MEWP Shield System

Android & iOS App Manual

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About this Document

Document Information

Document Type	User Manual
Document Abstract	Listing of all the step-by-step instructions for the iOS and Android app
Document Status	In-Review
Document Prepared By	Protective Documentation Team

Document Revision History

Sr. #	Version	Date	Comments
1.	0.1	January 01, 2024	Initial Draft
2.	0.2	May 9, 2024	Reviewed and updated
3.			

Contents

1 Disclaimer

⚠	Please read the disclaimer info carefully.

Crushing incidents may result in injury or death. Use of multiple systems reduces risk of incident and MEWP Shield should be used as an operator aid and backup system only. It is not a substitute for suitable experience, training, safe work practices and procedures or due care.

The information contained on this document is of a general nature only. It should not be relied upon to assess risk. Users and operators of the machinery to which the MEWP Shield is fitted, must separately assess, and verify risks before use. Product capability and operation is dependent on correct system selection, setup and installation, and maintenance by appropriately qualified and authorized personnel. Regular inspections of the MEWP Shield components and validation of system performance, forms a part of the required maintenance of the system.

Because of the nature of the sensors used in this system, it is essential that they are cleaned before use as part of the system's pre-start check procedure. If the sensors are unable to transmit the ultrasonic pulses due to physical obstruction of the sensor's faces (either intentional or accidental) the sensor will be unable to detect obstacles in its field of view.

For further information on whether the system is right for you please contact our sales staff. For details on the product capabilities see the relevant Product Manual

Technical Support

(+61) 8 6244 4353 (Available 0900-1700 Mon-Fri AWST)

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2 Introduction

Protective introduces its seamlessly integrated mobile app MEWP Shield V2, which adds a new dimension in MEWP management. MEWP Shield V2 serves as a comprehensive tool for seamless connectivity with your system, providing access to essential metrics and data in real-time. With intuitive navigation, it allows users to effortlessly monitor sensor details and leverage various features essential for efficient operation. Whether you're overseeing multiple platforms or fine-tuning individual settings, this app equips you with the necessary functionality to optimize performance and ensure safety across your work environment.

Please read through this user manual to find more about how to use the MEWP Shield V2 app.

3 Install and Connect MEWP Shield V2 App

3.1 Downloading the app

MEWP Shield V2 app is available for Android and iOS devices and helps to configure, monitor, update and diagnose the MEWP products. Simply scan the QR Code below to get the free app.

Android App

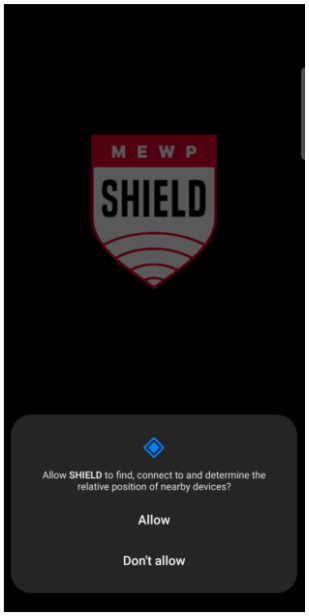
iPhone App

☞	*The MEWP Shield V2 Application is for use on LIN-BUS equipped systems*
☞	*The MEWP Shield V2 app supports Android version 5.0 / iOS version 10.0 or above.*
⚠	*The MEWP Shield V2 app and its interactions with the MEWP have not been tested on all smartphone models. Visit the application pages within your app store to view compatibility details.*

3.2 App Permissions

Upon launching the application for the first time, users may encounter a permissions dialog. These permissions are necessary to activate Bluetooth access, which is vital for the proper functioning of the app. Failure to grant these permissions will prevent the app from advancing beyond the permissions dialogue screen. Refer to the screens below for details.

Device Location Access Dialog

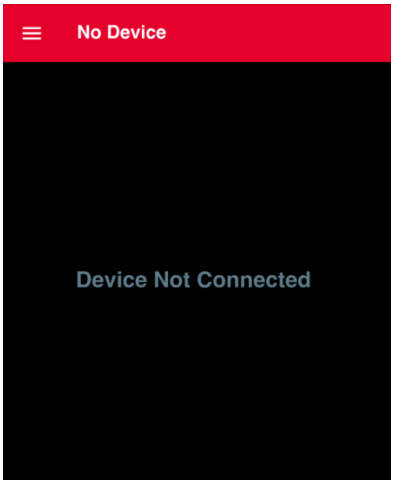


Relative Position of Device Access Dialog

☞	Users can manage permissions by accessing the App settings on their device.
☞	Grant all permissions for correct functioning of the App.

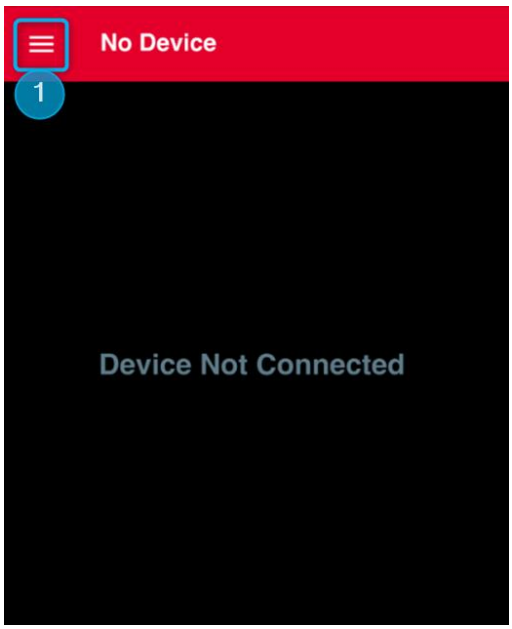
3.3 Connect a MEWP Shield System

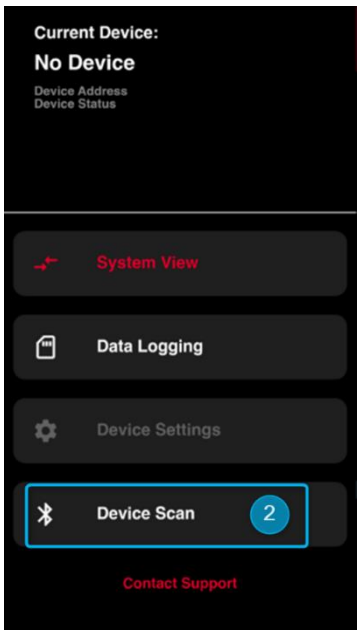
Once all permissions have been accepted, the user will be taken to the system view screen. The main screen will be blank if no devices are connected. Follow the steps below to connect a MEWP shield system to the App.



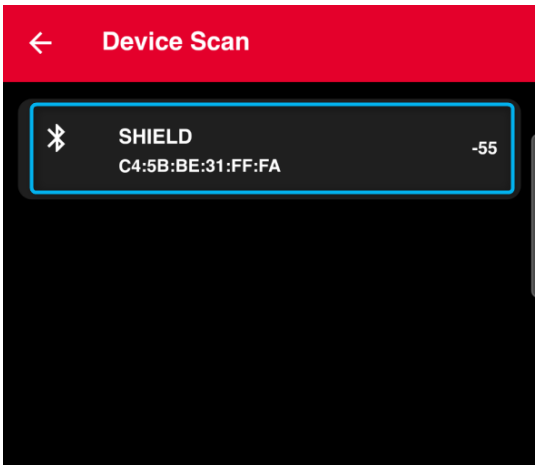
Main Screen (No Device Connected)

Step 1. Tap the ☰ button and choose the *'Device Scan'* option from the menu. Refer to the screen below for details.





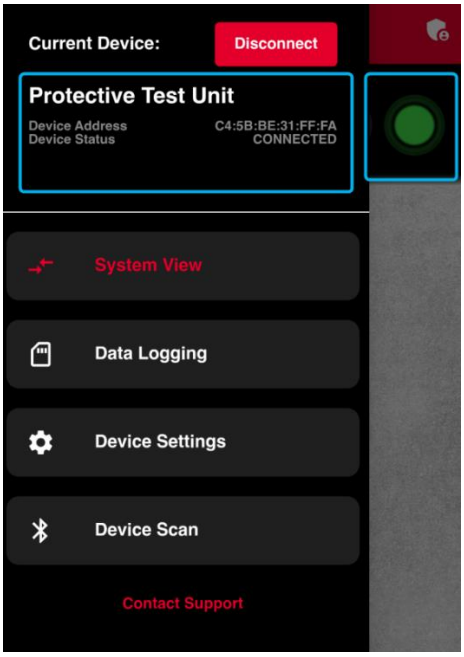
Step 2. The system will now automatically scan for all available nearby MEWP Shield systems.



Step 3. All available MEWP systems are listed in the Device Scan list.

☞	Each device is given the name *'SHIELD'* by default.
☞	It is recommended to only have one MEWP system powered on at a time when pairing, so that there is no confusion during this process. Once a system is paired, make sure the name is changed so that it can subsequently be identified easily. See section 4.3 for details on changing the system name'

Step 4. To connect to a device, simply tap on the device name.
Step 5. Once the device is connected, the App will show device status and will also indicate the status via ● as shown below.

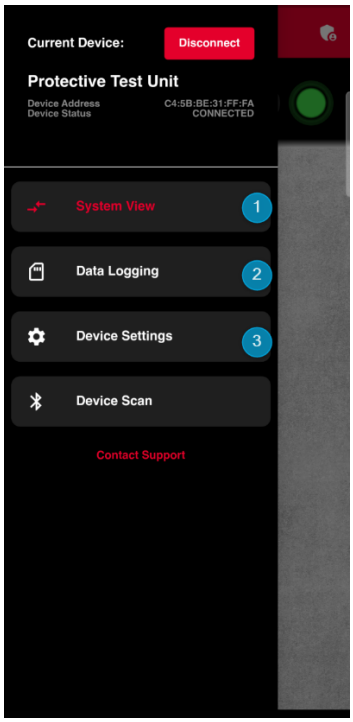


☞	A connected device is *'remembered'* even if the App is closed.
☞	Once the device is connected, the Admin Access button is enabled in the top right corner of the screen.

4 Using the MEWP Shield V2 App

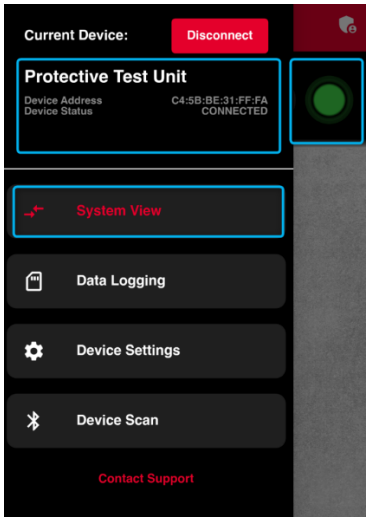
A connection via the app allows access to a range of essential configuration and monitoring features. The System Panel shows key metrics and system status while the Sensor View provides detailed insights into sensor data. Use Admin access to fine-tune settings and configurations. For a closer look at individual sensors, use the Sensor Detail Panel. These options allow the user to oversee and optimize the MEWP system with ease.

Once a device is connected the MEWP Shield App displays the main screen as shown below.



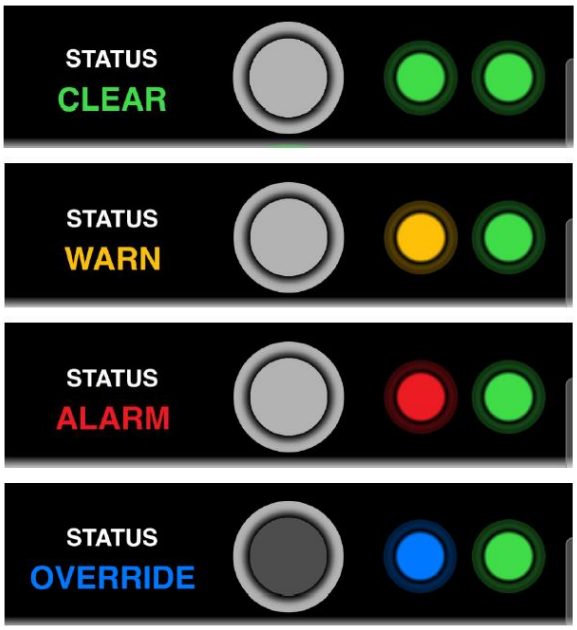
4.1 System View

The system view is a comprehensive overall view of the MEWP system. It allows viewing of the User Panel options and Sensor view (simple and detailed) for details related to the connected MEWP system.



4.1.1 User Panel View

The User Panel View in the system view screen is designed to mimic the layout of the actual User Panel connected to the system. Refer to the screen below for details.



The status text and indicators are updated to reflect the status of the system. The button element changes to a darker color to show when the physical button is being pressed or is active. This facility can be used to check the OP Override button operation in the event the button is suspected to be faulty.

4.1.2 Sensor View

- The Sensor view area shows a virtual scissor lift with the active sensors overlayed onto it.
- Each sensor is represented as a central sensor icon, with a surrounding field.
- The size of the field represents the distance observed by that sensor, scaled from 280 – 4500mm.

⚠	The sensor view area shown above is only for representation of the distance only and is not scaled to the machine basket image. For actual distance values, check the sensors details panel.

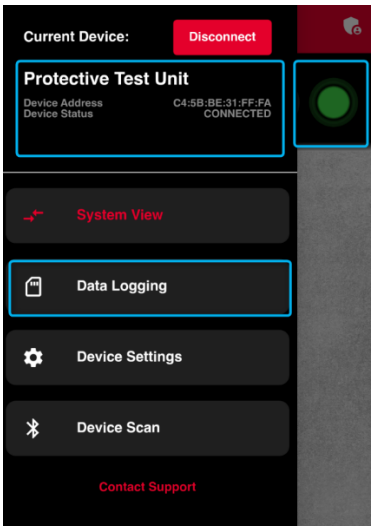
4.1.3 Sensor Detail Panel

- The details panel can be used to view the sensors status, distance, and threshold.
- Press and hold the center of any sensor, to view the sensor's details panel as shown below.

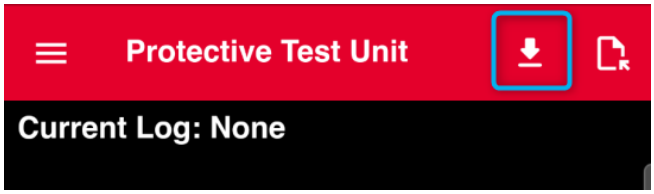
- If the sensor is "MISSING" then it can also be assigned from this screen as shown below.

4.2 Data Logging

Press the menu button at the top left of the screen and the press on the “Data Logging” button as shown below.



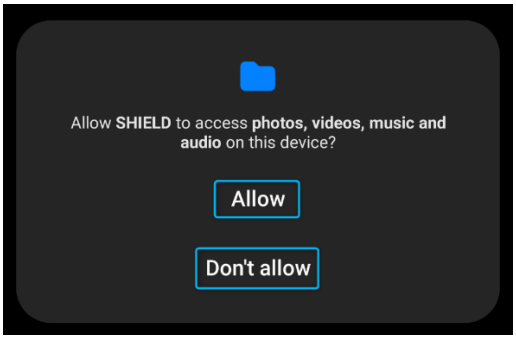
- At the time of installation of a new system, data will have been logged in non-volatile memory, but it will not be available until the next system startup after the system’s time of day clock has advanced past midnight
- Initially, there will be no logs in the system and the system will show Current Log as “None”.



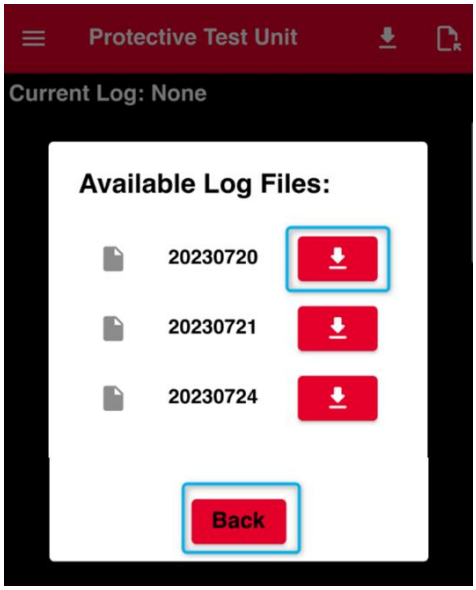
4.2.1 Download Log Files

- Click the *'Download'* button to download the log file.

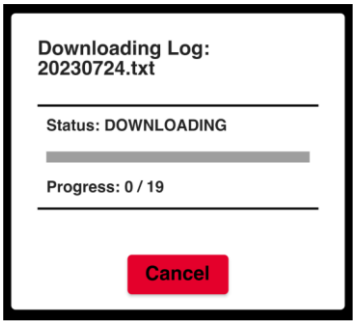
☞	The MEWP system requires access to the connected device's storage.



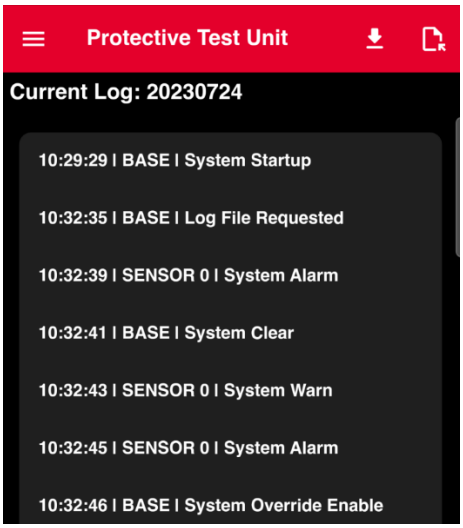
- The system will read the log files and will display the list of all available log files as shown below.



- The log files are named according to the date they were created in the form YYYYMMDD. Pressing the download button next to a filename will begin downloading that file, as shown below.



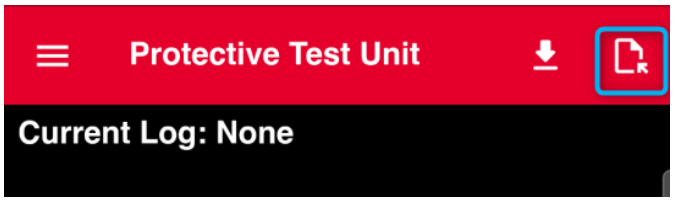
- Once the file has been downloaded, it will be displayed in the previously empty log screen with the date of the log at the top of the view area.



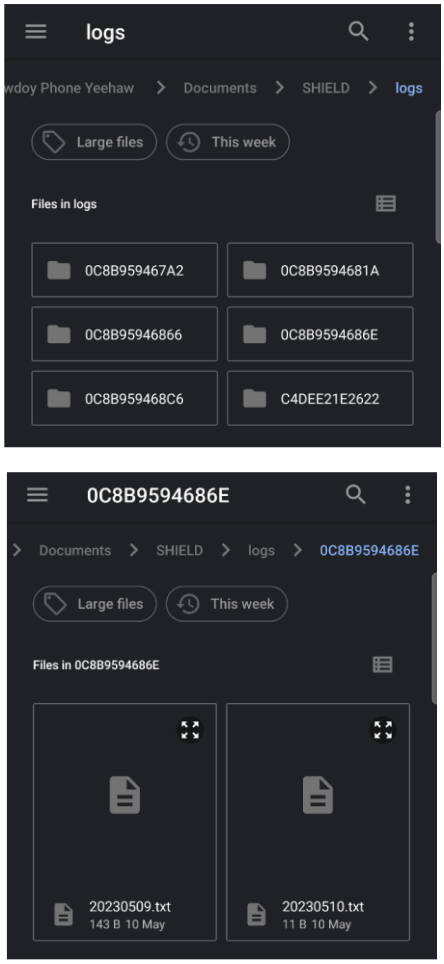
- Each Log Message contains the time of the event, the device that triggered that event and the type of event.

4.2.2 Open Log Files

- The downloaded log files can be opened by pressing the “Open” button in the top right of the screen as shown below.



- This will open the connected device’s file picker.
- Each log file is stored in a folder named with the MAC address of the device, so that multiple files from the same day can be differentiated once downloaded.



☞	Selecting a log file will begin importing it. The data can be viewed on the data log screen once downloaded.

4.3 Device Settings

The device settings screen is used to set the following options.

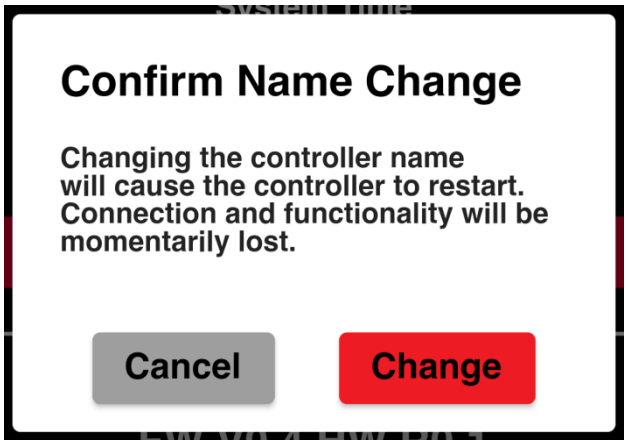
- Device naming
- RTC time synchronization
- Enabling OTA update mode
- Changing the Admin PIN.

☞	The Settings screen is also protected by the Admin Mode PIN to prevent unauthorized changes.

- To view the device settings screen, navigate to ≡ and click the Device Setting button to view the screen as shown below.

4.3.1 Change Name

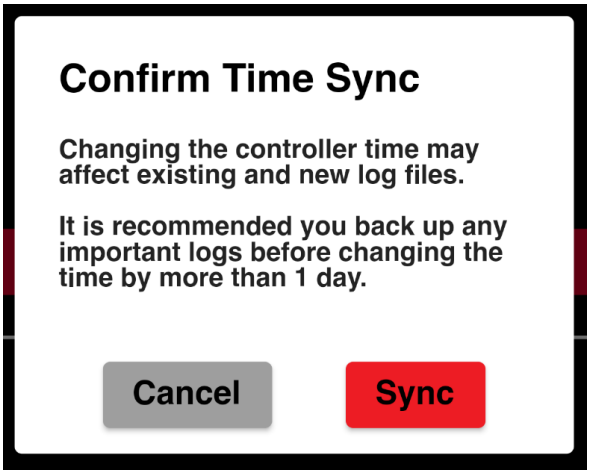
The Device Name field can be edited by tapping the *'Change Name'* button, refer to the screen below for details.



- Choose *'Change'* to procced with the change.
- The system will prompt the user to confirm the name change, before rebooting the system and navigating to the Device Scan screen.

4.3.2 Sync Time

The *"Sync Time"* displays the current time tracked by the MCU. The app also shows the current time difference between the MCU and the mobile device connected.

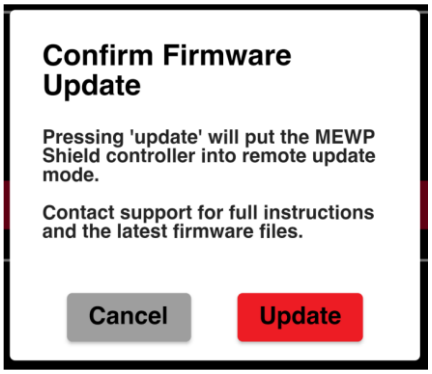


☞	It is important to update the time-of-day clock in the system after changing time zone or replacing the clock battery to ensure proper logging functionality is maintained.

- Pressing the "Sync Time" button will prompt the user with a confirmation before setting the system's time to match the time on the device connected via the App.

4.3.3 Firmware Update

The "Firmware Update" section displays the Master Control Unit (MCU) Firmware (FW) and Hardware (HW) versions. Depending on your controller's version info, some features may be hidden from use. Contact support for information about upgrading your controllers.

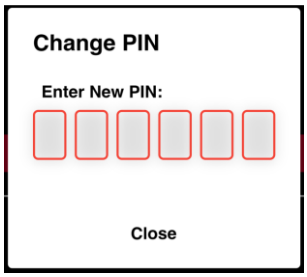


For supported control units, the “Firmware Update” button will enable the Over-the-air (OTA) update functionality, which uses Wi-Fi to update the MCU.

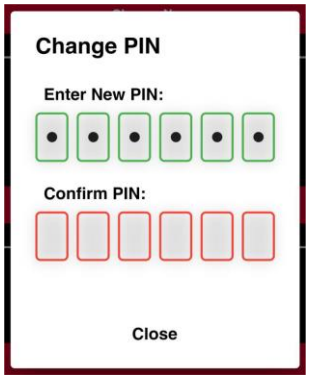
☞	For full instructions please refer to the MEWP SHIELD OTA Update Manual.
☞	The user will be prompted to confirm the mode change before the controller reboots in OTA mode.

4.3.4 Change Admin Pin

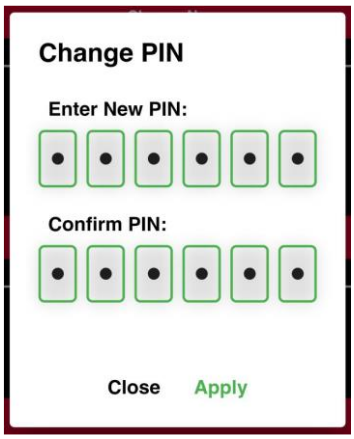
The “Change Admin PIN” button is used to change the system Admin PIN from the default value i.e., 000000. Pressing the button will open a pop-up with a field to enter a new PIN.



- Enter the current Admin PIN. Once correct PIN is entered, the system will open a new screen to enter the new PIN as shown below.



- Once both PINs have been entered and match, the “Apply” button will appear. Pressing this will set the new pin for the MCU.



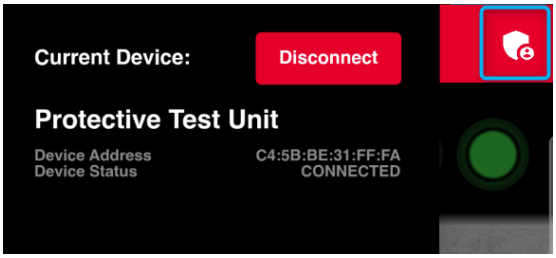
☞	If the device PIN is ever lost or forgotten, a backup PIN can be provided by the support team.

4.4 Settings (Admin Access)

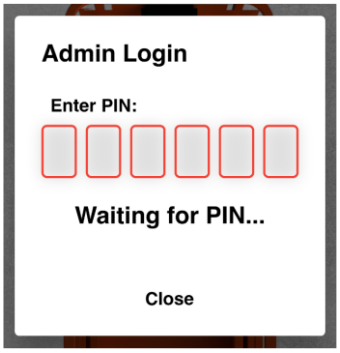
To prevent unauthorized modifications to the system, users are safeguarded by a 6-digit PIN feature. This PIN grants access to "Admin Mode," empowering users to adjust sensor arrangements, set sensor thresholds, define override timeout settings, and activate the App Override Button. Without entering the PIN, the application operates in "View-Only" mode, restricting modification capabilities.

4.4.1 Connect as Admin

- Once the device is connected, the Admin Access button will appear in the top right corner of the screen, as shown below.

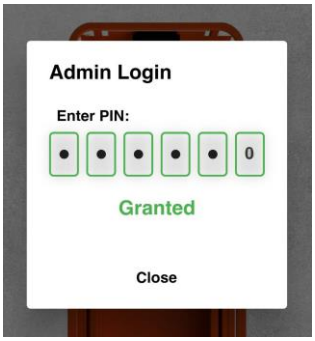


- Tap on the *'Admin Access'* button to view the screen shown below.

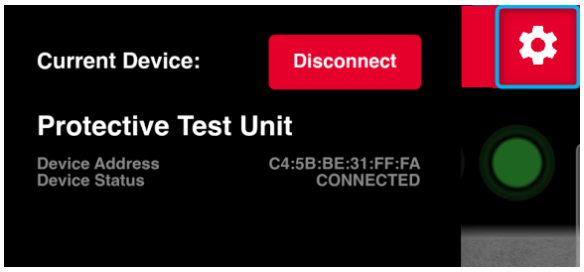


☞	The default PIN for entering Admin Mode is set to **000000**.

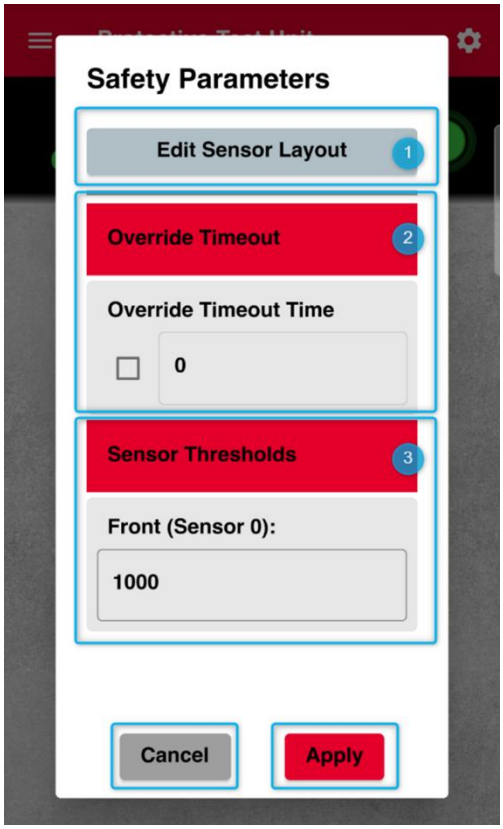
- Enter the correct 6-digit PIN to gain access to the admin features.



- Once Admin access is granted, the screen is updated. Refer to the screen below for details.

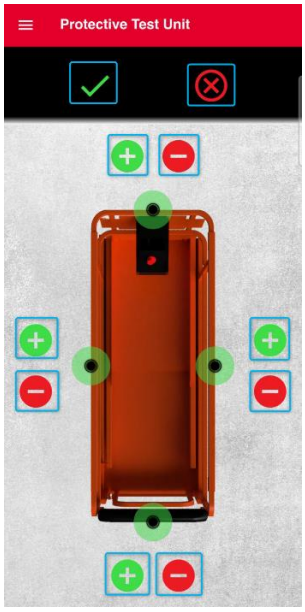


- Click on the *'Settings'* button at the top-right, to open the settings menu as shown below.

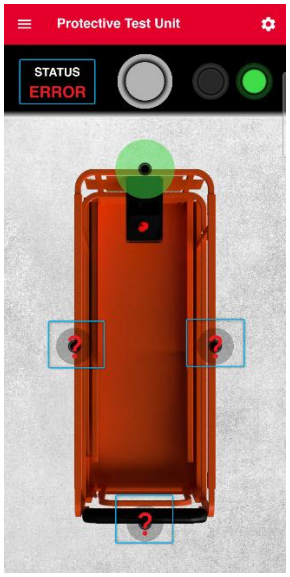


4.4.2 Edit Sensor Layout

- The *'Sensor Layout'* screen is used to setup sensor count and sensor position on the system.
- The positioning of the sensors is arbitrary and does not affect how the system behaves. The positioning of the sensor is for visualizing purposes only.
- In the default machine view, a maximum of two (2) sensors can be added per side.
- Use the plus (+) and minus (-) buttons next to each side of the basket to add or remove sensors.
- Refer to the screen below for details.

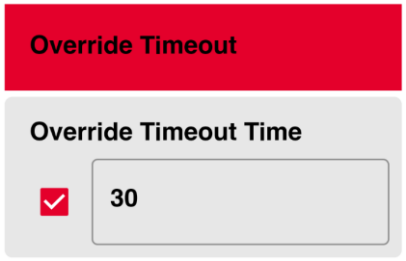


- Once your setup is finalized, tap the '*checkmark'* button at the top of the screen.
- To discard changes, tap the '*cross'* button instead.
- Once a configuration is saved, it is applied to the MCU.
- The MCU reads the new configuration and tries to find / connect the sensors on the LIN-BUS.
- If sensors are not connected, they are marked as missing and the system enters the *'ERROR'* state. Refer to the screen below for details.



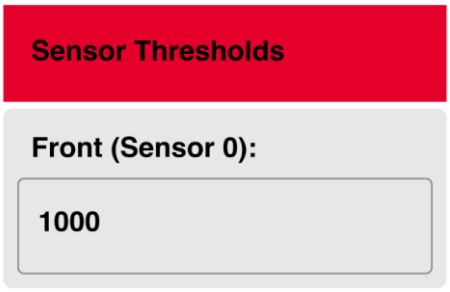
4.4.3 Override Timeout

- The Override Timeout section controls how long the system override will stay on before automatically clearing.
- If the checkbox is ticked, the override timeout will default to 30 seconds. This can be changed by tapping in the box displaying the current setting.

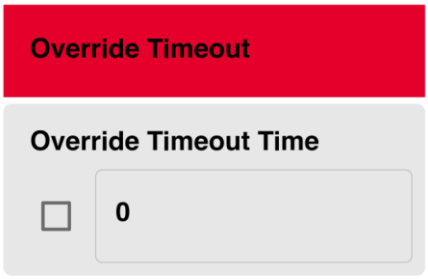


4.4.4 Sensor Threshold

- The Sensor Thresholds section displays all the threshold for the currently configured sensors.
- To edit the threshold, tap in the text field associated with the sensor and enter a new value.
- Values in the 500-4000mm range are considered valid.



- If the checkbox is not selected, the override will never timeout as long as the system is in ALARM state.



4.4.5 Sensor Provisioning

When setting up additional sensors for a system to provision each sensor one by one in order to assign them to the correct positions. To setup additional sensors, follow the steps below.

Step 1. Modify the sensor layout to include all sensors that will be used in the system.

Step 2. Power off the system and disconnect all sensors except the one that needs to be added.

Step 3. Power on the system and check if the sensor powers on correctly.

Step 4. Reconnect to the MCU in the App and enter the admin mode PIN.

Step 5. Press and hold on a missing sensor in the system view screen and press the *'assign'* button in the sensor's details screen.

Step 6. Close the details screen and wait for the sensor to respond.

Step 7. Repeat Step 2 – 6 until all sensors have been provisioned.

Step 8. Power off the system and connect all sensors.

Step 9. Now, power on the system and connect to the MCU. Verify that all the provisioned sensors are communicating as expected.

☞	• If a sensor does not begin updating in the assigned spot in step 6, then repeat step 5 until it does. • It may take several seconds for the sensor to reboot during assignment.

5 Troubleshooting

☞	In case of any system issues or failures, refer to the guide below for common fixes. If an issue cannot be resolved with the following guide, please contact support.

Sr. #	Issue	Troubleshoot Steps
1.	Device won't show up in BLE scan	• Restart the App and check the device scan again. • Reboot the controller and check the device scan. • Make sure that no other devices are connecting to the controller. • Make sure that the device has not been connected to using the mobile devices Bluetooth settings, as this may interfere with the Apps ability to connect to it.
2.	No Log files appear during download	• Make sure the controller is connected over BLE. • Restart both the App and controller and check again. • Make sure the controller isn't in the "Power Down" state. • Make sure the RTC Time in the device settings is correct.
3.	System time isn't being remembered after Time Sync & reboot.	• Replace the clock battery on the underside of the MCU controller PCB (requires opening the enclosure). a. The battery clip accepts CR1220 and CR1225 coin cell batteries.

Technical Support

(+61) 8 6244 4353 (Available 0900-1700 Mon-Fri AWST)

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6 Glossary

6.1 Abbreviations and Acronyms

MCU – Master Controller Unit

BLE – Bluetooth Low Energy

CAN – Controller Area Network

LIN – Local Interconnect Network

LED – Light Emitting Diode

(M)EWP – (Mobile) Elevated Work Platform

PCB – Printed Circuit Board

PI – Protective Innovations

SHIELD – The MEWP SHIELD System, including all provided components, wiring and hardware.

UP – User Panel Component