



# Protective Shield

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## Standard Installation

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## About this Document

### Document Information

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### Document Revision History

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1.	0.1	Jan 01, 2023	Initial Draft
2.	1.0	Feb 01, 2023	First version complete
3.	1.1	Apr 21, 2023	Revisions for multiple machine types
4.	1.2	Jul 28, 2023	Updated to include MCU improvements
5.	1.3	Nov 12, 2023	Technical feedback received and incorporated
6.	1.4	Apr 30, 2024	New template format incorporated

# 1 Disclaimer

	Please read the disclaimer carefully and understand the risks before operating.
	This document does not replace and is not intended to replace any local, state, provincial, including without limitation applicable in the jurisdiction of installation. Protective Pty Ltd. assumes no responsibility for the compliance or non-compliance with such laws or codes in connection with the installation of the product.

*Crushing incidents may result in injury or death. Use of multiple systems reduces risk of incident and Protective 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 Protective 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 Protective 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

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## 2 Symbols & Abbreviations

	This manual is for qualified technicians only. The tasks described in this manual may only be performed by qualified technicians.
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### 2.1 Symbols Used

The following types of safety instructions and general information appear in this document described as below:

Symbol	Type of Hazard	Description
	DANGER	Indicates a hazardous situation that needs immediate attention. If not avoided, serious injury or even death may occur.
	WARNING	Indicates a hazardous situation that needs immediate attention. If not avoided, serious injury or even death may occur.
	CAUTION	Indicates a hazardous situation that needs immediate attention. If not avoided, serious injury or even death may occur.
	NOTE	Provides you tips that are valuable for the optimal operation of your product.

### 2.2 Abbreviations and Acronyms

Abbreviation	Description
BLE	Bluetooth Low Energy
LED	Light Emitting Diode
LIN	Local Interconnect Network
MCU	Shield Master Control Unit
(M)EWP	(Mobile) Elevated Work Platform
OP	Operator Panel Component
PI	Protective Innovations
SHIELD	The PROTECTIVE SHIELD System, including all provided components, wiring and hardware.

### 2.3 Scope of Validity

This standard installation manual is applicable to a majority of scissor & boom lifts. It describes the assembly, installation, commissioning and maintenance of the Protective Shield secondary guarding system for MEWPs. Please read it carefully before operating.

## 3 Before Using the Product



Carefully read all the safety instructions. Otherwise, there exists a risk of an accident or a fatal injury.

### 3.1 Important safety instructions

#### 3.1.1 Risk of fire



*This is an electrical product and is susceptible to fires.*

- Do not store or place any flammable substances near the product circuitry.
- Keep cigarettes and other open flames away from the product. There is a danger of a fire hazard.
- Do not expose the product to temperatures in excess of 70°C.
- Reverse polarity will cause irreversible damage to the circuitry.
- Do not store or operate in a location where it may be at risk of getting in contact with chemicals

#### 3.1.2 Electrostatic Discharge



- PCB Components are susceptible to Electrostatic Discharge (ESD).
- Observe ESD precautions when handling ESD sensitive components. Refer to site specific procedures if applicable

### 3.2 Installation Pre-requisites

Before installation, carefully verify the below-mentioned prerequisites.

1. There is no excessive humidity in the installation area.
2. There are no flammables or explosives stored nearby.
3. There is no excessive dust and dirt in the installation area.
4. All federal, state and local site safety requirements are in place

#### 3.2.1 Safety Gear

Installation and maintenance personnel must operate according to applicable federal, state, and local regulations. Non-compliance with these standards is a punishable offense.

#### 3.2.2 Tools & Consumables

Following tools/Consumables are needed for installation.

##### 3.2.2.1 Tools

The following tools and equipment are required to install the MEWP Shield System components:

Electric drill & Drill Bit Kit	PH2 Phillips head screwdriver	Wire or side cutters
Crimping Tool	Digital Multimeter	4mm Allen Key
M4 - M5 Nut Drivers		

### 3.2.2.2 Consumables

The following consumable items are used to install the MEWP Shield System components:

- 2 x bolts or machine screws and nuts or self-tapping screws to mount the Master Control Unit (MCU)
- Universal brackets for sensor mounting. Each sensor will come with the following:
  - 2x 3mm stainless steel mounting plates
  - 4x M4 CSK stainless screws with Nyloc nuts to fasten the sensor to the mounting plate.
  - 4x M6x30mm/M6x65mm stainless steel bolts with Nyloc nuts to fasten the mounting plates together and clamp the sensor to the machine. Appropriate bolt length to be used depending on mounting location.
- Connectors for power inlet
- Crimp connectors as required to connect to machine power and safety circuits.
- Inline fuse holder and 2A fuse for power inlet
- Anti-seize compound to suit stainless steel, such as Loctite 771 (copper-based)
- Thread lock compound as required, such as Loctite 222 (low strength)

	Either M6 x 30mm stainless steel machine screws or bolts with either Nyloc® nuts or standard nuts with shake-proof washers may be used. Length may vary depending on where the MCU unit is mounted. M6 or equivalent AWG size self-tapping screws may be used if and where appropriate. For situations where the MCU cannot be mounted by bolts through holes, ClickBond or similar bonded metal studs can be used, adhered to the machine control box
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## 4 About the Product

### 4.1 About Protective Shield

PROTECTIVE SHIELD is the innovative Mobile Elevated Work Platform (MEWP), secondary guarding safety device that engages its worker protection function BEFORE an incident occurs. The purpose of the PROTECTIVE SHIELD system is to reduce the risk of crush incidents whenever the EWP machine itself or the basket is moved.

Using ultrasonic sensor technology for proximity detection and control, the PROTECTIVE SHIELD system engages the worker protection function to identify potential hazards before an elevated work platform (EWP) incident occurs. Protective Shield provides excellent secondary guarding protection in industrial proximity control by seamlessly interfacing to the existing EWP controls via logical dry-contact connections into the machine's existing dead-man / lockout signals for control override.

The system functions by utilizing one or more ultrasonic sensors to detect the presence of objects within a predetermined threshold distance. When an object is detected within the threshold or 'Alarm' zone of a sensor, the system stops the machine and alerts the operator of the obstacle via the LED indicators and siren. The system will also warn the operator when an object is being approached before the alarm distance has been reached (Warning Zone).

The 'Override' button on the system's operator panel will allow machine movement when engaged for a predetermined amount of time while the sensor is obstructed. The Override button is an acknowledgement from the operator that an object is within the alarm zone of the machine.

The sensors have a nominal 4.5m detection range following a prescribed beam pattern. In practice, detection distances are set for EWP use at working height. To best utilize the sensor, it should be angled in the direction of the basket motion that is most likely to cause injury to the persons in the vehicle. Multiple sensors can be utilized to achieve the desired coverage depending on intended use.

This document provides installation instructions for Protective's Shield Secondary Guarding system.



## 4.2 Product Overview

The Protective Shield System is designed to provide an early detection of crush hazards when operating from the basket controls. The system uses ultrasonic sensing mounted to the machine control box to detect potential hazards.

The system is comprised of multiple components, which communicate along a common LIN-BUS. The Master Control Unit can manage up to 8 sensor modules for larger platforms.

The standard single-sensor system is comprised of:

- 1x Master Control Unit
- 1x Operator Panel
- 1x Sensor Module
- 1x Sensor Bracket
- 1x Sensor Link Cable
- 1x Installation Kit

☛	<ul style="list-style-type: none"> <li>• The level of protection provided by the system depends on the installation arrangement of sensors. It is important to understand the limitations of the system.</li> <li>• If you are unsure about whether the current system provides adequate protection for your needs, please contact support.</li> </ul>
☛	<ul style="list-style-type: none"> <li>• The OEM 'personality' profile of the MEWP should be considered when setting the detection stop distance (see Protective Shield Application Manual).</li> <li>• In some cases, gradual stops can be configured as per OEM instructions on MEWPs to lessen the impact of sudden stops. If an MEWP is using a gradual stop personality profile, consider increasing the detection stop distance via the Protective Shield mobile phone application.</li> </ul>

### 4.2.1 Master Control Unit

The Master Control Unit houses all the main control electronics and provides configuration access over BLE. The Master Control Unit has the following features:

- BLE for Bluetooth Connection
- LIN-BUS for Communications
- Polycarbonate Enclosure
- IP-65 Rating – Dust Tight and Water Resistant to jets of water / rain
- Operating range of -30 to +85 °C



☛	<ul style="list-style-type: none"> <li>• The Master Control Unit continuously monitors the LIN-BUS for missing devices caused by module failure, damaged cabling or mis-connection. The system will enter Alarm mode in the event of any failure.</li> </ul>
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#### 4.2.2 Operator Panel

The Operator Panel is the main interface between the machine operator and the system. The Operator Panel connects to the Master Control Unit over the LIN-BUS to provide visual indication of the system status and houses an override button, which allows machine movement in the event of an alarm / error situation.



#### 4.2.3 Sensor Modules

The sensor module is used to detect the presence of objects within 4,500mm of the top of the sensor. The 'Alarm' zone is the distance an object is detected triggering the alarm status of the sensor and system. The 'Warning' zone is 1.5x the distance of the Alarm zone.



## 4.3 Technical Data

Sensor Specification	
Specification	Value
Supply Voltage	3.3V
Average Current Draw	65mA (@3.3V) <i>(Note 1)</i>
Communications	LIN-BUS
Max. Nodes per Bus	8
Sensing Range	280mm Min. 4500mm Max.
Size	77L x 55W x 32H (L, R, D-Models), 77L x 67W x 32H (B-Model) <i>(Note 2)</i>
Net Weight	160 grams
Mounting	<ul style="list-style-type: none"> <li>Four mounting points</li> <li>M3.5 Screws or M4 Bolts</li> <li>Brackets provided or supplied by customer <i>(Note 3)</i></li> </ul>
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +70 °C
Ingress	IP67 in accordance with ISO16750 Section 5.4.3
Enclosure	Diecast aluminum alloy, black powder coated
Operator Panel	
Specification	Value
Supply Voltage	12-24V
Average Current Draw	11mA (@12V), 6mA (@24V)
Communications	LIN-BUS
Max. Nodes per Bus	1
Size	121L x 54W x 33H
Net Weight	160 grams
Mounting	<ul style="list-style-type: none"> <li>Four mounting points, M3.5 Screws or M4 Bolts</li> <li>Brackets provided or supplied by customer <i>(Note 3)</i></li> </ul>
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +70 °C
Ingress	IP67 in accordance with ISO16750 Section 5.4.3
Enclosure	Diecast aluminum alloy, black powder coated
Master Control Unit	
Specification	Value
Power	12- or 24-volt automotive (4.8 – 40 VDC) Max 100mA
Internal Power Hold-up	5 seconds for orderly user alert and shutdown <i>(Note 4)</i>
Operator Interface	GUI via Bluetooth® to Android® or iOS® device
Communications	LIN-BUS, CAN-BUS (Not currently Used)
LIN-BUS Limitations	Max 8 Nodes, Max 40m length <i>(Note 5)</i>
Internal Lockout Contact	240VAC / 220VDC contact Rating, 3A contact current Max.
Size	122L x 83W x 40H not including space for cable exits
Net Weight	300 grams
Mounting	Four mounting points, M5 hard-mounted
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +70 °C
Ingress	IP65 in accordance with ISO16750 Section 5.4.3
Enclosure	Polycarbonate with clear lid
Electrical Susceptibility	Meets ISO7637 parts 1&2

	<ul style="list-style-type: none"> <li><u>Note 1</u>: Actual battery draw is far less when considering power conversion. ~4mA @12V</li> <li><u>Note 2</u>: Sensor model selection depends on individual use cases.</li> <li><u>Note 3</u>: Sensor and Operator Panel mounting brackets can be supplied depending on the machine model / use case. For custom brackets, a mounting template can be provided.</li> <li><u>Note 4</u>: Brownout detected at 11 volts and if the supply voltage is lower than 8 volts for more than 0.5 seconds, an orderly shutdown is initiated.</li> <li><u>Note 5</u>: LIN-BUS limitations in accordance to ISO17897</li> </ul>
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## 5 Installation

### 5.1 Mounting the Master Control Unit

The Master Control Unit should preferably be mounted inside of the EWP's operator control enclosure to provide extra protection to the system and to prevent tampering of the system once installed. If the base is mounted inside the control enclosure, a single gland should be installed in the machine enclosure so that the LIN-BUS cable (M12 terminated) can be routed out and to the Operator Panel. This will require the disconnection of the LIN-BUS cable from the Base connector (internal), so that the cable can be routed through the gland.

	CAUTION	Care should be exercised to limit the torque on the mounting screws to avoid damaging the control unit mounting flanges. Mounting surfaces must be flat to prevent damage to the control unit housing from undue ending or twisting.
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## 5.2 Mounting the Operator Panel

The Operator Panel should be mounted such that the indicators and button are visible and accessible when operating the machine. Make sure that the final mounting position is not obstructing any protective covers from closing when the machine is not in use. The two connectors on the rear of the Operator Panel should be easily accessible for connecting the LIN-BUS connectors to and from the base/sensors.

Once a location has been finalised for the Operator Panel, secure it in place with 4x 10-12mm screws (M4 or equivalent). Make sure that, if the screw length exceeds the thickness of the mounting surface, no other wiring/components are at risk of being damaged on the opposite side. Optionally, M4 countersunk bolts can be used with M4 locknuts to secure the Operator Panel to the machine, provided mounting holes are prepared beforehand.



### 5.3 Mounting and Placing Sensors

The sensors are designed to be mounted directly to the machine's operator panel or for multi-sensor installations in any location along the basket railing, where there are no permanent obstructions to the sensor that will cause it to not be clear during use in open areas. The sensors should not be mounted in areas where they can be crushed/obstructed by any moving components on the basket. e.g. sliding extension rails or retracting crush bars.

Ensure that the sensor cabling can be connected after the sensor mounting. If not, it is recommended to adjust the position or attach the connector before mounting the sensor.

Use the brackets provided for the specific EWP basket to mount the sensors accordingly. Ensure that all fastenings are secure such that the sensor is not movable during machine operation. The brackets should put the sensor at a 5-10° angle out from ground level aiming away from the operator.



Figure 1- Ultrasonic Sensor Module



Figure 3- Ultrasonic Sensor mounted with bracket .



Figure 2- Ultrasonic Sensor mounted with bracket

## 6 Wiring

### 6.1 Power / Relay cable

Wire	Purpose	Colour
IN +VE	Input Power Positive +12V / +24V	Grey
IN -VE	Input Power Negative Supply / Ground	Brown
RL-C	Lockout Relay Common	White
RL-NO	Lockout Relay Normally Open	Yellow
RL-NC	Lockout Relay Normally Closed	Green



BROWN	NEGATIVE SUPPLY/GROUND
GREY	POSITIVE SUPPLY +12/+24V
GREEN	RELAY N/C
YELLOW	RELAY N/O
WHITE	RELAY COMMON

**CONTROL MODULE WIRING REFERENCE**  
Unit to be installed by suitably qualified personnel only.  
Consult installation manual for installation instructions.  
Opening unit may void warranty.

	NOTE	Wiring colours may change depending on model. If wiring colours do not match the above table refer to the label on the bottom of the Base Unit or consult Technical Support (label will look like the image above).
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## 6.2 Installation Steps

### 6.2.1 *Wiring the Master Control Unit*

1. Remove power from the basket controls.
2. Remove and open the basket control panel.
3. Feed MEWP Shield POWER/RELAY wire (unterminated) into the control panel through any available glands. (A new gland may need to be installed if none are available.)
  - a. If the MCU is mounted inside the control panel, the LIN cable (M12 terminated) will need to be fed outside the enclosure.
4. Connect the unterminated GREY wire to a 12-24V supply on the machine.
5. Connect the BROWN wire to a common Ground point.
6. Locate the Dead-man switch return wire (where the machine's dead-man switch feeds back to the ECU/ECM)
  - a. Cut the return wire, leaving enough length on either side to join the MEWP Shield Safety Contact wires.
  - b. Join (either by crimped connection or solder) the WHITE (Relay Common) wire to the switch side of the cut wire.
  - c. Join the YELLOW (Relay NO) wire to the ECU/EMC side of the cut wire.
  - d. Trim the Green wire if not required.
7. Reassemble and mount the control panel.

### 6.2.2 *Connecting the system components*

1. With the MCU mounted and installed, connect the LIN cable (M12 terminated from MCU) to one side of the MEWP Shield Operator Panel (whichever is more convenient).
2. Use the provided additional Link Cable(s) to connect the Operator Panel to the provided sensor(s).

## 6.3 Wiring Notes

### 6.3.1 GENERAL NOTES

Do not add/remove devices on the LIN-BUS while power is provided to the system. Doing so may introduce unexpected communication errors and power draws. When provisioning sensors in the Mobile App, it is recommended to remove power from the system before connecting the new sensor.

### 6.3.2 POWER

The POWER input **IN +VE and IN -VE** wires should be connected to the battery supply of the machine such that the unit is powered on when the machine is turned on. Ensure that a circuit is used that is fused at a maximum of 5A. If a fuse is not available on the machine itself, add an inline fuse holder and fuse into the +24-volt feed.

### 6.3.3 Link Cables / LIN-BUS CONNECTORS

The LIN-BUS connectors are used to connect the external system devices (sensors, operator panels, additional devices) to the system. Since the LIN-BUS is a common communications bus, devices can be daisy-chained along this bus, negating the need for multiple branches from the controller. If multiple branches are required, the LIN-BUS can be split to provide this flexibility. It is not recommended to split the LIN-BUS more than once per system, as this can introduce communication issues with lots of devices. The LIN-BUS should be split as close to the Master Control Unit as possible.

The Pinout for the M12 LIN-BUS connectors are as follows:

PIN	Signal	Colour
1	+24V	Grey
2	LIN-BUS	Green
3	0V	Brown
4	+3.3V	White

The sensors can come in 2 form factors: Either a sensor with a single M12 connector or a sensor with 2x M12 connectors (1 on either side of the sensor module) for the purpose of daisy-chaining the LIN-BUS. The Operator Panels have 2x M12 LIN Connectors on the rear of the unit.

### 6.3.4 LOCKOUT RELAY OUTPUT

The relay output is a single pole double throw type that provides a dry contact for machine control. Typically, the normally open (NO) safety contacts, i.e., **PINS 1 and 2** of the Base connector, should be wired in series with the desired machine stop function, such as the E-Stop or Dead Man switch circuits.

The system closes the NO connection when the system is CLEAR, which ensures that the system is fail-safe in the event of an error.

The NO contact will open and stop the machine in the event of an ALARM or ERROR condition being sensed by the system.

When the Override button is pressed on the UP, the machine motion will be enabled to allow the operator to move the machine at their discretion after evaluating whether it is safe to do so.

## 7 Commissioning

### 7.1 Prestart Checks

Before operating any machinery with the MEWP Shield System installed, a pre-start check is required to ensure all system components are functioning correctly and to ensure no damage has occurred to the system during transit/storage. A simplified pre-start checklist should be implemented according to your company guidelines and should preferably be a part of the machine's pre-start check.

1. Before Power On - Check Operator Panel & Base
  - a. Ensure all cabling leading into the controller is connected.
  - b. No wiring shows signs of strain/stress.
  - c. The Operator Panel and base Unit are mounted securely on the machine frame.
  
2. Before Power On - Check all Sensors for the following
  - a. Check sensor alignment (bent brackets, loose mounting, etc).
  - b. Make sure that the sensor face is clean (free from any dirt or foreign materials).
  - c. Inspect sensor faces for any damage (chips, dents, etc).
  - d. Ensure the sensor connector is secure and undamaged.
  - e. Inspect sensor cabling for any damage (cuts, signs of stress, kinks, etc).
  
3. On system power-up
  - a. Ensure all LEDs on the Operator Panel light up in sequence to indicate correct startup functionality.
  - b. Check that no errors occur on startup (Indicated by blinking RED indicator and beeping horn/buzzer).
  - c. Check that all connected sensors have an illuminated LED indicator to show that power is provided.
  - d. Block each sensor one by one to check that they are communicating with the base correctly and that the base lockout features are behaving as expected.
  - e. With at least one sensor blocked (RED indicator on the sensor), check that the Override button on the Operator Panel is functioning correctly by pressing it and observing that the BLUE indicator becomes visible AND that the siren output stops sounding.
  - f. With the sensor blocked and the Override active (BLUE indicator), ensure that the machine can be moved after activating the dead-man switch.

### 7.2 Startup

If the Control Unit is wired correctly to the 12-24V supply power, the control unit and connected components should all power up with the machine.

On successful startup, the operator panel LEDs should all light up sequentially before the Green LED becomes solid, indicating power is OK.

If the Green light is not active after machine startup, check that power is available from the machine to the MEWP Scissor system. A blinking Green LED indicates an undervoltage supply, and the system will not be functional.

## 8 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.

**Issue:** Green indicator blinking on startup and no system functionality

### Solution Steps:

1. A blinking GREEN indicator implies there is insufficient voltage applied to the input supply.
2. Ensure that all the wiring into the MCU is correct and that a constant 12-24V DC source is being applied from the machine's control power.
3. Make sure that the power coming into the system is NOT a 12-24V data signal of any kind.
4. Check the bus voltage with the device disconnected (Cinch connector removed from base unit) to see if the bus normally has the correct voltage.
  - a. If not, the supply line may be incorrect or could be shorted or current limited by another device.
  - b. If the supply voltage is correct, the supply line might not have the power capabilities to run the device OR there could be an issue with one of the devices itself.
    - i. Disconnect all LIN devices from the bus and supply power to the base.
    - ii. Reconnect devices one by one until a power failure is detected to isolate a potentially faulty system module.
    - iii. If the issue persists after replacing the module, check the current limit of the connected power supply line.

**Issue:** Blinking RED indicator and horn/buzzer on startup

### Solution Steps:

1. One or more configured system modules are not detected by the base OR a module is reporting an internal error.
2. Check each system module (sensors, etc.) for blinking RED indicators.
  - a. If a sensor has a blinking RED indicator, the physical sensor part of the module is damaged, and the unit must be replaced.
  - b. The machine can be operated via the override button in time-limited periods before the lockout is re-engaged. This function should only be used to move the machine to a safe location where it can be repaired.
3. No blinking RED indicators means a LIN device is missing.
  - a. Inspect all LIN-BUS devices that have an active indicator light to show power is supplied.
  - b. Check that all LIN-BUS connections are secure.
  - c. Inspect cabling for any damage (cuts, signs of stress, pinched cables, etc.)
  - d. If available, check the debug log of the base to see which devices aren't communicating before contacting support.

**Issue:** No input from the override button

**Solution Steps:**

1. Restart the controller by removing power until the blinking GREEN indicator turns off.
2. Connect to the base unit in the MEWP Shield App.
3. With the App open and connected, press the button on the physical Operator Panel and check to see if the App Button changes.
  - a. If not, replace the Operator Panel.
4. If the button does change, block/remove a Shield Sensor to trigger alarm mode.
  - a. If pressing the button does not enable Override, contact support.

**Issue:** System constantly alarming / intermittently alarming with no objects in range

**Solution Steps:**

1. Observe sensor indicator lights to determine which sensors are causing the false triggers.
2. Make sure that all sensor faces are free from dirt and foreign material that may be causing false triggers.
3. Ensure that the sensors are correctly mounted, and there are no parts of the machine frame within view of the sensor.
4. Check all wiring connections leading to the sensors are secure.
5. If false triggers persist, replace the faulty sensor module.

**Issue:** The Operator Panel displays Green / White blinking lights on startup.

**Solution Steps:**

1. This implies that the Operator Panel is powered but cannot see the Base Unit on the LIN-BUS.
2. Ensure all connectors are thoroughly done up and secure.
3. Power off all system components and make sure everything powers on at the same time.
4. Make sure the Base Unit is running by checking for a BLE connection in the App.
5. If the problem persists, contact support.

## 8.1 Technical Support

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