C50

1/16 DIN controller / alarm unit
Measurement made easy
C50 – the 1/16 DIN controller to suit your simplest applications

High visibility dual 4-digit display
• shows set point and process variable

Standard relay or logic control output
• simple time proportioning or on / off control

Optional alarm relay
• additional relay to give hi / lo process alarm

Universal process input
• direct connection for any process signal

IP65 (NEMA3) protection and full noise immunity
• reliability in the harshest environments

One-shot autotune
• automatic setting of optimum PID values
The C50 controller / alarm unit is a compact single loop controller, with the capability to measure, indicate and control a variety of process variables.

The unit is ideal for simple PID control, offering on / off or time proportioning control with a one shot self-tune facility. The C50 can also act as an independent alarm unit, for example, as an over-temperature safety cutout unit for furnaces or ovens.

The unit is quickly set up for most process signal inputs and, with IP65 (NEMA3) front panel protection, is suitable for a wide range of applications.

**Universal process input**
- Thermocouple
- RTD
- Linear milliamps
- Linear volts, millivolts

**Primary output**
- Relay

**Additional alarm output**
- Relay
- Contactor
- Alarm annunciator

### PID control
The unit’s primary relay or logic output can provide a time proportioning PID output, for control of contactors

### Override alarm
By configuring the relay output as an overrange alarm, the C50 can act as an independent alarm unit, providing protection for your process

### Ramping set point
To reduce shock to the process when changing set point, the C50 can be configured to ramp up to the new set point over a preset period of time
Specification

Summary
- PID single loop controller / alarm unit
- Autotune facility
- Fully user configurable
- IP65 (NEMA3) front face

Operation

Display
- High intensity, 7-segment, 2 x 4 red LED display
  - Size upper: 10 mm (0.39 in.)
  - Size lower: 8 mm (0.31 in.)

Configuration
- User defined via front panel and internal links

Outputs
Primary output (fitted as standard)
- Relay SPDT 2A 120/240V AC

Output functions
- User configurable as either:
  - On / Off control output
  - Time proportioning PID control output

Physical
Size
- 48 x 48 x 110 mm (1.89 x 1.89 x 4.33 in.)
  (depth behind panel)

Weight
- <200 g (0.44 lbs.) approx.

Option
Second relay output, configurable for alarms, meets the specification of the standard relay output

Electrical
Voltage
- 90 to 264 V AC, 50 / 60 Hz

Power consumption
- <4 VA

EMC
Emissions and Immunity
- Meets requirements of IEC 61326 for an industrial environment

Safety
General safety
- Approved to cURus #208029

Analog inputs
Single universal process input

Type
Universally configurable for:
- Thermocouple (THC)
- Resistance thermometer (RTD)
- Linear millivolt
- Linear current
- Linear DC voltage

Input sampling rate
- 1 sample / 250 ms

Input impedance
- Millivolts / THC / RTD >100 MΩ
- Volts >47 KΩ
- Current <4.7 Ω

Linearizer functions

Broken sensor protection
- For the following options, break detected within two seconds and control outputs DOWN scale to OFF (0 % power):
  - THC, RTD, DC mV, DC Volts (1 to 5 V and 2 to 10 V), DC mA (4 to 20 mA)

Cold junction compensation
- Automatic CJC incorporated as standard

Input noise rejection
- Common mode rejection >120 dB at 50 / 60 Hz with balanced lead
- Series mode rejection >500 % of span at 50 / 60 Hz
**Accuracy**

- **Measurement error**: $\leq 0.25 \%$ of span $\pm 1$ LSD
- **Linearizer**: Typically $\pm 0.2 \, ^\circ C$
- **Display range**: $-1999$ to $+9999$
- **CJC accuracy**: $\leq 0.05 \, ^\circ C/\, ^\circ C$ change in ambient temperature

**Electrical input ranges**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min. value</th>
<th>Max. value</th>
<th>Min. value</th>
<th>Max. value</th>
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**Temperature limits**

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<th>Min. °C</th>
<th>Max. °C</th>
<th>Min. °F</th>
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**Note.**

Performance accuracy is not guaranteed below 600 °C (1112 °F) for types B, R and S thermocouples.

RTD, 3-wire platinum, 100 W with range of 0 to 400 W
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**Dimensions**

Dimensions in mm (in.)

![Dimensions Diagram]

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**Electrical connections**

![Electrical Connections Diagram]

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**Ordering information**

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