

# 1/16 - 1/8 - 1/4 DIN PROCESS CONTROLLERS CONCISE PRODUCT MANUAL (59300-7)

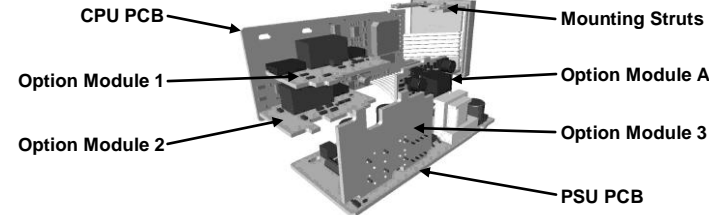


**CAUTION:** Installation should be only performed by technically competent personnel. It is the responsibility of the installing engineer to ensure that the configuration is safe. Local regulations regarding electrical installation & safety must be observed - e.g. US National Electrical Code (NEC) and/or Canadian Electrical Code. Impairment of protection will occur if the product is used in a manner not specified by the manufacturer.

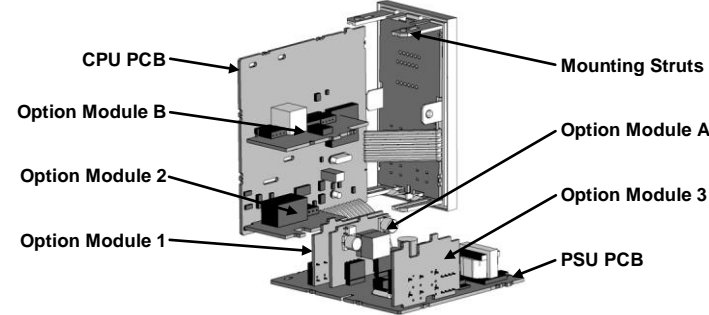
## 1. INSTALLATION

Some installation details vary between the three model sizes covered by this manual (refer to section 10). These differences have been clearly shown.

### Installing Option Modules: 1/16 Din Size Instruments



### Installing Option Modules: 1/8 & 1/4 Din Size Instruments

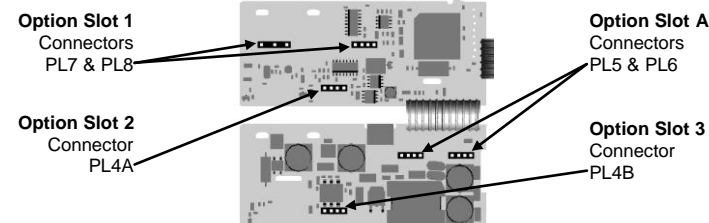


To access modules 1, A or B, first detach the PSU and CPU boards from the front by lifting first the upper, and then lower mounting struts. Gently separate the boards.

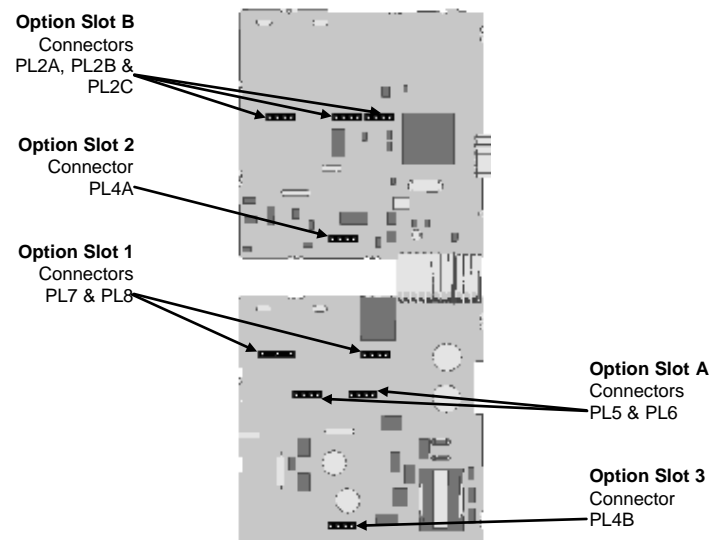
- Plug the required option modules into the correct connectors, as shown below.
- Locate the module tongues in the corresponding slot on the opposite board.
- Hold the main boards together while relocating back on the mounting struts.
- Replace the instrument by aligning the CPU and PSU boards with their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

**Note:** Option modules are automatically detected at power up.

### Option Module Connectors: 1/16 Din Size Instruments



### Option Module Connectors: 1/8 & 1/4 Din Size Instruments

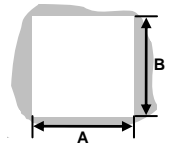


## Panel-Mounting

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

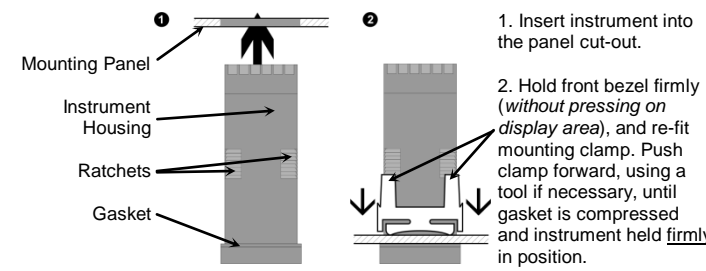
**Cut-Out Dim A**  
1/16 & 1/8 Din = 45mm  
1/4 Din = 92mm

**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)

Tolerance +0.5, -0.0mm

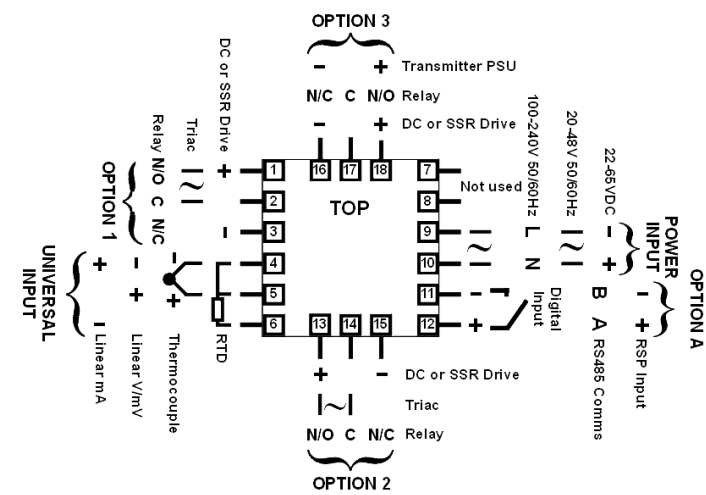


**CAUTION:** For an effective IP66 seal against dust and moisture, ensure gasket is well compressed against the panel, with the 4 tongues located in the same ratchet slot.

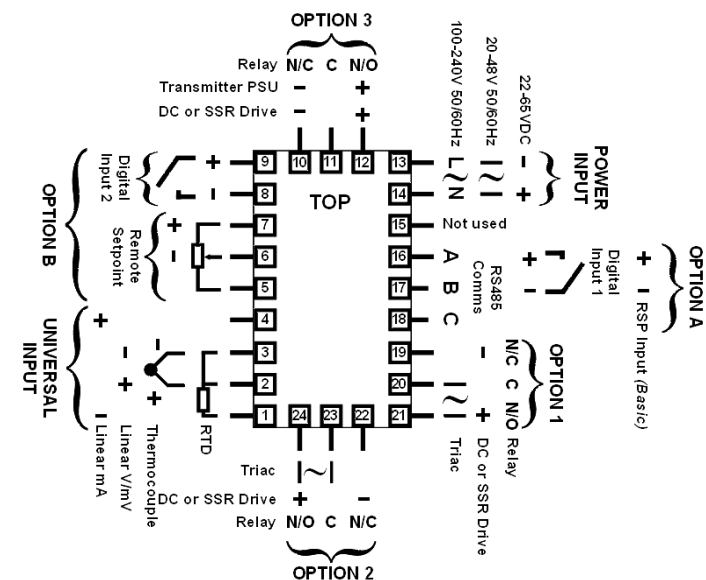
## Rear Terminal Wiring: 1/16 Din Size Instruments

USE COPPER CONDUCTORS (EXCEPT FOR T/C INPUT)

Single Strand wire gauge: Max 1.2mm (18SWG)



## Rear Terminal Wiring: 1/8 & 1/4 Din Size Instruments



**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 `CoLo 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 **⏏** and pressing **⏏**. In select mode, press **⏏** or **⏏** to choose the required mode, press **⏏** to set the mode. An unlock code is required to prevent unauthorised entry to Configuration, & Setup modes. Press **⏏** or **⏏** to enter the unlock code, then press **⏏** 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	inFo	SLCt	Check manufacturing information	None
Auto-Tuning	Autun	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 **⏏** to scroll through the parameters, then press **⏏** or **⏏** to set the required value. Press **⏏** to accept the change, otherwise parameter will revert to previous value. To exit from Configuration mode, hold down **⏏** and press **⏏**, 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	JL	
<b>Code</b>	<b>Input Type &amp; Range</b>	<b>Code</b>	<b>Input Type &amp; Range</b>	<b>Code</b>	<b>Input Type &amp; Range</b>
bC	B: 100 - 1824 °C	LC	L: 0.0 - 537.7 °C	P24F	PtRh20% vs 40%: 32 - 3362 °F
bF	B: 211 - 3315 °F	LF	L: 32.0 - 999.9 °F	PtC	Pt100: -199 - 800 °C
cC	C: 0 - 2320 °C	NC	N: 0 - 1399 °C	PtF	Pt100: -328 - 1472 °F
cF	C: 32 - 4208 °F	NF	N: 32 - 2551 °F	PtF	Pt100: -199.9 - 999.9 °F
JC	J: -200 - 1200 °C	rC	R: 0 - 1759 °C	PtF	Pt100: -128.8 - 537.7 °C
JF	J: -328 - 2192 °F	rF	R: 32 - 3198 °F	PtF	Pt100: -199.9 - 999.9 °F
JL	J: -128.8 - 537.7 °C	SC	S: 0 - 1762 °C	0.20	0 - 20 mA DC
JF	J: -199.9 - 999.9 °F	SF	S: 32 - 3204 °F	4.20	4 - 20 mA DC
HC	K: -240 - 1373 °C	tC	T: -240 - 400 °C	0.50	0 - 50 mV DC
HF	K: -400 - 2503 °F	tF	T: -400 - 752 °F	10.50	10 - 50 mV DC
PL	K: -128.8 - 537.7 °C	tL	T: -128.8 - 400.0 °C	0.5	0 - 5 V DC
PF	K: -199.9 - 999.9 °F	tF	T: -199.9 - 752.0 °F	1.5	1 - 5 V DC
LC	L: 0 - 762 °C	P24C	PtRh20% vs. 40%: 0 - 1850 °C	0.10	0 - 10 V DC
LF	L: 32 - 1403 °F	2.10	2 - 10 V DC	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	Range min (Linear=0)
Decimal point position	dPos		0=XXXX, 1=XXX.X, 2=XX.XX, 3=X.XXX (non-temperature ranges only)	1
Control Type	CtYP	SnGL	Primary only	SnGL
Primary Output Control Action	CtrL	reU	Primary & Secondary (e.g. heat & cool)	reU
Alarm 1Type	P_H		Reverse Acting	P_H
	P_Lo		Direct Acting	
	dE		Process High Alarm	
	bALd		Process Low Alarm	
	nonE		Deviation Alarm	
High Alarm 1 value*	PhA1		Band Alarm	Range Max
Low Alarm 1 value*	PLA1		No alarm	Range Min
Band Alarm 1 value*	bAL1		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*	AHY1		1 LSD to full span in display units	1
Alarm 2 Type*	ALR2			P_Lo
High Alarm 2 value*	PhA2			Range Max
Low Alarm 2 value*	PLA2		Options as for alarm 1	Range Min
Band Alarm 2 value*	bAL2			5

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value	
Dev. Alarm 2 Value*	dAL2		Options as for alarm 1	5	
Alarm 2 Hysteresis*	AHY2			1	
Loop Alarm	LAEn		dISA (disabled) or EnAb (enabled)	dISA	
Loop Alarm Time*	LAEt		1 sec to 99 mins. 59secs	99.59	
Alarm Inhibit	Inh		nonE	nonE	
	ALA1		No alarms Inhibited		
	ALA2		Alarm 1 inhibited		
	both		Alarm 1 and alarm 2 inhibited		
	Pr		Primary Power		
Output 1 Usage	USE1		SEc	Pr	
	AL_d		Secondary Power		
	AL_r		Alarm 1, Direct		
	AL_r		Alarm 1, Reverse		
	AL_d		Alarm 2, Direct		
	AL_r		Alarm 2, Reverse		
	LP_d		Loop Alarm, Direct		
	LP_r		Loop Alarm, Reverse		
	OR_d		Logical Alarm 1 OR 2, Direct		
	OR_r		Logical Alarm 1 OR 2, Reverse		
Linear Output 1 Range	tYP1		AD_d	0.10	
	2.10		Logical Alarm 1 AND 2, Direct		
	0.10		AD_r		Logical Alarm 1 AND 2, Reverse
	0.20		rEtS		Retransmit SP Output
	4.20		rEtP		Retransmit PV Output
Retransmit Output 1 Scale maximum	roIH		0.5	Range max	
Retransmit Output 1 Scale minimum	roIL		0 to 5 V DC output	Range min	
Output 2 Usage	USE2		0 to 10 V DC output		
Linear Output 2 Range	tYP2		2 to 10 V DC output	0.10	
Retransmit Output 2 Scale maximum	ro2H		0 to 20 mA DC output	Range max	
Retransmit Output 2 Scale minimum	ro2L		4 to 20 mA DC output	Range min	
Output 3 Usage	USE3		As for output 1	As for output 1	
Linear Output 3 Range	tYP3		As for output 1	As for output 1	
Retransmit Output 3 Scale maximum	ro3H		-1999 to 9999 (display value at which output will be maximum)	Range max	
Retransmit Output 3 Scale minimum	ro3L		-1999 to 9999 (display value at which output will be minimum)	Range min	
Display Strategy	dISP		As for output 1	1, 2, 3, 4, 5 or 6 (refer to section 8)	
Serial Communications Protocol	Prot		1.2	1.2 kbps	
	PrOb		2.4	2.4 kbps	
	PrEb		4.8	4.8 kbps	
Serial Communications Bit Rate	PrEb		9.6	9.6 kbps	
	PrBo		19.2	19.2 kbps	
	bAud				
Comms Address	Addr		1 to 255 (Modbus), 1 to 99 (ASCII)	1	
Comms Write	CoEn		Read/Write	rLd	
	rLd		Read only	rLd	
Digital Input 1 Usage	dIG1		dS1	Setpoint 1 / Setpoint 2 select*	
Digital Input 2 Usage	dIG2		dAS	Automatic / Manual select	
	dIG2		dS1	Setpoint 1 / Setpoint 2 select*	
	dIG2		dAS	Automatic / Manual select	
	dIG2		dR5	Remote / Local setpoint select	

**Note:** dIG2 has priority over dIG1 if both are configured for the same usage. If dIG1 or dIG2 = dS1 the remote setpoint input is disabled.

Continued on next page...



Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Remote Setpoint Input Range	rSP	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	
RSP Upper Limit	rSPu		-1999 to 9999	Range max
RSP Lower Limit	rSPL		-1999 to 9999	Range min
RSP Offset	rSPo		Constrained within Scale Range Upper & Scale Range Lower limits	0
Configuration Lock Code	CLoc		0 to 9999	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	FILt		OFF or 0.5 to 100.0 secs	2.0
Process Variable Offset	OFFS		±Span of controller	0
Primary Power	PPUd		Current power levels (read only)	N/A
Secondary Power	SPUd			
Primary Proportional Band	Pb_P		0.0% (ON/OFF) and 0.5% to 999.9% of input span	10.0
Secondary Proportional Band	Pb_S			
Automatic Reset (Integral Time)	ARSt		1 sec to 99 mins 59 secs and OFF	5.00
Rate (Derivative Time)	rARt		00 secs to 99 mins 59 secs	1.15
Overlap/Deadband	OL		-20 to +20% of Primary and Secondary Proportional Band	0
Manual Reset (Bias)	bRS		0% (-100% if dual control) to 100%	25
Primary ON/OFF Differential	dIFP		0.1% to 10.0% of input span centered about the setpoint. (Entered as a percentage of span)	0.5
Secondary ON/OFF Diff.	dIFS			
Prim. & Sec. ON/OFF Differential	dIFF			
Setpoint Upper Limit	SPUL		Current Setpoint to Range max	R/max
Setpoint Lower limit	SPLL		Range min to Current Setpoint	R/min
Primary Output Power Limit	OPUL		0% to 100% of full power	100
Output 1 Cycle Time	CT1		0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256 or 512 secs.	32
Output 2 Cycle Time	CT2			
Output 3 Cycle Time	CT3			
High Alarm 1 value	PHR1		Range Minimum to Range Maximum	R/max
Low Alarm 1 value	PLR1			R/min
Deviation Alarm 1 Value	dRAL1		±Span from SP in display units	5
Band Alarm 1 value	bRAL1		1 LSD to span from setpoint	5
Alarm 1 Hysteresis	AHY1		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	dRAL2		±Span from SP in display units	5
Band Alarm 2 value	bRAL2		1 LSD to span from setpoint	5
Alarm 2 Hysteresis	AHY2		1 LSD to full span in display units	1
Loop Alarm Time	LARt		1 LSD to full span in display units	99.59
Auto Pre-tune	APt			
Auto/manual Control selection	PaEn		dISA (disabled) or EnRb (enabled)	dISA
Setpoint Select shown in Operator Mode	SEEn			
Setpoint ramp adjustment shown in Operator Mode	SPr			
SP Ramp Rate Value	rP			
Setpoint Value	SP		Scale range upper to lower limits. (when dual or remote setpoint options are used, SP is replaced by SP1 & SP2 or LSP - or - before the legend indicates the currently active SP)	Scale Range Minimum
Local Setpoint Value	LSP			
Setpoint 1 Value	SP1			
Setpoint 2 Value	SP2			
Setup Lock Code	SLoc			

#### 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. Indication remains OFF if automatic tuning cannot be used at this time*	OFF
Self-Tune	Stun		
Tune Lock	tLoc	0 to 9999	0

\* Note: Automatic tuning will not engage if either proportional band = 0. Also, Pre-tune will not engage if setpoint is ramping, or the PV is less than 5% of input span from the setpoint.

#### 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	In_1	Un_1	Universal input
Option 1 module type fitted	OPn1	nonE	No option fitted
		rLY	Relay output
		SSr	SSR drive output
		tr_1	Triac output
Option 2 module type fitted	OPn2	L in	Linear DC voltage / current output
		nonE	No option fitted
		rLY	Relay output
Option 3 module type fitted	OPn3	SSr	SSR drive output
		L in	Linear DC voltage / current output
		dc24	Transmitter power supply
Auxiliary Option A module type fitted	OPnA	nonE	No option fitted
		r4B5	RS485 communications
		dIG_1	Digital Input*
		rSP_1	Remote Setpoint Input (basic)*
Auxiliary Option B module type fitted	OPnB	nonE	No option fitted
		rSP_1	Remote Setpoint Input (full) and Digital Input 2*
Firmware type	FLW		Value displayed is firmware type number
Firmware issue	ISS		Value displayed is firmware issue number
Product Revision Level	PrL		Value displayed is Product Revision level
Date of manufacture	dDmY		Manufacturing date code (mmyy)
Serial number 1	Sn1		First four digits of serial number
Serial number 2	Sn2		Middle four digits of serial number
Serial number 3	Sn3		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 signal or its wiring. **Caution: Do not continue with the process until the issue is resolved.**

Parameter	Upper Display	Lower Display	Description
Instrument parameters are in default conditions	GoTo	ConF	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	OPEN	Normal	Break detected in process variable input sensor or wiring
RSP Over Range	[HH]**	Normal	RSP input over-range
RSP Under Range	[LL]**	Normal	RSP input under-range
RSP Break	OPEN**	Normal	Break detected in RSP input signal
Option 1 Error	Err	OPn1	Option 1 module fault
Option 2 Error		OPn2	Option 2 module fault
Option 3 Error		OPn3	Option 3 module fault
Option A Error		OPnA	Option A module fault or RSP 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 dISP 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
SP Value	SP	1, 3, 4, 5 & 6 if digital input is not dIS1 and RSP not fitted	Target value of SP. Adjustable except in Strategy 6
SP1 Value	SP1	Digital input = dIS1. lit if active SP = SP1	Target value of SP1. Adjustable except in Strategy 6
SP2 Value	SP2	Digital input = dIS1. lit if active SP = SP2	Target value of SP2. Adjustable except in Strategy 6
Local SP Value	LSP	RSP fitted. - or - lit if the active SP = LSP	Target value of local setpoint. Adjustable except in Strategy 6
Remote SP Value	rSP	RSP fitted. - or - lit if the active SP = rSP	Target value of remote setpoint. Read only
dIG_1, LSP or rSP	SPS	RSP is fitted, digital input is not dIS1 and SSEn is enabled in Setup mode	Selects local/remote active setpoint. LSP = local SP, rSP = remote SP. dIG_1 = selection via digital input (if configured). Note: selecting LSP or rSP will override digital input, active SP indication changes to - Adjustable except in Strategy 6
Actual SP Value	SPrP	rP is not blank	Actual (ramping) value of selected SP. Read only
Ramp Rate	rP	SPr enabled in Setup mode	SP ramping rate, in units per hour. Adjustable except in Strategy 6
Active Alarm Status	ALSt	When one or more alarms are active. ALM indicator will also flash	Alarm 2 active Alarm 1 active Loop Alarm active

#### Manual Control

If PaEn is set to EnRb in Setup mode, manual control can be selected/de-selected by pressing the key in Operator mode, or by changing the status of a digital input if dIG\_1 or dIG\_2 have been configured for dRS in Configuration mode. While in Manual Control mode, the indicator will flash and the lower display will show Pxxx (where xxx is the current manual power level). Switching to/from manual mode is via Bumpless Transfer. Press or to set the required output power. **Caution: Manual power level is not restricted by the OPUL power limit.**

#### 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. Control outputs turn off.  
 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.

##### REMOTE SETPOINT INPUT

Accuracy: ±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. 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 at 120/240VAC.  
 Lifetime: >500,000 operations at rated voltage/current.  
 Isolation: Basic Isolation from universal input and SSR 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 280Vrms (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

Types / Ranges: 0 to 20mA, 4 to 20mA, 0 to 5V, 0 to 10V or 2 to 10V  
 Load Resistance: Current Output 500Ω max, Voltage Output 500Ω min.  
 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: 20 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.  
 Protocols: Selectable between Modbus and West ASCII.  
 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.  
 Altitude: <2000m  
 Supply Voltage and Power: 100 to 240VAC ±10%, 50/60Hz, 7.5VA (for mains powered versions), or 20 to 48VDC 50/60Hz 7.5VA or 22 to 65VDC 5W (for low voltage versions).

##### ENVIRONMENTAL

Standards: CE, UL, ULC, CSA  
 EMI: Complies with EN61326 (Susceptibility & Emissions).  
 Safety Considerations: Complies with EN61010-1, UL61010-1 & CSA 22.2 No 1010.1 92  
 Pollution Degree 2, Installation Category II.  
 Panel Sealing: Front to IP66 when correctly mounted – refer to section 1. Rear of panel to IP20.

##### PHYSICAL

Front Bezel Size: 1/16 Din = 48 x 48mm, 1/8 Din = 96 x 48mm, 1/4 Din = 96 x 96mm.  
 Depth Behind Panel: 1/16 Din = 110mm, 1/8 Din = 100mm.  
 Weight: 0.21kg maximum.

##### SUPPLEMENTARY INFORMATION FOR CSA

-Compliance shall not be impaired when fitted to the final installation.  
 -Designed to offer a minimum of Basic Insulation only.  
 -The body responsible for the installation is to ensure that supplementary insulation suitable for Installation Category II is achieved when fully installed.  
 -To avoid possible hazards, accessible conductive parts of the final installation should be protectively earthed in accordance with EN6010 for Class 1 Equipment.  
 -Output wiring should be within a Protectively Earthed cabinet.  
 -Sensor sheaths should be bonded to protective earth or not be accessible.  
 -Live parts should not be accessible without the use of a tool.  
 -When fitted to the final installation, an IEC/CSA APPROVED disconnecting device should be used to disconnect both LINE and NEUTRAL conductors simultaneously. Do not to position the equipment so that it is difficult to operate the disconnecting device.