Temperature Controller
With “Sensitive Touch” Keypad

CN38S Series

1 YEAR WARRANTY

CN38S-TC-R1-R2 shown actual size.

- **Easy Programming**
- **Input for Thermocouple, RTD and Thermistor**
- **Resolution 0.1°C with Automatic Scale Change (Auto-Ranging)**
- **“Sensitive Touch” Keypad**
- **Switching Power Supply 100 to 240 Vac**
- **On/Off or PID Control with Autotuning**
- **Programmable Password Protection**
- **Soft Start or Start Up Delay**
- **Automatic or Stand-By Mode**
- **Compressor Protection Time**
- **Direct Access to Set-Point**

Monitor and control temperature with precision using the CN38S Series controllers. The CN38S Series offers an innovative solution for programming through an ergonomic keypad which uses the technology “Sensitive Touch”. This sensor keyboard guarantees complete protection from dust and liquids in every critical environmental situation. Providing on/off control or PID control with Autotune, this controller is the solution for many applications.

The CN38S series offers a soft start feature. This function makes it possible to eliminate thermal shock and mechanical stress (due to dilatation) that a system undergoes during start up. In other cases the aim is that of slowing down the increase in temperature in such a way that this can spread itself out evenly inside the material, especially when the machine is equipped with ‘stirrers’ that cannot be started up at room temperature. The CN38S also offers a compressor protection time feature, where some actuators, compressors, and pumps cannot be turned off or turned back on too quickly for their constructive characteristics. To protect the working life of the device it therefore becomes essential to be able to activate a timer that guarantees the minimum time between the switching off of the machine and the following start up.

Specifications

Power Supply: 12 Vac/Vdc, 24 Vac/Vdc, 100 to 230 Vac/Vdc (±10%)

Power Consumption: Maximum 6VA

Device Class: Class II

Nominal Pulse Voltage: 2.5 KV

Category of Overvoltage: II

Isolation: Reinforced isolation between low voltage (input and output relay) and frontal parts; reinforced isolation between low voltage and very low voltage parts (inputs, static outputs)

Thermocouple Input

Type: J, K programmable

Resolution: 0.1°C with automatic scale change

Unit of Measurement: °C or °F programmable

Cold Junction: Automatic compensation 0 to 50°C

Cold Junction Accuracy: 0.1°C/°C @ 25°C after a warm-up (instrument switch-on) of 20 minutes

Calibration: According to EN 60584-1

Burn-Out: At the end of scale

Thermocouple Type Range:
- **J:** -40 to 999°C (-40 to 999°F)
- **K:** -40 to 999°C (-40 to 999°F)

RTD

Type: Pt 100 and Pt 1000, 2-wire

Resolution: 0.1°C with automatic scale change

Unit of Measurement: °C or °F programmable

Burn-Out: At the end of scale

RTD Range: -50 to 850 (-58 to 999°F) -50.0 to 99.9 (-58.0 to 99.9°F)

Thermistor Input

Type:
- **PTC:** 990 Ω @ 25°C
- **NTC:** 10 kΩ @ 25°C

Unit of Measurement: °C or °F programmable

Model Range:
- **PTC:** -50 to 150°C (-67 to 302°F), -50.0 to 99.9°C (-67.0 to 99.9°)
- **NTC:** -50 to 110°C (-58 to 230°F), -50.0 to 99.9°C (-58.0 to 99.9°F)

Outputs

Output: 1 and 2

Function: Control output

Output Action: Direct/reverse, programmable

Type: Relay output

Contact: SPDT

Contact Load: Out 1 - 8 A/250 Vac on resistive load - 3 A/250V

Relay Electric Life: 100,000 operations

DC Pulse:

Isolation: Output NOT isolated as regard the very low voltage parts

Logic State:
- **1:** 12V ±20% @ 1 mA, 10V ±20% @ 20 mA
- **0:** <0.5V

Mounting: Flush in panel
Dimensions: 78 x 35 mm (3.07 x 1.38"), depth 64 mm (2.52")
Panel Cut-Out: 71 (2.8") x 29 (1.14")

Display: 3-digit single display, red, 12 mm (0.47")
Weight: 180 g (6.3 oz) approximately
Screw Terminals: 11 screw terminals (screw M3 for cables 0.25... 2.5 mm^2 or AWG 22... AWG 14)
Protection Degree:
Front Protection: IP 65 (with gasket) according to EN60070-1 for indoor use
Screw Terminal: IP20

Operating Temperature: 0 to 50°C (32 to 122°F)
Operating Humidity: < 95 RH% without condensation
Storage Temperature: -25 to 60°C (-13 to 140°F)
Overall Accuracy: ±(0.5% span ±1 digit @25 °C)
Sampling Rate: 1 s
Display Updating Time: 1 s

To Order

Model No.	Description
CN38S-TC-R1-R2	Type J/K, thermocouple input, relay/relay
CN38S-TC-DC1-DC2	Type J/K, thermocouple input, dc pulse/dc pulse
CN38S-TC-DC1-R2	Type J/K, thermocouple input, dc pulse/relay
CN38S-RTD-R1-R2	RTD, relay/relay
CN38S-RTD-DC1-DC2	RTD, dc pulse/dc pulse
CN38S-RTD-DC1-R2	RTD, dc pulse/relay
CN38S-TH-R1-R2	Thermistor, relay/relay
CN38S-TH-DC1-DC2	Thermistor, dc pulse/dc pulse
CN38S-TH-DC1-R2	Thermistor, dc pulse/relay
Low Voltage Models	
CN38S-TC-R1-R2-12V	Type J/K, thermocouple input, relay/relay, 12V
CN38S-TC-DC1-DC2-12V	Type J/K, thermocouple input, DC pulse/DC pulse, 12V
CN38S-TC-DC1-R2-12V	Type J/K, thermocouple input, DC pulse/relay, 12V
CN38S-RTD-R1-R2-12V	RTD, relay/relay, 12V
CN38S-RTD-DC1-DC2-12V	RTD, DC pulse/DC pulse, 12V
CN38S-RTD-DC1-R2-12V	RTD, DC pulse/relay, 12V
CN38S-TH-R1-R2-12V	Thermistor, relay/relay, 12V
CN38S-TH-DC1-DC2-12V	Thermistor, DC pulse/DC pulse, 12V
CN38S-TH-DC1-R2-12V	Thermistor, DC pulse/relay, 12V
CN38S-TC-R1-R2-24V	Type J/K, thermocouple input, relay/relay, 24V
CN38S-TC-DC1-DC2-24V	Type J/K, thermocouple input, DC pulse/DC pulse, 24V
CN38S-TC-DC1-R2-24V	Type J/K, thermocouple input, DC pulse/relay, 24V
CN38S-RTD-R1-R2-24V	RTD, relay/relay, 24V
CN38S-RTD-DC1-DC2-24V	RTD, DC pulse/DC pulse, 24V
CN38S-RTD-DC1-R2-24V	RTD, DC pulse/relay, 24V
CN38S-TH-R1-R2-24V	Thermistor, relay/relay, 24V
CN38S-TH-DC1-DC2-24V	Thermistor, DC pulse/DC pulse, 24V
CN38S-TH-DC1-R2-24V	Thermistor, DC pulse/relay, 24V

Accessory (Field Installable)

Model No.	Description
CNQUENCHARC	Noise suppression kit, 110 to 230 Vac

Comes complete with operator's manual.
***Ordering Example: CN38S-TC-R1-R2-12V,** controller with thermocouple input, 2 relay outputs, low voltage 12V.*