# 1/8-DIN DUAL COLOUR DISPLAY DC PROCESS INDICATOR CONCISE PRODUCT MANUAL (59229-2)

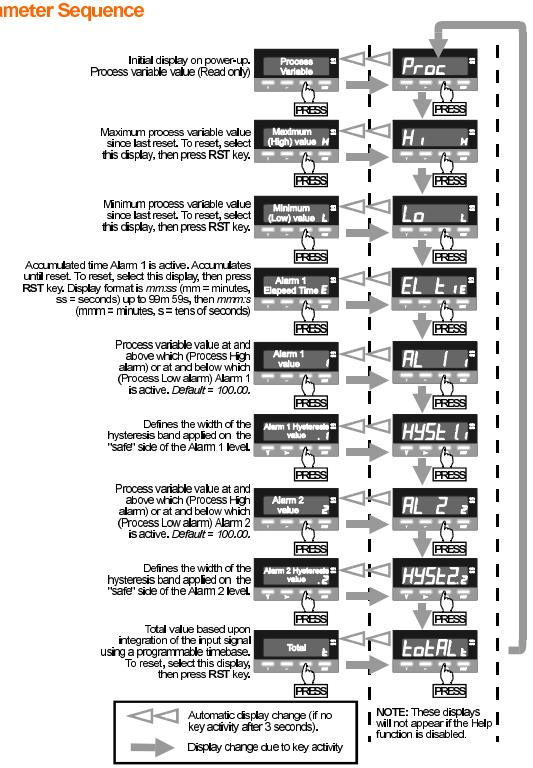
## OPERATING MODE

**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

**OvEr** — **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

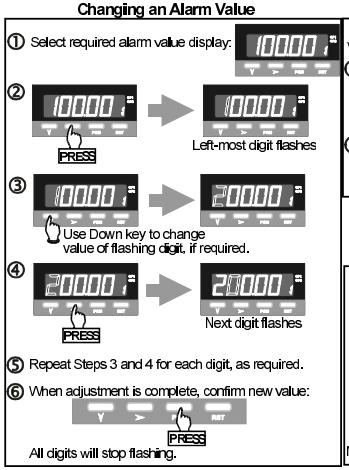
**brEAK** — **Sensor Break**: Unit has not received an input signal for two seconds.

**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

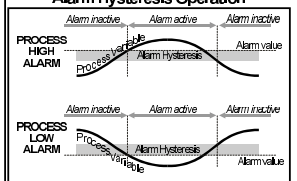
If Alarm 1 is configured to be a latched alarm relay, when it is active, it may be reset as follows:

① Select PV display: **Process Variable value**

② Press

**NOTE:** The latched alarm cannot be reset whilst the alarm condition persists.

#### Alarm Hysteresis Operation




Note: Hysteresis is adjustable; 0 to 100% of span

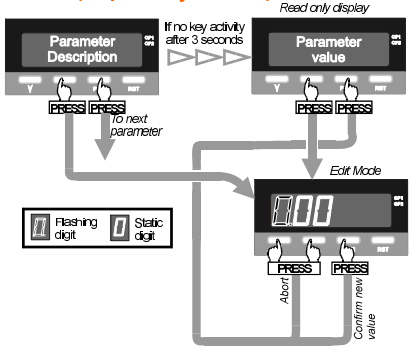
## PROGRAM MODE

To enter Program Mode from Operator Mode:

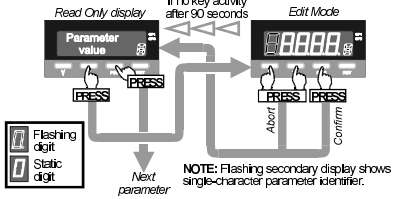
**NOTE:** In Program Mode, the secondary display flashes continuously and shows a single-character which identifies the displayed parameter.

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

### Parameter Selection (Help Facility Enabled)

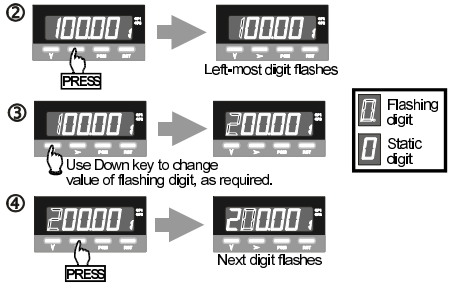



### Parameter Selection (Help Facility Disabled)




### 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 | 1 | 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 | 1 | Display Point 1: The engineering unit value corresponding to Scaling Point 1. | -19999 to 99999 |
| ScA 2 | 2 | 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 | 2 | 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 SEE NOTE 1 | 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. | -19999 to 99999 |
| rt Hi H SEE NOTE 1 | 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. | -19999 to 99999 |
| oFF O | 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 | 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 SEE NOTE 1 | A | Communications Address: The unique serial communications address of the instrument. | 1 to 99 |
| bAud b SEE NOTE 1 | b | Baud Rate: Serial communications speed | 1200, 2400, 4800 or 9600 |
| Color C | 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<br>GrEEn Green<br>Gn_rd Green to Red<br>rd_Gn Red to Green |
| LocK K | K | Alarm Lock: Enables/disables the changing of alarm values via the front panel. | En Enabled<br>diS Disabled |
| HELP h | h | Help Prompt: Determines whether the Primary Display shows the parameter description for 3 seconds before a parameter value is shown. | HLP Y Yes<br>HLP n No |

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

## SERIAL COMMUNICATIONS

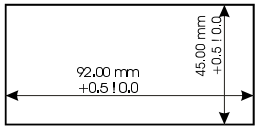
For information on the serial communications option, consult your supplier.

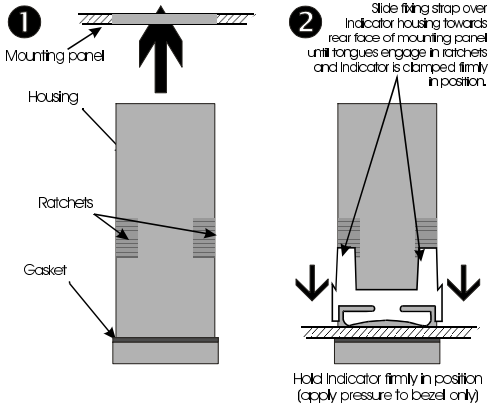
## INSTALLATION

⚠ 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.

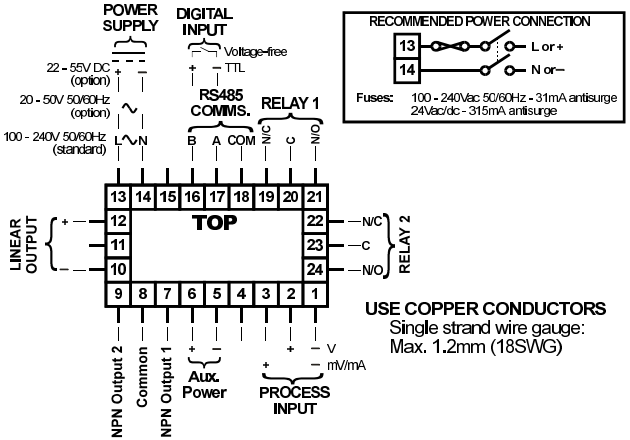
### Panel-Mounting

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







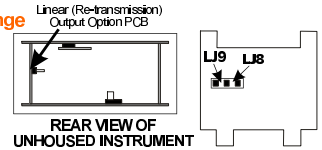
**USE COPPER CONDUCTORS**
Single strand wire gauge:
Max. 1.2mm (18SWG)

**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

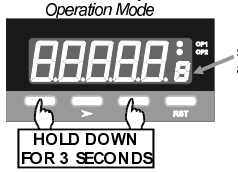
| Range | Link Jumper Fitted |
|---|---|
| 0 - 10V | LJ8 |
| 0 - 20mA | LJ9 |
| 0 - 5V | LJ8 |
| 4 - 20mA | LJ9 |




## 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<br>2300 4 - 20mA<br>2400 10 - 50mA<br>3200 0 - 5V<br>3300 1 - 5V<br>3400 0 - 10V<br>3500 2 - 10V<br>2900 ±100mV<br>3100 ±1V<br>3600 ±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<br>60 60Hz |
| AL 1 | 1 | Alarm 1 Type: defines the action of Alarm 1 | P_Hi Process High<br>P_Lo Process Low<br>nonE No alarm |
| AL 2 | 2 | Alarm 2 Type: defines the action of Alarm 2 | P_Hi Process High<br>P_Lo Process Low<br>nonE No alarm |
| Out 1 | o1 | Output 1 Usage: Determines how NPN Output 1 and relay Output 1 operate. | A Ind Alarm 1 non-latching, direct action<br>A Inr Alarm 1 non-latching, reverse action<br>A ILd Alarm 1, latching direct action<br>A ILr Alarm 1, latching reverse action<br>O 12d Logical OR Alarms 1 & 2, direct action<br>O 12r Logical OR Alarms 1 & 2, reverse action |
| Out 2 | o2 | Output 2 Usage: Determines how NPN Output 2 and relay Output 2 operate. | A2_d Alarm 2,direct action<br>A2_r Alarm 2, reverse action<br>O 12d Logical OR Alarms 1 & 2, direct action<br>O 12r Logical OR Alarms 1 & 2, reverse action |
| rt En | t | Re-transmission (Linear) Output: selects the output range. See also Selection of Linear (Re-transmission) Output Range previously. | nonE None<br>0-5u 0 - 5V<br>1-5u 1 - 5V<br>0-10u 0 - 10V<br>2-10u 2 - 10V<br>0-20A 0 - 20mA<br>4-20A 4 - 20mA |
| OPtn | o | Option Selection: determines the option fitted and the function of that option. | nonE None<br>CoMS Serial Communications<br>Sctu Digital Input - Security Facility<br>tArE Digital Input - Tare Facility |
| tot t | 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<br>MI in Minutes<br>hr 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 (Operating): 0°C to 55°C
Ambient Temperature (Storage): –20°C to 80°C
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) 5W

**ENVIRONMENTAL.**
Approvals: CE, UL, ULC
EMC: Certified to EN61326
NOTES:
1. For RF electromagnetic fields (10V/m 80% AM 1kHz), the reading accuracy may be impaired by up to –0.3% in the frequency band 87 to 109MHz.
2. For line-conducted disturbances induced by RF fields (10V 80% AM 1kHz), the product is self-recoverable in the frequency band 0.15 - 0.73MHz.
Safety Considerations: Complies with EN61010-1
Front Panel Sealing: To IP66

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