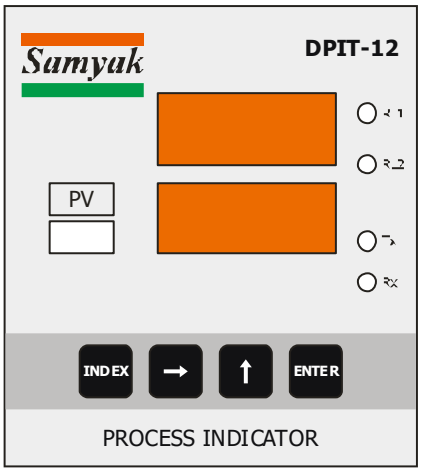
OPERATING MANUAL
FOR
PROCESS INDICATOR CONTROLLER
MODEL : DPIT-12



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INTRODUCTION:

This is a microcontroller based universal Process Indicator controller unit. It is highly versatile, accurate and different from the conventional indicators.

The set Parameters are stored in serial NVRAM. No battery back up is required.

***General Specifications of this unit are*:**

- This is a Microcontroller based unit.
- Power Supply: 230VAC from Terminals of unit
- Output Options:
  - ☐ Transmitter Power Supply: +24V DC +/- 5%, 50mA
- Indication: Four Digit Seven Segment Red LED
- Key board: Four keys membrane like
- Accuracy: 0.2% + +/- 1 digit
- Warm up time: 15 minutes
- Configuration Data are stored in serial NVRAM
- Mechanical data:

Mounting: Din Rail Mount

Dimension: 70mm (W) x 75mm (H) x 110mm (Depth)

SYSTEM DESCRIPTION:

With the help of the keypad and display, unit allows to set and modify various configuration parameters and calibration.

HARDWARE DESCRIPTION:

The unit consists of a CPU card, Relay card and KB/Display card.

The CPU and KB/Display card has necessary hardware for:

- Driving four digit multiplexed Display on CPU card.
- Watch dog circuit CPU card.
- RS232/RS485 circuit for serial on CPU card.
- Four key keypad interface on KB/Display card.
- DC regulated supply: +5V, +24V.

The CPU card is connected with KB/Display card and Relay card through connectors.

INSTALLATION GUIDE:

- Unpack the instrument from the packing box carefully.
- Mount the instrument in the panel.
- Refer the Connection details, which are given on the unit.
- Make sure that no wire is connected loosely to avoid generation of spark and RFI. Before connecting the mains, check the mains configuration on the unit.

OPERATING DETAILS:

The following paragraphs give detailed description of how to operate the unit. Before using the instrument, make sure to study and understand this section.

DISPLAY & KEYBOARD:

It displays Process variable/Flow.
Unit has 4 key membrane keypad organized as 4 x 1 matrix.
List of keys and their functions:

Keys	Function
Index	Enter into data entry/verification mode Select parameter
Enter	Save new data and Terminate Edit mode.
Digit Select (→)	Select next digit
Increment (↑)	Increment selected digit value

Normal Mode of Operation:

When ever mains is switched on to the unit,

It indicates Flow.

Flow = ((AdcData – Calzero_value)/(Calspan_value - Calzero_value)) *
Fullscale_value +Zero_value

EDIT MODE:

In this mode user can verify or modify various parameters. Entry into Edit mode is protected by Password.

Press ‘Index’ key to enter into edit mode. The display window will show ‘PASS’ for a moment and then it will start displaying ‘0000’ with flashing Left most digit .The unit is prompting for Password. Password is a four digit no. There are two different passwords.

Operator's Password: **0101/ 1234**

Enter any one of the above password using data entry keys. When 'Enter' key is pressed, the validity of Password is checked. If wrong password is entered the unit comes out of edit mode and displays engineering value.

Press 'Index' key again if you want to enter into edit mode.

If correct password is entered, then also the unit starts Indicating Engineering value of input. Now press 'Index' key, the display will show name of the parameter to be modified and its value after a moment.

Pressing the 'Index' key again will display next parameter. The various parameters that will appear on the display with successive depression of the 'Index' key are:

Parameter description	Display	Values
Password	PASS	1234 / 0101
Calibration Zero	CALZ	
Calibration Span	CALS	
Output Calibration ZERO	OUTZ	688 Counts
Output Calibration SPAN	OUTS	3459 Counts
Zero	ZERO	0000 to 9999
Full Scale	FS	0000 to 9999
Decimal Point	DP	0, 0.1,0.01
Unit No	U-NO	1 to 31

Following the above process, one can select any of the above listed parameters. First two parameters listed in the table (CALS & CALZ) after Password are displayed in engineer's Password mode only. We will discuss about the same in calibration Procedure.

When a parameter is selected, its name will be first displayed for a moment and then current value is displayed in the same field of display. The left most digit will start flashing.

Use Increment (Up arrow) key, if you want to modify the flashing digit.

Press increment key, flashing digit will increment up to 9 and rolls back to 0 when it reaches at 9. In case of the left most digit it scrolls between 0, 1, 2 and 3.

Once desired digit is set, press digit select key (Right arrow) to select next digit. The next selected digit will flash. Set it to desired value as per the above step.

Once all the four digits are set, press 'Enter' key. The parameter value will be modified as per new set value. Display will start indicating Input.
When in data entry/EDIT mode, if no key is pressed for 30 Seconds, the unit will terminate data entry mode automatically and start indicating Process value.
Press 'Index' key to go to next parameter. If 'Index' key is not pressed for more then 30 seconds, the unit will terminate 'Edit' mode automatically and start indicating Process value. To enter into 'Edit' mode, one has to enter Password again.

Note: For parameter **'CALZ'** and **'CALS',** the unit will not terminate 'Edit 'mode automatically. To terminate the Edit Mode, press **ENTER** key.

CURRENT OUTPUT CALIBRATION:

Operator's Password: **1234**

1) Connect Multi meter at output terminal. And edit the out zero **(OUTZ)** count such that current shows 4 ma. User has to edit and enter the value to see the change in the current.
2) Similarly after zero calibration for output edit the out span **(OUTS)** parameter to get 20ma current.
3) Set FS (full scale) for which you need 20 ma current that is full output.
4) For ex: If FS is set 200, then output will vary linearly from 4-20ma proportional to 0 – 200.

TERMINAL DETAILS: