



SeethaRam Mechatronics Pvt Ltd

Bridging Gaps in Technology



www.seetharam.in



ram@seetharam.in

Koal Touch Series (KTS) Indicator Controller

USER'S MANUAL

Main Menu

Input Setting Output Setting

Engineering Setting Calibration Setting

Home

CH:1 CH:2

00.00 Kg

Menu Peak Zero

Voltage Output

Output Mode 0-5V
 0-10V
 +/-10V

MIN PV 10

MAX PV 60

Output Data Stored



Engineering Setting

Multiplication Factor 00

Input Sampling/Sec 50 100 150
 200 250 300

Display Update/Sec 1 2 4
 8 16 32

Eng Data Stored

Calibration Settings

1.52 Zero

Enter Known Value 0

Eng Data Stored

Channel # 1 Settings

Channel Mode

- RANGE
- HIGH
- LOW**
- NONE

Alarm Disabled

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

Koal Touch - Strain (KTS)

Indicator Controller

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Koal Touch - Strain (KTS)

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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.

Koal Touch - Strain (KTS)

Indicator Controller

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 / Analogue input / Encoders / LVDT.

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

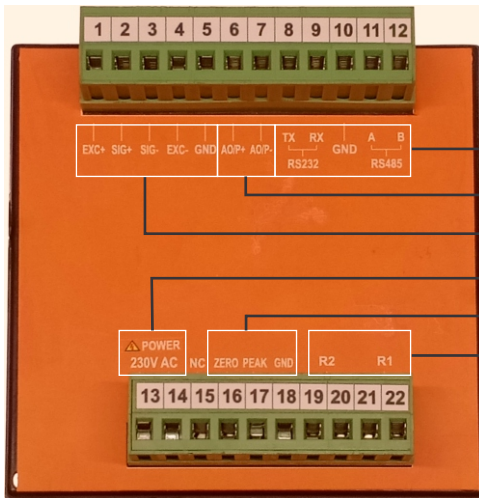
Koal Touch - Strain (KTS)

Indicator Controller



→ Mounting Clamp

→ Touch screen display



→ Communication Terminals

→ Analog Output

→ Sensor Input

→ Power Supply

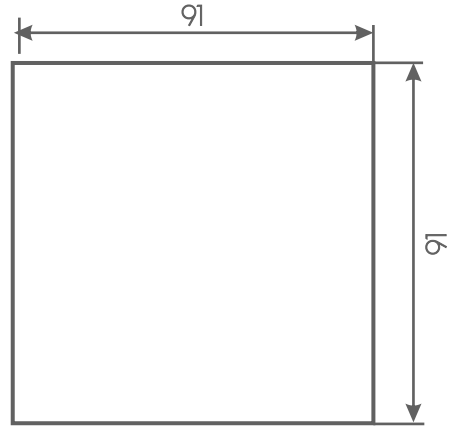
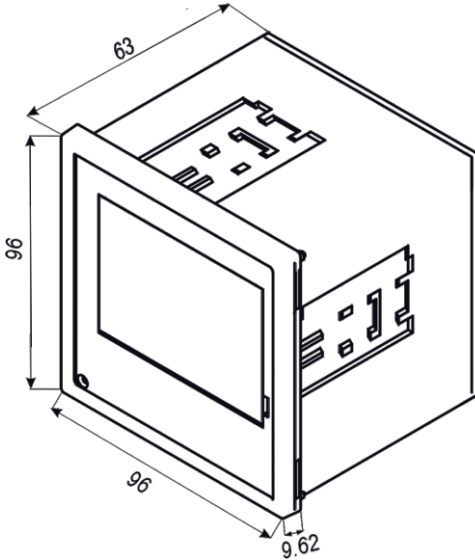
→ Remote Input

→ Relay Output

Koal Touch - Strain (KTS)

Indicator Controller

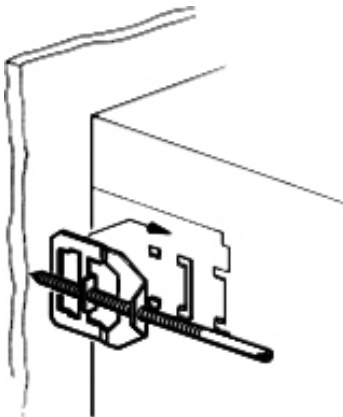
4. Outline Drawing & Panel Cutout



Panel Cutout

All Dimensions are in mm

5. Mounting



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

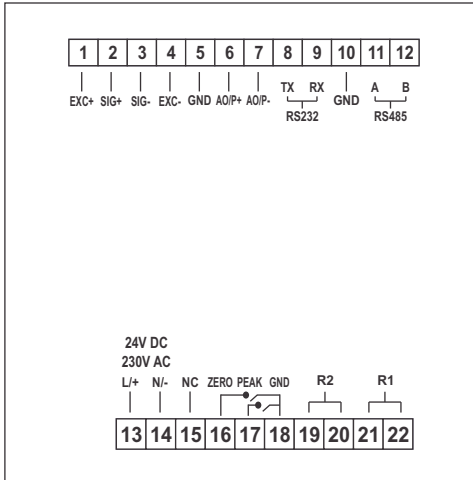
After this, the enclosure is pressed firmly on to the rear wall of the control panel through the integrated screw.

Koal Touch - Strain (KTS)

Indicator Controller

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
- 9 - RX-RS232
- 10 - GND

RS485

- 11 - A-RS485
- 12 - B-RS485

Power Supply

- 230V AC
- 13 - Phase
- 14 - Neutral
- 24V AC
- 13 - +24V
- 14 - 0V

No Connection

- 15 - NC

Remote / Peak & Zero

- 16 - Zero
- 17 - Peak
- 18 - GND

Relay Output

- 19, 20 - Relay 2 NO
- 21, 22 - Relay 1 NO

Koal Touch - Strain (KTS)

Indicator Controller

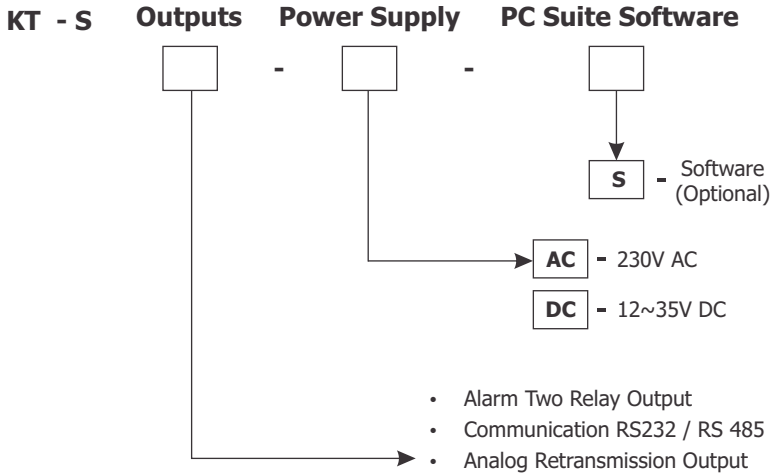
Koal Touch Strain (KTS) – Strain output sensor

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

Koal Touch - Strain (KTS)

Indicator Controller

7. Ordering Code



Note: Custom / Non-Standard Consult Factory

Example:

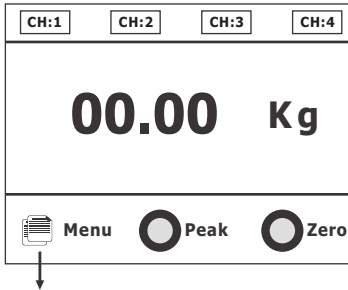
- KT-S-AC : Input 230V AC, Strain measurement, 2 Relay Output, Communication Output, Analog Output
- KT-S-DC : Input 12~35V DC, Strain measurement, 2 Relay Output, Communication Output, Analog Output
- KT-A-DC : Input 12~35V DC, Analog measurement, 2 Relay Output, Communication Output, Analog Output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

Koal Touch - Strain (KTS)






Indicator Controller

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 |
|  | Backward - Navigate to Previous Screen |
|  | Save Button - To Save the Settings |

Note: kindly touch icon for navigation to following screen.

Koal Touch - Strain (KTS)

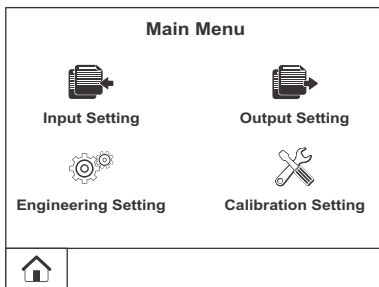
Indicator Controller

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

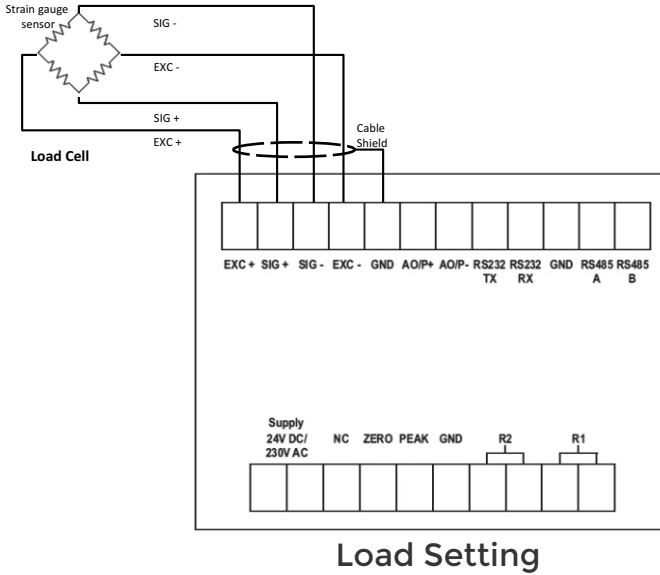
Koal Touch - Strain (KTS)

Indicator Controller

11. Input Setting - KTS

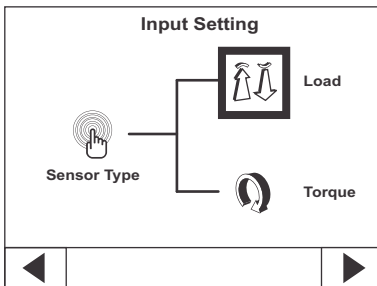
11.1 Koal Touch Strain (KTS) - Load Cell

11.1.1. Connection



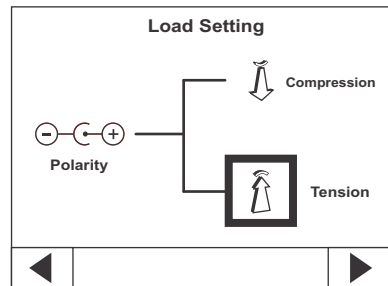
11.1.2. Input Settings

Sensor Type Selection



Compression – unipolar
Tension – Bi-polar

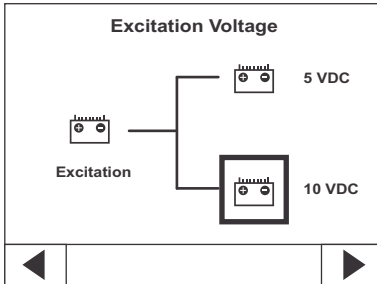
Load Type Selection



Koal Touch - Strain (KTS)

Indicator Controller

Excitation Voltage



Select the recommended excitation as specified in sensor datasheet.

Sensor Input

| Sensor Input | | |
|--------------|---|------|
| Sensitivity | <input type="text" value="2.159"/> | mv/V |
| Full Scale | <input type="text" value="400"/> | |
| Unit | <input checked="" type="radio"/> Kgfm <input type="radio"/> Nm <input type="radio"/> Kgcm | |
| Decimal | <input checked="" type="radio"/> XXXX <input type="radio"/> XXX.X | |
| | <input type="radio"/> XX.XX <input type="radio"/> X.XXX | |

Navigation buttons: left arrow, right arrow, and a menu icon.


- 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.

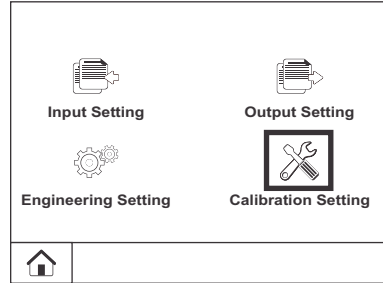
Koal Touch - Strain (KTS)

Indicator Controller

11.1.3. Calibration

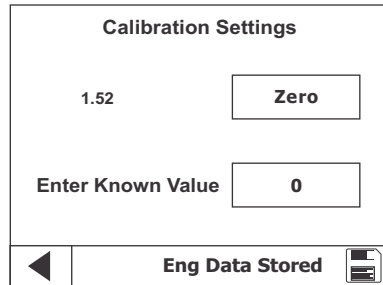
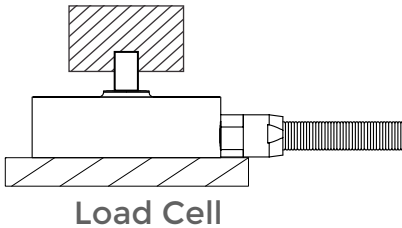
Connect the Load cell with KTS as Shown in diagram (11.1.1 - Pg. 12)

Select calibration settings 
from the Main Menu

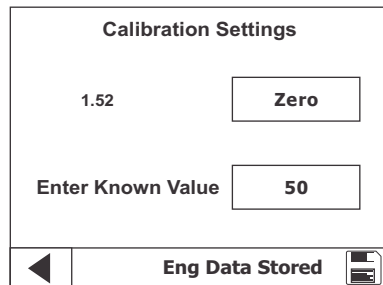
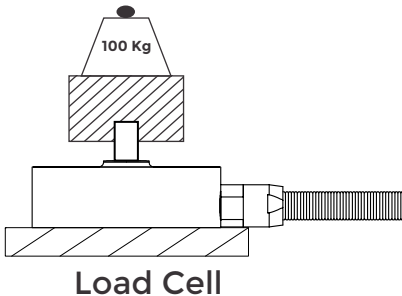


without applying any load on the load cell press zero

Zero



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

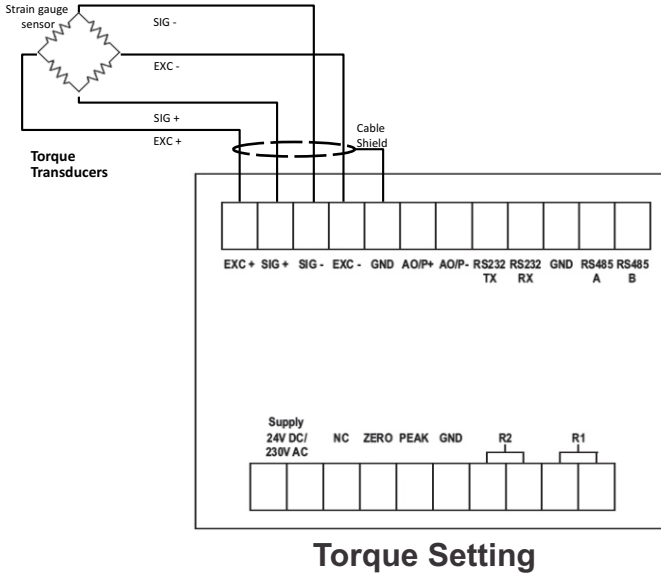


Koal Touch - Strain (KTS)

Indicator Controller

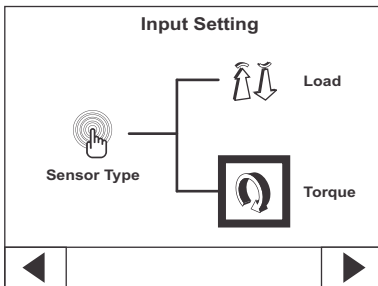
11.2 Koal Touch Strain (KTS) - Torque

11.2.1. Connection

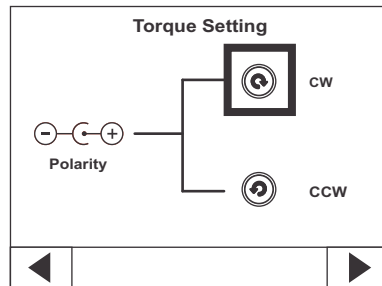


11.1.2. Input Settings

Sensor Type Selection



Torque Type Selection

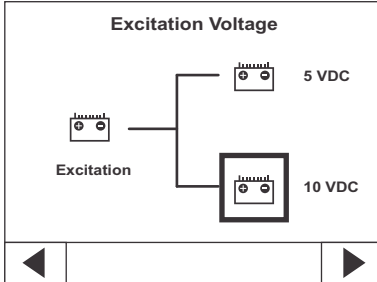


CW – Clock Wise
CCW – Counter Clock Wise

Koal Touch - Strain (KTS)

Indicator Controller

Excitation Voltage



Select the recommended excitation as specified in sensor datasheet.

Sensor Input

| Sensor Input | |
|--------------|---|
| Sensitivity | <input type="text" value="2.039"/> mv/V |
| Full Scale | <input type="text" value="200"/> |
| Unit | <input checked="" type="radio"/> Kgfm <input type="radio"/> Nm <input type="radio"/> Kgcm |
| Decimal | <input type="radio"/> XXXX <input type="radio"/> XXX.X |
| | <input checked="" type="radio"/> XX.XX <input type="radio"/> X.XXX |

Navigation buttons: left arrow, right arrow, and a small icon of a document with a checkmark.

- 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.

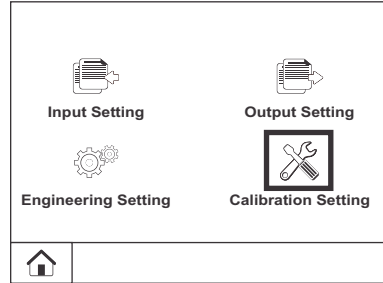
Koal Touch - Strain (KTS)

Indicator Controller

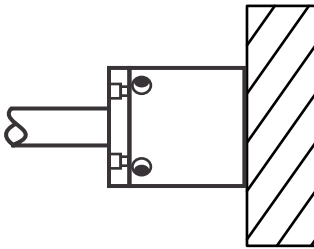
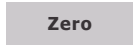
11.2.3. Calibration

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

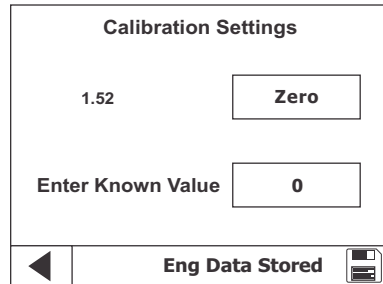
Select calibration settings 
from the Main Menu



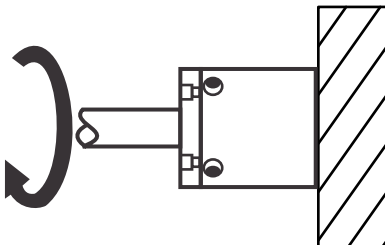
without applying any Torque to the Torque Sensor press zero



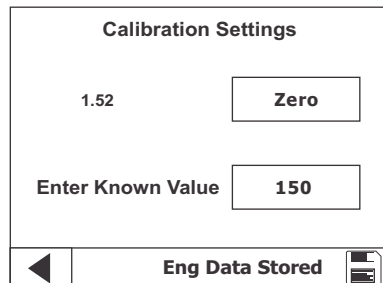
Torque Sensor



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



Torque Sensor

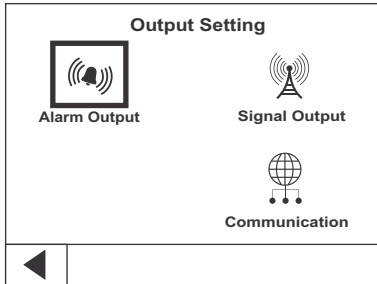


Koal Touch - Strain (KTS)

Indicator Controller

12. Output Setting

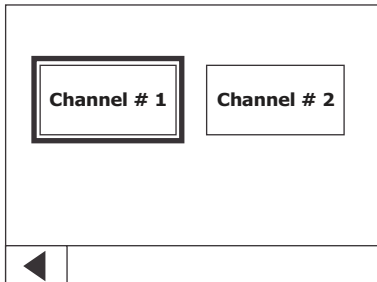
12.1 Alarm Output Setting



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.

Koal Touch - Strain (KTS)

Indicator Controller

12.1.1. Range Setting

Channel Mode Selection Screen

Channel # 1 Settings

Channel Mode

- RANGE
- HIGH
- LOW
- NONE

Alarm Disabled

The screenshot shows a screen titled "Channel # 1 Settings". On the left, there is a box labeled "Channel Mode". To its right, four options are listed vertically: "RANGE", "HIGH", "LOW", and "NONE". The "RANGE" option is highlighted with a double-line border. At the bottom of the screen, there is a status bar with a left arrow, the text "Alarm Disabled", and a right arrow.

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

Range Level Setting

Output Logic HIGH LOW

Low Range 00

High Range 100

Alarm Data Stored

The screenshot shows a screen titled "Range Level Setting". It has three main sections. The first section is "Output Logic" with two radio buttons: "HIGH" (which is selected) and "LOW". The second section is "Low Range" with a text box containing the value "00". The third section is "High Range" with a text box containing the value "100". At the bottom, there is a status bar with a left arrow, the text "Alarm Data Stored", and a small icon of a floppy disk.

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

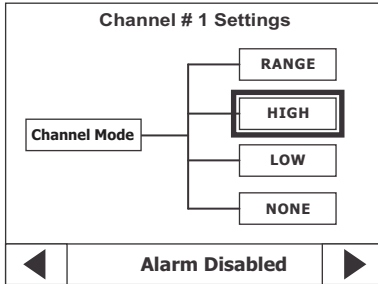
After entering data select save button upon which “**Alarm data stored**”. Once saved, it will be navigated to alarm channel selection screen.

Koal Touch - Strain (KTS)

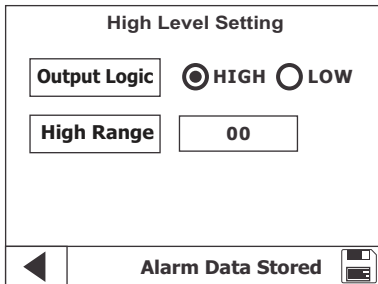
Indicator Controller

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**".

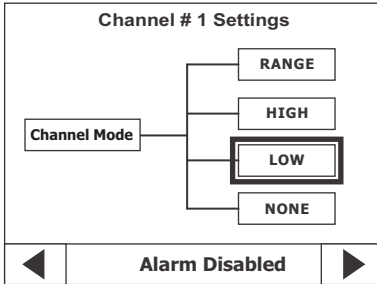
Once saved, it will be navigated to alarm channel selection screen.

Koal Touch - Strain (KTS)

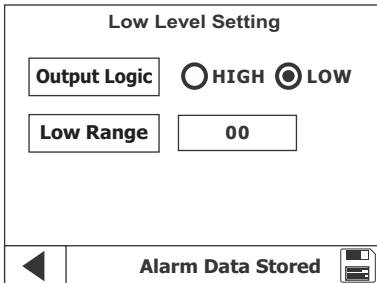
Indicator Controller

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.

Koal Touch - Strain (KTS)

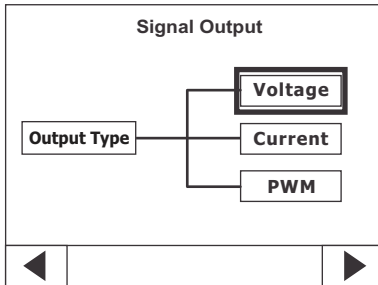
Indicator Controller

12.2. Signal Output

12.2.1. Voltage Output Setting

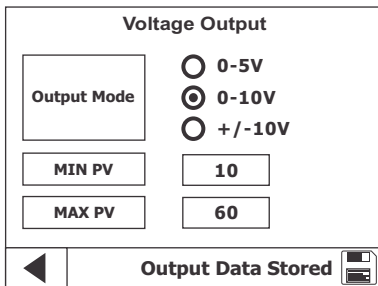
Signal Output Type Selection

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.

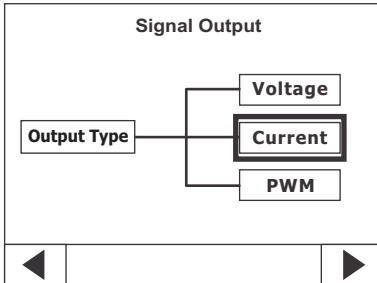
Koal Touch - Strain (KTS)

Indicator Controller

12.2.2. Current Output Setting

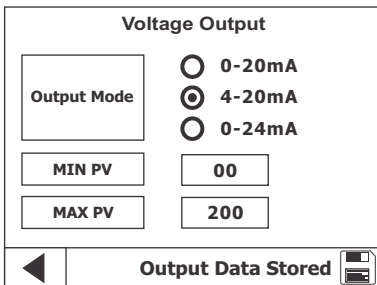
Signal Output Type Selection

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

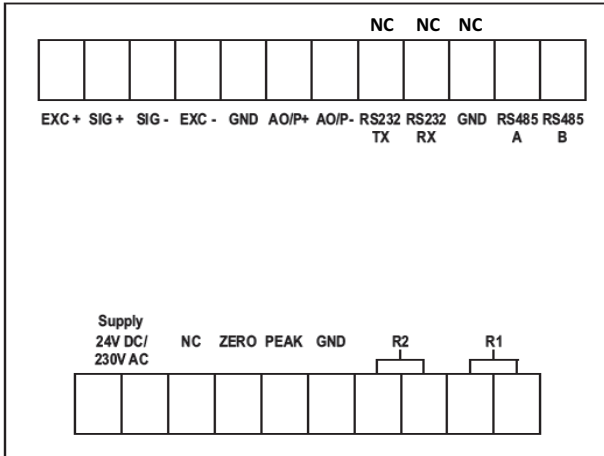
After entering data select save button upon which **“Output data stored”**. Once saved, it will be navigated to output setting screen.

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

Koal Touch - Strain (KTS)

Indicator Controller

12.3. Communication



Communication Setting

DEVICE ID

MODE RS232 RS485

BAUD 9600 19200
 56000 115200

Output Data Stored

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

Koal Touch - Strain (KTS)

Indicator Controller

13. Engineering Settings

| Engineering Setting | |
|---|--|
| Multiplication Factor | <input type="text" value="00"/> |
| Input Sampling/Sec | <input type="radio"/> 50 <input checked="" type="radio"/> 100 <input type="radio"/> 150 <input type="radio"/> 200 <input type="radio"/> 250 <input type="radio"/> 300 |
| Display Update/Sec | <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 4 <input checked="" type="radio"/> 8 <input type="radio"/> 16 <input type="radio"/> 32 |
|  | Eng Data Stored  |

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”.

Koal Touch - Strain (KTS)

Indicator Controller

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 momentary 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

