

1/16 - 1/8 - 1/4 DIN PROCESS CONTROLLERS CONCISE PRODUCT MANUAL (59300-11)

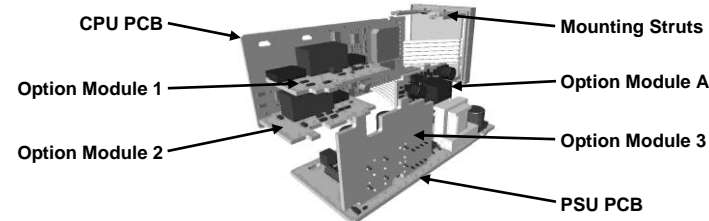


CAUTION: Installation should be only performed by technically competent personnel. It is the responsibility of the installing engineer to ensure that the configuration is safe. Local regulations regarding electrical installation & safety must be observed - e.g. US National Electrical Code (NEC) and/or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

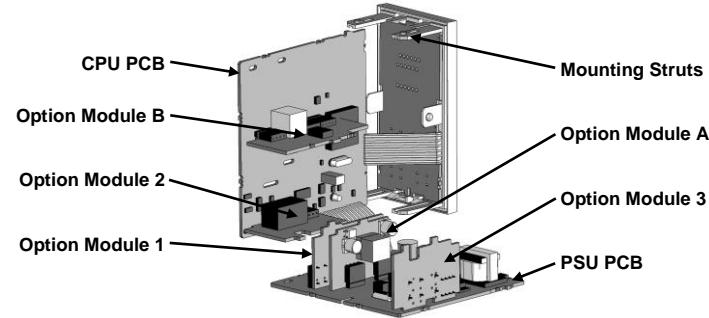
1. INSTALLATION

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

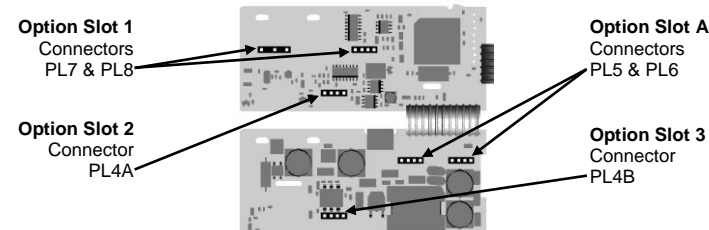


To access modules 1, A or B, first detach the PSU and CPU boards from the front by lifting first the upper, and then lower mounting struts. Gently separate the boards.

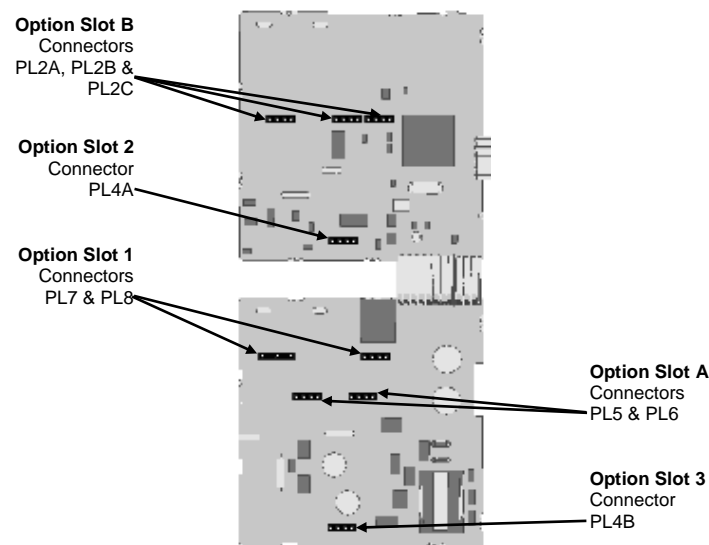
- Plug the required option modules into the correct connectors, as shown below.
- Locate the module tongues in the corresponding slot on the opposite board.
- Hold the main boards together while relocating back on the mounting struts.
- Replace the instrument by aligning the CPU and PSU boards with their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

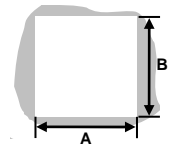


Panel-Mounting

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

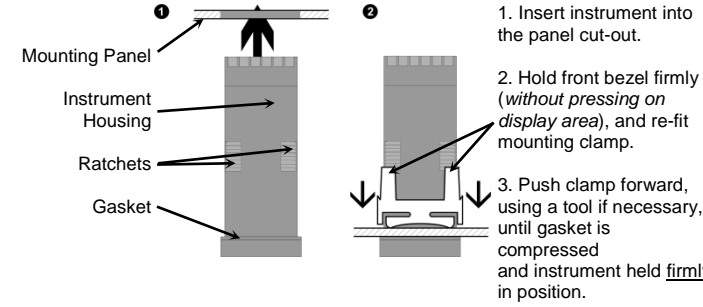
Cut-Out Dim A
1/16 & 1/8 Din = 45mm
1/4 Din = 92mm

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 & NEMA 4X seal against dust and moisture, ensure gasket is well compressed against the panel, with the 4 tongues located in the same ratchet slot.

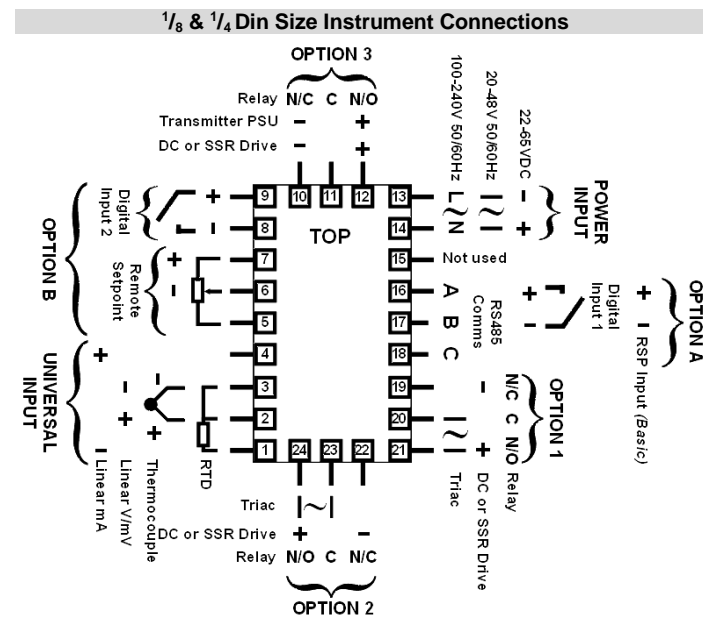
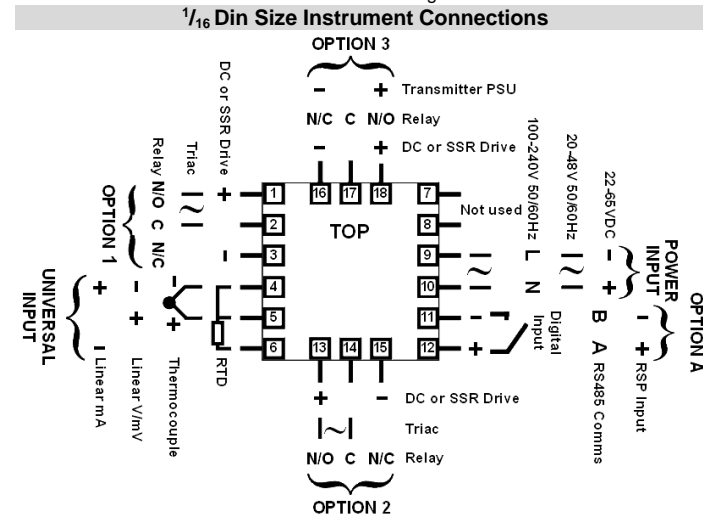
Rear Terminal Wiring

USE COPPER CONDUCTORS (EXCEPT FOR T/C INPUT). CABLE RATING 80°C MIN
Single Strand wire gauge: Max 1.2mm (18SWG)

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



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 `Go to 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 - SLCT

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

First select Configuration mode from Select mode (refer to section 2). Press `GO` to scroll through the parameters, then press `DEL` or `GO` to set the required value. Press `GO` to accept the change, otherwise parameter will revert to previous value. To exit from Configuration mode, hold down `GO` and press `DEL`, 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	
Code	Input Type & Range	Code	Input Type & Range	Code	Input Type & Range
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	PtL	Pt100: -128.8 - 537.7 °C
JF	J: -328 - 2192 °F	rF	R: 32 - 3198 °F	PtL	Pt100: -199.9 - 999.9 °F
JL	J: -128.8 - 537.7 °C	SL	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
Hc	K: -128.8 - 537.7 °C	tC	T: -128.8 - 400.0 °C	0.5	0 - 5 V DC
Hf	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	duRL	Primary & Secondary (e.g. heat & cool)	SnGL
		rEu	Reverse Acting	rEu
		d ir	Direct Acting	rEu
Alarm 1Type	ALA 1	P_H 1	Process High Alarm	P_H 1
		P_Lo	Process Low Alarm	P_H 1
		dE	Deviation Alarm	P_H 1
		bRnd	Band Alarm	P_H 1
		nonE	No alarm	P_H 1
High Alarm 1 value*	PhA 1		Range Minimum to Range Maximum in display units	Range Max
Low Alarm 1 value*	PLA 1		Range Minimum to Range Maximum in display units	Range Min
Band Alarm 1 value*	bAL 1		1 LSD to span from setpoint in display units	5
Dev. Alarm 1 value*	dAL 1		+/- Span from setpoint in display units	5
Alarm 1 Hysteresis*	AHY 1		1 LSD to full span in display units	1
Alarm 2 Type*	ALA 2		Same options as Alarm 1	P_Lo
High Alarm 2 value*	PhA 2		Same options as Alarm 1	Range Max
Low Alarm 2 value*	PLA 2		Same options as Alarm 1	Range Min
Band Alarm 2 value*	bAL 2		Same options as Alarm 1	5

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Dev. Alarm 2 Value*	dAL 2		Same options as Alarm 1	5
Alarm 2 Hysteresis*	AHY 2		Same options as Alarm 1	1
Loop Alarm	LAEn		d iSA (disabled) or EnALb (enabled)	d iSA
Loop Alarm Time*	LAEt		1 sec to 99 mins. 59secs	99.59
Alarm Inhibit	Inh		nonE No alarms Inhibited	nonE
		ALA 1	Alarm 1 inhibited	nonE
		ALA 2	Alarm 2 inhibited	nonE
		both	Alarm 1 and alarm 2 inhibited	nonE
Output 1 Usage	USE 1		Pr i Primary Power	Pr i
		SEc	Secondary Power	Pr i
		A 1_d	Alarm 1, Direct	Pr i
		A 1_r	Alarm 1, Reverse	Pr i
		A 2_d	Alarm 2, Direct	Pr i
		A 2_r	Alarm 2, Reverse	Pr i
		LP_d	Loop Alarm, Direct	Pr i
		LP_r	Loop Alarm, Reverse	Pr i
		Dr_d	Logical Alarm 1 OR 2, Direct	Pr i
		Dr_r	Logical Alarm 1 OR 2, Reverse	Pr i
		Ad_d	Logical Alarm 1 AND 2, Direct	Pr i
		Ad_r	Logical Alarm 1 AND 2, Reverse	Pr i
		rEtS	Retransmit SP Output	Pr i
		rEtP	Retransmit PV Output	Pr i
Linear Output 1 Range	tYP 1		0 to 5 V DC output	0.10
		0.10	0 to 10 V DC output	0.10
		0.20	0 to 20 mA DC output	0.10
		4.20	4 to 20 mA DC output	0.10
Retransmit Output 1 Scale maximum	ro 1H		-1999 to 9999 (display value at which output will be maximum)	Range max
Retransmit Output 1 Scale minimum	ro 1L		-1999 to 9999 (display value at which output will be minimum)	Range min
Output 2 Usage	USE 2		Same options as Output 1	Sec or AL2
Linear Output 2 Range	tYP 2		Same options as Output 1	0.10
Retransmit Output 2 Scale maximum	ro 2H		-1999 to 9999 (display value at which output will be maximum)	Range max
Retransmit Output 2 Scale minimum	ro 2L		-1999 to 9999 (display value at which output will be minimum)	Range min
Output 3 Usage	USE 3		Same options as Output 1	A 1_d
Linear Output 3 Range	tYP 3		Same options as Output 1	0.10
Retransmit Output 3 Scale maximum	ro 3H		-1999 to 9999 (display value at which output will be maximum)	Range max
Retransmit Output 3 Scale minimum	ro 3L		-1999 to 9999 (display value at which output will be minimum)	Range min
Display Strategy	d iSP		1, 2, 3, 4, 5 or 6 (refer to section 8)	1
Serial Communications Protocol	Prot		ASC 1 ASCII	Prot
		Parbn	Modbus with no parity	Prot
		ParbE	Modbus with Even Parity	Prot
		Parbo	Modbus with Odd Parity	Prot
Serial Communications Bit Rate	bAud		1.2 1.2 kbps	4.8
		2.4	2.4 kbps	4.8
		4.8	4.8 kbps	4.8
		9.6	9.6 kbps	4.8
		19.2	19.2 kbps	4.8
Comms Address	Addr		1 to 255 (Modbus), 1 to 99 (ASCII)	1
Comms Write	CoEn		r_wJ Read/Write	r_wJ
		r_D	Read only	r_wJ
Digital Input 1 Usage	d iG 1		d iS 1 Setpoint 1 / Setpoint 2 select*	d iS 1
		d iAS	Automatic / Manual select	d iS 1
Digital Input 2 Usage	d iG 2		d iS 1 Setpoint 1 / Setpoint 2 select*	d iS 1
		d iAS	Automatic / Manual select	d iS 1
		d irS	Remote / Local setpoint select	d iS 1

Note: d iG 2 has priority over d iG 1 if both are configured for the same usage. If d iG 1 or d iG 2 = d iS 1 the remote setpoint input is disabled.

Continued on next page...

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Remote Setpoint 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	
		Pot	Potentiometer (2KΩ minimum)	
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 - 5EtP

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 solid while in Setup mode. Press \leftarrow to scroll through the parameters, then press \uparrow or \downarrow to set the required value.

To exit from Setup mode, hold down \leftarrow and press \uparrow 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 _{iL}		OFF or 0.5 to 100.0 secs	2.0
Process Variable Offset	OFFS		±Span of controller	0
Primary Power	PP _L		Current % power levels (read only)	N/A
Secondary Power	SP _L			
Primary Proportional Band	Pb _P		0.0% (ON/OFF) and 0.5% to 99.9% of input span	10.0
Secondary Proportional Band	Pb _S			
Automatic Reset (Integral Time)	AR _S		1 sec to 99 mins 59 secs and OFF (blank)	5.00
Rate (Derivative Time)	rAR _E		00 secs (OFF) to 99 mins 59 secs	1.15
Overlap/Deadband	OL		-20 to +20% of Primary and Secondary Proportional Band	0
Manual Reset (Bias)	b _i AS		0% (-100% if dual control) to 100%	25
Primary ON/OFF Differential	d _i FP		0.1% to 10.0% of input span centered about the setpoint.	0.5
Secondary ON/OFF Diff.	d _i FS		(Entered as a percentage of span)	
Prim. & Sec. ON/OFF Differential	d _i FF			
Setpoint Upper Limit	SP _{UL}		Current Setpoint to Range max	R/max
Setpoint Lower limit	SPL _L		Range min to Current Setpoint	R/min
Primary Output Power Limit	OP _{UL}		0% to 100% of full power	100
Output 1 Cycle Time	CT ₁		0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256 or 512 secs.	32
Output 2 Cycle Time	CT ₂			
Output 3 Cycle Time	CT ₃			
High Alarm 1 value	PhA ₁		Range Minimum to Range Maximum	R/max
Low Alarm 1 value	PLA ₁			R/min
Deviation Alarm 1 Value	dAL ₁		±Span from SP in display units	5
Band Alarm 1 value	bAL ₁		1 LSD to span from setpoint	5
Alarm 1 Hysteresis	AHY ₁		1 LSD to full span in display units	1
High Alarm 2 value	PhA ₂		Range Minimum to Range Maximum	R/max
Low Alarm 2 value	PLA ₂			R/min
Deviation Alarm 2 Value	dAL ₂		±Span from SP in display units	5
Band Alarm 2 value	bAL ₂		1 LSD to span from setpoint	5
Alarm 2 Hysteresis	AHY ₂		1 LSD to full span in display units	1
Loop Alarm Time	LAR _t		1 LSD to full span in display units	99.59
Auto Pre-tune	AP _t			
Auto/manual Control selection	PO _{En}			
Setpoint Select shown in Operator Mode	SSE _n			
Setpoint ramp adjustment shown in Operator Mode	SP _r			
SP Ramp Rate Value	r _P		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 SP1 & SP2 or LSP)	Scale Range Minimum
Local Setpoint Value	LSP			
Setpoint 1 Value	SP1			
Setpoint 2 Value	SP2			
Setup Lock Code	S _{Loc}		0 to 9999	10

5. AUTOMATIC TUNING MODE - Atun

First select Automatic tuning mode from Select mode (refer to section 2). Press \leftarrow to scroll through the modes, then press \uparrow or \downarrow to set the required value. To exit from Automatic tuning mode, hold down \leftarrow and press \uparrow to return to Select mode. Pre-tune is a single-shot routine and is thus self-disengaging when complete. If AP_t in Setup mode = EnAb, 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. Pre-tune LED flashes and Self-tune LED is solid.

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 - info

First select Product information mode from Select mode (refer to section 2). Press \leftarrow to view each parameter. To exit from Product Information mode, hold down \leftarrow and press \uparrow 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	OP _{n1}	nonE	No option fitted
		rLY	Relay output
		SSr	SSR drive output
Option 2 module type fitted	OP _{n2}	tr ₁	Triac output
		L _{in}	Linear DC voltage / current output
Option 3 module type fitted	OP _{n3}	nonE	No option fitted
		rLY	Relay output
		SSr	SSR drive output
		L _{in}	Linear DC voltage / current output
		dc24	Transmitter power supply
Auxiliary Option A module type fitted	OP _{nA}	nonE	No option fitted
		r485	RS485 communications
		d _i 1	Digital Input*
		rSP ₁	Remote Setpoint Input (basic)*
Auxiliary Option B module type fitted	OP _{nB}	nonE	No option fitted
		rSP ₁	Remote Setpoint Input (full) and Digital Input 2*
Firmware type	FLUJ		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	d0r _n		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 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	Co _{to}	Co _{nF}	Configuration & Setup required. This screen is seen at first turn on, or if hardware configuration has been changed. Press \leftarrow to enter the Configuration Mode, next press \uparrow or \downarrow to enter the unlock code number, then press \leftarrow to proceed
Input Over Range	[HH]	Normal	Process variable input > 5% over-range, or wrong sensor type.
Input Under Range	[LL]	Normal	Process variable input > 5% under-range, or wrong sensor type.
Input Sensor Break	OPEN	Normal	Break detected in process variable input sensor, wiring, or wrong sensor type. The SP goes to 0.
RSP Over Range	Normal	[HH]**	RSP input over-range
RSP Under Range	Normal	[LL]**	RSP input under-range
RSP Break	Normal	OPEN**	Break detected in RSP input signal
Option 1 Error	Err	OP _{n1}	Option 1 module fault
Option 2 Error		OP _{n2}	Option 2 module fault
Option 3 Error		OP _{n3}	Option 3 module fault
Option A Error		OP _{nA}	Option A module fault or RSP in both A & B
Option B Error		OP _{nB}	Option B module fault

8. OPERATOR MODE - OP_{tr}

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 \leftarrow to scroll through the parameters, then press \uparrow or \downarrow to set the required value.

Note: All Operator Mode parameters in Display strategy 6 are read only (see d_iSP 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 d _i 1 and RSP not fitted	Target value of SP. Adjustable except in Strategy 6
SP1 Value	SP1	Digital input = d _i 1. lit if active SP = SP1	Target value of SP1. Adjustable except in Strategy 6
SP2 Value	SP2	Digital input = d _i 1. lit if active SP = SP2	Target value of SP2. Adjustable except in Strategy 6
Local SP Value	LSP	RSP fitted. lit if the active SP = LSP	Target value of local setpoint. Adjustable except in Strategy 6
Remote SP Value	rSP	lit if the active SP = rSP	Target value of remote setpoint. Read only
d _i 1, LSP or rSP	SPS	RSP is fitted, digital input is not d _i 1 and SSE _n is enabled in Setup mode	Selects local/remote active setpoint. LSP = local SP, rSP = remote SP. d _i 1 = selection via digital input (if configured). Note: selecting LSP or rSP will override digital input, active SP indication changes to lit. Adjustable except in Strategy 6
Actual SP Value	SP _r P	r _P is not blank	Actual (ramping) value of selected SP. Read only
Ramp Rate	r _P	SP _r 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 PO_{En} is set to EnAb in Setup mode, manual control can be selected/de-selected by pressing the \leftarrow key in Operator mode, or by changing the status of a digital input if d_i1 or d_i2 have been configured for d_iAS in Configuration mode.

While in Manual Control mode, the MAN indicator will flash and the lower display will show P_{xxx} (where xxx is the current manual power level). Switching to/from manual mode is via Bumpless Transfer. Press \uparrow or \downarrow to set the required output power.

Caution: Manual power level is not restricted by the OP_{UL} power limit.

9. SERIAL COMMUNICATIONS

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

Note: you cannot connect to the configuration port & RS485 at the same time

10. SPECIFICATIONS

UNIVERSAL INPUT

Thermocouple Calibration:	±0.1% of full range, ±1LSD (±1°C for Thermocouple CJC).
PT100 Calibration:	±0.1% of full range, ±1LSD. BS1904 & DIN43760 (0.00385Ω/°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 (100 device load)

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. (~20mA) 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.

You cannot connect both configuration port & RS485 port at the same time.

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, cUL & CSA EMI: Complies with EN61326-1:2013. Safety Considerations: Complies with UL61010-1 Edition 3, EN61010-1 Version 2010 & CSA 22.2 No 1010.192. Pollution Degree 2, Installation Category II. Panel Sealing: Front to IP66 & NEMA 4X when correctly mounted - Refer to section 1

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 & 1/4 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 EN61010 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 position the equipment so that it is difficult to operate the disconnecting device.