FEATURES
Plug-in Din Design
Thermocouple Sensor
Analog indication
115/230 VAC Operation
(Internal Selectable)
Dual Output
Relay or Solid State Outputs
Time Proportioning, Auto Reset
Rate on Primary Output
On/off Secondary Control
Load Power Indication
Control or Latched Alarm
on Secondary Output

GENERAL
Series 659 is a plug-in Din size, dual output, thermocouple, analog indicating temperature controller. The control mode for the primary output is time proportioning, auto reset, and rate, while the secondary output is on/off. Proportional band, auto reset, cycle time, and rate are integral adjustments. The plug-in design allows for easy access to the internal adjustments.

The unit is available in three standard versions including heat/heat, heat/cool, and heat with alarm output. When the secondary output is an alarm application, a front panel reset switch is present.

Outputs are dual relay or triacs. The primary set point is controlled by the drum type set pot. The secondary set point is controlled by a front panel adjustable potentiometer. There is a meter that is superimposed over the dial scale and reads temperature directly, or a meter which indicates a deviation from the primary set point.

L.E.D. load indicators are front panel mounted. Load 1 L.E.D. will energize when power is applied to Load 1. Load 2 L.E.D. operation is dependent upon the application, on/off secondary control, or latched alarm.

SPECIFICATIONS:

PRIMARY CONTROL MODE: 3-Mode.
1) Proportional Band: Internal adjustment, 10 to 100°F.
2) Auto Reset: Internal adjust., 0.05 to 0.5 repeats per minute.
3) Rate: Internal adjustment, 0 to 5 minutes.

CYCLE TIME: Internal adjust., 2 to 30 seconds.

SECONDARY CONTROL MODE: Standard control is on/off.

SENSOR: Thermocouple types "J" and "K".

OUTPUTS:
1) Dual relays, rated 10A/120V, 5A/240V, resistive, 50 V.A.
2) Dual solid state zero switching isolated triacs rated 15 amperes at 120/240V. Note: Load current must be 0.05 amperes minimum to insure proper triac switching.

NO. 2 OUTPUT OPTIONS: Deviation or direct reading meter.
1) Control Applications. In a control application, output 2 can operate above or below the primary setpoint.
2) Alarm Applications. The standard model utilizes a high latched alarm with a front panel alarm reset.

INDICATION:
1) Direct Reading: An analog meter superimposed over the dial scale that indicates temperature directly.
2) Deviation: A calibrated analog meter integral to the controller that uses the set point temperature ± 30°F or 50°C to indicate process temperature.

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SERIES 659
TEMPERATURE CONTROL

TERMINAL DESIGNATIONS
1. 120V LINE, L1
2. 240V LINE, L2
3. RELAY OUTPUT
4. TRIP ALARM
5. GATE EXT. TRIAC-LOAD 1
6. 120V LINE, L1
7. 240V LINE, L2
8. M.P.S.
9. TC-. RE0
10. TC-. IN
11. TC-. IN
12. NOT USEO
13. SET POINT
14. PROGRAMMER
15. SIGNAL CONO.
16. CIRCUIT COMMON
17. T/C TYPE
18. PANEL MOD.
19. BOARD MOD.
20. 3. 3-3/DUAL HEAT/COOL
4. 3/DUAL HEAT/COOL 5. 3/DUAL 10A RELAY
6. 3/DUAL 15A LIMIT
7. 3/DUAL 1A LIMIT
8. 3/DUAL LIMIT
9. 3/DUAL LIMIT
10. 3/DUAL LIMIT
11. 3/DUAL LIMIT
12. 3/DUAL LIMIT
13. 3/DUAL LIMIT
14. 3/DUAL LIMIT
15. 3/DUAL LIMIT
16. 3/DUAL LIMIT
17. 3/DUAL LIMIT
18. 3/DUAL LIMIT
19. 3/DUAL LIMIT
20. 3/DUAL LIMIT

ORDERING INFORMATION
1. 1. DESCRIPTION
2. 2. RANGE: C/R
3. 3. PANEL MOD.
4. 4. BOARD MOD.
5. 5. NOT USEO
6. 6. TC-. IN
7. 7. OUTPUT
8. 8. NOTE: Consult factory on availability of 15A output