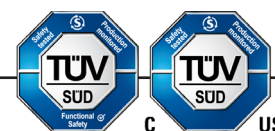


Operating Instructions: Option Pods



Option Pods

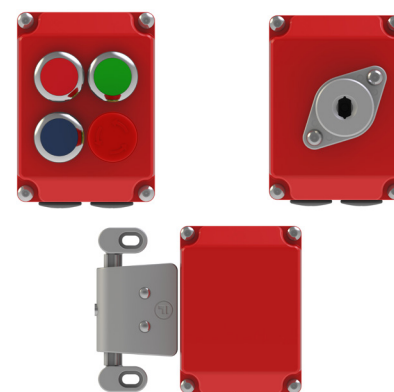
Description

proOption Pod module is used either to add to an amGardpro unit, or use as a standalone product.

There are several versions of the *proOption* pod:

- Keyswitch.
- Pushbutton station.
- RFID or coded magnet sensor (which may be included in the pushbutton station, but not the keyswitch).

This unit may be installed in any orientation.



proOption Pod - Lamps / Pushbuttons

An ideal complimentary module to an interlock. Can be used to enhance identification or status. Pushbutton option pod can be configured to include:

Emergency Stop

- 2 NC safety contacts.
- Twist or pull.
- Illuminated option for twist.

Lamps

- Easy, clear identification of machine status.

Controls

- Request start / stop at the gate.
- Illuminated and Non-Illuminated options.
- Range of selector switches.

proOption Pod - Keyswitch

The rotation of the key operates a 2NC/2NO contact arrangement. Switch rating 3A. These can be used for a variety of functions including:

- Requesting machine stop at the end of a run-down cycle.
- Enabling teach mode activation.
- Preventing unexpected restart when key removed and carried inside safeguarded space.

proOption Pod - Sensors

To provide a contact-less means of verifying the door open/closed position. This may be used as the primary door sensor when a stand alone option pod is used, or as a means of adding a secondary door sensor to an interlock product.

Sensor options include:

- Cat.4 PLe uniquely coded RFID sensors.
- Cat.4 PLe low coded magnetic sensors.

Options & Ordering Information

Description			Part No.
Stand Alone Pod (Buttons configured separately within part number)			B0
To suit proLOK Body (Buttons configured separately within part number)			B2
Description	Part No.	Lock Type	Lock Description
Stand Alone Key Switch	BK01	CLIN	Standard CL lock no dustcover
Stand Alone Key Switch	BK02	CLIS	Standard CL lock with stainless steel dustcover
Stand Alone Key Switch	BK03	CLIL	Standard CL lock with padlockable stainless steel dustcover
Stand Alone Key Switch	BK06	MLIN	Masterable CL lock no dustcover
Stand Alone Key Switch	BK07	MLIS	Masterable CL lock with stainless steel dustcover
Stand Alone Key Switch	BK08	MLIL	Masterable CL lock with padlockable stainless steel dustcover
Key Switch to Suit proLOK Body	BK21	CLIN	Standard CL lock no dustcover
Key Switch to Suit proLOK Body	BK22	CLIS	Standard CL lock with stainless steel dustcover
Key Switch to Suit proLOK Body	BK23	CLIL	Standard CL lock with padlockable stainless steel dustcover
Key Switch to Suit proLOK Body	BK26	MLIN	Masterable CL lock no dustcover
Key Switch to Suit proLOK Body	BK27	MLIS	Masterable CL lock with stainless steel dustcover
Key Switch to Suit proLOK Body	BK28	MLIL	Masterable CL lock with padlockable stainless steel dustcover

Operating Instructions: Option Pods

AS-i *pro*Option Pod module is used either to add to an amGard*pro* unit, or use as a standalone product. There are several versions of the AS-i *pro*Option Pod:

- Keyswitch.
- Pushbutton station.
- RFID or coded magnet sensor (which may be included in the pushbutton station, but not the keyswitch).

This unit may be installed in any orientation.

AS-interface

AS-interface units are used when you want to connect all of the features of a Pod to an AS-i bus.

- Connect up to 4 inputs, 4 outputs and 1 dual channel safety circuit to the bus in one stack.
- Each node address can handle either 4 inputs and 4 outputs, or 1 dual channel safety circuit.
- Connections are made by the standard M12 5 pin QD.
- Pushbuttons / lamps are powered directly from the bus meaning only two wires are necessary to run the whole *pro*Option pod module; the Aux power supply is required if a solenoid lock is included in the configuration.



Options & Ordering Information

Description	Part No.
Stand Alone AS-i Option Pod	B5
AS-i Option Pod to suit <i>pro</i> LOK	B7
<p>The Slimline <i>pro</i>Option Pod module is a robust, heavy duty pushbutton station that connects to the amGard<i>pro</i> range of products. Can be used as a standalone product or as an additional module mounted below either a Slimline <i>pro</i>LOK or a <i>pro</i>Stop unit. A combination of up to three control elements (pushbuttons, lamps, selector switches and emergency stops) can be fitted within one Slimline <i>pro</i>Option Pod. Control elements can be pre wired with a common power supply to minimise external wiring or supplied with volt free contacts to be individually wired. Available control elements include:</p> <ul style="list-style-type: none"> • Pushbuttons (Illuminated & Non-Illuminated). • Lamps. • Emergency Stops. • Range of Selector Switches. 	

Options & Ordering Information

Description	Wiring	Part No.
Stand Alone Pod	Common Power Supply	Y0
To suit <i>pro</i> Stop or Slimline <i>pro</i> LOK Body		Y1
Stand Alone Pod	Individually Wired (Volt free contacts)	W0
To suit <i>pro</i> Stop or Slimline <i>pro</i> LOK Body		W1

Operating Instructions: Option Pods

Options & Ordering Information - *pro*Option Pod

To configure control elements and sensors:

1. Select Body Version, e.g. Option pod / AS-i / Slimline
2. Select Buttons / Lamps
3. Select Sensors

Note: Only 1 E-Stop may be fitted into any assembly.
All pushbuttons are rated at 24VDC max, switching capacity of 0.5A.



Ordering Sequence























1. Top Left
2. Top Right
3. Bottom Left
4. Bottom Right



Ordering Sequence

1. Top Position
2. Middle Position
3. Bottom Position

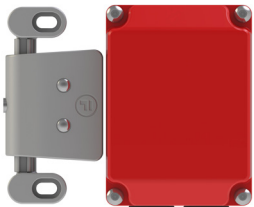
Options & Ordering Information - Pushbutton / Lamps / Switches

Buttons / Lamps / Switches	E-Stops	ET (Twist) Non-Illuminated	EP (Pull) Non-Illuminated	EI (Twist) Illuminated	EM* (Twist) Monitored		
							
	* (Additional monitoring contacts)						
	Pushbuttons	P1 Illuminated	P2 Illuminated	P3 Illuminated	P6 Illuminated	P7 Illuminated	PB Non-Illuminated
							
	Lamps	LR	LY	LG	LB	LW	
							
	Illuminated Selector Switch	2E** (Latching 90 Degree)	2F** (Momentary 90 Degree)	2V (Latching Selector Switch Positions at 10 & 2 (1NO 1NC))		K5** (Latching Key Switch (90 Degree))	
							
	Blank	00	Laser Engraving Information				
		Engraving for each button: 2 Lines of 8 Characters					

**2E, 2F & K5 Options can only be fitted in top right or bottom left positions.

Options & Ordering Information - Sensors

Select Sensor Type if required.



Description	Coding (as defined in ISO 14119)	Part No.
No Sensor	N/A	N
Plastic Magnetic Sensor - Left Hand	Low Coding	C
Plastic Magnetic Sensor - Right Hand	Low Coding	D
RFID Sensor - Left Hand	High	X
RFID Sensor - Right Hand	High	Q
Magnetic Sensor - Left Hand	Low	F
Magnetic Sensor - Right Hand	Low	J

Operating Instructions: Option Pods

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. 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. The unit is a component to be added to a permanent electrical installation meeting the requirements of the applicable IEC/EN standards.. The voltages used within the Option Pod circuits must all be of the same type i.e. ALL Hazardous Live or ALL Machine Extra Low Voltage. **All the voltages used within the connected circuits must be derived from a Safety Extra Low Voltage or Protected Extra Low Voltage power supply (SELV or PELV).**

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 PLEASE CONTACT THE SUPPLIER WHO WILL BE PLEASED TO ADVISE AND ASSIST.

proOption Pod Technical Specification	Pushbuttons / Lamps	Keyswitch	Sensor	AS-i	Slimline
Housing Materials	Zinc alloy to BS1004A				Zinc alloy to BSEN12844 ZA3
Paint Finishes	Gloss powder coat on passivated bodies				
Operating Force	-	0.5Nm	-		
Maximum Switch Current	0.1A	3A	0.1A		-
Maximum Switching Voltage	-	230V AC	-		
Control Voltages	24V AC/DC				
Lamp Life	100,000 hours on time	-		100,000 hours on time	
Switches Conformance	DIN VDE 0060 Part 206 & IEC 947-5-1	-		DIN VDE 0060 Part 206 & IEC 947-5-1	
Switching Contact Element	Emergency Stop - 2NC (1NO monitored version available)	Keyswitch - 2NC/2NO	RFID - 2NC/1NO	Emergency Stop - 2NC (1NO monitored version available)	
	Pushbutton - 1NO		Coded magnet - 2NC	Pushbutton - 1NO	
	Selector Switch - Dependent on variant		-	Selector Switch - Dependent on variant	
Safety/E-Stop Switching Principal	Positive break dual channel		-	Positive break dual channel	
Connector Type	Spring activated vibration proof block or range of quick disconnect receptacles				
Cable Size	26-14 AWG				
Pollution Degree (IEC 664)	Degree 2				
Shock and Vibration Resistance	Tested in accordance with: GS-ET-19				
Performance Level (EN ISO 13849-1:2015)	-	PLe		-	
B10d	-	5,000,000	7,300,000	-	
Ingress Protection	IP65	IP67		IP65	
Environment	Indoor & Outdoor				
Ambient Temperature	-5°C to + 60°C (23°F to 140°F)*				
Maximum Humidity	80%@<=31°C, 50%@40°C				
Maximum Altitude	2000m				

*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.

amGardpro Option Pod Safety Functions		Part No.
Safety Function 1	Provides E-Stop function (If E-Stop is fitted)	See options & ordering selection for control options above for relevant part number

amGardpro Keyswitch Safety Functions		Part No.
Safety Function 1	Turns mechanical movement of lock into operation of safety contacts	BK

Operating Instructions: Option Pods

Figure 1: Dimensional Drawing - proOption Pod / AS-i proOption Pod

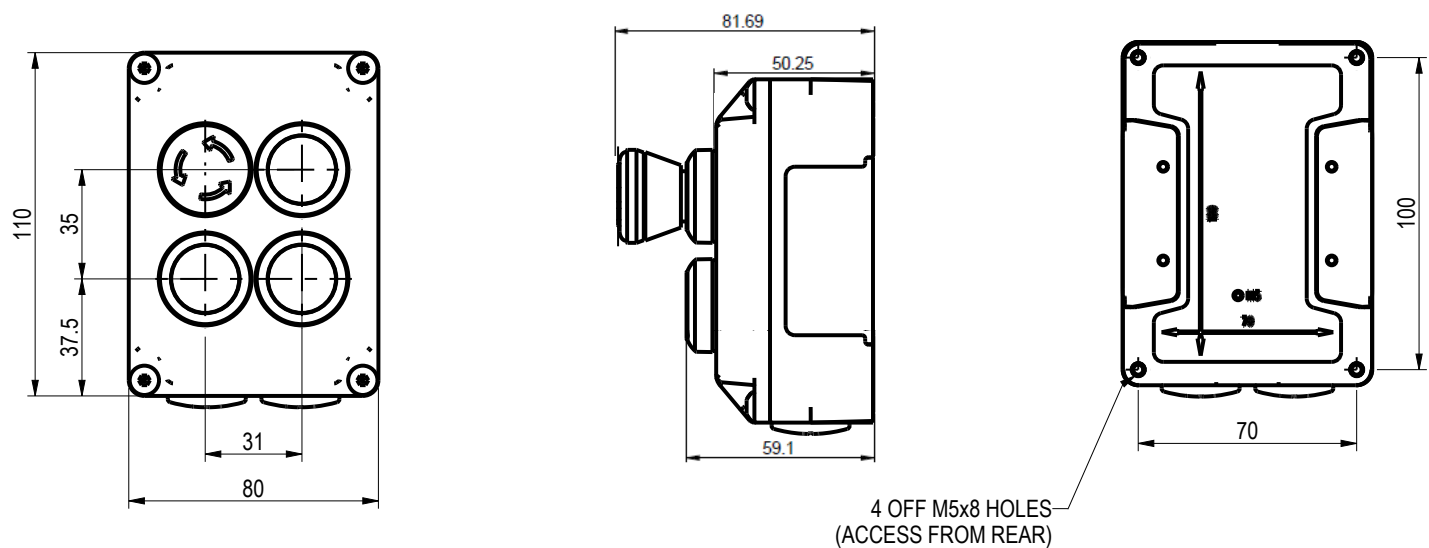


Figure 2: Dimensional Drawing - Keyswitch

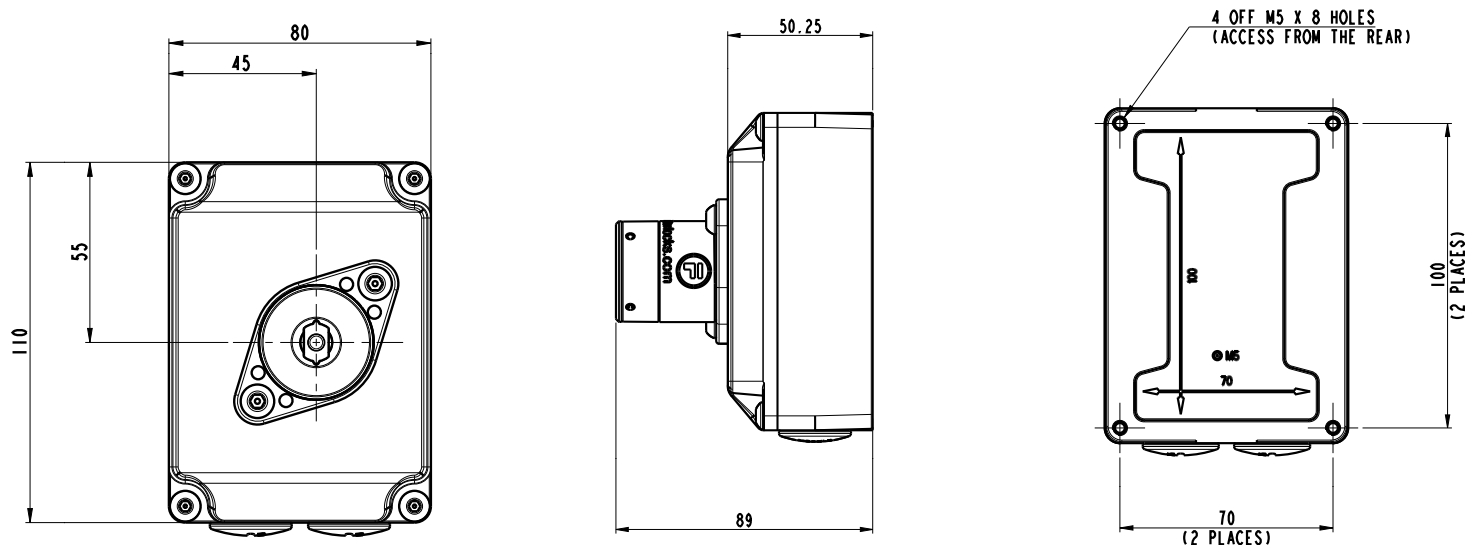
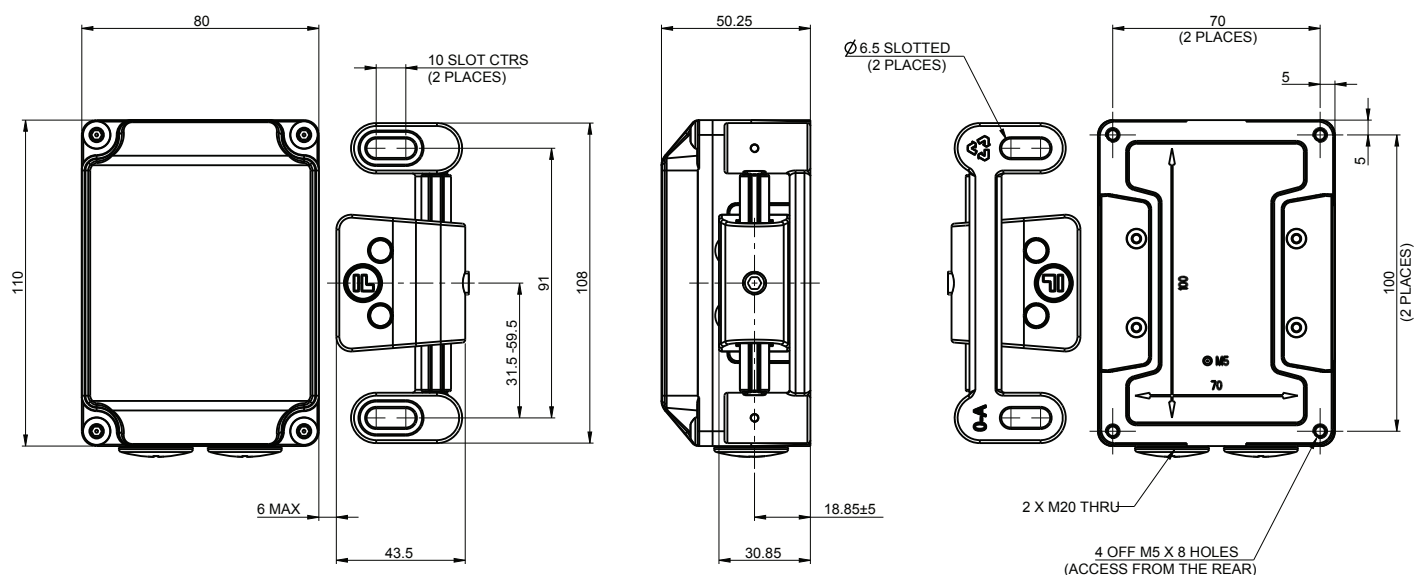


Figure 3: Dimensional Drawing - Sensor



Operating Instructions: Option Pods

Tools and Fixings Required

Pin Hex Driver Bit (Provided)
1/4" Driver (To suit above)
Ø4.2mm Drill
3.5mm Flat Blade Electrical Screwdriver
M20 Spanner
Ø6.2mm Drill (Non contact)
2 x M6 Nut & Bolt (Non contact)

Mounting

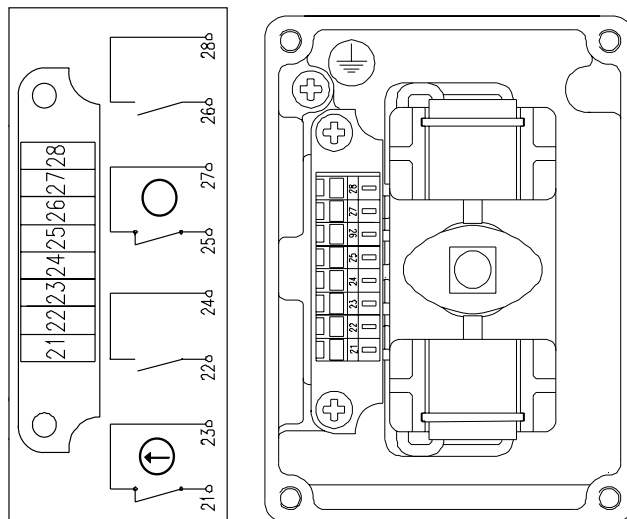
1. Locate amGardpro unit containing the *pro*Option Pod so it is in a suitable position and within reach for easy user operation.
2. Mount the enclosure assembly together with head assembly to a flat metal, static part of the machine. Use M5 screws from the rear. The mounting surface should be flat.
3. All fixing screws must be permanently prevented from removal, either by vibration or by personnel using standard tools.

Electrical Connection

If quick disconnects fitted, connect cable. If self wiring:

1. Make sure the electrical supply is isolated. Remove the lid from the Pod by use of the pin hex driver. Attach suitable conduit(s) via the M20 cable gland(s). Unused entries should be sealed with the blanking plug supplied with the unit. Cable glands/ blanking plug, of the correct size and type must be used to achieve IP67 sealing.
2. Bond the enclosure to Earth potential via the Earth points provided. If unit is supplied without quick disconnect bond the enclosure to Earth potential via the Earth point provided. When a protective earth is required ensure it meets appropriate regulations for the installation.
3. Make the electrical connections to the machine control, referring to the wiring diagram. Ensure all cables are clear from moving parts bearing in mind the position and movement of the cam in a Keyswitch Option Pod.
4. Test for correct operation. All switch circuits are rated at 3A, 230v. Each circuit must incorporate fuse protection with a Quick-Acting (F) fuse (maximum rating 3A, 250v to IEC 127).
5. When all wiring is complete, conduct a Protective Earth Test.
6. Replace the lid, making sure that the lid seal remains in position.

Keyswitch Wiring Diagram (Shown with Key Trapped)

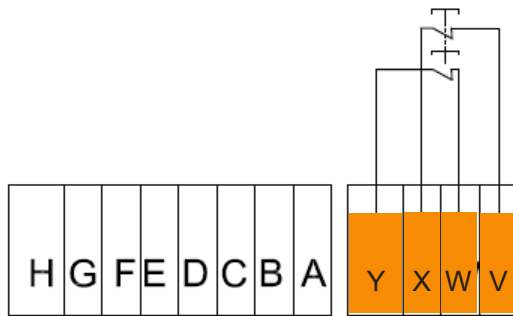


Operating Instructions: Option Pods

Controls & Sensor Terminal Arrangement

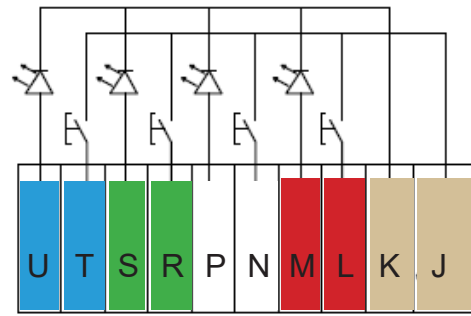
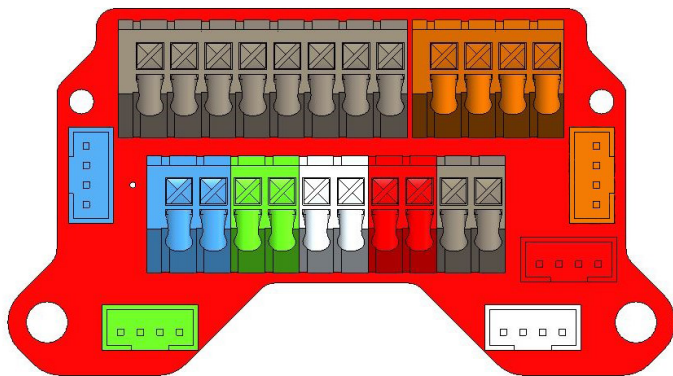
When removing lid, disconnect each pushbutton connector from the plug in connectors on the terminal board. Each connector is colour coded for easy reconnection.

Pushbutton Switch Ratings: 100mA @24VDC



Connection for additional sensors if selected

E-Stop



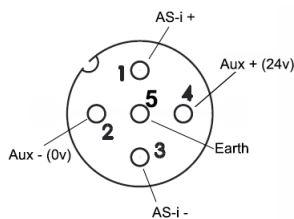
SUPPLY TO 3RD BUTTON LED
RETURN FROM 3RD BUTTON
SUPPLY TO 2ND BUTTON LED
RETURN FROM 2ND BUTTON
SUPPLY TO 1ST BUTTON LED
RETURN FROM 1ST BUTTON
SUPPLY TO E-Stop LED OR FOR 4TH BUTTON LED
RETURN FROM E-Stop MONITOR OR 4TH BUTTON
- +

Safety Sensors - See relevant operating instructions for sensor selectors.

AS-i - Introduction

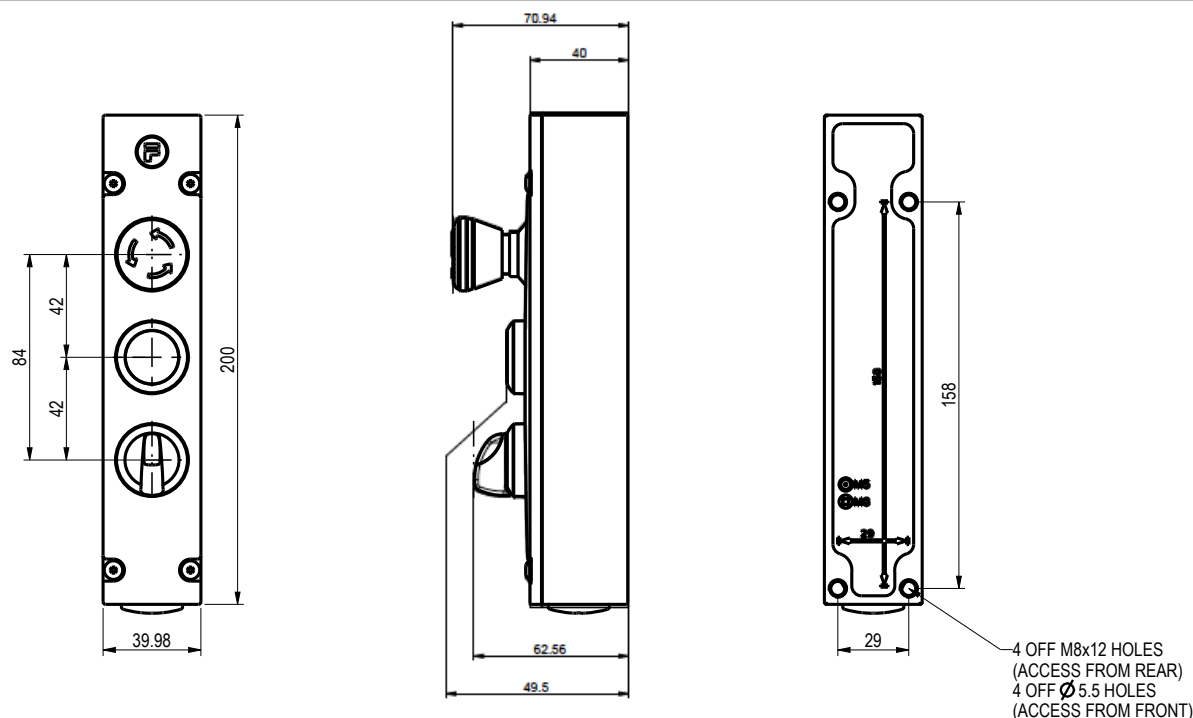
The AS-i Option Pod allows connection of all of the features of an Option Pod to an AS-i bus. The AS-i Option Pod will be a slave and must be connected as part of a complete AS-i (for control only) or AS-i Safety at Work (if it includes safety elements) network; full details of the network requirements can be found at <http://www.as-interface.com/knowledge-base>.

AS-i Pin Out



Pin	Connection
1	AS-i +
2	Aux -
3	AS-i -
4	Aux +
5	Earth (optional)

Figure 4: Dimensional Drawing - Slimline



Tools and Fixings Required

Pin Hex Driver Bit (Provided)

1/4" Driver (To suit above)

Ø4.2mm Drill

3.5mm Flat Blade Electrical Screwdriver

M20 Spanner

4 x M8 screws for rear-fixing. (Screws must be suitable length for a minimum of 10mm thread engagement with Option Pod module. Required screw type and class; A2 70.)

4 x M5 Cap-Head screws for through-fixing. (Screws must be suitable length for a minimum of 6mm thread engagement if mounting to a threaded panel. Required screw type and class; A2 70.)

Required Torque Settings:

If removed during mounting, re-orientation or electrical wiring, all supplied fixing screws of the complete Guard Interlocking Device must be refitted using the following torque settings;

M3 Screws – 0.8-1.0 Nm

M4 Screws – 2-4 Nm

M5 Screws – 2-4 Nm

M8 Screws (required for device mounting but not supplied) – 4-6 Nm.

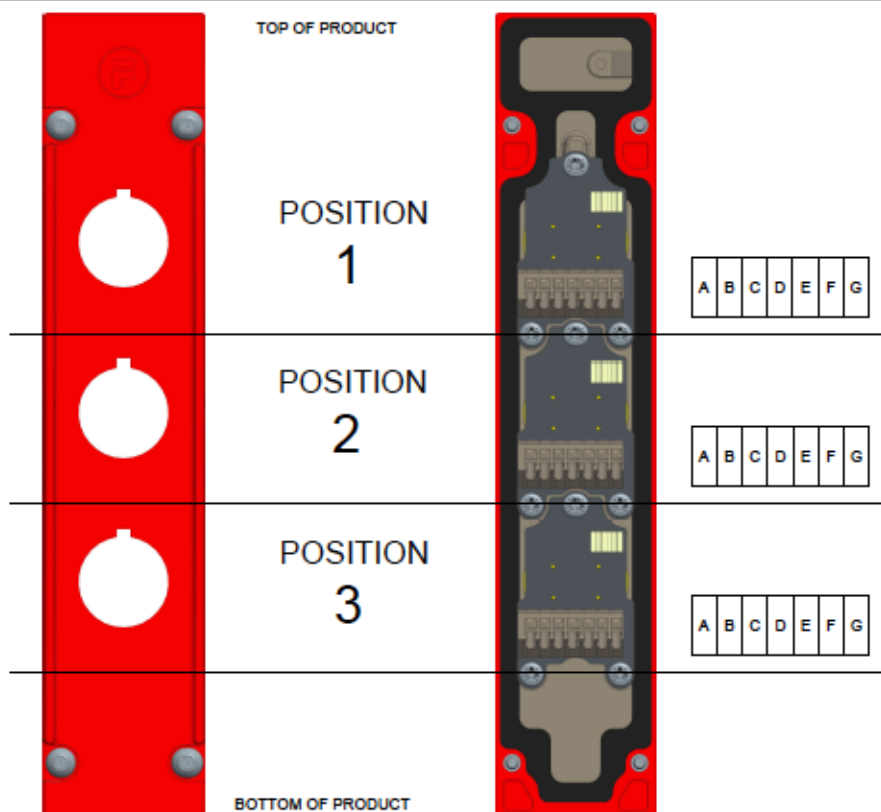
If M4 Lid screws have been removed during electrical wiring and installation, they must be fully refitted to a torque setting of 2-4 Nm to guarantee IP protection level.

Mounting

1. Locate amGardpro unit containing the proOption Pod so it is in a suitable position and within reach for easy user operation.
2. 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.
3. All fixing screws must be permanently prevented from removal, either by vibration or by personnel using standard tools.

Operating Instructions: Option Pods

Slimline *pro*Option Pod - Wiring Information



W0 and W1 Option Pods - Wired Individually

All lamps, pushbuttons and selector switches in W0 and W1 Option Pods use the individually wired options listed below.

	Terminals						
	A	B	C	D	E	F	G
E-Stop Pushbuttons - E, P, U	SC2	SC1	SC2	SC1	LED INPUT (NOT USED IN E or P)	+VE	-VE
Pushbuttons and Selector Switches R, Y, G, B, W, K, L, M, A				OUTPUT	LED INPUT (NOT USED IN K or A)	+VE	-VE
Lamps - 1, 2, 3, 6, 7					LED INPUT	+VE	-VE

Y0 and Y1 Option Pods - Common Power Supply

If multiple lamps, pushbuttons and selector switches are selected in a Y0 or Y1 Option Pod the live supply will be wired in series. The lowest positioned selection will use the Individually Wired option, while the uppermost selection(s) will use the series wired options.

If only a single lamp, pushbutton or selector switch is selected in a Y0 or Y1 Option Pod, the selection will use the individually wired option. If a Y1 is fitted below any LOK or Stop product, the live supply will be wired in series into the LOK or Stop product as standard.

	Terminals						
	A	B	C	D	E	F	G
E-Stop Pushbuttons - E, P, U	SC2	SC1	SC2	SC1	LED INPUT (NOT USED IN E or P)	TERMINALS F AND G NOT FITTED	
Pushbuttons and Selector Switches R, Y, G, B, W, K, L, M, A				OUTPUT	LED INPUT (NOT USED IN K or A)		
Lamps - 1, 2, 3, 6, 7				TERMINAL PLUGGED	LED INPUT		

Operating Instructions: Option Pods

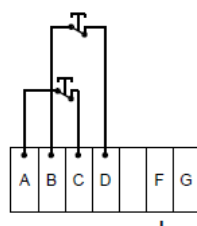
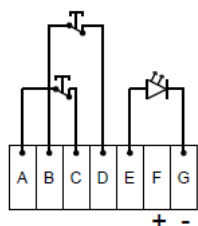
Electrical Connection

If quick disconnects fitted, connect cable. If self wiring:

1. Make sure the electrical supply is isolated. Remove the lid from the Slimline *pro*Option Pod by use of the pin hex driver. Attach suitable conduit(s) via the M20 cable gland(s). Cable glands / QD of the correct size and type must be used to achieve IP65 sealing.
2. Bond the enclosure to Earth potential via the Earth points provided. If unit is supplied without quick disconnect bond the enclosure to Earth potential via the Earth point provided. When a protective earth is required ensure it meets appropriate regulations for the installation.
3. Make the electrical connections to the machine control, referring to the wiring diagrams.
4. Test for correct operation. All switch circuits are rated at 0.1A, 24v.
5. Replace the lid, making sure that the lid seal remains in position.

W0 + W1 - Individually Wired

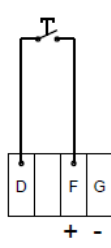
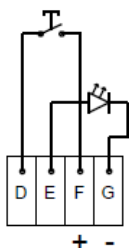
E-Stop Pushbuttons



U

E, P

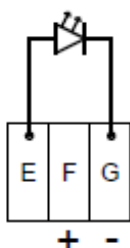
Pushbuttons and Selector Switches



R, Y, G, B, W, L, M, A

K, A

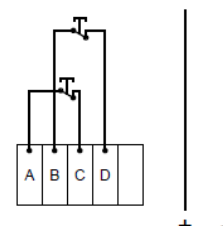
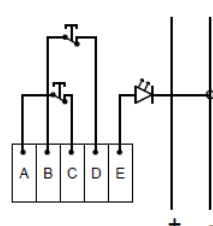
Lamps



1, 2, 3, 6, 7

Y0 + Y - Common Power Supply

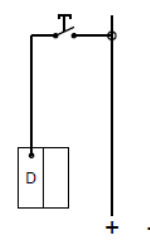
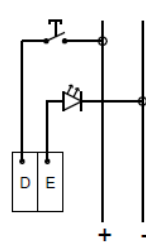
E-Stop Pushbuttons



U

E, P

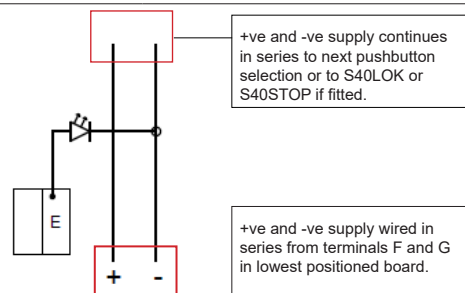
Pushbuttons and Selector Switches



R, Y, G, B, W, L, M, A

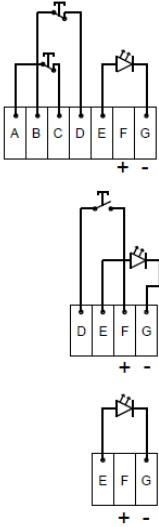
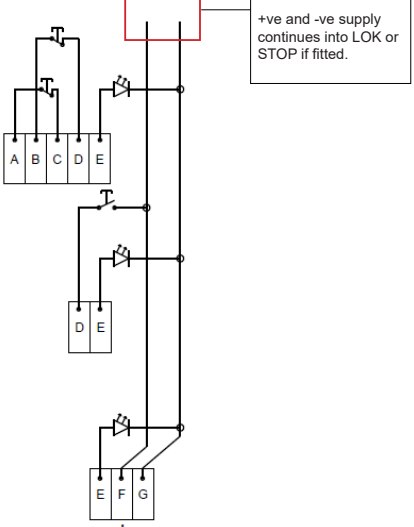
K, A

Lamps



1, 2, 3, 6, 7

Operating Instructions: Option Pods

Example Wiring - W1UG70N - Wired Individually	Example Wiring - Y1UG70N - Common Power Supply
	

Testing:

Pushbutton Option Pod

Check all button / lamps work as expected.

Keyswitch Option Pod

Turning the key will open and close 2 normally open and 2 normally closed contacts. When used for isolating controls, ensure that the contacts that open when the key is removed have been used.

Sensor Option Pod

Check that the opening of the door opens the safety circuits.

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
- Sealing of cable entry
- Loose cable terminals or plug connectors
- 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. The complete interlock must be replaced after 1 million switching operations.

Disposal

This product 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. It is normally accepted that the product performs best in a dusty environment when mounted upside down.

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.