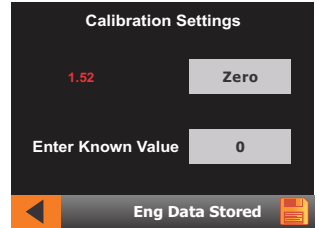
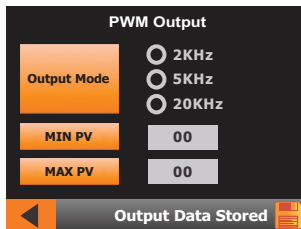
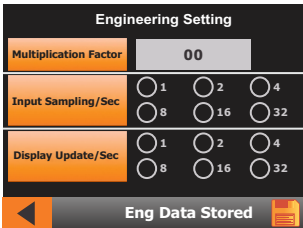
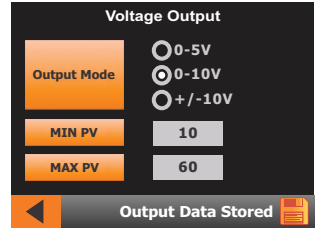
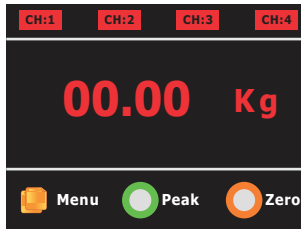
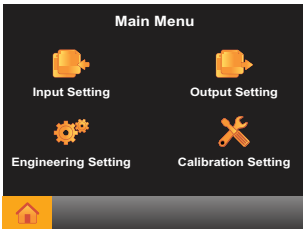


Koal Touch Series

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.

Seetharam Mechatronics Pvt. Ltd

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Email: ram@seetharam.in

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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.

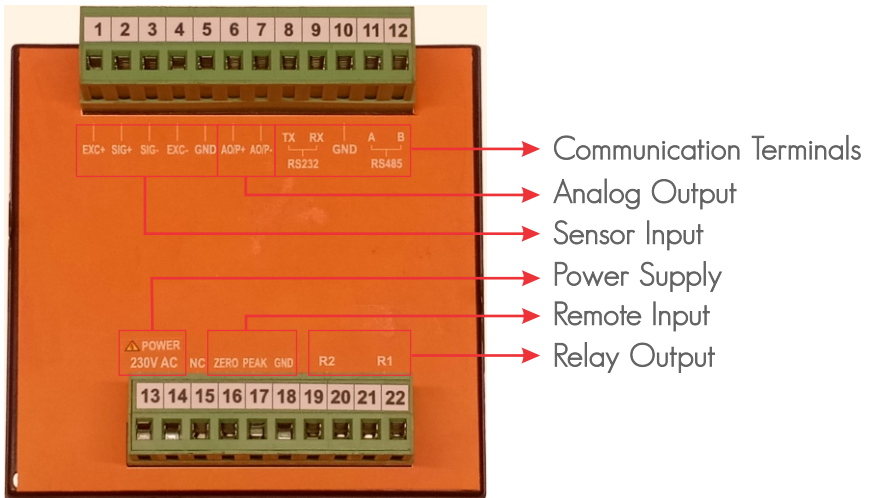
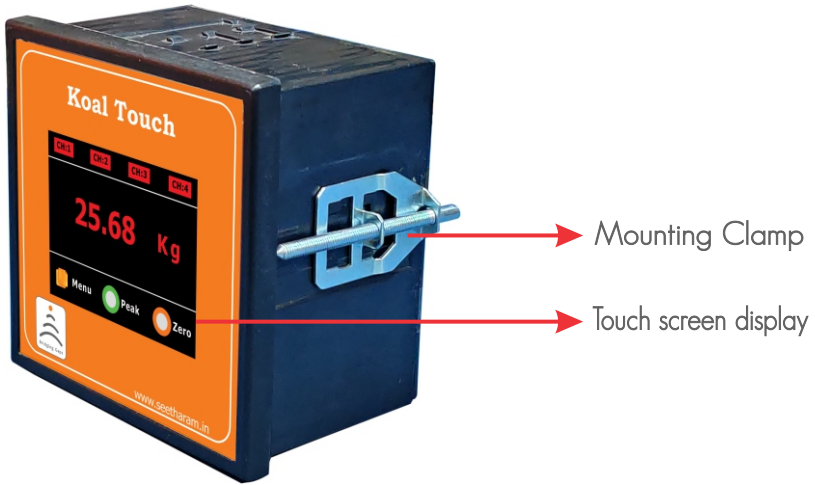
3. Product Description

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

- KT-S - **Koal Touch Strain**
Work with Strain Gauge based sensors, Load cell, Torque Transducers
- KT-A - **Koal Touch Analogue**
Work with 0-10V DC & 0-20mA (Potentiometer, pressure and other amplifies output sensors).
- KT-G - **Koal Touch Gaman**
Encoder Modbus output
- KT-E - **Koal Touch Encoder**
TTL output Encoder

Koal Touch Series

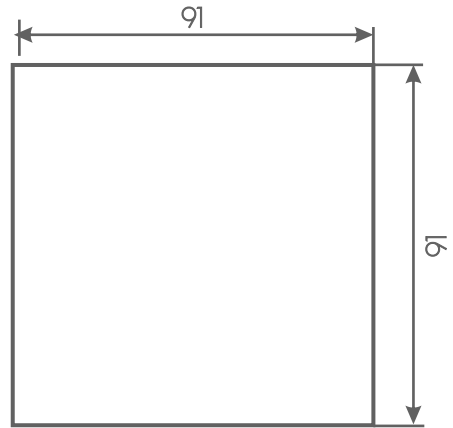
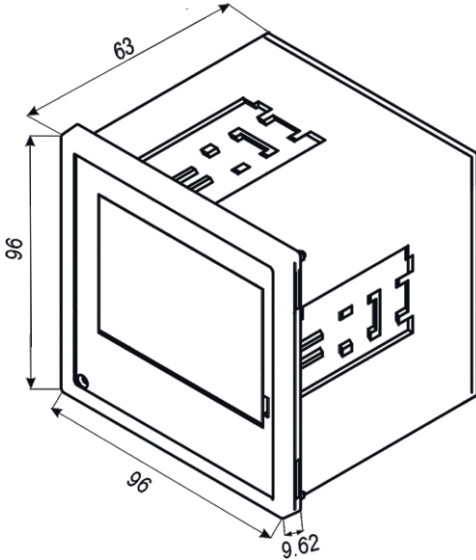
Strain, Analog, Gaman & Encoder



Koal Touch Series

Strain, Analog, Gaman & Encoder

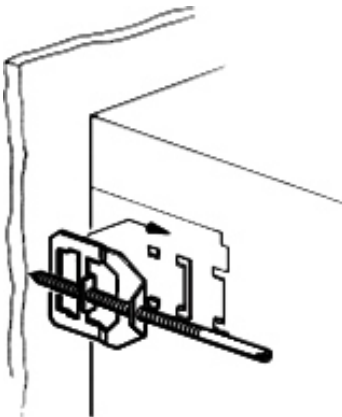
4. Outline Drawing & Panel Cutout



Panel Cutout

All Dimensions are in mm

5. Mounting

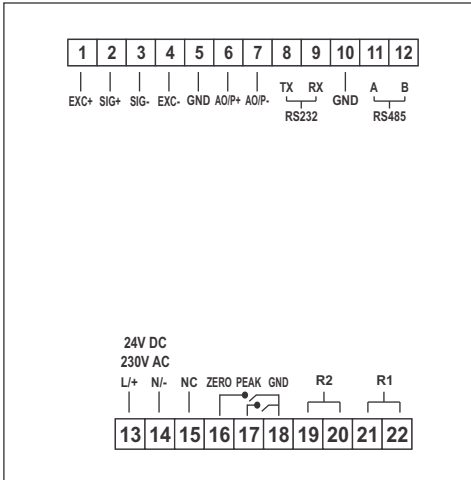


The Screw clamp is placed on the enclosure from the rear of the control panel.

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
- 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

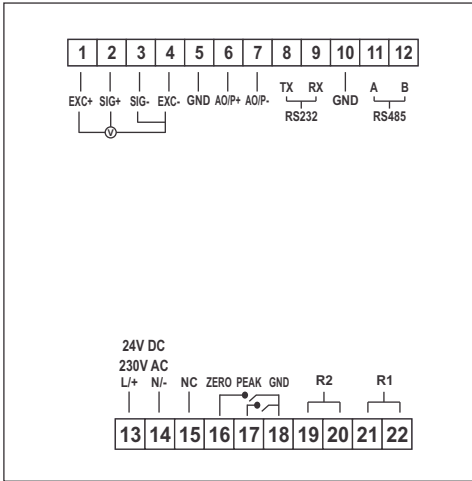
Relay Output

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

Koal Touch Strain (KTS) – 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. 16)		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 -	
3	Analog Output (Refer Pg. 34)		6,7	<u>GND</u>	
				Pin 5: Shield of the sensor cable	
				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	
4	Communication	RS232	8,9,10	RS 232	RS 485
		(Refer Pg. 36)			Pin 8: TX
		RS485	11,12,10	Pin 9: RX	Pin 12: B
				Pin 10: GND	Pin 10: GND
5	Remote Input (Refer Pg. 38)		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 (Refer Pg. 30)	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	

6.2. Koal Touch Analog (KTA) - Analog 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

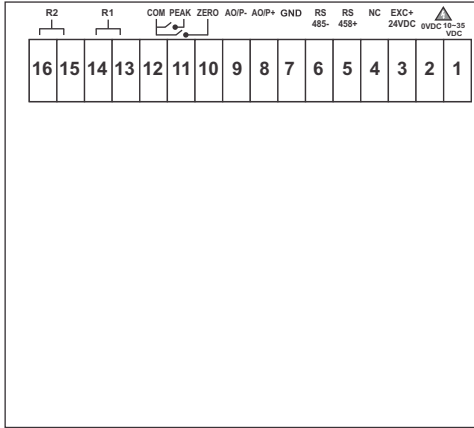
Koal Touch Analog (KTA) – Analog output sensor

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. 22)		1,2,3,4,5	Excitation	
				Pin 1: EXC +	
				Pin 4 & Pin 3: EXC - /make a short link	
				Note: sensor Excitation 5V DC or 10V DC can be configured through menu.	
				Signal	
			Pin 2: SIG +		
			GND		
			Pin 5: Shield of the sensor cable		
3	Analog Output (Refer Pg. 34)		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. 36)	RS232	8,9,10	RS 232	RS 485
		RS485		Pin 8: TX	Pin 11:A
				Pin 9: RX	Pin 12: B
			Pin 10: GND	Pin 10: GND	
5	Remote Input (Refer Pg. 38)		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 (Refer Pg. 30)	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 Series

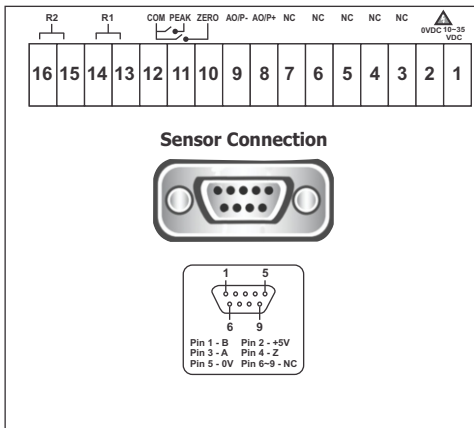
Strain, Analog, Gaman & Encoder

6.3. Koal Touch Gaman (KTG) - Encoder Modbus Output



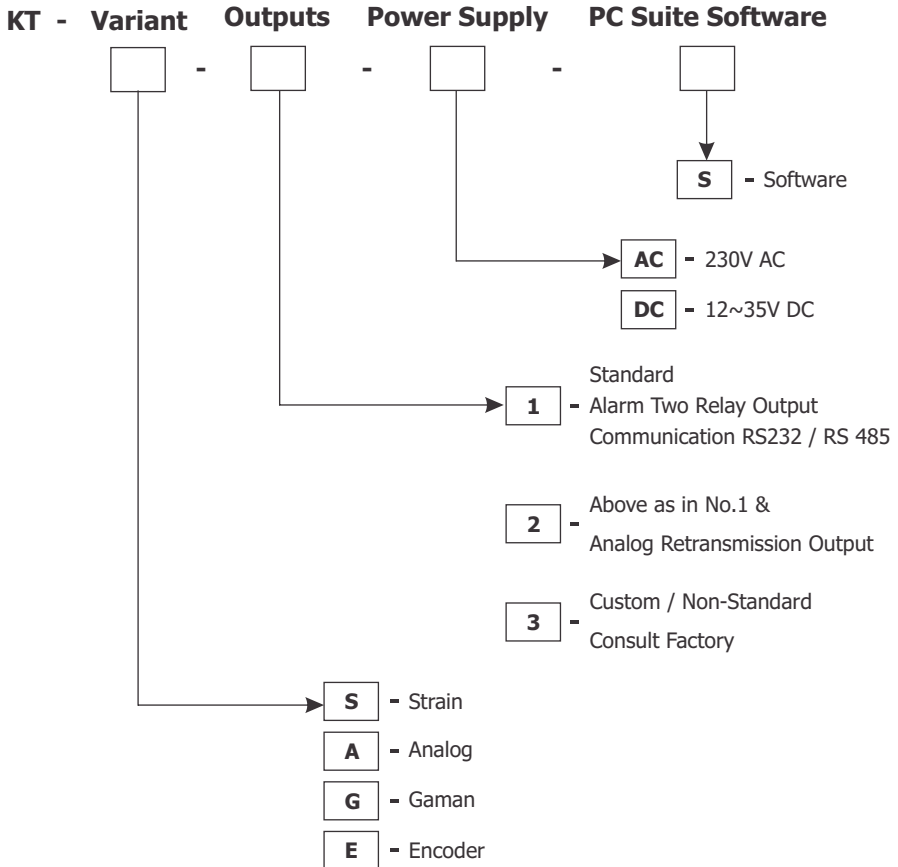
- 1 - 10-35V DC
- 2 - 0V DC
- 3 - Exc+ 24V DC
- 4 - NC
- 5 - RS 485+
- 6 - RS 485-
- 7 - GND
- 8 - A O/P+
- 9 - A O/P -
- 10 - Zero
- 11 - Peak
- 12 - COM
- 13 - NO1
- 14 - COM1
- 15 - NO2
- 16 - COM2

6.4. Koal Touch Encoder (KTE) - TTL Output Encoder



- 1 - 10-35V DC
- 2 - 0V DC
- 3 - NC
- 4 - NC
- 5 - NC
- 6 - NC
- 7 - NC
- 8 - A O/P+
- 9 - A O/P -
- 10 - Zero
- 11 - Peak
- 12 - COM
- 13 - NO1
- 14 - COM1
- 15 - NO2
- 16 - COM2

7. Ordering Code

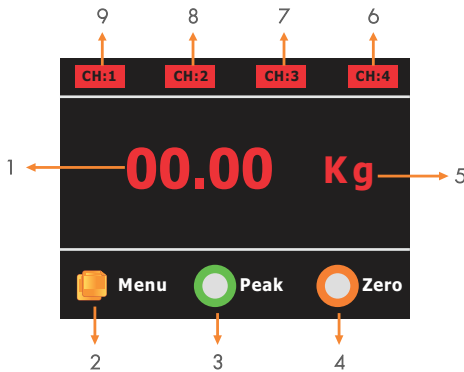


Example:






- KT-A-1-DC : Analog measurement, 2 Relay Output Communication RS232 and 12~35V DC
- KT-S-1-AC : Strain measurement, 2 Relay Output Communication RS232 and 230V AC
- KT-S-2-DC-S : Strain Measurement, 2 Relay Output Communication RS232 & Analog Output & 12~35V DC with PC Suite Software

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 Series

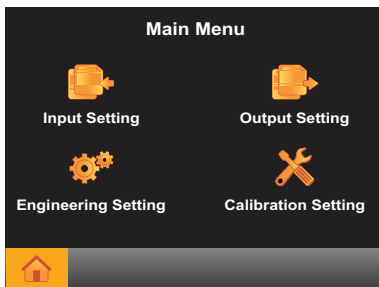
Strain, Analog, Gaman & Encoder

Numeric Screen

Numeric Screen		
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

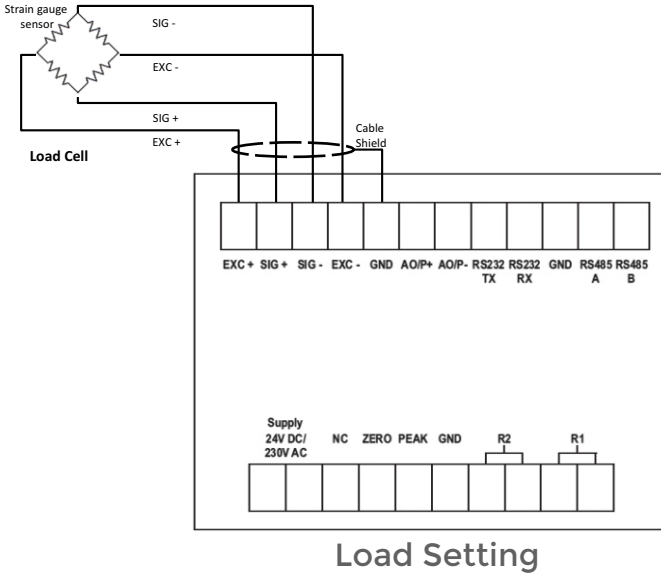
1. Input setting
2. Output setting
3. Engineering setting
4. Calibration setting

} Common for all
Koal Touch Series

11. Input Setting - KTS

11.1 Koal Touch Strain (KTS) - Load Cell

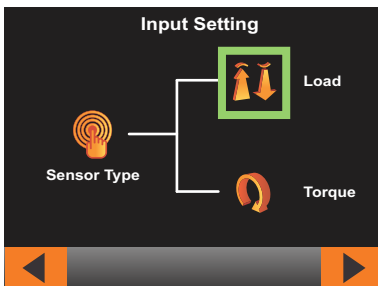
11.1.1. Connection



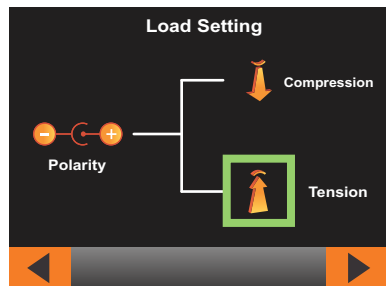
Load Setting

11.1.2. Input Settings

Sensor Type Selection



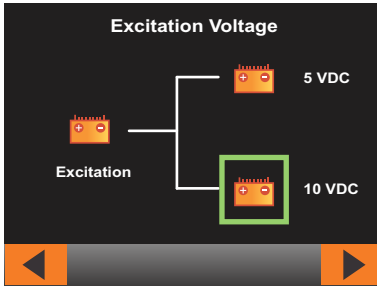
Load Type Selection



Compression - unipolar

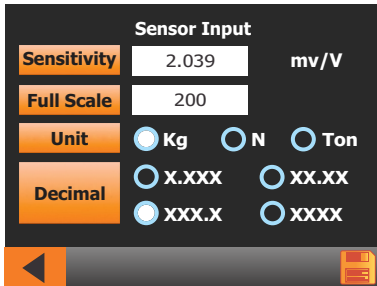
Tension - Bi-polar

Excitation Voltage



Select the recommended excitation as specified in sensor datasheet.

Sensor Input

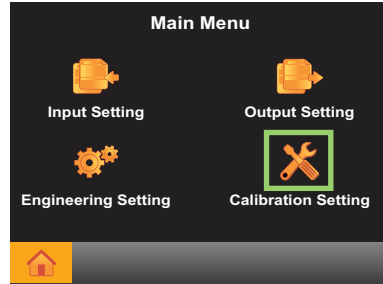


- Enter sensitivity of sensor as mentioned in datasheet.
- Enter full scale of sensor to be measured.
- Select the unit to be displayed of sensor (unit conversion not available)
- Select the appropriate decimal point.
- Save the setting.

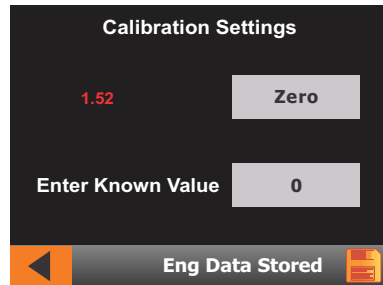
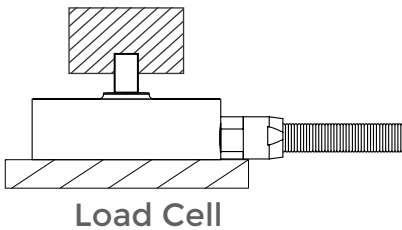
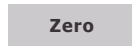
11.1.3. Calibration


Connect the Load cell with KTS as Shown in diagram (11.1.1 - Pg. 16)

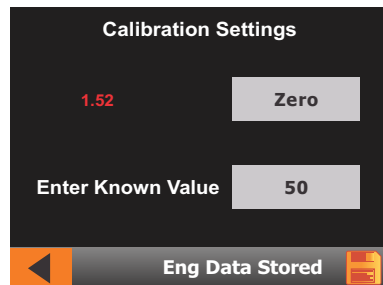
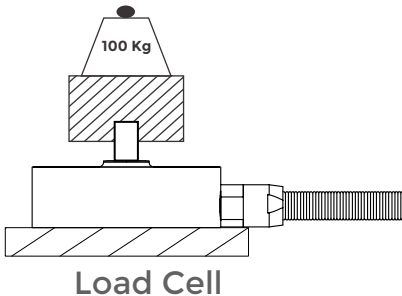
Select calibration settings  from the Main Menu



without applying any load on the load cell press zero

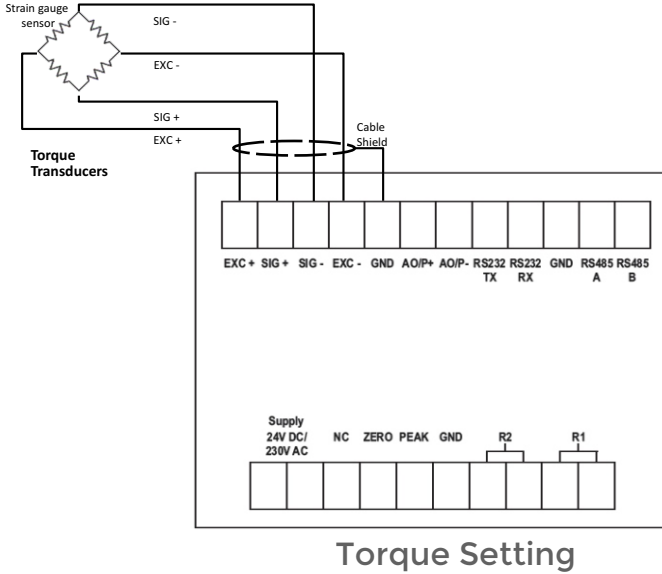


Apply a known weight on the load cell and enter that value and then press save 



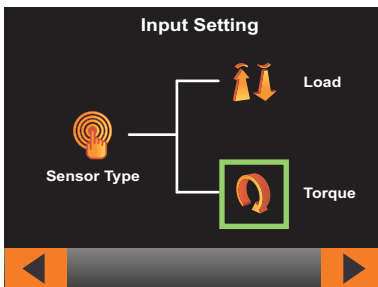
11.2 Koal Touch Strain (KTS) - Torque

11.2.1. Connection

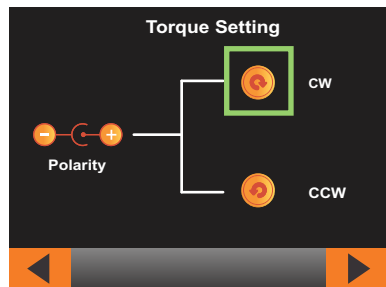


11.1.2. Input Settings

Sensor Type Selection

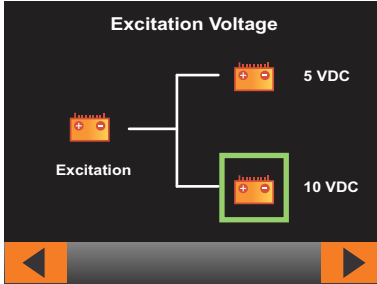


Torque Type Selection



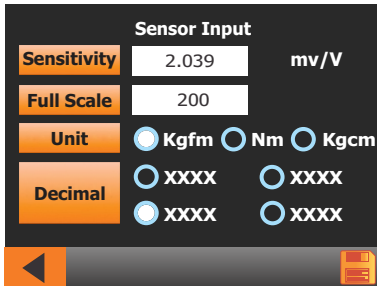
CW - Clock Wise
CCW - Counter Clock Wise

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.

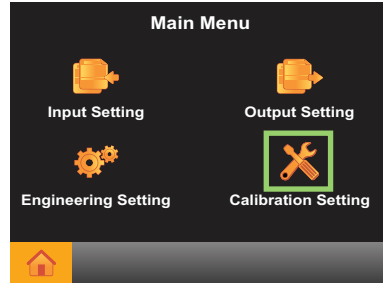
Koal Touch Series

Strain, Analog, Gaman & Encoder

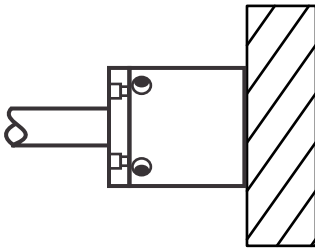
11.2.3. Calibration

Connect the Torque Sensor with KTS as Shown in diagram (11.2.1 - Pg. 19)

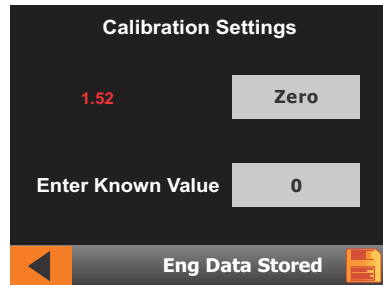
Select calibration settings 
from the Main Menu



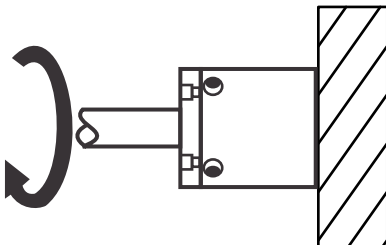
without applying any Torque to the Torque Sensor press zero



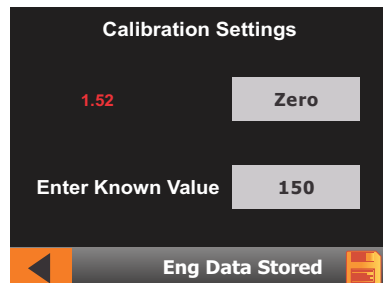
Torque Sensor



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



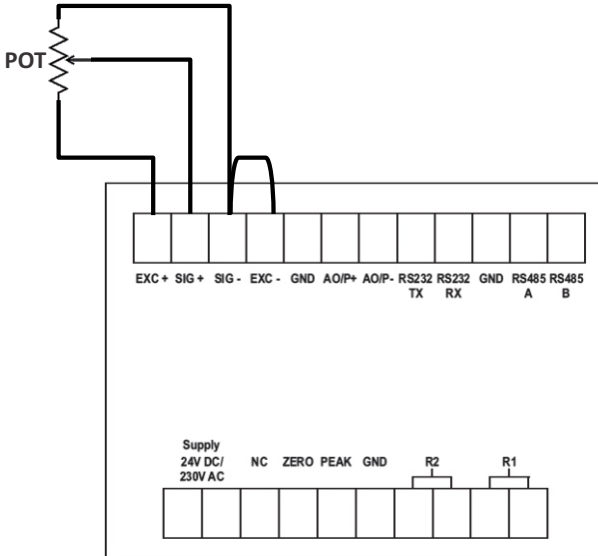
Torque Sensor



12. Input Setting - KTA

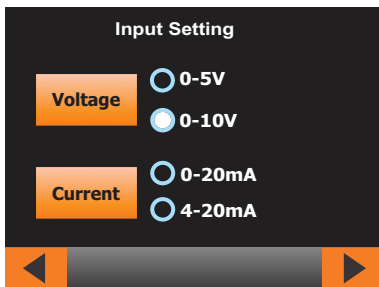
12.1. Koal Touch Analog (KTA) - Potentiometer

12.1.1. Connection



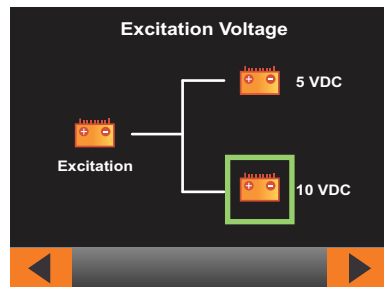
12.1.2. Input Setting

Input Selection



Select the output of sensor connected.
(Output of sensor is input to indicator)

Excitation Voltage Selection



Select the recommended excitation
as specified in sensor datasheet

Select the recommended excitation as specified in sensor datasheet.

Sensor Input

Sensor Input

Low Scale 0.00

Full Scale 200

Decimal

XXXX XXXX

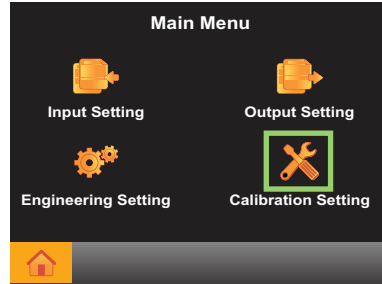
XXXX XXXX


- Enter Low Scale & full scale of sensor to be measured.
- Select the appropriate decimal point.
- Save the setting.

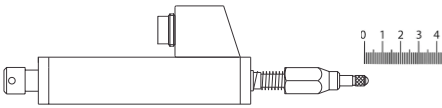
12.1.3. Calibration

for example calibrating a potentiometer type Displacement Sensor
Connect the Potentiometer type Sensor with KTA as Shown in
diagram (12.1.1 - Pg. 22)

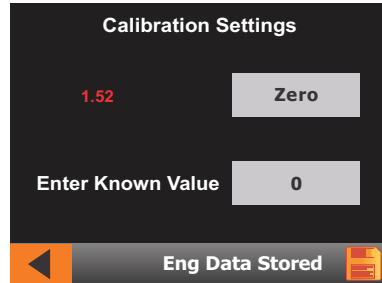
Select calibration settings 
from the Main Menu




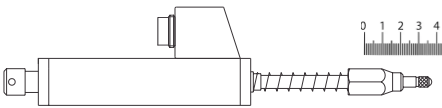
after adjusting the potentiometer type sensor to zero position as required
and then press zero 



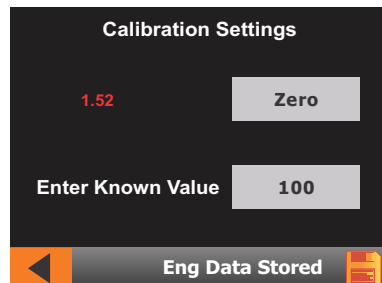
Displacement Sensor



Adjust the Potentiometer type sensor to required distance and enter the
value press save 

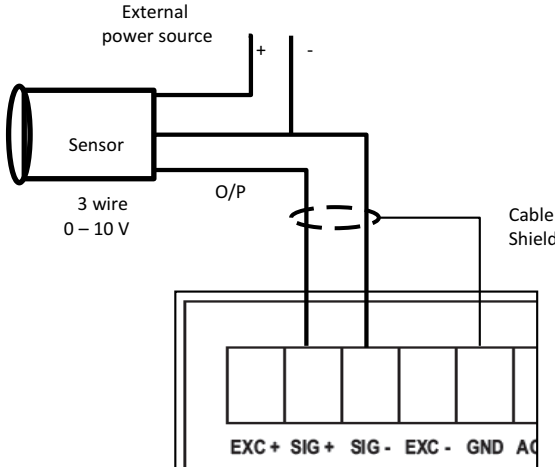


Displacement Sensor



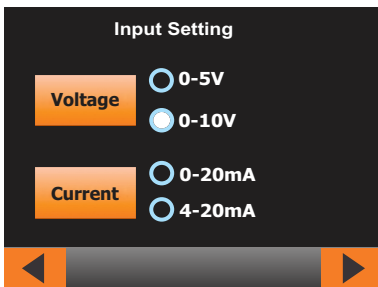
12.2. Koal Touch Analog (KTA) - Voltage Input

12.2.1. Connection



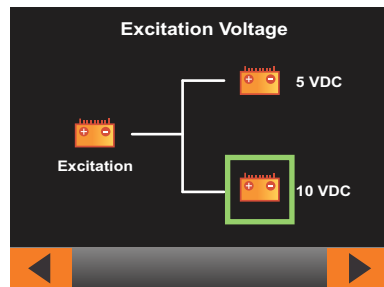
12.2.2. Input Setting

Input Selection



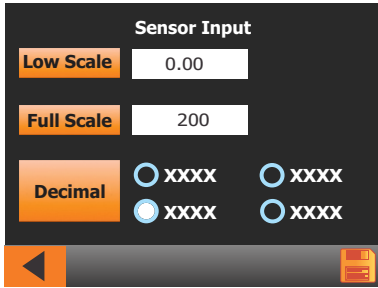
Select the output of sensor connected.
(Output of sensor is input to indicator)

Excitation Voltage Selection



Select the recommended excitation
as specified in sensor datasheet

Sensor Input

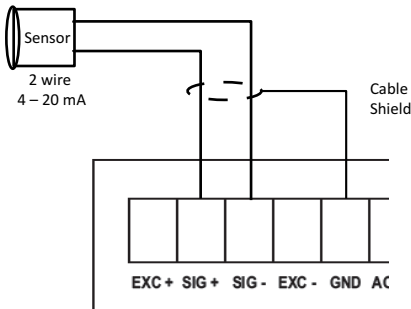


- Enter Low Scale & full scale of sensor to be measured.
- Select the appropriate decimal point.
- Save the setting.

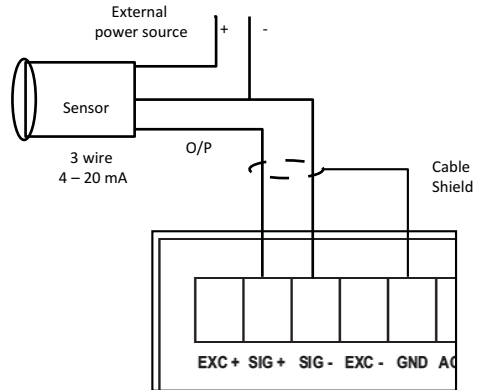
12.3. Koal Touch Analog (KTA) - Current Input

12.3.1. Connection

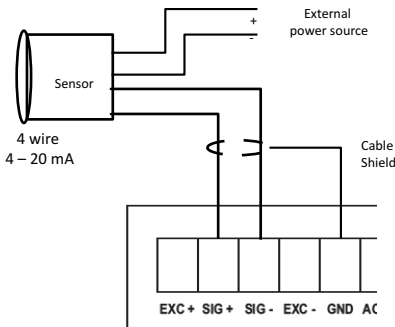
2 wire 4~20mA



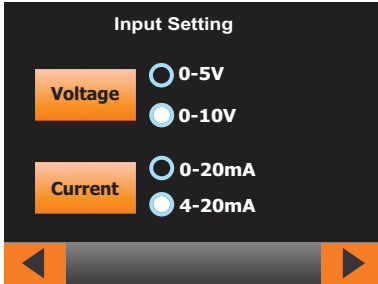
3 wire 4~20mA



4 wire 4~20mA

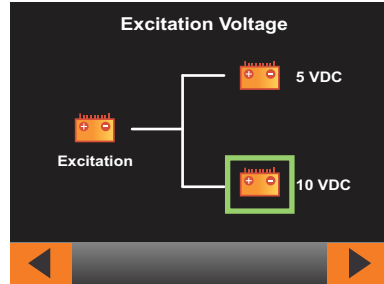


12.3.2. Input Setting Input Selection



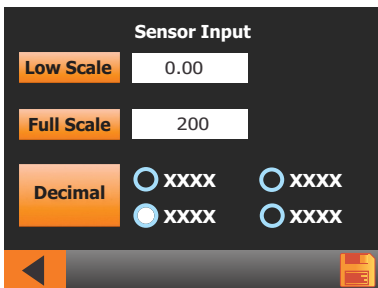
Select the output of sensor connected.
(Output of sensor is input to indicator)

Excitation Voltage Selection



Select the recommended excitation
as specified in sensor datasheet

Sensor Input



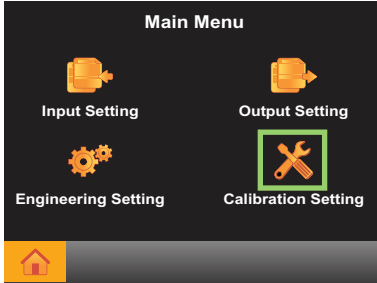
- Enter Low Scale & full scale of sensor to be measured.
- Select the appropriate decimal point.
- Save the setting.

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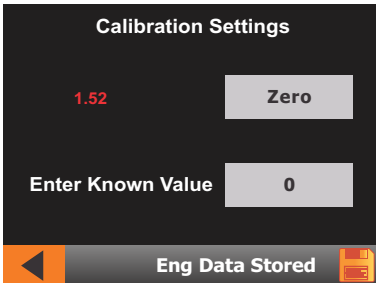
12.1.3. Calibration


These are many sensors available with 0~10V or 4~20mA output
Connection details for 0~10V (12.2.1 - Pg.No.24)

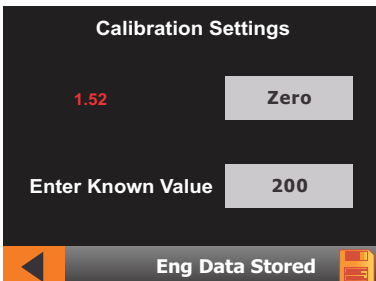


Select calibration settings 
from the Main Menu

after adjusting the potentiometer type sensor to zero position as required
and then press zero 



Adjust the Potentiometer type sensor to required distance and enter the
value press save 



13. Input Setting - KTG

13.1 Koal Touch Gaman (KTG) Input Setting

Input Setting

Sensor Input	
PPI	1250
Mode	<input checked="" type="radio"/> X2 <input type="radio"/> X4
Unit	<input checked="" type="radio"/> mm <input type="radio"/> Inch
Decimal	<input type="radio"/> XXXX <input type="radio"/> XXX.X <input checked="" type="radio"/> XX.XX <input type="radio"/> X.XXX

- Enter Pulse Per Inch (PPI) of sensor connected
- Select Mode X2 (dual phasing) (or) X4 (quad phasing)
- Select the unit to be displayed of sensor (unit conversion not available)
- Select the appropriate decimal point
- Save the setting

14. Input Setting - KTE

14.1 Koal Touch Encoder (KTE) Input Setting

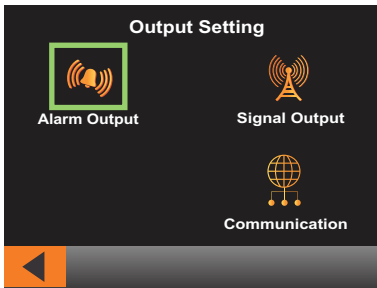
Input Setting

Sensor Input	
PPI	1250
Mode	<input checked="" type="radio"/> X2 <input type="radio"/> X4
Unit	<input checked="" type="radio"/> mm <input type="radio"/> Inch
Decimal	<input type="radio"/> XXXX <input type="radio"/> XXX.X <input checked="" type="radio"/> XX.XX <input type="radio"/> X.XXX

- Enter Pulse Per Inch (PPI) of sensor connected
- Select Mode X2 (dual phasing) (or) X4 (quad phasing)
- Select the unit to be displayed of sensor (unit conversion not available)
- Select the appropriate decimal point
- Save the setting

15. Output Setting

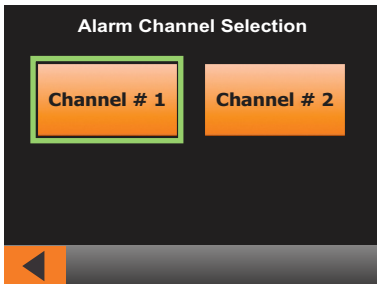
15.1 Alarm Output Setting



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.

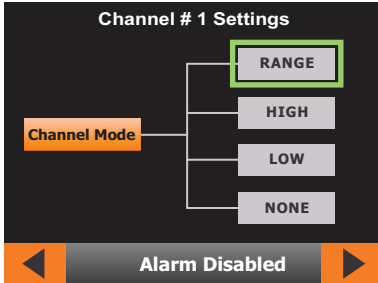
Channel Navigation Screen



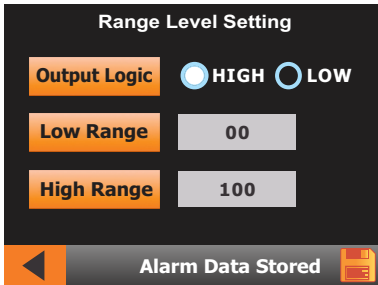
Select the channel in which alarm to be configured.

15.1.1. 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.

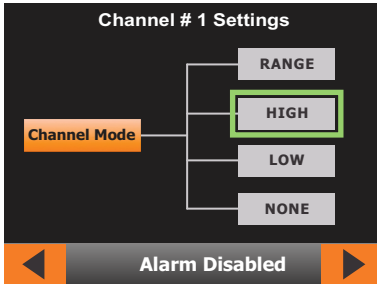
Low range - Enter the low range value

High range - Enter the high range value

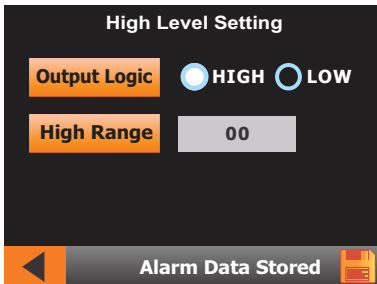
After entering data select save button upon which "**Alarm data stored**". Once saved, it will be navigated to alarm channel selection screen.

15.1.2. 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.

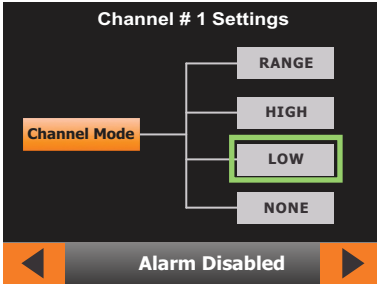
Select **LOW** for de-energizing the relay after the values. Till then the relay will be energized.

High range - Enter the high range value

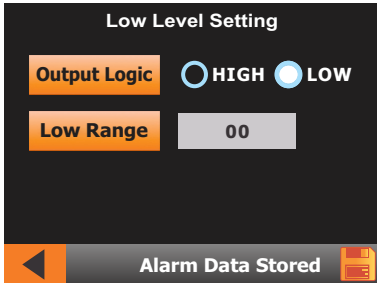
After entering data select save button upon which "**Alarm data stored**". Once saved, it will be navigated to alarm channel selection screen.

15.1.3. 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

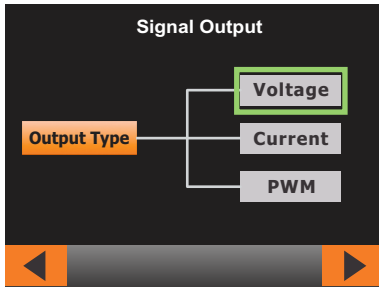
After entering data select save button upon which "**Alarm data stored**". Once saved, it will be navigated to alarm channel selection screen.

15.2. Signal Output

15.2.1. Voltage Output Setting

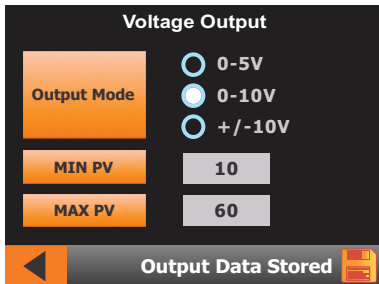
Signal Output Type Selection

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

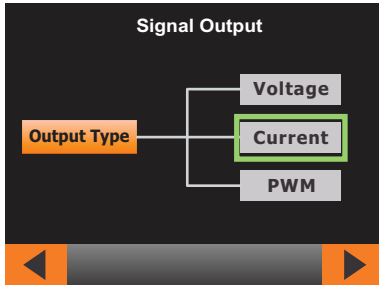
Max PV - Enter maximum process value

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

15.2.2. Current Output Setting

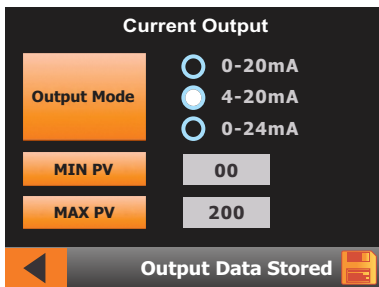
Signal Output Type Selection

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

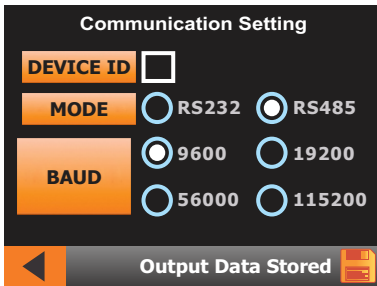
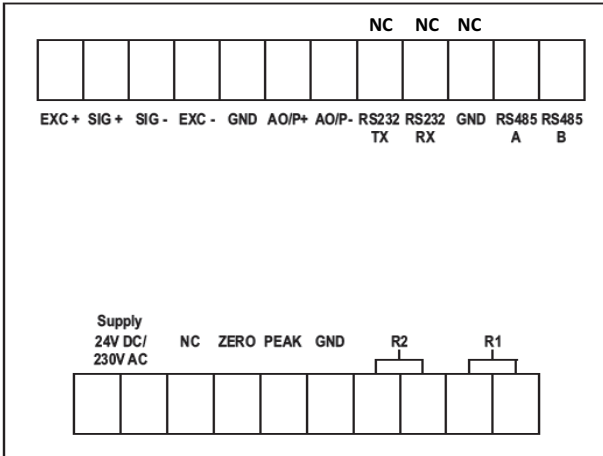
After entering data select save button upon which "Output data stored". Once saved, it will be navigated to output setting screen.

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

Koal Touch Series

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15.3. Communication (for KTS & KTA)



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**

16. Engineering Settings

Engineering Setting	
Multiplication Factor	00
Input Sampling/Sec	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 4 <input type="radio"/> 8 <input type="radio"/> 16 <input type="radio"/> 32
Display Update/Sec	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 4 <input 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”.

17. Remote Input - Zero/Peak

Peak

- Peak option can be enabled through
 - Button on the touch screen
 - 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
 - Button on the touch screen
 - 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

