COMMANDER 50
Controller/Alarm Unit

Specification DataFile

- **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

COMMANDER 50 -
the 1/16 DIN controller to suit your simplest applications

ABB Instrumentation
The COMMANDER 50 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 COMMANDER 50 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 mA
- Linear volts, millivolts

**Primary Output**

- Relay
- Logic

**Additional Alarm Output**

- Relay

**PID Control**

The unit’s primary relay or logic output can provide a time proportioning PID output, for control of contactors and solid state relays (SSR).

**Override Alarm**

By configuring the relay output as an overrange alarm, the COMMANDER 50 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 COMMANDER 50 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 10mm (0.39inches)
lower 8mm (0.31inches)

Configuration
User defined via front panel and internal links.

Analog Inputs
Single universal process input.

Type
Universally Configurable for:
Thermocouple (THC)
Resistance Thermometer (RTD)
Linear Millivolt
Linear Current
Linear D.C. voltage

Input Sampling Rate
1 sample/250ms

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

Linearizer functions
Automatic linearisation of THC types B, J, K, R, S, T, L, N and RTD Pt100

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 – 5V and 2 – 10V), DC mA (4 – 20mA).

Cold junction compensation:
Automatic CJC incorporated as standard.

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

Accuracy
Measurement error: < ± 0.25% of span ± 1LSD
Linearizer: Typically ±0.2 ºC
Display range: −1999 to +9999
CJC accuracy: < ± 0.05 ºC /ºC change in ambient temperature

Outputs
Primary output (fitted as standard)
User configurable as either:
Relay:
SPDT 2A 120/240Vac
— or —
TTL Logic (SSR Drive):
Digital >4.2Vdc. for
Min load: 1k
Not isolated from input

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

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

Electrical
Voltage:
90-264 V a.c. 50/60 Hz

Power consumption:
< 4VA

Environmental
Operating limits
0 to 55 ºC (32 to 131ºF)
20 to 95% RH non-condensing.

Temperature stability
< 0.01% of span /ºC change in ambient temperature

Housing dust/water protection
Front face: IP65/NEMA3
Rear Case: IP20

RF protection
Susceptibility: EN50082-2:1992
Emissions: prEN50081-2:1994

Design and manufacturing standards
CE Mark

Electrical Input Ranges

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<th>Input Type</th>
<th>Min. Value</th>
<th>Max. Value</th>
<th>Min. Value</th>
<th>Max. Value</th>
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<td>10</td>
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mV 0 50 10 50
V 0 5 1 5
V 0 10 2 10
mA 0 20 4 20
**Temperature Limits**

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**Dimensions**

Dimensions in mm (inches)

Panel cut out dimensions 45.0 +0.6 x 45.0 +0.6 (1.77 +0.03 x 1.77 +0.03)

Weight: 200g approx.

**Ordering Guide**

**COMMANDER 50 Controller/Alarm unit**

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**Input Types**

Universal

**Output 1**

Relay/Logic

**Output 2**

None

1 Relay

**Special Features**

None

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