Fortress Interlocks

amGard pro

Protecting People, Protecting Productivity

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proNet - Industrial Ethernet Communications for amGardpro

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Fortress Interlocks has 40 years' experience manufacturing safety interlocks and over that time has developed products to keep pace with and shape the development of safety practices. One facet of this is the interlocks interface to an installations control system; we see the first step back in 1992 when Fortress introduced its wired at gate solution, amGard; technology has changed considerably since then. With advances in PLC technology, software and communication has become prolific throughout factories. Standards like EN61508 and its derivatives have now been developed to allow these advances to be carried into safety applications. In line with these developments, Fortress is able to communicate the state of its device in a range of ways, via hardwiring, field buses, (like AS-i Safety at Work) and is now proud to add its proNet, industrial Ethernet communications to its range. Using either the **PROFINET** protocol and its extension **PROFIsafe** or **Ethernet/IP** and its extension **CIP** safety the proNet module integrates easily into the **amGard*pro*** range. This integration provides a range of modular solenoid gate switches and standalone control pods that have all of the configurability of **amGard*pro*** with the added benefit of reduced installation cost, easier maintenance and greater availability of data, for improved diagnostics.

Approvals Ethernet/IP - CIP

EtherNet/IP™ ODVA™ APPROVAL PENDING TÜV SÜD APPROVAL PENDING C US

Approvals PROFINET & PROFIsafe

PI CERTIFIED PROFIBUS • PROFINET PROFIsafe PROFINET TÜV SÜD TÜV SÜD C US

What is proNet?
amGard proNet is an addition to the **amGard*pro*** range that adds an Ethernet based networking capability to the entire range. It is designed as an add-on module that replaces, or can be used in addition to, an option pod so that any configurable unit can be converted to communicate over Ethernet. The two supported protocols are:

- **'PROFINET'** with the **'PROFIsafe'** functional safety extension.
- **"Ethernet/IP"** with the **"CIP Safety"** function safety extension

These protocols allow non-safety control signals (lamp outputs, switches, monitor signals) and safety signals (gate switch safety signals, E-stop signals) to be communicated over the same network, using the same connection. It is therefore now possible to create the following types of interlocks with industrial communication built in:

- Solenoid control guard switches with emergency release
- Solenoid control guard switches with "safety key" protection
- Solenoid control guard switches with machine control functionality
- Control stations with E-stop included

What are PROFINET and Ethernet/IP?
PROFINET and **Ethernet/IP** are the two leading industrial Ethernet communication protocols and are supported by many product vendors, resulting in over 10 million installed devices globally.
Both protocols have safety extensions, **PROFIsafe** for **PROFINET** and **CIP safety** for **Ethernet/IP**, that provide cost effective and flexible functional safety for use in manufacturing and process automation.

What are the benefits of proNet?
The following features are built in to **proNet** units:

- One cable for control and safety communication
- One cable for power – reducing installation time and cost
- 100% diagnostic capability – increasing up time
- Quick connection connections via M12 or 7/8 plug and socket or AIDA standard connectors
- Addressing flexibility either by web interface or dip switches aiding installation and maintainability
- An integrated network switch – 'daisy chain' bus topologies with no additional hardware
- Up to two power connectors – 'daisy chain' power topologies with no additional hardware
- Optional external safety switch connection

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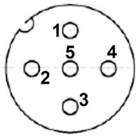
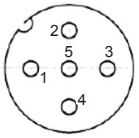
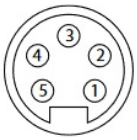
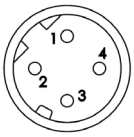
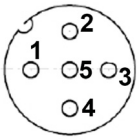
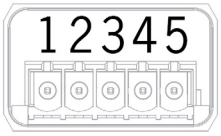
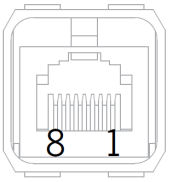
*pro*Net Technical Specification	
Housing Materials	Zinc Alloy to BS1004A
Paint Finishes	Gloss Powder Coat on Passivated bodies
Ingress Protection	IP67 (IP65 with buttons)
Ambient Temperature	-5°C to + 40°C (23°F to 140°F)
Supply Voltage	24V DC +/- 10%
Supply Current	≤750mA

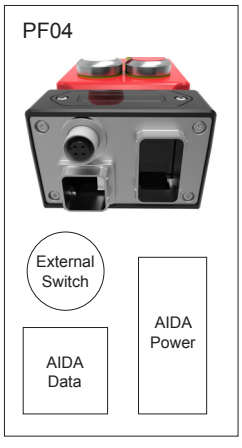
proNet Part Number Options

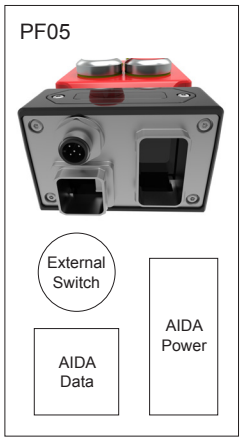
Part Number	Description	Part Number	Description
N0xxxxN*	PROFINET with PROFIsafe to suit stand alone interface.	PF06	AIDA connectors
N2xxxxN*	PROFINET with PROFIsafe to suit proLok module.	PF07	3 QD set - 1 Male Power, 2 Data
N3xxxxN*	EIP with CIP safety to suit stand alone interface.	PF09	4 QD set - 1 Male Power, 2 Data, 1 External safety switch
N5xxxxN*	EIP with CIP safety to suit proLok module.	PF10	4 QD set - 1 Male Power, 1 Female Power, 2 Data
PF04	AIDA with B coded external safety switch	PF11	4 QD set – 1 Male power, 1 Female power (7/8" connectors), 2 Data
PF05	AIDA with A coded external safety switch		
* see amGard proPod datasheet for button options			

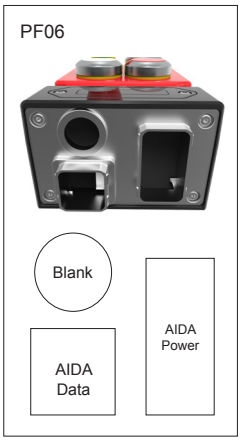
Electrical connection

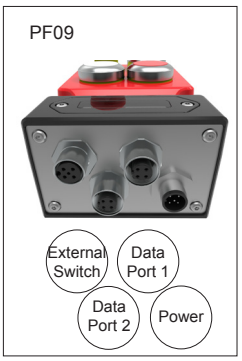
Pin Out

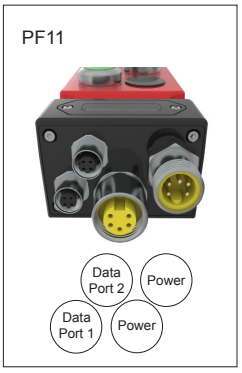
Male Power M12		Female Power M12		Male Power 7/8"		Female Power 7/8"		Data		External Safety Switch		AIDA Power		AIDA DATA	
															
M12 - 5 Pin				7/8" - 5 Pin				M12 FEMALE - 4 Pin 'D' Coded		M12 FEMALE - 5 Pin			5 Pin Push Plug		RJ45
1	+24V Supply*			1	0V**			1	TX+	1	S/C1	1	+24V Supply	1	RX+
2	0V**			2	0V**			2	RX+	2	S/C2	2	0V	2	RX-
3	0V**			3	Case (Earth)			3	TX-	3	S/C1	3		3	TX+
4	+24V Supply*			4	+24V Supply*			4	RX-	4	S/C2	4		4	
5	Case (Earth)			5	+24V Supply*					5	Case (Earth)	5	Functional EARTH	5	
*Internally connected **Internally connected				*Internally connected **Internally connected										6	TX-
														7	
														8	



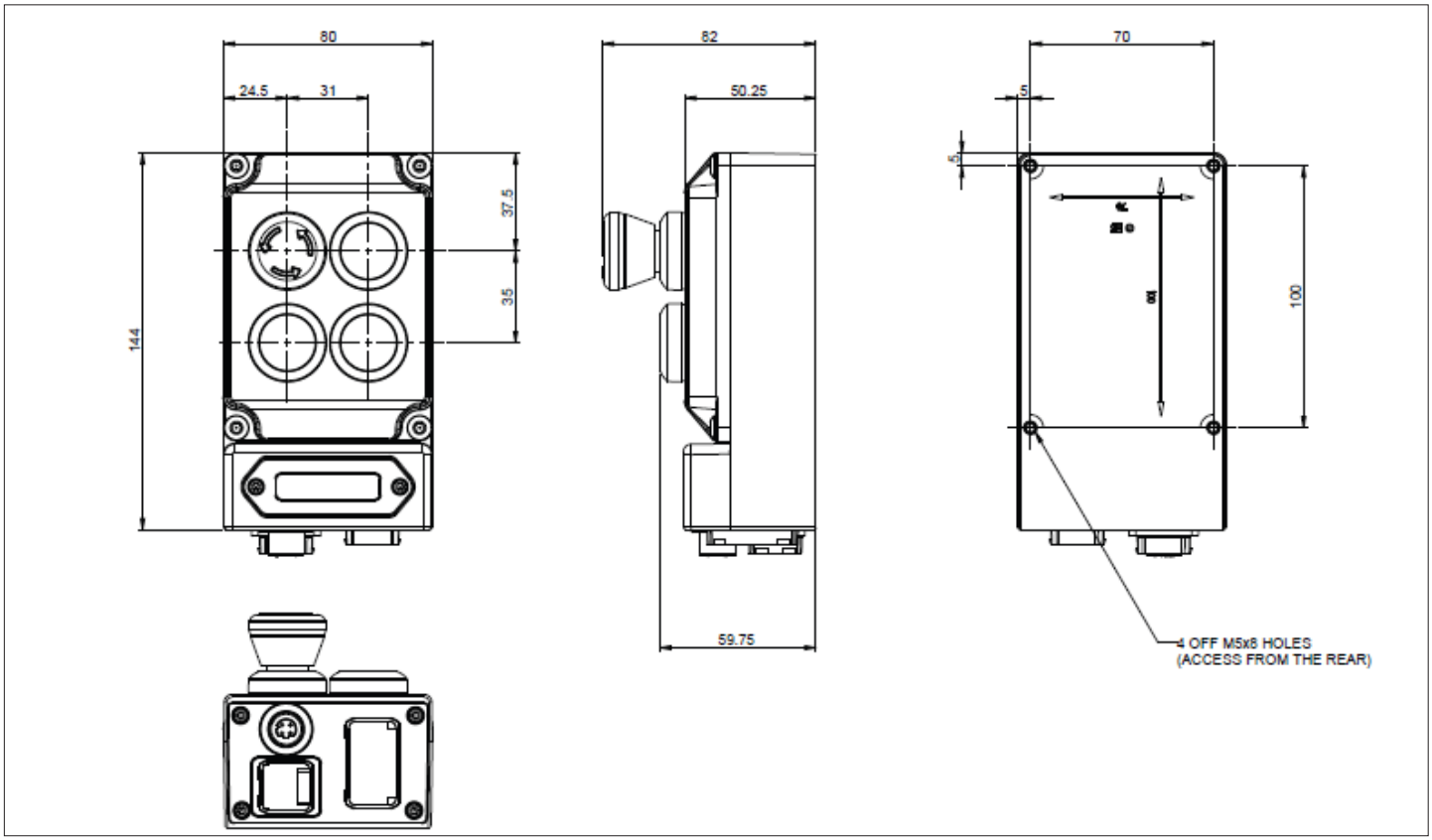




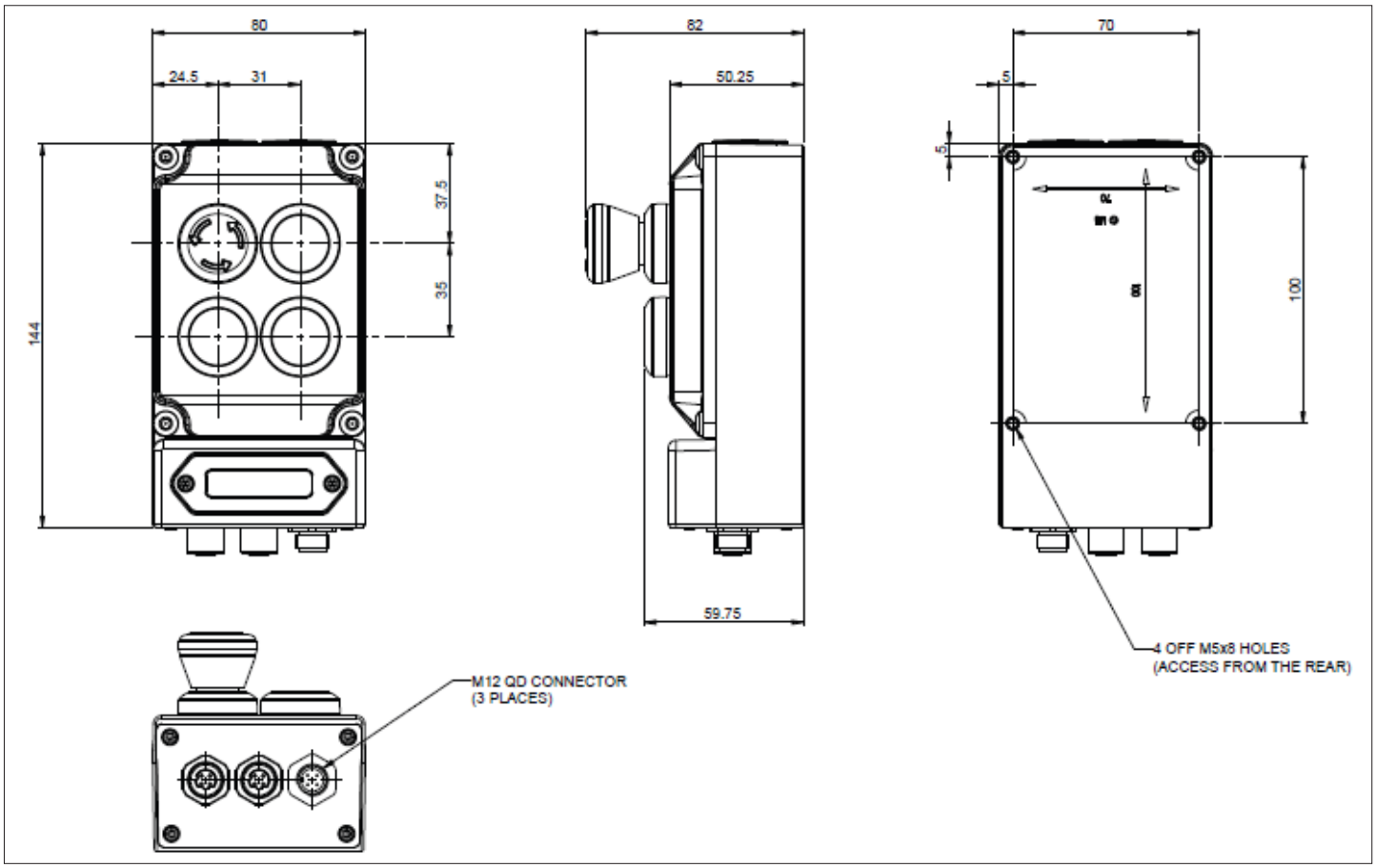




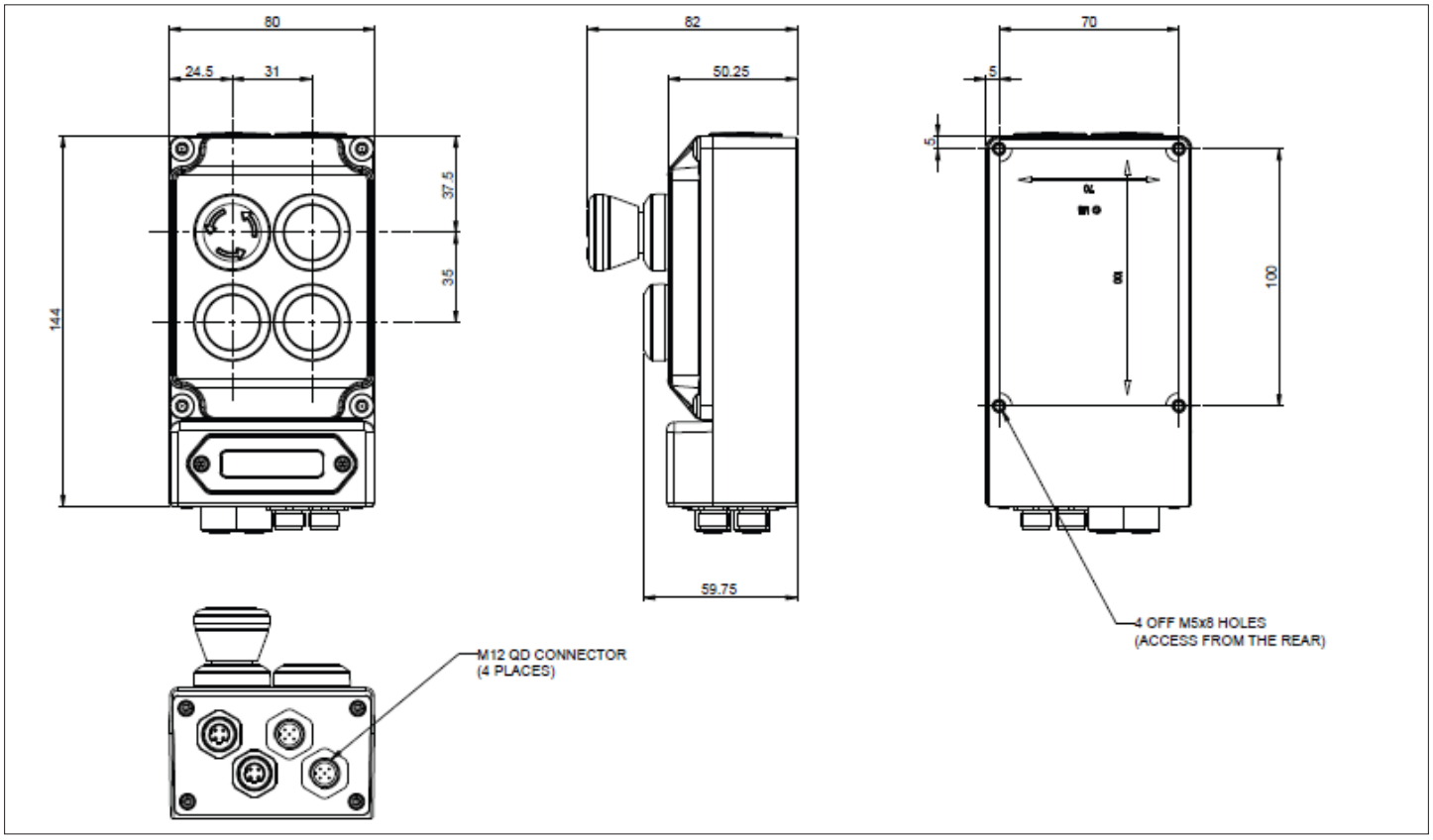
Dimensional Drawing PF04, PF05, PF06



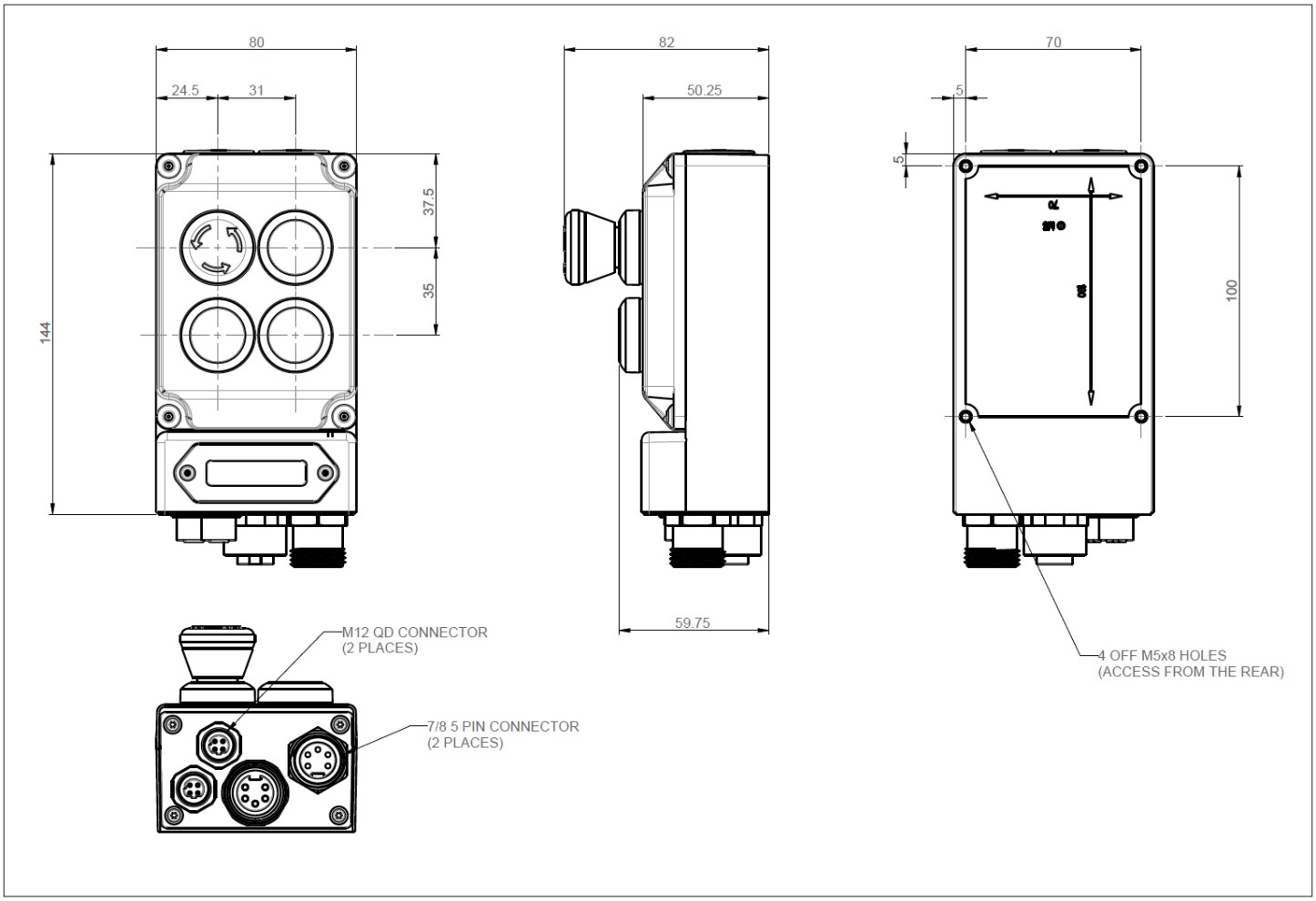
Dimensional Drawing PF07



Dimensional Drawing PF09, PF10



Dimensional Drawing PF11



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