

**DISPLAY UNIT  
(MW INDICATOR)**



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## **INDEX**

<b>1. General Features.....</b>	<b>3</b>
<b>2. Front Panel &amp; Terminal Details.....</b>	<b>4</b>
<b>3. 1*4 Matrix Keypad Description.....</b>	<b>5</b>
<b>4. Programming Instruction.....</b>	<b>6</b>
<b>4.1 Program Mode:.....</b>	<b>7</b>
<b>5. Function description</b>	
<b>5.1 Control Action.....</b>	<b>8</b>
<b>6. Calibration Procedure.....</b>	<b>9</b>
<b>7. Technical Specification.....</b>	<b>11</b>
<b>8. Commissioning of</b>	
<b>“Display unit.....</b>	<b>12</b>

## **DISPLAY UNIT(MW INDICATOR)**

### **1. General Features**

ICD display unit is designed with latest state of art technology. It offers high accuracy and reliability. This Microcontroller based instrument accepts 'mA' as input and shows corresponding output in display window.

The display parameters informations like setpoints (Low & high) ,Range (low& high) & delay .The display are shown on 4 digit 4 inch 7 segment Red LED display windows. The instrument houses 1x4 matrix key pad provided in front facia. It has 4 keys designated as index , shift, increment & enter which is used for programming purpose and to access the measured informations quickly and easily. The front face is provided with antiglare feature for improved readability.

The unit is provided with relay output namely RL1&RL2. The relays are energised according to the set points selected.The relays status indications are provided by 3mm Red LED's. The relay contacts are rated for 5A at 90-270V AC.

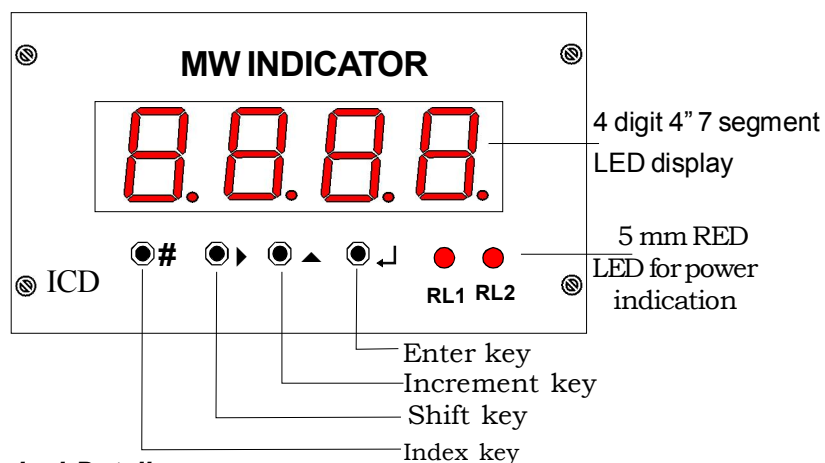
The display is also provided with a non-volatile memory to store data, which is undisturbed even under power failure conditions.

## 2. Front Panel & Terminal Details

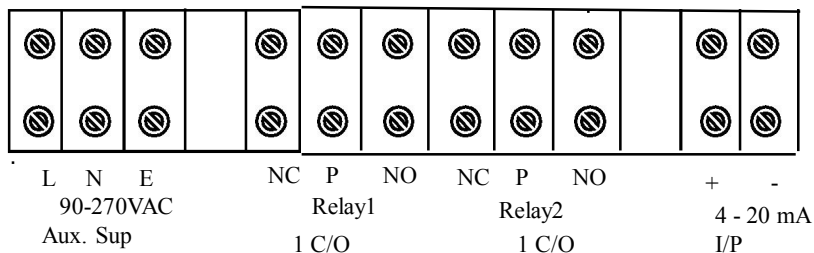
### a. Front Panel Details

The front panel of Instrument has display window, 1 x 4 matrix keypad for programming & LED indications.

1. Display window houses 4 digit 4" 7 segment red LED type.
2. The 1 x 4 matrix keypad is designed for programming setting parameters.
3. 2 number red colour LED indicator to indicate Relay status.

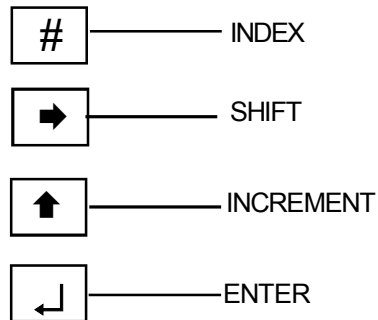


### b. Terminal Details :



### 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'.

## 4. Programming Instruction

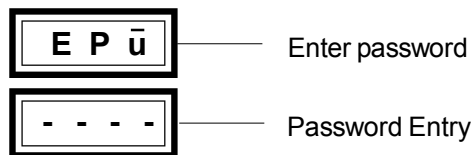
The display unit is to be programmed properly to work in a particular installation. The various items that are to be programmed are given below.

1. New Password (0000 - 9999)
2. Low Range
3. High Range
4. Low Set
5. High Set
6. Delay (common for set point)

### 4.1 Program Mode:

The unit is provided with password 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 the ► and ▲ keys together for 3 seconds, the display indicates enter password user to enter the valid password.



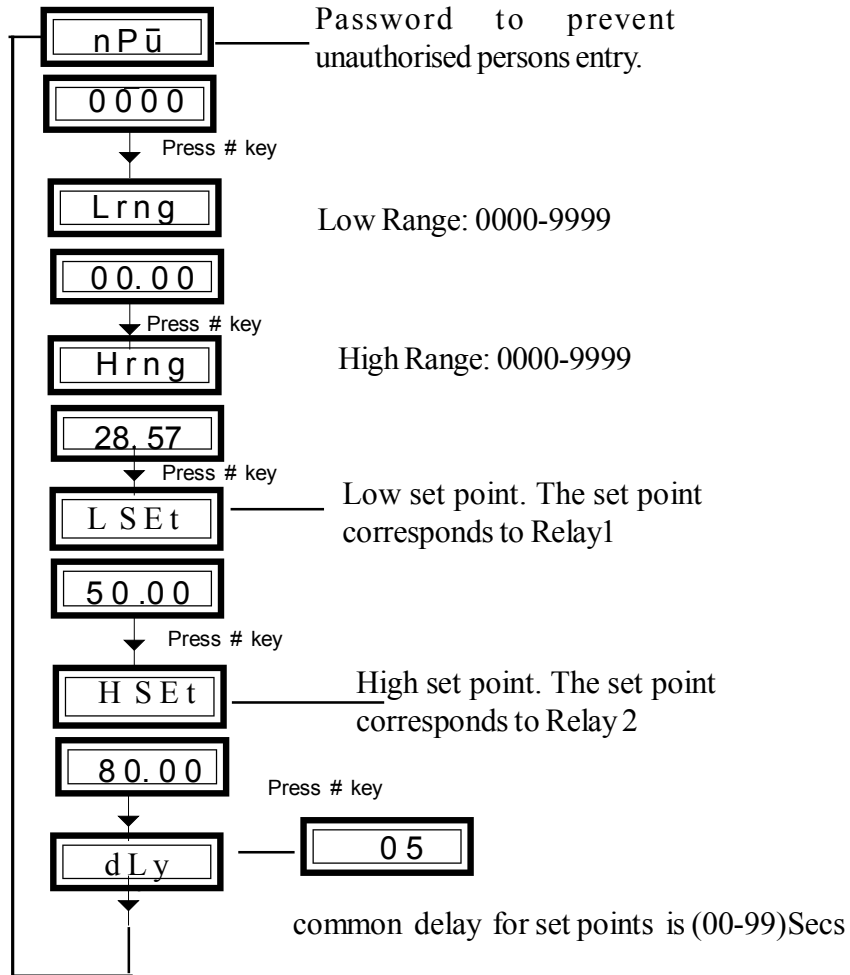
The valid password is set in the configuration item. New password has to be entered by using Shift (►), Incr (▲) and Enter (↵) Keys or else display will show 'Err' (Error). After the valid password is entered the unit enters into program mode by showing it in display



#### 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,



**Special Note:** The decimal point can be changed by pressing shift button for five times the decimal point starts to flash. Now press increment button to change the place of decimal point as need and press enter button to save.

The decimal point you saved is common for both values i.e Low Range&High Range

## **5.Functional Description**

When the instrument is powered by giving suitable supply, it works in run mode and displays for an instant and shows value proportional to input. The control action is explained below

### **5.1.Control Action:**

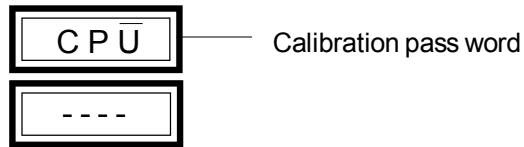
When the process value below the low set value relay gets energised after the delay time. low relay led gets illuminates. The process value above the low set value& below the high set value in between it is in de energised.when the process value above the high set point the high relay gets energised condition after the time delay. High relay gets ON.Delay is common for set points.



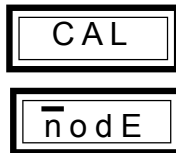
## 6. CALIBRATION PROCEDURE

The unit is provided with reliable software digital calibration for 4 to 20mA input. The calibration can be done easily and quickly through the key switches. Calibration is done properly using reference sources and meters in the factory itself.

To select the calibration mode, hold in the shift and increment keys for 3 seconds in normal operating mode. The display shows enter calibration pass word as,



The default pass word '0486' has to be entered using shift, Increment and enter keys. Once the pass word is correctly entered, the controller enters the calibration mode by showing it in display as



Now press Index (#) key. The display reads input zero calibration.

Now press Index ( #) key so that the display reads

A- n L

Which means 'null or zero calibration '.Now feed 0 from a standard source and press enter key which complete the zero calibration.

X X X X

For span callibration once again press # key. The display reads

A- S P

Which means span calibration. Now feed 20mA from a standard source and press enter key which completes the span calibration

X X X X

Once the calibration is completed hold in the shift and Increment keys together for a second to return to normal operating mode.

## 7. Technical Specification

Type	: ICD Flash Microcontroller Based DISPLAY UNIT
Input	: 4 - 20mA
Range	: (00.00 - 99.99) Programmable
Resolution	: Selectable
Accuracy	: $\pm 0.5\%$ OFS
Display	: 4 digit 4" 7 segment Red LED Display.
<b>Control action</b>	
No. of set points	: 2
Set point entry	: Through key pad
Key pad details ment	: 4 keys , namely Index, Shift, Incre- and Enter keys
Control output	: 1 C/o potential free contact for each set
Contact rating	: 5 Amps at 230VAC
<b>Others</b>	
Aux. Supply	: 90-270VAC/DC
Mounting	: Hanging/ Wall mountable

## **8. Commissioning of “DISPLAY UNIT”**

Before fixing the unit into the panel

- ★ Thoroughly read the operating manual, if queries arised contact ICD's 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.