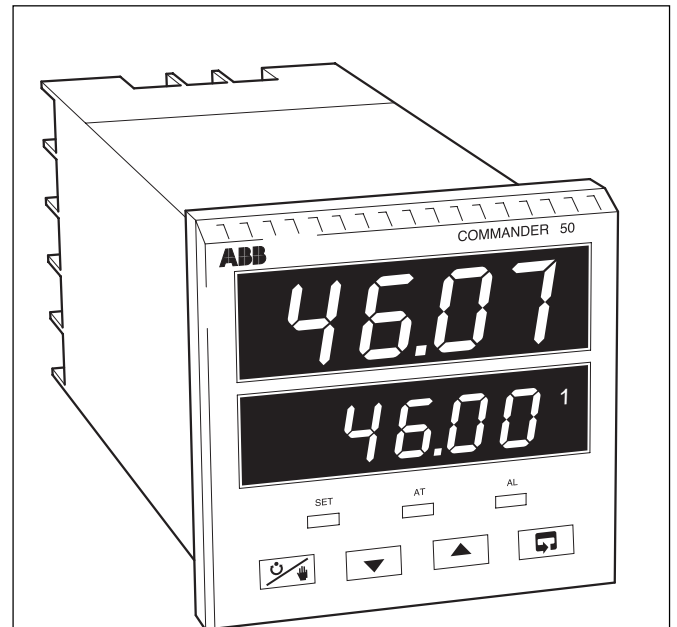


*Specification DataFile*

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- **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



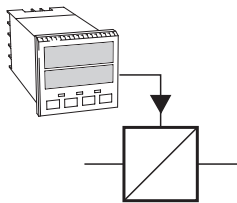
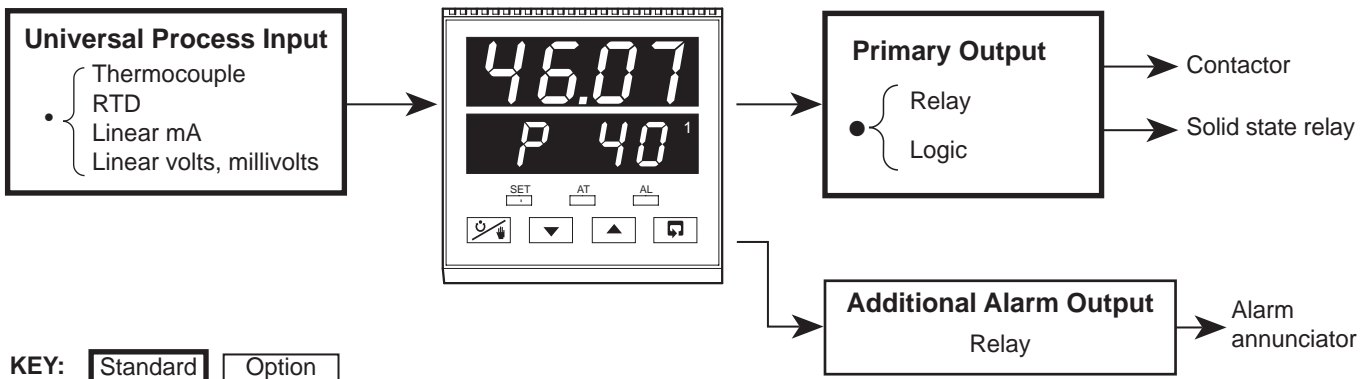
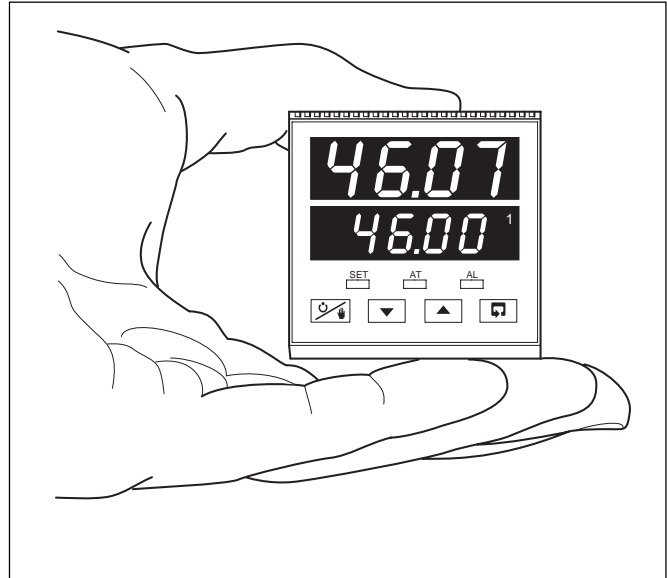
*COMMANDER 50 –  
the 1/16 DIN controller to suit  
your simplest applications*

## COMMANDER 50

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.

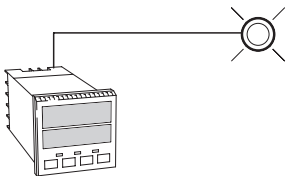
The unit is ideal for simple PID control, offering On/Off or Time proportioning control with a one shot self-tune facility. The COMMANDER 50 can also act as an **independent alarm unit**, for example, as an over-temperature safety cutout unit for furnaces or ovens.

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.



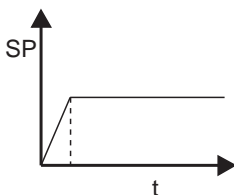
### PID Control

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	>100M $\Omega$
Volts	> 47K $\Omega$
Current	< 4.7 $\Omega$

#### 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:	< $\pm 0.25\%$ of span $\pm 1$ LSD
Linearizer:	Typically $\pm 0.2^\circ\text{C}$
Display range:	–1999 to +9999
CJC accuracy:	< $\pm 0.05^\circ\text{C}$ / $^\circ\text{C}$ 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 >4.2Vd.c. 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  $^\circ\text{C}$  (32 to 131 $^\circ\text{F}$ )

20 to 95% RH non-condensing.

### Temperature stability

< 0.01% of span / $^\circ\text{C}$  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

Input Type	Min. Value	Max. Value	Min. Value	Max. Value
mV	0	50	10	50
V	0	5	1	5
V	0	10	2	10
mA	0	20	4	20

Temperature Limits

THC Type Per NBS125 & IEC584	°C		°F	
	Min.	Max.	Min.	Max.
Type R	0	1650	32	3002
Type S	0	1649	32	3000
Type J	0	205.4	32	401.7
	0	450	32	842
	0	761	32	1401
Type T	−200	262	−328	503
	0	260.6	32	501
Type K	−200	760	−328	1399
	−200	1373	−328	2503
Type L	0	205.7	32	402.2
	0	450	32	841
	0	762	32	1403
Type B	100	1842	211	3315
Type N	0	1399	32	2550
	0	800	32.0	1471
Type RTD per DIN 43760 & IEC751	−100.9	100	−149.7	211.9
	−200	206	−328	402
	−100.9	537.3	−149.7	999
	0	100.9	32	213.6
	0	300	32	571
	0	800	32.0	1471

**Note.**  
Performance accuracy is not guaranteed below 600°C (112°F) for types B, R and S thermocouples.  
RTD, 3-wire platinum, 100Ω with range of 0 to 400Ω.

Ordering Guide

COMMANDER 50 Controller/Alarm unit		C50	X	X	X	X	X	X	X
Language (for manuals only)	English		K						
	French		F						
	German		D						
Input Types	Universal			2					
Output 1	Relay/Logic				1				
Output 2	None					0			
	1 Relay					1			
Special Features	None						0	0	0

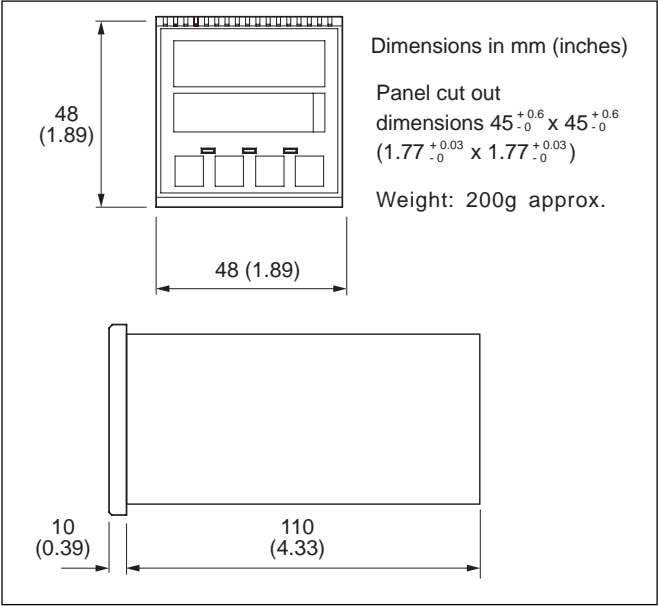


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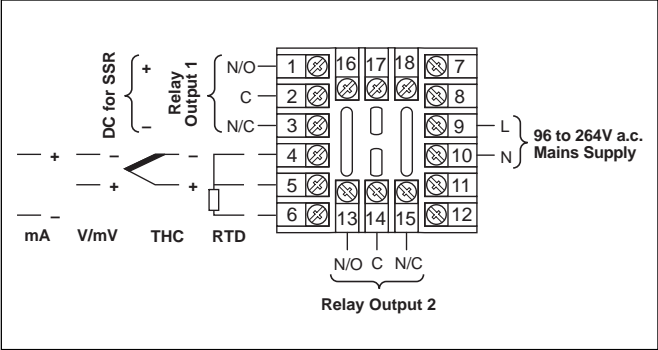
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Dimensions



Wiring Connections



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SS/C50 Issue 4

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