

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/C50-EN REV. N

C50

$\frac{1}{16}$ 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

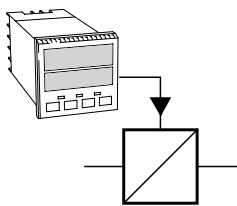
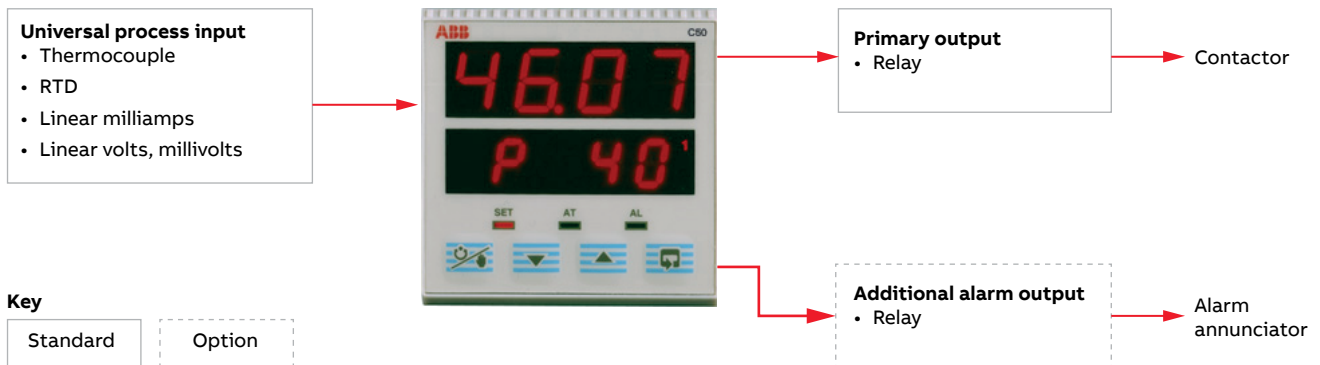
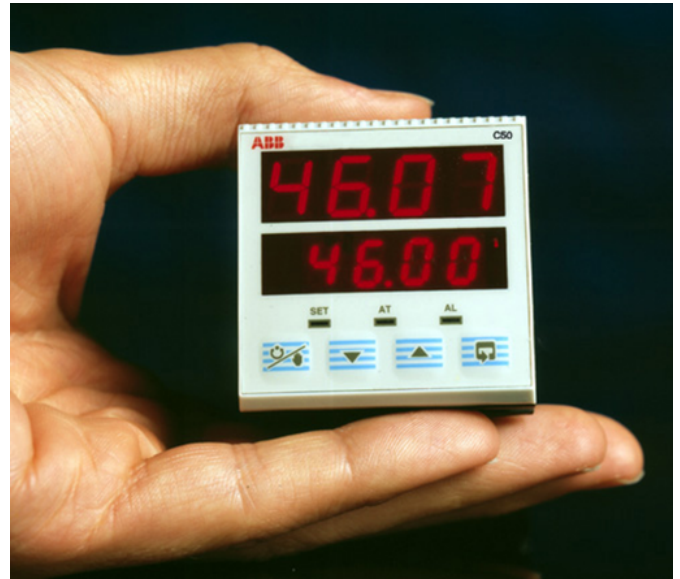
- automatic setting of optimum PID values

C50

The C50 controller / alarm unit is a compact single loop controller, with the capability to measure, indicate and control a variety of process variables.

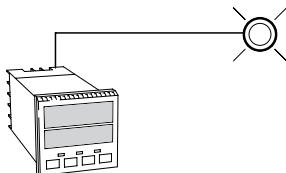
The unit is ideal for simple PID control, offering on / off or time proportioning control with a one shot self-tune facility. The C50 can also act as an independent alarm unit, for example, as an over-temperature safety cutout unit for furnaces or ovens.

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.



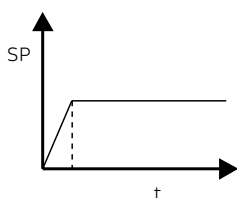
PID control

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.)
	lower	8 mm (0.31 in.)

Configuration

User defined via front panel and internal links

Outputs

Primary output (fitted as standard)

Relay SPDT 2 A 120/240 V 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

Automatic linearization 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 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	<±0.25 % of span ±1 LSD
Linearizer	Typically ±0.2 °C
Display range	–1999 to +9999
CJC accuracy	<±0.05 °C/°C change in ambient temperature

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
	0	205.4	32	401.7
Type J	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
	0	205.7	32	402.2
Type L	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
	–100.9	100	–149.7	211.9
	–200	206	–328	402
Type RTD	–100.9	537.3	–149.7	999
per DIN 43760 & IEC751	0	100.9	32	213.6
	0	300	32	571
	0	800	32.0	1471

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

Sales

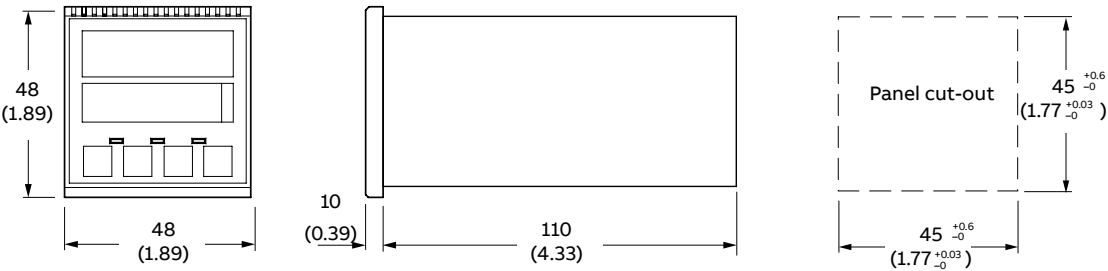


Service

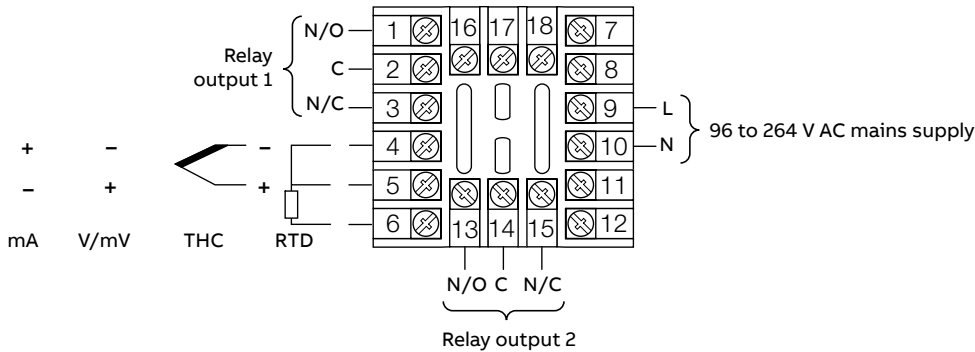


Dimensions

Dimensions in mm (in.)



Electrical connections



Ordering information

C50 1/16 DIN controller / alarm unit	C50	/X	X	X	X	XXX
Language (for manuals only) English		K				
Input types Universal			2			
Output 1 Relay				1		
Output 2 None 1 relay					0 1	
Programming / special features None						000

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