¼ DIN High-/Low-Limit Controller

CN3101

- 1 High-/Low-Limit Control Output
- 1 Independent Alarm
- Universal Sensor Inputs
- Transmitter Power Supply
- Switching Power Supply 100 to 240 Vac

Optional

- RS232, RS422/RS485 Digital Communications with Second Alarm
- Analog Output

CN3101.

The CN3101 are compact, fully programmable high- or low-limit controllers that is UL listed. With user programmable inputs, outputs and high-/low-limit features, it is adaptable to almost any limit control application, and can be reconfigured easily as needed. Sophisticated limit control features include a total time over/under setpoint display and peak (maximum or minimum) process variable display. These valuable CN3101 features allow you to determine if process damage has occurred, and they can help in analyzing the cause if shutdown occurs.

The CN3200-SOFT communications package allows the CN3101 controllers to be programmed, configured and have their operations monitored remotely using a computer. Multiple controllers may be connected, or "multi-dropped," on the same communications line by using the RS485 standard for multi-point communications, or by using an RS232C through modems. The CN3251 Series controllers with 16 interval ramp/soak and fuzzy logic are also available in this section.

Specifications

Limit Output:

Automatic: Normally-energized latching relay; relay de-energizes at limit setpoint; Form "C" contacts, 5 A @120/230 Vac

Limit Control Adjustments:

High/Low Limit Setpoint: Sensor range

Setpoint Limits: Sensor range

Deadband: -17 to 38°C (1 to 100°F)

Display Offset: -73 to 38°C (-100 to 100°F)

Alarm Adjustments:

Setpoints: High and low settings for each alarm output

Alarm Types: Absolute—high, low and high/low

Tracking: +Deviation, -deviation, and ±deviation

Relay Action: Latching or non-latching, energized or de-energized

Alarm Deadband: Adjustable, -17 to 38°C (1 to 100°F)

Alarm Inhibit: On power-up, enabled or disabled

Alarm Outputs:

Relay: Form "C" contacts, 5.0 A at 120/230 Vac (resistive load)

Sensor Input: Field selectable Thermocouple, RTD, current or voltage

Input Update Rate: 2 samples per second

Readout Stability

J, K, E Thermocouple: ±1°F/10°F change in ambient temperature

T Thermocouple: ±2°F/10°F change in ambient temperature for sensor temperature >-80°C (-112°F); ±5°F/10°F change in ambient temperature for sensor temperature <-80°C (-112°F)

R, S, B Thermocouple: ±2°F/10°F change in ambient temperature

RTD: ±5°F/10°F change in ambient temperature

4 to 20 mA, 1 to 5 Vdc: ±2°F/10°F change in ambient temperature

Digital Input: Accepts dry-contact closure

Transmitter Power: 24 Vdc ±20% @ 50 mA maximum

Analog Output (Optional):

Retransmit Function: Process variable

Output Signal: 4 to 20 mA into 0 to 800 Ω load, 1 to 5 Vdc into 100 KΩ, selectable via DIP switch

Range: Programmable over selected sensor span for retransmission of

Process Variables

Accuracy: ±0.2% of programmed span, ±1 LSD

Digital Communications (Optional):

RS232: Single-drop, isolated

RS422/485: Multi-drop, isolated, field-selectable by switch

Baud Rates: 1200, 2400, 4800, 9600, 19.2 K

Protocols: ASCII line

Computer Interface

Instrument Power:100 to 240 Vac, +10%, -15%; 50 to 60 Hz; 15 VA 12 to 24 Vac/Vdc, ±20%,15 VA (optional)

Operating Environment:0 to 65°C (32 to 150°F) ambient temperature, relative humidity less than 95%, non-condensing

Dimensions:

Overall: 96 L x 96 W x 121 mm D (3.78 x 3.78 x 4.75")

Depth Behind Panel: 102 mm (4")

Case Material: High-impact, black ABS plastic

Influence of Line Voltage

Variation: ±0.1% of sensor span/ 10% change in nominal line voltage

Noise Rejection:

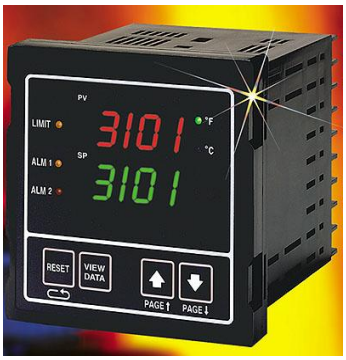
Common Mode Noise: 140 dB at 60 Hz

Series Mode Noise: ±0.1% of sensor span with 300 mV peak to peak, 50 or 60 Hz series mode noise

RFI: Typically <0.5% of sensor span at a distance of 1 m (3.1') from transmitter (4 W, 464 MHz)

Input Types and Ranges

Input Type		Range	Accuracy @ 25°C/77°F Ambient (All ±% of Sensor Span)
J	Iron–Constantan	-100 to 1400°F -73 to 650°C	0.2%
K	CHRTRODEKS ®–ALTRODEKS®	-300 to 2400°F -184 to 1316°C	0.2%
T	Copper–Constantan	-350 to 750°F -212 to 399°C	0.2% for PV > -112°F/-80°C 0.4% for PV < -112°F/-80°C
E	CHRTRODEKS ®–Constantan	-100 to 1100°F -73 to 593°C	0.2%
R	Pt-13%Rh/Pt	0 to 3200°F -18 to 1760°C	0.4%
S	Pt-10%Rh/Pt	0 to 3200°F -18 to 1760°C	0.4%
B	Pt-30%Rh/Pt-6%Rh	50 to 3300°F 10 to 1816°C	0.4% for PV > 1000°F 538°C
RTD	Pt, 385 100 Ω	-200 to 1000°F -128 to 538°C -99.9 to 899.9°F -73.3 to 482.2°C	0.2%
Current	4 to 20 mA	Scalable (-500 to 5000)	0.2%
Voltage	0 to 5 Vdc	Scalable (-500 to 5000)	0.2%
	1 to 5 Vdc	Scalable (-500 to 5000)	0.2%



Companion Controller: CN3251 series ramp and soak, fuzzy logic controller.

KTSS-316G-12, molded transition joint thermocouple probe.

To Order

Model No.	Description
CN3101	High-/low-limit controller with single output mechanical relay and 1 alarm

Output, Communications and Low Voltage Power Options

Ordering Suffix	Description
-PV	Recorder output, 4 to 20 mA/1 to 5 Vdc
-S2†	RS232 digital communications with second alarm relay
-S4†	RS422/485 digital communications with second alarm relay

† Only 1 communications option can be purchased per unit.

Accessories

Model No.	Description
3250X-S2	RS232 digital communications board
3250X-S4	RS485/422 digital communications board
CN3200-SOFT-WIN2	Software for communications options, Windows version
3250X-CASE-COMM**	Housing for CN3251 and CN3101 with digital communications
3250X-CASE	Housing for CN3251 and CN3101 without digital communications
3250X-SBKT	Side mounting bracket for CN3251 and CN3101 models
CNQUENCHARC	Noise suppression RC snubber (2 leads), 110 to 230 Vac

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