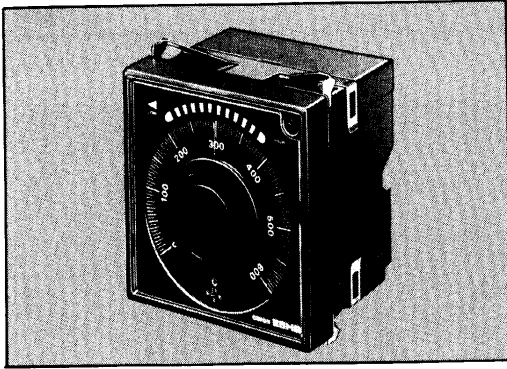
Operating Voltage	110/230VAC 50/60Hz
Operating Voltage Range	± 10%
Power Consumption	2VA max.
Scale Length	200mm
Control Output	SSR 1A 75~250VAC

• TEMPERATURE RANGE

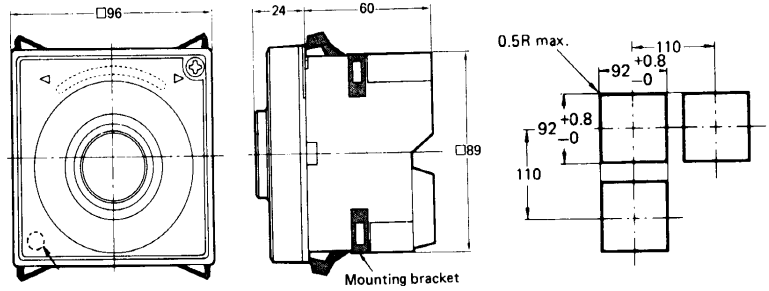
DIN Sensor			Scale Range	Divisions
Thermocouple	CA K	Chromel Alumel	0~400°C	5°
			0~600°C	5°
			0~800°C	10°
			0~1000°C	10°
			0~1200°C	10°
	IC J	Iron Constantan	0~200°C	2°
			50~450°C	5°
Resistance Thermometer	PT Pt 100	Platinum Resistance Thermometer	-50~50°C	1°
			0~100°C	1°

• CHARACTERISTICS

Setting accuracy	±1% max. of full scale
Hysteresis	0.2% of full scale
Proportional band	3% of full scale
Proportional period	20sec or 3sec selectable
Deviation indication range	±10% of full scale against set value
Insulation resistance	20MΩ min. (at 500 VDC)
Dielectric strength	2,000 V AC, 50/60Hz for 1 minute
Vibration	Malfunction durability: 10 to 55Hz, 0.3mm double amplitude Mechanical durability: 16.7Hz, 4mm double amplitude
Shock	Malfunction durability: 150m/s ² (approx. 15G's) Mechanical durability: 300m/s ² (approx. 30G's)
Ambient temperature	Operating: -10 to +55°C
Humidity	45 to 85% RH
Degree of protection	Front panel section: IP40 Housing section: IP20 Terminal section: IP00
Weight	430g



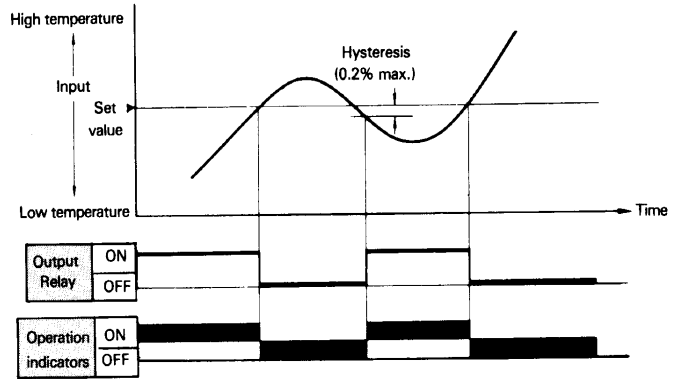
■ DIMENSIONS



■ CONTROL MODES

• ON-OFF Action

Output relay operates when the input is at a temperature lower than the set value, while the relay releases when the input is at a higher temperature. As shown in the diagram, adjustable sensitivity is 0.2% max. of full scale, and the output relay operating point is shifted against the relay release point.



• Proportional Derivative PD Action

The proportional period is factory set at 20 secs. For a 3 sec period remove E5H2 internal unit and cut labelled strap at lower RHS of printed circuit board. Ensure power supply is OFF for this operation.

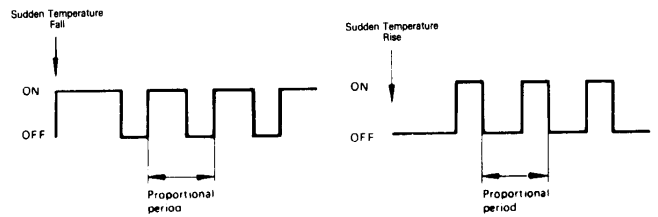
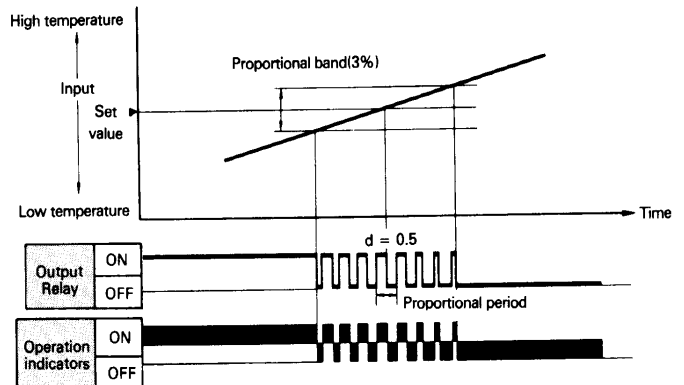
The operation of output relay is time-division-proportional to the input value and the relay repeats ON-OFF operation when the input is within the proportional band of the set value. As shown in the diagram, proportional distribution is expressed in terms of duty factor. For example, duty factor d is 0.5 when the input value matches the set value. That is, with a proportional period of 20sec., the output relay operates for 10 seconds, then releases for 10 seconds. The proportional band is 2% of full scale.

Duty Factor (d) is calculated by the following Formula

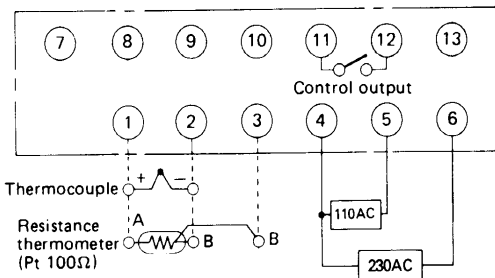
$$d(\text{Duty Factor}) = \frac{\text{Output Relay ON Time}}{\text{Proportional Period}}$$

When the input value changes suddenly by external disturbance, for example the temperature drops abruptly upon application of a load, the ON time of the relay in the first period is prolonged so that the temperature reaches the set value sooner. This is called proportional derivative control action.

Likewise, when the temperature rises suddenly, the OFF time of the relay is prolonged so that the temperature reaches the set value sooner.



■ CONNECTIONS



■ CONTROL OUTPUT

• RATINGS

Switching capacity	Voltage	75 to 250VAC 50/60Hz
	Current	1A
Surge current	30A 60Hz for 1 cycle	

• CHARACTERISTICS

Output voltage drop	1.6V (rms) max.
Leakage current	1.5mA max. (at 200VAC)

• CHARACTERISTIC DATA
Load current vs. ambient temperature

