

Series 550 Dual Point

1/4 DIN Thermocouple Sensing Temperature Controller

FEATURES

- *UL Component Recognized*
- *CSA Certified*
- *Available in On/Off and Time Proportioning Control Modes*
- *Dead Band Operation*
- *Travelling Differential*
- *Plug-In Construction*
- *Field Selectable Line Voltage*
- *Lead Break Protection*
- *Line Voltage Compensation*
- *Full Scale Indication*

APPLICATIONS

- *Plastic Processing*
- *Industrial Heating*
- *Metals*
- *Ceramics and Similar Heating Applications*

DESCRIPTION

The Series 550 Dual Point Controller features many modern, efficient and time-saving innovations such as plug-in construction and two individually adjustable control points. The first set point, adjustable to 100% of span, is regulated by a front panel knob; the second set point is set from the front by an external screwdriver adjustment in the dial face. Once set, the second set point "travels" when the first set point is changed. The second set point is adjustable up to 20% of span above or below the first set point. With ON/OFF control on the second set point, either high limit or low limit action is field selectable. The first set point has full scale indication, the second is nonindicating. A red pilot light (LED) indicates that the first set point output is energized. A green pilot light (LED) indicates that the second point relay is energized.

The Series 550 Dual Point Controller operates with standard types J and K thermocouples and is available in overlapping ranges from 0 to 2000°F (-20 to +1100°C). (See Table 1.)

SPECIFICATIONS

Control Modes	FIRST	SECOND
	SET POINT	SET POINT
	On/Off	On/Off
	Time Proportioning	On/Off

Input Power

120, 208, 240 VAC, +10%, -15%, 50/60 Hz, field selectable.

Thermocouple Lead Length

Accuracy will remain within specification for thermocouple lead lengths up to the equivalent of 150 ohms resistance; e.g., 1000 ft. (300 mm) #16 gauge ISA Type J wire.

Output Load, First Set Point SPDT Relay

Resistive: 10A at 120 VAC, 50/60 Hz or 5A at 208/240 VAC, 50/60 Hz.

Pilot duty: 250 VA, 240 VAC maximum.

Output Load, Second Set Point DPDT Relay

Resistive: 10A at 120 VAC, 50/60 Hz or 5A at 208/240 VAC, 50/60 Hz.

NOTE: All contacts wired to terminals.

Power Consumption

10 Watts maximum at nominal voltage.

12 Watts maximum at nominal voltage + 10%.

Ambient Temperature Limits

Operating: 32 to 135°F (0 to 55°C).

Storage: -20 to +165°F (-30 to +75°C)

standard Series 550 units are recognized under the Component Recognition Program of the Underwriters Laboratories, Inc. File E18974 Guide XAPX2

File LR 7378 Class 4813 02. (Some models – consult factory.)

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SPECIFICATIONS (Continued)

Cycle Time (Proportioning Units)

10 to 20 seconds nominal. Internally adjustable. Specified at 50% duty cycle. Cycle time increases at extremes of duty cycle for better control, and is approximately 150% of specified value with less than 20% or greater than 80% duty cycle.

Bandwidth (Proportioning Units)

First Set Point: 1 to 10% of span, nominal on all ranges. Internally adjustable.

Offset Adjustment (Proportioning Units)

Manually adjustable within the bandwidth; accessible from the front panel.

Vibration

Meets requirements of MIL STD 202D, Method 201A.

Control Stability

The control points will remain within $\pm 1\%$ of span from nominal when the ambient temperature changes from normal room ambient [80°F(25°C)] to the ambient temperature limits.

The control point will remain within the limits stated below with line voltage changes of + 10%, -15% from nominal.

ON/OFF Control (first or second set point):
 $\pm 0.25\%$ of span.

Time proportioning control (first set point):
 $\pm 0.25\%$ of span at minimum bandwidth, $\pm 1\%$ of span at maximum bandwidth with instrument and load voltages from the same source.

Lead Break Protection

The first set point relay will de-energize upon an open thermocouple (500 kΩ or greater). Action of the second set point relay is factory set as follows. Opposite action is field selectable.

High Limit relay energizes
Low Limit relay de-energizes

Common Mode Rejection

130 dB or greater at 60 Hz. Common mode voltage can be up to 240 VAC, 50/60 Hz on thermocouple.

Differential (ON/OFF Units)

First Set Point: 0.25% of span, typical.
Second Set Point: 0.5% of span, maximum.

Case Construction

Molded ABS (Cyclocac KJT®) plastic; dust resistant; captive jackscrew for easy removal of unit from case; captive cam fasteners for easy front-of-panel mounting.

Accuracy (Set Point and Indication)

$\pm 1.5\%$ of span (typical)

Terminations

No. 6 screw barrier strip on rear panel; will accept bare wire or No. 6 spade/ring terminals (supplied).

Weight

1 pound, 10 ounces (0.74 kg) maximum.

Dimensions

See Outline Dimensions on next page.

Temperature Ranges

Table 1

Temperature Range	Suffix Number	ISA Type Thermo-couple	Full Scale Increments	
			°F	°C
0 to 400°F (-20 to +200°C)	-302	J	5	5
0 to 800°F (-20 to +430°C)	-303	J	10	5
0 to 1200°F (-20 to +650°C)	-308	J	20	10
0 to 2000°F (-20 to +1100°C)	-306	K	20	20

WARNING: Operation outside specifications could result in failure of the Fenwal product and other equipment with injury to people and property.

SPECIAL FEATURES

Adjustable High Limitations Set Point

Restricts set point maximum adjustment within controller limits.

Specify Special Feature 55-982036-001.

Factory Set Adjustable High Limit Set Point

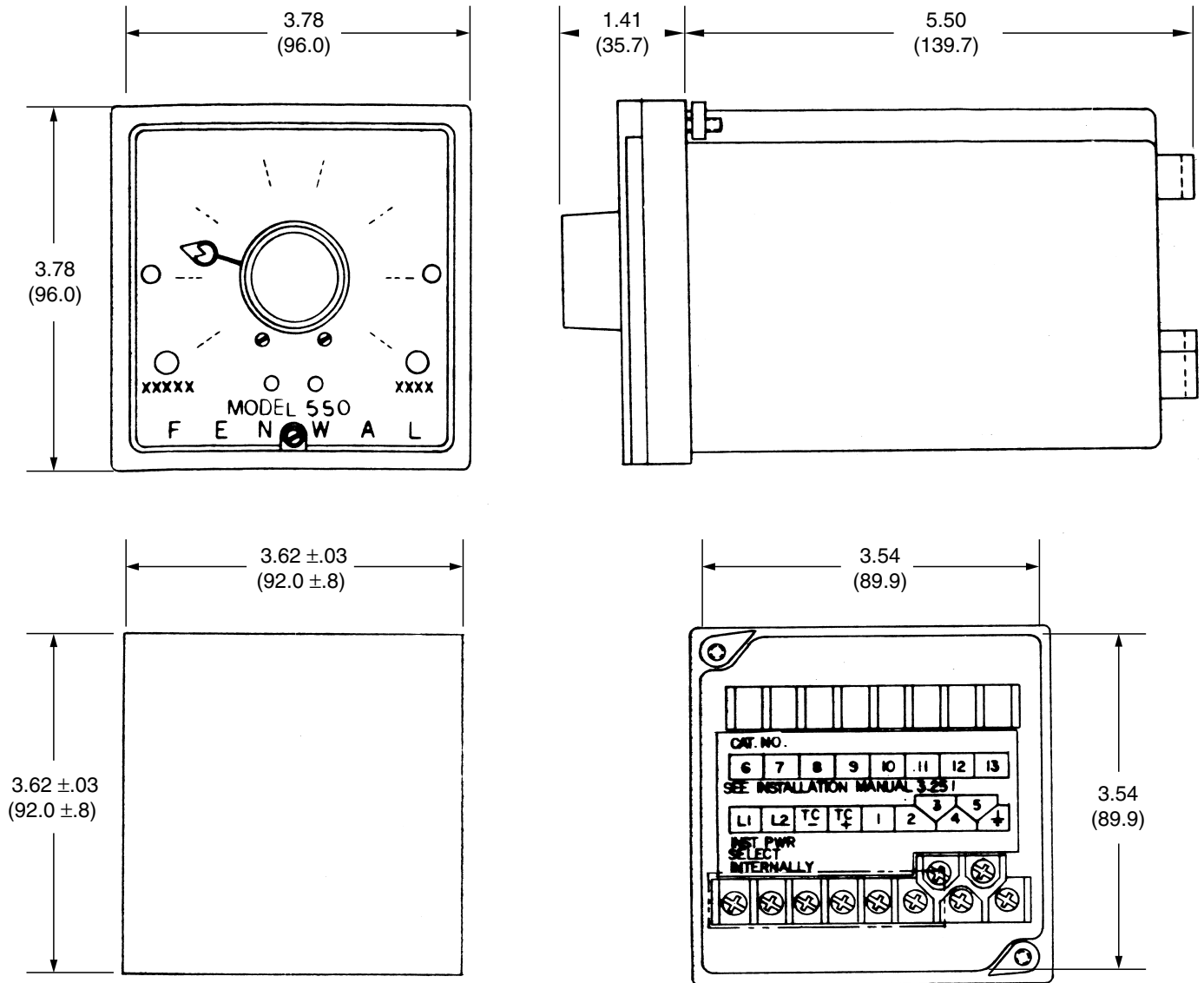
Special feature described above is initially set by factory. Specify Special Feature 55-982090-001 and setting desired in addition to Special Feature 55-982036-001.

INSTRUMENT TYPES AND MODEL NUMBER

Table 2

Control Mode		Catalog Number
First Set Point	Second Set Point	
On/Off Proportioning	On/Off On/Off	55-011140-XXX 55-013140-XXX

OUTLINE DIMENSIONS



HOW TO ORDER

1. Select Controller type by catalog number from Table 2.
2. Select the desired temperature range from Table 1 and add the appropriate 3-digit suffix to the catalog number.
For example: 55-011140-308 = Dual set point thermocouple sensing controller with both first and second set point on/off control. Temperature range is 0 to 1200°F (-20° to +650°C).
3. Select appropriate Special Feature, **if required**. S.F. number should be listed **after** Controller Catalog Number.

For example:

55-011140-308 / **55-982036-001**
 (Catalog Number) (S.F. Number)



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