

1/16 DIN High/Low Limit Controller

TRODEKS®

CN63500 Series



- ✓ Dual 4-Digit LED Display
- ✓ Thermocouple or RTD Sensor Input
- ✓ Remote Reset Input
- ✓ Main Limit Output: 5 A Relay, Selectable for High or Low Trip Activation
- ✓ 5 A Relay Alarms (Optional)
- ✓ Parameters Security Via Programmable Lockouts
- ✓ Dual Display

The CN63500 Series are temperature limit controllers, intended to provide an independent shutdown for thermal processes. The CN63500 accepts signals from a variety of temperature sensors (thermocouple or RTD elements), and its comprehensive programming allows it to meet a wide variety of application requirements. Dual 4-digit displays allow viewing of the process temperature and limit setpoint simultaneously. Front panel indicators inform the operator of the process and output status. The main limit output and alarm outputs are field-replaceable. The limit output is selectable for high or low trip activation. If the process temperature goes above the limit setpoint for a high trip, or below the limit setpoint for a low trip, the limit relay will de-energize to initiate a process shutdown. The limit output cannot be reset until the process temperature returns to the proper operating range; manual reset is required (local or remote). Sensor failure will initiate a process shutdown. Relay alarm(s) can be configured to activate according to a variety of actions (absolute high or low, deviation high or low and band in or out) with adjustable hysteresis. A standby feature suppresses the alarm during power-up until the process stabilizes outside the alarm region. The unit is constructed of lightweight, high-impact plastic case with a tinted front panel. Multiple units can be stacked horizontally or vertically. Modern surface-mount technology, extensive testing, plus high-immunity to noise interference makes the CN63500 extremely reliable in industrial environments.



CN63500-R1 shown smaller than actual size.

Specifications

Display: 2-line by 4-digit LED

Upper (Main) Display: 10.2 mm H (0.4") red LED

Lower (Secondary) Display: 7.6 mm H (0.3") green LED

Power:

Line Voltage Models: 85 to 250 Vac, 50/60 Hz, 8 VA

Low-Voltage Models:

DC Power: 18 to 36 Vdc, 7 W

AC Power: 24 Vac \pm 10%, 50/60 Hz, 9 VA

Memory: Non-volatile EEPROM retains all programmable parameters and values

Environmental Conditions

Operating Range: FM rated @ 0 to 65°C, UL rated @ 0 to 55°C

Storage Range: -40 to 80°C (-40 to 176°F)

Operating and Storage Humidity: 85% max relative humidity (non-condensing) from 0 to 65°C (32 to 149°F)

Altitude: Up to 2000 m (6562')

Isolation Breakdown Ratings

AC Line With Respect to All Inputs and Outputs: 2300V for 1 minute (250V working)

Relay Contacts to All Other Inputs and Outputs: 2300 Vac

DC Power With Respect to Sensor Input: 50V working (500V for 1 minute)

Connection: Wire clamping screw terminals

Weight: 0.17 kg (0.38 lb)

Input Specifications

Sensor Input

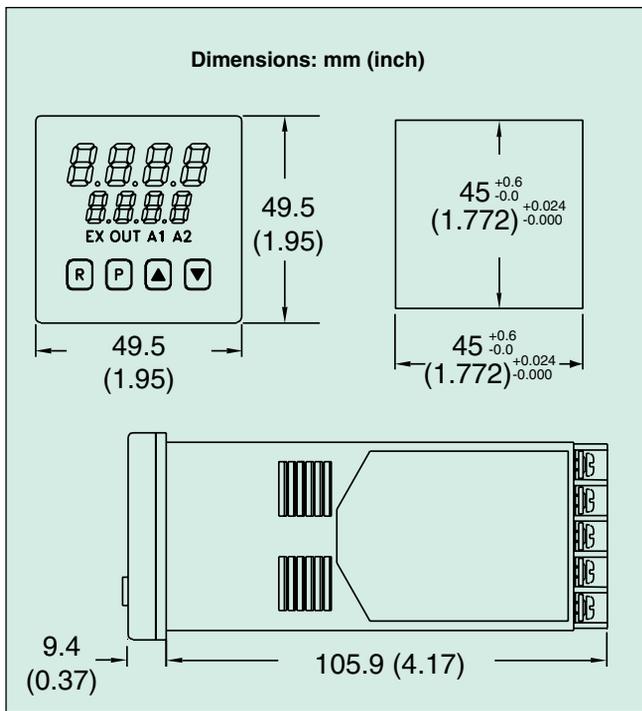
Sample Period: 100 ms

Step Response Time: Less than 300 ms typical, 400 ms max (to within 99% of final value)

Normal Mode Rejection: >40 dB @ 50/60 Hz

Common Mode Rejection: >120 dB, DC to 60 Hz

Overvoltage Protection: Input overload 120 Vac for 15 s max



Failed Sensor Response:

Main Output: Sensor failure will initiate a process shutdown

Display: "OPEN"

Alarms: Upscale

Indication Accuracy: $\pm(0.3\%$ of span $+1^\circ\text{C})$ @ 23°C ambient after 20 minute warm-up (includes NIST conformity, cold-junction effect, A/D conversion errors and linearization conformity)

Span Drift (Maximum): 130 PPM/ $^\circ\text{C}$

Rtd Input: 2- or 3-wire, 100 Ω platinum, $\alpha = 0.00385$ (DIN43760), $\alpha = 0.0039162$

Excitation: 150 μA typical

Lead Resistance: 15 Ω max per input lead

Remote Resent Input: Internally pulled up to 5 Vdc 1 m Ω

V_{IL} : 0.85V max

V_{IH} : 3.65V min

VIN Max: 5.25 Vdc

I_{OFF} : 1 μA max

Output Specifications

Limit and Alarm Output Relays

Contact Rating: 5 A @ 250 Vac or 30 Vdc (resistive load)

$\frac{1}{10}$ HP @ 120 Vac (inductive load)

Life Expectancy: 100,000 cycles at max load rating (decreasing load increases life expectancy)

Limit Output:

CN63500-R1-AL1: Form "C" relay

CN63500-R1-AL2: Form "A" relay

Selectable for high or low trip activation, if the process temperature goes above the limit setpoint for a high trip, or below the limit setpoint for a low trip, the limit relay will de-energize to initiate a process shutdown; the limit output cannot be reset until the process temperature returns to the proper operating range; manual reset is required (local or remote)

Alarm Outputs: 1 or 2 form "A" relays

Modes: Absolute high-acting, absolute low-acting, deviation high-acting, deviation low-acting, inside band-acting, outside band-acting

Reset Action: Programmable, automatic or latched; latched alarms can be reset regardless of limit exceed condition

Standby Mode: Programmable, enable or disable

Hysteresis: Programmable

Thermocouple Inputs

Types: T, E, J, K, R, S, B, N, linear mV, software selectable

Input Impedance: 20 M Ω , all types

Lead Resistance Effect: 0.25 $\mu\text{V}/\Omega$

Cold-Junction Compensation: $\leq \pm 1^\circ\text{C}$ typical, ($\pm 1.5^\circ\text{C}$ max), error over 0 to 65°C (32 to 149°F) max ambient temperature range; defeated for linear mV indication mode

Resolution: 1° for all types, or 0.1° for T, E, J, K, and N only

Thermocouple Type	Display Range	Wire Color	
		ANSI	BS1843
T	-200 to 400°C -328 to 752°F	(+) Blue (-) Red	(+) White (-) Blue
E	-200 to 750°C -328 to 1382°F	(+) Violet (-) Red	(+) Brown (-) Blue
J	-200 to 760°C -328 to 1400°F	(+) White (-) Red	(+) Yellow (-) Blue
K	-200 to 1250°C -328 to 2282°F	(+) Yellow (-) Red	(+) Brown (-) Blue
R	0 to 1768°C 32 to 3214°F	(+) Black (-) Red	(+) White (-) Blue
S	0 to 1768°C 32 to 3214°F	(+) Black (-) Red	(+) White (-) Blue
B	149 to 1820°C 300 to 3308°F	(+) Grey (-) Red	No standard
N	-200 to 1300°C -328 to 2372°F	(+) Orange (-) Red	(+) Orange (-) Blue
mV	-5.00 to 56.00mV	No standard	No standard

RTD Type	Range
385	-200 to 600°C (-328 to 1100°F)
392	-200 to 600°C (-328 to 1100°F)
Ω	2.0 to 320.0 Ω

To Order

Model No.	Description
Standard Power Models (85 to 250 Vac, 50 to 60 Hz)	
CN63500-R1-AL1	Single output, form "C" relay, 1 alarm
CN63500-R1-AL2	Single output, form "A" relay, 2 alarms
Low-Voltage Models (18 to 36 Vdc)	
CN63500-R1-AL1-LV	Single output, form "C", 1 alarm
CN63500-R1-AL2-LV	Single output form "A" relay, 2 alarms

Comes complete with operator's manual.

Ordering Examples: **CN63500-R1 AL2**, 85 to 250 Vac power, single-output relay, 2 alarms.

CN63500-R1-AL1-LV, 18 to 36 Vdc power single-output relay, 1 alarm.

Accessories (Field Installable)

Model No.	Description
CN6-RBDLA210	Output module, single-output, form "C" relay, 1 alarm
CN6-48111	Output module, single-output, form "A" relay, 2 alarms
DPP-4	$\frac{1}{16}$ DIN panel punch