1/8-DIN DUAL COLOUR DISPLAY DC PROCESS INDICATOR CONCISE PRODUCT MANUAL (59229-4)

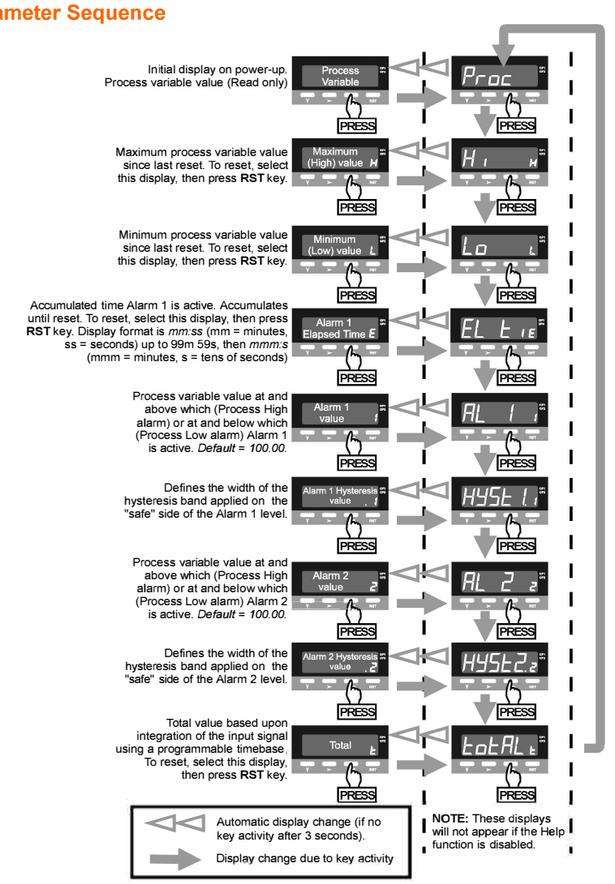
OPERATING MODE

NOTE: Set all Configuration Mode and Program Mode Parameters before starting normal operations.

Front Panel

Key/Display/Indicator	Function
Down key (⌄)	In Edit Mode, decrements the flashing digit in the Primary Display.
Scroll key (➤)	Puts Indicator into Edit Mode; in Edit Mode, selects digit to be altered (selected digit is flashing) in Primary Display. Wrap-around occurs from right-most digit to left-most digit.
Program Key (**PGM**)	Selects parameter to be viewed/edited. In Edit Mode, confirms changed parameter value.
Reset key (**RST**)	If the process variable is displayed, resets the latched Alarm 1. If the Maximum (High) Value, Minimum (Low) Value or Alarm 1 Elapsed Time is displayed, resets the displayed parameter.
Down (⌄) and Scroll (➤) keys	If pressed simultaneously in Edit Mode, will abort the Edit operation and will restore the parameter to its initial value.
Primary Display	Normally displays the process variable value. Displays other Operation Mode parameters when the Program (**PGM**) key is used. If the Help Facility is enabled (see Subsection), this display shows the parameter description for three seconds before displaying the parameter value.
Secondary Display	Shows a single-character identifier for the parameter value being displayed (blank for process variable).
OP1 indicator	ON when Alarm 1 is active.
OP2 indicator	ON when Alarm 2 is active.

Parameter Sequence



Error/Fault Indication

OuEr — **Process Variable Over-Range**
Process variable is greater than the input maximum full scale value

UndEr — **Process Variable Under-Range**
Process variable is less than the input minimum full scale value

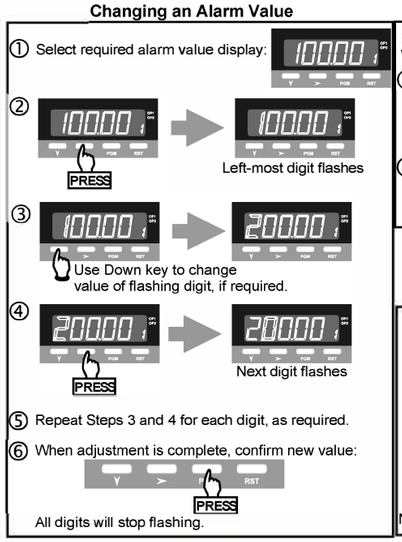
brEAK — **Sensor Break**
Unit has not received an input signal for two seconds.

NOTE: The process variable must be more than 5% over-range/under-range for the appropriate display to appear.

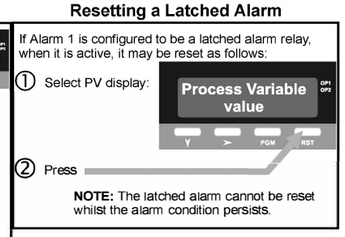
Alarms

⚠ NOTE: Alarm values cannot be changed if Alarm Lock is enabled (see PROGRAM MODE).

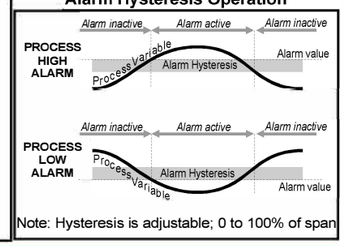
Changing an Alarm Value



Resetting a Latched Alarm



Alarm Hysteresis Operation



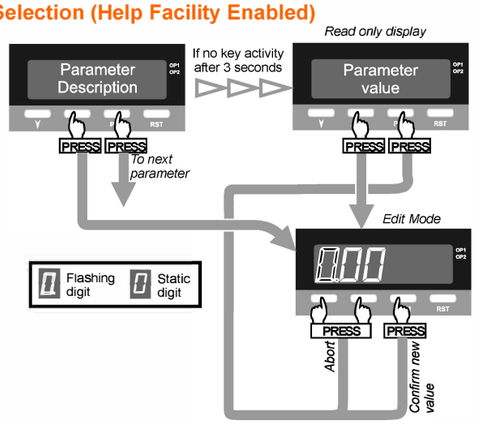
PROGRAM MODE

To enter Program Mode from Operator Mode:

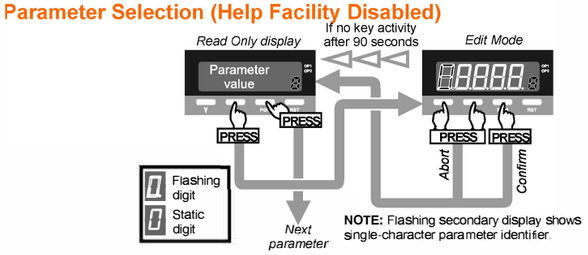
NOTE: In Program Mode, the secondary display flashes continuously and shows a single-character which identifies the displayed parameter.

HOLD DOWN FOR 3 SECONDS *Use the same key action to return to Operator Mode*

Parameter Selection (Help Facility Enabled)

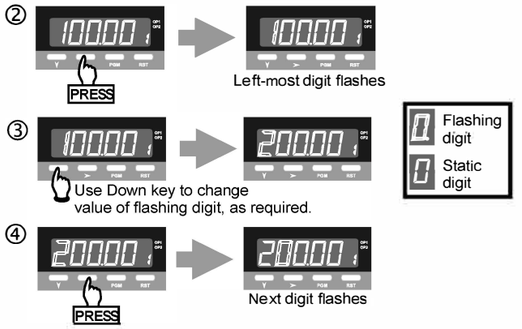


Parameter Selection (Help Facility Disabled)



Editing the Displayed Parameter (Edit Mode)

① Select required parameter display.



⑤ Repeat Steps 3 and 4 for each digit, as required.

⑥ Confirm new value or Abort Edit operation.

Program Mode Parameter Sequence

Primary Display	Identifier	Description	Adjustment Range
ScA 1	d	Scaling Point 1: The first sensor input value point (expressed as a percentage of input span) which is used to establish a curve for scaling sensor input values into engineering unit values.	0.00% to 100.00% of input span
dis 1	d	Display Point 1: The engineering unit value corresponding to Scaling Point 1.	-19999 to 99999
ScA 2	d	Scaling Point 2: The second sensor input value point (expressed as a percentage of input span) which is used to establish a curve for scaling sensor input values into engineering unit values.	0.00% to 100.00% of input span
dis 2	d	Display Point 2: The engineering unit value corresponding to Scaling Point 2.	-19999 to 99999
The scaling process can be continued up to a total of 10 Scaling Points and 10 Display Points, until a Scaling Point is given the value 100.0%; this will be the final Scaling Point/Display Point offered. NOTE: Unit only allows Scaling Point 1 ≤ Scaling Point 2 ≤ Scaling Point 3 etc.			
dEc P	d	Decimal Point Position: Defines the decimal point position for displayed process variable and alarm values.	0 to 0.0000
rt Lo	L	Re-transmission Scale Minimum: The lower end of the linear scale for the re-transmission output, expressed as the value corresponding to the minimum output signal. **SEE NOTE 1**	-19999 to 99999
rt Hi	H	Re-transmission Scale Maximum: The upper end of the linear scale for the re-transmission output, expressed as the value corresponding to the maximum output signal. **SEE NOTE 1**	-19999 to 99999
oFF	o	Process Variable Offset: Corrects a known offset of the input in order to display more accurately the process value.	-19999 to 99999
FiLt	F	Input Filter Time Constant: Filters the input over a user-defineable time period to minimise the effect on the process variable of any extraneous impulses	0.0 (OFF) to 100.0
Addr	A	Communications Address: The unique serial communications address of the instrument. **SEE NOTE 1**	1 to 99
bAud	b	Baud Rate: Serial communications speed **SEE NOTE 1**	1200, 2400, 4800 or 9600
Color	c	Display Colour Change: Defines the colour of the primary and secondary displays prior to/after the preset value (e.g. Alarm level) is reached.	rEd Red GrEEn Green Gn.rd Green to Red rd.Gn Red to Green
LocP	P	Alarm Lock: Enables/disables the changing of alarm values via the front panel.	En Enabled dis Disabled
HELP	h	Help Prompt: Determines whether the Primary Display shows the parameter description for 3 seconds before a parameter value is shown.	HLP Y Yes HLP n No

NOTE 1: Only appears if relevant option fitted and configured.

SERIAL COMMUNICATIONS

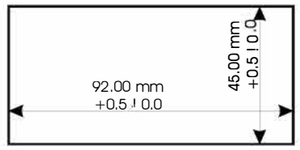
For information on the serial communications option, consult your supplier.

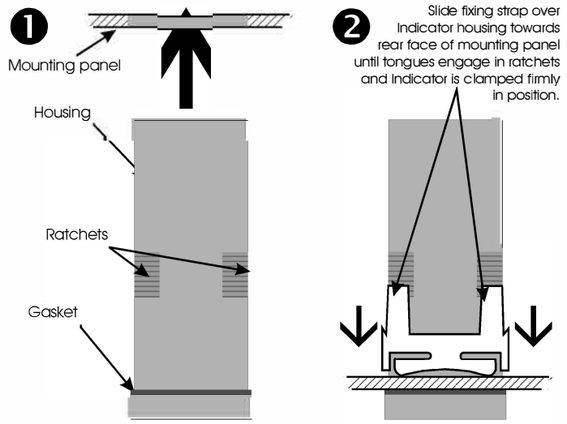
INSTALLATION

All installation work should be performed only by personnel who are technically competent and authorised to do so. Electrical Regulations regarding electrical installation & safety must be observed.

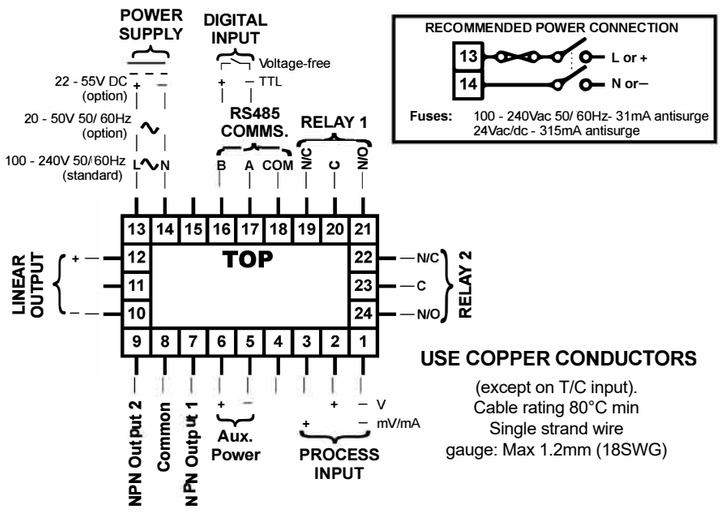
Panel-Mounting

The mounting panel must be rigid and may be up to 6mm (0.25 inches) thick. The cut-out required for the Indicator is shown on the right. Several Indicators may be mounted side-by-side in a multiple installation for which the cut-out width (for n Indicators) is (96n - 4) millimetres. The panel-mounting procedure is shown below.





Rear Terminals



USE COPPER CONDUCTORS

(except on T/C input).
Cable rating 80°C min
Single strand wire
gauge: Max 1.2mm (18SWG)

Relay 1: Standard; used as Alarm 1 output.

Relay 2: Optional; used as Alarm 2 output.

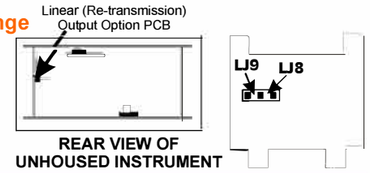
Linear output: Optional; provides a 10-bit re-transmission output (process variable).

Digital Input: Optional; used in either of two functions (see **CONFIGURATION MODE**): (a) Tare Facility, or (b) Security Facility. The terminals may be connected to (a) voltage-free contacts of an external switch, or (b) a TTL-compatible voltage. Operation is:

Voltage -free	TTL-compatible	Tare Facility	Security Facility
Contacts open	Signal >2.0V	Current process variable value used as new "zero" point to create an automatic offset.	Entry into Program Mode prohibited
Contacts closed	Signal <0.8V	No automatic offset applied.	Entry into Program Mode permitted

Linear (Re-transmitted) Output Range

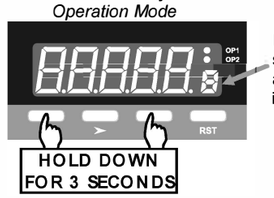
Range	Link Jumper Fitted
0 - 10V	LJ8
0 - 20mA	LJ9
0 - 5V	LJ8
4 - 20mA	LJ9



CONFIGURATION MODE

Entry/Exit

Indicator initially in Operation Mode



NOTE: In Configuration Mode, the secondary display flashes continuously and shows a single-character which identifies the displayed parameter.

Use the same key actions to return to Operation Mode.

Parameter Selection and Editing

As previously described (see **PROGRAM MODE**).

Configuration Mode Parameter Sequence

Primary Display	Identifier	Description	Adjustment Range
InPut	I	Input Range: Selects the range of the DC input.	2200 0 - 20mA 2300 4 - 20mA 2400 10 - 50mA 3200 0 - 5V 3300 1 - 5V 3400 0 - 10V 3500 2 - 10V 2900 ±100mV 3100 ±1V 3nnn ±10V
FrEq	F	Power Supply Frequency: applicable to DC-powered units only, this must be set to the mains (line) frequency for the site in order to ensure proper filtering of the input signal.	50 50Hz 60 60Hz
AL 1	1	Alarm 1 Type: defines the action of Alarm 1	P_Hi Process High P_Lo Process Low nonE No alarm
AL 2	2	Alarm 2 Type: defines the action of Alarm 2	P_Hi Process High P_Lo Process Low nonE No alarm
Out 1	3	Output 1 Usage: Determines how NPN Output 1 and relay Output 1 operate.	A1nd Alarm 1 non-latching, direct action A1nr Alarm 1 non-latching, reverse action A1Ld Alarm 1, latching direct action A1Lr Alarm 1, latching reverse action O12d Logical OR Alarms 1 & 2, direct action O12r Logical OR Alarms 1 & 2, reverse action
Out 2	4	Output 2 Usage: Determines how NPN Output 2 and relay Output 2 operate.	A2_d Alarm 2,direct action A2_r Alarm 2, reverse action O12d Logical OR Alarms 1 & 2, direct action O12r Logical OR Alarms 1 & 2, reverse action
rt En	R	Re-transmission (Linear) Output: selects the output range. See also **Selection of Linear (Re-transmission) Output Range** previously.	nonE None 0-5u 0 - 5V 1-5u 1 - 5V 0-10u 0 - 10V 2-10u 2 - 10V 0-20A 0 - 20mA 4-20A 4 - 20mA
OPtn	O	Option Selection: determines the option fitted and the function of that option	nonE None CoMMS Serial Communications SctY Digital Input - Security Facility tArE Digital Input - Tare Facility
tot	T	Totaliser Scale Factor: timebase used for the totalisation calculation. This should be the same time units as the timebase used for the engineering units in the display. For example, if the display is in grams/minute, set this parameter to minutes	SEc Seconds Min Minutes h- Hours

SPECIFICATION

DISPLAY

Type: Red/green, 7-segment LED, 5-digit primary display, 1-digit secondary display.
Height: 18mm (0.71in) primary display, 7mm (0.3in) secondary display.

SENSOR INPUT

Accuracy: Typically ±0.01% of span; ±0.05% max.
Sample Rate: Every 100mS.
Resolution: 14 bits.
Impedance: 20mA range:10Ω, 50mA range:1Ω ; V ranges: greater than 950KΩ
Sensor Break Detection: On 4 - 20mA, 10 - 50mA, 1 - 5V and 2 - 10V input ranges only; detected within two seconds. All alarms become active.

DIGITAL INPUT (OPTION)

Voltage-Free Operation: Max. Contact Resistance (Closure) = 50Ω
Min. Contact Resistance (Open) = 5000Ω
TTL-Compatible Operation: Max. Voltage for "0" = 0.8V; Min. Voltage for "0" = –0.6V
Min. Voltage for "1" = 2.0V; Max. Voltage for "1" = 24.0V

TRANSISTOR OUTPUTS

Type: Isolated NPN open collector. Output 1 tied to Alarm 1, Output 2 tied to Alarm 2.

RELAY 1 OUTPUT (STANDARD) AND RELAY 2 OUTPUT (OPTION)

Contact Type/Rating: Single pole double throw. 5A resistive @ 120Vac; 3A resistive @ 240Vac
Lifetime: >500,000 operations at rated voltage/current. Isolation - inherent.

AUXILIARY POWER SUPPLY

Output: 20V - 28V (24V nominal) into 910Ω minimum, short-circuit protected.

LINEAR (RE-TRANSMITTED PV) OUTPUT (OPTION)

Accuracy: ±0.5% max.
Resolution: 8 bits in 250mS (10 bits in 1 second typically).
Update Rate: 4/second approximately.
Load Impedance: mA ranges - 500Ω max. V ranges - 500Ω min.

OPERATING CONDITIONS FOR INDOOR USE

Ambient Temperature: 0°C to 55°C
(Operating): Ambient Temperature: –20°C to 80°C
(Storage): Relative Humidity: 20% - 95% non-condensing
Supply Voltage: 100 -240V AC 50/60Hz (standard) 7.5VA
20 - 50V AC (option) 7.5VA; 22 - 55Vdc (option) SW

ENVIRONMENTAL.

Approvals: CE, UL & cUL
EMC Immunity: EN61326-1:2013 Table 2
EMC Emission: EN61326-1:2013 Class A
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
Safety Considerations: UL61010-1 Edition 3 & EN61010 version 2010
fTo IP66
Front Panel Sealing:

PHYSICAL

Dimensions: Height - 48mm
Depth Width-- 96mm 100mm (behind panel)
Weight: 0.21kg max.

WARNING: This product can expose you to chemicals including arsenic, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov