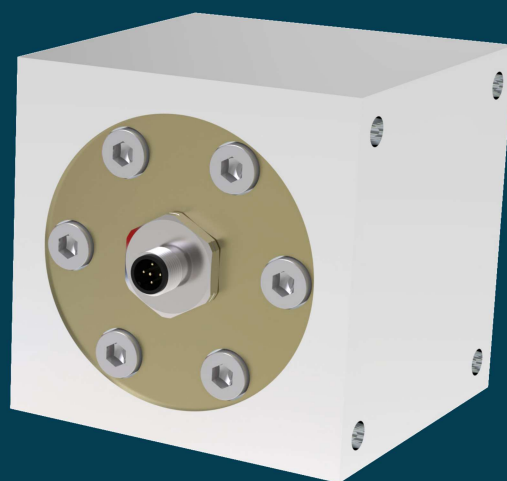
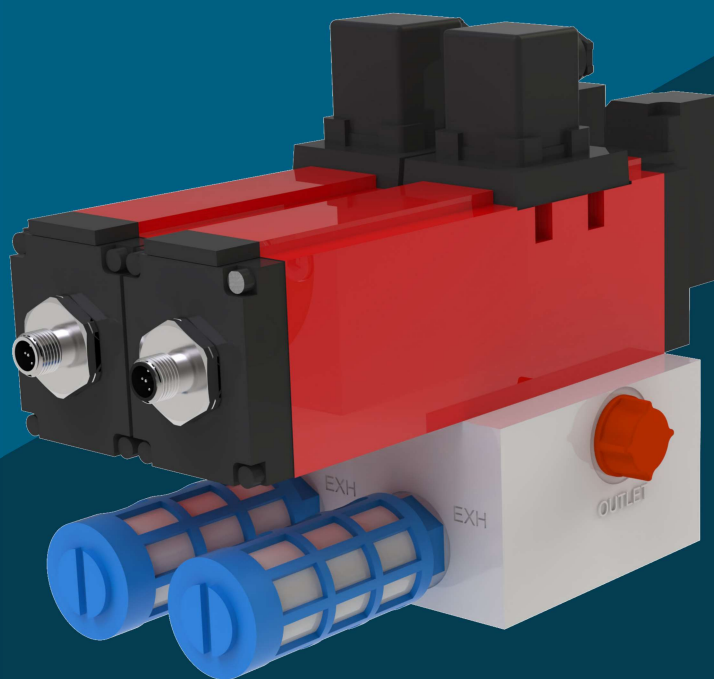


# FORTRESS

## FLUIDSENTRY



## Monitored Safety Valves for Fluid Power



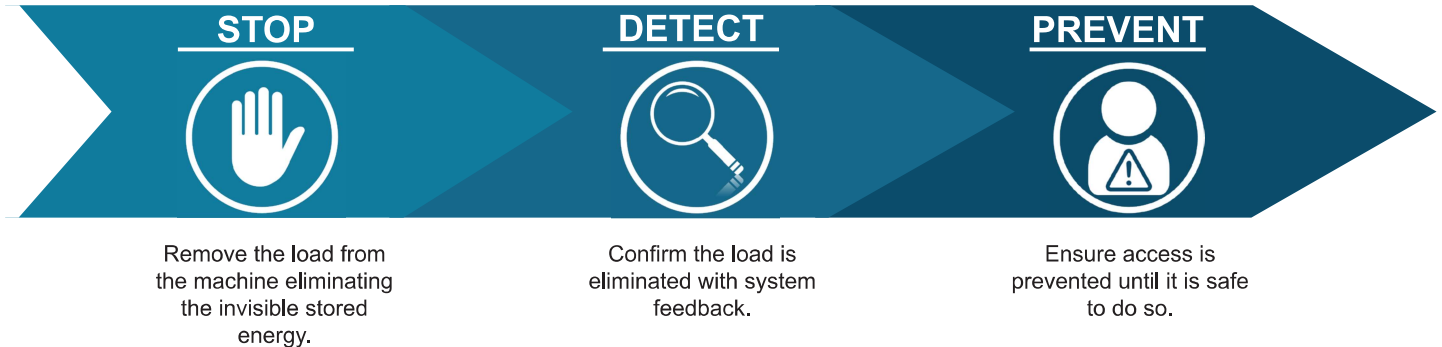
THE QUEEN'S AWARDS  
FOR ENTERPRISE:  
INTERNATIONAL TRADE  
2018



## Fluid Power in Machine Safety

Fluid Power is commonplace in manufacturing and industrial settings as an alternative method to move, apply, and remove loads during processes. Whilst electrical safety has become the forefront of safeguarding solutions, fluid safety is often overlooked. This oversight can omit severe risks and drastic failure modes where invisible stored energy operates.

Safety solutions surrounding fluid power aim to mitigate these risks with monitoring and detection. A safe fluid power system should consider three steps.



### Consider it in the risk assessment

Performing a risk assessment at the appropriate stages through a design / installation is often more important than the specific risk process itself. When designing fluid power elements, electrical safety can be often overlooked. We're here to help integrate safety systems throughout the process.

### Consider upgrades to old equipment

It may be your responsibility to upgrade deficient machinery / installations to the latest safety requirements. Standards and regulations to machinery safety can differ around the world so local regulations can be used for guidance.

### Where can you look for guidance?

The Fortress team of safety experts are on hand to answer any questions related to any aspect of machine safety. We also offer educational material and training machinery safety standards. Ask us about our Licenced Machinery Safety Specialist (LMSS) qualification.

## Fluidsentry - Their Story



**Murray Hodges**

1961 - 2020

Australian Murray Hodges was unfortunate enough to witness accidents in the manufacturing industry due to the lack of machine safety principles applied to fluid power systems.

Murray then made it his career to develop the world's first range of monitored safety valves and serve on safety standards development committees.

Fortress has worked with Fluidsentry for 20 years in Australia to offer a package of robust, high quality safety products that help protect people working in manufacturing environments.

The Fluidsentry story continues with Murray's two sons joining the Fortress business to offer Fortress Fluidsentry products to the global market.

# The Fortress Fluidsentry Solution

## Safety Redundancy



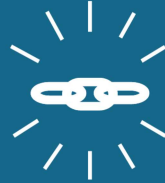
Devices offered with dual channel safety and dual channel exhaust (pneumatic) tank outlet (hydraulic).

## Retro-fittable



Easily integrate this technology into your system as a retro-fit solution; installation is quick and easy with four pre-threaded holes on the base of the unit.

## Robust & Durable



Fortress Fluidsentry products are built for longevity; to guarantee a long operational lifetime.

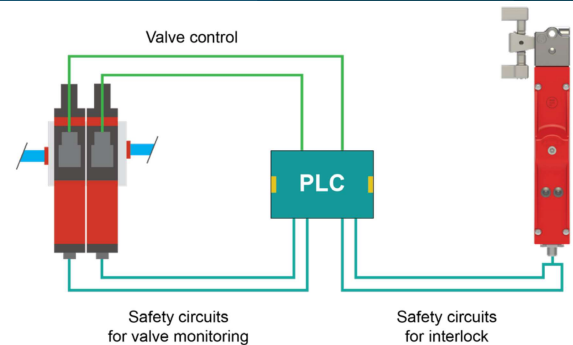
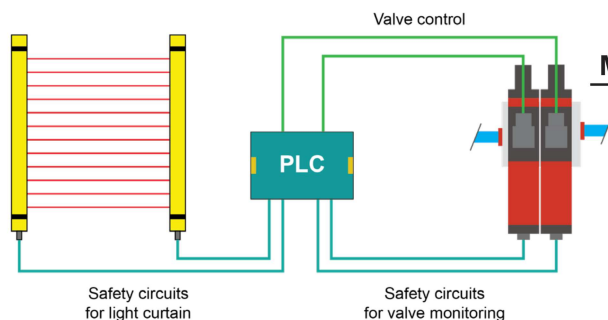
## Fully Serviceable



Fortress Fluidsentry products can be easily serviced by our team to maintain smooth operation.

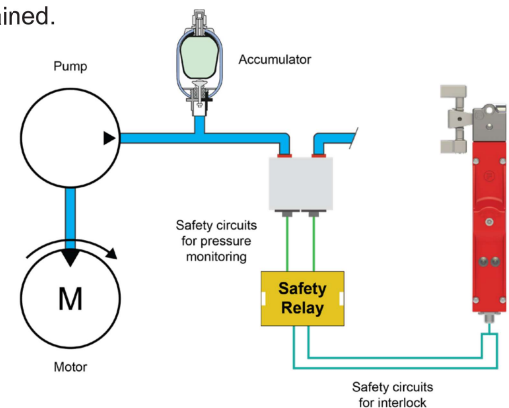
### Highest Safety Level Achieved for Access Control

Monitored safety valves can be interfaced with guard locking interlocks. The valve design ensures power is in the off state before enabling access in Cat. 4 PLe electrical and pneumatic / hydraulic applications. Products are also rated for 10 million operating cycles.



### Maintain Safety Distances in Presence Sensing Applications

Applications using light curtains or scanners to detect access need to have a safety distance between the access point and the hazard, determined by the stopping performance of the equipment. Monitored safety valves are designed to operate and control power even when contamination or lack of lubrication is present, ensuring stopping performance is maintained.



### Monitor Pressure in Low Frequency Access Applications

Confirming pressurised systems are in a safe state can be equally as important. This is a non adjustable, non tamper-able device to confirm zero pressure in your system.

Summary of Monitored Safety Valve Key Features	Fortress Fluid Sentry Dual Monitored Safety Spool Valves	Other Brand Dual Cross Monitored Poppet Valves
Do the main valves have their own exhaust to prevent failure due to clogging or contamination?	✓	
Are the electrical safety contacts positively opened by the valve spool?	✓	
Product supplied as standard with silencers?	✓	
Electrical connector cables available with the product?	✓	
Ethernet based communication protocols supported?	✓	
Local LED indication of when valve is energized?	✓	
Built in solenoid surge suppression?	✓	
Manufacturer recommends accumulator tank between pressure regulator and dual valve?		✓

# Monitored Safety Valves - In Application

## Case Palletizing

Material handling applications typically require packages to be moved and stacked via fluid power actuators or end effectors. When access is required for routine and repetitive tasks, all power sources should be controlled safely.

## Control System with Valve, PLC & Interlock

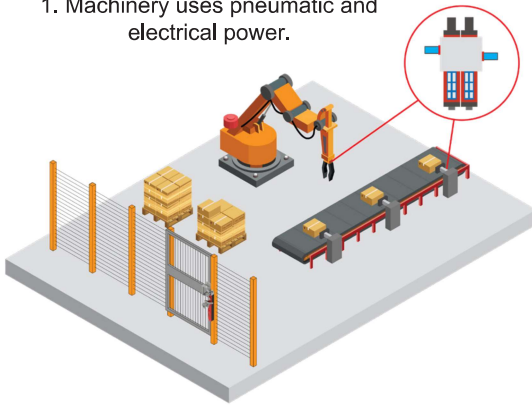
Access to machinery which contains both electrical and pneumatic supplies must prevent access until all sources of supply are isolated.

**STOP** - Power sources are isolated.

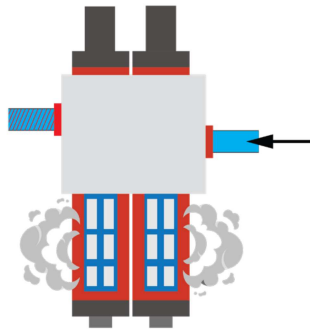
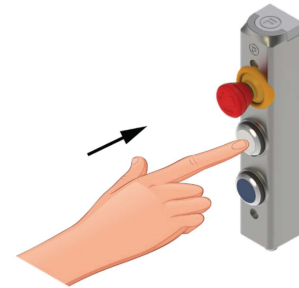
**DETECT** - Safe state has been confirmed.

**PREVENT** - Access is only enabled when all safe conditions are met.

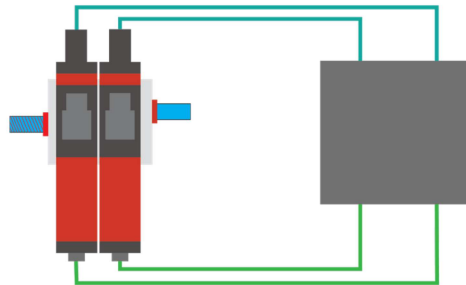
1. Machinery uses pneumatic and electrical power.



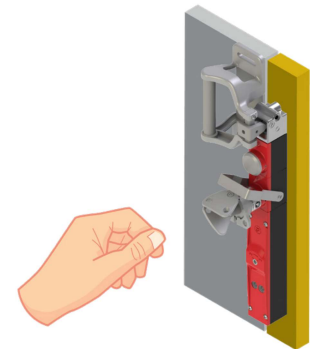
2. Operator requests to enter by the control system.



3. Supplied power is blocked.  
System pressure is vented via  
monitored safety valve.



4. Positively driven safety contacts  
confirm pressure is isolated.



5. Interlock allows access.

## Gain Efficiency Savings With Fluid Power Management

Engineering control methods with safety products can be implemented to gain efficiency in production. If traditional methods of isolation and administrative controls are applied to fluid power, they can be time consuming.

Sometimes they may be the only practical solution but by using engineering controls and safety products the time taken to ensure a machine is safe before entry is reduced. If an isolation procedure takes upwards of 15 minutes and is undertaken 10 times per day during 24/7/365 operation – what is the total lost production time over a year? 38 days.

# Monitored Safety Valves - How to Order

Fluid Power Type	Part No.
Pneumatic Power	P
Hydraulic Power	H

Valve Size	Part No.
1/2"	5
17mm	4
3/4"	3
25mm	2
1"	1
550 LPM	M
250 LPM	G
110 LPM	D
40 LPM	B

Operating Principle	Part No.
Block & Bleed Single Channel	1
Block & Bleed Dual Channel	2
Block & Hold Single Channel	5
Block & Hold Dual Channel	6

Threaded Connections	Part No.
BSP	G
NPT	N

Mounting Arrangement	Part No.
Without Mounting Plate	MP0
With Mounting Bracket	MP1

	<b>S V</b>	-				-	<b>A D 0</b>	-	
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## Do you need a cable with this product?

**CABLE-5M-D1**

5m Cable to Suit 5-Pin Connector

**5m**  
(16.4ft)

**CABLE-10M-D1**

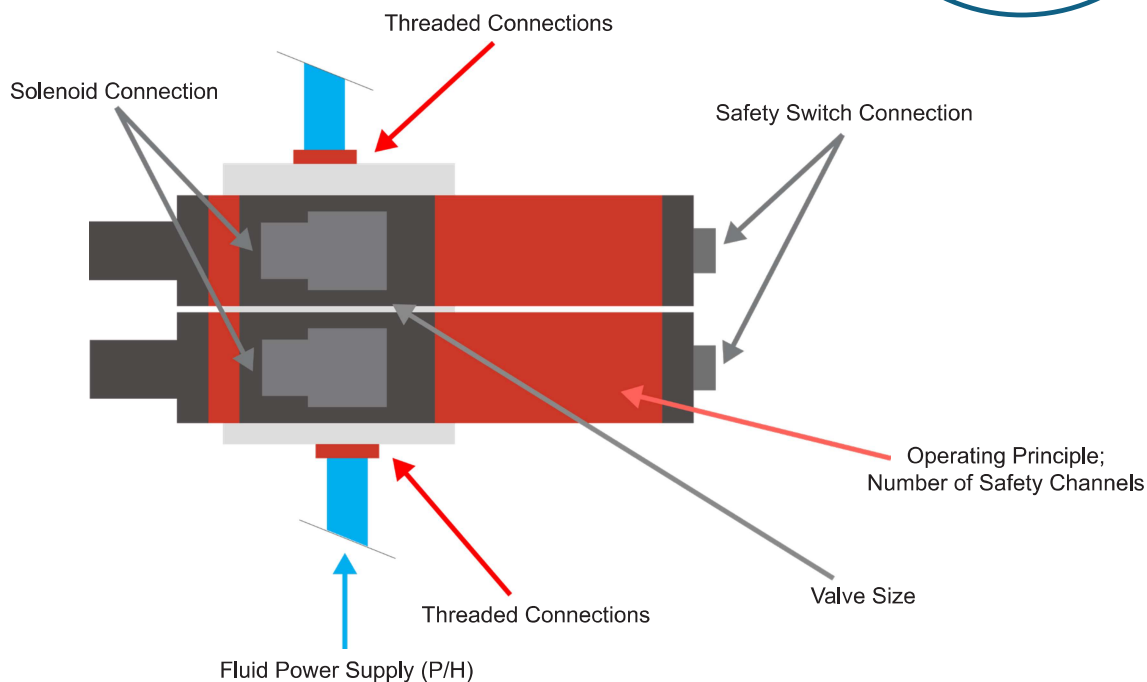
10m Cable to Suit 5-Pin Connector

**10m**  
(32.8ft)

**CABLE-20M-D1**

20m Cable to Suit 5-Pin Connector

**20m**  
(65.6ft)



# Zero Pressure Monitors - In Application

## Aluminum Extrusion Press

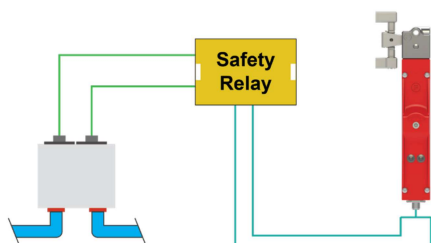
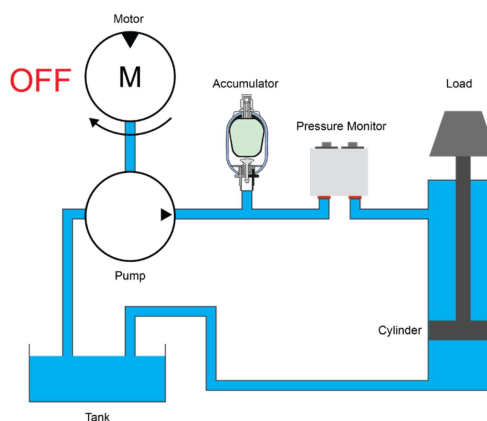
In extrusion and pressing applications fluid power is often used to provide the high forces required to move tooling in production. When access is required for setting and simple maintenance applications, stored energy should be removed safely.

## Control System with Pressure Monitor, Safety Relay & Interlock

1. Shut motor off via machine controls.

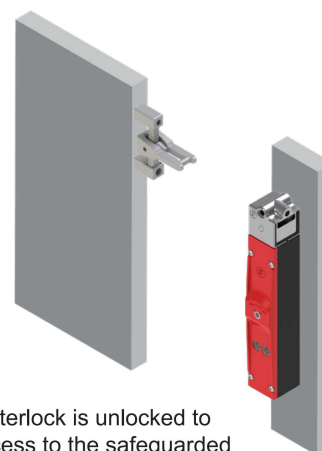


2. Due to an accumulator in the system, pressure is still present after shut off.



3. Upon reaching zero pressure, safety contacts change state to signal to safety relay.

4. The interlock is unlocked to enable access to the safeguarded space.



## Interfacing Pneumatics & Hydraulics with Electrical Safety Control Circuits

Fluid power safety technology today includes a range of monitored fluid power components from monitored valves systems, safety pressure switches and monitored rod locks. Mechanical systems may be the familiar technology to most engineers.

With monitored fluid power systems increasingly becoming popular, Fortress is available to help cross any bridges between mechanical and electrical design and help empower engineers where possible to design systems to meet requirements.

# Zero Pressure Monitors - How to Order

Fluid Power Type	Part No.
Pneumatic Power	P
Hydraulic Power	H

Pressure Rating	Part No.
210 Bar (Aluminium)	A
350 Bar (Steel)	S

Operating Principle	Part No.
Single Channel	1
Dual Channel	2

Threaded Connections	Part No.
BSP	G
NPT	N

Port Size	Part No.
1/4"	7

Mounting Arrangement	Part No.
Without Mounting Plate	MP0
With Mounting Bracket	MP1

	<b>P M</b>	-			<b>0</b>			-	<b>0 D 0</b>	-	
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5m Cable to Suit 5-Pin Connector

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**CABLE-10M-D1**

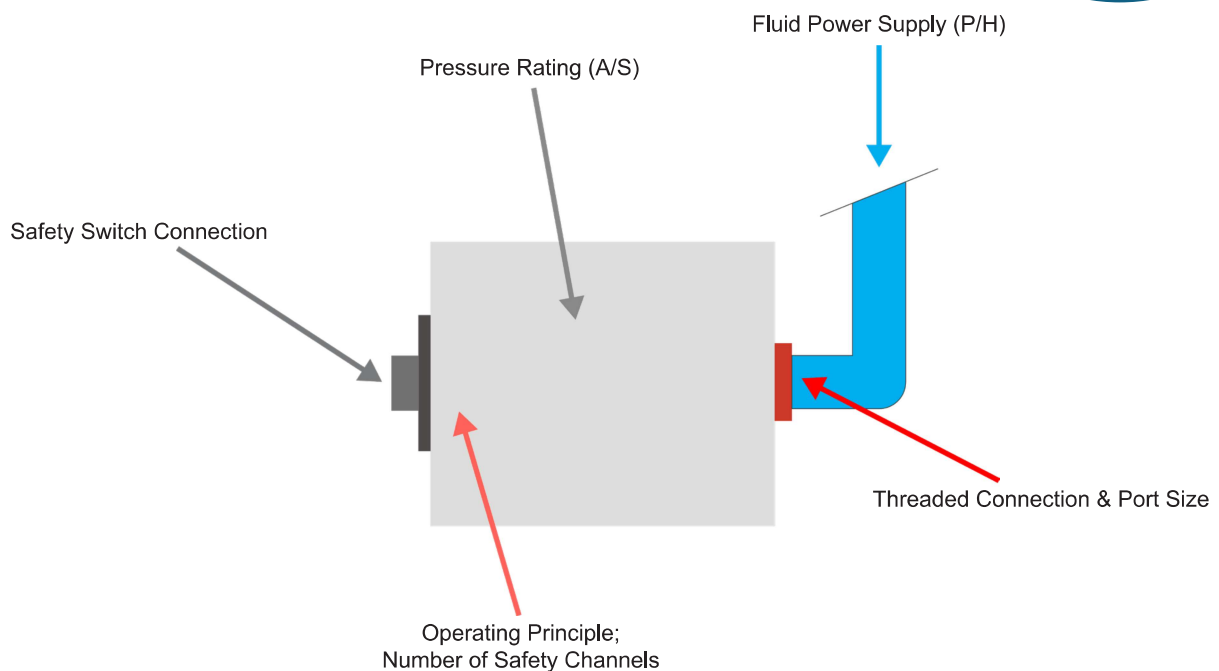
10m Cable to Suit 5-Pin Connector

**10m**  
(32.8ft)

**CABLE-20M-D1**

20m Cable to Suit 5-Pin Connector

**20m**  
(65.6ft)

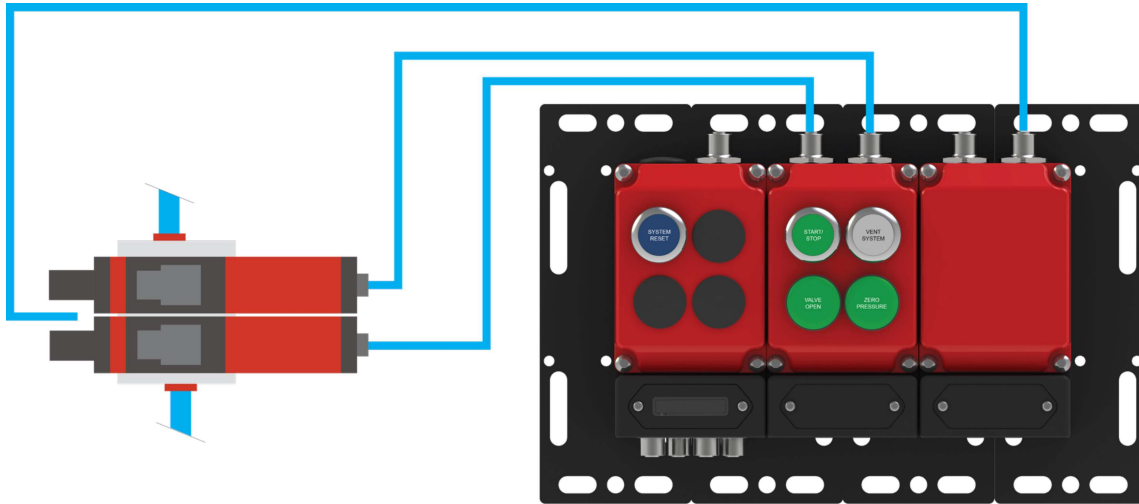


## Network Communications Module

Fortress offers an add on module to enable safety information to be communicated on PROFINET or Ethernet/IP networks. Networking modules arrive ready to be plugged into the network via a range of customisable quick disconnects.

The costs associated with wiring time, panel building, acquiring enclosures, I/O modules, terminals, multi-core cables, and industrial connectors for the monitored fluid power products can be replaced with a quick easy to install all in one solution.

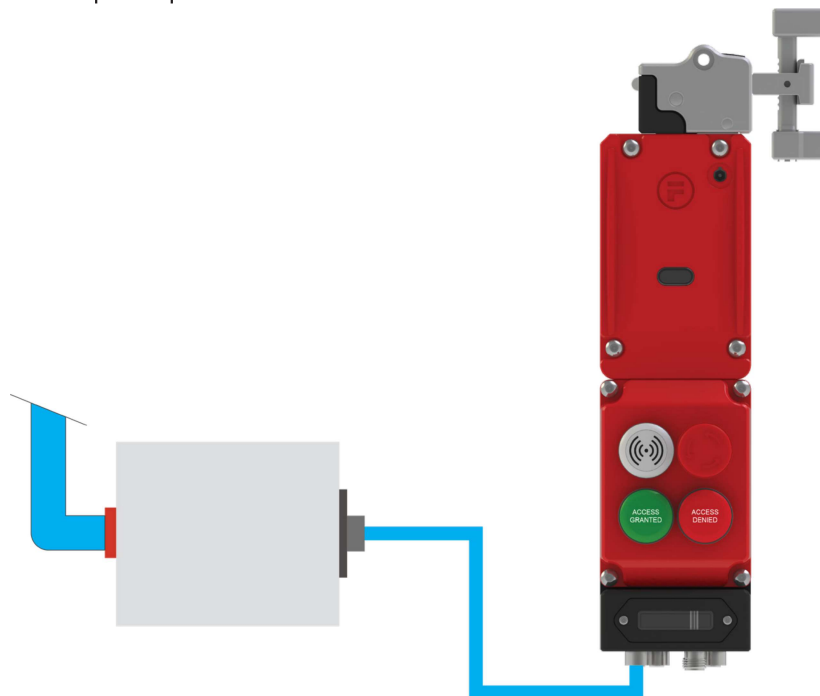
The Fortress Networked solutions can easily incorporate customised control functions such as pushbuttons, lamp indicators, and emergency stops alongside connection to a monitored fluid power product.



## Connection To Networked Interlocks

To maximise the communications hardware and save on purchase costs, systems can be configured to utilise the 3 dual channel safety inputs available per networking module.

For example networking modules can be configured into gate access interlocks with an emergency stop and external connection to a monitored fluid power product.



## Access Control with Fortress

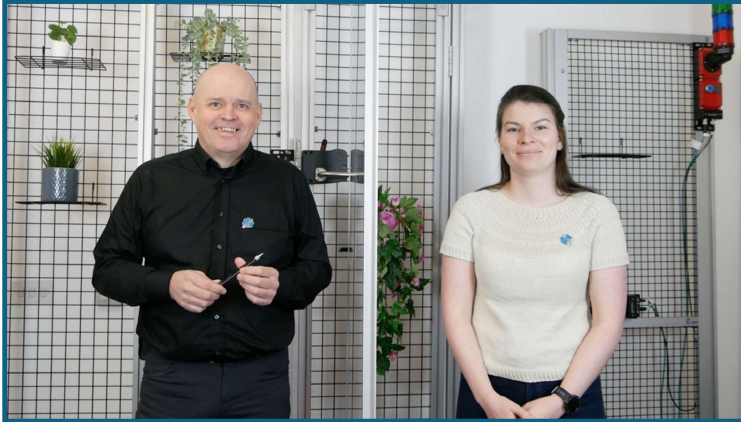
The possibilities with a Fortress solution do not stop here; access control allows you to regulate who can access machinery within a safeguarded space to those with the relevant permissions

## Contact our Safety Experts

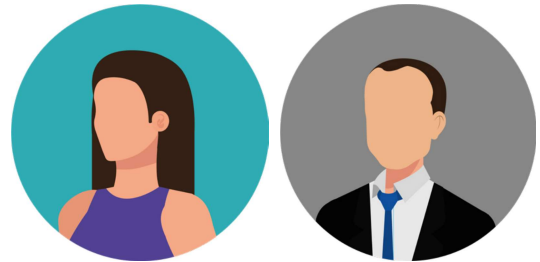
### Contact Our Safety Experts

We're here to help – contact our team to help choose the fluid safety product for your application, or design your own customised networked solution.

Check out our Safety Show here: <http://bit.ly/Fortress-Eve-Malc-SafetyShow>






## Eve & Malc's Safety Show

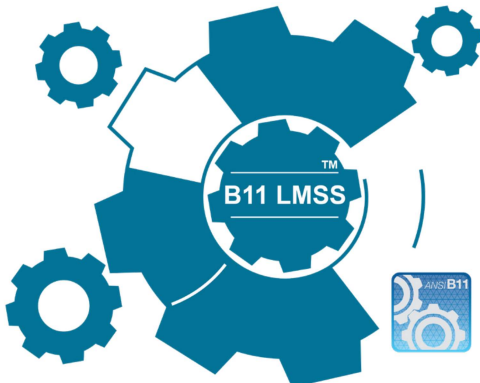


## B11 Licensed Machinery Safety Specialist

### Become A B11 Licensed Machinery Safety Specialist

-  5 online modules and an examination covering United States Machinery Safety Standards and Regulations.
-  Focuses on key aspects of designing and implementing machinery safety solutions that comply with the B11 Machinery Safety Standards and Technical Reports.
-  Upon completion of all five modules and successfully passing the online examination the B11 LMSS™ Certificate will be issued by B11 Standards Inc.

For more information or to sign up please visit [www.b11mss.com](http://www.b11mss.com) or contact our Fortress US office.



B11 Licensed Machinery Safety Specialist



## Fortress Contact Details



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[us@fortressinterlocks.com](mailto:us@fortressinterlocks.com)

## FORTRESS

“ First of all, I would like to thank you for the opportunity to take such a great course. This is definitely a practical and valuable course and the knowledge / techniques can be directly applied to our facility ”

- December 2020, Module 1 Attendee



# FORTRESS

## FLUIDSENTRY

### FORTRESS

“

We have the peace of mind that our workers are safe and protected by fortress equipment.

”



### FORTRESS

“

Fortress is best at providing customised solutions at a rapid turnaround - reacting immensely to a challenge to put the customer's needs first.

”



### FORTRESS

“

Fortress' best quality is providing each customer the most robust and safe solution - all while being completely customizable and retaining a high level of quality.

”



### FORTRESS

“

We value suppliers that can help navigate the standards and provide guidance that is directly linked to our applications.

”



## Fortress Global Offices

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Fortress Interlocks China

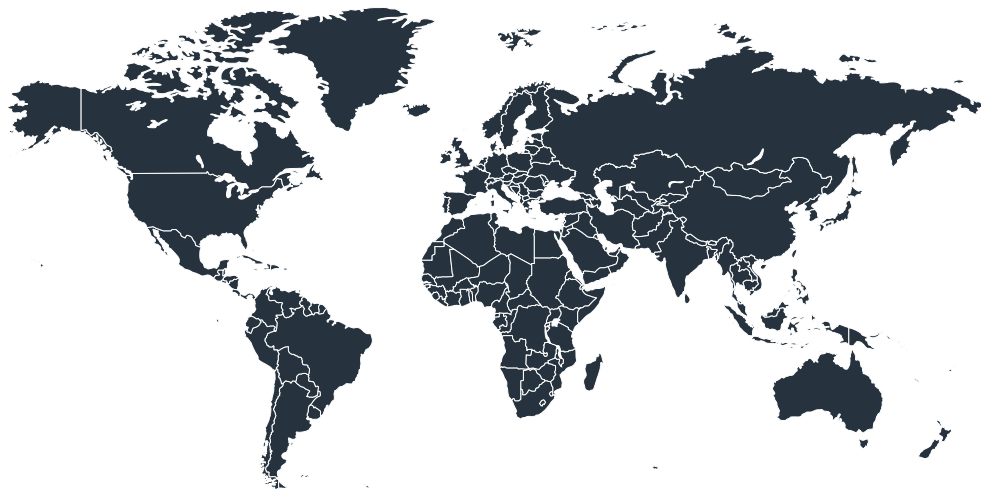
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