

Electrical Switching / Locking

**proLok+** - Extended Solenoid Controlled Body including extra control functionality



The *proLok+* is a robust, heavy duty, solenoid controlled switch interlock. When properly installed, it provides safe access and control of for a variety of machinery. This unit may be installed in any orientation. The unit is ready to accept a variety of modules from the amGard*pro* range, which will enable it to be used in many applications.

There are several versions of this unit: Standard (Std), Power to lock (PTL), Un-Monitored Solenoid, and AS-i. The differences are electrical input/outputs as shown in the wiring details below. Also the Standard, Un-Monitored and ASi can be supplied as releasing versions. In addition, pushbuttons/lamps/selector switch and RFID or Coded Magnet Sensors can be fitted.

**IMPORTANT** This product is designed for use according to the installation and operating instructions enclosed. It must be installed by competent and qualified personnel who have read and understood the whole of this document prior to commencing installation. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Any modification to or deviation from these instructions invalidates all warranties. Fortress Interlocks Ltd accepts no liability whatsoever for any situation arising from misuse or misapplication of this product. This product is not to be used as a Mains Isolator or Emergency Stop. The unit is a component to be added to a permanent electrical installation meeting the requirements of the applicable IEC/EN standards. This product meets the requirements of the standard IEC/ EN 61010-1:2001 safety requirements for electrical equipment for measurement control and laboratory use - Part 1 General Requirements.

**The voltages used within the proLok circuits must all be of the same type. i.e. ALL Hazardous Live or ALL Machine Extra Low Voltage. It is vitally important that the correct version of this unit is selected. If there is any requirement for an internal release element in the product, then the releasing version must be used.**

**DO NOT LEAVE OVERRIDE/RESET KEY IN PLACE! DO NOT REMOVE LID WITH OVERRIDE KEY INPLACE!**

**Always keep in a secure place, under management control, as it allows access to areas that may have a residual hazard, and may result in incorrect operation of some devices.**

**BEWARE OF INTENTIONAL MISUSE CAUSED BY OPERATORS WANTING TO BYPASS SAFETY SYSTEMS. THE INSTALLER SHOULD ASSESS THE RISKS AND MITIGATE AGAINST THEM.**

**IF YOU HAVE ANY QUESTIONS OR QUERIES OF ANY NATURE WHATSOEVER PLEASE CONTACT THE SUPPLIER WHO WILL BE PLEASED TO ADVISE AND ASSIST.**

Functioning (Typical with *proAT* Head/Tongue fitted)

**Closing and Locking**

The guard locking device is activated by inserting the tongue into the head. The rotational actuator then locks the tongue in the head. The safety circuits are closed and the monitoring circuit is open. No LEDs are lit. (Except for PTL, where the solenoid has to be energised (powered) to lock the tongue).

**Unlocking**

The guard locking device is released when voltage is applied to the solenoid (Except the PTL, which is de-energise the solenoid to unlock). The monitoring circuit is closed and the safety circuits are positively opened. The yellow LED lights up.

**Opening**

When the tongue is removed, the safety circuits are positively opened. The red and yellow LEDs are lit.

**Auxiliary Unlocking Mechanism**

In the event of power failure, the guard locking device can be released with the override key irrespective of the state of the solenoid.

- Insert the pin hex override key into its key hole and rotate 90° clockwise.
- Remove the tongue from the head.
- Rotated the override key 90° anti-clockwise and remove from the interlock.

**Tools and Fixings Required**

- Pin Hex Driver Bit (Provided)
- 1/4" Driver (to suit above)
- Ø8.2mm Drill or
- Ø5.2mm Drill
- 6 x M8 screws (rear fixing) or
- 4 x M5 screws (through fixing)

**Mount the safety unit only in the correctly assembled condition.**

1. Locate the safety unit so that operation of the auxiliary unlocking mechanism, inspection and replacement are possible.
2. Remove the pin hex override key from the lid.
3. Remove the 6 lid screws of the *proLok+* module. Remove the lid assembly.

**NOTE: DO NOT LEAVE THE LID HANGING FROM THE CONTROL BUTTON WIRES. UNPLUG THESE WIRES FROM THE PCB WITHIN THE CASE.**

4. Remove the Tongue assembly from the unit by depressing the Solenoid Plunger (see fig.1) and pulling the tongue out of the head.
5. Mount the enclosure assembly together with head assembly to a flat metal, static part of the machine. Use M5 screws through the unit or M8 screws from the rear. The mounting surface should be flat.
6. Make sure that the gap around the perimeter of the guard, when closed (Safety Circuits Closed), does not exceed the limits specified in En294 & En953.
7. Refit lid after cabling is completed.
8. All fixing screws must be permanently prevented from removal, either by vibration or by personnel using standard tools.

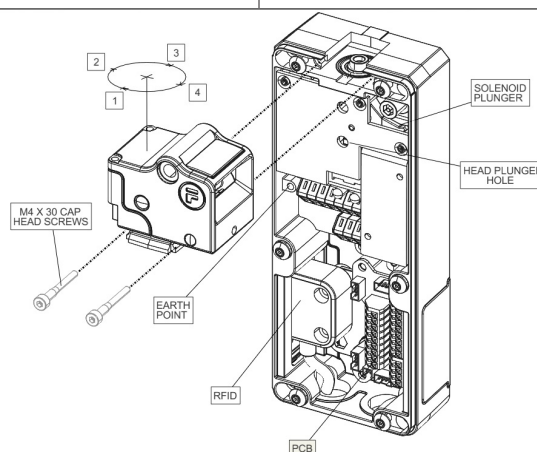
**Electrical Connection**

1. Check that the unit to be installed is of the same electrical type and voltage rating as the machine control circuits. This information can be found on a label, fixed to the back of the unit. Note that all units are designed to operate at +/-10% of the nominal supply voltage.

The use of an incorrect voltage can seriously damage the interlock. AC units are suitable for 50/60 Hz.

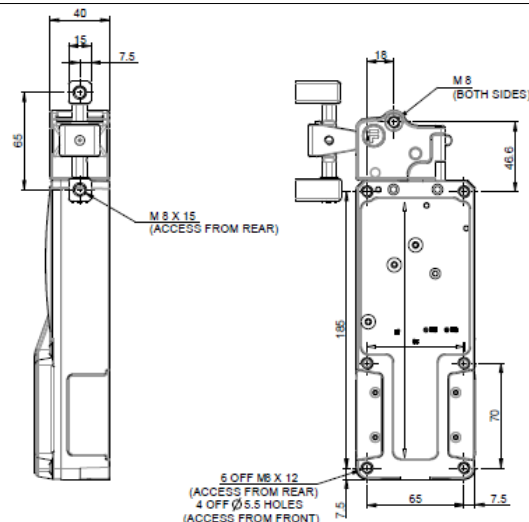
2. Make sure the electrical supply is isolated and attach suitable conduit(s) via M20 cable gland(s). Unused entries should be sealed with the blanking plug supplied with the unit. Correct size cable glands/blanking plugs must be used to achieve IP67 sealing.
3. Bond the enclosure to Earth potential via the Earth point provided. The earth wire used must be multi-stranded Yellow and Green PVC sheathed and approved to BS 6231 with conductor cross-sectional area of 2.5mm<sup>2</sup>. The Earth lead must be fitted such that it will be the last to be broken if the wiring loom is pulled from the product.
4. For information on how to wire push button control see page 3,4 & 5.
5. For the safety switch and solenoid control, make the electrical connections using 28-24 AWG cable, referring to the information on page 2.

fig.1



[illegible]

This guide should be retained for future reference.



All Buttons/Lamps/Selector Switches are ordered in the following sequence:  
Top Left, Top Right, Bottom Left, Bottom Right.

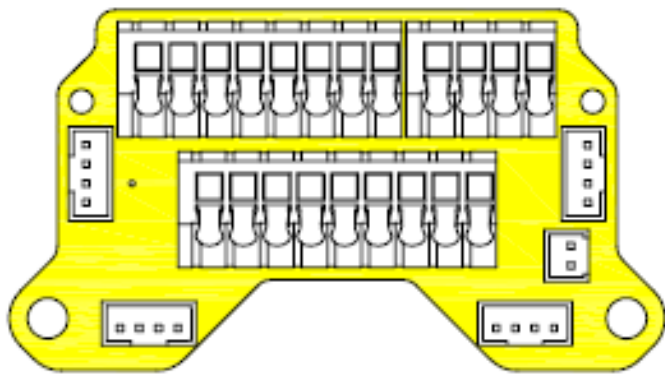
| Body Buttons / Lamps / Switches                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Version 1 Terminal Reference | Version 2 Terminal Reference | Function                                   |
|------------------------------|------------------------------|--------------------------------------------|
| 1                            | J                            | 24V Supply                                 |
| 2                            | K                            | 0V Supply                                  |
| -                            | L                            | Return from E-Stop monitor or 4th button   |
| 3                            | M                            | Supply to E-Stop LED or for 4th button LED |
| 4                            | N                            | Return from 1st button                     |
| 5                            | P                            | Supply to 1st button LED                   |
| 6                            | R                            | Return from 2nd button                     |
| 7                            | S                            | Supply to 2nd button LED                   |
| 8                            | T                            | Return from 3rd button                     |
| 9                            | U                            | Supply to 3rd button LED                   |
| 10                           | V                            | E-Stop safety circuit 1                    |
| 11                           | W                            | E-Stop safety circuit 2                    |
| 12                           | X                            | E-Stop safety circuit 1                    |
| 13                           | Y                            | E-Stop safety circuit 2                    |
| A                            | A                            | Sensor connection - unchanged              |
| B                            | B                            | Sensor connection - unchanged              |
| C                            | C                            | Sensor connection - unchanged              |
| D                            | D                            | Sensor connection - unchanged              |
| E                            | E                            | Sensor connection - unchanged              |
| F                            | F                            | Sensor connection - unchanged              |
| G                            | G                            | Sensor connection - unchanged              |
| H                            | H                            | Sensor connection - unchanged              |

|                                    |         |                              |   |
|------------------------------------|---------|------------------------------|---|
| 3. Select Sensor Type if required. | Sensor: | No Sensor                    | N |
|                                    |         | Magnetic Sensor - Left Hand  | C |
|                                    |         | Magnetic Sensor - Right Hand | D |
|                                    |         | RFID Sensor - Left Hand      | S |
|                                    |         | RFID Sensor - Right Hand     | T |

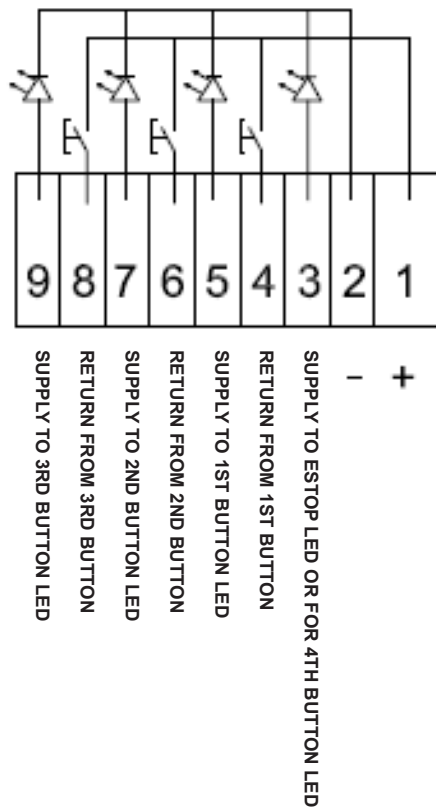
Pushbutton Switch Ratings:  
100mA @24VDC

Terminal Layout - Version 1  
Yellow PCB  
(obsolete - shown for reference only)

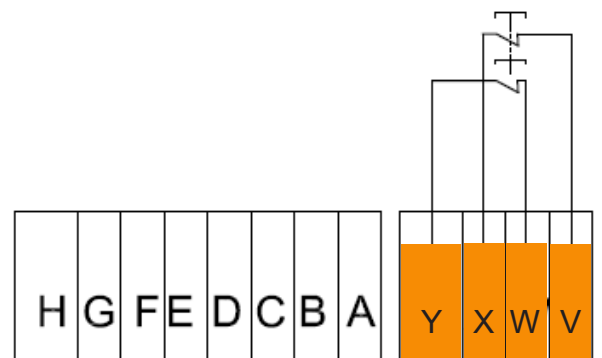
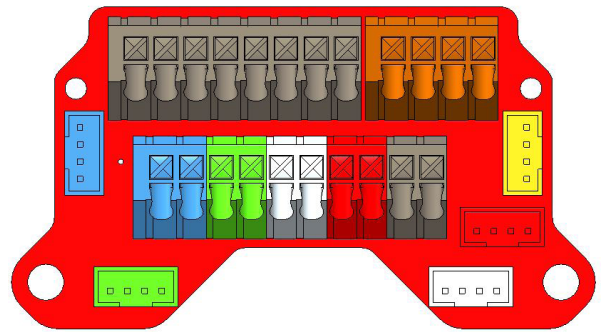


SENSOR  
CONNECTIONS

E-STOP

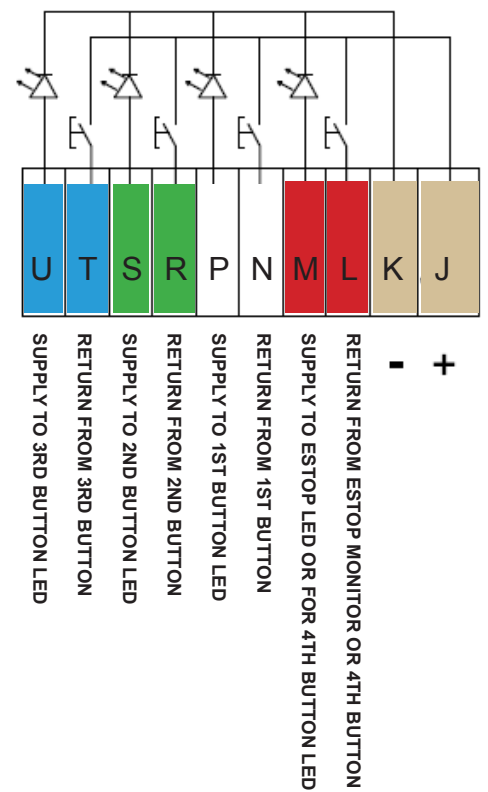


Terminal Layout - Version 2  
Red PCB



SENSOR  
CONNECTIONS

E-STOP



## Safety Sensors

### RFID Safety switch

The safety switch meets the requirements in accordance with: EN 60204-1 and IEC 60204-1 EN 60947-5-3 with the actuator PSEN cs4.1 C EN62061:SILCL3 EN ISO 13849-1: PL e and Cat 4. The safety switch may only be used with the corresponding actuator PSEN cs4.1.

The safety outputs must use 2-channel processing.

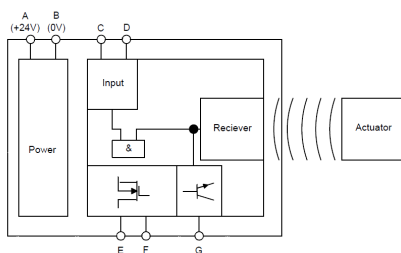
#### For your safety.

Only install and commission the unit if you have read and understood these operating instructions and are familiar with the applicable regulations for health and safety at work and accident prevention. Ensure VDE and local regulations are met, especially those relating to safety.

#### Unit features.

Transponder technology  
Coding: uniquely coded  
Dual-channel operation  
2 safety inputs for series connection of several safety switches  
2 safety outputs  
1 signal output

#### Function description



Safety outputs E and F conduct when: The actuator is within the response range and inputs C and D are high.

Signal output G conducts when: The actuator is within the response range.

Safety outputs E and F are disabled when: The actuator is outside the response range or inputs C and D are low.

The outputs cannot be switched back on until both inputs are low simultaneously.

Safety inputs C and D are monitored for feasibility. Both inputs must switch off and on together (partial operation lock).

Assured operating distance: 7 mm  
Typical operating distance: 9,0 mm  
Typical release distance: 11 mm  
Assured release distance: 15 mm  
Calculation of the maximum cable length L<sub>max</sub> in the input circuit:  
R<sub>1max</sub>  
L<sub>max</sub> = R<sub>1</sub>/km  
R<sub>1max</sub> = max. Overall cable resistance  
R<sub>1</sub> l km = cable resistance/km

#### Connection to evaluation devices

##### CAUTION!

The safety outputs must use 2-channel processing.

#### INFORMATION

AC versions of safety relays or safety relays with a universal power supply have internal potential isolation and are unsuitable as evaluation devices.

## Series connection

### CAUTION!

When several units are connected in series the delay-on de-energisation time increases in direct proportion to the number of interconnected safety switches.

#### Installation

The safety switch and actuator should be installed opposite each other in parallel. (Align the Sensor & Target)

#### Operation

Check the function of the safety switch before commissioning. The safety relay connected to the device should close both safety channels only when the door is fully closed and locked.

#### Status indicators: (with lid off)

"POWER/Fault" LED lights up green: The unit is ready for operation.

"Safety Gate" LED lights up yellow: Actuator is within the response range.

Input LED lights up yellow: Input circuits are closed or a HIGH signal is present.

#### Fault indicators: (with lid off)

Input LED lights up yellow: Only one channel of the input circuit open (partial operation)

Remedy: Open both channels of the input circuit

POWER/Fault LED lights up red: Error

message.

Flashing codes for fault diagnostics are output to the Safety Gate" and Input LEDs (see Pilz technical catalogue PSEN-mag and PSENcode).

Remedy: Rectify fault and interrupt power supply.

## Technical Details

### Electrical Data

Supply voltage U<sub>b</sub> DC 24V  
Voltage tolerance -20%/+20%  
Power consumption at U DC 1.0W  
Max. inrush current impulse A<sub>I</sub> 0.58A  
Pulse duration 1000ms  
Voltage at inputs 24VDC  
Current per input 5.0mA  
Switching current per output 100mA  
Breaking capacity per output 2.4W  
Max. switch frequency 3Hz  
Semiconductor outputs (short circuit proof)  
OSSD Safety outputs 2  
Signal outputs 1  
Max. overall cable resistance R<sub>imax</sub> in the input circuit 1000 Ohm  
Max. line capacitance at the safety outputs  
No-load, PNOZ with relay contacts 400nF  
PNOZ multi, PNOZelog, PSS 400nF

### Timers

Supply interruption before de-energisation 10.0ms

#### Switch-on-delay

after applying UB 1.0s

Input typ. 13ms

Input max. 20ms

Actuator typ. 45ms

Actuator max. 120ms

#### Delay-on de-energisation

Input typ. 15ms

Input max. 20ms

Actuator typ. 40ms

Actuator max. 260ms

Test pulse duration on safety outputs 300us

Simultaneity, channel 1 and 2 ∞

Rated insulated voltage 75V

Rated impulse withstand voltage 1,0kV

Over voltage category III

### Mechanical data

Hysteresis Typ 2,0mm

Assured operating distance 8mm

Assured release distance 15mm

### Safety-related characteristic data

PL in accordance with EN ISO 13849-1

PLe (Cat 4)

Category in accordance with EN 954-1 Cat 4

SIL CL in accordance with EN IEC 62061

SIL CL3

PFH in accordance with EN IEC 62061 2, 62E-09

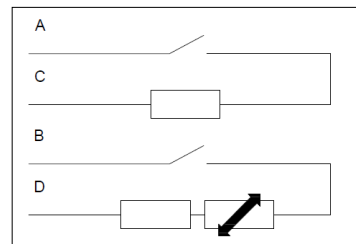
SIL in accordance with IEC 61511 SIL 3

PFD in accordance with IEC 61511 7,68E-05

tm in years 20

## Magnetic Safety Switch

The safety switch meets the requirements of EN 60204-1. The safety switch only complies with EN 60947-5-3 in conjunction with its approved evaluation devices. For your safety only install and commission the unit if you have read and understood these operating instructions and are familiar with the applicable regulations for health and safety at work and accident prevention. Ensure VDE and local regulations are met, especially those relating to safety. Any guarantee is rendered invalid if unauthorised modifications are carried out.



#### When using evaluation devices with delay-on de-energisation contacts, please note:

— Delay time ≤30s: Delay-on de-energisation contacts satisfy the requirements of category 3 in accordance with EN 954-1 and the requirements of a PDF with single-fault tolerance (PDF-S).

— Delay time ≥30s: Delay-on de-energisation contacts satisfy the requirements of Category 1 in accordance with EN 954-1 and the requirements of a PDF with designed reliability (PDF-D).

In the following commissioning cases, check the function that detects shorts across contacts:

— On evaluation devices with DC supply voltage: Overall cable resistance ≥15 Ohms per channel

— On evaluation devices with AC supply voltage: Overall cable resistance ≥25 Ohms per channel

For details of how to perform the test for shorts across the contacts, please refer to the operating manual for the relevant evaluation device.

#### Installation

The safety switch and actuator should be installed opposite each other in parallel. (Align the Sensor & Target).

#### Operation

Check the function of the safety switch before commissioning. The safety relay connected to the device should close both safety channels only when the door is fully closed and locked.

### CAUTION!

The unit's properties may be affected if installed in an environment containing electrically or magnetically conductive material. Please check the operating distances and the assured release distance. The distance between two safety switches must be maintained (see Technical details). The assured operating distance S<sub>ao</sub> and the assured release distance S<sub>ar</sub> must be tested under real conditions.

#### Safety switches and actuators:

Should be kept away from iron swarf.

Should not be exposed to strong magnetic fields.

Should not be exposed to heavy shock or vibration.

Should not be used as a limit stop.

#### Technical details:

##### Electrical data:

Switching voltage 24V

Internal resistance 10 Ohm

Max. switching current for safety contacts 0.20A

Max. switch frequency 1Hz

400mA Quick blow external fuse must be fitted.

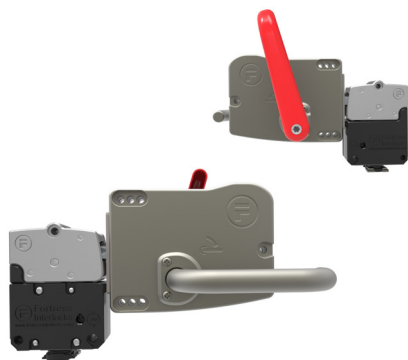
CIRCUITS TO BE FUSE PROTECTED: 0.2A FAST ACTING.

##### Safety-related characteristic data

B10d in accordance with EN ISO 13849-1 and EN IEC 62061 2(10<sup>6</sup>)

## Actuators

## proRelease - Single Action Releasing Head & Handle Combination



proRelease is a means of achieving a single action emergency release function from inside a guarded area. When properly installed, it provides safe access and escape from a variety of machinery. This unit may be installed in left or right orientation, to hinged doors. The tongue incorporates a self-aligning feature to cater for wear on hinged guards. It consists of a releasing head and handle pair, used where a traditional head and tongue would be used on a guard switch. Simply turning the red handle will affect an opening of the guard. Releasing versions of other modules are the type that **MUST** be used in conjunction with this module.

**NOTICE!** If, as a result of risk assessment, it cannot be discounted that persons can be enclosed within a danger zone, then guard locks with additional removeable keys (safety keys) must be used or comparable measures must be taken.

**IMPORTANT** This product is designed for use according to the installation and operating instructions enclosed. It must be installed by competent and qualified personnel who have read and understood the whole of this document prior to commencing installation. If the equipment is used in a manner not specified by the manufacturer the protection provided by the equipment may be impaired. Any modification to or deviation from these instructions invalidates all warranties. Fortress Interlocks Ltd accepts no liability whatsoever for any situation arising from misuse or mis-application of this product.

### DO NOT LEAVE OVERRIDE/RESET KEY IN PLACE!

Always keep in a secure place, under management control, as it allows access to areas that may have a residual hazard, and may result in incorrect operation of some devices.

**BEWARE OF INTENTIONAL MISUSE CAUSED BY OPERATORS WANTING TO BYPASS SAFETY SYSTEMS. THE INSTALLER SHOULD ASSESS THE RISKS AND MITIGATE AGAINST THEM.**

Safety switches (such as a STOP or LOK) must be fitted in conjunction with this unit to monitor when the IR has been activated. When lock adaptors are also used it is not possible to change a STOP to a LOK (and vice versa) without other changes to the locks - seek advice from Fortress.

**IF YOU HAVE ANY QUESTIONS OR QUERIES OF ANY NATURE WHATSOEVER PLEASE CONTACT THE SUPPLIER WHO WILL BE PLEASED TO ADVISE AND ASSIST.**

### Functioning

#### Closing and Locking

The guard locking device is activated by inserting the tongue into the head. Turning the exterior (Silver) handle opens and closes the mechanism (door) subject to the control methods of any additional locking devices (e.g. Access Locks, Solenoid control, etc.). Turning the internal handle (Red) will only open the mechanism (door), and never re-close it.

#### Unlocking

The guard locking device is released either when the locking means has been disabled, or by turning the internal handle. This mechanism will override the locking means and allow the opening of the door, whilst causing safety circuits to open (Assuming the appropriate modules have been selected), thus bringing the machine to a halt.

#### Resetting I6 or I7

After use of the internal handle, the unit must be reset to permit machine startup, by following these steps.

1. Ensure the guarded area is unoccupied, close the door, and using the silver handle, re-insert the tongue into the head.
2. Insert the reset key into the keyhole, and turn it one complete revolution, removing the key again. (Note: Key will only turn one way. If the key free position is passed, then another turn will need to be completed).
3. Test that the reset has been successfully completed, by attempting to turn the silver handle.

#### Resetting A6 or A7

The A6 and A7 heads are auto resetting. Closing the door and re-inserting the tongue into the head by using the silver handle is all that is required.



**Auxiliary Unlocking Mechanism**  
In the event of power failure, the guard locking may be overridden in the normal manner (see installation instructions for the modules used).

#### Tools and Fixings Required

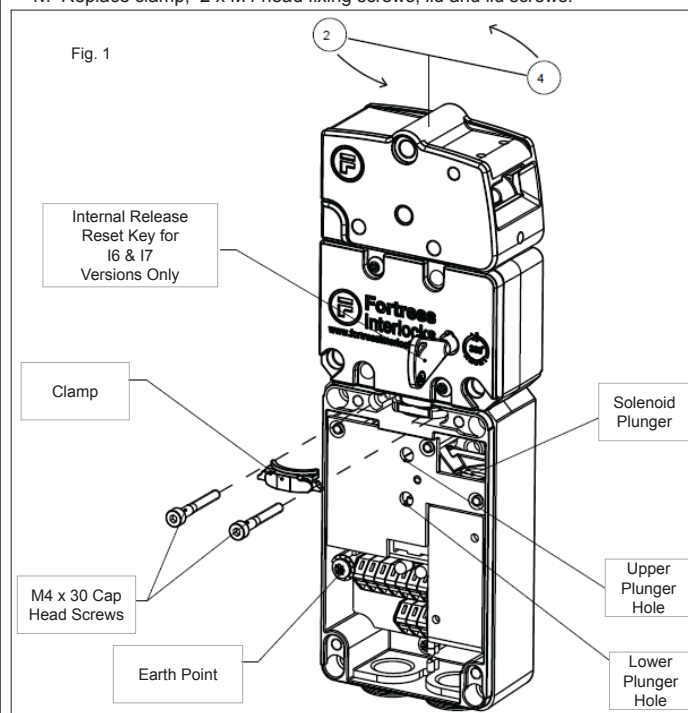
- Ø8.2mm Drill
- Ø6.2mm Drill
- 3 x M8 screws (rear fixing)
- 3 x M8 Washers
- 3 x M6 Screws
- 3 x M6 Nuts (Optional)
- 3 x M6 Washers

#### Mounting (Head)

1. Mount the interlock only in the correctly assembled condition
1. Locate the interlock so that operation of the reset mechanism, and inspection and replacement of the interlock are possible.
2. Remove the Tongue assembly from the unit by removing the locking means (e.g. Solenoid, Key, etc.) and pulling the tongue out of the head by means of the silver handle.
3. Mount the enclosure assembly together with head assembly to a flat metal, static part of the machine. Use M8 screws from the rear. The mounting surface should be flat.
4. The Locking Head may be rotated in increments of 180° to suit the installation.
5. Make sure that the gap around the perimeter of the guard, when closed (Safety Circuits Closed), does not exceed the limits specified in En294 & En953.
6. All fixing screws must be permanently prevented from removal, either by vibration or by personnel using standard tools.
7. Ensure the head M8 fixing is also used.

#### Mounting (Handle)

1. Mount the unit only in its correctly assembled condition: i.e. Ensure unit is assembled for the correct handing required for the particular installation.
2. Locate the Handle so that it is within easy reach. Locate the interlock so that operation of the auxiliary unlocking mechanism, and inspection and replacement of the interlock are possible.
3. The locking head may be rotated 180° to suit the installation.
  - i. Remove M5 pin hex screws from host (proLok / proLok+) lid.
  - ii. Remove 2 x M4 screws retaining head and remove the M4 screws and clamp.
  - iii. Turn to preferred orientation.
  - iv. Replace clamp, 2 x M4 head fixing screws, lid and lid screws.



The unit has been designed to be mounted in 3 different ways; onto extruded aluminium section, flat plate and onto plates or guards greater than 25mm thick.

#### Extruded Aluminium Section

- The handle will be delivered in this configuration.
- Cut a Ø50mm hole for the handle boss of the Red Emergency Handle to go through the guard in the appropriate location.
- Fix the handle to the Aluminium section using 2 x M6 T-Nuts and 2 x M6 Bolts.
- Use a third M6 bolt to attach the rear mounting to the guard.
- A spacer may be required for the rear fixing.

Fig. 2

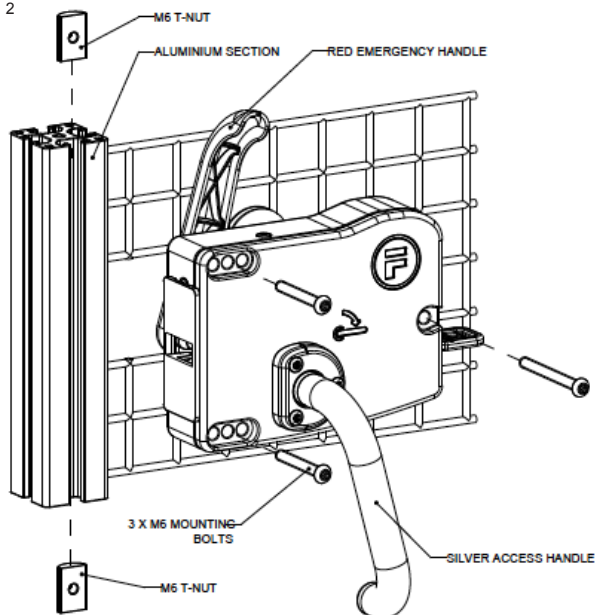
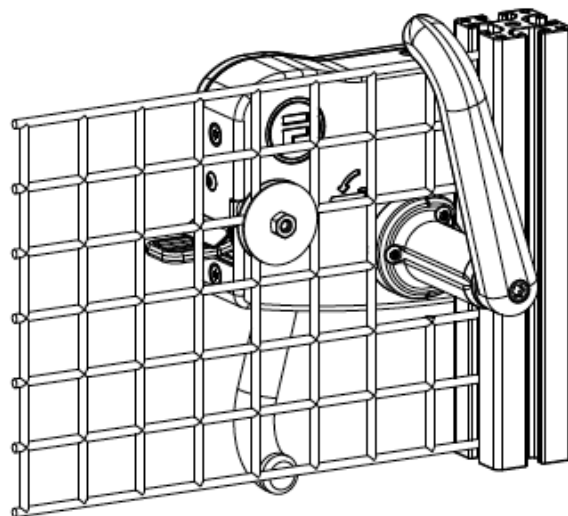


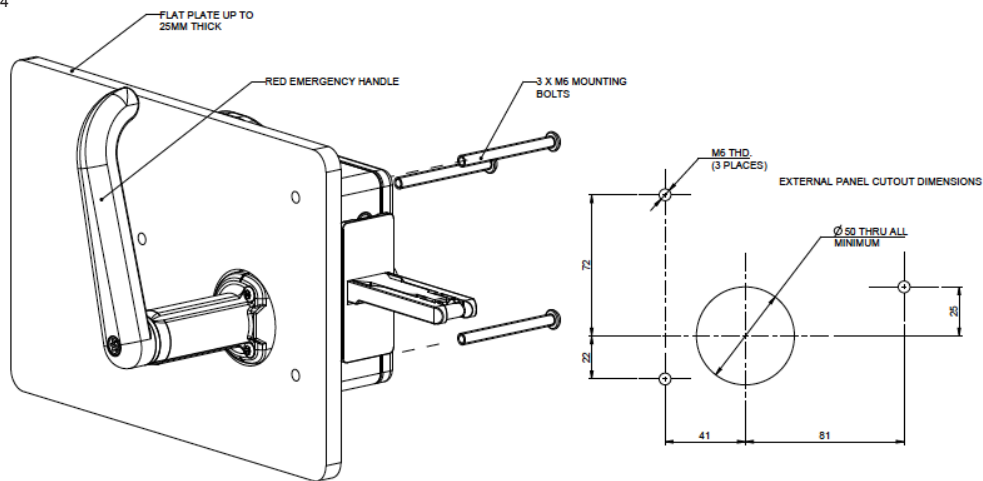
Fig. 3



#### Plates and Guards up to 25mm thick

- The handle will be delivered in this configuration.
- Cut a Ø50mm hole for the handle boss of the Red Emergency Handle to go through the plate / guard in the appropriate location.
- Cut 3 x M6 threads into plate / guard using the panel cutout dimensions given below in Figure 4.
- Insert Red Emergency Handle through Ø50mm hole and secure handle to plate / guard using 3 x M6 Bolts.

Fig. 4



#### Plates or Guards between 25mm and 40mm thick

To mount to guards greater than 25mm thick but less than 40mm thick, the Red Emergency Handle Assembly may need to be removed and refitted through the guard. To do this follow the handle removal and assembly notes in the 'Handling Change' section. Once re-assembled, secure the Handle to the guard using the instructions detailed above for plates and guards up to 25mm thick.

#### Plate or Guards greater than 40mm thick (e.g. noise attenuating door)

This will require an EI Handle with an extended Red Emergency Handle or an Extension Kit to be added to a standard EI Handle. Please contact your Fortress Representative with details of your requirement.

## Handing Change

The Handle may be changed from left-hand orientation (EI2) to right-hand orientation (EI4) or right-hand orientation to left-hand orientation using the following steps.

- Remove the 3 x M4 Pozi-Pan Screws and Handle Boss securing the Silver Access Handle.
- Remove the Silver Access Handle and Access Drive Coupler.
- Remove the Red Emergency Handle Sub-Assembly by first removing the 3 x M4 Pozi-Pan Screws.
- Remove the Cam, Retaining Pin and Stop Plate from the Red Emergency Handle Sub-Assembly. The Handle and Shaft can now be removed from the Spring Housing Body.
- Remove and replace the Torsion Spring from the Handle Shaft. For an EI2 Left-Hand Handle use the Clockwise Torsion Spring which is painted yellow, for an EI4 Right-hand Handle use the Anti-Clockwise Torsion Spring which is unpainted.
- Re-Insert the Handle Shaft into the Spring Housing Body ensuring the Torsion Spring legs fully engage within the Spring Leg Assembly Holes.
- Rotate the Handle slightly against the Spring force (Clockwise for an EI2, Anti-Clockwise for an EI4) and assemble the Stop Plate and Retaining Pin as shown in Figures 5 and 6.
- Assemble the Cam onto the Square spindle of the Handle Shaft in the correct orientation shown in Figures 5 and 6.
- On the opposing side of their original position, assemble the Access Drive Coupler and Silver Access Handle. Ensure the Silver Handle is horizontal when the tongue is extended forward. Secure this Handle by re-fitting the Handle Boss and 3 x M4 Pozi-Pan Screws.
- Ensuring the tongue remains extended forward, assemble the now completed Red Emergency Handle Sub-Assembly onto the Handle body and secure using the 3 x M4 Pozi-Pan Screws.
- With assembly complete, check the Handle and corresponding Releasing Head for full and correct operation.

Fig. 5

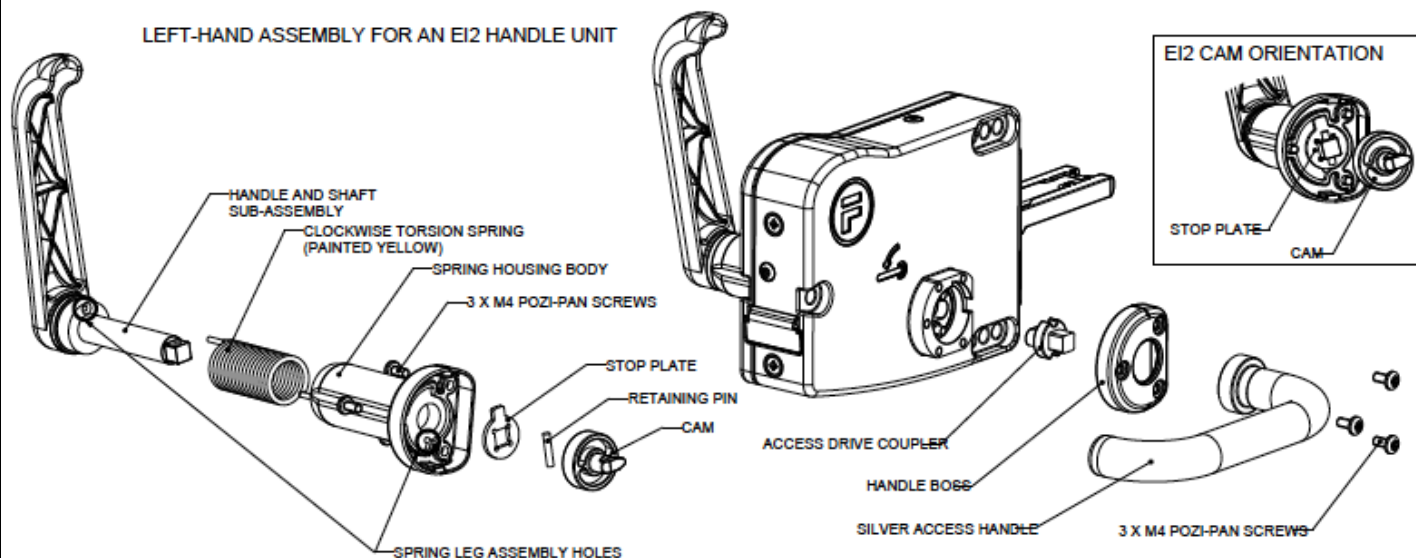
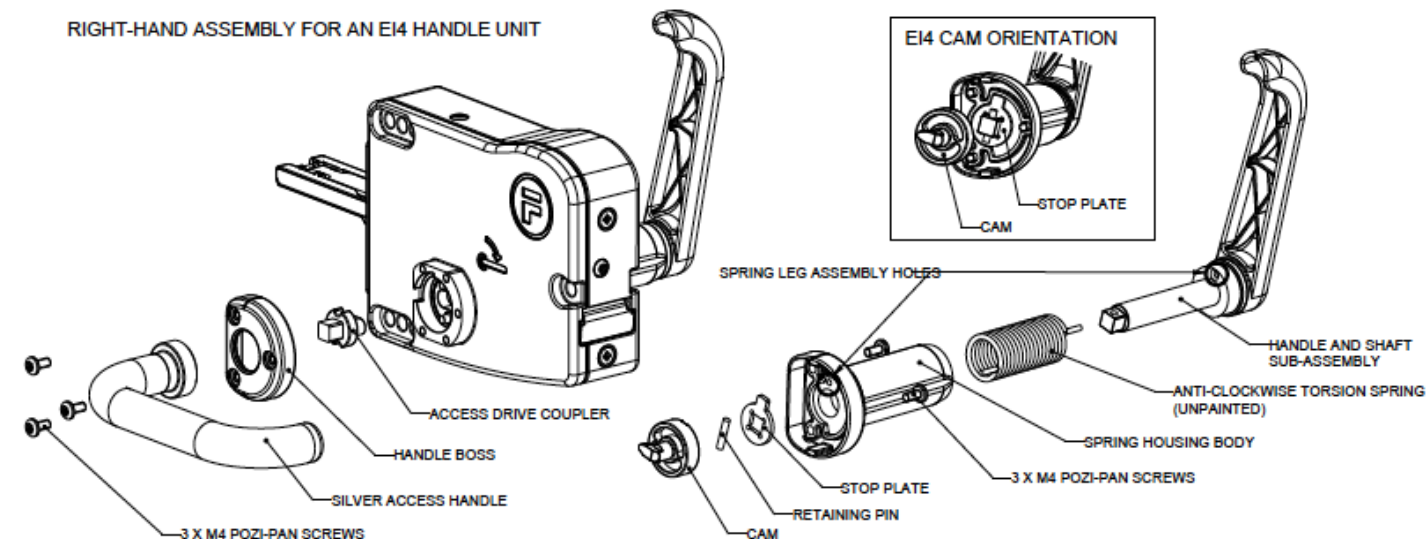


Fig. 6



#### Protection Against Environmental Influences

A lasting and correct safety function requires that the unit be protected against the ingress of foreign bodies such as swarf, sand, blasting shot, etc. The unit is to be mounted away from the machine, or by the use of anti-vibration mountings, in order to avoid the effects of vibration, shock and bump.

#### Testing (Unpowered)

The complete guard installation should be tested prior to use.

1. Insert the tongue into the head. It must lock in position.
2. Remove the locking means, and check that the tongue releases when turning the silver handle breaking the safety circuits where fitted, and locks in place again.
3. Check that with the locking function in place, that the red handle will turn and open the door and breaks safety circuits (which stay broken on closure until reset). Then reset the unit, by evacuating the guarded area, using the silver handle close the door, inserting the tongue fully. Then insert the reset key and rotate 360 degrees and remove the reset key. Check that the silver handle is now locked in place and the safety circuits closed. Restoration of the protection is necessary before normal operation is resumed.

**Warning: This device does not contain the reset facility after emergency and auxiliary release of guard locking.**

**Additional measures are required to achieve the reset of the machine system.**

#### Service and Inspection

Regular inspection of the following is necessary to ensure trouble-free, lasting operation:

- Correct operating function
- Secure mounting of components
- Debris and wear

CK Dry Powder Graphite lubricant, every 10,000 operations.

There are no user serviceable parts in this product. If damage or wear is found with an assembly, please contact your local Fortress stockist.

The complete interlock must be replaced after 1 million switching operations.

#### Disposal

This interlock does not contain any certified hazardous materials so should be disposed of as industrial waste.

Liability coverage is voided under the following conditions:

- If these instructions are not followed - non-compliance with safety regulations
- Installation and electrical connection not performed by authorised personnel
- Non-implementation of functional checks.

#### Environmental Specification

Environment Type: Indoor & Outdoor

Max. Altitude: 2000m

Ambient Temperature: -5°C to +80°C

Maximum Relative Humidity: 80% @ ≤31°C; 50% @ 40°C

Vibration: Tested in accordance with: GS-ET-19

#### Protection Against Environmental Influences

A lasting and correct safety function requires that the unit be protected against the ingress of foreign bodies such as swarf, sand, blasting shot, etc. The unit is to be mounted away from the machine, or by the use of anti-vibration mountings, in order to avoid the effects of vibration, shock and bump.

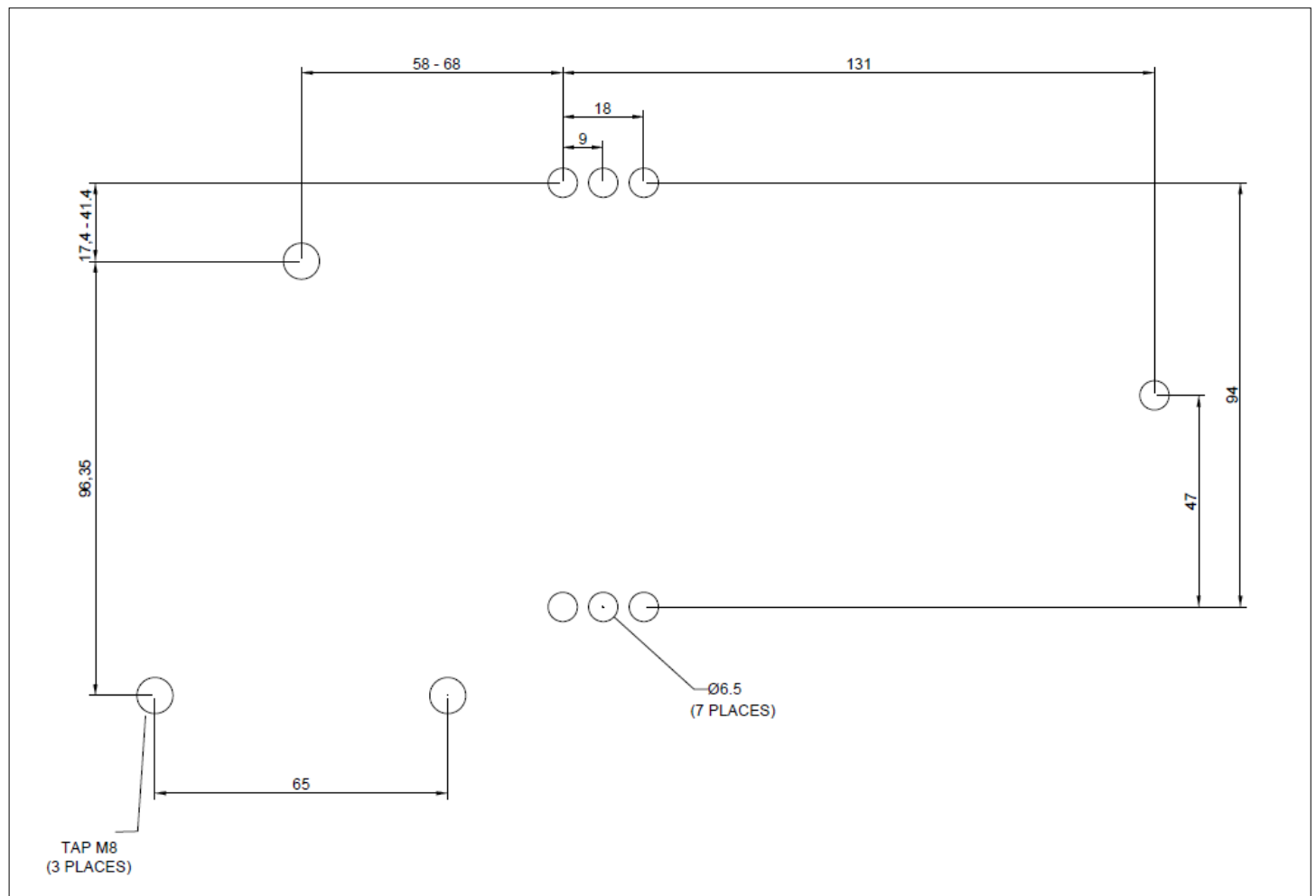
Use in Dusty Environments: Careful product selection is required, which is best performed under the guidance of a Fortress Sales Representative, in order to assess the dust type and product style required.

**Use in Corrosive Environments is not allowed**

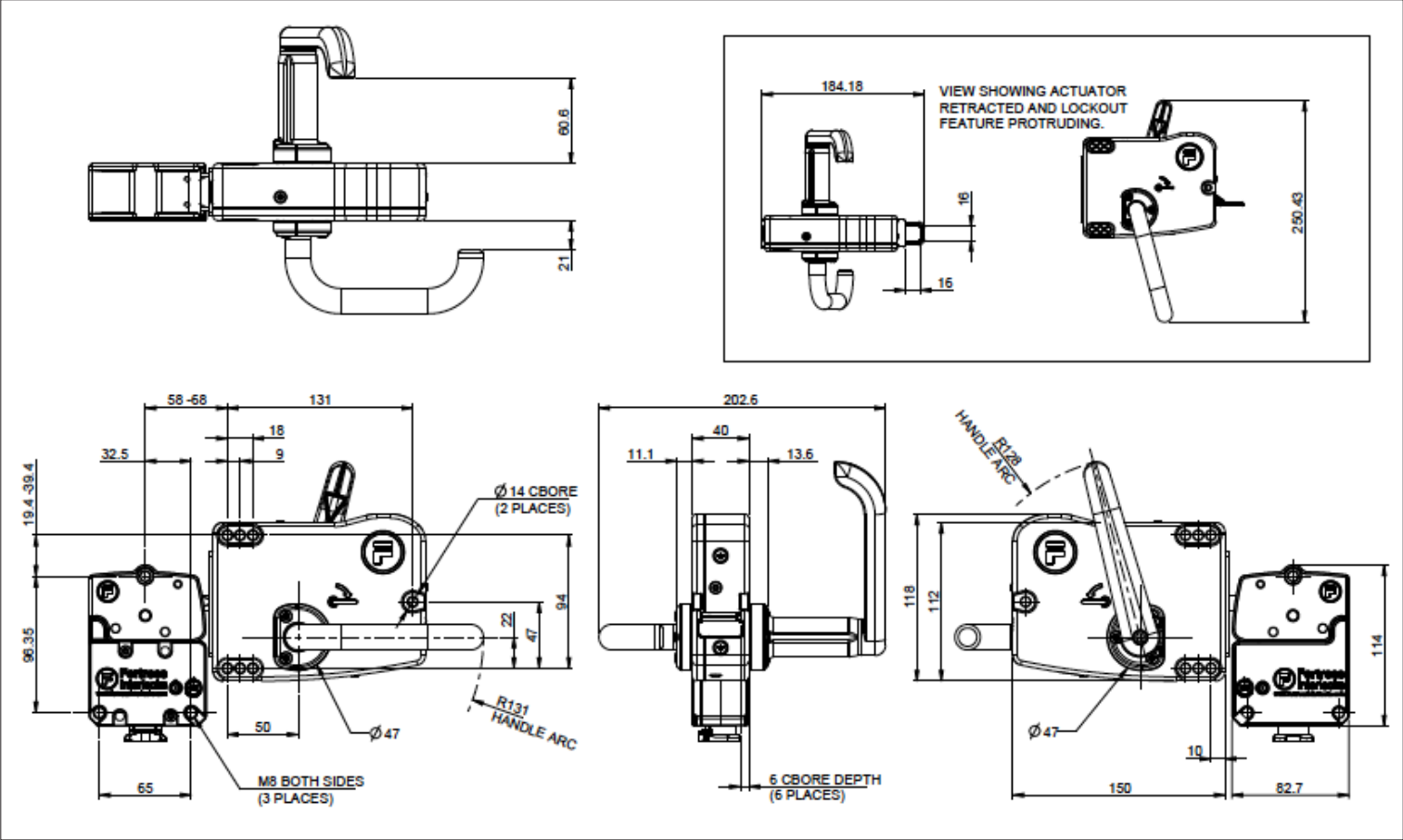
The manufacturer reserves the right to modify the design at any time and without notice.

This guide should be retained for future reference.

#### Mounting Diagram



Dimensional Drawing



Dimensional Drawing with Drop Down Lockout

