

FLOW TOTALISER



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FLOW TOTALISER

1.General Features

The Instrument is designed with latest state of art technology. It offers high accuracy and reliability. This next generation Microcontroller based instruments accepts 4-20 mA Input and shows the corresponding instant Flow, integration flow total in display window, input terminal provided in rear panel.

The measured informations (i.e process value) shown on first row of the LCD display and the Integration value is shown on second row of the LCD display. Four keys are provided on the front panel for programming purpose and to access the measured informations quickly and easily. The front panel is provided with antiglare feature for improved readability.

The Flow totaliser is very fast. It computes all the parameters and updates them in every one second.

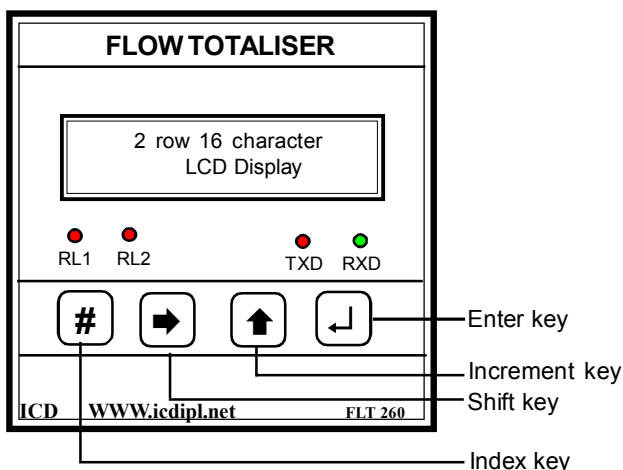
The Instrument is housed in an ABS plastic case enclosure of size 96(H) x 96(W) x 120(D) mm dimension and is suitable for flush panel mounting.

2. Front Panel & Terminal Details

2.1 Front Panel Details

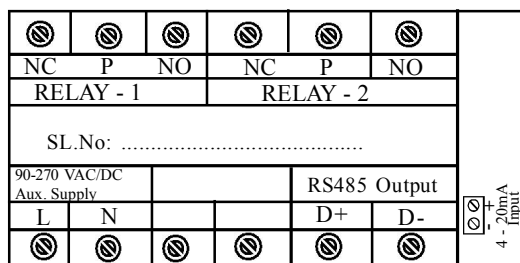
The front panel of Instrument has display window, 1x4 matrix keypad for programming & LED indications.

1. Display window houses 4 digit 0.5" 7 segment red LED type.
2. The 1 x 4 matrix keypad is designed for programming setting parameters.
3. 2 No's of 3mm LED's are provided to indicate RL1 & RL2 relay status.
4. 2 No's of 3 mm RED and Green LED's are provided to indicate communication Status.



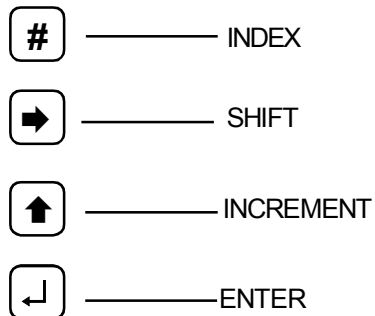
2.2 Terminal Details

Rear Panel consists of terminals for Auxiliary Supply, Input and Relay Outputs.



2.3. 1*4 Matrix Keypad Description

These key switches are provided in bottom side of front facia .
The four key switches are designated as



1.Index key (#)

The index (#) key operates in Program mode and in run mode . By pressing this key displays the configuration Item display pages.

2. Shift key

The shift (▶) key is used to select the digit one by one on pressing it. The selected digit is shown by flashing that digit.

3 .Increment key

The Increment (▲) key is used to Increment the selected digit. The Increment key Increments the digit from 0 to 9 and then wraps down once again.

4. Enter key (↵)

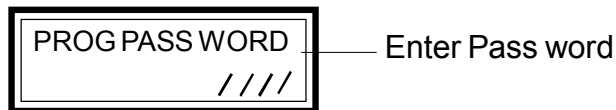
Once the required values are set in the configuration items, press the Enter (↵) key to store it in memory. If the change is accepted the display Indicates 'E' otherwise an error message is displayed as 'Err'.

3. Programming Instructions

The Flow totaliser is programmed for a particular installation. The various items that are to be programmed are given below.

1. New pass word (0000 - 9999)
2. Range set (0000 0.00 - 15000.00)
3. Setpoint -1 (0000.0-19999.9)
4. Setpoint - 2 (0000.0-19999.9)
5. LCD power Save Enabled/Disabled
4. Device Id set (000 -255) Programmable.
4. Cumulative Reset (Instant flow and Integration totaliser Reset)

The Flow totaliser is provided with pass word facility to prevent alteration of configuration items by unauthorised persons. The configuration items can be changed by following the procedure given below, With power applied to the meter hold in the **▶** and **▲** k e y s together for 3 seconds. The display indicates enter pass word.



The valid pass word set in the configuration item new pass word has to be entered by using shift (⇨), Incr (⬆), and Enter (↵) keys. (Refer changing the configuration items) After the valid pass word is entered the Digital meter enters into program mode by showing it in display.

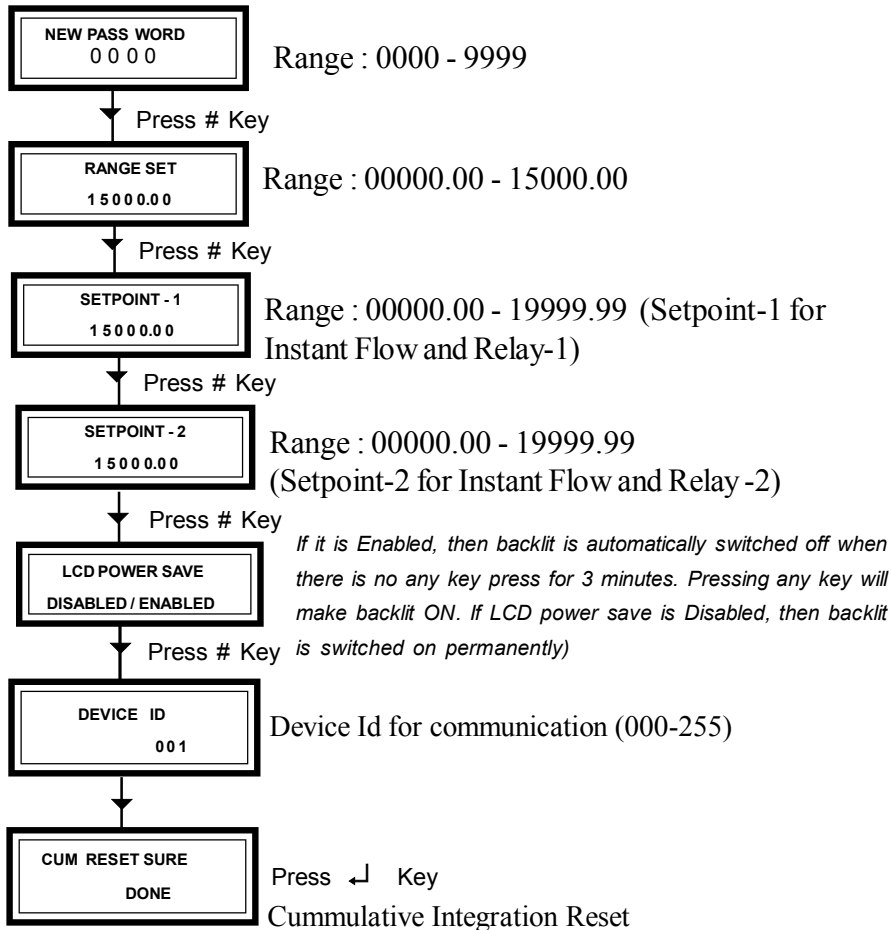


Special Note:

If the user enters the 'enter pass word' for the first time or if the user fails to remember the pass word entered in 'New pass word', the default pass word of '0386' can be entered.

In program mode, the configuration items can be selected by using Index (#) key. The heading displays are used to differentiate various configuration items. The heading displays for various configuration items are given below,

3.1 Program Mode Display Pages:



Again pressing Index key repeats the same process in cyclic manner. Press ▶ & ▲ keys together to quit program mode & return to run mode.

4. Normal Operating Mode Display Format

When power is applied to the meter, the starting message shows the version and model number for a while.

<p>FLOW TOTALISER ICD FLT 260 V 1.0</p>

After that it shows the Run mode page.

<p>6 0 0 0 FLOW 1 7 4 4 . 9 TOT</p>	<p>Instant Flow Integration Flow totaliser .</p>
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5. Functional Description:

When the input is given to the instrument it shows corresponding value according to 4-20mA input. The RL1 & RL2 gets energized according to the set points in program mode and also provided corresponding 4-20mA output.

RELAY - 1 Function:

The relay RL1 is switched on when the instant flow value reaches/ exceeds the set point 1. The LED RL1 & Relay is switched ON. when the flow comes below the set point (*ie. 5counts*) Relay and LED is OFF.

RELAY - 2 Function:

The relay RL2 is switched on when the instant flow value reaches/ exceeds the set point 2. The LED RL2 & Relay is switched ON. when the flow comes below the set point (*ie. 5counts*) Relay and LED is OFF.

5.1 Calculation for Flow Totaliser:

Example: Range Set: 6000

If input 20mA given, Expected instant flow 6000

ie Expd integration for 1 Hour (or) 60 min. = Inst. flow/60min.

	= 6000/60
1 min	=100 Totaliser
5 min	=100*5
	500 Total
60 min	= 60*100
	= 6000 Total

6. Communication Port Details

The **Flow totaliser** is provided with a optically Isolated **RS 485** communication Port. It is an optional Feature and has to be specified at the time of ordering. The communication protocol used is **MOD BUS - RTU** Type. Using the communication Port, the meters can be connected in multi drop network and datas can be collected in a centralised control room using any standard **SCADA** Software.

The communication settings are,

Protocol	:	MOD BUS RTU
Baudrate	:	9600
Data bit	:	un signed
Stop bit	:	1
Parity	:	None
Communicating mode	:	RTU / MODBUS
NO OF Elements	:	01

The address of the parameters are,

Processing value	:	40001
Total cumulative MSB	:	40002
Total cumulative LSB	:	40003

7. Technical Specification:

Type	: “ FLOW TOTALISER “
Input	: 4 - 20mA
Output	: Two Relays for each setpoint , Rs 485 communication
Auxillary Power supply	: 90-270 V AC,/DC+10%,50HZ
Operating Temperature	: Max 55°C

DISPLAY:

Display type	: 2 Row's * 16 character LCD display with backlit
Range setting	: 0 - 15000.00 Programmable (through keypads)

MEASUREMENT:

Accuracy	: $\pm 0.25\%$ OFS For Process Value $\pm 0.5\%$ of readings For Integration
Calibration	: Digital calibration through keypad

KEY FUNCTIONS:

Keypad	: 4 Keys namely index,shift, increment & enter used for program mode setting and run mode selection.
Program mode	: Range setting
Unauthorized person	: Provided through password facility
Entry protection	: EERAM setting storage

CASE & DIMENSIONS:

Box Dimension	: 96(H) x 96(W) x 120(D) mm
Mounting	: Panel
Enclosure	: ABS Plastics

8. Commissioning of “*FLOW TOTALISER*”

- ❖ Before fixing the unit into the panel Thoroughly read the operating manual, if queries arised contact ICD sales representative.
- ❖ Visualize the unit for any physical damage, which may be caused during transit.
- ❖ If severely damaged, unpack the instrument and contact ICD's factory or its representative.
- ❖ After physical inspection, complete the external wiring and switch ON the unit for preliminary check (if necessary).
- ❖ The display page shows the process .
- ❖ Program the required Setting parameters.
- ❖ After complete satisfaction, fix the instrument into the panel and complete the external wiring.

Excess voltage can damage the instrument ,
lesser voltage can cause improper functioning.