7SC 1/16 DIN 4-Digit Dual Display Temperature Controller with Analog Output

Features:

- Universal Input (7 T/C, RTD, mV, V, mA)
- PID and Smart AT Autotuning
- NEMA 4X, IP65
- Heat or Heat/Cool Control
- Up to 2 Independent Alarms
- Optional RS-485 Communications
- Auxiliary Setpoint Selection
- 100 to 240 Vac or 24 Vac/Vdc Power Supply

The compact Model 7SC is a dual display general purpose 1/16 DIN PID controller with autotuning and 3 configurable outputs. It is similar to the 7SF, but with OP1 as a programmable analog output for heating, cooling or analog retransmission. OP2 (time proportioning relay) is used for heating/cooling (air, oil or water) or alarm. OP3 can be an alarm or a heat/cool output if OP2 is configured as an alarm. Alarms can be process, band or deviation type, direct or reverse, with masking and automatic or manual reset. A logic input is fitted as standard, allowing remote selection of an auxiliary setpoint. Bumpless Auto/Manual control can be selected from the front panel. Detection of an out of range or sensor break forces the output to a safe value (Auto Comp™ sensor break). The 7SC is available with optically isolated RS-485 communications in three protocols for use with supervisory systems. This easy to use instrument comes with factory calibrated inputs and can be configured from the front panel or via the communications port. NEMA 4X sealing allows use in washdown or dust conditions.

Specifications:

Control Modes: PID with Smart AT Autotuning, Manual Mode

Supply Voltage: 100-240 Vac (+10%, -15%), 50/60 Hz or 24 Vac/Vdc (±10%)

Operating Ambient: 0-50°C, 20-85% RH non-condensing

Inputs: T/C Types J, K, L, N, R, S & T (°C, °F); Pt 100 3W RTD (°C, °F) Ranges: See Table D, page 1-21; mAdc, mVdc, Vdc

Logic Input: for setpoint select (SP1 or SP2), requires contact rated at 0.5 mA, 5 Vdc minimum

Output Ratings:
Output 1: (Control) 0 to 20 mA or 4 to 20 mA, isolated (500Ω max.) Heat, Cool or Retransmission of PV or SP
Output 2: Time Proportioning Relay (Heat/Cool) or Alarm 1 Relay, (NO/NC Jumper Selectable), 2A/250V, SPST, Resistive
Output 3: Time Proportioning Relay (Heat/Cool or Alarm 2 Relay, 2A/250V, SPST, Resistive

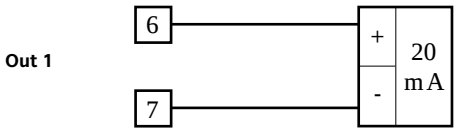
Serial Communications: EIA RS-485 Modbus®, JBUS

Mounting: Panel Mount or DIN Rail/Wall Mount

Optically Isolated Analog Output
The 7SC has an optically isolated linear analog output, programmable as a control output for heating or cooling, or as a filtered retransmission of process variable or setpoint.

Other Features
The externally selected (logic input) transfer betweeen SP1 and SP2 can be a step or a ramp with two configurable rates of change (ramp up/ramp down). The 7SC also has an "output off" function, allowing the instrument to disable control and act as an indicator.

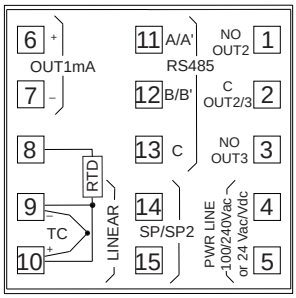
Main Output (Heating or Cooling),
Secondary Output (Cooling),
Analog Retransmission of the Process Variable or Setpoint



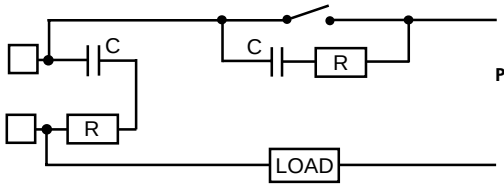
This is an isolated analog output with a maximum load of 500 Ω.

Terminal Connections and Mounting:

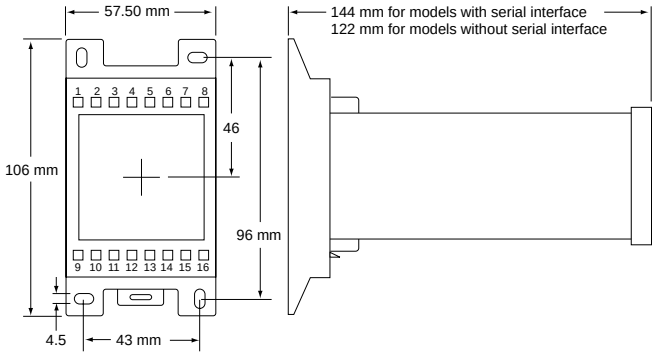
7SC



Wiring
Do not run input wires with power cabling. Ground shields at one point only. Use compensating cable for thermocouple wiring. Relay outputs are internally protected by a varistor. When inductive loads (such as mercury contactors) are used, or external switches are connected in series with internal contacts, high voltage transients may affect performance of the instrument. In this case it is recommended to install an additional RC snubber network across the contacts as shown. Contact Barber-Colman.



External Switch in Series with the Internal Contact Snubber Part Number: CZ140398



DIN Rail or Wall Mounting

Mounting (Panel)
Dimensions: 48W x 48H x 122D mm
Cutout: 45W x 45H mm (-0, +0.6 mm)
60 mm min. center-to-center vertical spacing
75 mm min. center-to-center horizontal spacing
Weight: 250 gm

Ordering Codes:

Model	Input	Control	Output 1	Output 2	Output 3	Power Supply	Mounting	Reserved
7SC	9	3	7	1		3		00

Input

9	T/C Type J, K, L, N, R, S & T (°C, °F) Pt100 3W RTD (°C, °F) 0 to 20 mAdc & 4 to 20 mAdc 0 to 60 mVdc & 12 to 60 mVdc 0 to 5 Vdc & 1 to 5 Vdc 0 to 10 Vdc & 1 to 10 Vdc

* Ranges - See Table D, page 1-21

Control

3	PID & Smart AT

Output 1

7	0 to 20 mAdc or 4 to 20 mAdc, programmable as heating, cooling or analog retransmission

Output 2

1	Relay (Heating/Cooling/Alarm)

Output 3

1	Relay (Heating/Cooling/Alarm)
3	Alarm plus RS-485*

*Not available with 24V supply.

Power Supply

3	100 to 240 Vac
5	24 Vac/Vdc

Mounting

0	Panel Mount
R	DIN Rail/Wall Mount