IND-T PANEL MOUNT INDICATOR
4 TO 20 MA , 0 – 5VDC , 0 – 10VDC
PANEL MOUNT INDICATOR

5 Adnan el rawi st. – Ard el golf – Cairo Egypt
Phone +20-24184960
Website www.rockforcontrol.com
Email info@rockforcontrol.com

IND-T - PANEL MOUNT INDICATOR

MAIN FEATURES

- 6 Digits display
- Size : **144x72x175 mm**
- Power supply could be 230VAC (Terminals 1 & 2) or 24VDC (Terminals 3 & 4)
- Freely-selectable input: 4 ... 20 mA , 0 - 5 VDC or 0 - 10 VDC
- Built in transmitter power supply 24 VDC.
- Programable Minimum and maximum values
- 2 freely-programmable Alarm Relay outputs
- 4-key membrane keyboard

DESCRIPTION

IND-T Digital Indicator has been developed specifically for the display of measured values from process transmitters, such as pressure , temperature and Differential Pressure transmitters.

It offers various input configurations for 4 - 20 mA , 0 - 5 VDC and 0 - 10 VDC standard signals, which can be selected through an internal selector DIP switch and through the Indicator configuration.

Thus, as an alternative, transmitters with current or voltage signals can be connected on the same instrument.

Using the 24VDC outgoing power supply terminals in the Indicator , 4-20 mA transmitter current loop transmitter (2-wire) as well 0-5VDC or 0-10VDC (3-wire) transmitter can be operated.

Two alarm outputs AL1 and AL2 are also available. Alarm Setpoint , direction (Alarm Hi or Alarm Low) and Alarm Dead band can be simply configured .

IND-T Indicator offers possibility of Automatic Zero Offset adjustment for correcting zero offsets and sensor drift.

Sensor calibration and linearization of up to 1500 points which makes it a very accurate and unique indicator .

IND-T is provided with a PEAK testing facility mainly used to check the highest / lowest measuring signal during the Test.

All configuration and programming can be carried out through the front-panel Push Buttons

TECHNICAL DATA

Display

- Principle 7-segment red LED
- Display 6-digit
- Indication range -99999 - 999999

Scale setting

- Initial and final Process Values freely adjustable via individual program numbers
- Adjustable decimal point

Input

- Number and type 1 input for standard signals
- Input signal 4 ... 20 mA or
- DC 0 - 5 VDC or
- DC 0 - 10 VDC
- Input configuration selectable via DIP switches and programming

A/D Converter

- 24 bit - 8 MHz

Accuracy

- <± 0.05 % of the measuring span ± 1 digit

Alarm Relays Outputs

- 2 independent Relays with separate switch contacts , freely-programmable
- Relay contact Load: AC 230 V, 5 A (resistive load)
- DC 30 V, 5 A (resistive load)

Memory EEPROM parameter memory

- Data preservation > 20 years

Transmitter power supply

- DC 24 V, max. 50 mA, galvanically isolated

Power supply

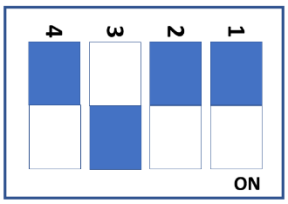
- AC 230 V, 50/60 Hz, ± 10 % or
- 24VDC
- Power consumption max. 8 VA
- Wire cross-section 2.5 mm²

Permissible ambient conditions

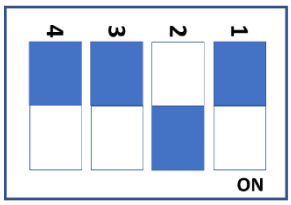
- Operating temperature 0 - 50 °C
- Storage temperature -20 ... +70 °C
- Humidity relative humidity ≤ 75 %, non-condensing

SELECTING THE TYPES OF SENSORS

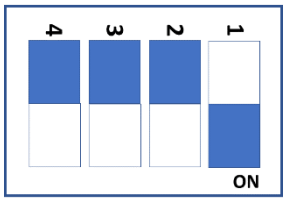
Remove the back 4 screws and pull out the indicator . On the main board position the 4 DIP switches on one of the following 3 position depends on the type of input to be indicated.



0 – 10VDC INPUT



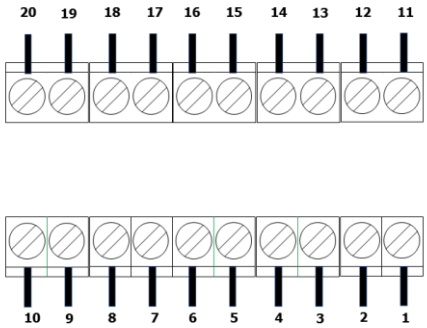
4 – 20 mA INPUT



0 – 5VDC INPUT

ELECTRICAL CONNECTIONS

CONNECTOR NUNBERS		FUNCTION
1 (L)	2 (N)	220VAC – Supply Voltage
3 (+)	4 (-)	24VDC – Supply Voltage
5		Relay 1 – N.C. Contact
6		Relay 1 – Com. Contact
7		Relay 1 – N.O. Contact
8		Relay 2 – N.C. Contact
9		Relay 2 – Com. Contact
10		Relay 2 – N.O. Contact
11		Not Used
12		Not Used
13 (+)	14 (-)	24VDC Output
15 (+)		4 – 20 mA Input supply (24VDC)
16 (-)		4 – 20 mA Input Negative
17 (+)	18 (-)	0-5VDC Input
19 (+)	20 (-)	0 – 10VDC Input



PROGRAMING

Buttons

*At the F*ront panel there are 4-key membrane Push Buttons

1- " Λ " Increase Push Button
2- "V " Decrease Push Button
3- " ↵" Accept (Enter)
4- " T " TEST (to be used during the Peak Test)

Input and Units setting :

1- Enter Password

1. *Press "Λ+V" , display shows first "1230".*
2. *Press"Λ" to change password to "1234"*
3. *Press"↵" to enter*
4. *(Press wrong password will logout setting mode.)*

2-Setting

Set INPUT Signal (Signal to be displayed 4-20mA , 0- 5VDC or 0-10VDC):

- The Display will show "Input" , then the type of input stored in the EEPROM.
- Display will show "4 – 20 "
- *Press " ↵" to save and enter if 4-20 mA is the required input to be measured.*
- Press "Λ" , the display will show " 0 – 5V"
- *Press " ↵" to save and enter if it is the required input to be measured.*
- Press "Λ" , the display will show " 0 – 10V"
- *Press " ↵" to save and enter if it is the required input to be measured.*
- *You can go back to any type of input by pressing "V".*

Decimal point:

- *Display shows "-dP-". Press "Λ"or "V" to change decimal point position.*
- *"1" for the decimal point at the 1st digit , "5" decimal point at the 5th digit.*
- *Press " ↵" to save and enter next level.*

Set zero(The displayed value for 0 volt or 4mA):

- Display shows "-LL-" to set zero.
- Press "Λ" to increase, press "V" to decrease.
- *Press " ↵ " to save and enter next level.*

Set Span (value to be displayed for 5VDC , 10VDC or 20mA):

- Display show "-HH-" to set full scale
- Press "Λ" to increase, press "V" to decrease.
- *Press " ↵ " to save and enter next level.*

Set UNITS (Signal units , BAR , TONS or Knt):

- Display show "-Unit- " . Then the Units stored in the EEPROM.
- *Press "Λ"or "V" to change between the units* "signal" , "BAR" , "TON" , "Knt".
- *Press " ↵ " to save the Units in the EEPROM . The dedicated LED will be ON.*

Set ZERO OFFSET :

- Display show "-OFFSEt- " . Then the Zero Offset value stored in the EEPROM.
- Press "Λ" to increase, press "V" to decrease.
- *Press " ↵ " to save and exit this programming section.* The display will show " ------" , the measured value will appear.

Relays and Alarms setting :

1- Enter Password

1- *Press "Λ+V" , display shows first "1230".*
2- *Press"Λ" to change password to "1236"*
3- *Press '↵" to Enter relays programming*
4- *(Press wrong password will logout setting mode.)*

2-Setting

RELAY – 1 Action:

- *Display shows "ACT - 2". It means that RELAY-1 is set For HIGH ALARM.*
- *"ACT - 1". means that RELAY-1 is set For LOW ALARM.*
- *"ACT - 0". means that RELAY-1 is NOT ACTIVE.*
- *Press "Λ+V" to set the required action*
- *After selection , press " ↵ " to save and enter next level.*

RELAY – 1 Setting:

- Display shows "-Set 1 -". Then Relay-1 setting value stored in the EEPROM.
- *Press "Λ+V" to set the required Relay-1 Alarm setting.*
- *Press " ↵ " to save and enter next level.*

RELAY – 1 Dead Band:

- Display shows "db-1 ". Then Relay-1 Dead Band setting stored in the EEPROM.
- *Press "Λ+V" to set the required Relay-1 Dead Band setting.*
- *Press " ↵ " to save and enter next level.*

RELAY – 2 Action:

- *Display shows "ACT - 2". It means that RELAY-2 is set For HIGH ALARM.*
- *"ACT - 1". means that RELAY-1 is set For LOW ALARM.*
- *"ACT - 0". means that RELAY-1 is NOT ACTIVE.*
- *Press "Λ+V" to set the required action*
- *After selection , press " ↵ " to save and enter next level.*

RELAY – 2 Setting:

- Display shows "-Set 2 -". Then Relay-1 setting value stored in the EEPROM.
- *Press "Λ+V" to set the required Relay-2 Alarm setting.*
- *Press " ↵ " to save and enter next level.*

RELAY – 2 Dead Band:

- Display shows "db-2 ". Then Relay-2 Dead Band setting stored in the EEPROM.
- *Press "Λ+V" to set the required Relay-2 Dead Band setting.*
- *Press " ↵ " to save and exit this programming section.* The display will show " ------" , the measured value will appear.

PEAK TEST setting :

1- Enter Password

1- *Press "Λ+V" , display shows first "1230".*
2- *Press"Λ" to change password to "1238"*
3- *Press '↵" to Enter relays programming*
4- *(Press wrong password will logout setting mode.)*

2-Setting

TEST DIRECTION Setting:

- Display shows "TEST" , then the test direction stored in the EEPROM.
- "-HI-" It means the Test is in the Increase direction.
- "-LO-" It means the Test is in the decrease direction.
- *Press "Λ+V" to select the required test direction.*
- *Press " ↵" to save and enter next level*

Sampling Rate Setting:

- *Display shows "-SPS-". It means that sampling rate(Samples Per Second) , then the rate stored in the EEPROM .*
- *"1". sampling rate is 30 measures per second .*
- *"2". sampling rate is 40 measures per second .*
- *"3". sampling rate is 50 measures per second .*
- *"4". sampling rate is 60 measures per second .*
- *"5". sampling rate is 70 measures per second .*
- *Press "Λ+V" to select the required Sampling Rate.*
- *After selection , press " ↵" to save , the display will show "------"* , the measured value will appear

ZERO OFFSET

IND-T Indicator offers possibility of Automatic Zero Offset adjustment for correcting zero offsets and sensor drift.

In order to do so ,

1- set the process value to its zero level (0 VDC or 4mA).
2- Press the three push Buttons " Λ " + "V " + " ↵ " together simultaneously.
3- The indication will show "OFFSET" .
4- Then it will show the reading at ZERO LEVEL (The value to be offseted).
5- Then it will show the value will be subtracted from the incoming signal to adjust for the zero drift.
6- Then it will show "------" , to indicate that programing adjustment is done and the Zero Offset value is stored inside the EEPROM.
7- The Indicator should now read Zero.

TEST

In order to perform the PEAK test :-

1- Press the TEST push Buttons " T " , The yellow test LED will keep flashing with a frequency equal half of the sampling rate.
2- If the test direction is set "HI" . the indicator will indicate the higher input value as it comes.
3- If the test direction is set "LO" . the indicator will indicate the Lower input value as it comes.
4- At any point to stop the test and keep reading the Final Peak value , press " Λ " push button.
5- To reset the indicator and go back to normal operation, press "*V*" push button.

HOW TO ORDER

IND_T – AA – BB – CC – DD – EE - OPTIONS

AA – TYPE OF PROCESS VARIABLE TO BE INDICATED
PRESSURE . TEMPERATURE , ... (PLEASE SPECIFY)

BB – UNITS REQUIRED
BAR , TON , oC , oF , oK ,....(PLEASE SPECIFY)

CC – REQUIRED INPUT SIGNALS
4 - 20 MA
0 – 5VDC
0 – 10VDC
OTHERS (PLEASE SPECIFY)

OPTIONS - PLEASE SPECIFY DIRECTLY.