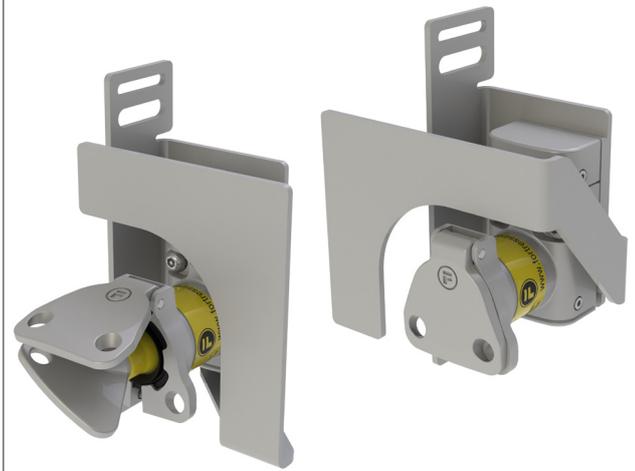


## Operating Instructions: Photoelectric Blocking - PBL

### Description

Fortress' PBL prevents unexpected start-up in areas safeguarded by light curtains, an individual takes the safety key when entering the area and while they have that key on their person the light curtain remains blocked and therefore the protective stop function is maintained, this ensures the hazard cannot be reset or restarted until the key is returned to the unit. PBL provides the same peace of mind for an operator entering past a light curtain as a safety key or interlock blocking device does with physical guards. Additional padlock points on the dustcover allow any subsequent individuals entering the area to apply their own means of control to the device.

As a purely mechanical component complete with an integrated mounting plate it is easily retrofitted or added to an existing system, with a compatible light curtain, without the need for wiring or programming.



### Options & Ordering Information

Description	Part No.
PBL Device for left-hand blocking, with 100mm Blocker Plate and right-angled mounting bracket.	PBL2A-1-1-CLSL-MP1
PBL Device for right-hand blocking, with 100mm Blocker Plate and right-angled mounting bracket	PBL4A-1-1-CLSL-MP1

### NOTICE!

PBL is not an interlock and must only be used in addition to a light curtain as part of a safety related part of a control system that meets required reliability.

### Important:

The PBL Photoelectric Blocking Device 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 Device or guarded machinery 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 the Device.

**The PBL device alone does not provide any protection from unexpected restart, it must only be used in addition to a compatible light curtain as part of a complete machine guarding system. The light curtain must meet all relevant safety requirements and applicable safety standards.**

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

In order to maintain device safety rating, overall machine guarding system must be validated to EN ISO 13849-2 and/or evaluated in accordance with IEC 62061.

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

# Operating Instructions: Photoelectric Blocking - PBL

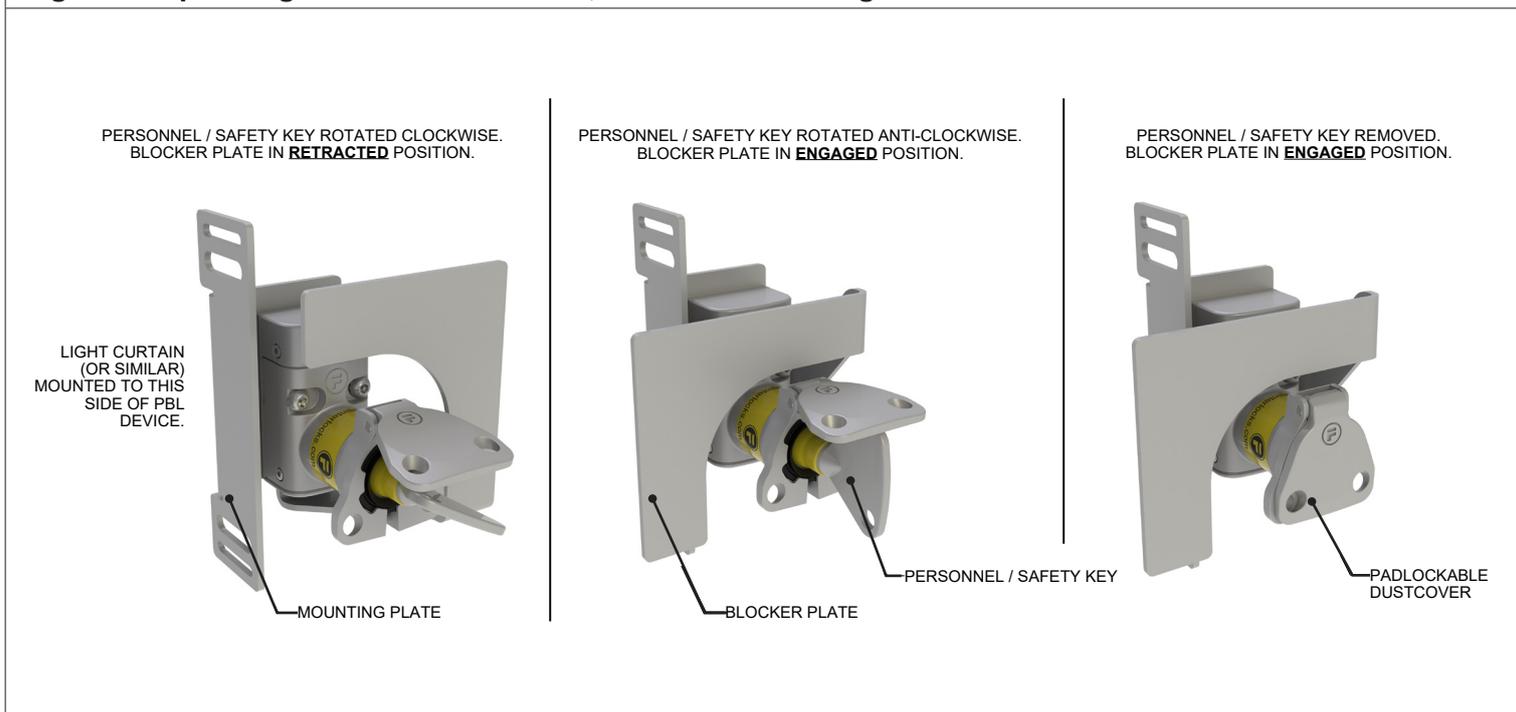
Technical Specification	
Construction Materials	316 Stainless Steel and Stainless Steel to BS3146-2:1975 (ANC4B)
Mechanical life	1,000,000 operations
Ambient Temperature	-25°C to +80°C*
Shock and Vibration Resistance	Tested in accordance with IEC 60068-2-6 and IEC 60068-2-27
Environment Type	Indoor & Outdoor
Light Curtain blocking dimensions	100mm x 30mm (See Fig.3 and Fig.4 for details)
Maximum Light Curtain beam spacing	90mm
*The units will only continue to work below freezing point (0°C) where it can be guaranteed that ice will not form on or in the unit; as it will cause the mechanical parts to bind and jam.	

Safety Functions	Part No.
Safety Function 1   Prevent unexpected machine restart.	PBL

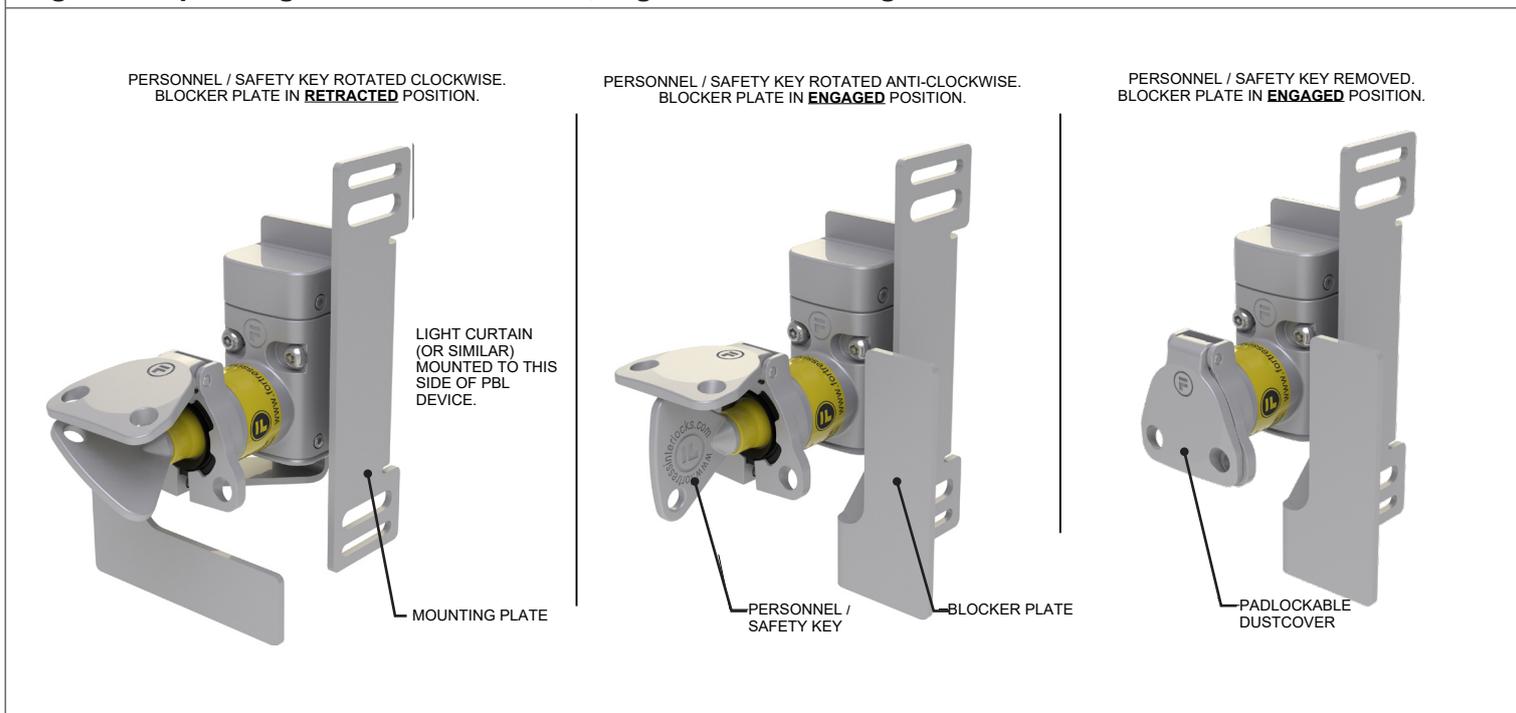
Functionality
<p>The PBL Photoelectric Blocking Device is to be used to add additional safeguard functionality to an existing machine guarding or access point that is fitted with a Light Curtain or similar Photoelectric or Sensing safety device.</p> <p>The PBL device consists of a Blocker Plate, a Personnel / Safety Key and a Padlockable Dustcover (See Fig.1 and Fig.2). The Blocker Plate is directly linked to the operation and removal of the Personnel / Safety Key such that when the Personnel / Safety Key is rotated clockwise the Blocker Plate also rotates into an Engaged position. The Engaged position of the Blocker Plate is designed to block and interrupt the beam or signal of an associated Light Curtain or similar Photoelectric sensing device.</p> <p>Once the Blocker Plate is in the Engaged position the Personnel / Safety Key can be removed. The removal of the Personnel / Safety Key traps the Blocker Plate in its Engaged position until the Personnel / Safety Key is returned and rotated anticlockwise back to its original position.</p> <p>With the Blocker Plate in the Engaged position and the Personnel / Safety Key removed, Padlocks can be added to the Padlockable Dustcover of the PBL device for additional Lock-Out functionality. The addition of padlocks to the Padlockable Dustcover will prevent the Personnel / Safety Key from being re-inserted therefore further retaining the Blocker Plate in its Engaged position.</p>
<p><b>Blocking a Light Curtain or similar Photoelectric Sensing device:</b></p> <ul style="list-style-type: none"> <li>• Rotate the Personnel key of the PBL device clockwise.</li> <li>• This will rotate the Blocker Plate to its engaged position.</li> <li>• The Personnel Key can now be removed to trap the Blocker Plate in its engaged position.</li> </ul>
<p><b>Unblocking a Light Curtain or similar Photoelectric Sensing device:</b></p> <ul style="list-style-type: none"> <li>• Raise and open Padlockable Dustcover of PBL lock barrel.</li> <li>• Be aware that any padlocks or Lock-Out measures having been used on the Padlockable Dustcover must be removed before the Dustcover can be opened.</li> <li>• Insert and rotate the Personnel Key anti-clockwise.</li> <li>• This will rotate the Blocker Plate to its retracted position.</li> </ul>

# Operating Instructions: Photoelectric Blocking - PBL

## Figure 1: Operating Positions for PBL2A, Left-Hand Blocking Device -

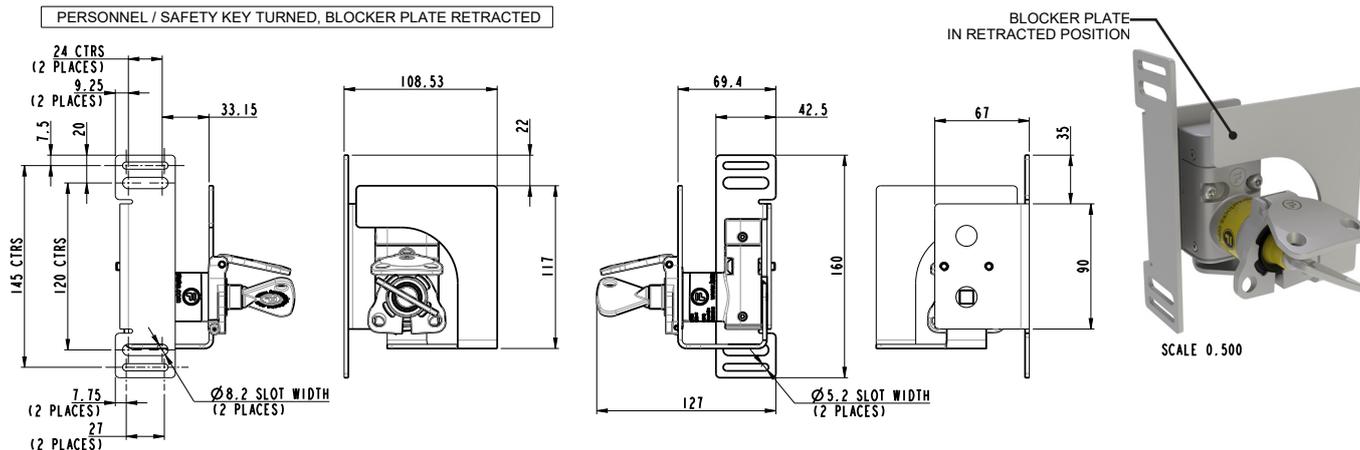


## Figure 2: Operating Positions for PBL4A, Right-Hand Blocking Device -

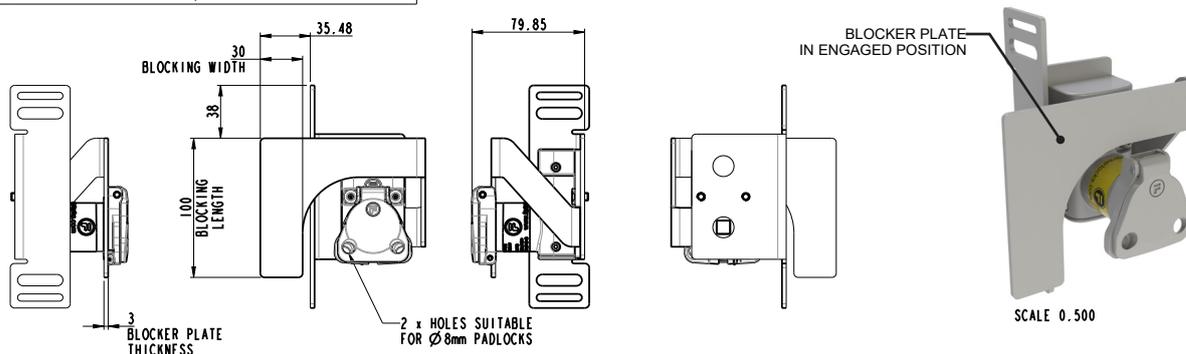


# Operating Instructions: Photoelectric Blocking - PBL

**Figure 3: Dimensional Drawing for PBL2A, Left-Hand Blocking Device -**

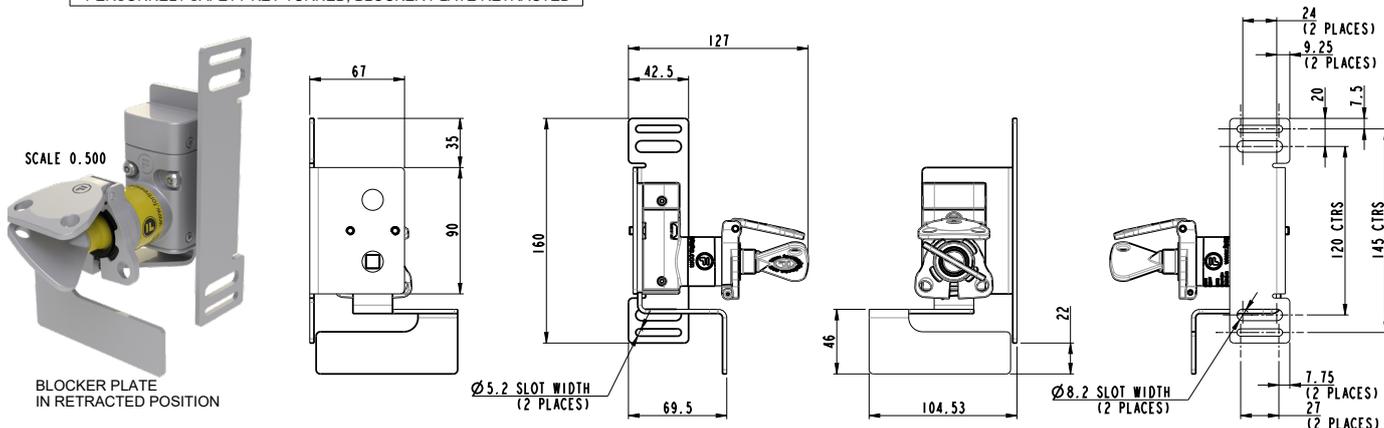


PERSONNEL / SAFETY KEY REMOVED, BLOCKER PLATE ENGAGED

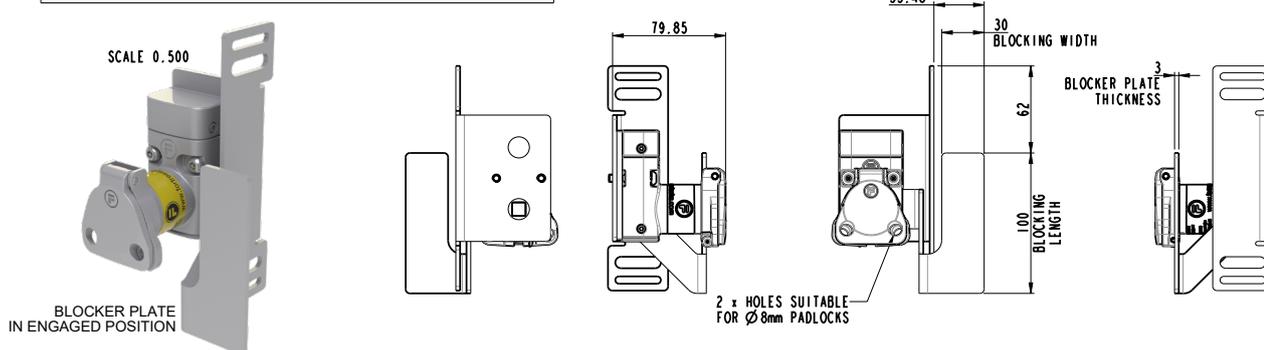


**Figure 4: Dimensional Drawing for PBL4A, Right-Hand Blocking Device -**

PERSONNEL / SAFETY KEY TURNED, BLOCKER PLATE RETRACTED



PERSONNEL / SAFETY KEY REMOVED, BLOCKER PLATE ENGAGED



# Operating Instructions: Photoelectric Blocking - PBL

## Tools and Fixings Required

- Minimum 2 x M8 screws or 2 x M5 screws for securing PBL device.
- Screws must be suitable length for a minimum of 10mm thread engagement.
- Screws must be security type to prevent unauthorised removal or tampering.
- Required torque setting; 40 Nm.
- 2 x M8 or 2 x M5 Nut / T-Nut / Threaded Hole for securing PBL device.
- Driver suitable for securing M8 or M5 screws.
- Adhesive Threadlocker to secure mounting fixings from loosening due to vibration.

## Mounting

1. Locate the PBL device so that it can correctly interrupt or block the signal of the associated Light Curtain or Photoelectric sensing device to which it is mounted with its Blocker plate in its engaged position. See Fig.2 for mounting dimensions.
2. Secure the PBL device using minimum 2 x M8 or 2 x M5 screws through the available mounting holes at the top and bottom of its mounting plate.
3. Perform Mechanical Function tests before completing installation and commission. See Mechanical Function test section for more details.

### Mount the complete device only in the correctly assembled condition.

- All mounting surfaces should be flat, stable and suitable of providing a minimum of 10mm thread engagement or sufficient support to either an M8 Nut/T-Nut or M5 Nut/T-Nut.
- The PBL device must be located so that all scheduled inspection and maintenance procedures are all easily possible.
- The complete machine guarding installation must conform to all relevant design, construction and installation standards and guidelines.
- Any gap around the perimeter of the machine and guarding when under operation (Safety Outputs High) must not exceed the limits specified in ISO 13857 & ISO 14120.
- All fixing screws used to mount the complete Device must be permanently prevented from removal. If mounting fixings are visible, they must be secured against removal by personnel using standard tools, manipulation and un-authorised or un-identifiable removal. If mounting fixings are not visible or hidden, they must be secured against removal or loosening due to vibration. In both cases, a middle strength adhesive threadlocker is required.

## Mechanical Function Test Instructions

### Test 1

1. Rotate and remove the Personnel key from the PBL device.
  - **It must not be possible to rotate and remove the PBL Blocker Plate from its Engaged position with the Personnel Key removed.**
  - **The safety output from the associated Light Curtain or Photoelectric sensing device must indicate that the sensing beam or zone is blocked or interrupted.**
  - **It must not be possible for a machine restart signal to be generated until the Personnel Key has been reinserted and rotated.**

## 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
- WD40 lubricant or equivalent, should be applied to each mechanical element every 10,000 operations, or sooner, to ensure smooth product operation and function. There are no user serviceable parts in this product. If damage or wear is found with an assembly, please contact your local Fortress Channel Partner for a replacement. The complete device must be replaced after 1 million operations.

# Operating Instructions: Photoelectric Blocking - PBL

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## **Disposal**

This device does not contain any certified hazardous materials so should be disposed of as industrial waste. Electrical items should not be disposed of in general waste and must be appropriately recycled.

## **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.

## **Protection Against Environmental Influences**

A lasting and correct safety function requires that the device be protected against the ingress of foreign bodies such as swarf, sand, blasting shot, etc. The device 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 Representative, in order to assess the dust type and product style required.

Use in Corrosive Environments: Careful product selection is required, which is best performed under the guidance of a Fortress Representative.

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

**This guide should be retained for future reference.**