

1/16, 1/8 & 1/4 DIN Valve Motor Drive Controller Quick Start Manual PK503 (0037-75486)

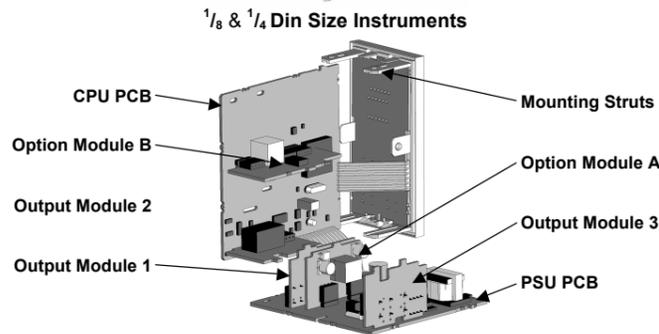
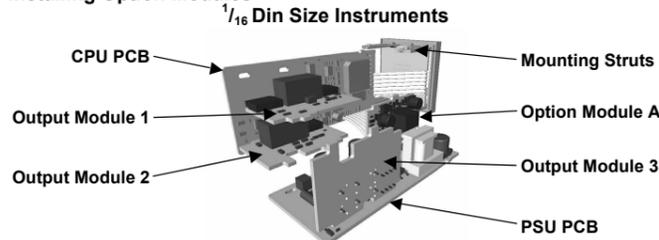
CAUTION: Installation should be only performed by technically competent personnel. Local Regulations regarding electrical installation & safety must be observed.

1. INSTALLATION

The models covered by this manual have three different DIN case sizes (refer to section 10). Some installation details vary between models. These differences have been clearly shown.

Note: The functions described in sections 2 thru 9 are common to all models.

Installing Option Modules

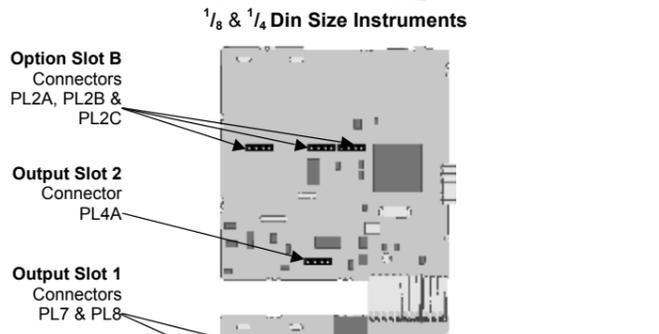
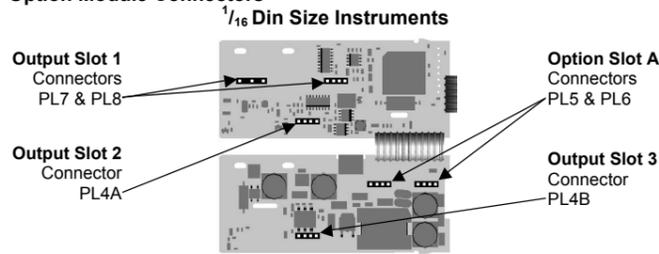


To access modules 1, A or B, first detach the PSU and CPU boards from the front by lifting first the upper, and then lower mounting struts. Gently separate the boards.

- Plug the required option modules into the correct connectors, as shown below.
- Locate the module tongues in the corresponding slot on the opposite board.
- Hold the main boards together while relocating back on the mounting struts.
- Replace the instrument by aligning the CPU and PSU boards with their guides in the housing, then slowly push the instrument back into position.

Note: Option modules are automatically detected at power up.

Option Module Connectors



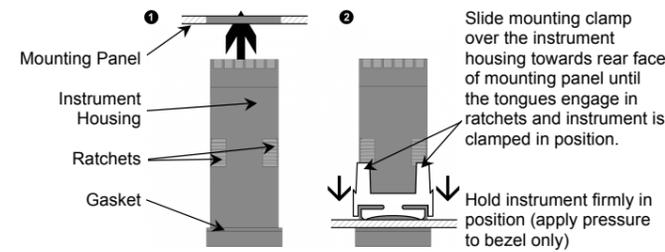
Panel-Mounting

The mounting panel must be rigid, and may be up to 6.0mm (0.25inch) thick. Cut-out sizes are:

Cut-Out Dim A
1/16 & 1/8 Din = 45mm
1/4 Din = 92mm

Cut-Out Dim B
1/16 Din = 45mm
1/8 & 1/4 Din = 92mm

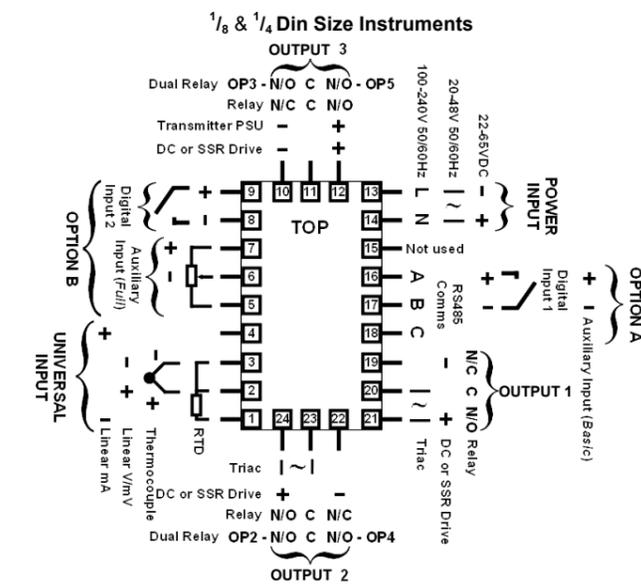
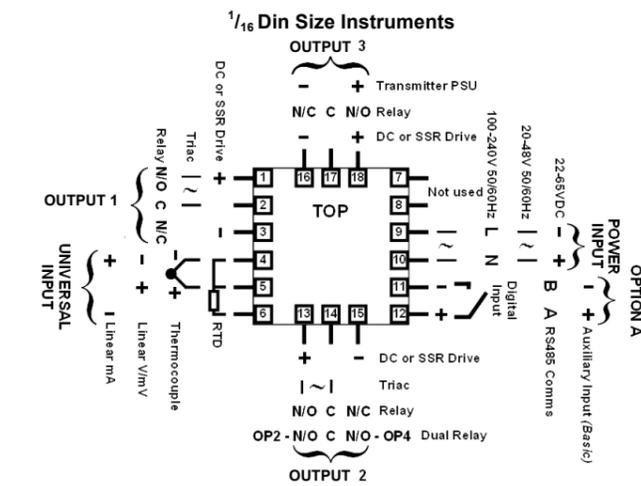
For *n* multiple instruments mounted side-by-side, cut-out A is 48*n*-4mm (1/16 & 1/8 Din) or 96*n*-4mm (1/4 Din)



CAUTION: Do not remove the panel gasket; it is a seal against dust and moisture.

Rear Terminal Wiring

USE COPPER CONDUCTORS (EXCEPT FOR T/C INPUT)
Single Strand wire gauge: Max 1.2mm (18SWG)



These diagrams show all possible option combinations. The actual connections required depend on the exact model and options fitted.

***Note:** This controller uses Three-Point Stepping Control. This requires two identical outputs (2 Relays, 2 Triacs, 2 SSR Drivers or 1 Dual Relay) for the valve Open & Close functions. See Output Usage 1-5 in Configuration Mode.

CAUTION: Check information label on housing for correct operating voltage before connecting supply to Power Input
Fuse: 100 - 240V ac - 1amp anti-surge
24/48V ac/dc - 315mA anti-surge

Note: At first power-up the message `CoNF` is displayed, as described in section 7 of this manual. Access to other menus is denied until Configuration Mode is completed.

2. SELECT MODE

Select mode is used to access the configuration and operation menu functions. It can be accessed at any time by holding down `ESC` and pressing `ENTER`. In select mode, press `UP` or `DOWN` to choose the required mode, press `ENTER` to enter. An unlock code is required to prevent unauthorised entry to Configuration, & Setup modes. Press `UP` or `DOWN` to enter the unlock code, then press `ENTER` to proceed.

Mode	Upper Display	Lower Display	Description	Default Unlock Codes
Operator	OPtr	SLCt	Normal operation	None
Set Up	SEtP	SLCt	Tailor settings to the application	10
Configuration	CoNF	SLCt	Configure the instrument for use	20
Product Info	PrdO	SLCt	Check manufacturing information	None
Auto-Tuning	REtUn	SLCt	Invoke Pre-Tune or Self-Tune	0

Note: The instrument will always return automatically to Operator mode if there is no key activity for 2 minutes.

3. CONFIGURATION MODE

First select Configuration mode from Select mode (refer to section 2). Press `RIGHT` to scroll through the parameters, then press `UP` or `DOWN` to set the required value. Press `ENTER` to accept the change, otherwise parameter will revert to previous value. To exit from Configuration mode, hold down `ESC` and press `UP`, to return to Select mode.

Note: Parameters displayed depends on how instrument has been configured. Refer to user guide (available from your supplier) for further details. Parameters marked ** are repeated in Setup Mode.

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value	
Input Range/Type	inPt		See following table for possible codes	JC	
Code	Input Type & Range	Code	Input Type & Range	Code	Input Type & Range
bC	B: 100 - 1824 °C	PC	K: -128.8 - 537.7 °C	P24F	PIRh20% vs 40%: 32 - 3362 °F
bF	B: 211 - 3315 °F	PF	K: -199.9 - 999.9 °F	PtC	PI100: -199 - 800 °C
cC	C: 0 - 2320 °C	nC	N: 0 - 1399 °C	PtF	PI100: -328 - 1472 °F
cF	C: 32 - 4208 °F	nF	N: 32 - 2551 °F	PtC	PI100: -128.8 - 537.7 °C
eC	E: -100 - 1000 °C	rC	R: 0 - 1759 °C	PtF	PI100: -199.9 - 999.9 °F
eF	E: -148 - 1832 °F	rF	R: 32 - 3198 °F	PtC	PI100: -199.9 - 999.9 °F
eLC	E: -100.0 - 999.9 °C	SL	S: 0 - 1762 °C	D_20	0 - 20 mA DC
eLF	E: -148.0 - 999.9 °F	SL	S: 32 - 3204 °F	4_20	4 - 20 mA DC
JC	J: -200 - 1200 °C	tC	T: -240 - 400 °C	D_50	0 - 50 mV DC
JF	J: -328 - 2192 °F	tF	T: -400 - 752 °F	10_50	10 - 50 mV DC
JLC	J: -128.8 - 537.7 °C	tLC	T: -128.8 - 400.0 °C	D_5	0 - 5 V DC
JLF	J: -199.9 - 999.9 °F	tLF	T: -199.9 - 752.0 °F	1_5	1 - 5 V DC
KC	K: -240 - 1373 °C	P24C	PIRh20% vs. 40%: 0 - 1850 °C	D_10	0 - 10 V DC
KF	K: -400 - 2503 °F	P24F	PIRh20% vs. 40%: 0 - 1850 °C	2_10	2 - 10 V DC

Note: Decimal point shown in table indicates temperature resolution of 0.1°

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Scale Range Upper Limit	rUL		Scale Range Lower Limit +100 to Range Maximum	Range max (Lin=1000)
Scale Range Lower Limit	rLL		Range Minimum to Scale Range Upper Limit -100 (non-temperature ranges only)	Range min (Linear=0)
Decimal point position	dPoS		0=XXXX, 1=XXX.X, 2=XX.XX, 3=X.XXX	1
Primary Output Control Action	ctrL		Reverse Acting	rEU
			Direct Acting	dIr
Motor Travel Time	tr		0.05 to 5.00 (5 secs to 5 mins 0 secs) Time Valve takes to move between its physical end stops (full Open to full Closed).	1.00
Alarm 1 Type	RLA1		Process High Alarm	P_H1
	PLA1		Process Low Alarm	
	RLA1		Deviation Alarm	
High Alarm 1 value**	PhA1		Band Alarm	
	PLA1		No alarm	
	PhA1		Range Minimum to Range Maximum in display units	Range Max
Low Alarm 1 value**	PLA1		1 LSD to span from setpoint in display units	5
Dev. Alarm 1 value**	dAL1		+/- Span from setpoint in display units	5
Alarm 1 Hysteresis**	HAH1		1 LSD to full span in display units	1
Alarm 2 Type**	RLA2		Options as for alarm 1	
High Alarm 2 value**	PhA2			Range Max
	PLA2			Range Min
Low Alarm 2 value**	PLA2			5
Band Alarm 2 value**	RLA2			

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value		
Dev. Alarm 2 Value**	dAL2		Options as for alarm 1	5		
Alarm 2 Hysteresis**	HAH2			1		
Loop Alarm	LAEn		(disabled) or (enabled)	d,5A		
Alarm Inhibit	Inh1	nonE	No alarms Inhibited			
		RLA1	Alarm 1 inhibited			
		RLA2	Alarm 2 inhibited			
		both	Alarm 1 and alarm 2 inhibited			
		nonE				
Output 1 Usage*	USE1	OPn	Valve Open			
		CL5	Valve Close			
		AL_d	Alarm 1, Direct			
		AL_r	Alarm 1, Reverse			
		AL_2_d	Alarm 2, Direct			
		AL_2_r	Alarm 2, Reverse			
		LP_d	Loop Alarm, Direct			
		LP_r	Loop Alarm, Reverse	OPn		
		DR_d	Logical Alarm 1 OR 2, Direct			
		DR_r	Logical Alarm 1 OR 2, Reverse			
Linear Output 1 Range	tYP1	0_5	0 to 5 V DC output			
		0_10	0 to 10 V DC output			
		2_10	2 to 10 V DC output			
		0_20	0 to 20 mA DC output			
		4_20	4 to 20 mA DC output			
		Retransmit Output 1 Scale maximum	ro1H	-1999 to 9999	(display value at which output will be maximum)	Range max
				-1999 to 9999	(display value at which output will be minimum)	Range min
		Retransmit Output 1 Scale minimum	ro1L			
		Output 2 Usage*	USE2		As for output 1	Sec or AI2
		Linear Output 2 Range	tYP2		As for output 1	0_10
Retransmit Output 2 Scale maximum	ro2H		(display value at which output will be maximum)	Range max		
Retransmit Output 2 Scale minimum	ro2L		(display value at which output will be minimum)	Range min		
Output 3 Usage*	USE3		As for output 1	RL_d		
Linear Output 3 Range	tYP3		As for output 1	0_10		
Retransmit Output 3 Scale maximum	ro3H		(display value at which output will be maximum)	Range max		
Retransmit Output 3 Scale minimum	ro3L		(display value at which output will be minimum)	Range min		
Output 4 Usage*	USE4		As for output 1 except Retransmit of PV or SP is not possible.	OPn		
Output 5 Usage*	USE5		As for output 1 except Retransmit of PV or SP is not possible.	RL_d		
Display Strategy	d,5P		1, 2, 3, 4, 5 or 6 (refer to section 8)	1		
Serial Communications Protocol	PrOt	no	Modbus with no parity			
		no	Modbus with Even Parity	no		
		no	Modbus with Odd Parity	no		
Serial Communications Bit Rate	bRud	1_2	1.2 kbps			
		2_4	2.4 kbps			
		4_8	4.8 kbps	4.8		
		9_6	9.6 kbps			
Comms Address	Addr	1	1 to 255	1		
		r_00	Read/Write	r_00		
Comms Write	CoEn	r_00	Read only			
		r_00				
Auxiliary Input A Usage	A,PA	r_5P	Remote Setpoint (basic)	P_in		
		P_in	Valve Position Indication (basic)			
Auxiliary Input B Usage	A,PB	r_5P	Remote Setpoint (Full)	P_in		
		P_in	Valve Position Indication (Full)			
Digital Input 1 Usage	d,91	d,51	Setpoint 1 / Setpoint 2 select**	d,51		
		d,95	Automatic / Manual select			
Digital Input 2 Usage	d,92	d,51	Setpoint 1 / Setpoint 2 select**			
		d,95	Automatic / Manual select	d,95		

Note: d,92 has priority over d,91 if both are configured for the same usage. If d,91 or d,92 = d,51 the remote setpoint (RSP) input is disabled.

Continued on next page...

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Remote Auxiliary Input Range	r _{inP}	0..20	0 to 20 mA DC input	0..10
		4..20	4 to 20 mA DC input	
		0..10	0 to 10 V DC input	
		2..10	2 to 10 V DC input	
		0..5	0 to 5 V DC input	
		1..5	1 to 5 V DC input	
		100	0 to 100mV DC input	
	Potentiometer (2KΩ minimum)			
RSP Upper Limit	r5PU	-1999 to 9999. Remote SP for max. input	Range max	
RSP Lower Limit	r5PL	-1999 to 9999. Remote SP for min. input	Range min	
RSP Offset	r5PO	Constrained within Scale Range Upper & Scale Range Lower limits	0	
Configuration Lock Code	L5oc	0 to 9999. Unlock Code for this mode	20	

4. SETUP MODE

Note: Configuration must be completed before adjusting Setup parameters. First select Setup mode from Select mode (refer to section 2). The MAN LED will light while in Setup mode. Press to scroll through the parameters, then press or to set the required value. To exit from Setup mode, hold down and press to return to Select mode. **Note: Parameters displayed depends on how instrument has been configured.**

Parameter	Lower Display	Upper Display	Adjustment Range & Description	Default Value
Input Filter Time Constant	F _{ILT}	0.0 (Off) or 0.5 to 100.0	secs.	2.0
Process Variable Offset	OFF5	±Span of controller		0
Primary Proportional Band	P _{bP}	0.5 to 999.9	% of input span	10.0
Automatic Reset (Integral Time)	R _{5t}	0.01 to 99.59	1 sec to 99 mins 59 secs	5.00
Rate (Derivative Time)	r _{5tE}	0.00 to 99.59	0 sec to 99 mins 59 secs	0.00
Setpoint Upper Limit	SPUL	Current Setpoint to Range max	R/max	
Setpoint Lower limit	SPLL	Range min to Current Setpoint	R/min	
Minimum Motor On Time	t _{on}	.. secs to (Motor Travel Time / 10) secs. The minimum drive effort to begin moving valve.		0.0
Set Valve Open Position	P _{cUL}	See instructions below to set the valve's fully open and closed positions.	Max. Aux.	
Set Valve Closed Position	P _{cLL}		Min. Aux.	
Valve Open Limit	P _{iUL}	P _{iLL} +1 to 100. The maximum position valve will be driven to	100	
Valve Closed Limit	P _{iLL}	0 to P _{iUL} -1. The minimum position valve will be driven to	0	
High Alarm 1 value	PhR1	Range Minimum to Range Maximum	R/max	
Low Alarm 1 value	PLR1		R/min	
Deviation Alarm 1 Value	dAL1	±Span from SP in display units	5	
Band Alarm 1 value	bAL1	1 LSD to span from setpoint	5	
Alarm 1 Hysteresis	AH1	1 LSD to full span in display units	1	
High Alarm 2 value	PhR2	Range Minimum to Range Maximum	R/max	
Low Alarm 2 value	PLR2		R/min	
Deviation Alarm 2 Value	dAL2	±Span from SP in display units	5	
Band Alarm 2 value	bAL2	1 LSD to span from setpoint	5	
Alarm 2 Hysteresis	AH2	1 LSD to full span in display units	1	
Auto Pre-tune	APt			
Auto/manual Control selection	P _{oEn}			
Setpoint Select shown in Operator Mode	55En	d,5R (disabled) or EnRb (enabled)	d,5R	
Setpoint ramp adjustment shown in Operator Mode	5Pr			
SP Ramp Rate Value	rP	1 to 9999 units/hour or Off (blank)	Off	
Setpoint Value	SP	Scale range upper to lower limits. (when dual or remote setpoint options are used, SP is replaced by P1 & SP2 or L5 or before the legend indicates the currently active SP)	Scale Range Minimum	
Local Setpoint Value	L5P			
Setpoint 1 Value	5P1			
Setpoint 2 Value	5P2			
Setup Lock Code	L5oc	0 to 9999	10	

Setting the Valve Opened & Valve Closed Positions

With P_{cUL} in the lower display press . The top display shows 0Pn5. Press to drive open the valve until it reaches the "fully open" end stop. Press . The top display will go Blank and the Auxiliary Input value will be measured and stored as the value equal to the fully open valve position. Press . The lower display shows P_{cLL}. Press . The top display shows cL5c. Press to drive closed the valve until it reaches the "fully closed" end stop. Press . The top display will go Blank and the Auxiliary Input value will be measured and stored as the value equal to the fully closed valve position.

5. AUTOMATIC TUNING MODE

First select Automatic tuning mode from Select mode (refer to section 2). Press to scroll through the modes, then press or to set the required value. To exit from Automatic tuning mode, hold down and press , to return to Select mode. Pre-tune is a single-shot routine and is thus self-disengaging when complete. If APt in Setup mode = EnRb, Pre-tune will attempt to run at every power up. Refer to the full user guide (available from your supplier) for details on controller tuning.

Parameter	Lower Display	Upper Display	Default Value
Pre-Tune	PtUn	On or OFF. *Pre-tune will not engage if setpoint is ramping, or the PV is less than 5% of input span from the setpoint. Indication remains	OFF
Self-Tune	StUn		
Tune Lock	tLac	0 to 9999	

6. PRODUCT INFORMATION MODE

First select Product information mode from Select mode (refer to section 2). Press to view each parameter. To exit from Product Information mode, hold down and press to return to Select mode. **Note: These parameters are all read only.**

Parameter	Lower Display	Upper Display	Description
Input type	InI	Un	Universal input
Option 1 module type fitted	OPn1	nonE	No option fitted
		rLY	Relay output
		55r	SSR drive output
		tr	Triac output
Option 2 module type fitted	OPn2	LIn	Linear DC voltage / current output
		nonE	No option fitted
		drLY	Dual Relay output
		rLY	Relay output
		55r	SSR drive output
Option 3 module type fitted	OPn3	tr	Triac output
		LIn	Linear DC voltage / current output
		dc24	Transmitter power supply
Auxiliary Option A module type fitted	OPnA	nonE	No option fitted
		r485	RS485 communications
		d,9i	Digital Input*
Auxiliary Option B module type fitted	OPnB	r5Pi	Auxiliary Input (basic)*
		nonE	No option fitted
Firmware type	F _{CJ}		Value displayed is firmware type number
Firmware issue	I ₅₅		Value displayed is firmware issue number
Product Revision Level	P _{rL}		Value displayed is Product Revision level
Date of manufacture	d0m		Manufacturing date code (mmyy)
Serial number 1	S _{n1}		First four digits of serial number
Serial number 2	S _{n2}		Middle four digits of serial number
Serial number 3	S _{n3}		Last four digits of serial number

7. MESSAGES & ERROR INDICATIONS

These messages indicate that an error has occurred, or there is a problem with the process variable input connection or signal. **Caution: Do not continue with the process until the issue is resolved.**

Parameter	Upper Display	Lower Display	Description
Instrument parameters are in default conditions	9000	EonF	Configuration & Setup required. This screen is seen at first turn on, or if hardware configuration has been changed. Press to enter the Configuration Mode, next press or to enter the unlock code number, then press to proceed
Input Over Range	[HH]	Normal	Process variable input > 5% over-range
Input Under Range	[LL]	Normal	Process variable input > 5% under-range
Input Sensor Break	DPEn	Normal	Break detected in process variable input sensor or wiring.
Aux. Over Range	[HH]**	Normal	Auxiliary input over-range ** also seen wherever Aux value would be displayed
Aux. Under Range	[LL]**	Normal	Auxiliary input under-range
Auxiliary Input Break	DPEn**	Normal	Break detected in Auxiliary input signal
Option 1 Error	Err	OPn1	Option 1 module fault
Option 2 Error		Pn2	Option 2 module fault
Option 3 Error		OPn3	Option 3 module fault
Option A Error		OPnA	Option A fault or Aux fitted in both A & B
Option B Error		OPnB	Option B module fault

8. OPERATOR MODE

This mode is entered at power on, or accessed from Select mode (see section 2). **Note: All Configuration mode and Setup mode parameters must be set as required before starting normal operations.** Press to scroll through the parameters, then press or to set the required value. **Note: All Operator Mode parameters in Display strategy 6 are read only (see in configuration mode), they can only be adjusted via Setup mode.**

Upper Display	Lower Display	Display Strategy and When Visible	Description
PV Value	Active SP Value	1 & 2 (initial screen)	PV and target value of selected SP. Local Setpoints are adjustable in Strategy 2
PV Value	Actual SP Value	3 & 6 (initial screen)	PV and actual value of selected SP (e.g. ramping SP value). Read only
PV Value	(Blank)	4 (initial screen)	Process variable only. Read only
Active SP Value	(Blank)	5 (initial screen)	Target value of selected setpoint only. Read only
PV Value	Auxiliary Input Value	7 (initial screen)	PV and Valve Position or Flow. Read only
SP Value	5P	1, 3, 4, 5 & 6 if digital input is not d,5I and RSP not fitted	Target value of SP. Adjustable except in Strategy 6
SP1 Value	5P1	Digital input = d,5I. _ lit if active SP = SP1	Target value of SP1. Adjustable except in Strategy 6
SP2 Value	5P2	Digital input = d,5I. _ lit if active SP = SP2	Target value of SP2. Adjustable except in Strategy 6
Local SP Value	L5P	RSP fitted. _ or lit if the active SP = L5P	Target value of local setpoint. Adjustable except in Strategy 6
Remote SP Value	r5P	RSP fitted. _ or lit if the active SP = r5P	Target value of remote setpoint. Read only
d,9i, L5P or r5P	5P5	RSP is fitted, digital input is not d,5I and 55En is enabled in Setup mode	Selects local/remote active setpoint. L5P = local SP. r5P = remote SP. d,9i = selection via digital input (if configured). Note: selecting L5P or r5P will override digital input, active SP indication changes to Adjustable except in Strategy 6
Actual SP Value	5PrP	is not blank	Actual (ramping) value of selected SP. Read only
Ramp Rate	rP	enabled in Setup mode	SP ramping rate, in units per hour. Adjustable except in Strategy 6
Active Alarm Status	AL5t	When one or more alarms are active. ALM indicator will also flash	Alarm 2 active Alarm 1 active Loop Alarm active

Manual Valve Control

If P_{oEn} is set to EnRb in Setup mode, manual control can be selected/de-selected by pressing the key in Operator mode, via serial communications, or by changing the status of a digital input if d,9i or d,92 has been configured for d,95 in Configuration mode. While in Manual Control mode, the indicator will flash and the lower display will show . If Valve Position Indication is configured, the lower display will show Pxxx instead of , where xxx is the valve position as read by the Auxiliary Input. PD means the valve is fully closed, P 100 means the valve is fully opened.

Press to move the valve mother in the "open" direction or to move the valve mother in the "close" direction. Keep pressing the key until the desired valve position is achieved

9. SERIAL COMMUNICATIONS

Refer to the full user guide (available from your supplier) for details.

10. SPECIFICATIONS

UNIVERSAL INPUT

Thermocouple: ±0.1% of full range, ±1LSD (±1°C for Thermocouple CJC). Calibration: BS4937, NBS125 & IEC584.
PT100 Calibration: ±0.1% of full range, ±1LSD. BS1904 & DIN43760 (0.00385Ω/Ω°C).
DC Calibration: ±0.1% of full range, ±1LSD.
Sampling Rate: 4 per second.
Impedance: >10MΩ resistive, except DC mA (5Ω) and V (47kΩ).
Sensor Break Detection: Thermocouple, RTD, 4 to 20 mA, 2 to 10V and 1 to 5V ranges only. "Close Valve" outputs turn ON.
Isolation: Isolated from all outputs (except SSR driver).
Universal input must not be connected to operator accessible circuits if relay outputs are connected to a hazardous voltage source. Supplementary insulation or input grounding would then be required.

AUXILIARY INPUT

Calibration: ±0.25% of input range ±1 LSD.
Sampling Rate: 4 per second.
Sensor Break Detection: 4 to 20 mA, 2 to 10V and 1 to 5V ranges only. Valve control outputs turn off if RSP is the active SP.
Isolation: Slot A - Basic isolation, Slot B - Reinforced safety isolation from other inputs and outputs.

DIGITAL INPUTS

Volt-free(or TTL): Open(2 to 24VDC) = SP1, Local SP or Auto Mode, Closed(<0.8VDC) = SP2, Remote SP or Manual Mode.
Isolation: Reinforced safety isolation from inputs and other outputs.

OUTPUTS

Relay
Contact Type & Rating: Single pole double throw (SPDT); 2A resistive. 120VAC max. (240V for alarm or indirect switching of valves).
Lifetime: >500,000 operations at rated voltage/current.
Isolation: Basic Isolation from universal input and SSR outputs.
Dual Relay
Contact Type & Rating: 2 x single pole single throw, with shared common; 2A resistive. 120VAC max. (240V for alarm or indirect switching of valves).
Lifetime: >200,000 operations at rated voltage/current.
Isolation: Reinforced safety isolation from inputs and other outputs.

SSR Driver
Drive Capability: SSR drive voltage >10V into 500Ω min.
Isolation: Not isolated from universal input or other SSR driver outputs.

Triac
Operating Voltage: 20 to 140Vrms (280V max. for alarm or indirect switching of valves) @ 47 to 63Hz.

Current Rating: 0.01 to 1A (full cycle rms on-state @ 25°C); derates linearly above 40°C to 0.5A @ 80°C.
Isolation: Reinforced safety isolation from inputs and other outputs.

DC Linear
Resolution: 8 bits in 250mS (10 bits in 1s typical, >10 bits in >1s typical).
Isolation: Reinforced safety isolation from inputs and other outputs.

Transmitter PSU
Power Rating: 19 to 28V DC (24V nominal) into 910Ω minimum resistance.
Isolation: Reinforced safety isolation from inputs and other outputs.

SERIAL COMMUNICATIONS

Physical: RS485, at 1200, 2400, 4800, 9600 or 19200 bps.
Protocol: Modbus RTU.
Isolation: Reinforced safety isolation from all inputs and outputs.

OPERATING CONDITIONS (FOR INDOOR USE)

Ambient Temperature: 0°C to 55°C (Operating), -20°C to 80°C (Storage).
Relative Humidity: 20% to 95% non-condensing.
Supply Voltage and Power: 100 to 240VAC ±10%, 50/60Hz, 7.5VA (for mains powered versions), or 20 to 48VAC 50/60Hz 7.5VA or 22 to 65VDC 5W (for low voltage versions).

ENVIRONMENTAL

Standards: CE, UL, ULC.
EMI: Complies with EN61326 (Susceptibility & Emissions).
Safety: Complies with EN61010-1 & UL3121.
Considerations: Pollution Degree 2, Installation Category II.
Front Panel Sealing: To IP66 (IP20 behind the panel).

PHYSICAL

Front Bezel Size: 1/8 Din = 48 x 48mm, 1/8 Din = 96 x 48mm, 1/4 Din = 96 x 96mm.
Depth Behind Panel: 1/8 Din = 110mm, 1/8 & 1/4 Din = 100mm.
Weight: 0.21kg maximum.

