

*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



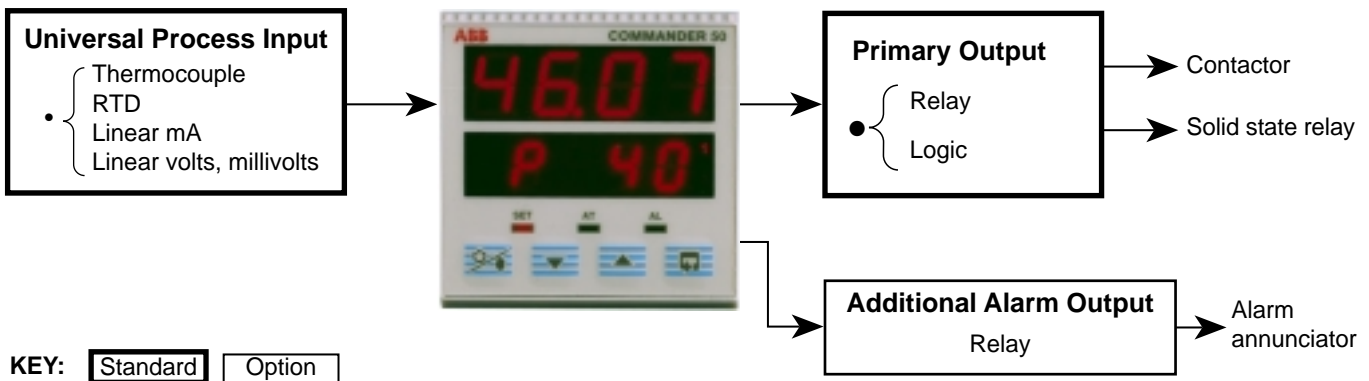
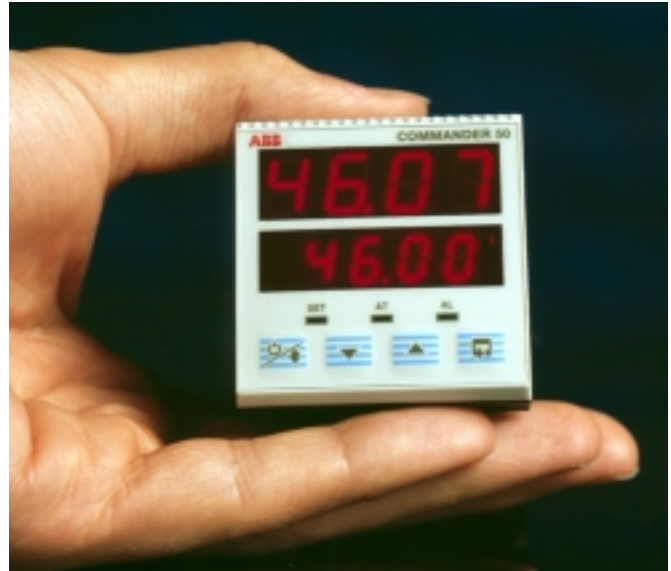
*COMMANDER 50 –  
the  $1/16$  DIN controller to suit  
your simplest applications*

## 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  $\pm 0.2$  °C  
Display range: –1999 to +9999  
CJC accuracy: <  $\pm 0.05$  °C /°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 °C (32 to 131°F)  
20 to 95% RH non-condensing.

### Temperature stability

< 0.01% of span /°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

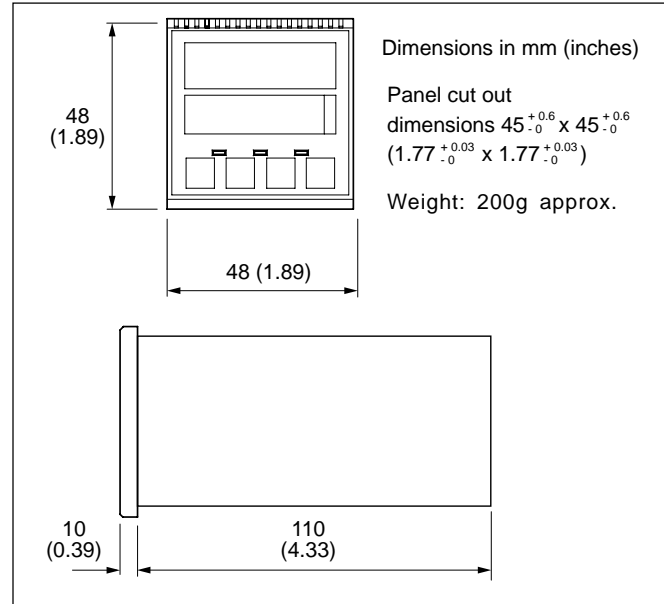
THC Type Per NBS125 & IEC584	°C		°F	
	Min.	Max.	Min.	Max.
Type R	0	1650	32	3002
Type S	0	1649	32	3000
Type J	0	205.4	32	401.7
	0	450	32	842
Type T	0	761	32	1401
	-200	262	-328	503
Type K	0	260.6	32	501
	-200	760	-328	1399
Type L	-200	1373	-328	2503
	0	205.7	32	402.2
Type B	0	450	32	841
	0	762	32	1403
Type N	100	1842	211	3315
Type RTD per DIN 43760 & IEC751	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.

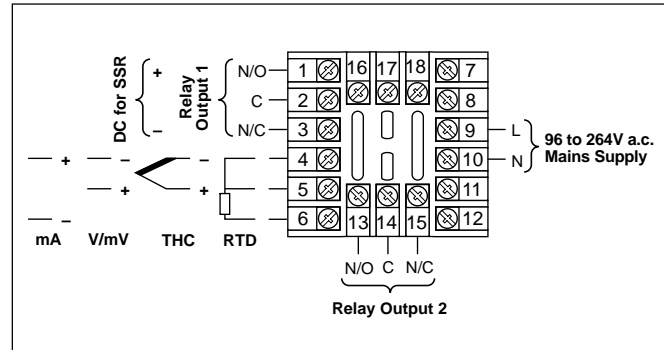
Performance accuracy is not guaranteed below 600°C (112°F) for types B, R and S thermocouples.

RTD, 3-wire platinum, 100Ω with range of 0 to 400Ω.

## Dimensions



## Wiring Connections



## Ordering Guide

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



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