

- **PID controller with 'one shot' auto-tune**
  - single loop, heat/cool and ramp/soak as standard
- **Quick code, front face or PC configuration**
  - easy commissioning and operation using our Windows™-based software
- **Universal process input with transmitter power supply**
  - direct connection for any process signal
- **Hoseproof front panel and full noise immunity**
  - reliability in the harshest environments
- **RS485/Modbus serial communications**
  - SCADA, PLC and open systems integration



**C100 –  
the easy-to use 1/8 DIN controller  
with extensive capabilities**

## C100

The C100 Universal Process controller is a highly versatile, **single loop controller** designed to be exceptionally easy to operate and set up.

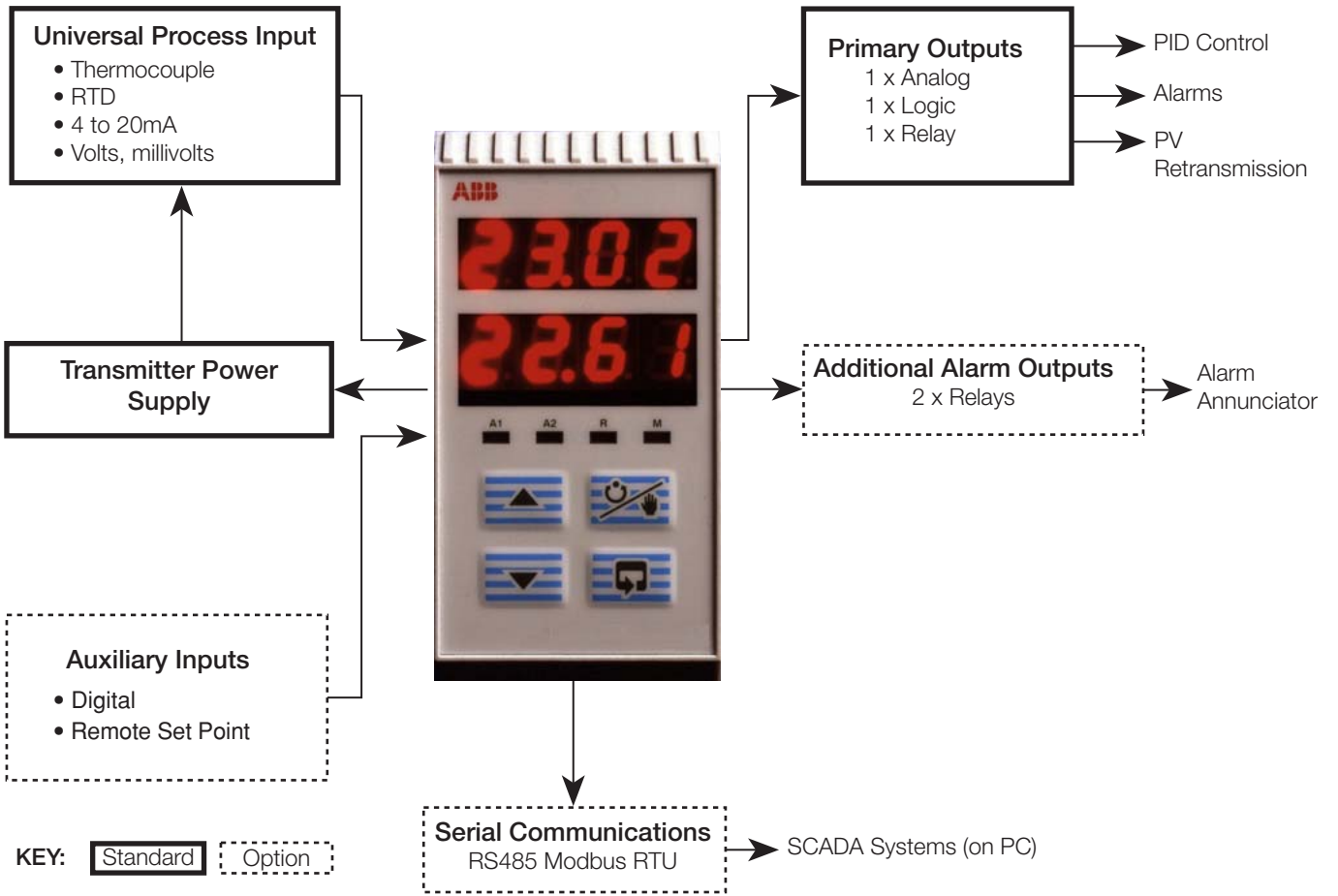
Universal input and **integral transmitter power supply** ensure that the C100 has the capabilities to measure a wide range of process signals such as temperature, pressure, flow and level.

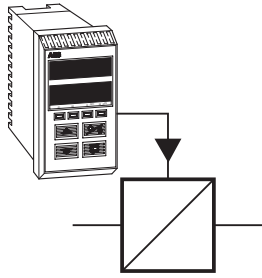
**Analog, logic and relay control outputs** are all fitted as standard, with the option to add further i/o capabilities such as additional relays, remote set point and digital input, to suit your application.

The **configuration** of the C100 is simply achieved by moving the security switch and entering a simple code from the front panel keys. No passwords, no input links, no complications.

With **hoseproof front panel protection** and superior RF immunity as standard the C100 has been designed to control reliably in the harshest of today's industrial environments.



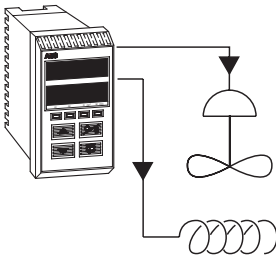




### PID Control

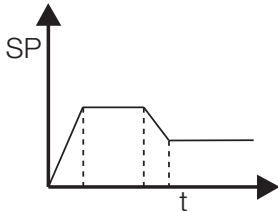
Simple PID control is available using any of the unit's three built-in outputs.

- 4 to 20mA analog
- Logic 18V time proportioning (to drive solid state relays)
- 5A relay for Time proportioning or On/Off control



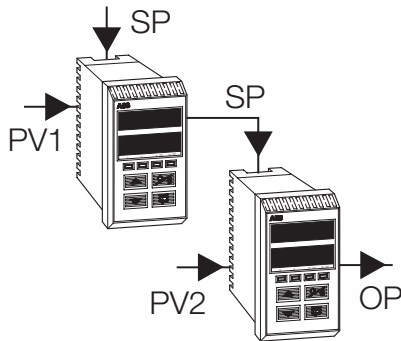
### Heat/Cool

Heat/Cool control strategies may be implemented on the standard C100, using a combination of the analog, logic and relay outputs.



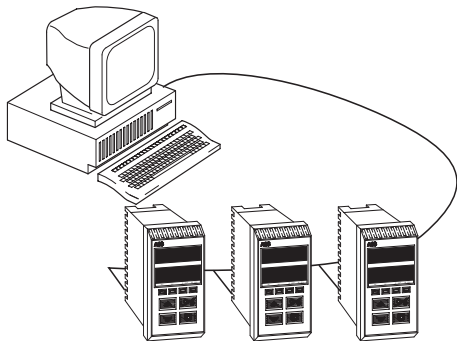
### Ramp/Soak Set Point Profiles

The ramp/soak facility available on every C100 provides for a single program, four-segment profile. This facility also includes guaranteed ramp/soak, repeat program, skip and reset.



### Master/Slave and Cascade

Two or more C100s can be used in master/slave, or cascade, configuration with the addition of the remote set point option to the basic unit.



### RS485/Modbus

Fitted with an optional RS485 serial communication board, the C100 can communicate with PLCs and SCADA systems using

## Specification

### Summary

P, PI, PID single loop controller  
Autotune facility  
Fully user configurable  
Hoseproof front face

## Operation

### Display

High-intensity 7-segment, 2 x 4-digit LED display  
Display range        -999 to +9999  
Display resolution   ±1 digit  
Display height        10mm (0.39 in.)

### Configuration

User defined via front panel or PC Configurator

## Standard Functions

### Control types

Programmable for manual, on/off, time proportioning, current proportioning and heat/cool control.

### Set points

Local  
Remote  
4 selectable fixed value  
Ramping set point

### Profile controller

Number                4 ramp/soak segments  
Features              Guaranteed ramp/soak, self seeking set point, program repeat  
Controls               Run, hold and stop from front panel switch  
                             Run/hold or run/stop from digital input

### Alarms

Number                Two user-defined  
Type                    High/low process  
                             High/low deviation

## ...Specification

### Analog Inputs

#### Number

- One as standard
- One optional (4 to 20mA remote set point input)

#### Input sampling rate

- 250ms per channel

#### Type

Universally configurable to provide (Channel 1 only):

- Thermocouple (THC)
- Resistance Thermometer (RTD)
- Millivolt
- Current
- DC voltage

#### Input impedance

- |       |       |
|-------|-------|
| mA    | 100Ω  |
| mV, V | >10MΩ |

#### Linearizer functions

- Programmable for standard inputs:  
SqRoot, THC types B, E, J, K, N, R, S, T or Pt100

#### Broken sensor protection

- Upscale drive on THC and RTD
- Downscale drive on milliamps and voltage

#### Cold junction compensation

- Automatic CJC incorporated as standard
- Stability <0.05°C/°C change in ambient temperature

#### Input protection

- |                       |                                       |
|-----------------------|---------------------------------------|
| Common mode isolation | >120dB at 50/60Hz with 300Ω imbalance |
| Series mode rejection | >60dB 50/60Hz                         |

#### Transmitter power supply

- 24V, 30mA max. powers one 2-wire transmitter

### Standard Analog Input Ranges

Thermocouple	Maximum Range °C	Maximum Range °F	Accuracy (% of reading)
B	-18 to 1800	0 to 3270	0.25% or ±2°C (above 200°C)
E	-100 to 900	-140 to 1650	0.25% or ±0.5°C
J	-100 to 900	-140 to 1650	0.25% or ±0.5°C
K	-100 to 1300	-140 to 2350	0.25% or ±0.5°C
N	-200 to 1300	-325 to 2350	0.25% or ±0.5°C
R	-18 to 1700	0 to 3000	0.25% or ±1.0°C (above 300°C)
S	-18 to 1700	0 to 3000	0.25% or ±0.5°C (above 200°C)
T	-250 to 300	-400 to 550	0.25% or ±0.5°C

RTD	Maximum Range °C	Maximum Range °F	Accuracy (% of reading)
PT100	-200 to 600	-325 to 1100	0.25% or ±0.5°C

Linear Inputs	Range	Accuracy (% of reading)
Milliamps	0 to 20	0.25% or ±2µA
Milliamps	4 to 20	0.25% or ±2µA
Volts	0 to 5	0.25% or ±200µV
Volts	1 to 5	0.25% or ±200µV
Millivolts	0 to 50	0.25% or ±20µV

Square Root Input	Range	Accuracy (% of reading)
Milliamps	4 to 20	0.25% or ±2µA

**Notes.**

Performance accuracy is not guaranteed at extreme low end of thermocouple and sq. root ranges.  
RTD, 3-wire platinum, 100Ω per DIN 43760 standard (IEC751), with range of 0 to 400Ω.

Min. span below zero    Type T    70°C/126°F  
     Type N    105°C/189°F

THC standards            DIN 43710 IEC 584  
 RTD standards            DIN 43760 IEC 751

## ...Specification

### Outputs

#### Control output/retransmission

Analog, configurable in the range of 4 to 20mA	
Max. load	15V (750Ω at 20mA)
Accuracy	≤0.25% of span
Dielectric	500V DC from I/P (not isolated from logic O/P)

#### Logic output

18V DC	at 20mA
Min. load	400Ω
Dielectric	500V DC from I/P (not isolated from control O/P)

#### Relay output

One relay as standard (SPDT) (5A @ 115/230V AC, 5A @ 24V DC)

### Options

One option board can be installed from:

Type 1	One relay
Type 2	Two relays + one digital input + remote set point
Type 3	One relay + one digital input + remote set point + Modbus serial communications

#### Relay output

SPDT	5A @ 115/230V AC
------	------------------

#### Digital input

Type	Volt-free
Minimum pulse	250ms (not isolated from remote set point)

#### Modbus serial communications

Connections	RS422/485, 2 or 4-wire
Speed	2.4k or 9.6k baud rate
Protocol	Modbus RTU slave

#### Remote Set Point Input

4 to 20 mA DC, 100Ω nominal input impedance  
Preset to process variable engineering units  
(not isolated from digital inputs)

### Physical

#### Size

48 wide x 96 high x 125mm  
(1.89 in. wide x 3.78 in. high x 4.92 in.)

#### Weight

250g (0.5lb) approximate

### Electrical

#### Voltage

85 to 265V AC (50/60Hz)  
24V DC

#### Power consumption

< 6VA

### Environmental

#### Operating limits

0 to 55°C (32 to 131°F)  
5 to 95%RH non-condensing

#### Temperature stability

< 0.02% of reading or 2μV/°C (1μV/°F)

#### Front face

IP65 (NEMA3), case rear IP20

### EMC

#### Emissions and Immunity

Meets requirements of IEC 61326 for an Industrial Environment

#### Design and manufacturing standards

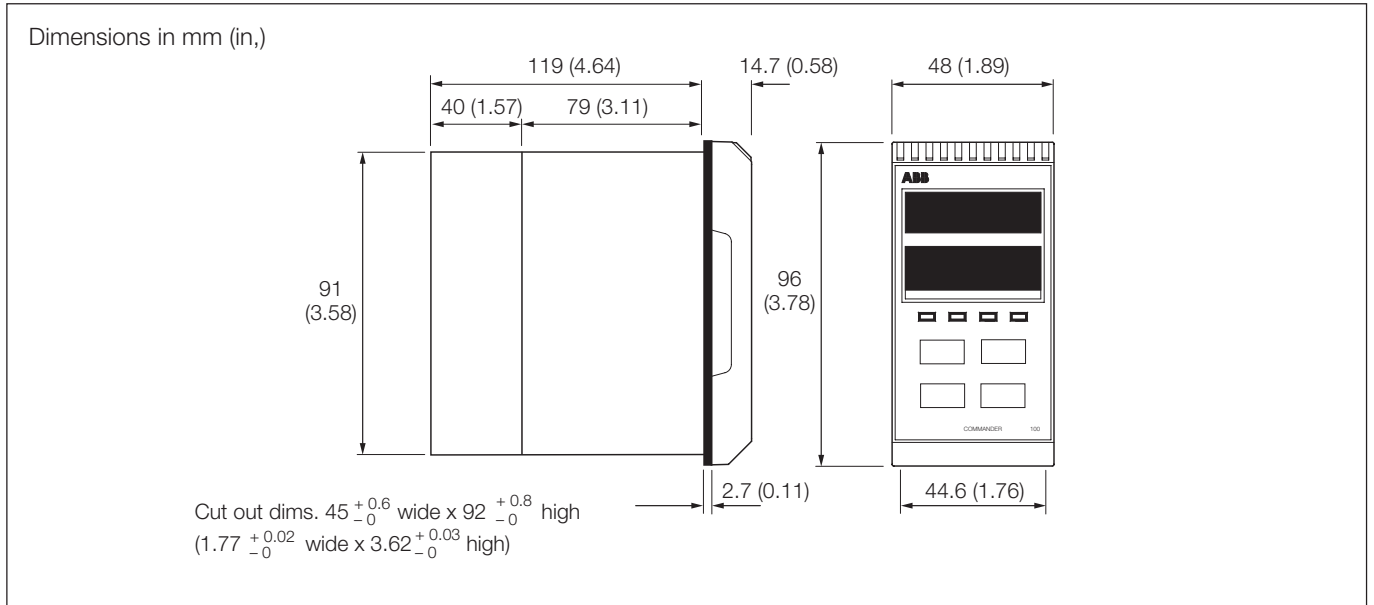
CE Mark

#### Safety standards

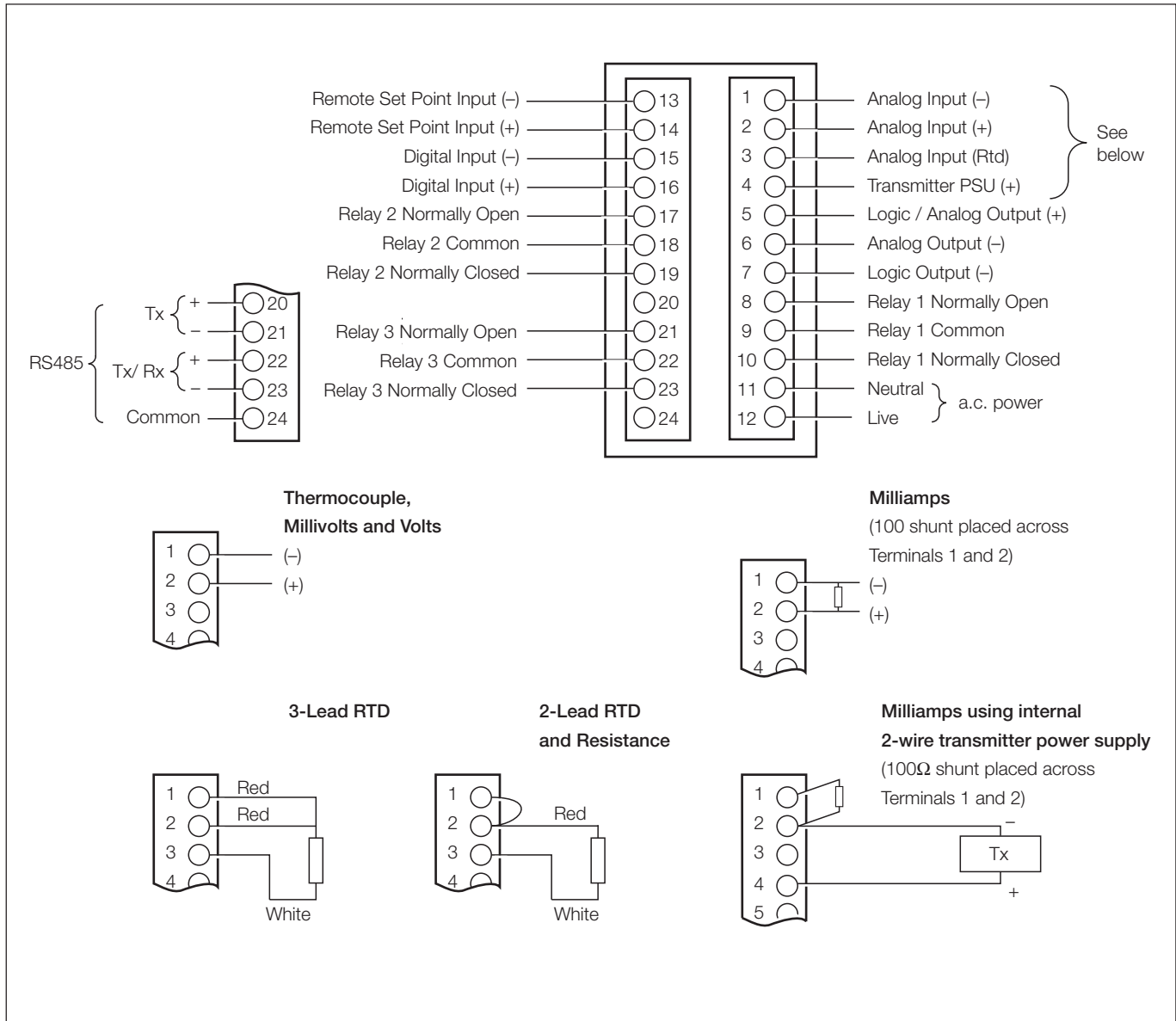
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FM 3810



## Dimensions



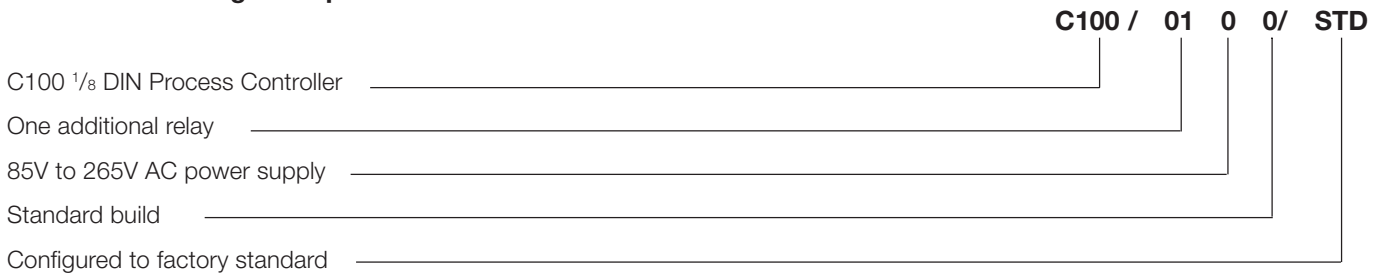
## Electrical Connections



**Ordering Guide**

C100 1/8 DIN Process Controller		C100/	X	X	X	X	/	X	X	X	X
<b>Option Board</b>	- None		0	0							
	- One additional relay		0	1							
	- Two additional relays + one digital input + remote set point 4 to 20mA		0	2							
	- One additional relay + one digital input + remote set point + RS485/Modbus		0	3							
<b>Power Supply</b>	85V to 265V AC		0								
	24V DC			1							
<b>Build</b>	Company Standard						0				
	CSA approval						1				
	UL approval						2				
	FM approval						4				
<b>Progammng/Special Features</b>	Configured to factory standard								S	T	D
	Configured to customer requirements								C	U	S
	Special features								S	P	X X

**Instrument Coding Example**



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