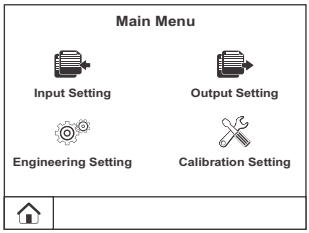
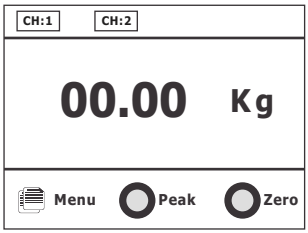
SeethaRam Mechatronics Pvt Ltd
Bridging Gaps in Technology
seetharam.in
: www.seetharam.in
: ram@seetharam.in

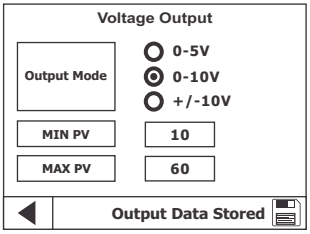
# Koal Touch Series (KTS)

## Indicator Controller

# USER'S MANUAL

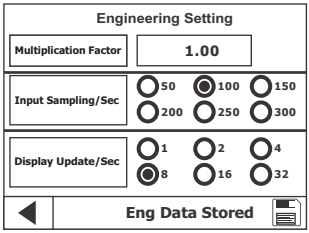


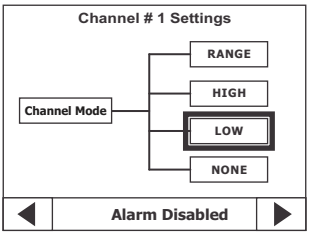



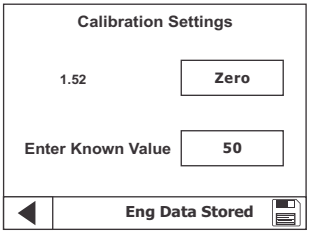










Read the user's manual carefully before starting to use the unit or software.
Producer reserves the right to implement changes without prior notice.

# Index


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# 1. Safety / Proper Usage

- Don't use sharp edge tools/equipment on touch screen
- In order to minimize fire or electric shock hazard, the unit must be protected against atmospheric precipitation and excessive humidity.
- Do not use the unit in areas threatened with excessive shocks, vibrations, dust, humidity, corrosive gasses and oils.
- Do not use the unit in areas where there is risk of explosions.
- Do not use the unit in areas with significant temperature variations, exposure to condensation or ice.
- Do not use the unit in areas exposed to direct sunlight.
- Make sure that the ambient temperature (e.g. inside the control box) does not exceed the recommended values. In such cases forced cooling of the unit must be considered (e.g. by using a ventilator).
- Do not attempt to disassemble, repair or modify the unit yourself. The unit has no user serviceable parts. Defective units must be disconnected and submitted for repairs at an authorized service centre
- In an environment with a high amount of moisture or humidity, create a drip loop on the cable to prevent any water from flowing into the sensor.

# ⚠ 2. Warning

The indicator must not be modified from the design or safety engineering point of view except with our express agreement. Any modification shall exclude all liability on our part for any damage resulting there from.

# 3. Product Description

Koal Touch Controllers are specially designed to work with Strain sensors / Analog input / Encoders / LVDT.

KT-S - Koal Touch Strain
Work with Strain Gauge based sensors, Load cell, Torque Transducers

| ❑ INPUT CHARACTERISTICS | |
|---|---|
| Power Supply | 12 ~ 35V DC / 230V AC |
| Excitation for sensor | +5VDC @ 50mA ±1%, +10VDC @ 50mA ±1% |
| Input signal | Up to 8mV/V (Strain Gauge Sensors) |
| Decimal point | 1~3 Points user selectable (X.X, X.XX, XX.XX & X.XXX) |
| Input sampling | 1 ~ 300 Samples Per Sec |
| | ( ADC > 1000 Samples Per Sec ) |
| A/D Converter | 24 bit resolution |

| ❑ OUTPUT CHARACTERISTICS | |
|---|---|
| Relay output | 2 Relay (5A/230VAC) Standard |
| Analog signal (Optional) | Voltage : 0 – 5 V, 0 – 10 V, +/-10V |
| | Current: 0 – 20 mA, 4 – 20 mA, 0 – 24 mA |
| Communication interface | RS-232, RS-485 |

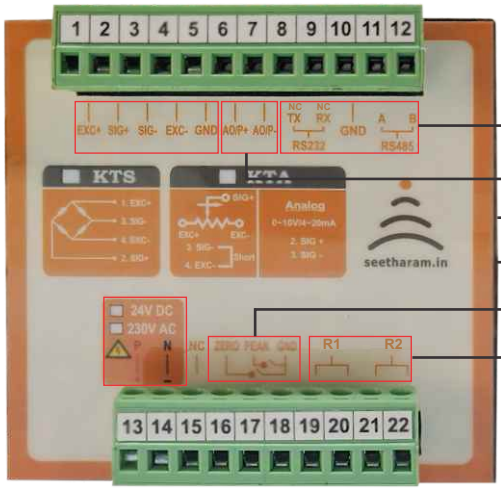
# Koal Touch - Strain (KTS)

**Indicator Controller**




Mounting Clamp

Touch screen display




Communication Terminals

Analog Output

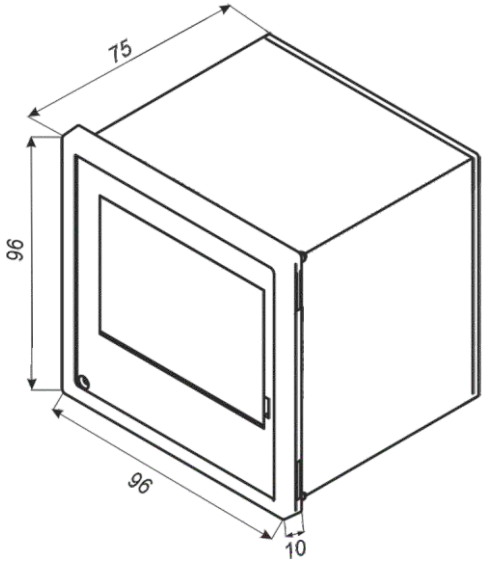
Sensor Input

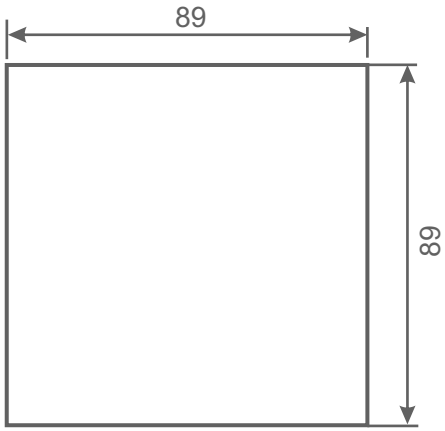
Power Supply

Remote Input

Relay Output

## 4. Outline Drawing & Panel Cutout

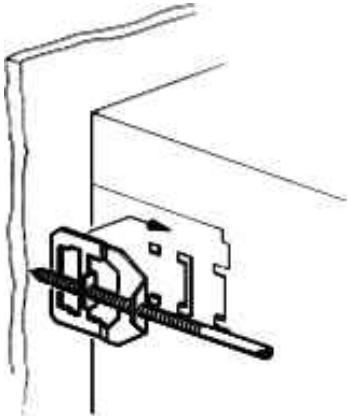



Panel Cutout

All Dimensions are in mm

## 5. Mounting

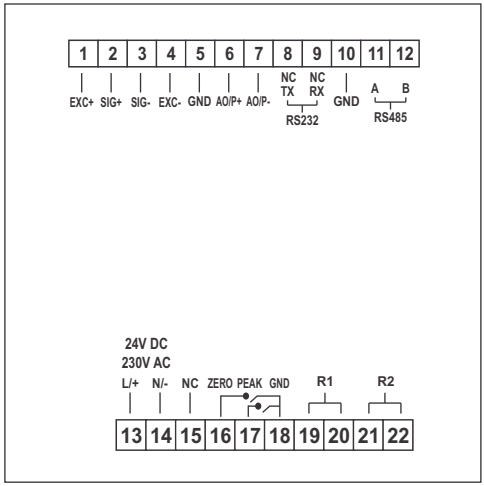


The Screw clamp is placed on the enclosure from the rear of the control panel.

After this, the enclosure is pressed firmly on to the rear wall of the control panel through the integrated screw.

# 6. Pin Configuration

## 6.1. Koal Touch Strain (KTS) – Strain output sensor




***Strain Sensor***

1 - EXC +
2 - SIG +
3 - SIG -
4 - EXC -
5 - GND

***Analog O/P Signal***

6 - AO/P +
7 - AO/P -

***RS232***

8 - TX-RS232(NC)
9 - RX-RS232(NC)
10 - GND

***RS485***

11 - A-RS485
12 - B-RS485

***Power Supply***

230V AC
13 - Phase
14 - Neutral

24V AC
13 - +24V
14 - 0V

Optional

***No Connection***

15 - NC

***Remote / Peak & Zero***

16 - Zero
17 - Peak
18 - GND

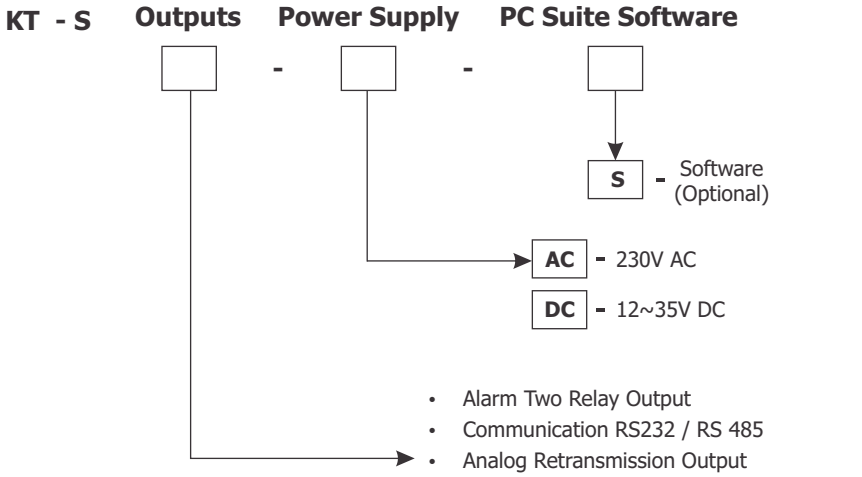
***Relay Output***

19, 20 - Relay 1
21, 22 - Relay 2

## Koal Touch Strain (KTS) – Strain output sensor

| S.No | Parameters | | Terminal Number | Description | |
|---|---|---|---|---|---|
| 1 | Power Supply | | 13,14 | For 24V DC | For 230V AC |
| | | | | Pin 13: +24V | Pin 13: L (phase) |
| | | | | Pin 14: 0V | Pin 14: N (neutral) |
| 2 | Sensor Input | | 1,2,3,4,5 | Excitation | |
| | (Refer Pg. 12) | | | Pin 1: EXC + | |
| | | | | Pin 4: EXC - | |
| | | | | Note: sensor Excitation 5V DC or 10V DC can be | |
| | | | | configured through menu. | |
| | | | | Signal | |
| | | | | Pin 2: SIG + | |
| | | | | Pin 3: SIG - | |
| | | | | GND | |
| | | | | Pin 5: Shield of the sensor cable | |
| 3 | Analog Output | | 6,7 | Note: Analog output is optional available on request | |
| | (Refer Pg. 22, 23) | | | Analog outputs Can be configured through menu. | |
| | | | | Voltage : 0 – 5 V, 0 – 10 V, +/-10V | |
| | | | | Current: 0 – 20 mA, 4 – 20 mA, 0 – 24 mA | |
| | | | | Pin 6: AO/P+ | |
| | | | | Pin 7: AO/P- | |
| 4 | Communication | RS232 | 8,9,10 | RS 232 | RS 485 |
| | (Refer Pg. 24) | | | Pin 8: TX (NC) | Pin 11:A |
| | | RS485 | 11,12,10 | Pin 9: RX (NC) | Pin12: B |
| | | | | Pin 10: GND | Pin 10: GND |
| 5 | Remote Input | | 16,17,18 | Zero (Tare) and Peak functions can be used by connecting | |
| | (Refer Pg. 26) | | | the Pin 18: GND to Pin 16: Zero and Pin 17: Peak | |
| 6 | Relay Outputs | Rly 1 | 19,20 | 2 Potential free contacts Max rating (230V AC/5A). | |
| | (ReferPg. 18~21) | Rly 2 | 21,22 | Alarm Logic of the Relays can be configured through menu. | |
| 7 | No Connection | | 15 | No connection empty terminal | |

## 7. Ordering Code



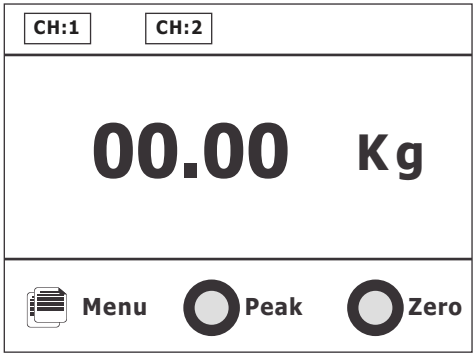

Note: Custom / Non-Standard Consult Factory

### Example:

- KT-S-AC : Input 230V AC, Strain measurement, 2 Relay Output, Communication Output, Analog Output
- KT-S-DC : Input 12~35V DC, Strain measurement, 2 Relay Output, Communication Output, Analog Output
- KT-A-DC : Input 12~35V DC, Analog measurement, 2 Relay Output, Communication Output, Analog Output
- KT-A-AC : Input 230V AC, Analog measurement, 2 Relay Output, Communication Output, Analog Output

# 8. Screen Setting

### Home Screen




# 9. Icon Description

| Icons | Description |
|---|---|
|  | Home Button - Navigate to Home Screen |
|  | Forward - Navigate to Next Screen |
|  | Backward - Navigate to Previous Screen |
|  | Save Button - To Save the Settings |

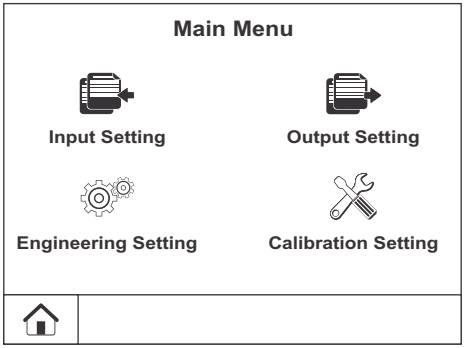
Note: kindly touch icon for navigation to following screen.

Numeric Screen

| 2015 | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |
| . | 0 | C |
| < | ENTER | |

This screen will pop up for numerical data entry.

# 10. Main Menu




**Main menu consists**

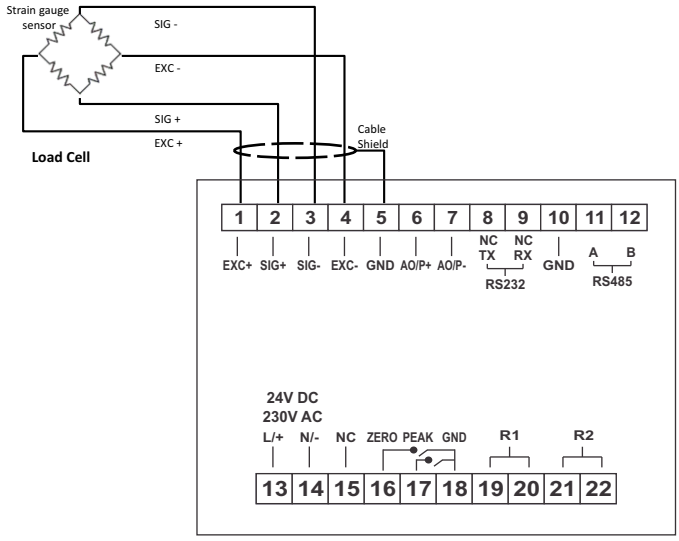
1. Input setting
2. Output setting
3. Engineering setting
4. Calibration setting

Common for all Koal Touch Series

# 11. Input Setting - KTS

## 11.1 Koal Touch Strain (KTS) - Load Cell

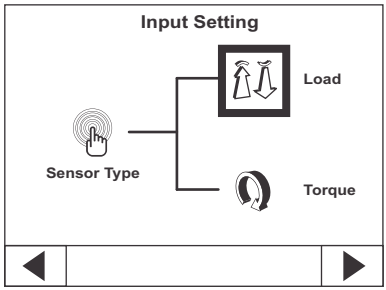
### 11.1.1. Connection



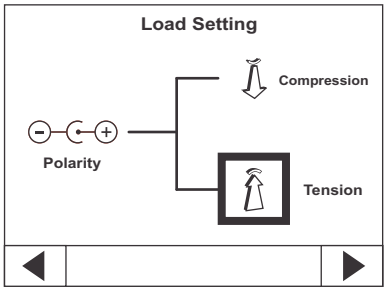

Load Setting

### 11.1.2. Input Settings

**Sensor Type Selection**

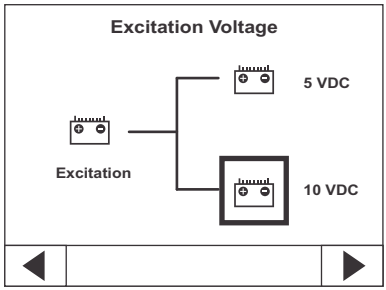



**Load Type Selection**



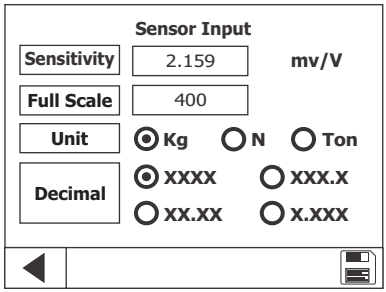

Compression – unipolar
Tension – Bi-polar

## Excitation Voltage




Select the recommended excitation as specified in sensor datasheet.

## Sensor Input

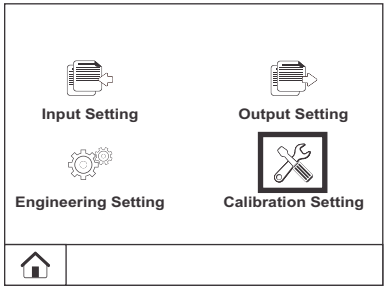



- Enter sensitivity of sensor as mentioned in datasheet.
- Enter full scale of sensor to be measured.
- Select the unit to be displayed of sensor (unit conversion not available)
- Select the appropriate decimal point.
- Save the setting.

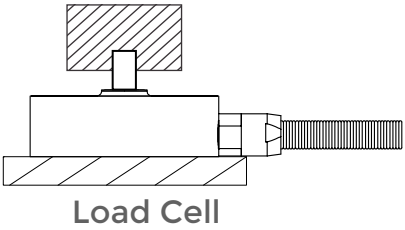
### 11.1.3. Calibration

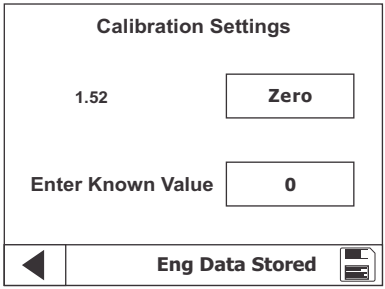
Connect the Load cell with KTS as Shown in diagram (11.1.1 - Pg. 12)

Select calibration settings from the Main Menu

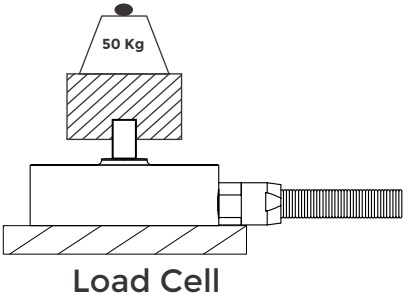


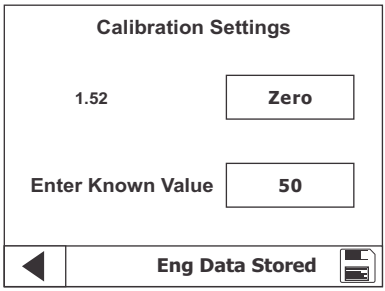

without applying any load on the load cell press zero **Zero**



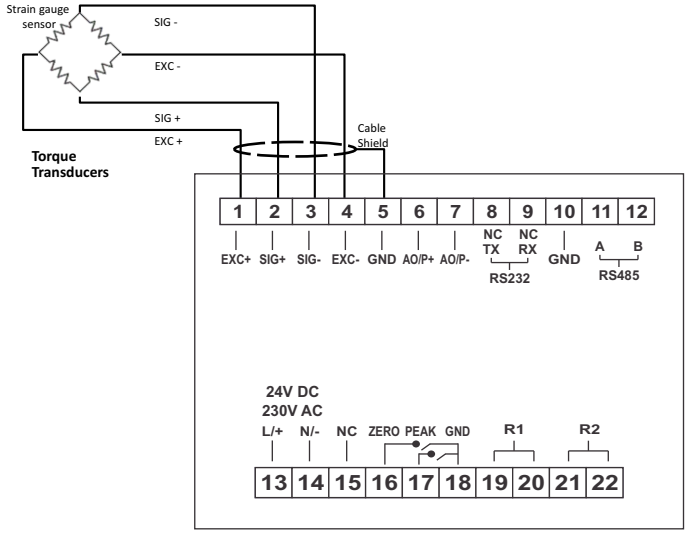

Apply a known weight on the load cell and enter that value and then press save



## 11.2 Koal Touch Strain (KTS) - Torque

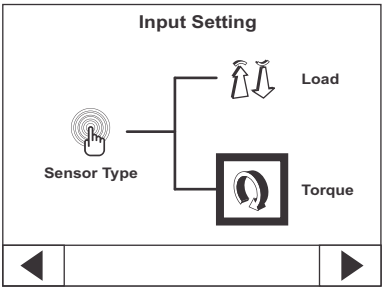
### 11.2.1. Connection



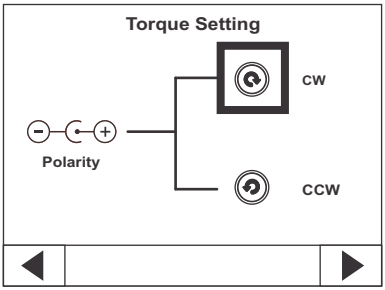

**Torque Setting**

### 11.1.2. Input Settings

Sensor Type Selection

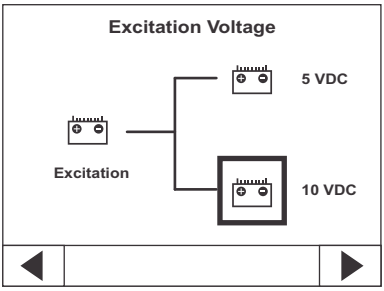



Torque Type Selection



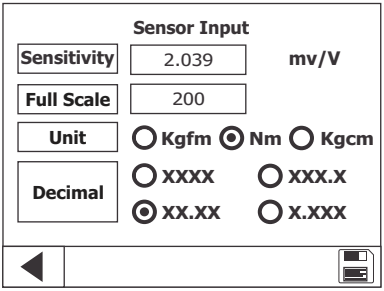

**CW – Clock Wise**
**CCW – Counter Clock Wise**

## Excitation Voltage




Select the recommended excitation as specified in sensor datasheet.

## Sensor Input

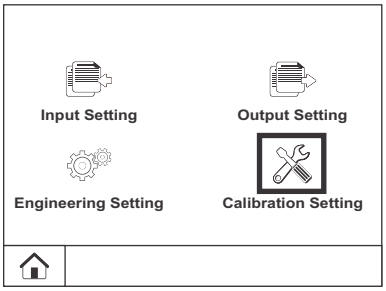



- Enter sensitivity of sensor as mentioned in datasheet.
- Enter full scale of sensor to be measured.
- Select the unit to be displayed of sensor (unit conversion not available)
- Select the appropriate decimal point.
- Save the setting.

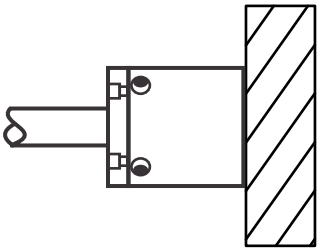
## 11.2.3. Calibration

Connect the Torque Sensor with KTS as Shown in diagram (11.2.1 - Pg. 15)

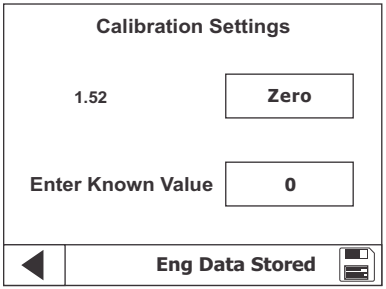
Select calibration settings from the Main Menu



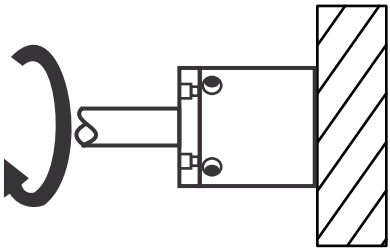

without applying any Torque to the Torque Sensor press zero Zero



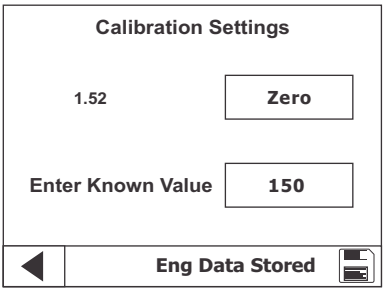
Torque Sensor




Apply a known Torque to the Torque Sensor and enter that value and then press save

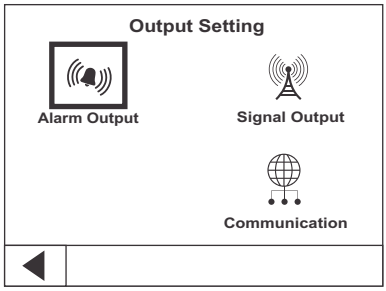


Torque Sensor



# 12. Output Setting

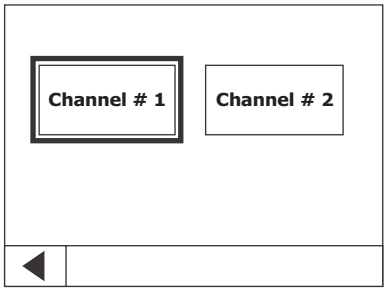
## 12.1 Alarm Output Setting




Press Alarm output from output settings menu

Alarm output consists of Two channels in which conditions can be set and trigger the relay output accordingly.

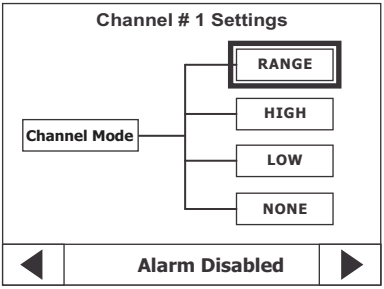
### Channel Navigation Screen



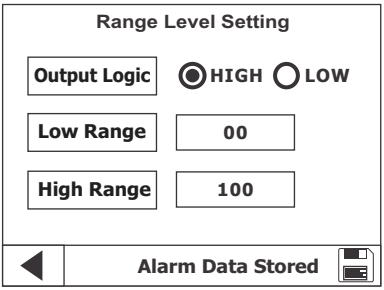

Select the channel in which alarm to be configured.

### 12.1.1. Range Setting

Channel Mode Selection Screen




Energize (or) De-energize relay between two set conditions




Output logic – select **HIGH** for energizing the relay between the set values. Till then the relay will be de–energized.

Select **LOW** for de–energizing the relay between the set values. Till then the relay will be energized.

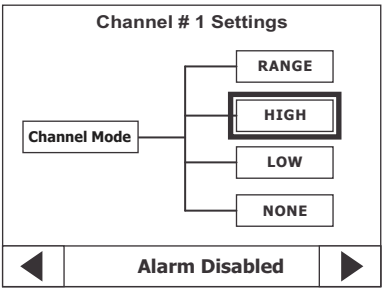
**Low range** – Enter the low range value

**High range** – Enter the high range value

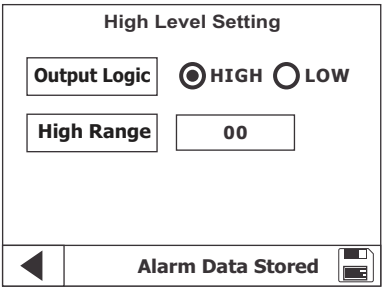
After entering data select save button upon which **"Alarm data stored"**. Once saved, it will be navigated to alarm channel selection screen.

### 12.1.2. High Mode Setting

Channel Mode Selection Screen




Energize (or) De-energize relay output greater than the given value.




**Output logic** – select **HIGH** for energizing the relay after the values. Till then the relay will be de–energized.

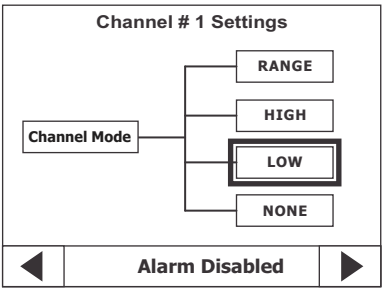
Select **LOW** for de–energizing the relay after the values. Till then the relay will be energized.

**High range** – Enter the high range value

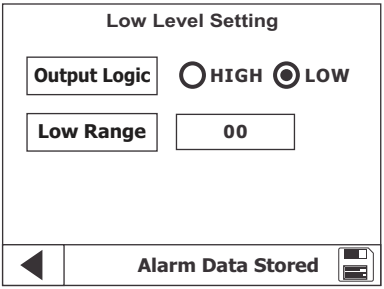
After entering data select save button upon which "**Alarm data stored**". Once saved, it will be navigated to alarm channel selection screen.

### 12.1.3. Low Setting

Channel Mode Selection Screen




Energize (or) De-energize relay output lesser than the given value.




Output logic – select **HIGH** for energizing the relay below the values. Till then the relay will be de – energized.

Select **LOW** for de – energizing the relay below the values. Till then the relay will be energized.

**Low range** – Enter the low range value

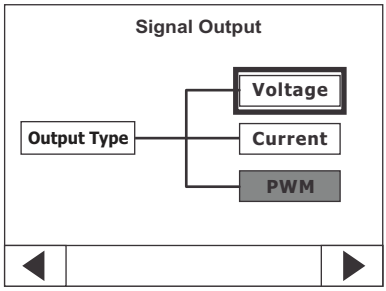
After entering data select save button upon which "**Alarm data stored**". Once saved, it will be navigated to alarm channel selection screen.

## 12.2. Signal Output

### 12.2.1. Voltage Output Setting

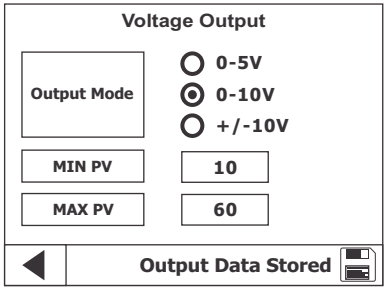
### Signal Output Type Selection

**Select type of analog output required for your process/application.**




## Voltage Setting

**The voltage will be scaled between minimum process value and maximum process value**




As shown in the figure, 0~10V, is selected
Minimum PV is 10
Maximum PV is 60
The analog output will give 0V for display value 10
10V for display values 60
Minimum Maximum Values are independent to the sensor maximum

**Output mode** - Select the required output voltage for your process.

**Min PV**- Enter minimum process value

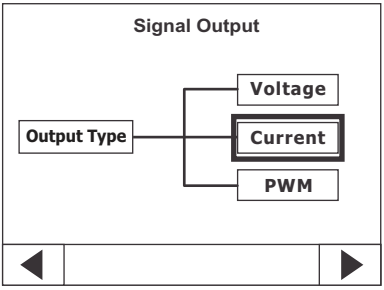
**Max PV** – Enter maximum process value

After entering data select save button upon which "**Output data stored**". Once saved, it will be navigated to output setting screen.

## 12.2.2. Current Output Setting

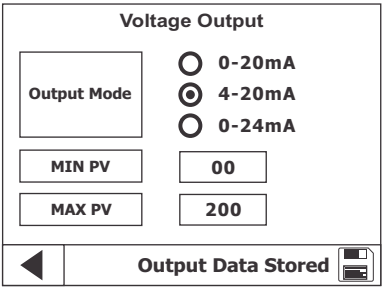
### Signal Output Type Selection

Select type of analog output required for your process/application.




### Current Setting

**The current will be scaled between minimum process value and maximum process value**




As shown in the figure, 4~20mA, is selected
Minimum PV is 00
Maximum PV is 200
The analog output will give 4mA for display value 0
20mA for display values 200
Minimum Maximum Values are independent to the sensor maximum

**Output mode** - Select the required current output for your process.

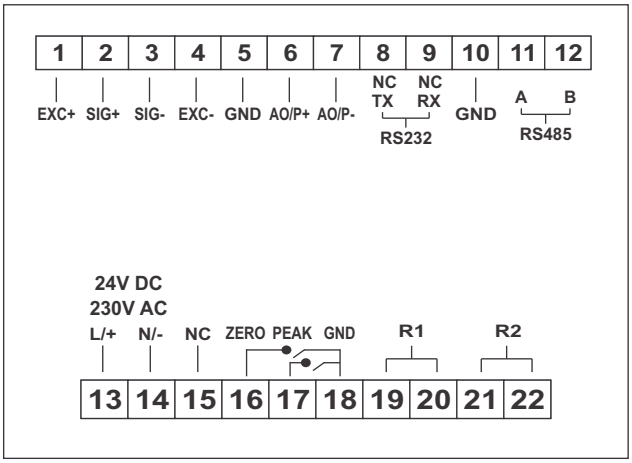
**Min PV**- Enter minimum process value

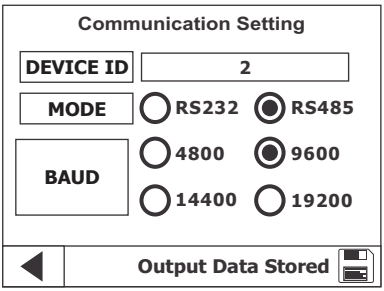
**Max PV** - Enter maximum process value

After entering data select save button upon which "**Output data stored**". Once saved, it will be navigated to output setting screen.

After entering data select save button upon which "**Output data stored**". Once saved, it will be navigated to output setting screen.

## 12.3. Communication




Enter device ID

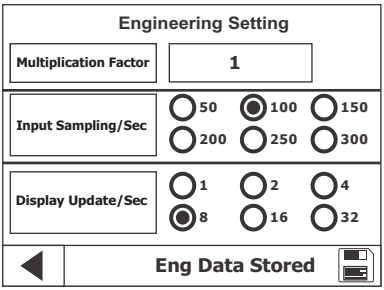
Select type of communication

Select baud rate based on the device connected to koal touch.

After entering data select save button upon which “Com data stored”.

**RS485 -** Get Data from **Register Address 40001**

# 13. Engineering Settings




Enter multiplication factor to be multiplied with calibrated value

Input sampling/sec - Select options for required samples to be read by the indicator.

Display update/sec – Select options for how many times the display has to be updated.

After entering data select save button upon which “Eng data stored”.

# 14. Remote Input - Zero/Peak

## Peak

- Peak option can be enabled through
  - o Button on the touch screen
  - o Using remote input terminal
- When Peak option is enabled the display will show greater value reached after the option is enabled.
- The present value will not be displayed when peak option is selected.
- Connect a pushbutton from GND (18) to Peak (17)
- When the pushbutton is pressed the display will show the greater value
- When the pushbutton is released the display will show the Actual value

## Zero

- Zero option can be enabled through
  - o Button on the touch screen
  - o Using remote input terminal

Connect a momentary pushbutton from GND (18) to Zero (16)

Whenever the pushbutton is pressed the value in the display will become Zero

