FIPL

# UNIVERSAL INDICATOR

## UT 650

## (OPERATING MANUAL)

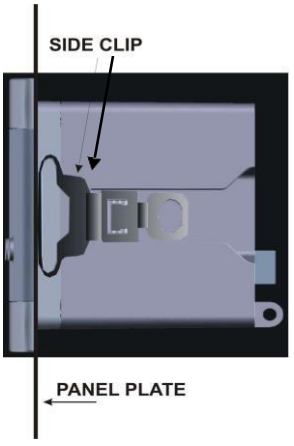
**TECHNICAL SPECIFICATIONS:**

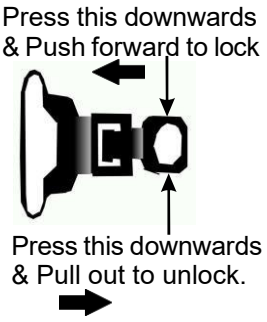
| METER | |
|---|---|
| 1. Physical dimensions | 105 X 105 X 120 mm<br>90 mm X 90mm (panel cut out) |
| 2. Enclosure | ABS Weather proof/IP 65 |
| 3. Mounting | Field/Panel |
| 4. Parameter sampling rate | < 2 seconds |
| 5. Resolution | 1/000.1/00.01/0.001 (depending on range) |
| 6. Accuracy | ± 2% of FSD |
| 7. Power supply | 230 V A.C. ± 15 % |
| 8. Alarms/Control relays | Individual high & low relay |
| 9. Display | 4 Digit 7 SEGMENT LED |
| 10. Calibration/Set point | Using front panel keypad. |
| 11. Output | 4-20 mA D.C.Current<br>RS-485 } (Optional) |
| 12. Display Range | 000.1 to 9999 |

**INSTALLATION GUIEDLINES:**

The meter is designed to suit field,panel as well as sensor mounting as shown below.

**PANEL MOUNT APPLICATION**




**SENSOR MOUNT APPLICATION**

**MOUNTING POSSIBILITIES**

## OPERATION MODES

The meter can be operated in two modes (based on relay operation):

1. **CONTROL MODE**: In this mode, the relay gets energized and will be time proportionately energized between the set value and the hysteresis.
2. **ALARM MODE**: In this mode, the relay will remain energized as long as it is not acknowledged.
3. **AUTO RESET MODE**: In this mode, the relay gets automatically reset within 2 seconds.

| **KEY TO BE PRESSED** | **DISPLAY** |
|---|---|
| VIEW & ACK | PASS |
| ENTER THE PASSWORD 0234 USING ACK. & VIEW KEY | |
| MENU | Cdly ( control delay)* |
| VIEW | rlop |
| VIEW | cntl |
| Use view key to choose any one from **cntl (control) / alrm (alarm) /autr (auto reset)** or CntL(Control) or CLng(cleaning) | |
| MENU | END |

*Control delay decides control response time of the control relay

1. Connect the High and Low relay wires (C NO) to their respective terminals i.e. dosing pumps, valves,alarm etc.
2. If the set value goes above the set value, then the high LED will start blinking and the high relay will get energized and will be time proportionately energized, for the value between the set value and hysteresis.
3. For eg. If the high value is kept at 9.00,then when value goes above 9.00, high relay will get energized and will proportionately be energized as long as the value does not fall below 8.10. (When the Hys 1 value is 0010 i.e. 10% ).
4. The same operation will be for Low value.

**PROPORTIONAL FEATURE OF Universal Indicator IN CONTROL MODE:**

Suppose the high Set point is kept at 8 and low at 5 with 10% hysteresis. Between the values of 8 & 8.8 the high relay would operate in an ON/OFF cycle (total cycle time 10 seconds). The ON time increases as the value approaches to 8.8 beyond which the relay remains energized.

Similarly for low relay, between the values of 5 & 4.5 the low relay would operate in an ON/OFF cycle (total cycle time 10 seconds). The ON time increases as the value approaches to 4.5 below which the relay remains energized.

**KEY SIGNIFICANCE:**

The **View** key works as the right shift key at the time of choosing the placement of a digit.

The **Ack** key helps in increasing the value of a digit in cyclic order.

The **Menu** key displays settings like Display Mode, SET point, Hysteresis and Temperature. The Menu key also works as the Enter and Exit key.

**METER OPERATION**:

In regular operation, the Universal indicator displays the actual value(of Ph/Conductivity/TDS/Flow/Temperature/Pressure) in the Line. Pressing the view key will display all the settings in the meter.

**PROGRAMMING THE SET POINT**:

For programming the set point go as per following table

| KEY TO BE PRESSED | DISPLAY |
|---|---|
| MENU | SET HI |
| MENU | Previously set high value |
| Using ack. & view key to set high value | |
| MENU | HYS1 |
| MENU | Previously set Hysteresis value |
| MENU | SET LO |
| MENU | Previously set low value |
| Using ack. & view key to set low value | |
| MENU | HYS2 |
| MENU | Previously set Hysteresis value |
| MENU | END |

**Hysteresis (hys1):**

The %age value for which the relay will not reset after getting energised. For eg. If the high value is set at 9.00 and the hysteresis is kept at 10% then the high relay will get energised the moment value exceeds 9.0 (after the set control delay) and will remain energized until the value falls to 8.1..And similar is the case with hyst2 i.e. for low value.Eg. If low set point is 5 with 10% hysterysis, the relay gets reset only when the value goes over 5.5. (Normally, both hysteresis values are kept at 10%).

## IN CASE OF 4-20mA OUTPUT:

In case of UT-650(with4-20 O/P), the meter takes current input & gives 4-20mA output current. The factory settings for ZERO(value at which transmitter would give 4 mA current) & SPAN (value at which transmitter would give 20 mA current) are:

| Reading | Current Output(mA) |
|---|---|
| 00.00 | 4mA |
| | 20mA |

To change the Zero & Span settings follow the guideline below:

| KEY TO BE PRESSED | DISPLAY |
|---|---|
| VIEW & ACK | PASS |
| ENTER PASSWORD 0678 USING VIEW & ACK. KEY | |
| MENU | Type |
| MENU | Norm |
| MENU | Zero |
| MENU | Previously set ZERO value |
| Use VIEW & ACK.key to change the value | |
| MENU | SPAN |
| MENU | Previously set SPAN value |
| Use VIEW & ACK.key to change the value | |
| MENU | END |

Instrument also works as 4_20 mA current simulator.It gives 4 mA & 20 mA current for the calibration of other instruments.Follow the below guideline:

| KEY TO BE PRESSED | DISPLAY |
|---|---|
| VIEW & ACK | PASS |
| ENTER PASSWORD 0420 USING VIEW & ACK. KEY | |
| MENU | 4 mA |
| Instrument will give 4 mA current | |
| MENU | 20 mA |
| Instrument will give 20 mA current | |

| | |
|---|---|
| MENU | End |
| MENU | Actual reading |

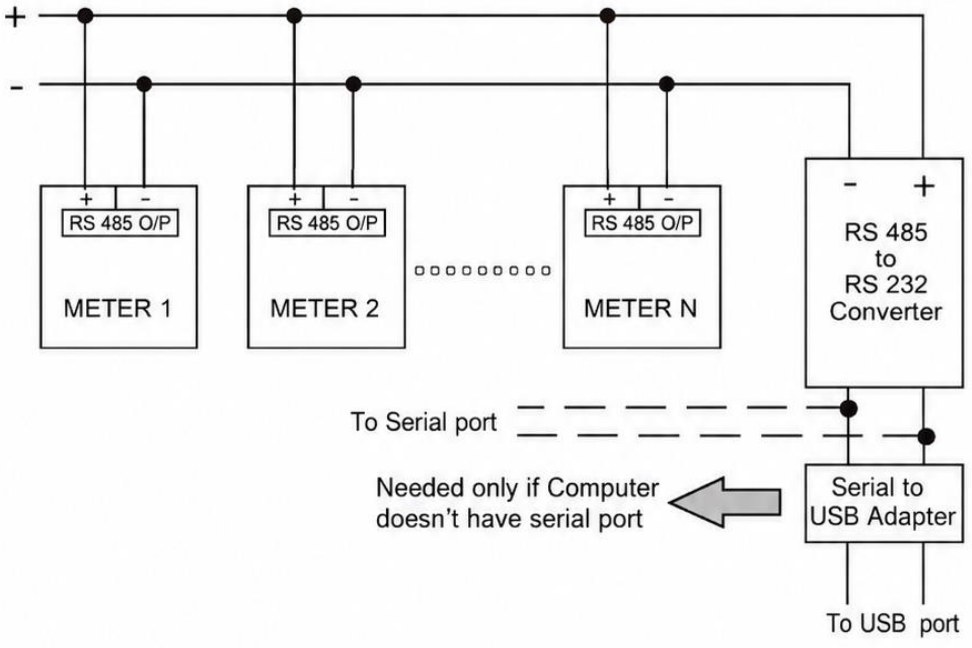
## IN CASE OF RS-485 OUTPUT:

In case of UT-850 with RS-485 output, if number of instruments are connected through same wire then each instrument should have it's specific address(called as meter address). To set the meter address follow the below guideline.

| KEY TO BE PRESSED | DISPLAY |
|---|---|
| VIEW & ACK | PASS |
| ENTER PASSWORD 0345 USING VIEW & ACK. KEY | |
| MENU | Addr<br>Previously set meter address |
| Use VIEW & ACK.key to change the address. | |

| |
|---|
| **MEN** |
| **MEN** |
| **MEN** |
| **MEN** |
| **MEN** |

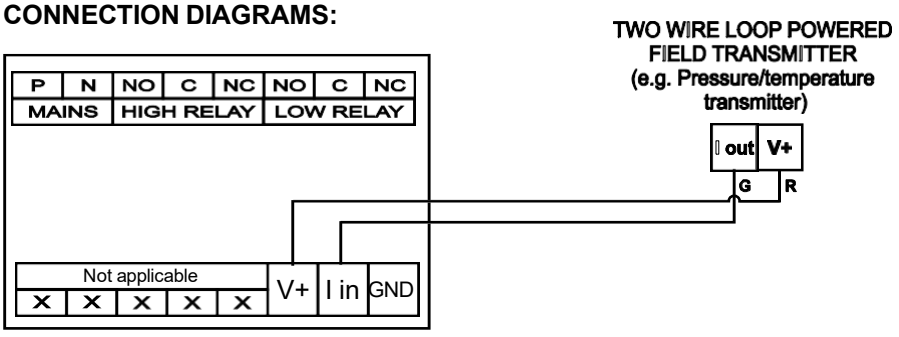
**Connection diagram for number of meters(with Rs485 O/P) to Computer**



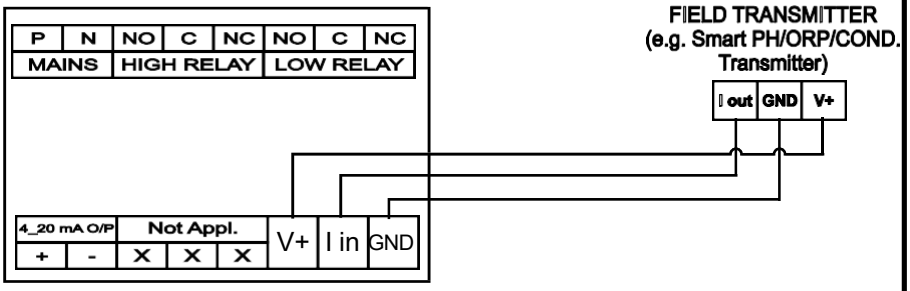
**GETTING AQUAINTED WITH THE METER:**

This meter is user friendly & easy to understand.This is the unit that processes the information received from the field transmitter(in form of 4-20 mA current) and displays the actual value. This unit also have individual high & low relay outputs to control dosing pumps, hooters, valves etc.

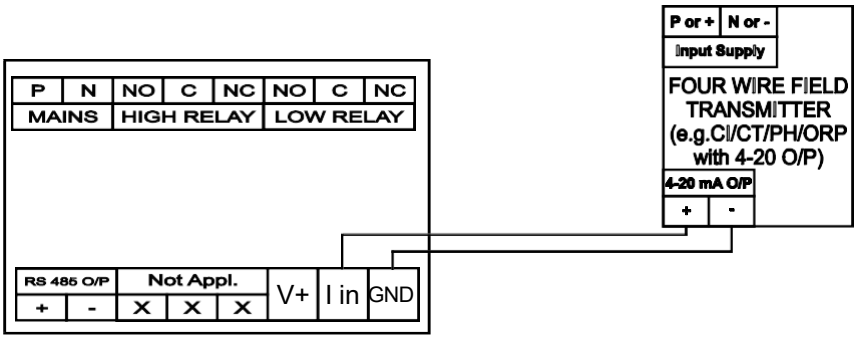
**CONNECTION DIAGRAMS:**




UNIVERSAL INDICATOR(UT-650)




UNIVERSAL INDICATOR(UT-650)




UNIVERSAL INDICATOR(UT-650)

**CAUTION:**

**Wrong wiring can lead to serious damage of field transmitter or UT-650 or both. Hence before power ON ensure connections are as per wiring diagram shown above.**

**TROUBLESHOOTING:**

| TROUBLE | PROBABLE CAUSE | ACTION |
|---|---|---|
| Display Shows Erroneous reading | Synchronisation disturbed | Resynchronise the meter |
| Meter shows Loopbreak (Lpbr) | Input required less than the minimum value. | Check the wiring connections. |
| No display | High voltage | Check MOV/FUSE, if it is burnt then replace it with new one |
| Frequent Fuse failure | MOV short | Replace MOV* as well as FUSE** |

*MOV 14mm Dia. and 320V AC

** FUSE -- 630mA as shown in fig 3