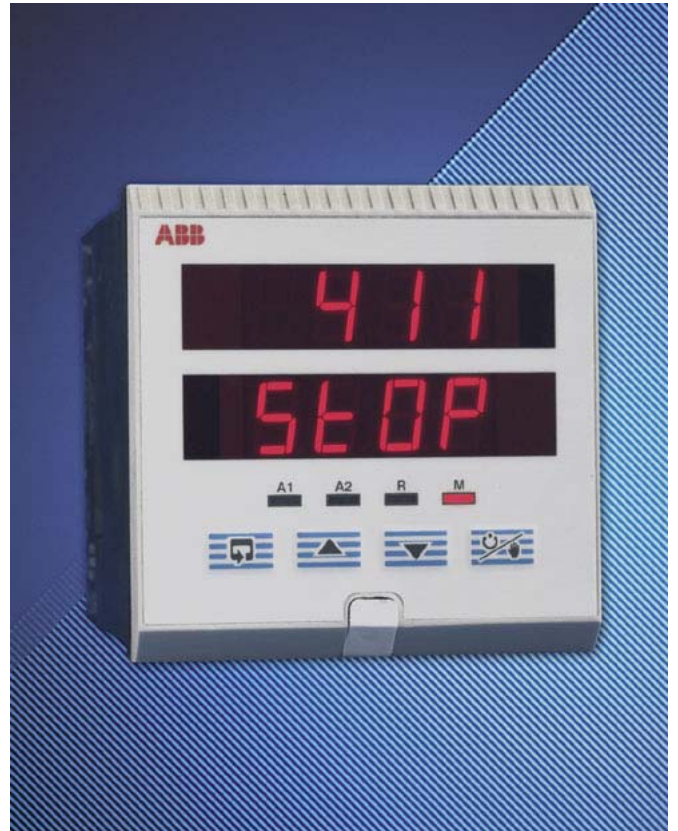


- **Boundless motorized valve controller**
  - no need for slidewire feedback; improves reliability
- **Two sealed 5A control relays**
  - suitable for direct connection to the valve, reducing installation costs
- **Universal process input with integral 2-wire transmitter power supply**
  - direct connection for any process signal
- **Retransmission of process variable**
  - analog output for recorder or datalogger
- **IP66/NEMA4X front face**
  - ideal for use in the harshest environments
- **Quick code, front face or PC configuration**
  - easy operation and commissioning using our Windows™-based software
- **RS485/Modbus serial communication**
  - SCADA, PLC or open system integration



**V250**  
– dedicated 1/4 DIN controller for motorized valves

**V250**

The V250 Valve Position controller is a dedicated, single loop controller designed for direct control of motorized valves.

Universal input and integral transmitter power supply ensure that the V250 has the capabilities to measure a wide range of process signals such as temperature, pressure, flow and level.

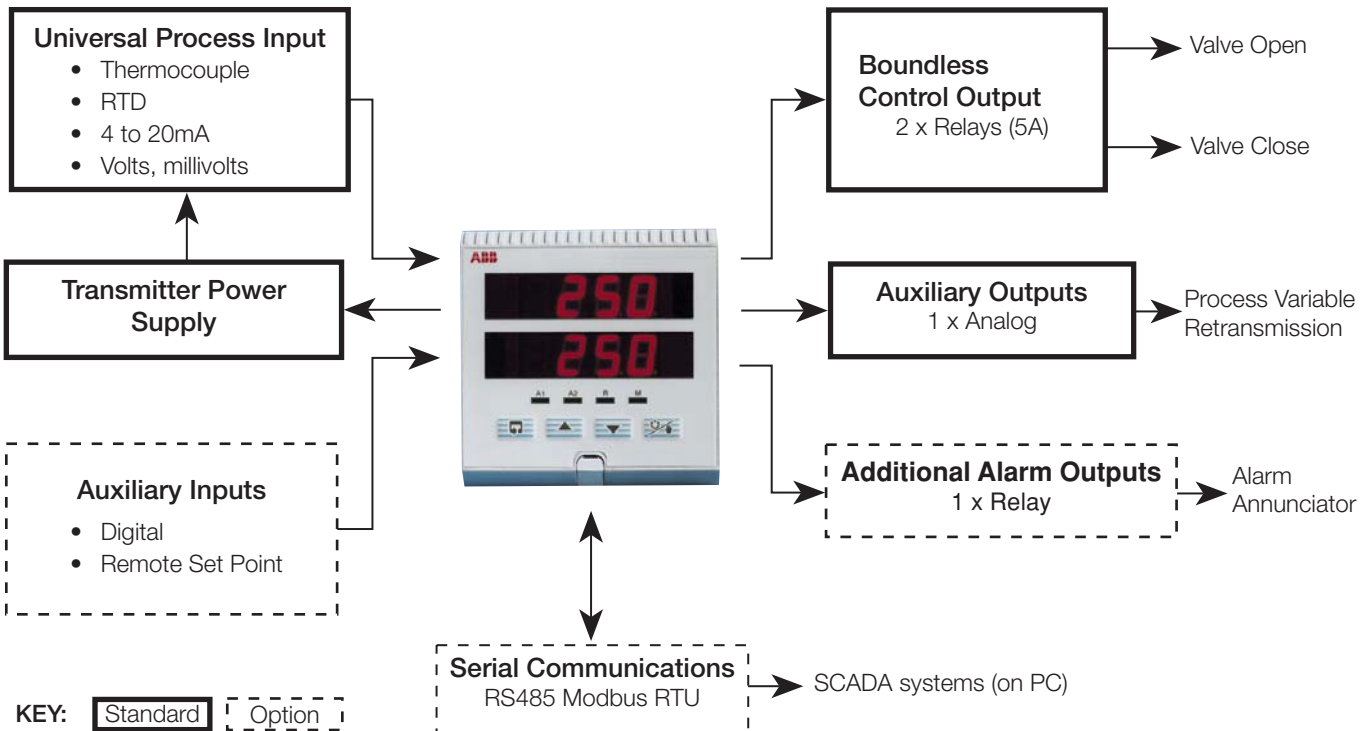
Two 5A relays are fitted as standard for either direct control of the positioner or via intermediate relays plus retransmission of the process variable for connection to a recorder or datalogger. Further I/O capabilities can be added, such as an alarm relay, remote set point and digital input, to suit the application.

The configuration of the V250 is achieved by moving the security switch and entering a simple code from the front panel keys or via our PC configuration package. No passwords, no input links, no complications.

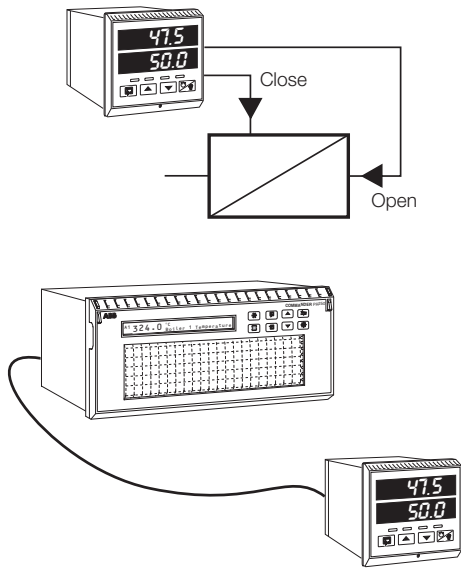
With IP66/NEMA4X front panel protection and superior RF immunity as standard the V250 has been designed to control reliably in the harshest of today's industrial environments.



**Process Connections**

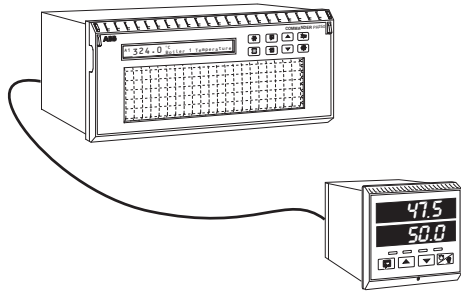


## Applications



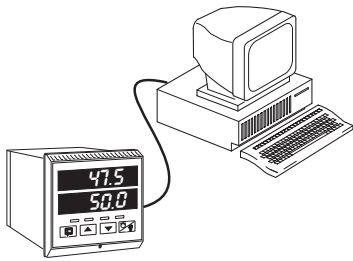
### PID Control

Boundless control of an electrically-positioned valve with a travel time between 10 and 5000s using in-built 5A relays. The V250 gives pulsed outputs to the valve which are based on the difference in Process Variable and Set Point. The V250 signals the direction and time of travel to the valve. The controller does not require information on the absolute regulator position but uses the PV inputs as its feedback. The deadband setting prevents the valve from hunting.



### Retransmission

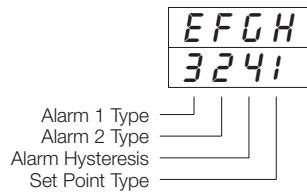
As standard the V250 has a 4 to 20mA retransmission output of the process variable for connection to a chart recorder, datalogger or PLC.



### PC Configuration

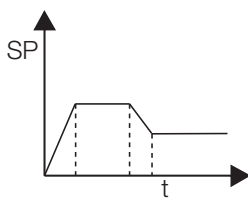
To make configuration of the V250 quicker and simpler, a Windows-based configuration software package is available. The V250 is supplied with an in-built PC configurator port as standard.

Configurations can be saved and downloaded to other instruments and a printout generated.



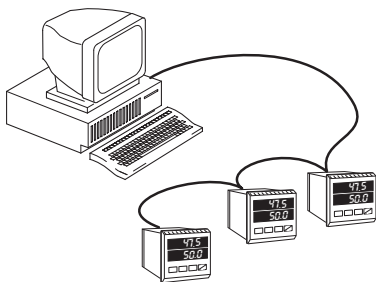
### Quick Code Setting

A simple 4-digit code enables all standard parameters to be set from the front face.



### Ramp/Soak Set Point Profiles

The ramp/soak facility available on every V250 provides for a single program, four-segment profile. This facility also includes guaranteed ramp/soak, repeat program, skip and reset features.



### RS485/Modbus

Fitted with an optional RS485 serial communication board, the V250 can communicate with PLCs and SCADA systems using the Modbus protocol.

## Specification

### Summary

PI, PID single loop, valve position controller  
Fully user configurable  
NEMA4X/IP66  
PC configuration

## Operation

### Display

High-intensity 7-segment, 2 x 4-digit LED display  
Display range -999 to +9999  
Display resolution  $\pm 1$  digit  
Display height 14mm (0.56 in.)

### Configuration

User-defined via front panel or via PC configurator

## Control Functions

### Control types

P+I or P+I+D Boundless

### Valve travel time

10 to 5000s

### Adjustable deadband (engineering units)

-999 to +9999

### Control terms

P = 0.1 to 999.9%

I = 1 to 7200s

D = 0.1 to 999.9s

### Set points strategies

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 Switches Run/Hold or Run/Stop from digital input

### Alarms

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

## Standard Build

### Relay output

Two relays with arc suppression components included as standard (SPDT) – 5A @ 115/230V AC

### Logic output

18V DC at 20mA  
Min. load 400 $\Omega$

### PV retransmission

Analog, configurable in the range of 4 to 20mA  
Max. load 15V (750 $\Omega$  at 20mA)  
Accuracy  $\leq 0.25\%$  of span

## Analog Inputs

### Number

One standard process variable  
One optional remote set point input

### Input sampling rate

250ms per channel

### Type

Universally configurable  
Channel 1 Thermocouple (THC)  
Resistance Thermometer (RTD)  
Millivolt  
Current  
DC voltage  
Channel 2 4 to 20mA

### Input impedance

mA 100 $\Omega$   
mV, V >10M $\Omega$

### Linearizer functions

Programmable for standard inputs:  
 $\sqrt{\quad}$ , 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 300 $\Omega$  imbalance  
Series mode rejection >60dB 50/60Hz

### Transmitter power supply

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

## Optional I/O specification

### Relay output

SPDT 5A @ 115/230V AC

### Digital input

Type Volt-free  
Minimum pulse 250ms

### Modbus serial communications

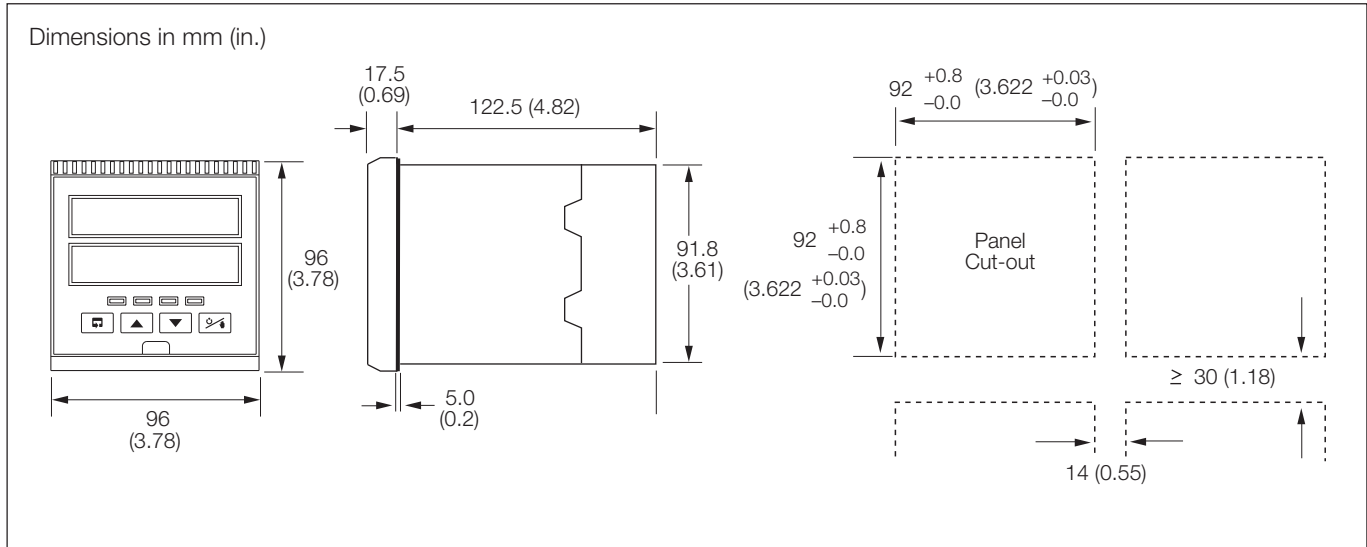
Connections RS422/485, 2- or 4-wire  
Speed 2.4k or 9.6k baud rate  
Protocol Modbus RTU slave

### Remote Set Point Input

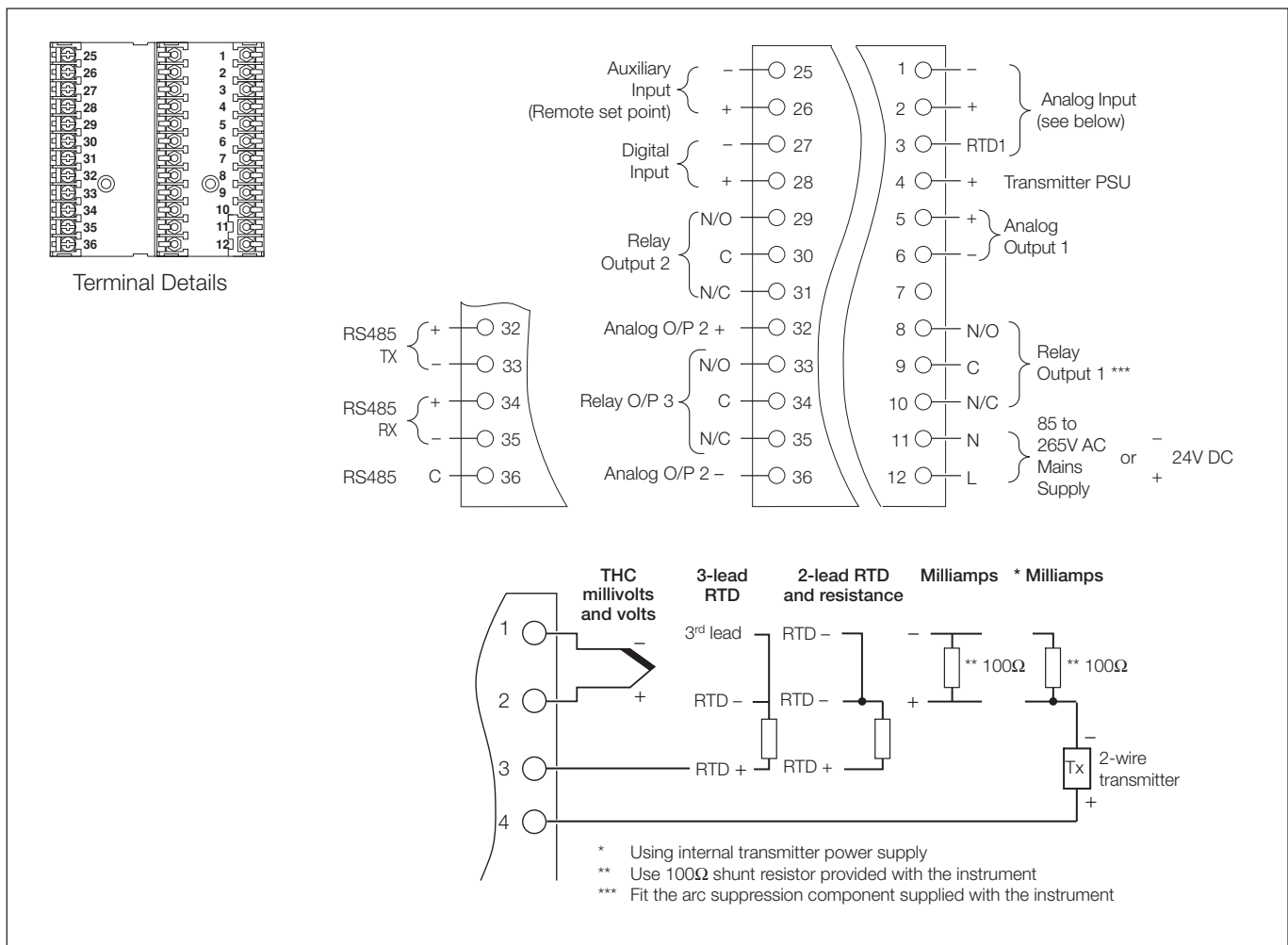
4 to 20 mA DC, 100 $\Omega$  nominal input impedance  
Preset to process variable engineering units



## Overall Dimensions



## Electrical Connections



**Ordering Information**

V250 1/4 DIN Motorized Valve Controller	V250	/	X	X	X	X	/	X	X	X	X		
<b>Options</b>													
Standard *	0	1											
1 additional alarm relay + 1 digital input + remote set point 4 to 20mA	0	2											
1 digital input + remote set point + RS485/Modbus	0	3											
<b>Power Supply</b>													
85V to 265V AC								0					
24V DC								1					
<b>Build</b>													
ABB Standard											0		
<b>Programming/Special Features</b>													
Configured to factory standard										S	T	D	
Configured to customer requirements										C	U	S	
Special features										S	P	X	X

\*As standard the V250 is fitted with 2 relays (open/close), 4 to 20mA retransmission, universal input and transmitter power supply.

**Accessories**

PC Configuration Kit (part no. C100/0700)

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