TRX Quick Start Guide

TRX

Strain Gauge Sensor Display

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Introduction/overview

The TRX allows simple display of strain bridge based measurements such as load cells and pressure gauges with input sensitivity from 0.5 mV/V up to +/-448 mV/V.
Up to six **calibration ranges** are available allowing for different loading modes (tension and compression) or different sensors. Each calibration range will remember settings that contribute to the **user experience** such as selected units and tare values.
TEDS devices using templates 33, 40 and 41 can be connected and will update the viewed calibration. The last twenty TEDS devices connected will be remembered and recognized when connected again reverting to the last user experience settings for that device. TEDS can be disabled and the internal calibration ranges become available again.
There are also up to six **display modes** available. These determine what is visible on the LCD display and what actions are available from the set of three soft keys.
Full configuration is available with a free PC based toolkit. Some simple configuration such as two point calibration is available from within the handheld using the **menu system**.

Getting started

This document is designed to give a very quick overview of the TRX and its general, standard functionality. For more details, see the full manual.

Hardware overview

Front

Icons
Battery low and other warning icons

Primary display
Main values with description and units

Soft keys
Current soft key function

Soft keys
Perform the function shown on screen

Up/down
Function dependent on display state
1. Move through **calibration ranges** if available
2.Move selection up/down in **menu system**
3. Change values up/down of selected digit when setting limits etc

Info
Range name etc

Secondary display
Can be set to display other values such as max with description and units

Tertiary display
Can be set to display other values such as min with description and units

Power
Hold for 2 seconds to power up/down

OK
Function dependent on display state
1. Open **menu system**, if available
2. Select menu items
3. Confirm changes
4. Long press cancels changes

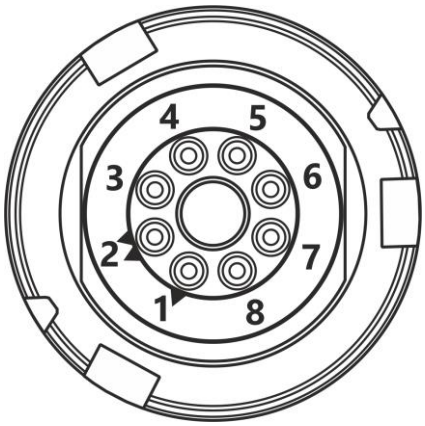
Left/right
Function dependent on display state
1. Move through **display modes** if available
2. Hold for 2 seconds to move **decimal place** left/right
3. Change selected digit when setting limits etc

Back


Fixing holes
No.2 self tapping
1/4″ UNC
for mounting
Battery cover
Secured by single
screw at bottom
Use 2 x AA batteries
USB cover
Micro USB connector
for connection to PC
for configuration and
alternate power supply

Top

The Load Cell connector fitted to TRX Standard Product is BINDER 770-8. The cable fitted mating connector is a BINDER 771 8-way male connector. There are three versions available with different field cable diameters.



View from solder connector side of the connector

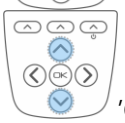
Cable pair	Suggested Colour	Connector Pin	Function
1	White	1	Loadcell Reference +ve
	Black	2	Loadcell Reference -ve
2	Green	3	Loadcell Signal +ve
	Black	4	Loadcell Signal -ve
3	Red	5	Loadcell Excitation +ve
	Black	6	Loadcell Excitation -ve
4	Blue	7	TEDS
	Black	8	Ground
Screen	Grey		Cable screen should *only* be connected to chassis of the sensor. If this cannot be achieved, then it should be connected to Excitation -ve.

Setting up without the Toolkit

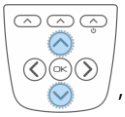
Quick, limited setup is possible using just the handheld and no toolkit. To access all the configuration features, you will need to use the toolkit.

Calibration

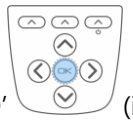
> Please note that this must be done in the correct order for the calibration to work correctly. Changing the **Sensitivity** after inputting mV/V readings will cause the calibration to be void. Always make sure you finish with **Apply**

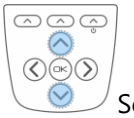



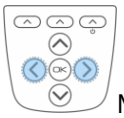
'CALIBRATION'

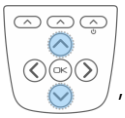


'USER CALIBRATION'

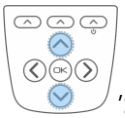

'ENTER PASSWORD' (if set)


Scrolls through available characters

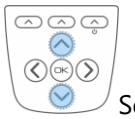

Moves between digits

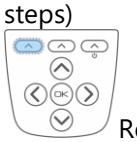


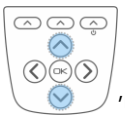
'LIVE CALIBRATION'



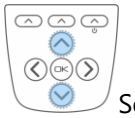
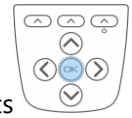
'SENSITIVITY'


Select required input sensitivity  (Note, this **MUST** be selected before the following steps)

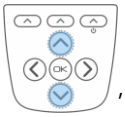

Return to previous menu



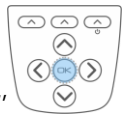
'UNITS'

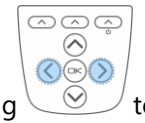

Select required calibration measurement type and units 


Return to previous menu



'LOW/HIGH CALIBRATION'

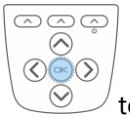

'SET OUTPUT LOW'


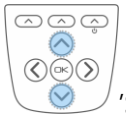
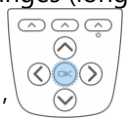
Manually enter the low output required using  to select digits and  to change the value


changes the sign of the entered number

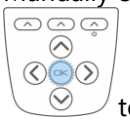

moves the decimal place to the left

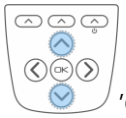

moves the decimal to the right


to save changes (long press cancels changes and returns to previous view)


'SET OUTPUT HIGH'


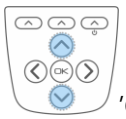
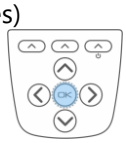
Manually enter the high output required (as above)


to save changes (long press cancels changes)


'CAPTURE mV/V LOW' Apply low load, let load settle then:


Confirm or edit low mV/V input
(You can manually edit the mV/V to a value from a calibration certificate here)


to save changes (long press cancels manual changes)


'CAPTURE mV/V HIGH' Apply high load, let load settle then:


Confirm or edit high mV/V input
(You can manually edit the mV/V value to a value from a calibration certificate here)


to save changes (long press cancels manual changes)

If everything is as planned


'APPLY'


 Return to previous selected display mode.

Change units

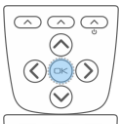
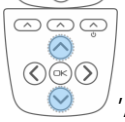
In all standard display modes,  scrolls through the available units for the selected calibration.

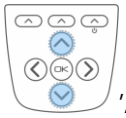
Change decimal places

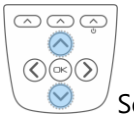
In all standard display modes, a 2 second press  shifts the decimal place position for the selected units.

Overload/underload alarm

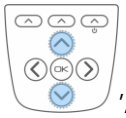
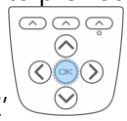
> Please note, the values saved for the thresholds are applied in the calibrated units of the currently selected range. This means that different ranges will trigger at different loads if the calibrated unit is different.

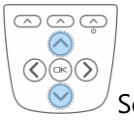
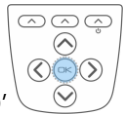
   'ALARM'

  'ALARM SOURCE'

  Select 'GROSS' or 'NET'

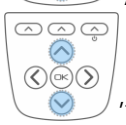
 Return to previous menu

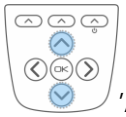
  'ALARM MODE'

  Select 'NORMAL' or 'LATCHED'

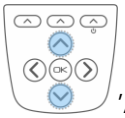
(When the alarm is latched but no longer being triggered, cancel the alarm by:

  'ALARM'

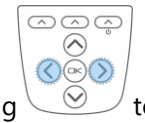
 '**ALARM CANCEL**' )



'ALARM THRESHOLDS'



'ALARM LOW'

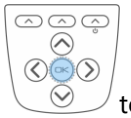
Manually enter the low threshold required using  to select digits and

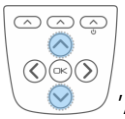
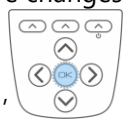

to change the value


changes the sign of the entered number


moves the decimal place to the left


moves the decimal to the right

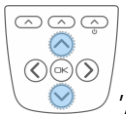

to save changes (long press cancels changes and returns to display mode)


'ALARM HIGH'


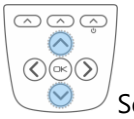
Manually enter the high threshold required as above.


to save changes (long press cancels changes and returns to display mode)

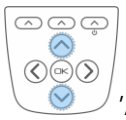

Return to previous menu



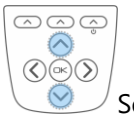
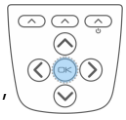
'ALARM TRIGGER'


Select from:
Disabled
Outside limits (<low, >high)
Inside limits (>low, <high)
Above high (>high)
Below high (<high)
Above low (>low)
Below low (<low)


Return to previous menu



'ALARM ACTION'



Select 'NONE', 'BEEP', 'FLASH' or 'BOTH'

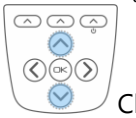

Return to previous menu


Return to previous selected display mode.

Using TEDS

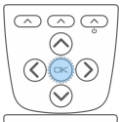
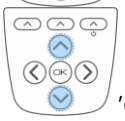
Plug in a TEDS enabled load cell.

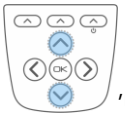

Message: 'NEW TEDS DEVICE USE SESSION DEFAULTS'
TEDS table(s) will be automatically loaded.


Change selected TEDS calibration


Change displayed units

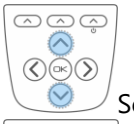
To disable TEDS and use the TRX's internal calibration:



'CALIBRATION'

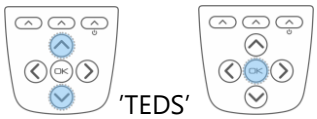


'USER CALIBRATION'



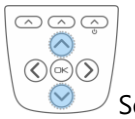
'ENTER PASSWORD' (if set)

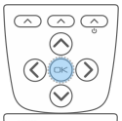

Scrolls through available characters


Moves between digits


'TEDS'


'TEDS MODE'


Select from:
'ENABLED (TEDS)'
'DISABLED (TRX)'




Return to previous menu


Return to previous selected display mode.

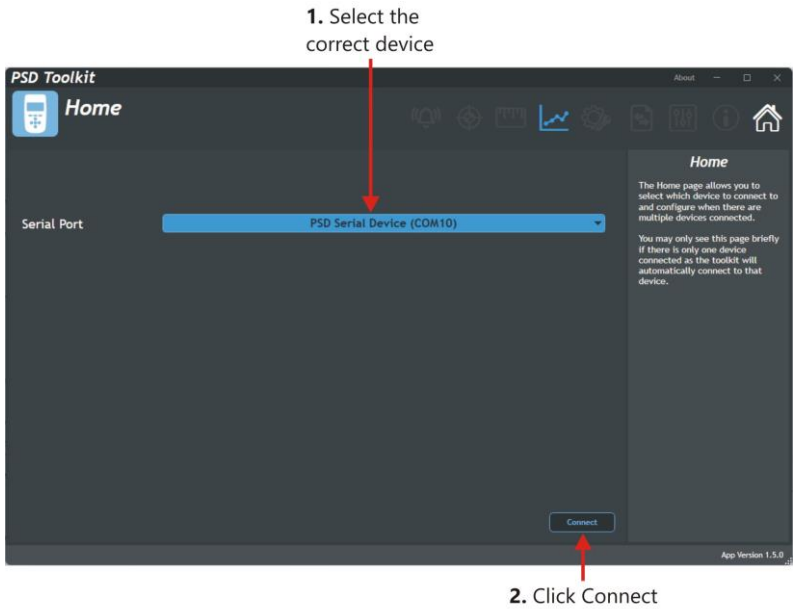
The next time that you connect that TEDS device you will get the message:

'KNOWN TEDS DEVICE SESSION RESTORED' 

Toolkit

Toolkit overview

More complex setup is possible using the supplied toolkit software.
Install the toolkit onto your windows PC and connect the USB to the TRX. Then open the toolkit:



If only one TRX is connected then the toolkit will connect automatically.

Navigation is achieved using the icons along the top of the toolkit.

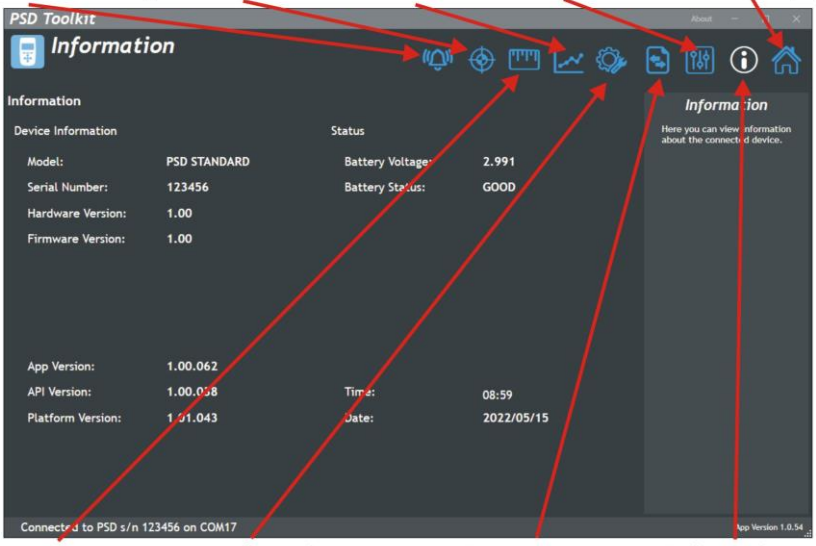
Alarms
Set Alarm thresholds and actions

Calibration
6 different calibration ranges available

Logging
Graph and logging of selected calibration

Settings
Set display and key functions.

Home
Disconnect and return to connection page



Measurement
Shows current readings, set update rate and quality
Set resolution, zero mask, scale steady, system zero etc

Configuration
Customise the PSDS to only enable functions that you need

Import & Export
Backup and restore all settings including option to clone

Information
About the current connected PSD

For further information, please see the TRX User Manual.

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In the interests of continued product development, Mantracourt Electronics Limited reserves the right to alter product specifications without prior notice.

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