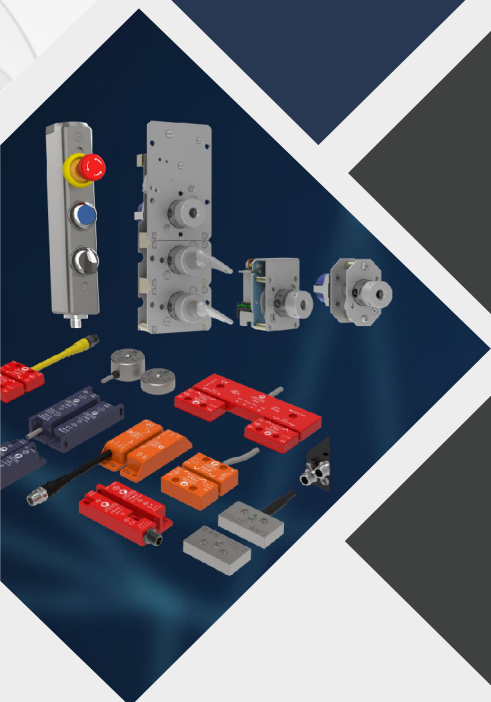


2021 EDITION



 **DEEBAR** (Pty) Ltd
ELECTRICAL & MECHANICAL ENGINEERING
"ENSURING YOUR SAFETY"

STANDARD PRODUCT CATALOGUE



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This new **Deebar Mining Division Catalogue** illustrates a selection from the wide range of Deebar products manufactured and assembled and sold from our factory in Gauteng, South Africa and via our branches and distributors.

Since 1976, Deebar have been at the forefront in designing and manufacturing products for the Mining, Power Generation, Motor, Petro-Chemical and Pharmaceutical Industries.

Deebar, with its own Research and Development department continuously researches and develops products to maintain Deebar's lead in both the products and industries it services.

As designers, manufacturers and suppliers of electrical/electronic equipment, our commitment to quality and customer service is a priority and this is confirmed by Intertek and our compliance to ISO9001:2015 Quality Management Systems Accreditation.

Deebar's head office and main factory is in Gauteng and our products are backed by a national network of professional sales and support agents, with branches based in Rustenburg and Klerksdorp.

Deebar commenced business in 1976 initially manufacturing and supplying Lock and Call Bell Shaft Signalling Systems which formed the core of its business.

The history of Electronic Shaft Signalling in the South African Mining Industry:

Prior to 1975, mine shaft signalling was done by means of manual bell ringers when signalling between Hoist Driver/Onsetter and Driver/Banksman. Products used were the reliable Martco No.70 and Martco S101 type Bell ringers.

In 1976, Anglo American (Labs) designed an Electronic Signalling Card to replace the manual type bell ringing units, primarily to give a clearer and distinct signal to eliminate any misunderstanding of what signal was rung. After Anglo designed the electronic signalling board, the unit required testing under mining conditions.

Martco Electrical, who at that time had been manufacturing manual signalling systems for 25 years, had the necessary experience to assist Anglo Labs with the testing of this new electronic signalling unit by equipping them into Martco enclosures with all the other Martco ancillary equipment and testing them under mining conditions.

Once this was approved, Martco entered into an agreement and negotiated the sole rights to manufacture and sell these units to the mining industry.

In 1976, Deebar entered the market with their own range of signalling products, and competed with Martco Electrical in this industry. In 1984, Deebar acquired Martco and merged their entire shaft signalling range of products together with Deebar's existing range under the brand name Belltronic™.

Since then, Deebar have been the market leaders in the field of lock and call bell shaft signalling.

Mine shaft signalling has changed drastically over the years with Deebar having instituted numerous safety features into the originally designed unit by producing a number of versions of signalling units to cater for the ever-changing markets.

Together with Deebar's extensive range of ancillary products that compliment activities in and around a mine shaft station area, Deebar remain the market leaders in the field of shaft signalling, monitoring, Scada displays and shaft gate interlocks together with many other products as displayed in this catalogue.



Details of the products mentioned below are available in separate catalogues which are available from any of our sales outlets.

The **Deebar Rail-Veyor Bulk Material Handling System** is another unique product from Deebar that transports bulk material. The system is based on the principle of a rollercoaster where a train consisting of a series of articulated trough-like cars, inter-connected representing a long, open trough moving along the track. The train is propelled by foam-filled tyres pushing against the side drive plates of cars activated by motion sensing energy efficient, dual drive stations, motors and gear reducers.



The design of the Rail-Veyor cars allows for operation in an inverted position by use of a double set of parallel rails. The feature allows controlled, non stop dumping of material by turning through an outside loop.

Fortress Interlocking System: an extensive range of world renowned trapped key safety interlocks which provide the crucial solution to electro-mechanical interlocking to ensure the ultimate in safety. Deebar is the market leader in South Africa in Safety Interlocking Systems.



Benedict GmbH (Telux): Low voltage switchgear built and tested according to International specifications. All devices suit all recognised approvals. The Products are supplied worldwide and the local production of switches is assembled according to ISO 9001.2015 standards. Products include a range of isolators, rotary cam switches, contactors, push buttons, pilot lights etc.



Control and Automation: an extensive range of industrial automation and electronic components, that include Jaguar drives, relays, limit switches, PLC's, proximity switches, timers etc.

Deebar are the sole South African distributors of **Fortress Interlocking and Benedict GmbH (Telux)**.



Reliability

Product reliability is vital and that is why Deebar remains focused on, centered design, manufacture and service. Along with a comprehensive range of products, Deebar guarantees the highest quality in products and services.

At Deebar, we are committed to listen to our customers, understand their need and endeavour to deliver results that exceed their expectations. When it comes to products and service we pride ourselves on service and reliability.

Mission Statement

Deebar designs and manufactures highly reliable Signalling, Communication, Monitoring Devices, Safety Equipment and Bulk Material Handling Systems for use in harsh environments within the Mining, Power Generation, Automotive and Process Industries and will continually improve its technologies and service by applying creativity to all aspects of its business.



Vision

Deebar intends to continually develop the latest technology for its core client base in which it operates in and strives for perfection. In doing so it will assist in uplifting and improving the quality of life of all its employees.

Safety

At Deebar, we strive to provide a safe working environment for all our employees and to produce safety enhancing products for all our customers. Safety is a priority to Deebar, this is evident in the wide range of safety related products in our portfolio.



Social Responsibility

We also consider the broader interests of society and embarked on a Learnership program within Deebar. These Learnerships are intended to assist the Learner in gaining the necessary skills and workplace experience with the expectations that it will offer better employment or self-employment opportunities for the Learner.

Quality

Quality means more than providing a product or service, it's a way of doing business and ultimately, a way of ensuring that we satisfy our customers needs. At Deebar we are all truly committed to strive for continuous improvement, delivering high quality products and services to all our customers.





ALL YOUR SHAFT
SIGNALLING
AND SAFETY
REQUIREMENTS

".. safely transporting thousands of mine workers underground for over 40 years."

Deebar's core business has always been Shaft Signalling Systems that the majority of the mines in Southern Africa are using as their standard products. Deebars designs and manufactures revolutionary shaft signalling and station safety products to satisfy all shaft communication requirements.

DRIVERS CONSOLE



The Winder Engine Driver typically operates from a Drivers Console which is fitted with two Deebars Drivers Signalling Units, one for signalling between the Driver and the Banksman and the other for signalling between the Driver and the Onsetter.

The drivers console is also equipped with either a Deebars Sounder or a Deebars Bell for the identification of signals rung.

Lockbell signalling is used for the interchange of coded signals between the Driver and the Banksman and the Driver and the Onsetter at the various stations. Either the Banksman or the Onsetter being specifically authorised and in possession of a key, which has to be inserted into the lockbell unit known as the Deebars Belltronic™ Unit before signals can be transmitted.

The Deebars Relay Panel electrically interlocks the signals rung between the Driver, Banksman and the Onsetters Belltronic™ Units. The Deebars Bell Event Recorder is situated in the winder house and is designed to record and log all signalling events that take place in the shaft area.

Deebars offers a comprehensive solution to shaft equipping for surface and underground levels. The Signalling Combination Panel includes a Distribution Box, Belltronic Lockbell, Callbell Unit, Digital Display Unit, Wallcomm, Deecom 101 elephones, Pneumatic and Interlocking Panel for station stopping devices.

SURFACE LEVEL



SIGNALLING COMBINATION PANEL



On the bank and all underground levels, Lock and Clear Lights are fitted to indicate whether the cage is in position and it is safe. The Lock and Clear Lights can be supplied in different units such as D-Lites, Robot Boxes, either incandescent or LED type.

The Belltronic Digital Display Unit will visually show the last signals rung on the LCD display.

UNDERGROUND LEVEL



The Call Bell Unit is an emergency signalling unit as required by the MHSA Reg 16.43.6 and is designed with two buttons both behind a breakable glass. One button to be used for accident to person, the other for an accident to shaft, both signals are followed by a station ID. An option to trip the winder after activating the accident to shaft button can be included.

The Distribution Box is used to terminate and distribute shaft bell cables on the bank and on each level.

The Wallcomm “Biza Khuluma”, is a 2 wire intercom system with a battery backup (10 hour standby time), in the case of a power outage to enable voice communication.

The Deecom 101 is a robust PABX/auto type telephone communication unit manufactured from stainless steel, powder coated and fitted with a neoprene handset.

Deebar, known for its shaft safety products in mining, designed and manufactured the Deebar slam-It Station Gate Lock which is specifically designed to prevent a double operation and can, in addition, be electrically interlocked to the winder safety circuit via a integrated interlocking magnetic switch.

Deebar has various combinations of Station Stopping Devices with the option to mechanically couple and interlink to a Centre Column which incorporates the Belltronic Signalling Unit and the Deelock Safety Lock to provide safety when moving rolling stock in and around the station area.

This system both electrically and mechanically interlocks the shaft bells to the Deebar Station Stopping Devices and ensures the ultimate in safety.

The interlocking station stopping devices with electronic bell signalling, together with the Slam-It are covered by Deebar patents.

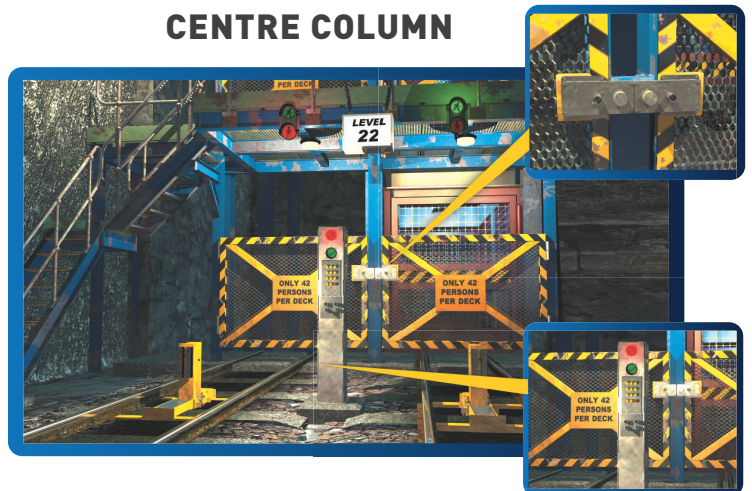
Another option is that Deebar Station Stop Blocks, Huizens Device or the Technopost Stopping Devices can be fitted and operated pneumatically via the Pneumatic Panel and Interlocking Panel this is also interlocked to the shaft bell signalling system.

The Deelock and Interlocking Panel has been designed to ensure that the responsible person (Onsetter or Banksman) follows a set procedure when operating safety devices on the specific station.

The system also ensures that the responsible person cannot leave the station if the safety devices are not in a safe position.

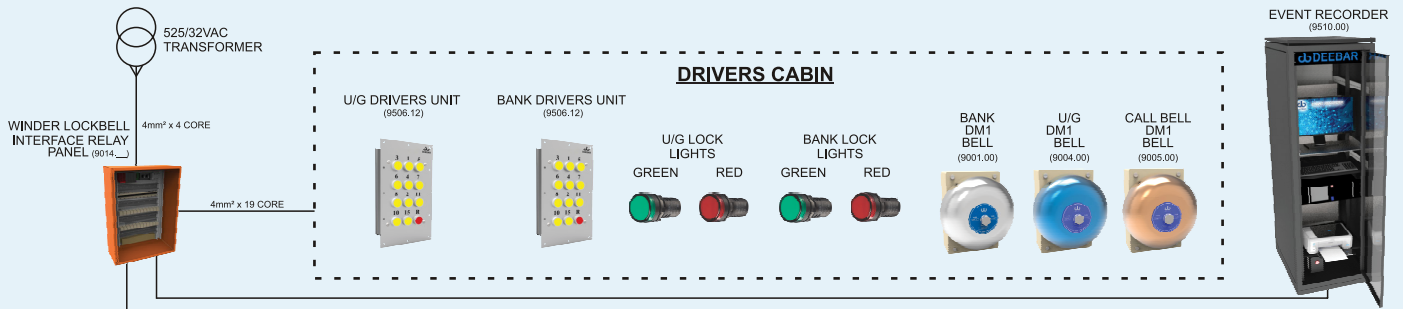
All Deebar products are manufactured under strict quality controls. Deebar are certified and conform to the ISO 9001:2015 quality management system to guarantee customers reliable products at the highest level of quality.

CENTRE COLUMN

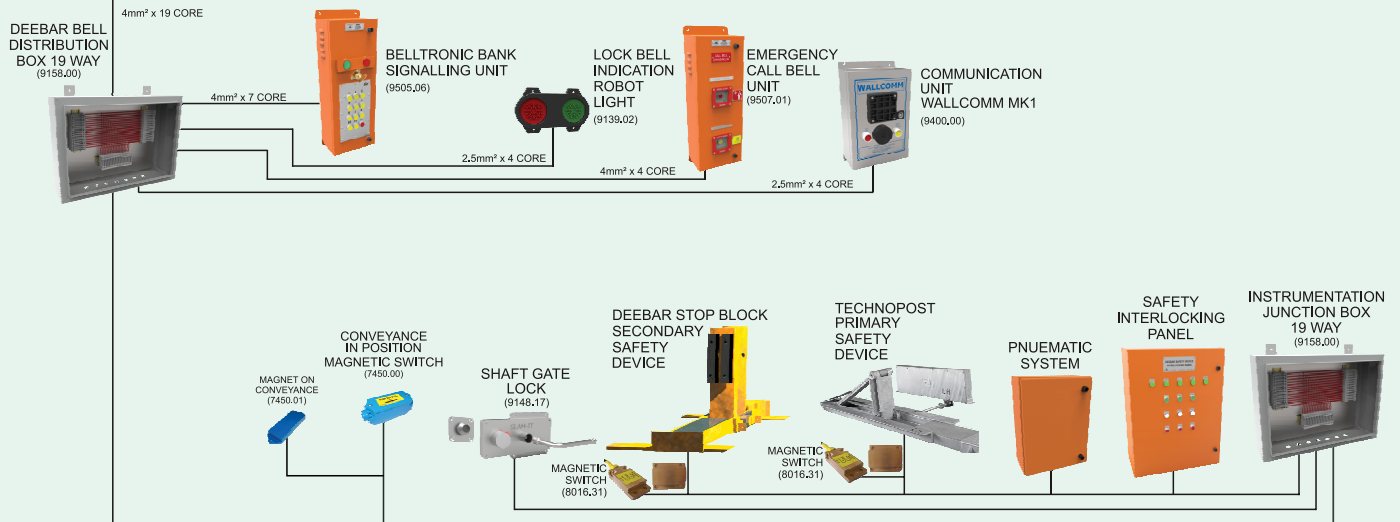


PRINCIPAL REQUIREMENTS FOR STATION AREA SAFETY

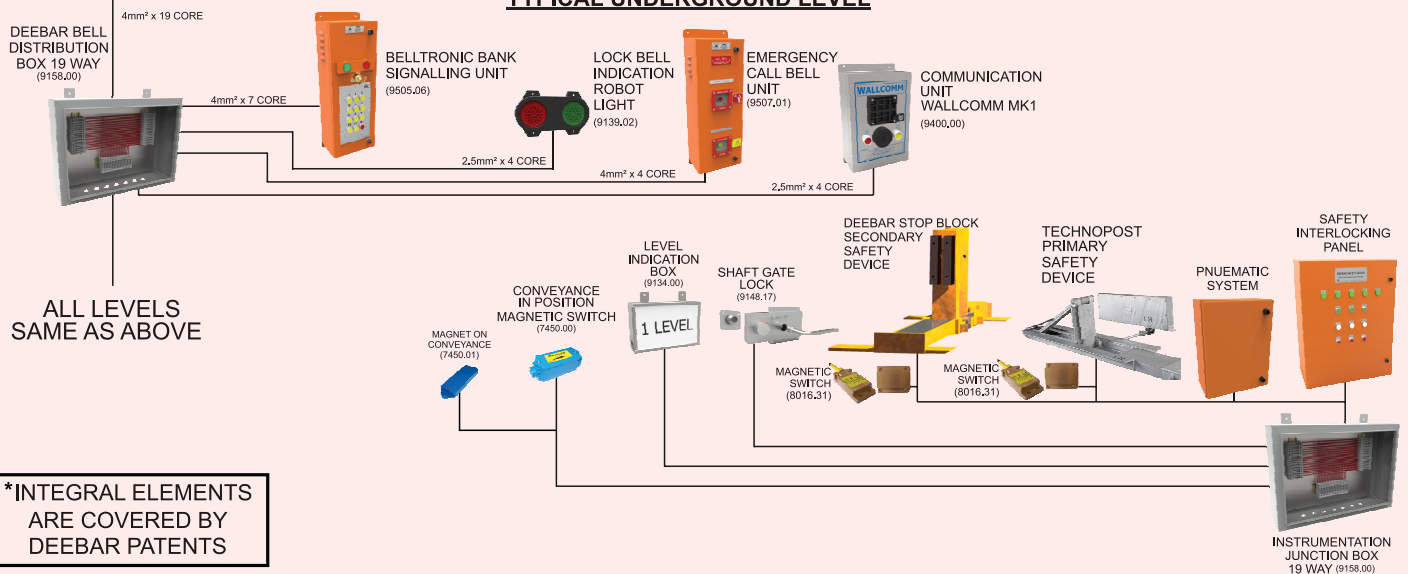
WINDER HOUSE



BANK



TYPICAL UNDERGROUND LEVEL



ALL LEVELS
SAME AS ABOVE

*INTEGRAL ELEMENTS
ARE COVERED BY
DEEBAR PATENTS

The D-Matrix System, monitors and records events taking place in and around a Mine Shaft Station area and displays these events on a screen on the wider engine drivers desk.

The D-Matrix System consists of:

- Standard Lock bell unit fitted with DBS44 PC Board
- Interface Cards
- Monitoring Devices
- Graphical Display

The D-Matrix System is built on the standard shaft bell signalling system using a Lockbell Interface Relay Panel connected to Bell Distribution Boxes on the bank and various underground levels.

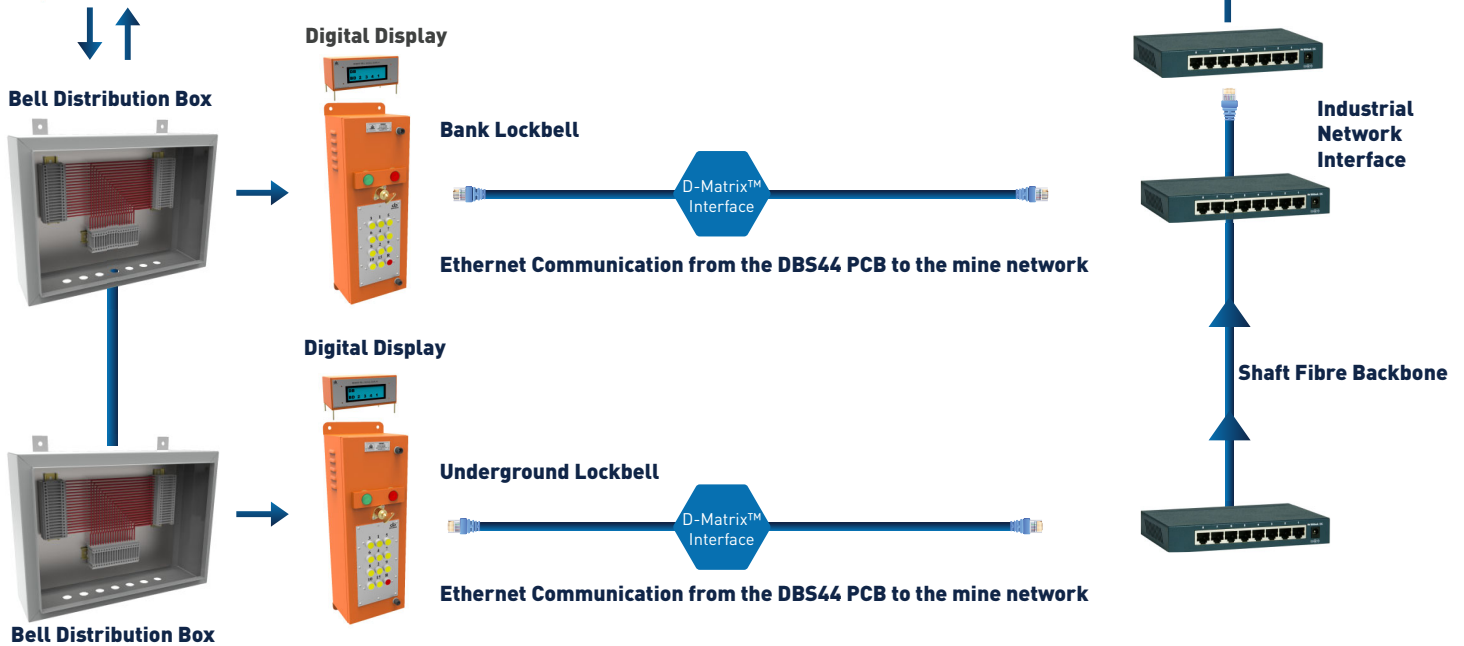
Lockbell Relay Panel



These Distribution Boxes are connected to the relevant Lockbells on the levels, which will allow the standard signalling operations to take place.



Scada Computer situated in the Winder House



Deebar's latest DBS44 PC Board with intelligent ethernet capabilities is fitted inside the standard Deebars Lockbell unit to allow communication with the mines existing fibre optic backbone.

The shaft fibre backbone data will be transmitted between the levels, bank and D-Matrix unit. The D-Matrix unit as well as the D-Matrix graphical interface (monitoring) computer are typically situated inside the Winder House.

The D-Matrix Monitoring System will display real time graphics of the events taking place in and around the shaft bank and stations.

These events include, monitoring the bell status, the cage position from proximities or magnetic switches on the station, last bells rung, station stopping devices, shaft gates and the various alarm signals.

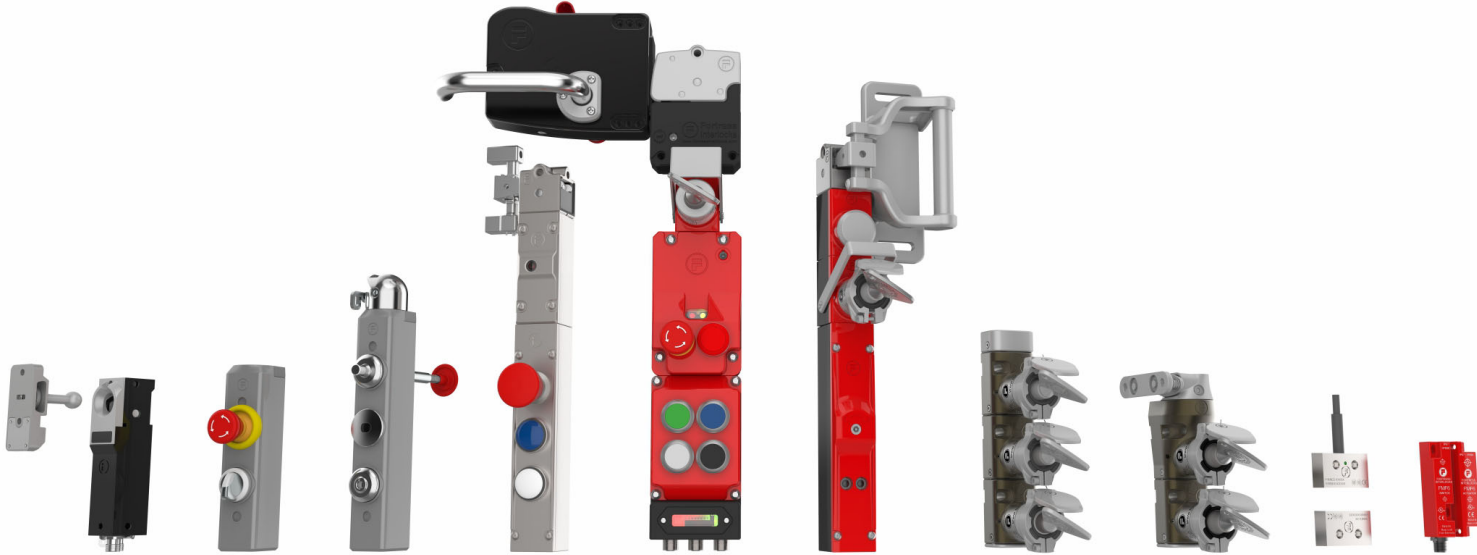
All of the above mentioned monitoring, recording and displaying of the various events makes up the D-Matrix System to ensure complete shaft monitoring and recording ensuring safety at all times. The D-Matrix monitoring system is client configurable.

INTERLOCKING

As a leader in Trapped Key Interlocking, Deebar design and manufacture Safety Interlocking Systems for the Mining, Steel, Motor, Power Generation, Food, Drink and Automotive Industries.

The Fortress range of products with its unique lock mechanism ensures the integrity of the Inter-Locking System and provides personnel with unmatched protection.

Installing Fortress Interlocks eliminates the potential for human error and ensures that the desired operation is performed in a safe manner every time machines/equipment is used.



SWITCHGEAR

Deebar market and supply the well known IMO range of switchgear products to all industries. IMO is focused on providing Industrial Automation, Motion Control and Electronic components which, when combined with superior service, offers customers significant competitive advantage.

From a single product to complete application solutions, the IMO Automation and Controls range fully address the sense, control and switch demands of today's factory automation and control environment. In term of choice IMO is at forefront of the switchgear industry, offering everything to meet the needs of today's OEM's, panel builders and end users.

In addition, Deebar also market the Benedict range of Rotary Switches, such as On/Off switches, change over, motor switches, ammeter, voltmeter, step switches etc. An extensive range of Switch Disconnectors is also supplied.





Deebar Rail-Veyor® is a unique Bulk Material Transport System that combines the best features of both the standard conveyor belt and rail systems for transporting material. It conveys material as a conveyor with high flexibility at an increased capacity while being able to negotiate curves like a rail system.

The Rail-Veyor® system has numerous advantages, some of which include:

- Low operational cost owing to its low energy use.
- Non-polluting drive system using electricity instead of fume emitting vehicles.
- No material spillage owing to the rubber interconnecting flaps.
- The design allows the train to pass through low tunnels and bridges to avoid obstacles.
- The initial cost of the system is low.
- The system is fully automated from loading to tipping.
- Deebar Rail-Veyor® can negotiate curves of up to 29 degrees.
- Rail-Veyor has been tested up inclines at 20% (11.31)



Other benefits the system offers are that no direct operator control is needed as the system runs automatically and allows for multiple-dump passes since the same loop can allow for multiple loading stations and dumps.

Deebar offers a custom-designed Rail-Veyor® system made specifically to suit a given site. By carrying out an assessment of the area; Determining the required tons an hour, material type and bulk density, haul distance, estimated material size, material condition (wet, dry or solid percentage), elevation variation including maximum incline or decline, surface or underground and tipping method - a system can be



370 300 KM
● ● ● ● ● ►



**AT THE END OF 2017, THE OPERATING DEEBAR
RAIL-VEYOR® SYSTEMS HAD COMPLETED OVER
1.2 MILLION KM AND MOVED MORE
THAN 9 MILLION TONS OF MATERIAL!**

**THAT IS MORE THAN THE
EQUIVALENT TO TRAVEL TO**

**THE
MOON AND BACK!**



MINING DIVISION

In the early days, prior to 1956 the miners came up with a code of signals in order to haul men and ore up and down the mine shafts safely, the hoister, or man in charge of raising and lowering the buckets and cages, had to be able to communicate with the miners below.

For that purpose, a signal code using knocks and rings was adopted in each mine.

Because the signal system was one of the many mining practices that was developed in South Africa the codes used by the different mines were basically the same. To ensure uniformity, however, each Mine eventually adopted a Code of Signals in its Mining regulations. Products used were the reliable Martco No.70 and Martco S101 type Bell ringers.



DM1 BELL / DB2 BELL

The DM1 bell is fitted with a 150mm gong and is available in various voltages. Suitable for use with alternating current (AC).

The unit can be supplied with either chrome, copper, brass or painted gongs to emit different tones.

The DB2 bell is generally the same as the DM1 but is suitable for use with direct current (DC).

The unit can be supplied with either chrome, copper, brass or painted gongs to emit different tones.

NB: Plug in feature for easy adjustment or replacement.
Sound Output 96 DB



DEELEX BELL

The Deelex bell is generally the same as the DM1 but is suitable for use with alternating current AC.

The unit can be supplied with either chrome, copper, brass or painted gongs to emit different tones.

The bell housing is manufactured from aluminium alloy.

Sound Output 100 DB



S100 SIDE LEVER BELL RINGER

The S100 type ringer is used for call bell signalling.

The unit operates by pulling the lever which closes a set of N/O contact to ring a remote bell.

The housing is manufactured from a dough moulded compound (DMC).

Product Code:	Description:
*9001.00	DM1 8-32V AC Chrome Gong
*9002.00	DM1 110V AC Chrome Gong
*9003.00	DM1 220V AC Chrome Gong
*9004.00	DM1 8-32V AC Painted Gong
*9005.00	DM1 8-32V AC Brass Gong
*9006.00	DM1 8-32V AC Copper Gong
*9007.00	DB2 8-32V DC Chrome Gong

Product Code:	Description:
*9008.00	Type "M" 8-32V AC Chrome Gong
*9009.00	Type "M" 110V AC Chrome Gong
*9010.00	Type "M" 220V AC Chrome Gong

Product Code:	Description:
*9044.00	S100 Bell Ringer



S101 SERIES KEY BELL RINGER

The S101 range of ringers is used for lock bell signalling. These units operate by inserting a key into the side of the unit and turning it, thus closing a N/O contact to ring a remote bell.

The unit can be supplied in various key configurations such as : triangle, half moon, square, oblong, hexagon and small triangle.

The housing is manufactured from a dough moulded compound (DMC).

Product Code:	Description:
*9045.00	S101 Triangle Bell Ringer
*9046.00	S102 Square Bell Ringer
*9047.00	S103 Small Bell Ringer
*9048.00	S104 Hexagon Bell Ringer
*9049.00	S105 Half Moon Bell Ringer
*9050.00	S108 Oblong Bell Ringer



NO. 70 BELL PULL

The No. 70 bell pull is suitable for use in a call bell application.

By pulling the handle in a downward motion a wiping contact closes operating a remote audible device. The unit can be supplied with a standard or extended shaft.

This housing is manufactured from a dough moulded compound (DMC) and on special request can be manufactured in a cast iron housing.

Product Code:	Description:
*9037.00	No. 70 Bell Pull Standard Shaft
*9038.00	No. 70 Bell Pull 9" Ext Shaft
*9036.00	No. 70 Bell Pull Cast Iron



BELL RINGER KEYS

Keys are used to operate S101 bell ringers and are available in the following configuration:

	S101 Triangle Key		S103 Small Triangle Key		S105 Halfmoon Key
	S102 Square Key		S104 Hexagon Key		S108 Oblong Key

Product Code:	Description:
*9061.00	S101 Triangle Bell Ringer
*9062.00	S102 Square Bell Ringer
*9063.00	S103 Small Bell Ringer
*9064.00	S104 Hexagon Bell Ringer
*9065.00	S105 Half Moon Bell Ringer
*9066.00	S108 Oblong Bell Ringer



NO. 72 Bell Pull

No. 72 bell pull is suitable for use in a lock bell application. By inserting a key into the bottom of the unit a mechanism is unlocked. This allows the handle to be pulled in a downward motion, closing a contact that then operates a remote audible device.

The unit can be supplied with a standard or extended shaft and key.

Manufactured from a dough moulded compound (DMC).



No. 72 Standard Key



No. 72 9" Key

Product Code:	Description:
*9040.00	No. 72 Bell Pull (Lock) c/w Key
*9041.00	No. 72 Bell Pull Ext Shaft c/w Key
*9067.00	No. 72 Standard Key
*9068.00	No. 72 9" Key



180 BELL PULL COMBINATION

The Bell Pull Combination is a robust signalling device that is used mainly when shaft sinking is done. The unit is supplied as a Call Bell unit without a key or a Lock Bell unit with a key.

Call Bell - This unit operates by pulling the handle.

Lock Bell - This unit operates by inserting and turning the key and then pulling the handle.

Both units ring the bell on the level that it is activated on and a "common" wire ensures that all the bells in the system ring.

See schematic diagram for shaft bell systems.

Product Code:	Description:
*9101.00	180 Bell Pull Combination (Call) 8-23V
*9103.00	180L Bell Pull Combination (Lock) 8-32V



BELL BOX W1 (WITH LIGHTS)

This Bell Box is used when manual signalling is performed.

The unit can be equipped with various bells and bell ringer configurations.

This unit is generally utilized for Lock Bell applications.

The housing is manufactured in stainless steel and fitted with a lock and clear lights (red and green).

* All the below mentioned DM1 bells are available in 110V

Product Code:	Description:
*9820.02	S101 Bell Ringer & DM1 8-32V AC Bell
*9821.00	S102 Bell Ringer & DM1 8-32V AC Bell
*9822.00	S104 Bell Ringer & DM1 8-32V AC Bell
*9823.00	S105 Bell Ringer & DM1 8-32V AC Bell
*9824.00	S108 Bell Ringer & DM1 8-32V AC Bell
*9826.00	No. 72 Bell Pull & DM1 8-32V AC Bell
*9826.03	No. 70 Bell Pull & DB2 32V DC Bell
*9826.05	No. 72 Bell Pull & DB2 32V DC Bell



BELL BOX W1 (NO LIGHTS)

This W1 Bell Box is used when manual signalling is required.

The unit can be equipped with various bells and bell ringer configurations. This unit is generally utilized for Lock Bell applications.

The housing is manufactured in stainless steel.

* All the below mentioned DM1 bells are available in 110V

Product Code:	Description:
*9820.00	S100 Bell Ringer & DM1 8-32V AC Bell
*9820.01	S101 Bell Ringer & DM1 8-32V AC Bell
*9821.02	S102 Bell Ringer & DM1 8-32V AC Bell
*9822.01	S104 Bell Ringer & DM1 8-32V AC Bell
*9823.01	S105 Bell Ringer & DM1 8-32V AC Bell
*9824.01	S108 Bell Ringer & DM1 8-32V AC Bell
*9826.01	No. 70 Bell Pull & DM1 8-32V AC Bell
*9826.08	No. 72 Bell Pull & DM1 8-32V AC Bell
*9826.02	No. 72 Bell Pull & Deelex Bell 32 V
*9826.04	No. 70 Bell Pull & DB2 32V Bell
*9826.06	No. 72 Bell Pull & DB2 32V Bell



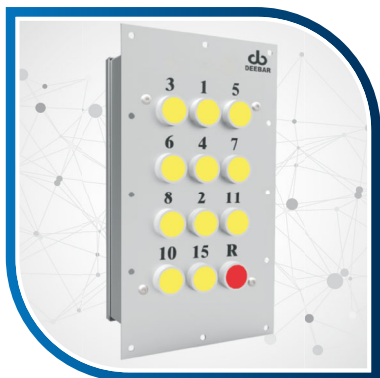
JG/W1 MANUAL CALL BELL UNIT

This emergency Call Bell unit is used in the event of an accident in a mine shaft. To activate, break glass and push the emergency button. A signal will be transmitted to the drivers cabin as well as to all levels.

JG/W1 - The unit is equipped with an emergency push button (behind glass) with a DM1 bell or electronic sounder.

Product Code:	Description:
*9829.00	JGW1 c/w Sounder
*9829.01	JGW1 c/w Bell

Manual Signalling had serious limitations and risks, thus an electrical solution was implemented with the use of an electric bell and PC Boards to control the sequence of rings . This greatly increased safety on mines.



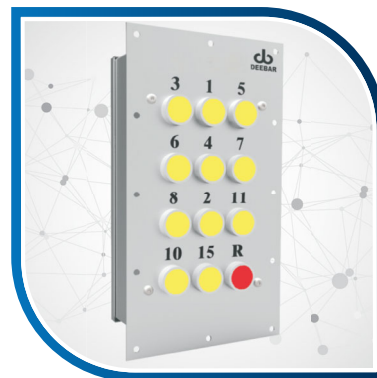
DRIVERS UNIT - 12 WAY

The Drivers Unit is used to communicate between the driver and banksman and the driver and onsetter.

The unit is fitted in the drivers console and equipped with:

- Evolution or D-Tronic PC Board.
- Robust push buttons mounted on stainless steel engraved fascia.
- Contact facilities for brake locking / drivers indication.
- Built-in inhibit circuit and material mode interlocks.
- The unit is available in either 32V / 110V AC or 32V DC.

This Drivers Unit is also available in a smaller, more compact unit called the No.2.



SIGNALLING UNIT - 12 WAY

The Signalling Unit is a replacement that fits into the Belltronic Lockbell Bank or Underground Unit.

- Stainless steel engraved fascia plate
- Mild steel back box
- Equipped with various pc boards

This Signalling Unit is also available in a smaller, more compact unit called the No.2.

Product Code:	Description:	Product Code:	Description:
DRIVERS UNIT STANDARD - 12 WAY:		DRIVERS UNIT NO.2 - 12 WAY:	
*9506.12	32V, D-Tronic PCB	*9506.04	32V, D-Tronic PCB
*9506.13	110V, D-Tronic PCB	*9506.15	110V, D-Tronic PCB
*9506.06	32V, Evolution PCB	*9506.16	32V, Evolution PCB
*9506.14	110V, Evolution PCB	*9506.17	110V, Evolution PCB
*9506.63	32V, DBS44 PCB	*9506.65	32V, DBS44 PCB
*9506.64	110V, DBS44 PCB	*9506.66	110V, DBS44 PCB

Product Code:	Description:	Product Code:	Description:
SIGNALLING UNIT STANDARD - 12 WAY:		SIGNALLING UNIT NO.2 - 12 WAY:	
*9506.00	32V, D-Tronic PCB	*9506.02	32V, D-Tronic PCB
*9506.01	110V, D-Tronic PCB	*9506.31	110V, D-Tronic PCB
*9506.29	32V, Evolution PCB	*9506.32	32V, Evolution PCB
*9506.30	110V, Evolution PCB	*9506.33	110V, Evolution PCB
*9506.67	32V, DBS44 PCB	*9506.69	32V, DBS44 PCB
*9506.68	110V, DBS44 PCB	*9506.70	110V, DBS44 PCB



SIGNALLING UNIT - 13 WAY

The Signalling Unit is a replacement that fits into the Belltronic Lockbell Bank or Underground Unit.

- Stainless steel engraved fascia plate
- Mild steel back box
- Equipped with various pc boards

This Signalling Unit is also available in a smaller, more compact unit called the No.2.



SIGNALLING UNIT - 15 WAY

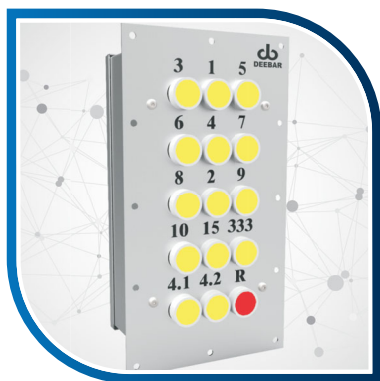
The Signalling Unit is a replacement that fits into the Belltronic Lockbell Bank or Underground Unit.

- Stainless steel engraved fascia plate
- Mild steel back box
- Equipped with various pc boards

This Signalling Unit is also available in a smaller, more compact unit called the No.2.

Product Code:	Description:	Product Code:	Description:
SIGNALLING UNIT STANDARD - 13 WAY:		SIGNALLING UNIT NO.2 - 13 WAY:	
*9506.34	32V, D-Tronic PCB	*9506.38	32V, D-Tronic PCB
*9506.35	110V, D-Tronic PCB	*9506.39	110V, D-Tronic PCB
*9506.36	32V, Evolution PCB	*9506.40	32V, Evolution PCB
*9506.37	110V, Evolution PCB	*9506.41	110V, Evolution PCB
*9506.71	32V, DBS44 PCB	*9506.73	32V, DBS44 PCB
*9506.72	110V, DBS44 PCB	*9506.74	110V, DBS44 PCB

Product Code:	Description:	Product Code:	Description:
SIGNALLING UNIT STANDARD - 15 WAY:		SIGNALLING UNIT NO.2 - 15 WAY:	
*9506.42	32V, D-Tronic PCB	*9506.46	32V, D-Tronic PCB
*9506.43	110V, D-Tronic PCB	*9506.47	110V, D-Tronic PCB
*9506.44	32V, Evolution PCB	*9506.48	32V, Evolution PCB
*9506.45	110V, Evolution PCB	*9506.49	110V, Evolution PCB
*9506.75	32V, DBS44 PCB	*9506.77	32V, DBS44 PCB
*9506.76	110V, DBS44 PCB	*9506.75	110V, DBS44 PCB



MONITORING TYPE SIGNALLING UNIT

This Signalling Unit communicates between the driver and banksman, driver and onsetter and is equipped with 3 additional buttons, namely 4.1, 4.2 and 3.3.3 for ease of signalling.

This unit has been designed to interface with the D-Matrix Station Monitoring System.

Product Code:	Description:
*1151.01	15 Way, 32V D-Tronic
*1151.02	15 Way, 110V D-Tronic



BELLTRONIC BANK UNIT

This unit is to communicate between the banksman and the driver. The unit is manufactured in stainless steel and equipped with:

- A push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

Product Code:	Description:	Product Code:	Description:
*9505.00	D-Tronic & Castell	*9505.98	DBS44 - 32V & Castell
*9505.01	D-Tronic & PP	*9505.99	DBS44 - 110V & Castell
*9505.06	D-Tronic & Fortress	*9505.100	DBS44 - 32V & Fortress
*9505.08	Evolution & Castell	*9505.101	DBS44 - 110V & Fortress
*9505.24	Evolution & PP	*9505.102	DBS44 - 32V & PP
*9505.22	Evolution & Fortress	*9505.103	DBS44 - 110V & PP



BELLTRONIC UNDERGROUND UNIT

This unit is to communicate between the onsetter and the driver. The unit is manufactured in stainless steel and equipped with:

- A push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

Product Code:	Description:	Product Code:	Description:
*9504.00	D-Tronic & Castell	*9504.99	DBS44 - 32V & Castell
*9504.01	D-Tronic & PP	*9504.100	DBS44 - 110V & Castell
*9504.06	D-Tronic & Fortress	*9504.101	DBS44 - 32V & Fortress
*9504.07	Evolution & Castell	*9504.102	DBS44 - 110V & Fortress
*9504.10	Evolution & PP	*9504.103	DBS44 - 32V & PP
*9504.60	Evolution & Fortress	*9504.104	DBS44 - 110V & PP



NO.2 BELLTRONIC BANK UNIT

This unit is smaller, more compact and has the same features as that of the Standard Bank Unit. The purpose of this unit is to communicate between the banksman and the driver and is situated on the bank (surface).

- A push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

Product Code:	Description:	Product Code:	Description:
*9505.02	D-Tronic & Castell	*9505.110	DBS44 - 32V & Castell
*9505.03	D-Tronic & PP	*9505.111	DBS44 - 110V & Castell
*9505.07	D-Tronic & Fortress	*9505.112	DBS44 - 32V & Fortress
*9505.09	Evolution & Castell	*9505.113	DBS44 - 110V & Fortress
*9505.10	Evolution & PP	*9505.114	DBS44 - 32V & PP
*9505.23	Evolution & Fortress	*9505.115	DBS44 - 110V & PP



NO.2 BELLTRONIC UNDERGROUND UNIT

This unit is smaller, more compact and has the same features as that of the standard onsets unit. The purpose of this unit is to communicate between the onsetter and the driver and is situated on all the levels. The unit is manufactured in stainless steel and equipped with:

- A push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

Product Code:	Description:	Product Code:	Description:
BELLTRONIC UNDERGROUND UNIT NO.2 - 12 WAY:		BELLTRONIC UNDERGROUND UNIT NO.2 - 15 WAY:	
*9504.03	D-Tronic & PP	*9504.13	D-Tronic & Castell
*9504.02	D-Tronic & Castell	*9504.41	Evolution & Castell
*9504.11	Evolution & Castell	*9504.42	D-Tronic & PP
*9504.12	Evolution & PP	*9504.43	Evolution & PP
*9504.28	D-Tronic & Fortress		
*9504.61	Evolution & Fortress		
*9504.105	DBS44 - 32V & Castell		
*9504.106	DBS44 - 110V & Castell		
*9504.107	DBS44 - 32V & Fortress		
*9504.108	DBS44 - 110V & Fortress		
*9504.109	DBS44 - 32V & PP		
*9504.110	DBS44 - 110V & PP		



BELLTRONIC UNDERGROUND UNIT MEN & MATERIAL UNIT 15 WAY

The Belltronic Underground Men & Material unit is the same as the Standard Underground Unit except that it has an additional safety feature which will only allow 4/1, 4/2, 1, 2 and long ring to be transmitted when the unit on the station is in the material mode. This prevents the station gates from being overridden and the conveyance being rung away at full speed. The Unit is equipped with:

- A push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

Product Code:	Description:	Product Code:	Description:
*9504.29	D-Tronic & Castell	*9504.112	DBS44 - 110V & Castell
*9504.47	D-Tronic & PP	*9504.113	DBS44 - 32V & Fortress
*9504.48	Evolution & Castell	*9504.114	DBS44 - 110V & Fortress
*9504.49	Evolution & PP	*9504.115	DBS44 - 32V & PP
*9504.111	DBS44 - 32V & Castell	*9504.116	DBS44 - 110V & PP



BELLTRONIC BANK UNIT MEN & MATERIAL UNIT 15 WAY

The Belltronic Bank Men & Material unit is the same as the Standard Bank Unit except that it has an additional safety feature which will only allow 4/1, 4/2, 1, 2 and long ring to be transmitted when the unit on the station is in the material mode. This prevents the station gates from being overridden and the conveyance being rung away at full speed. The Unit is equipped with:

- A push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with either a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- The unit is available in either 32V / 110V AC or 32V DC.
- This unit is fitted with a "Telltale" sounder.

Note: The unit has a switch off facility feature and always completes every signal rung.

Product Code:	Description:
*9504.98	D-Tronic & Castell
*9504.44	D-Tronic & PP
*9504.45	Evolution & Castell
*9504.46	Evolution & PP
*9504.104	DBS44 - 32V & Castell
*9504.105	DBS44 - 110V & Castell
*9504.106	DBS44 - 32V & Fortress
*9504.107	DBS44 - 110V & Fortress
*9504.108	DBS44 - 32V & PP
*9504.109	DBS44 - 110V & PP



POLYCARBONATE BANK UNIT

The purpose of this unit is to communicate between the Banksman and the driver and is situated on the bank. The unit is manufactured in polycarbonate and equipped with:

- Push button signalling device to communicate to the driver.
- Evolution, DBS44 or D-Tronic PC Board.
- Fitted with a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- Lock & clear lights are fitted behind the lid of the enclosure ensuring its IP65 rating.

The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

Various Signalling Units can be manufactured in Polycarbonate as per customer specifications.

Product Code:	Description:
*9504.04	c/w Castell K/switch
*9504.05	c/w PP K/switch



POLYCARBONATE UNDERGROUND UNIT

The purpose of this unit is to communicate between the Onsetter and the driver and is situated on every level. The unit is manufactured in polycarbonate and equipped with:

- Push button signalling device to communicate to the driver.
- Evolution DBS44 or D-Tronic PC Board.
- Fitted with a PP, Castell or Fortress key switch.
- Various audible devices, such as bell, sounder, cybertone, etc.
- Lock & clear lights are fitted behind the lid of the enclosure ensuring its IP65 rating.

The unit is available in either 32V / 110V AC or 32V DC.

Note: The unit has a switch off facility feature and always completes every signal rung.

Various Signalling Units can be manufactured in Polycarbonate as per customer specifications.

Product Code:	Description:
*9504.04	c/w Castell K/switch
*9504.05	c/w PP K/Switch



ELECTRONIC CALL BELL UNIT (ECB)

This emergency signalling device is situated on every level in a shaft. Fitted with two buttons each behind glass, labelled accident to person and accident to shaft. Breaking the glass and activating the "Accident to shaft" button will immediately stop the winder. The driver will only be able to proceed with operations once the accident has been investigated and cleared by the shaft engineer.

Operation: The unit transmits the following signals:

Accident to person = 10 Rings, followed by the station (level) ID and repeated.

Accident to shaft = a long ring, followed by the station (level) ID and repeated.

A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

Product Code:	Description:	Product Code:	Description:
*9507.08	32V, D-Tronic PCB	*9507.40	32V, DBS44 PCB
*9507.05	110V, D-Tronic PCB	*9507.41	110V, DBS44 PCB
*9507.00	32V, Evolution PCB		
*9507.01	110V, Evolution PCB		



ELECTRONIC CALL BELL UNIT (ESCB)

The ESCB Call Bell Unit is generally the same as the Call Bell (ECB) with an added feature, an additional push button. Once the glass is broken and the button activated, after a 10 second delay a signalling button can be used for signalling the driver. Fitted with two buttons each behind glass, which are labelled accident to person and accident to shaft. Breaking the glass and activating the "Accident to shaft" button will immediately stop the winder.

The driver will only be able to proceed with operations once the accident has been investigated and cleared by the shaft engineer.

Operation: The unit transmits the following signals:

Accident to person= 10 Rings, followed by the station (level) ID and repeated.

Accident to shaft= a long ring, followed by the station (level) ID and repeated.

A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

WITH SPECIAL SIGNALLING BUTTON

Product Code:	Description:	Product Code:	Description:
CALL BEL UNIT (ESCB) DP2:		CALL BELL UNIT (ESCB) DP3:	
*9507.03	32V, D-Tronic PCB	*9507.06	32V, D-Tronic PCB
*9507.23	110V, D-Tronic PCB	*9507.26	110V, D-Tronic PCB
*9507.21	32V, Evolution PCB	*9507.24	32V, Evolution PCB
*9507.22	110V, Evolution PCB	*9507.25	110V, Evolution PCB
*9507.42	32V, DBS44 PCB	*9507.44	32V, DBS44 PCB
*9507.43	110V, DBS44 PCB	*9507.45	110V, DBS44 PCB



NO.2 ELECTRONIC CALL BELL

This unit is smaller, more compact and has the same features as that of the Standard Call Bell Unit.

This emergency signalling device is situated on every level in a shaft. Fitted with two buttons each behind glass, labelled accident to person and accident to shaft. Breaking the glass and activating the "Accident to shaft" button will immediately stop the winder. The driver will only be able to proceed with operations once the accident has been investigated and cleared by the shaft engineer.

Operation: The unit transmits the following signals:

Accident to person= 10 Rings, followed by the station (level) ID and repeated.

Accident to shaft= a long ring, followed by the station (level) ID and repeated.

A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

SMALLER COMPACT UNIT

Product Code:	Description:
*9507.02	32V, D-Tronic PCB
*9507.17	110V, D-Tronic PCB
*9507.09	32V, Evolution PCB
*9507.04	110V, Evolution PCB
*9507.46	32V, DBS44 PCB
*9507.47	110V, DBS44 PCB



REMOTE CALL BELL UNIT

The Remote Call Bell Unit is an extension of a Standard Call Bell Unit (previous page) that is situated at the shaft gate. The unit allows for activation from a position outside of the station area that is behind a traditional shift control gate.

Operation: The unit transmits the following signals:

Accident to person = 10 Rings, followed by the station (level) ID and repeated.

Accident to shaft = a long ring, followed by the station (level) ID and repeated.

A LED light indicates which unit was activated and must be reset at that particular level.

The unit also has a test facility when doing regular maintenance.

The Remote Call Bell Unit will only operate if the main Call Bell is equipped for remote facility.

Product Code:	Description:
*9508.00	Remote Call Bell Unit



VISUAL BELLTRONIC DISPLAY

The Digital Signalling Display Unit can be retrofitted to any of Deebar's standard Belltronic signalling units.

When a signal is transmitted in addition to the audible sound, the Digital Display Unit will visually show the last signals rung on the LCD display, it also identifies where the signal has come from.

Due to the human element, signals (sounds) can be misinterpreted and often do, causing the operator to inadvertently not act in accordance with the law, which has caused many fatal accidents, this can assist in preventing these.

VISUAL BELLS

Product Code:	Description:
*9507.12	Lockbell Display 32V
*9507.15	Lockbell Display 110V
*9507.13	Drivers Display 32V
*9507.16	Drivers Display 110V



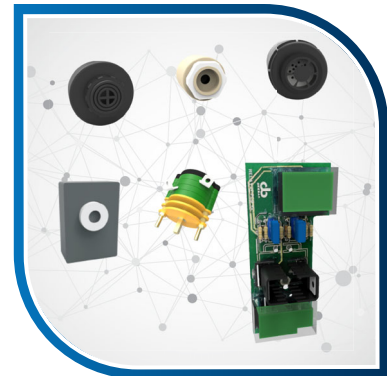
MINE SHAFT EVENT RECORDER

The Event Recorder is designed to monitor and record various activities pertaining to Shaft Signalling and Safety Devices on all Shaft Stations and at the Winder.

Every signal and activity is monitored and recorded by the Event Recorder. This information can be graphically displayed, archived and printed out as required, thus providing a full history of all shaft station activities.

The Event Recorder can also be fitted with a Tachograph, e-mail and sms facilities as an optional extra.

Product Code:	Description:
*9510.00	1 Winder
*9511.00	2 Winder
*9512.00	3 Winder
*9513.00	4 Winder



ELECTRONIC SHAFT SIGNALLING SPARES

A range of additional spares that is available for the Electronic Shaft Signalling, such as:

- Cybertone.
- D-Tone Sounder.
- Buzzer c/w Box and Bracket.
- Range of Switches.
- Solid State Relay

Product Code:	Description:
*9505.33	Buzzer c/w Box & Bracket 32V
*9505.32	Buzzer c/w Box & Bracket 110V
*9517.01	Cybertone 24V DC
*9517.03	Cybertone 32V AC/DC
*9517.02	Cybertone 110V
*3555.00	CR-0202 Switch
*3555.03	CR-0211 Switch
*3555.04	CR-0212 Switch
*3555.05	CR-0213 Switch
*9505.35	D-Tone Sounder 32V
*9505.36	D-Tone Sounder 110V
*9505.38	D-Tone Sounder 220V
*0163.22	Solid State Relay [SSR] 110V



LOCKBELL RELAY PANEL

The Deeban Relay Panel's function is to interface between the Winder and the Bell Communication System.

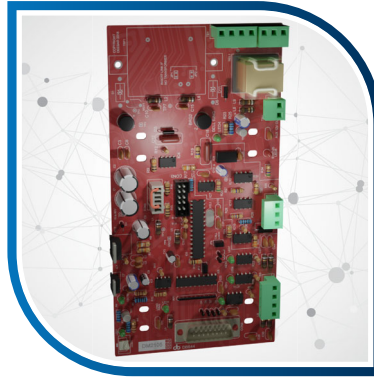
Available either as a:

- PLC Control Solid State Type
- Heavy Duty Relay Type

Functions:

- The relay drives the Lock and Clear Lights on the Bank and on various Levels
- Brake Interlocking with Bell System
- Winder brake delays are:
- Men Mode - 15 Sec delay
- Material Mode - 5 Sec delay
- Relocking of Bells if Driver does not respond - 80 Sec delay
- Adjustable to suit Mine requirements

Product Code:	Description:
*9014.____	Lockbell Relay Panel



DBS44 PC BOARD

- The DBS44 PCB is an intelligent signalling card used in Lock and Call Bell units.
- Increased Ground Plane added to suppress any undesirable noise spikes.
- Compatibility to existing Deeban PC Boards.
- Additional external I/O available.
- Robust soldered in CPU, ensures stability.
- Robust RS485 communication port for programming.
- Enhanced capacitor value to insure voltage stability during power dips.
- Bell Type (Lockbell or Callbell) to be selected with jumpers.
- Switch mode power supply to improve efficiency and to accept a broader range

Product Code:	Description:
LOCKBELL / CALL BELL:	
*0163.34	32V PCB
*0163.35	110V PCB



D-TRONIC PC BOARD

The D-Tronic PCB is an intelligent signalling card used in Lock and Call Bell units.

The PCB is fitted with an Integrated Circuit (IC) and is factory set to be used either as a Lock or a Call bell card.

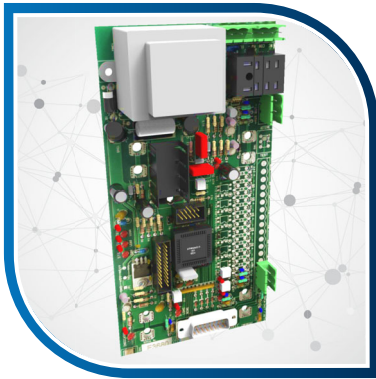
Material mode - a safety feature only allows 4/1, 4/2, 1, 2 and long ring.

Inhibit Circuit - built in safety feature prevents over-ringing of signals.

Millisecond Spacing - PCB are factory pre-set to the industry standard.

Switch off facility - designed to ensure that the signal rung is completed.

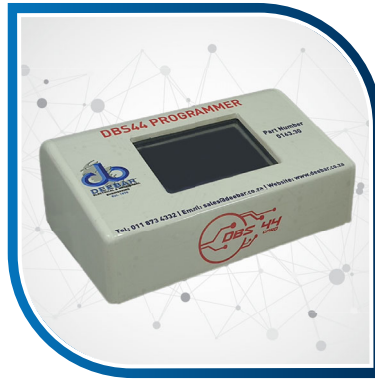
Product Code:	Description:
LOCKBELL:	
*0163.02	32V PCB
*0163.04	110V PCB
MEN-MATERIAL	
*0163.03	32V PCB
*0163.05	110V PCB
CALL BELL:	
*0163.02	32V PCB
*0163.04	110V PCB



EVOLUTION PC BOARD

The Evolution PCB, an intelligent signaling device, is microprocessor based and as a result can be changed from a Lock Bell card to a Call Bell PCB by utilising a portable programming device; this can be done on site if necessary.

Due to its versatility, the Station ID of the Card can also be changed to suit



DBS44 PROGRAMMER

The DBS44 Hand Held Programmer is used to program the DBS44 PC Board to meet the mines specifications for example.

From Lock Bell to Call Bell.
Changing a number, i.e 11 to ring 13.

Product Code:	Description:
*0163.30	DBS44 Programmer



EVOLUTION PROGRAMMER

The hand held Programmer is used to program the Evolution Card to meet the mines specifications for example:

- From Lock Bell to Call Bell.
- Changing a number, i.e. 11 to ring 13.
- Adding another button will require the PC Board to be re-programmed.

Product Code:	Description:
*0163.19	Evolution Programmer

Product Code:	Description:
LOCKBELL / CALLBELL:	
*0163.07	32V PCB
*0163.08	50V PCB
*0163.09	110V PCB

"ENSURING YOUR SAFETY"
Underground communications with the surface was an urgent factor when considering the isolation and other problems with which the miners could be confronted. Deebbar developed it's own range of PABX and Intercom type telephones.



WALLCOMM MK1

Robust IP65 rated, 2 Wire Intercom System with Battery Backup designed for arduous conditions.

- Available in Mild Steel or Stainless Steel
- The PCB and Battery is enclosed in a internal enclosure
- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

Product Code:	Description:
*9400.00	MK1 Mild Steel 110/220V
*9401.00	MK1 Stainless Steel 110/220V



WALLCOMM MK2 - INTRINSICALLY SAFE

Robust ,IP65 rated, 2 Wire intrinsically safe Intercom System for gases such as methane, petrol gases, ethylene group gases and hydrogen group gases, Also suited for Class 1 division 1 or 2 and Class 2 division 1 or 2 situations.

- Each unit has a Battery Backup, Standby time ±10 Hours
- Available in Mild Steel or Stainless Steel
- The PCB and Battery is enclosed in a internal enclosure
- Built in charger with NiCad Batteries
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

Product Code:	Description:
*9403.00	MK2 Mild Steel Intrinsically Safe
*9404.00	MK2 Stainless Steel Intrinsically Safe



WALLCOMM HIGH OUTPUT

High Output, IP65 Intercom Unit is fitted with a Flashing Beacon and an Audible Siren and used mainly in noisy environments where the flashing beacon and siren indicates the call.

- The unit is fitted with Battery Backup, Standby time ±10 Hours
- Available in Mild Steel or Stainless Steel
- The PCB and Battery is enclosed in a internal enclosure
- Built in charger with NiCad Batteries
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

Product Code:	Description:
*9425.01	Mild Steel (High Output)
*9425.05	Mild Steel (High Output) c/w Flashing Beacon & Siren
*9425.04	Stainless Steel (High Output)
*9425.06	Stainless Steel (High Output) c/w Flashing Beacon & Siren



POLYCOMM

A two Wire Intercom System with Battery Backup. Manufactured in a DMC Enclosure which is IP65 Rated.

- The Intercom can also be fitted with a Handset
- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

Product Code:	Description:
*9402.01	Polycomm with Handset
*9402.00	Polycomm without Handset



WINCH-COM

A two Wire Intercom System with Battery Backup.
Manufactured in a DMC Enclosure which is IP65 Rated and then fitted in a s/steel housing with a canopy.

- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC, 525V AC

Product Code:	Description:
*9407.02	Winch-com



DEECOM 104

Robust and Tamperproof Intercom System. A two Wire Intercom System with Battery Backup designed for arduous conditions.

- Manufactured in Stainless Steel and epoxy powder coated.
- Fitted with Neoprene Handset & stainless steel cord
- Built in charger with NiCad Batteries, Standby time ±10 Hours
- Transmit and Receive Levels adjustable
- Unlimited number of intercoms on a system
- Tone calling & Paging facility
- Supply Voltage 24V DC, 110V/220V AC
- Suggested Cable: Single or Individually Screened Twisted Pair Cable

Product Code:	Description:
*9407.01	Deecom 104 with handset
*9407.00	Deecom 104 without handset

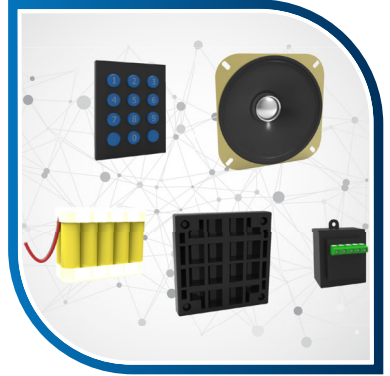


DEECOM 101

The Deecom 101 is a Robust PABX/Auto type Telephone.

- Stainless Steel powder coated enclosure
- Concealed mounting to eliminate vandalism.
- Fitted with a Neoprene Handset.
- Stainless Steel Robust cord.
- Push Button in place of switch-hook to eliminate the possibility of the instrument being left inoperative.
- Recessed keypad and button to eliminate abuse.

Product Code:	Description:
*9414.00	Push Button Telephone c/w Handset

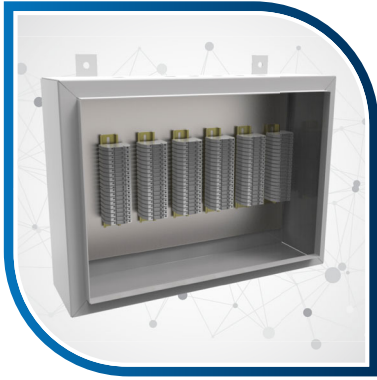


TELEPHONE SPARES

A range of additional spares that is available for the Wallcomm and Deecom range of products, such as:

- PC Boards for the Wallcomm / Polycomm / Deecom104 / Deecom 101.
- Speakers 5Watt 8 Ohm.
- Transmitter / receiver.
- Power Supplies.
- Nickel Cadmium Battery.

Product Code:	Description:
*0710.00	PC Board for Wallcomm MK1
*0710.02	PC Board for Wallcomm High Output
*0710.00	PC Board for Deecom 104
*0746.00	PC Board for Deecom 101
*0704.00	Speaker 4" 5W 8 Ohm
*0705.00	Microphone Grill
*0706.00	Speaker Grill
*0711.00	Transmitter / Receiver
*0712.00	Power Supply 110/220V DC
*0728.00	Nickle Cadmium Battery



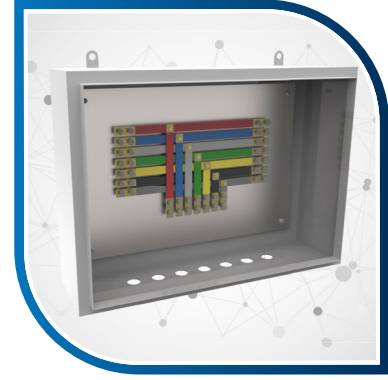
TELEPHONE DISTRIBUTION BOX

Telephone Distribution Boxes with Disconnect Terminals.

- Enclosure manufactured in stainless steel.
- Supplied as 10/20/30/40/50 pair or to suit customer's specification.
- Fitted with Knife action Din Rail Disconnect Terminals or
- Krone terminals

NB Door removed for display purposes

Product Code:	Description:
*9163.00	10 Pair c/w Din Rail Terminals
*9162.00	20 Pair c/w Din Rail Terminals
*9164.00	30 Pair c/w Din Rail Terminals
*9165.00	40 Pair c/w Din Rail Terminals
*9167.00	50 Pair c/w Din Rail Terminals



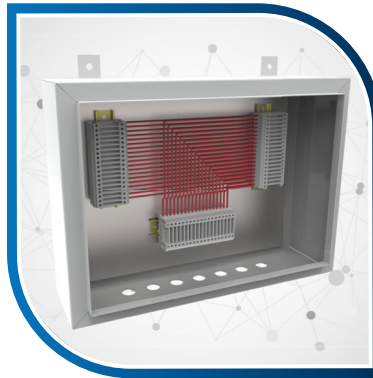
BELL DISTRIBUTION BOX - BUSBAR

Busbar type Used to terminate shaft bell cables on each level in a mine shaft.

- Enclosure manufactured in stainless steel.
- Insulated colour coded Bus bars.
- Brass slide link terminals fitted to disconnect line for testing.
- Supplied in 7/9/12 and 19 way or to customer's specification.

NB Door removed for display purposes

Product Code:	Description:
*9152.00	7 Way, c/w Busbars & Slide Links
*9156.00	12 Way, c/w Busbars & Slide Links
*9160.00	19 Way, c/w Busbars & Slide Links



BELL DISTRIBUTION BOX - WIRED

Wired type Used to terminate shaft bell cables on each level in a mine shaft.

- Enclosure manufactured in stainless steel.
- Din Rail mounted terminals fitted to disconnect line for testing.
- Insulated wires. Pre-numbered
- Supplied standard 7/9/12/19/27 and 37 way or to customer's specifications.

NB Door removed for display purposes

Product Code:	Description:
*9150.00	7 Way, in-out-local, wired to terminals
*9154.00	12 Way, in-out-local, wired to terminals
*9158.00	19 Way, in-out-local, wired to terminals

Illumination plays a critical role in mining because miners depend on proper illumination to safely perform their work and to see various mine and machinery-related hazards. Deebbar offers various forms of mine lighting and indication as required in today's mining environments.



D-LITE SINGLE LENS

This single Lens D-Lite is used for indication, mainly in a mining or harsh environment.

This energy efficient unit is available in various colours and is IP68 rated and robust in its design, being:

- Waterproof, shockproof and corrosion proof
- Maintenance free.
- Range of Switches.

Other colours available on request.

Product Code:	Description:
*9139.11	LED Red 24V / 48V
*9139.14	LED Red 110V - 220V
*9139.12	LED Green 24V / 48V
*9139.15	LED Green 110V - 220V
*9144.03	LED White 24V / 48V
*9139.77	LED White 110V
*9144.04	LED White 220V



ROBOT D-LITES

Used mainly in mines or in harsh environments for Robot Indication. The LED PCB is encapsulated into the Terluran ABS housing with an epoxy resin making the product IP68.

This D-Lite is robust, waterproof, shockproof, corrosion proof and energy efficient.

This unit can be supplied in the following format:

- Standard red & green lens - cross & tick [Cross in red and tick in green]
- Stop & Walk [Stop in Red and Walk in Green]

Two units bolted together make up a double aspect (front & back). Both the cross & tick and the stop & walk can be supplied in a vertical format with a protection hood.

Product Code:	Description:
*9139.01	Single Aspect (LED) 24V / 48V
*9139.04	Single Aspect (LED) 110V - 220V
*9138.01	Double Aspect (LED) 24V / 48V
*9139.02	Double Aspect (LED) 110V - 220V

Electrical Specification 21mA @ 110V

Current Consumption 25mA @ 220V



LED CLUSTER LIGHTS

This 16 LED cluster is used for illumination on Belltronic Lockbell signalling units in the Deebbar Pilot Light

Available in either a B22 bayonet base or E27 screw base.

Available in either red, green or amber LED.

Product Code:	Description:
*0106.02	32V Red B22
*0106.03	32V Green B22
*0105.05	110V Red B22
*0105.04	110V Green B22
*0106.06	220V Red B22
*0106.07	220V Green B22



MINI INDICATION LIGHTS

This single Lens indication light is used on Lockbell units for mine signalling.

This energy efficient unit is available in various colours and is IP68 rated and robust in its design, being:

- Waterproof, shockproof and corrosion proof
- Maintenance free.
- Available in 24-48V, 110V, 220V.

Product Code:	Description:
*0105.08	MIL Red 24-48V
*0105.09	MIL Green 24-48V
*0105.07	MIL Red 110V
*0105.06	MIL Green 110V
*0105.10	MIL Red 220V
*0105.11	MIL Green 220V



BEACON SCATTER LIGHTS - c/w STUD

Fully encapsulated in a polycarbonate transparent housing, the unit is visible at 360°.

The unit can be supplied in flashing or non-flashing. Fitted with a 16mm stud and lock nut ensures robust mounting.

The LED PCB is encapsulated into the housing with a clear epoxy resin ensuring IP68 status. Available in various colours and voltages.

Product Code:	Description:
*9139.32	220V AC Flashing Red (Big)
*9139.34	220V AC Flashing Green (Big)
*9139.72	220V AC Flashing Red (Small)
*9139.38	220V AC Flashing Green (Small)

[Other voltage on request](#)



BEACON SCATTER LIGHTS - ES TYPE

Fully encapsulated in a polycarbonate transparent housing, the unit is visible at 360°.

The unit can be supplied in flashing or non-flashing. Fitted with a E27 screw base. The LED PCB is encapsulated into the housing with a clear epoxy resin ensuring IP68 status.

Available in various colours and voltages.

Product Code:	Description:
*9139.81	Scatter Light ES Type



REFUGE BAY LIGHT

The unit consists of an Enclosure with the word REFUGE BAY engraved on an Opaque Perspex.

In the case of an emergency, the remote emergency switch which can be situated in the Refuge Bay can be activated, lighting up the Refuge Bay Light, this will also activate the siren and beacon flashing light. In the event of a power failure, the units automatically lights up with a siren and flashing lights. The unit will visually and audibly indicate the position of the Refuge Bay to any rescuers. The unit is fitted with a battery backup of up to 10 hours in the event of a power failure.

Product Code:	Description:
*9503.02	110V AC Unit
*9503.00	220V AC Unit



DANGER INDICATION BOX

The Danger Box enclosure is manufactured in stainless steel and fitted with E27 ES porcelain lamp holders wired to a terminal lock to accommodate 3 x ES lamps.

Danger/Gevaar/Ingozi is silk screened on to an opaque perspex.

Product Code:	Description:
*9134.00	Single Aspect
*9135.00	Double Aspect



LEVEL INDICATION BOX

The Level Indication Box enclosure is manufactured in stainless steel and fitted with E27 ES porcelain lamp holders wired to a terminal block to accommodate 3 x ES lamps.

Any inscription to suit customer's specification can be silk screened on to the opaque perspex

Product Code:	Description:
*9134.00	Single Aspect
*9135.00	Double Aspect



ROBOT BOX - LED

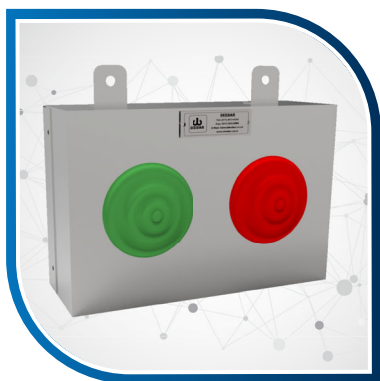
Single Aspect

This Robot Box is manufactured in stainless steel and fitted with a red & green lens on either side. Behind each lens the unit has two LED, PC Boards.

Double Aspect

This unit is similar to the above single aspect but has two additional lenses on the opposite side of the enclosure making it visible from both sides.

Product Code:	Description:
*9122.00	Double Aspect (LED) 24V / 48V
*9123.01	Double Aspect (LED) 110V
*9123.18	Double Aspect (LED) 220V
*9123.00	Single Aspect (LED) 24V / 48V
*9123.02	Single Aspect (LED) 110V
*9123.03	Single Aspect (LED) 220V



ROBOT BOX - INCANDESCENT

Single Aspect

This Robot Box is manufactured in stainless steel and fitted with a red & green lens on either side. Behind each lens the unit has E27 porcelain holders to accommodate 2 incandescent lamps or energy saving lamps.

Double Aspect

This unit is similar to the above single aspect but has two additional lenses on the opposite side of the enclosure making it visible from both sides.

Product Code:	Description:
*9128.00	Single Aspect Incandescent
*9129.00	Double Aspect Incandescent



VML LIGHTING

The VML fittings operate with an Electronic Ballast and suitable for 4 pin 13Watt energy saving compact fluorescent lamps and is available as follows:

- VML-ES for use on Existing Fittings
- VML-NI for use in new installations

Product Code:	Description:
*9703.01	VML - ES
*9703.02	VML - NI



RUBBER HAULAGE LIGHTING HOLDER

The Haulage Lighting Holder is manufactured from hard moulded, non-toxic and flame proof rubber and can be supplied with either:

- ES Lamp Holder to accommodate an energy saving/ standard lamp or
- 5 Amp or 16 Amp 3 Pin Socket to plug in an alternative fitting

These holders can be fitted to make up lengths of lighting cable with holders fitted at any specified spacing to suit customer's exact specification.

The armouring of cable is not cut which ensures earth continuity and overall mechanical strength throughout the length of the cable.

Product Code:	Description:
*9700.11	Holder c/w Edison Screw
*9700.12	Holder c/w 5 Amp Socket
*9700.13	Holder c/w 16 Amp Socket



ALUMINIUM HAULAGE LIGHTING BOX

The Haulage Lighting Box is a cast aluminium holder and is fitted with an E.S Lamp Holder to accommodate an energy saving / standard lamp.

The Haulage Lighting Box has a mechanical gland on each end for terminating to cable.

These holders can be fitted to make up lengths of lighting cable with holders fitted at any specified spacing to suit customer's exact specifications.

Product Code:	Description:
*9700.00	2 Way
*9701.00	3 Way
*9702.00	4 Way



THRU BOX - HAULAGE LIGHTING BOX

The Haulage Lighting Holder is a cast aluminium holder and is fitted with either:

- E.S Lamp Holder to accommodate an energy saving / standard lamp or
- 16 Amp 3 Pin Socket.

These holders can be fitted to make up lengths of lighting cable with holders fitted at any specified spacing to suit customer's exact specifications.

The armouring of cable is not cut which ensures earth continuity and overall mechanical strength throughout the length

Product Code:	Description:
*9713.00	Aluminium Thru Box - ES
*9713.01	Aluminium Thru Box - 16 Amp Socket



ALUMINIUM BLASTING BOX

The Blasting Box is used as a connection box when doing blasting underground. The unit is manufactured in cast aluminium with 2 mechanical glands for cable termination and an insulated lid with "quick connecting" spring loaded brass or stainless steel terminals.

Product Code:	Description:
*9711.00	c/w Glands
*9710.00	w/o Glands



CCG BLASTING BOX

This Blasting Box is also used as a connection box when blasting underground. The unit is manufactured in cast aluminium with 2 mechanical glands for cable termination with the "quick connecting" spring loaded brass or stainless steel terminals fitted through insulated bushes in the side of the unit.

Product Code:	Description:
*9711.04	Blasting Box c/w Stainless Steel Terminal

A key switch is a switch that can be activated only by the use of a key. They are usually used in situations where access needs to be restricted to the switch's functions. Deebar offer 3 ranges of standard keyswitches; Castell, Fortress and PP Keyswitches.



CASTELL KEYS

Manufactured in brass making it ideally suited to use in harsh or corrosive environments.

[Other Series on Request](#)

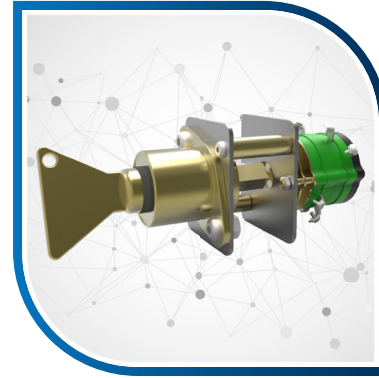


CASTELL LOCK - C/W SWITCH

Suitable for insulating power to equipment or machinery.

Manufactured in brass for use in corrosive areas, this lock can be fitted with a variety of switch configurations.
Standard with 1 x NO Contact.

[Other Series on Request](#)



CASTELL LOCK - C/W SWITCH & KEY

Suitable for insulating power to equipment or machinery.

Manufactured in brass for use in corrosive areas, this lock can be fitted with a variety of switch configurations.
Standard with 1 x NO Contact.

[Other Series on Request](#)

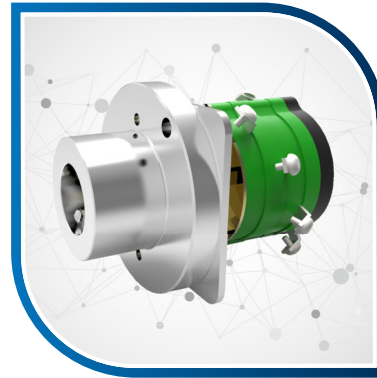
Product Code:	Description:	Product Code:	Description:	Product Code:	Description:
*0109.02	L1 Castell Key	*9519.00	L1 Castell Key c/w Switch	*9519.00	L1 Castell Key c/w Switch & Key
*0110.02	L2 Castell Key	*9519.01	L2 Castell Key c/w Switch	*9519.01	L2 Castell Key c/w Switch & Key
*0111.02	L3 Castell Key	*9519.02	L3 Castell Key c/w Switch	*9519.02	L3 Castell Key c/w Switch & Key
*0112.02	L4 Castell Key	*9519.03	L4 Castell Key c/w Switch	*9519.03	L4 Castell Key c/w Switch & Key
*0113.02	L5 Castell Key	*9519.04	L5 Castell Key c/w Switch	*9519.04	L5 Castell Key c/w Switch & Key



PP KEYS

Brass plated keys for use on PP Locks used in Shaft Signalling Units. Key directly drives the Switch Shaft.

Product Code:	Description:
*0193.01	PPA Key
*0193.03	PPB Key
*0193.05	PPC Key
*0193.07	PPD Key
*0193.09	PPE Key
*0193.11	PPF Key
*0193.13	PPG Key
*0193.15	PPH Key



PP LOCKS - C/W SWITCH

The PP Locks are manufactured in brass and are electro plated and is supplied as a standard with a switch with a N/O contact, however the key switch can be supplied with special switch ratings and/or contact arrangement.

Product Code:	Description:
*9518.24	PPA Lock c/w Switch
*9518.25	PPB Lock c/w Switch
*9518.26	PPC Lock c/w Switch
*9518.27	PPD Lock c/w Switch
*9518.28	PPE Lock c/w Switch
*9518.29	PPF Lock c/w Switch
*9518.30	PPG Lock c/w Switch
*9518.31	PPH Lock c/w Switch



PP LOCKS - C/W SWITCH & KEY

The PP Locks are manufactured in brass and are electro plated and is supplied as a standard with a switch with a N/O contact, however the key switch can be supplied with special switch ratings and/or contact arrangement.

Due to it's design, the key drives the switch shaft directly.



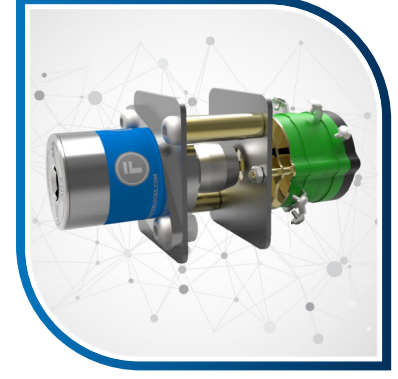
CL FORTRESS KEYS

Standard Keys

Fortress Keys are manufactured from 316 Stainless Steel and have over 200 000 different combinations. Each different key combination is allocated with an engraved code onto the lock & key, of up to 30 characters (3 lines of 10 characters). Low profile configuration keys are also available.

Low Profile Keys

Low profile configurations are also available.



CL FORTRESS LOCK - C/W SWITCH

Fortress Key Switch is suitable for Isolation, Switching Current or Isolating power to machinery. Direct Drive Operation – positively opens contacts. Special switching rating and / or contact arrangements available on request.

Product Code:	Description:
*9518.16	PPA Lock c/w Switch & Key
*9518.17	PPB Lock c/w Switch & Key
*9518.18	PPC Lock c/w Switch & Key
*9518.19	PPD Lock c/w Switch & Key
*9518.20	PPE Lock c/w Switch & Key
*9518.21	PPF Lock c/w Switch & Key
*9518.22	PPG Lock c/w Switch & Key
*9518.23	PPH Lock c/w Switch & Key

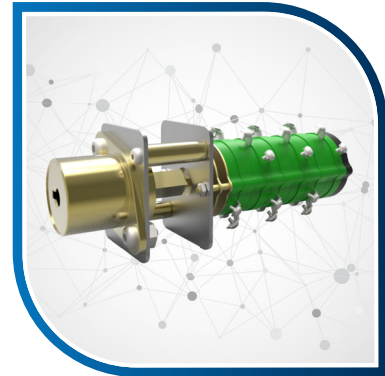
Product Code:	Description:
STANDARD KEY	
*3600.00	Standard CL Key
LOW PROFILE KEYS	
*3600.05	Low Profile CL Key

Product Code:	Description:
*3903.08	Key switch 4 Pole 2N/O & 2N/C - CR-0213



CL FORTRESS LOCK - C/W SWITCH & KEY

Fortress Key Switch is suitable for Isolation, Switching Current or Isolating power to machinery. Direct Drive Operation – positively opens contacts. Special switching rating and / or contact arrangements available on request.



GATE INTERLOCKS

The Gate Interlock Key Switch is a Castell Lock which operates both clock & anti-clockwise. Fitted with a switch with varying contacts used in Belltronic shaft signalling for Men-Material Switching.

See technical write up on Men-Material Switching.

Product Code:	Description:
*3903.01	Key switch 1 Pole Off/On - CR-0202
*3903.02	Key switch 2 Pole Off/On - CR-0211
*3903.03	Key switch 2 Pole 1N/O & 1N/C - CR-0212
*3903.04	Key switch 4 Pole 2N/O & 2N/C - CR-0213

Product Code:	Description:
*9518.13	L11 Gate Interlock c/w Switch & Key
*9518.14	L12 Gate Interlock c/w Switch & Key
*9518.15	L13 Gate Interlock c/w Switch & Key

Deebar have developed a range of Station Stopping Devices as well as shaft gate locks which electrically and mechanically interlock the Shaft Bells to the Safety Devices, this system is covered by Patents and ensures complete safety.



SLAM-IT GATE LOCK [PATENT NO. 2005/07038]

The "Slam-It" Station Gate Lock is designed specifically to prevent a double operation e.g. Once the Onsetter / Banksman has rung the conveyance away he can enter the conveyance and pull the Station Gate closed which then automatically locks the Station Gate. The Slam-It lock can be interlocked to the Winder Safety Circuit by means of the integrated magnetic switch. Additional contacts on the magnetic switch can be used to monitor the status of the gate i.e. open or closed.

The entire lock is manufactured from stainless steel.

- Avoids unauthorised entry.
- Tamperproof.
- Access from both sides.
- Low Maintenance.

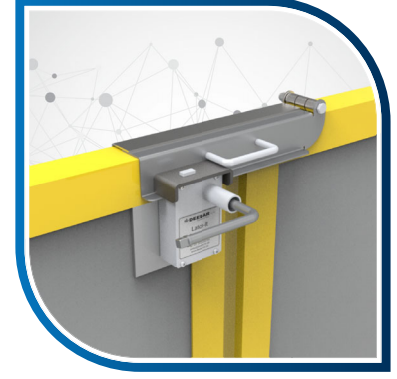


LOCK-IT GATE LOCK

The "Lock-It" is similar to the Slam-It. It has the facility to interlock the station gate with the Belltronic lockbell unit, thus increasing the safety in the shaft area.

Additional contacts can be used to monitor the status of the Gate i.e. open or closed.

Various key options available.



LATCH-IT GATE LOCK

The Latch-It Gate Lock is designed specifically for applications where there are two gates each hinged on a post, without a centre post. Operation: Align the two gates up and "drop" the Latch-It Gate Lock over the two gates which then automatically locks the gates. The Latch-It Gate Lock can be interlocked to the winder safety circuit by means of an integrated Magnetic Switch.

Additional contacts can be used to monitor the status of the Gate i.e. open or closed

Product Code:	Description:
*9148.15	Slam-It Gate Lock w/o Reed Switch
*9148.17	Slam-It Gate Lock c/w Reed Switch
*9148.02	Slam-It Gate Lock Key
*9148.20	Reed Switch for Slam-It

Product Code:	Description:
*9148.07	Lock-It c/w PP Lock & Key
*9148.25	Lock-It c/w Fortress Lock & Key

Product Code:	Description:
*9148.08	Latch-It Gate Lock



SLIDE-IT GATE LOCK

The "Slide-It" is similar to the Slam-It except that it is used for sliding gates. It has the facility to interlock the station gate with the Belltronic lockbell unit, thus increasing the safety in the shaft area.



DEELOCK UNIT [PATENT NO. 98/8180]

This Unit interlocks the Bell System with various Station Safety Devices to prevent the unintentional opening and closing of safety devices to the shaft, thus providing safety when moving underground vehicles in the shaft area. The Deelock Safety System has been designed to ensure that the responsible person (Onsetter/Banksman) follows a set procedure when operating safety devices on the specific Statio. The system also ensures that the responsible person cannot leave the Station if the safety devices are not in a safe position.

When ordering quote 9000... followed by the key number required

Product Code:	Description:
*9148.11	Slide-It Gate Lock c/w Fortress Lock & Key

Product Code:	Description:
*9000.02	Single Unit (N)
*9000.01	Double Unit (N)
*9000.__	Standard (A)



LOCK N LOAD

The Lock N Load consists of a power pack and clamps which holds a cage steady during the transfer of men and / or material. The clamps release their grip at a controlled rate to allow the rope stretch to be taken up smoothly.

Product Code:	Description:
TBA	TBA



D.A.M GARD

The new D.A.M Gard Farm Gate Lock can be fitted to mining Farm Gates and can be interlocked to the Shaft Signalling Unit and the Interlocking Panel to provide the ultimate in safety.

The lock is a heavy-duty Fortress Amgard lock that has been tested to over 1 million operations and is rated Ip67. The heavy-duty tongue unit has a misalignment tolerance of +/- 12mm and locks into the head with a Retention Force of 10 000 N

The lock is encased in a robust steel housing for added protection.

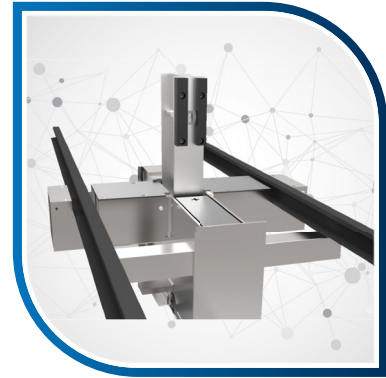
The key to operate the D.A.M Gard Farm Gate lock is the authorised Onsetter's key, which ensures that the gate is operated by the authorised person.

Product Code:

***9000.82**

Description:

D.A.M Gard



DEEBAR STATION STOP BLOCK

Station Stopping Devices can be installed on each underground level & bank providing safety when moving rolling stock in the shaft area.

The unit is extremely robust, manufactured from structural steel; the device can be coupled to a centre column or used independently.

The centre column incorporates Belltronics (shaft bells) which electro mechanically interlocks the Station Stopping Device to the Deelock Safety System for maximum shaft safety.

The Station Stopping Device can be operated manually or pneumatically.

This product is site specific and therefore each enquiry will require a detailed quotation.



INTERLOCKING PANEL

The Stop Blocks are interlocked with the lockbell system, and therefore the conveyance has to be positioned on the bank or underground stations to operate the Stop Blocks. The onsetter / banksman will only be able to operate the Stop Block system once the onsetter's / banksman's key is placed and turned on in the lockbell system.

A push button on the Deebar Interlocking Panel will activate the pneumatic solenoid switch which in turn will activate the direction control valve for up or down movement of the stop blocks. Additional contacts can be used to monitor the status of the Gate i.e. open or closed.

Various key options available.

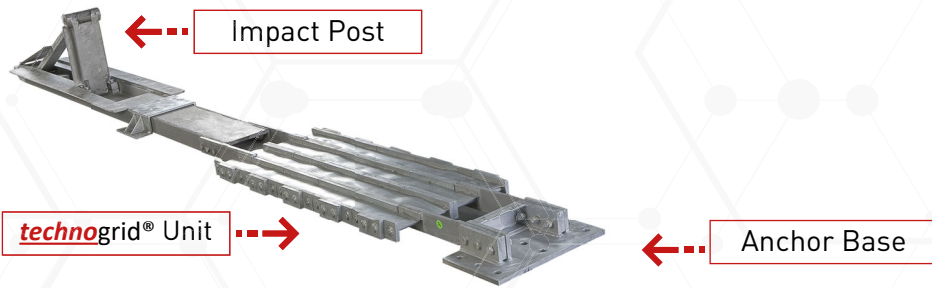


PNEUMATIC PANEL

The Deebar Stop Block shaft safety device is pneumatically operated, interlocked with the lockbell (Belltronics) and provides the ultimate in shaft safety during loading and off-loading operations as well as slinging operations. These operations are all controlled via the Deebar Interlocking Panel that is situated adjacent to the lockbells (Belltronics).

The Interlocking Panel activates the equipment in the Pneumatic Panel which consists of a Solenoid and a FRL (Filter / Regulator / Lubricator).

Deebar have officially been appointed the Distributor of the Technopost® Station Stopping Device.



120kJ **technopost**® - Station Stopper

At the heart of the station stopper device, is the **technogrid**® energy absorbing system. Each **technopost**® station stopper has one **technogrid**®.

The **technogrid**® is a strain energy absorption device that will absorb the kinetic energy a moving object (like a Loco or a hopper) by deforming a metal grid of known design and characteristics through a stroke deformation of predicted value.

The **technogrid**® unit is centrally mounted flush between the rails.

One end of the **technogrid**® is anchored to the footwall While the "impact post" is attached to the other end.

FEATURES of the **technopost**®

- ✓ Minimal excavations
- ✓ Easy to install
- ✓ The **technopost**® is installed between the rails
- ✓ Minimal drainage requirements
- ✓ Controlled deceleration (less than 1g)
- ✓ Low maintenance
- ✓ Can be retrofitted
- ✓ Cost effective
- ✓ Impact energy is safely dissipated
- ✓ Only the **technogrid**® itself and the drive shaft need replacing after a full impact
- ✓ Over 200 units have been supplied throughout Africa
- ✓ Most Mining Houses in Southern Africa have approved **technopost**®
- ✓ 3 common options available:
 - 60kJ **technopost**®
 - 120kJ **technopost**®
 - 300kJ **technopost**®



120kJ – 650mm Stroke **technogrid**®

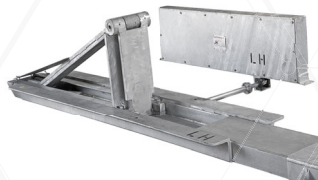
The impact post is designed to fold flat between the rails to allow traffic flow. The control of the system can be interlocked into the existing station stopping devices and cage winder interlocking systems.

The impact post is always in the up position and has to be lowered by activating a solenoid valve to allow traffic to pass over the device. If the power source is interrupted while the impact post is in the lowered position, the impact post will automatically fail to the safe 'up position'.

During an impact, the drive shaft coupling will 'shear off' and allow the **technogrid**® to 'open up'.

Impact Post Default Position

Impact Post Lowered Position



Control Box



The impact post control can be achieved with pneumatic or hydraulic actuators driving the shaft coupled to the impact post through 90 degrees rotation.

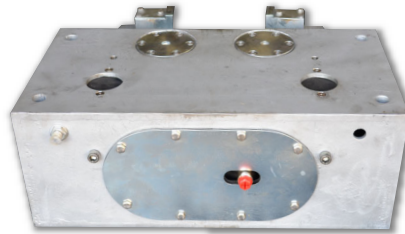
Technopost® Option	Straight track length required for installation	Maximum width of Technopost®	Stroke length on impact	Installation depth from top to rail
120kJ	6.4m	690mm	500mm	120mm
300kJ	10.5m	540mm	1 500mm	120mm
120kJ short	4.1m	690mm	500mm	220mm

LOCK 'N' LOAD

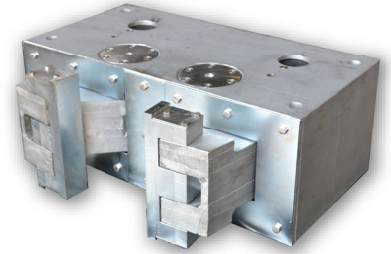
CONVEYANCE CHAIRING SYSTEMS



Left View

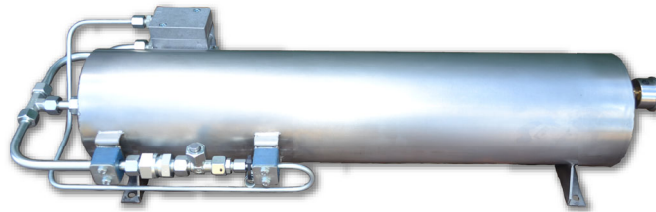


Back View



Right View

The Lock N Load consists of a power pack and clamps which hold a conveyance steady during the transfer of men and / or material. The clamps release their grip at a controlled rate to allow the rope stretch to be taken up smoothly.



Power Pack

HOW IT WORKS

When the cage is in position, the station air supply quick coupler is connected to the Lock N Load connection on the conveyance. The power pack (air/oil intensifier) boosts the hydraulic pressure up to the required pressure. The pump stalls and clamp force is maintained indefinitely. This operation usually takes about 10 seconds for the pump to boost the pressure to full clamping force.

When loading or unloading of the conveyance is completed, the station air supply is removed, resulting in a rapid loss of air pressure in the power pack. This starts the decompression cycle, which takes about ten seconds. As the oil pressure drops, the clamps release their grip at a controlled rate and the conveyance slides smoothly to its new position in the shaft. The clamp arms will then fully retract, thus allowing the conveyance to be moved.

BENEFITS



Safe Transfer of men and material



Quick and easy to use; single person operation



The system can be complemented with an EFA System



Can be used equally well on steel, rope, rail and wood guides



Time saving, as re-decking of the cage will not be necessary during loading of men and material



No Shaft obstruction

Deebar are fully equipped with a light steel fabrication department, specialising in producing quality mild steel and stainless steel enclosures, as well as any other specially designed product to meet the customers exact requirements.

Using mild steel, galvanized steel, 3CR12, stainless steel, Deebars sheet metal department manufactures Electrical Enclosures, Control Boxes, Cabinets, etc. Catering mainly for the Electrical Communication, Mining, Electrical and Associated industries.

- Enclosures are manufactured either to IP55 or IP65 standards.

All products are manufactured from quality material, ensuring quality and strength throughout.

Finishes include: Powder Coating, Plain Stainless Steel or Brush finish.

Enclosures and products made from

- Mild Steel
- 3CR12 Stainless Steel
- 304 Stainless Steel
- 316 Stainless Steel



STANDARD MILD STEEL ENCLOSURES

The Standard IP55 Mild Steel enclosure is fitted with:

- Concealed hinges.
- Removable Gasket Gland Plate (Optional)
- Chassis
- Earth Studs
- 6mm² catches (25mm Ø mounting)
- Supplied with Accessory Kit which Includes Mounting Brackets
- Painted Electric Orange

IP55 STEEL ENCLOSURE

The IP55 enclosure is powder coated electric orange and is equipped with:

- Loose bolt on wall mounting brackets
- Concealed hinges
- Drive locks 6mm
- Earth stud
- 6mm² catches (25mm Ø mounting)
- Enclosures can also be supplied with a glass door and inner door kit (painted white).

IP65 STEEL ENCLOSURE

The IP 65 enclosure is powder coated electric orange and is equipped with:

- Loose bolt on wall mounting brackets
- Concealed hinges.
- Drive locks 6mm
- Earth stud
- Enclosures can also be supplied with a glass door and inner door kit (painted white).

SPECIAL OFFER

MINI SPIT BRAAI

600mm long x 400mm wide x 640mm high

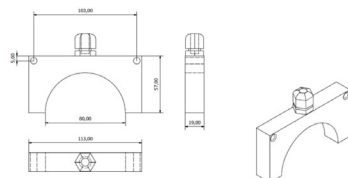
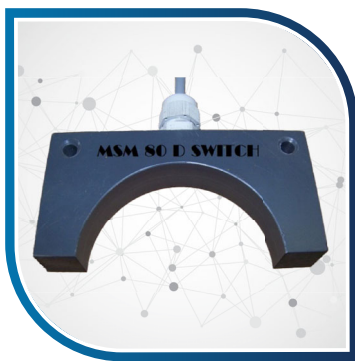
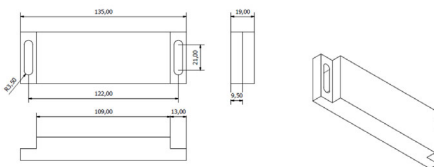
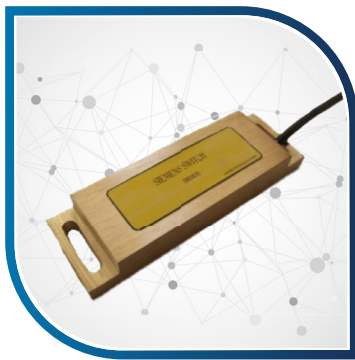
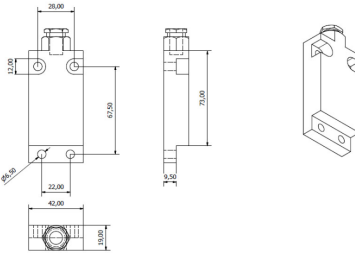
ALL UNITS INCLUDE:

- BURNER
- BATTERY MOTOR
- FORKS & SHAFT
- REGULATOR & HOSE
- HANDLES
- DRIP TRAY





MAGNETIC SWITCH DIVISION



864219 SWITCH

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION		CODE	COLOUR	
	1 X N/O - N/C (RESET)	ALUMINIUM	864219/01/S/A	BLACK	
8015.53	1 X N/O - N/C (RESET)	BRASS	864219/01/S/B	BLACK	
	1 X N/O - N/C (LATCH)	ALUMINIUM	864219/02/S/A	ORANGE	
7406.06	1 X N/O - N/C (LATCH)	BRASS	864219/02/S/B	ORANGE	
	2 X N/O (LATCH)	ALUMINIUM	864219/04/S/A	BLUE	
7406.09	2 X N/O (LATCH)	BRASS	864219/04/S/B	BLUE	
	1 X N/O (LATCH)	ALUMINIUM	864219/05/S/A	RED	
	1 X N/O (LATCH)	BRASS	864219/05/S/B	RED	
	1 X N/O (RESET)	ALUMINIUM	864219/06/S/A	YELLOW	
7406.01	1 X N/O (RESET)	BRASS	864219/06/S/B	YELLOW	

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

SWITCHING DISTANCE

25 - 30MM WITH 506019 MAGNET

SIEMENS SWITCH

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION		CODE	COLOUR	
	1 X N/O - N/C (RESET)		SIEMENS/01/S/A	BLACK	
	1 X N/O - N/C (RESET)		SIEMENS/01/S/B	BLACK	
	1 X N/O - N/C (LATCH)		SIEMENS/02/S/A	ORANGE	
8029.62	1 X N/O - N/C (LATCH)		SIEMENS/02/S/B	ORANGE	
	2 X N/O - N/C (RESET)		SIEMENS/03/S/A	GREEN	
	2 X N/O - N/C (RESET)		SIEMENS/03/S/B	GREEN	
	2 X N/O - N/C (LATCH)		SIEMENS/04/S/A	BLUE	
	2 X N/O - N/C (LATCH)		SIEMENS/04/S/B	BLUE	
	1 X N/O (LATCH)		SIEMENS/05/S/A	RED	
	1 X N/O (LATCH)		SIEMENS/05/S/B	RED	
	1 X N/O (RESET)		SIEMENS/06/S/A	YELLOW	
8029.58	1 X N/O (RESET)		SIEMENS/06/S/B	YELLOW	

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

SWITCHING DISTANCE

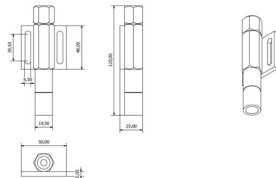
35 - 40MM WITH SIEMANS SWITCH

80D SWITCH

PRODUCT CODE	CODE
	80D/S

Switching capacity	max.	W/VA	30
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	0.3
Carrying current	max.	A	0.5

THE SWITCH ONLY CONTAINS A 2 X N/O
RESET IN PARALLEL 3 AMP 220 VOLTS

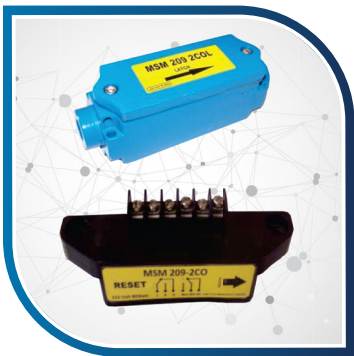


MSM 20 SWITCH

PRODUCT CODE	CONTACT CONFIGURATION		CODE	COLOUR	
8016.98	1 X N/O - N/C (RESET)	BRASS	20/01/S	BLACK	
	1 X N/O - N/C (LATCH)	BRASS	20/02/S	ORANGE	
	1 X N/O (LATCH)	BRASS	20/05/S	RED	
	1 X N/O (RESET)	BRASS	20/06/S	YELLOW	

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

SWITCHING DISTANCE
40-45MM WITH 506019 MAGNET



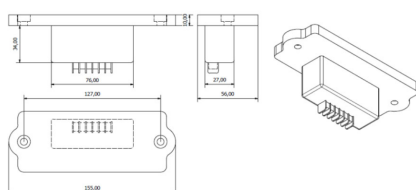
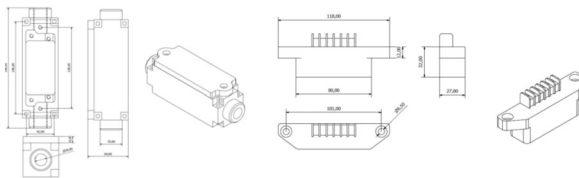
209 SWITCH & 209 INSERT

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	CODE		
8022.77	BODY COMPLETE WITH INSERT LATCH OR RESET			
	BRASS	MSM209/S/B		
	ALUMINIUM	MSM209/S/A		
	INSERTS ONLY			
	CONTACT CONFIGURATION	CODE	COLOUR	
8033.75	1 X N/O - N/C (RESET)	MSM209/01/B	BLACK	
	1 X N/O - N/C (LATCH)	MSM209/02/B	ORANGE	
8033.76	2 X N/O - N/C (RESET)	MSM209/03/B	GREEN	
8033.96	2 X N/O - N/C (LATCH)	MSM209/04/B	BLUE	
	1 X N/O (LATCH)	MSM209/05/B	RED	
	1 X N/O (RESET)	MSM209/06/B	YELLOW	

Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

SWITCHING DISTANCE
110MM WITH M9/4 MAGNET AND 120MM WITH M9/6 MAGNET



Switching capacity	max.	W/VA	60
Switching voltage	max.	V AC/DC	230
Switching current	max.	A	1
Carrying current	max.	A	3

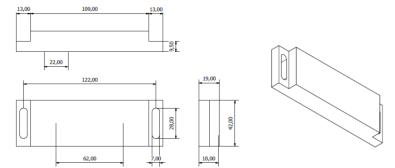
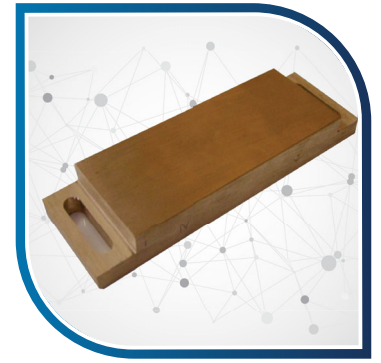
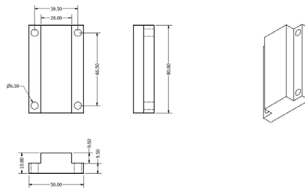
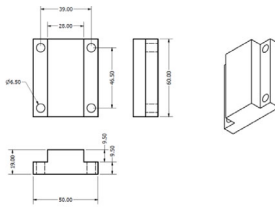
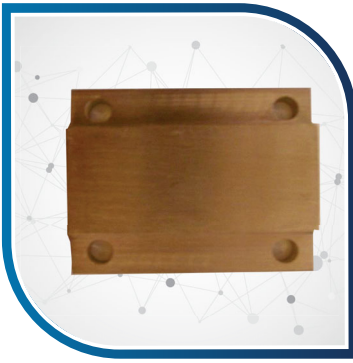
SWITCHING DISTANCE

110MM WITH M9/4 MAGNET AND 120MM WITH M9/6 MAGNET

209 INSERT IN LID

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION		CODE	COLOUR	
	1 X N/O - N/C (RESET)	ALUMINIUM	MSM209LS/01/A	BLACK	
	1 X N/O - N/C (RESET)	BRASS	MSM209LS/01/B	BLACK	
	1 X N/O - N/C (LATCH)	ALUMINIUM	MSM209LS/02/A	ORANGE	
	1 X N/O - N/C (LATCH)	BRASS	MSM209LS/02/B	ORANGE	
	2 X N/O - N/C (RESET)	ALUMINIUM	MSM209LS/03/A	GREEN	
	2 X N/O - N/C (RESET)	BRASS	MSM209LS/03/B	GREEN	
	2 X N/O - N/C (LATCH)	ALUMINIUM	MSM209LS/04/A	BLUE	
	2 X N/O - N/C (LATCH)	BRASS	MSM209LS/04/B	BLUE	
	1 X N/O (LATCH)	ALUMINIUM	MSM209LS/05/A	RED	
	1 X N/O (LATCH)	BRASS	MSM209LS/05/B	RED	
	1 X N/O (RESET)	ALUMINIUM	MSM209LS/06/A	YELLOW	
	1 X N/O (RESET)	BRASS	MSM209LS/06/B	YELLOW	



506019 MAGNET

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	CODE
8034.84	506019 MAGNET (NORTH/SOUTH) ALUMINIUM	MAG506019/S/A
7406.02	506019 MAGNET (NORTH/SOUTH) BRASS	MAG506019/S/B

508019 MAGNET

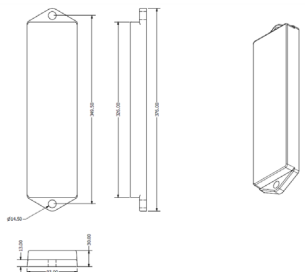
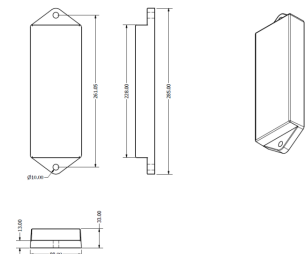
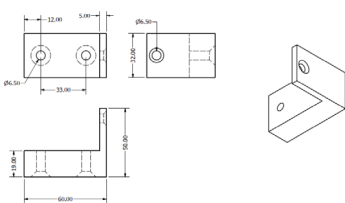
Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	ORDER CODE
8043.82	508019 MAGNET (NORTH/SOUTH) ALUMINIUM	MAG508019/S/A
	508019 MAGNET (NORTH/SOUTH) BRASS	MAG508019/S/B

SIEMENS MAGNET

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	ORDER CODE
8029.59	SIEMENS MAGNET (NORTH/SOUTH) ALUMINIUM	MAGSIEMENS/S/A
	SIEMENS MAGNET (NORTH/SOUTH) BRASS	MAGSIEMENS/S/B



"L" MAGNET

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	ORDER CODE
8043.79	L MAGNET (SOUTH) BRASS	MAGL/S

9/4 MAGNET

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	ORDER CODE
8043.88	9/4 MAGNET (NORTH/SOUTH) ALUMINIUM	MAG9/4/N/A
	9/4 MAGNET (NORTH/SOUTH) BRASS	MAG9/4/S/B

9/6 MAGNET

Available in Brass (B) and Aluminium (A)

PRODUCT CODE	CONTACT CONFIGURATION	ORDER CODE
7406.10	9/6 MAGNET (NORTH/SOUTH) ALUMINIUM	MAG9/6/N/A
	9/6 MAGNET (NORTH/SOUTH) BRASS	MAG9/6/N/B



CONTROL AND AUTOMATION DIVISION





IP65 PUSHBUTTONS Ø22.5MM

Contact Rating @ 240V AC, Black Bezel

10A Resistive (AC1), 6A (AC15)

Model	Description:
PB01C	Black Pushbutton
PB02C	Green Pushbutton
PB03C	Red Pushbutton
PB04C	2 Position RotaryKnob 120°
PB05C	3 Position RotaryKnob 60°
PB06C	Panel Accessory Kit Panel Collar with 1 NO + 1 NC Contact Block
PB07C	E-Stop Button Pull to Release 40mm
PB08C	E-Stop Button Key Release 40mm
PB09C	Red Mushroom Stop Button (non-latching) 40mm
PB10C	2 Position Key Switch 60°
PB11C	3 Position Key Switch 60°
PB13C	E-Stop Button Twist to Release 40mm "O" Marking
PB14C	Complete E-Stop Station Pull to Release 1NO + 1NC
PB15C	Complete E-Stop Station Twist to Release 1NO + 1NC
PB17C	Complete Palm/Foot E-Stop Station Twist to Release 2NC
PB19C	E-Stop Shroud 40mm Yellow
PB20C	Emergency Stop Disc Label
PB21C	Tightening Spanner Tool
PB40C	Pushbutton Double Head Green/Red

PUSHBUTTON ORDERING INFORMATION

PANEL MOUNTING PARTS



ENCLOSER MOUNTING PARTS



IP65 INDICATORS Ø22.5MM

Model	Description:
PL04C	Red Pilot Light 230VAC
PL05C	Green Pilot Light 230VAC
PL06C	Red Pilot Light 24VAC/DC
PL07C	Green Pilot Light 24VAC/DC



CONTACT BLOCKS

For Use With Pushbutton Enclosures

Contact Rating @ 240V AC10A Resistive (AC1), 6A (AC15)

Model	Description:
CT01C	Contact Block 1 NO + 1 NC
CT02C	Contact Block 2 NO
CT03C	Contact Block 2 NC



3 POLE NO CONTACTERS

Model	AC1	AC3	Description:
CR01C	25A	10A	240V Coil 1 NO Aux. Contact
CR02C	25A	10A	415V Coil 1 NO Aux. Contact
CR03C	32A	18A	240V Coil 1 NO Aux. Contact
CR04C	32A	18A	415V Coil 1 NO Aux. Contact
CR07C	50A	24A	240V Coil
CR08C	50A	24A	415V Coil
CR09C	80A	40A	240V Coil
CR10C	80A	40A	415V Coil
CR11C	110A	50A	240V Coil
CR12C	110A	50A	415V Coil

Other Voltages Available Upon Request

Auxilliary Contacts

AC01C	10A	-	1 NC Aux. Contact (2 pcs)
AC02C	10A	-	1 NO Aux. Contact (2 pcs)



4 POLE NO CONTACTERS

Model	AC1	AC3	Description:
CR06	25A	10A	240V Coil
CR32	32A	18A	240V
CR33	45A	23A	240V
CR34	80A	45A	240V
CR35	100A	60A	240V Coil (Screw Fixing Mount Only)

Other Voltages Available Upon Request

Auxilliary Contacts

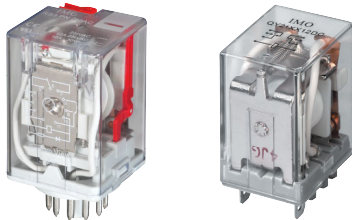
AC01C	10A	-	1 NC Aux. Contact (2 pcs)
AC02C	10A	-	1 NO Aux. Contact (2 pcs)



MODULAR CONTACTORS

For Heating & Lighting use

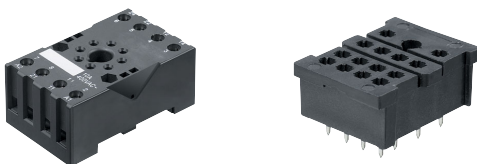
Model	Description:
CR40C	Modular Contactor 20A 2 Pole 240V AC
CR46C	Modular Contactor 25A 2 Pole 240V AC
CR41C	Modular Contactor 25A 4 Pole 240V AC
CR44C	Modular Contactor 40A 2 Pole 240V AC
CR45C	Modular Contactor 63A 2 Pole 240V AC
CR42C	Modular Contactor 40A 4 Pole 240V AC
CR43C	Modular Contactor 63A 4 Pole 240V AC



RELAYS

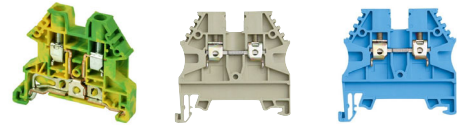
2/3/4 Pole Changeover Output

Model	Poles	Rating	Description:
RL01C	2	10A	8 Pin 240V AC Relay
RL02C	3	10A	11 Pin 240V AC Relay
RL03C	2	10A	8 Pin 110V AC Relay
RL04C	3	10A	11 Pin 110V AC Relay
RL05C	2	10A	8 Pin 24V AC Relay
RL06C	2	10A	8 Pin 24V DC Relay
RL07C	3	10A	11 Pin 24V AC Relay
RL08C	3	10A	11 Pin 24V DC Relay
RL09C	2	10A	8 Pin 12V DC Relay
RL10C	3	10A	11 Pin 240V AC Relay
RL11C	4	5A	14 Pin 24V DC Relay
RL12C	4	5A	14 Pin 110V AC Relay
RL13C	4	5A	14 Pin 24V AC Relay
RL14C	4	5A	14 Pin 12V DC Relay
RL15C	4	5A	14 Pin 12V AC Relay
RL16C	2	10A	8 Pin 12V AC Relay
RL17C	3	10A	11 Pin 12V AC Relay



SOCKETS

Model	Description:
BA01C	8 Pin Base for DPCO Relay
BA02C	11 Pin Base for 3PCO Relay
BA03C	4 Pin Base for 4PCO Relay



DIN TERMINALS

For mounting on DIN Rail

Model	Description:
TB01C	10x 2.5mm Terminals + 10x Markers
TB02C	10x 4mm Terminals + 10x Markers
TB03C	5x 10mm Terminals + 10x Markers
TB04C	3x 16mm Terminals + 3x End Plates + 10x Markers
TB05C	2x 35mm Terminals + 10x Markers
TB06C	DIN Terminal Accessory Kit - 2x End Plates (2.5-10mm), 2x End Brackets, 2x Partition, 2x 4mm Earth Terminals, 1x 4mm Neutral Terminals & 10x Markers
TB07C	3x Fuse Holders + 3x End Plates
TB08C	5x 4mm Blue Neutral Terminals
TB09C	5x 4mm Green/Yellow Earth Terminals
TB10C	3x 16mm Green/Yellow Earth Terminals
TB11	2.5mm Terminals (Box of 100)
TB12	4mm Terminals (Box of 100)
TB13	10mm Terminals (Box of 100)
TB14	16mm Terminals (Box of 100)
TB15C	2.5mm Terminals (Box of 100)
TB17	4mm Terminals (Box of 100)
TB19	End Brackets (Box of 100)
DR01C	1m Length of 35x7.5mm Slotted DIN Rail



ENCLOSED STARTERS

Direct On-line & Star/Delta

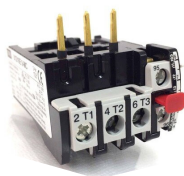
Model	Description:
Plastic Enclosure IP65, 20mm Entry, Pre-wired	
SR01D	4kW DOL Starter 240V AC Coil
SR02D	4kW DOL Starter 415V AC Coil
SR03D	7.5kW DOL Starter 240V AC Coil
SR04D	7.5kW DOL Starter 415V AC Coil
Metal Enclosure IP55, Pre-wired	
SR12C	7.5kW 240V AC DOL Starter with Isolator
SR13C	7.5kW 415V AC DOL Starter with Isolator
SD20C	7.5kW 240V AC Star Delta Starter with Isolator
SD21C	7.5kW 415V AC Star Delta Starter with Isolator
SD22C	15kW 240V AC Star Delta Starter with Isolator
SD23C	15kW 415V AC Star Delta Starter with Isolator

See next page for matching overloads



IP65 PUSHBUTTON ENCLOSERS

Model	Description:
EN01C	Single Button Enclosure
EN02C	Single Button Enclosure with Yellow Cover
EN03C	Double Button Enclosure
EN04C	Triple Button Enclosure



OVERLOADS

To Suit Contactors Or Starters

Model	Description:	DOL Rating	Star/Delta Rating
OL01D	Overload Manual Reset	0.6A-0.9A	-
OL02D	Overload Manual Reset	0.8A-1.2A	-
OL03D	Overload Manual Reset	1.2A-1.8A	-
OL04D	Overload Manual Reset	1.8A-2.7A	-
OL05D	Overload Manual Reset	2.7A-4.0A	-
OL06D	Overload Manual Reset	4.0A-6.0A	7.0A-10.5A
OL07D	Overload Manual Reset	0.6A-0.9A	10.5A-15.5A
OL08D	Overload Manual Reset	4.0A-6.0A	14.0A-19.0A
OL09D	Overload Manual Reset	0.6A-0.9A	18.0A-24.0A
OL10D	Overload Manual Reset	4.0A-6.0A	23.0A-31.0A



CHANGEOVER SWITCHES

3 & 4 Pole, IP65

Model	Description:
C0320	20A 3 Pole Changeover Switch
C0420	20A 4 Pole Changeover Switch
C0325	20A 4 Pole Changeover Switch
C0425	25A 4 Pole Changeover Switch
C0332	32A 3 Pole Changeover Switch
C0432	32A 4 Pole Changeover Switch
C0340	40A 3 Pole Changeover Switch
C0440	40A 4 Pole Changeover Switch
C0363	63A 3 Pole Changeover Switch
C0463	63A 4 Pole Changeover Switch



IP65 ENCLOSED SWITCHES

20Amp

Model	Description:
ES06	2 Pole On/off 90°
ES08	4 Pole On/off 90°
ES21	2 Pole Changeover with Centre 90°
ES23	4 Pole Changeover with Centre 90°
ES40	3 Pole Motor Reversing

Other voltages available! IP65 Enclosed Switches



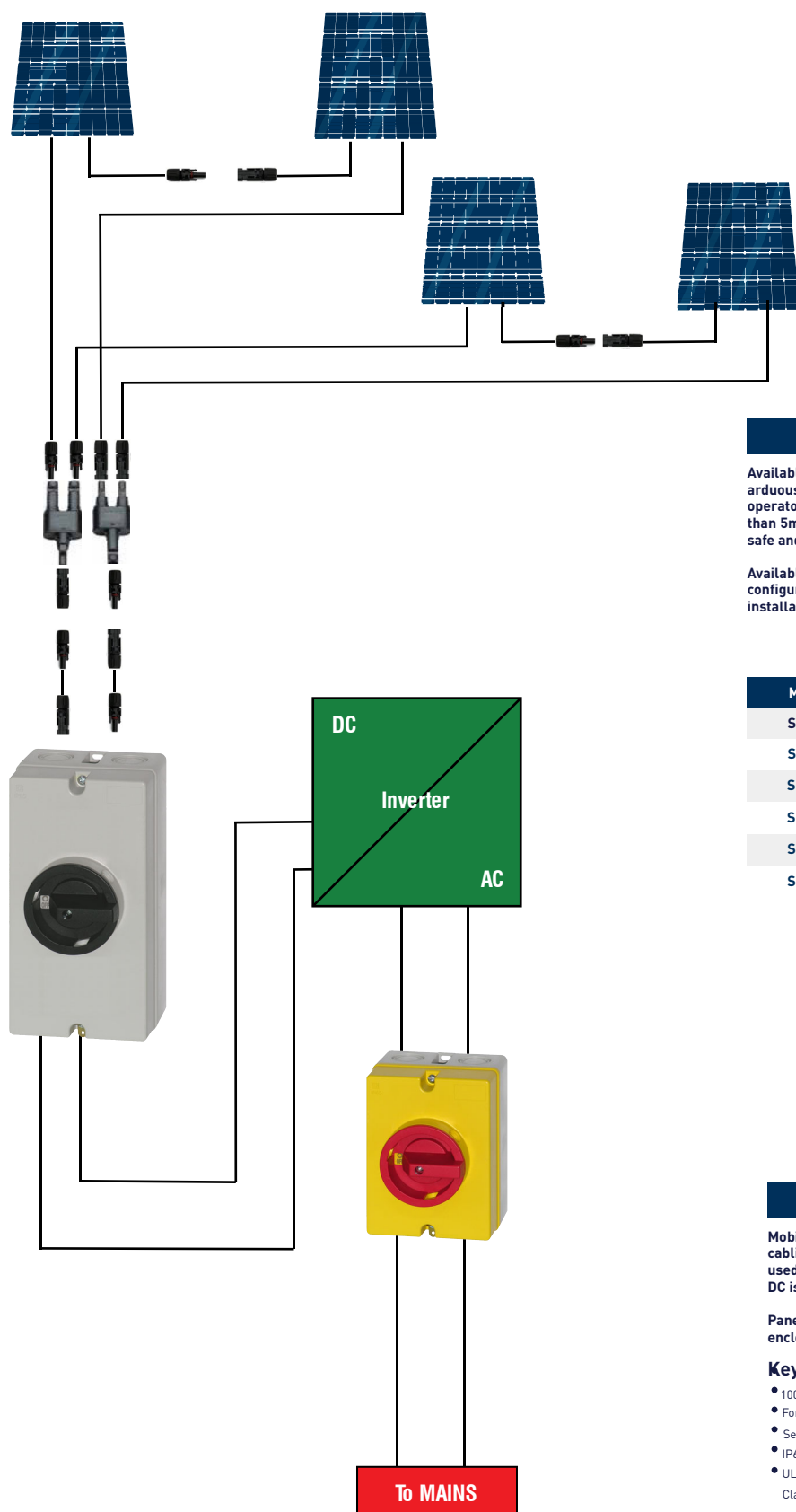
IP65 ENCLOSED ISOLATORS

Model	Description:
IS01C	20A 3 Pole Isolator
IS02C	20A 4 Pole Isolator
IS02CL	20A 4 Pole Isolator (Large) NEW
IS03C	25A 3 Pole Isolator
IS04C	25A 4 Pole Isolator
IS11C	32A 3 Pole Isolator
IS12C	32A 4 Pole Isolator
IS12CL	32A 4 Pole Isolator (Large) NEW
IS05C	40A 3 Pole Isolator
IS06C	40A 4 Pole Isolator
IS06CL	40A 4 Pole Isolator (Large) NEW
IS07C	63A 4 Pole Isolator
IS08C	63A 4 Pole Isolator
IS09C	80A 3 Pole Isolator
IS10C	80A 4 Pole Isolator
IS13C	100A 3 Pole Isolator
IS14C	100A 4 Pole Isolator
IS15C	125A 3 Pole Isolator
IS16C	125A 4 Pole Isolator
IS620	20A 6 Pole Isolator
IS820	20A 8 Pole Isolator
IS625	25A 6 Pole Isolator
IS825	25A 8 Pole Isolator
IS632	32A 6 Pole Isolator
IS832	32A 8 Pole Isolator
IS640	40A 6 Pole Isolator
IS840	40A 8 Pole Isolator
IS663	63A 6 Pole Isolator
IS863	63A 8 Pole Isolator
IS680	80A 6 Pole Isolator
IS880	80A 8 Pole Isolator
ISA11	Aux. Contact Side Mount (1NO + 1NC)



IP65 FOOTSWITCH

Model	Description:
FT01C	Shrouded 1NO + 1NC



TRUE DC ISOLATORS

Available from IMO is our TRUE DC Isolator that has been specifically developed for arduous DC disconnect applications, the IMO SI range of solar isolators features an operator independent trigger ratchet mechanism resulting in switching times of less than 5ms. High reliability knife edge contacts and long arc cooling chambers ensure safe and effective isolation of DC voltages within solar installations.

Available in 2 to 8 pole versions in a wide variety of mounting and handle configurations, the IMO SI solar isolator range is suitable for most OEM or site installation applications.

Model	Description:	QTY
SI02C	16 Amp 800V DC 2 Pole 1 String	1
SI04C	25 Amp 600V DC 2 Pole 1 String	1
SI05C	32 Amp 600V DC 2 Pole 1 String	1
SI06C	16 Amp 800V DC 4 Pole 2 String	1
SI08C	25 Amp 600V DC 4 Pole 2 String	1
SI09C	32 Amp 600V DC 4 Pole 2 String	1



SOLAR CONNECTORS

Mobile connectors are used to connect PV panel in series. They also link lengths of cabling and allow connection to Branch and Panel connectors. Branch connectors are used to link multiple strings together allowing, for example, a 2 pole (single string) DC isolator to switch both strings at the same time.

Panel connectors mount on solar string boxes, enclosed DC isolators and any other enclosed DC switching device allowing easy connection to the rest of the PV system.

Key features:

- 1000V DC 30A Rated
 - For 4-6mm² Cables
 - Secure Easy Clip and Release Systems
 - IP67 Protection
 - UL94-5VA Fire Protection
- Class 2 protection

Model	Description:	QTY
SC01C	Male Mobile Connector	5
SC02C	Female Mobile Connector	5
SC03C	Male Panel Connector	5
SC04C	Female Panel Connector	5
SC05C	MFF/FMM Branch Connector	1 Pair
SC06C	Male Connector Metal Insert	10
SC07C	Female Connector Metal Insert	10



1 Pole

4.5kAMCB C Curve 1 Pole + N

Part Number	Description:
B4C1N02A	4.5kA MCB 1 Pole + N 2 Amp
B4C1N04A	4.5kA MCB 1 Pole + N 4 Amp
B4C1N06A	4.5kA MCB 1 Pole + N 6 Amp
B4C1N10A	4.5kA MCB 1 Pole + N 10 Amp
B4C1N16A	4.5kA MCB 1 Pole + N 16 Amp
B4C1N20A	4.5kA MCB 1 Pole + N 20 Amp
B4C1N25A	4.5kA MCB 1 Pole + N 25 Amp
B4C1N32A	4.5kA MCB 1 Pole + N 32 Amp

2 Pole

6kAMCB C Curve 1 Pole + N

Part Number	Description:
BR6C2001A	6kA MCB 2 Pole + N 1 Amp
BR6C2002A	6kA MCB 2 Pole + N 2 Amp
BR6C2004A	6kA MCB 2 Pole + N 4 Amp
BR6C2006A	6kA MCB 2 Pole + N 6 Amp
BR6C2010A	6kA MCB 2 Pole + N 10 Amp
BR6C2016A	6kA MCB 2 Pole + N 16 Amp
BR6C2020A	6kA MCB 2 Pole + N 20 Amp
BR6C2025A	6kA MCB 2 Pole + N 25 Amp
BR6C2032A	6kA MCB 2 Pole + N 32 Amp
BR6C2040A	6kA MCB 2 Pole + N 40 Amp
BR6C2050A	6kA MCB 2 Pole + N 50 Amp
BR6C2063A	6kA MCB 2 Pole + N 63 Amp

3 Pole

6kAMCB C Curve 3 Pole + N

Part Number	Description:
BR6C3001A	6kA MCB 3 Pole + N 1 Amp
BR6C3002A	6kA MCB 3 Pole + N 2 Amp
BR6C3004A	6kA MCB 3 Pole + N 4 Amp
BR6C3006A	6kA MCB 3 Pole + N 6 Amp
BR6C3010A	6kA MCB 3 Pole + N 10 Amp
BR6C3016A	6kA MCB 3 Pole + N 16 Amp
BR6C3020A	6kA MCB 3 Pole + N 20 Amp
BR6C3025A	6kA MCB 3 Pole + N 25 Amp
BR6C3032A	6kA MCB 3 Pole + N 32 Amp
BR6C3040A	6kA MCB 3 Pole + N 40 Amp
BR6C3050A	6kA MCB 3 Pole + N 50 Amp
BR6C3063A	6kA MCB 3 Pole + N 63 Amp

6kA MCB B Curve 1 Pole

Part Number	Description:
BR6B1001A	Green 110VAC
BR6B1002A	Red 110VAC
BR6B1004A	White 110VAC
BR6B1006A	Yellow 110VAC
BR6B1010A	Green 230VAC
BR6B1016A	Red 230VAC
BR6B1020A	White 230VAC
BR6B1025A	Yellow 230VAC
BR6B1032A	Blue 24V AC/DC
BR6B1040A	Green 24V AC/DC
BR6B1050A	Red 24V AC/DC
BR6B1063A	White 24V AC/DC

10kA MCB C Curve 2 Pole

Part Number	Description:
B10C2002A	10kA MCB 2 Pole 2 Amp
B10C2004A	10kA MCB 2 Pole 4 Amp
B10C2006A	10kA MCB 2 Pole 6 Amp
B10C2010A	10kA MCB 2 Pole 10 Amp
B10C2016A	10kA MCB 2 Pole 16 Amp
B10C2020A	10kA MCB 2 Pole 20 Amp
B10C2025A	10kA MCB 2 Pole 25 Amp
B10C2032A	10kA MCB 2 Pole 32 Amp
B10C2040A	10kA MCB 2 Pole 40 Amp
B10C2050A	10kA MCB 2 Pole 50 Amp
B10C2063A	10kA MCB 2 Pole 63 Amp

10kA MCB B Curve 3 Pole

Part Number	Description:
B10C3002A	10kA MCB 3 Pole 2 Amp
B10C3004A	10kA MCB 3 Pole 4 Amp
B10C3006A	10kA MCB 3 Pole 6 Amp
B10C3010A	10kA MCB 3 Pole 10 Amp
B10C3016A	10kA MCB 3 Pole 16 Amp
B10C3020A	10kA MCB 3 Pole 20 Amp
B10C3025A	10kA MCB 3 Pole 25 Amp
B10C3032A	10kA MCB 3 Pole 32 Amp
B10C3040A	10kA MCB 3 Pole 40 Amp
B10C3050A	10kA MCB 3 Pole 50 Amp
B10C3063A	10kA MCB 3 Pole 63 Amp

6kA MCB C Curve 1 Pole

Part Number	Description:
BR6C1001A	6kA MCB 1 Pole 1 Amp
BR6C1002A	6kA MCB 1 Pole 2 Amp
BR6C1004A	6kA MCB 1 Pole 4 Amp
BR6C1006A	6kA MCB 1 Pole 6 Amp
BR6C1010A	6kA MCB 1 Pole 10 Amp
BR6C1016A	6kA MCB 1 Pole 16 Amp
BR6C1020A	6kA MCB 1 Pole 20 Amp
BR6C1025A	6kA MCB 1 Pole 25 Amp
BR6C1032A	6kA MCB 1 Pole 32 Amp
BR6C1040A	6kA MCB 1 Pole 40 Amp
BR6C1050A	6kA MCB 1 Pole 50 Amp
BR6C1063A	6kA MCB 1 Pole 63 Amp

Residual Circuit Breakers & Accessories also Available



6kA MCB C Curve 1 Pole

Part Number	Description:
BR10C1001A	10kA MCB 1 Pole 1 Amp
BR6C1002A	10kA MCB 1 Pole 2 Amp
BR6C1004A	10kA MCB 1 Pole 4 Amp
BR6C1006A	10kA MCB 1 Pole 6 Amp
BR6C1010A	10kA MCB 1 Pole 10 Amp
BR6C1016A	10kA MCB 1 Pole 16 Amp
BR6C1020A	10kA MCB 1 Pole 20 Amp
BR6C1025A	10kA MCB 1 Pole 25 Amp
BR6C1032A	10kA MCB 1 Pole 32 Amp
BR6C1040A	10kA MCB 1 Pole 40 Amp
BR6C1050A	10kA MCB 1 Pole 50 Amp
BR6C1063A	10kA MCB 1 Pole 63 Amp

10kA RCCB AC 30mA 3 Pole + N

Part Number	Description:
B10R4025-30	10kA RCCB AC 3 Pole + N 25 Amp
B10R4032-30	10kA RCCB AC 3 Pole + N 32 Amp
B10R4040-30	10kA RCCB AC 3 Pole + N 40 Amp
B10R4063-30	10kA RCCB AC 3 Pole + N 63 Amp

10kA RCCB AC 30mA 1 Pole + N

Part Number	Description:
B10R2025-30	10kA RCCB AC 1 Pole + N 25 Amp
B10R2032-30	10kA RCCB AC 1 Pole + N 32 Amp
B10R2040-30	10kA RCCB AC 1 Pole + N 40 Amp
B10R2063-30	10kA RCCB AC 1 Pole + N 63 Amp



Off-On Cam Switches 20A

Part Number	Description:
CS20A-A1	1 Pole 2 Position with Legend Plate
CS20A-A2	2 Pole 2 Position with Legend Plate
CS20A-A4	4 Pole 2 Position with Legend Plate
CS20A-A8	8 Pole 2 Position with Legend Plate



Changeover Switch with Off 20A

Part Number	Description:
CS20A-U1	1 Pole 3 Position with Legend Plate
CS20A-U2	2 Pole 3 Position with Legend Plate
CS20A-U3	3 Pole 3 Position with Legend Plate
CS20A-U4	4 Pole 3 Position with Legend Plate
CS20A-U6	6 Pole 3 Position with Legend Plate



Step Cam Switch 20A

Part Number	Description:
CS20A-ST31	1 Pole 3 Position with Legend Plate
CS20A-ST33	3 Pole 3 Position with Legend Plate
CS20A-ST42	2 Pole 4 Position with Legend Plate
CS20A-ST45	5 Pole 4 Position with Legend Plate
CS20A-ST51	1 Pole 5 Position with Legend Plate
CS20A-ST52	2 Pole 5 Position with Legend Plate
CS20A-ST61	1 Pole 6 Position with Legend Plate



Changeover Switch without Off 20A

Part Number	Description:
CS20A-W2	2 Pole 2 Position with Legend Plate
CS20A-W3	3 Pole 2 Position with Legend Plate
CS20A-W4	4 Pole 2 Position with Legend Plate
CS20A-W8	8 Pole 2 Position with Legend Plate

Telux

Boasting an effectively limitless number of configurations, custom built to the clients specification. The Telux Low voltage switchgear is built and tested according to International specifications and suits all recognised approvals. The Products are supplied worldwide and the local production of switches is assembled according to ISO 9001.2015 standards.



Accessories

Part Number	Description:
RBK2	Cam Switch Handle Round Bezel Key
RB2	Cam Switch Handle Toggle Round Bezel
SPK2	Cam Switch Handle Escutcheon Plate Key
SP2	Cam Switch Handle Toggle Escutcheon Plate



FORTRESS INTERLOCKS DIVISION

Introduction to Fortress:

Fortress designs and manufactures customized safety equipment, protecting lives in hazardous workplaces. Our reputation is as a global provider of robust safety specifications for manufacturing environments.

Why Interlocks? Interlocking is a method of controlling two or more interdependent operations which must take place in a predetermined sequence, if necessary remotely controlled or time delayed. The need for this sequence may be safety to personnel and equipment, or it may be to control processes and productivity.

Over the last 40 years, Fortress has become well known in the industry for innovative design, robust engineering and reliability. Headquarters are in Wolverhampton (UK), with supporting offices and manufacturing facilities in the USA, Netherlands, Australia and China, further supported by a global network of trusted distributors and channel partners.

Fortress' current product portfolio includes:

m **mGard** - The only range of mechanical interlocks independently certified to PLe

am **amGardpro** - Heavy duty safety gate switches with connectivity and trapped key integration certified to PLe

am **amGardS40** - Stainless steel IP69K safety gate switches independently certified to PLe

t **tGard** - Medium duty interlocks with configurable built-in control functionality independently certified to PLd

nc **ncGard** - A range of safety switches with non-contact technology



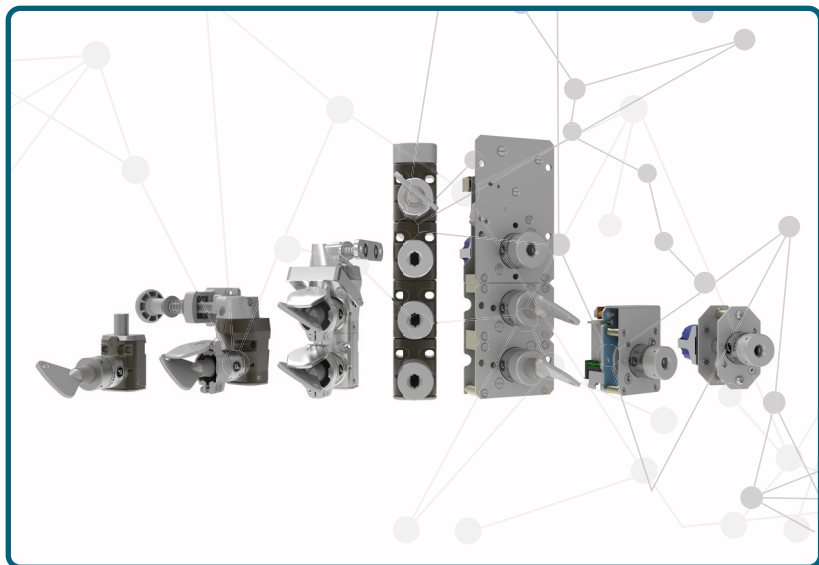
FORTRESS

"Safeguarding Your People & Enhancing Productivity With Customised Solutions"



mGard

mGard is the premier range of modular robust trapped key interlocks for heavy duty applications. Trapped key interlocking is a tried and tested method of mechanically safeguarding dangerous machines and hazardous processes.



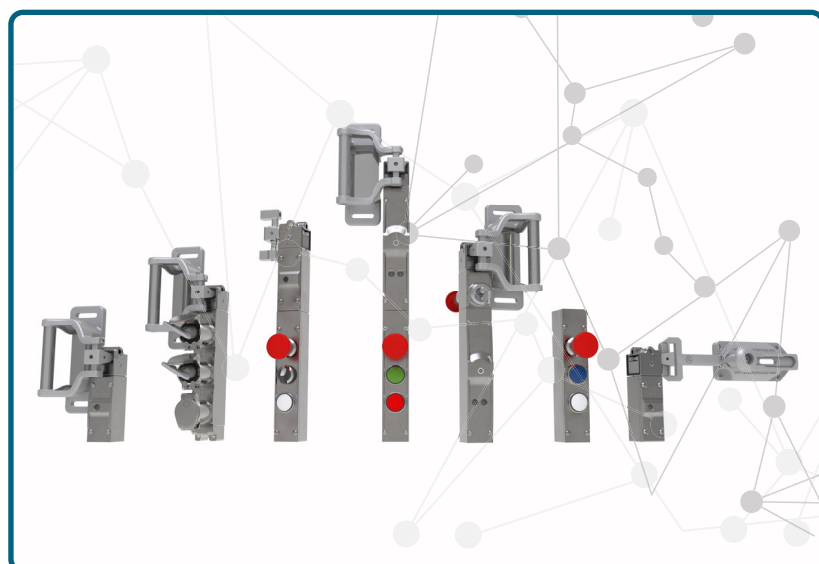
amGard *pro*

amGardpro is the ultimate range of modular safety gate switch interlocks for heavy duty applications. Its unique modular construction allows easy configuration and provides total electro-mechanical solutions for practically any safeguarding application up to SIL3 (EN/IEC 62061), Category 4 and Ple (EN/ISO 13849-1).



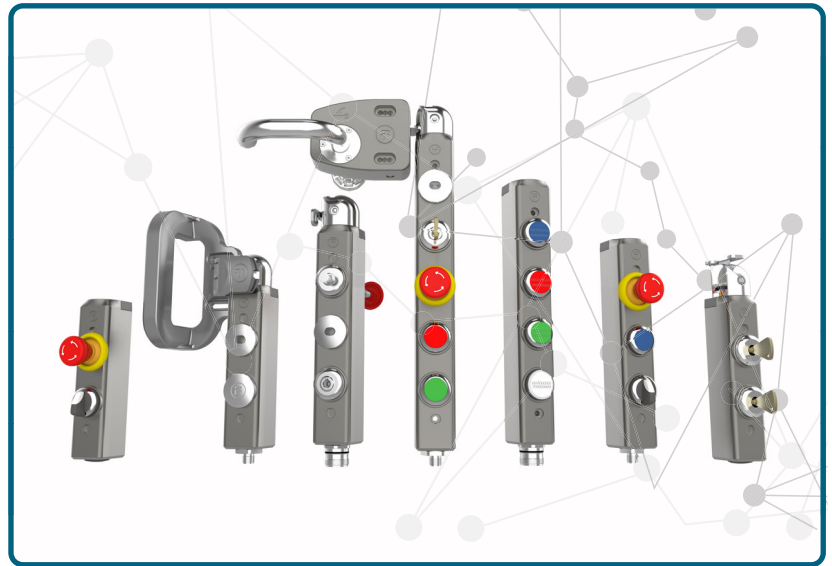
amGard *S40*

amGardS40 is the latest range of safety interlock switches from Fortress Interlocks. Manufactured in 316 stainless steel, the range is modular in design, allowing a wide range of safety interlock switches to be configured to suit many industrial applications. The range is supplied in enclosures sealed to IP69K making it suitable to be pressure washed at high temperatures.



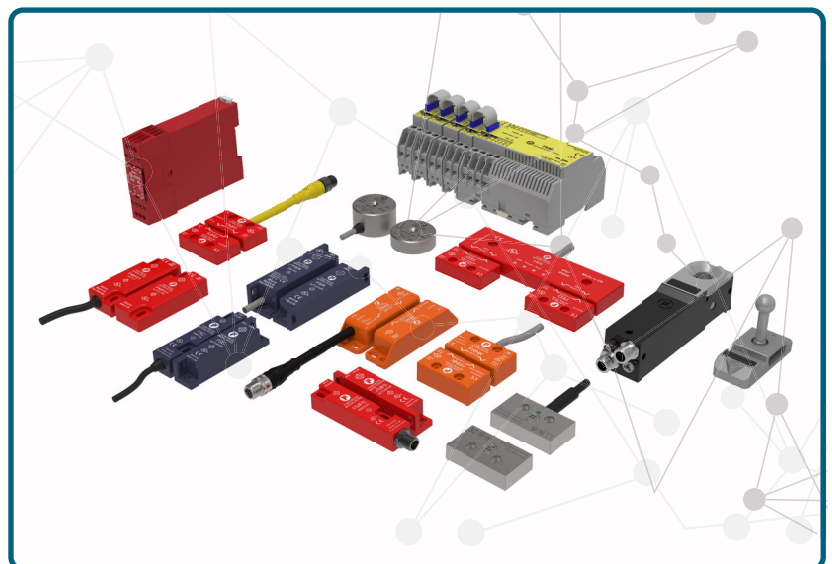


tGard is the new innovative approach to controlling access to hazardous machinery and equipment. It is a compact metal bodied system that enables the configuration of various safety products including electrical safety gate switches, mechanical trapped key interlocks, and electrical operator controls, either as separate devices or integrated into one device.



ncGard Non-contact safety switches are ideal for use in applications where precise guidance of guards is difficult. Due to the design they are extremely long-lasting devices that require minimal maintenance. In addition they

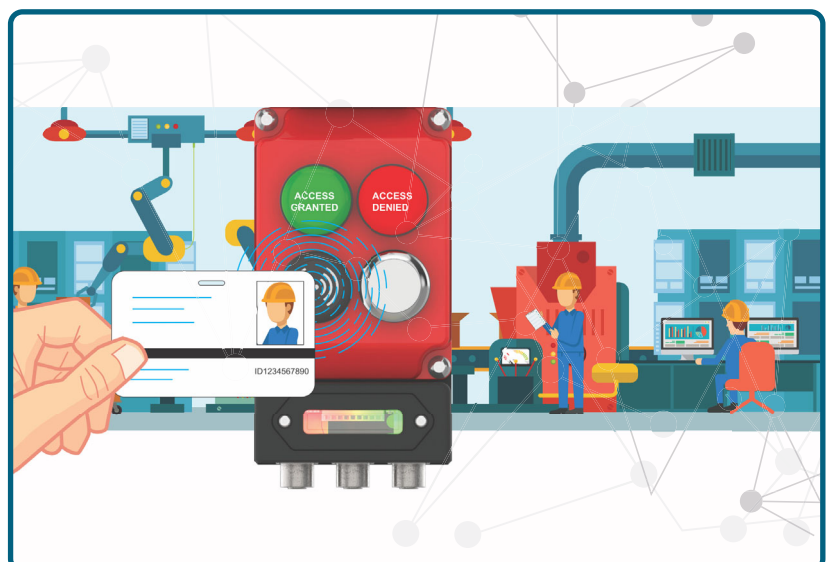
are resistant to shock and vibrations and offer a high level of prevention against tampering.



Prevents unauthorised access and unauthorised line shut down.

Simple installation and integration to a network, using your existing ID cards.

Easy management of access permissions





MGARD RANGE

Why Interlocks?

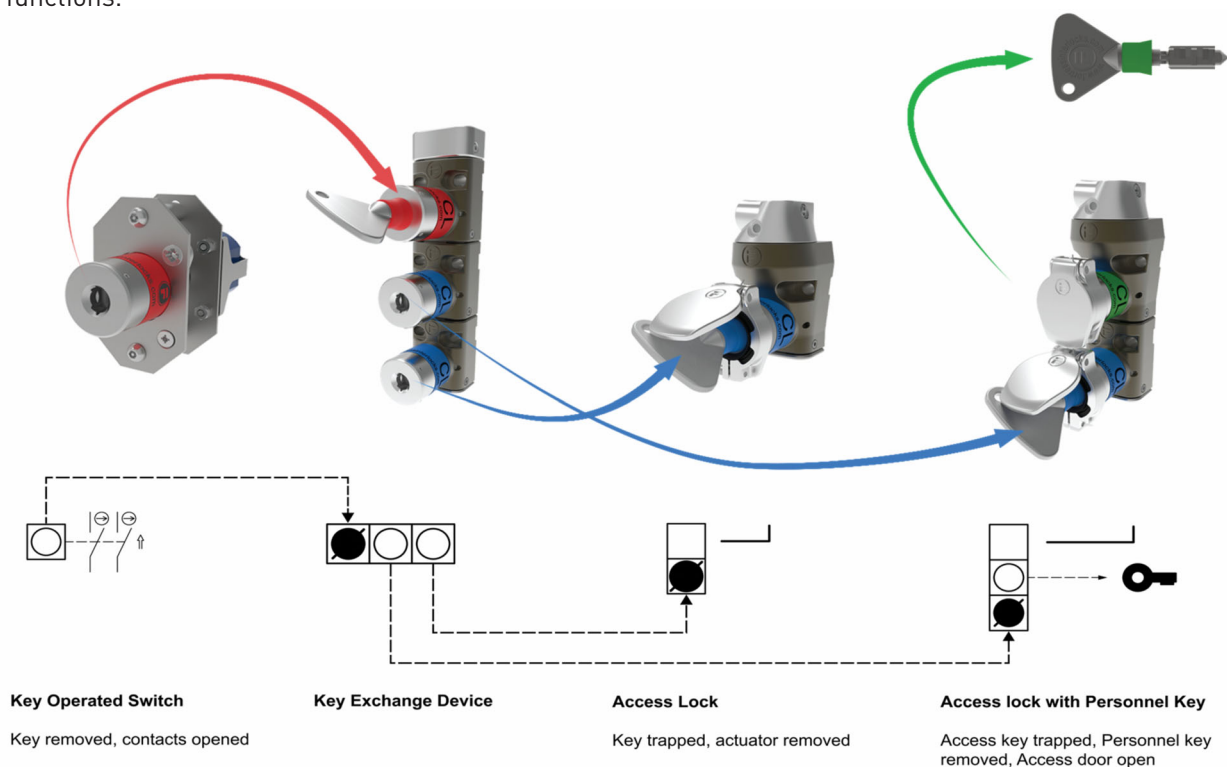
Interlocking is a method of controlling two or more interdependent operations which must take place in a predetermined sequence, if necessary remotely controlled or time delayed. The need for this sequence may be safety to personnel and equipment, or it may be to control processes and productivity.

For Reference-

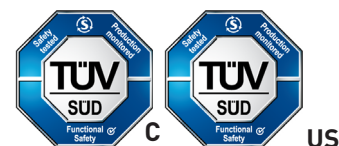
- ISO 14119 is the interlocking standard that forms part of the machinery directive.
- ISO/TS 19837:2018 is the technical specification relevant to trapped key interlocking.

Why Mechanical?

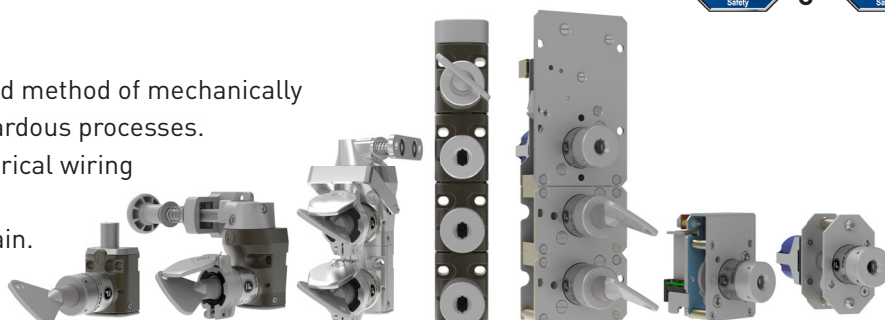
- One power isolator can be used for multiple doors through the use of a key exchange unit.
- This reduces any fault masking risks and wiring installation required.
- In addition mechanical interlocking is the only method of safeguarding solutions for multiple energy sources.
- Personnel keys can be used to prevent unexpected start up of machinery as per ISO 14118, removing the necessity for escape functions.



mGard is the only range of trapped key interlocks 3rd party approved as being capable of meeting PLe and is perfect for heavy duty applications. Fortress' mGard is suitable for use up to SIL3 (EN/IEC 62061), Category 4 and PLe (EN/ISO 13849-1).



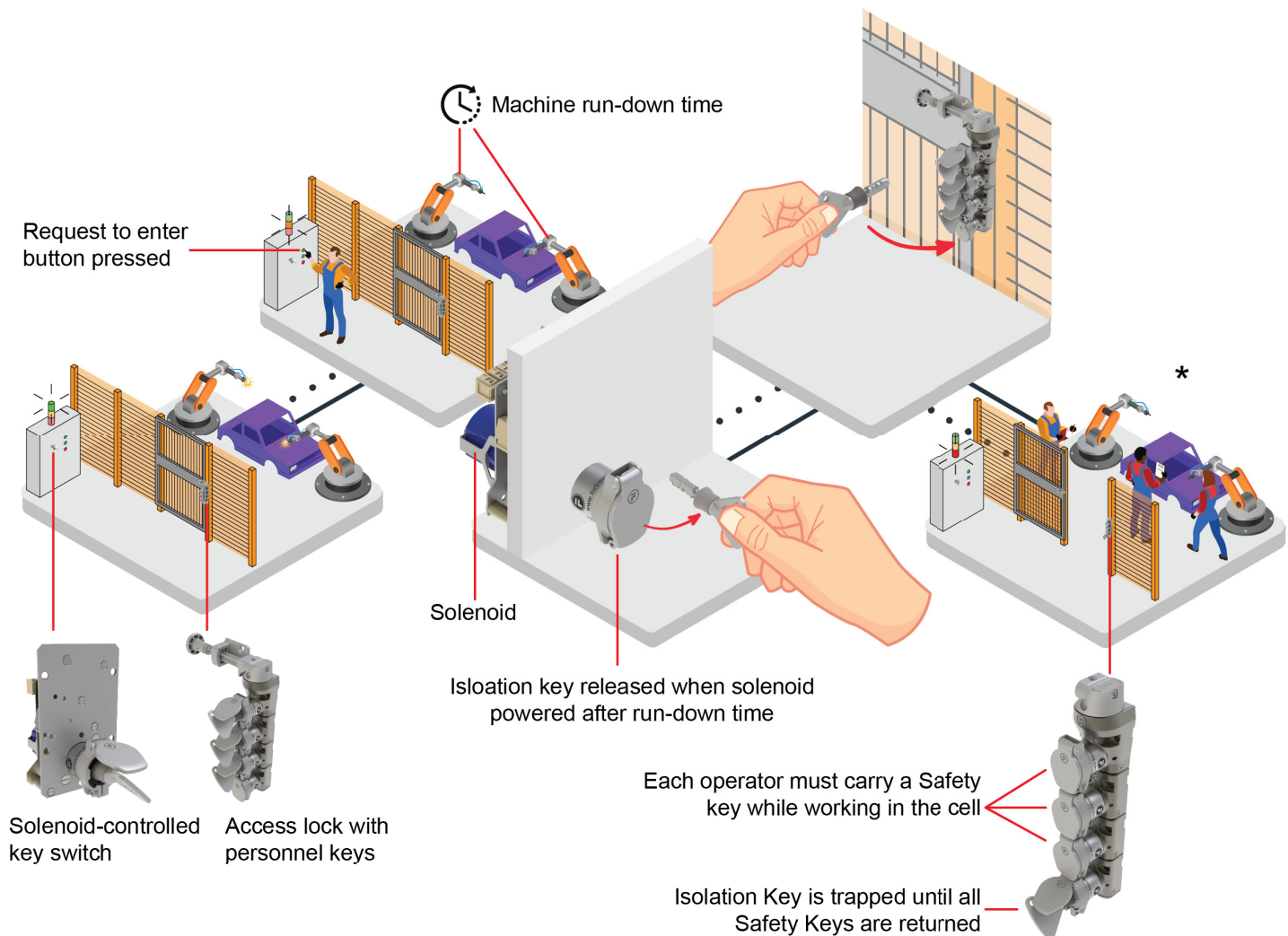
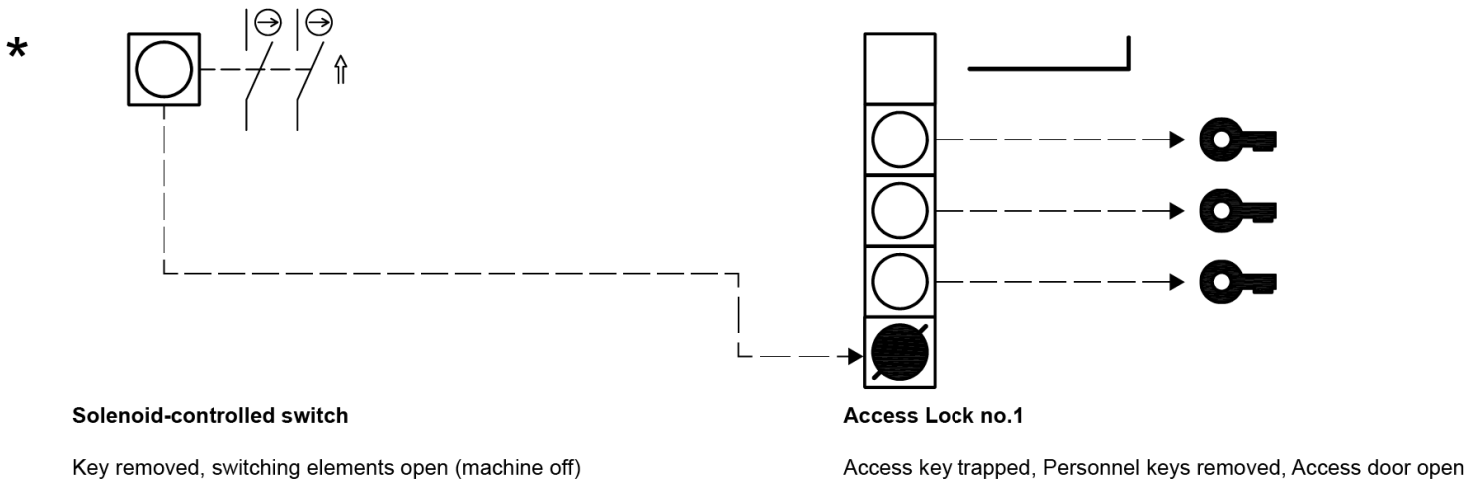
Trapped key interlocking is a tried and tested method of mechanically safeguarding dangerous machines and hazardous processes. Mechanical keys eliminate most of the electrical wiring associated with other types of interlocks making it cost effective to install and maintain.



Robot Welding Cell

Application Requirement:

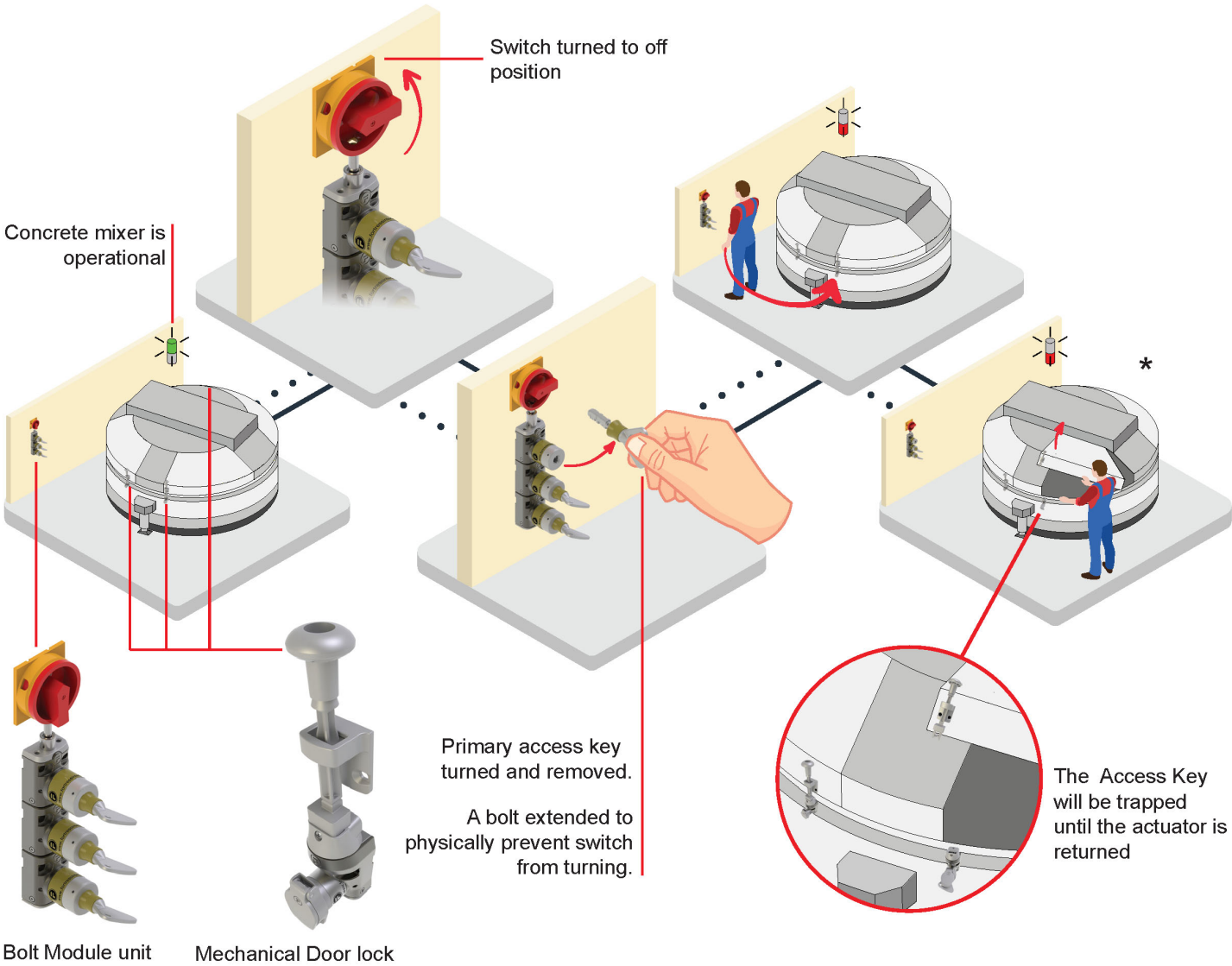
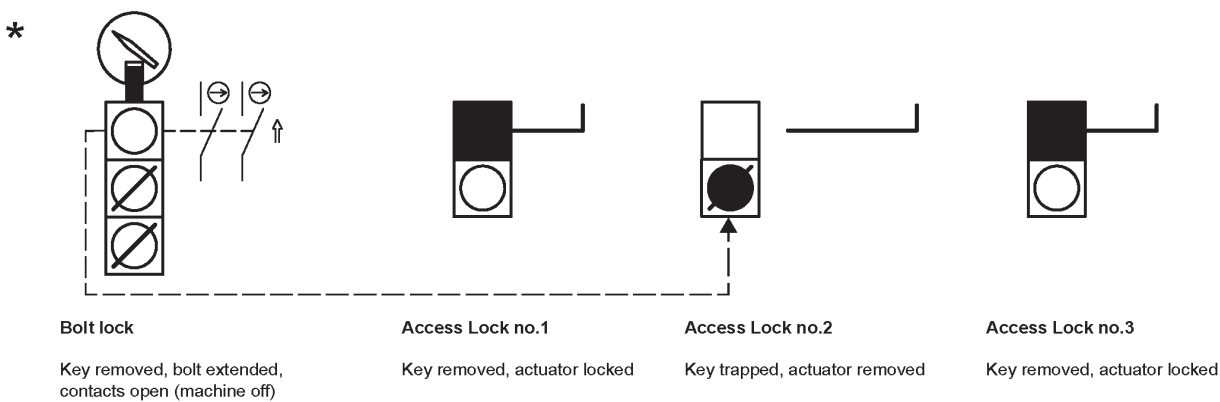
This robot welding cell's safety system must only allow operators to enter the cells when power to the cell has been isolated and the machinery has come to a controlled stop after a defined run-down time. After access, the system prevents unexpected start up when multiple operators are performing maintenance, via Personnel Keys.



Concrete Mixer

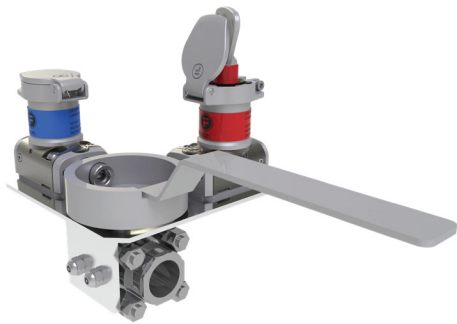
Application Requirement:

Industrial concrete mixers have multiple access hatches that are safeguarded by mechanical interlocks. These access hatches are opened for scheduled cleaning under the protection of the installed safety system. Access is only allowed once the power switch to the mixer has been mechanically isolated.

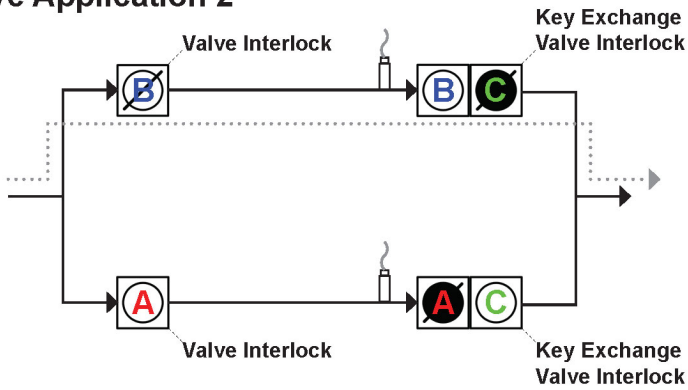


Valves & Pneumatic Interlocks

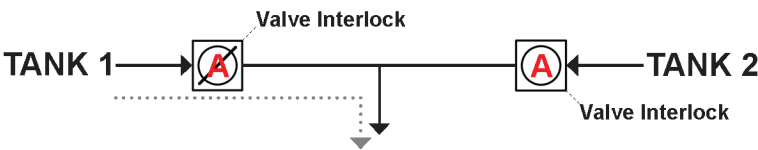
Fortress supplies a range of interlocks suitable for valve applications and for pneumatic isolation. With the incorporation of a mechanical module and key to a valve, Fortress has created a simplified solution for controlling the position of the valve and isolating the valve movement without the need of levers or hand-wheels in other forms of valve interlocking/lockout.



Valve Application 2



Valve Application 1



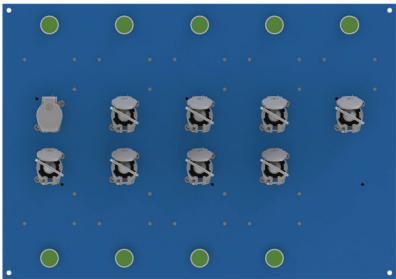
In this application, only one of the tanks can feed into the supply at once. The use of Valve Interlocks insures only one of the lines can be open because the two interlocks share a single key. Each valve can only be opened while a key is trapped to the locked position in the interlock.

In this application, at least one pressure release line must be open at all times. The use of the Valve Interlocks insures at least one line will always be open because the independent interlocks A and B require their corresponding key to be turned to the locked position to close the valve. The two Key Exchange Interlocks share one key for the two locks marked C. The key for the two C locks is transferred between the units to always trap either the A or B key.

Specials and Custom Units for Applications

Over the years, Fortress has produced many special-purpose units designed to meet the specific needs of its customers and applications within their industries. Some of these units include: standalone time delay/voltage sensing, ATEX rated switches/solenoids and elaborate key sequencing exchange boxes. Some of these units have been added to the mGard range as their popularity in applications has grown throughout the years, but are considered non-standard or specials solutions due to the extended lead time required to design and manufacture.

Fortress has also helped customers create completely custom units that were specific to one individual application. These units were created in collaboration with engineers between both parties to better understand the needs and constraints of the application. Fortress is pleased to offer advice and assist without obligation; although a more simple solution may be proposed through standard mGard units or the other ranges Fortress has to offer.



POWER ISOLATION



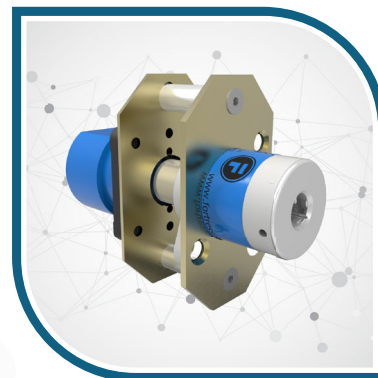
BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

- Special spindle sizes available on request
- Optional available with locking lever
- Left handed operation

Available in Left or Right hand configurations
Standard 22m shaft length

Product Code:	Part Number	Description:
*3902.01	CLIN - RH	Basic Lock - Right Hand
*3902.02	CLIN - LH	Basic Lock - Left Hand



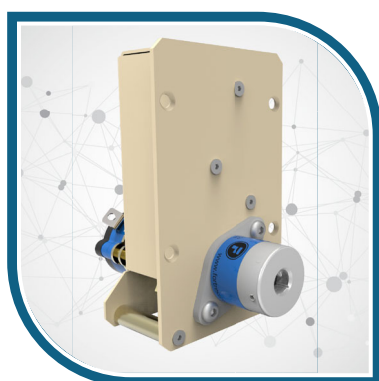
KEY SWITCH

The S(E) unit is suitable for isolation or switching current and may be used to isolate power to machinery.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked) - Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request

Available in Left or Right hand configurations

Product Code:	Part Number	Description:
*3903.08	S	Keyswitch c/w CR-0213 Switch

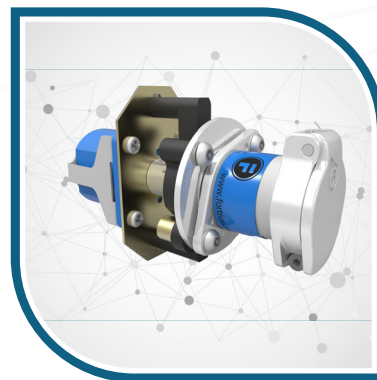


SOLENOID CONTROLLED KEY SWITCH

The SS unit is used where the key(s) need to remain trapped until an electrical signal has been received.

- Direct drive operation - positively opens contacts
- Suitable for machines with a rundown cycle
- The standard sequence is: Solenoid de-energised - Key trapped, Solenoid energised - Key free, (other sequences available)
- Special switch ratings, solenoid voltage and/or contact arrangements available on request
- Solenoid monitoring contacts as standard

Product Code:	Part Number	Description:
*3915.10	SS1	Solenoid Keyswitch 24V
*3915.03	SS1	Solenoid Keyswitch 32V
*3915.00	SS1	Solenoid Keyswitch 110V



KEY SWITCH WP (WATER PROOF)

The S(WP) unit is suitable for isolation or switching current and may be used to isolate power to machinery.

- Seal system is rated to Ip67
- Direct drive operation - positively opens contacts.
- The standard sequence is: Key trapped - Power on, Key free - Power off (other sequences can be specified)
- Special switch ratings and/or contact arrangements available on request.

Product Code:	Part Number	Description:
3902.64	S-WP	Waterproof Keyswitch c/w CR-0213 Switch

POWER ISOLATION



KEY SWITCH (IN METAL ENCLOSURE)

The SR unit is suitable for isolation or switching current and may be used to isolate power to machinery.

- Direct drive operation - positively opens contacts.
- The standard sequence is: Key trapped - Power on,
- Key free - Power off (other sequences can be specified)
- Special switch ratings and/or contact arrangements available on request.
- Robust metal enclosure.
- IP 65/66/67 rated

*The Enclosure might vary from the image displayed.

Product Code:	Part Number	Description:
*3908.05	SE	Keyswitch In Enclosure c/w CR-0213 Switch
*3908.06	SR	Keyswitch In Enclosure c/w CR-0213 Switch



PAD LOCKABLE PLATE

The PLP is used to allow multiple padlocks to be used when isolating one energy source. Once the key is inserted and turned, isolating the switch, the middle pad lockable plate can be turned allowing lockout.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped [But not locked] - Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request
- 10 x 8mm Ø holes for pad locks

Product Code:	Part Number	Description:
*3902.00	CL PLP	CL Pad Lockable Pad



ABB SLIDE BOLT MECHANISM

The SBM2 is an interlocking unit designed for ABB breakers. Allowing you to safely remove the breaker, isolate it by means of a trapped key. This key is inserted into the SBM2 allowing you to unlock the earth (in the off position). Then the earth be applied (in the on position). This is then locked and the second key removed.

- 16mm diameter bolt with 16mm travel
- Additional modules/keys can be added

Product Code:	Part Number	Description:
*3999.98	SBM2 - RH	Earthing Lock - Right Hand
*3999.94	SBM2 - LH	Earthing Lock - Left Hand



MECHANICAL BOLT INTERLOCK

The BM is used to interlock circuit breakers, valves earth switches ect. It is used where hazards needs to be indirectly interlock.

- No product handling issues
- 16mm diameter bolt with 16mm of travel
- Extended bolt lengths available
- Standard operation: Key free, bolt shot (other sequences available)
- Additional modules/keys can be added

This product must not be used as an access lock.

Product Code:	Part Number	Description:
*3400.21	BM1-0S	Bolt Lock - Key Out, Bolt Shot
*3400.20	BM1-0W	Bolt Lock - Key Out, Bolt Withdrawn

POWER ISOLATION



BOLT INTERLOCK WITH LIMIT SWITCH

This device is used to interlock circuit breakers, valves, earth switches ect. In addition provides electrical indication of the bolt position.

- No product handling issues
- 16mm diameter bolt with 16mm of travel
- Extended bolt lengths available
- Standard operation: Key free, bolt shot (other sequences available)
- Additional modules/keys can be added

This product must not be used as an access lock.

Product Code:	Part Number	Description:
*3400.38	BM1-LS-0S	Bolt Lock c/w Limit Switch - Key Out, Bolt Shot
*3400.39	BM1-LS-0W	Bolt Lock c/w Limit Switch - Key Out Bolt Withdrawn



LIMIT SWITCH MODULE

The Limit Switch Module can be fitted to Door Interlocks, Bolt Interlocks and Winder Interlock units

Product Code:	Part Number	Description:
*3524.02	LMS	Limit Switch Module



MINI BOLT LOCK

The Mini Bolt Lock is used to interlock circuit breakers, valves, earth switches ect. It is used where hazards needs to be indirectly interlocked.

- 12mm of travel.
- Extended bolt lengths available.
- Standard operation: Key free, bolt shot (other sequences available).

NOT suitable to be used as a door lock

Product Code:	Part Number	Description:
3404.02	MBM-SLC-R	Mini Bolt Lock - Key Out, Bolt Shot
3404.02A	MBM-SLC-S	Mini Bolt Lock - Key Out, Bolt Withdrawn



BOLT INTERLOCK WITH SWITCH

This device is used to interlock circuit breakers, valves, earth switches ect. It additionally provides electrical indication of the bolt position.

- No product handling issues
- 16mm diameter bolt with 16mm of travel standard
- [extended bolt lengths available]
- Standard operation: Key free, bolt shot
- [other sequences available]
- Special switch ratings and/or contact arrangements
- available on request
- Additional modules/keys can be added
- Each key can be monitored using 20A or 32A switches

This product must not be used as an access lock.

Product Code:	Part Number	Description:
TBA	BMR	BM1 c/w Switch

POWER ISOLATION



MINI OFFSET BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

Product Code:	Part Number	Description:
*3403.02	SL-FC17	Mini Offset Basic Lock



MINI EARED BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

Product Code:	Part Number	Description:
*3403.00	SLIN	Mini Eared Basic Lock



MINI EARLESS BASIC LOCK

When mounted on the front of the circuit breaker, this lock allows or prevents switching of the breaker.

Product Code:	Part Number	Description:
*3403.01	SL-EC11	Mini Earless Basic Lock



MINI KEYSWITCH

The Mini Keyswitch unit is suitable for isolation or switching current and may be used to isolate power to machinery.

- Direct drive operation – positively opens contacts
- The standard sequence is: Key trapped (But not locked) - Power on, Key free - Power off [other sequences to be specified]
- Special switch ratings and/or contact arrangements available on request

Product Code:	Part Number	Description:
*3406.04		Mini Keyswitch c/w M10HEA2 (2020)

DOOR LOCKS



SINGLE FULL S/S DOOR INTERLOCK

The DMSK is a robust interlock intended for hygienic areas and suitable for all types of doors.

- Minimal design to reduce dirt traps.
- 4 head rotation angles with an adjustment of 360° at 90° increments.
- Two actuator entry points.
- Full stainless steel assembly.
- Tamper resistant head mechanism.
- Choice of actuator.

Product Code:	Part Number	Description:
*3401.58	DMSK	Stainless Steel Door Lock



DOUBLE FULL S/S DOOR INTERLOCK

The DMSK2 is a robust interlock intended for hygienic areas and suitable for all types of doors.

- Minimal design to reduce dirt traps.
- 4 head rotation angles with an adjustment of 360° at 90° increments.
- Two actuator entry points.
- Full stainless steel assembly.
- Tamper resistant head mechanism.
- Choice of actuator.

Product Code:	Part Number	Description:
*3410.11	DMSK2	Double Stainless Steel Door Lock

ACTUATORS



FIXED ACTUATOR

- For use with all DM type locks
- Ideal for most aligned guarding doors
- Compact (fits within DM body's space envelope)
- Version with chain available (DM-F-chain)

Product Code:	Part Number	Description:
*3400.11	DMF	Fixed Actuator



FIXED ACTUATOR C/W CHAIN

- For use with all DM type locks
- Ideal for most aligned guarding doors
- Compact (fits within DM body's space envelope)
- Fitted with chain for flexible applications
- Also available with plate for mounting

Product Code:	Part Number	Description:
*3401.02	DMF-C	Fixed Actuator c/w Chain

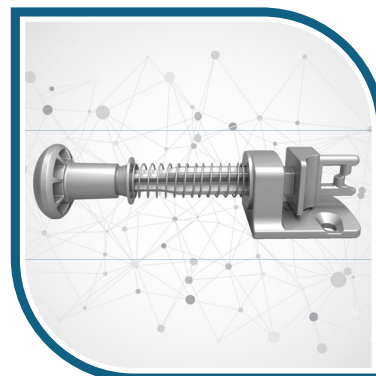
ACTUATORS



HANDLE OPERATED ACTUATOR

- For use with all DM type locks
- Suitable for use where secondary action is required
- Overcomes misalignment
- Vertical adjustment: +/- 6mm
- Rotational adjustment of bracket, to suit all four DM handling options
- Detent holds actuator in place when the door is open

Product Code:	Part Number	Description:
*3400.13	DMH	Hand Operated Actuator



SPRING LOADED HANDLE OPERATED ACTUATOR

- For use with all DM type locks
- Suitable for use where secondary action is required
- Overcomes misalignment
- Vertical adjustment: +/- 6mm
- Rotational adjustment of bracket, to suit all four DM handling options
- Detent holds actuator in place when the door is open

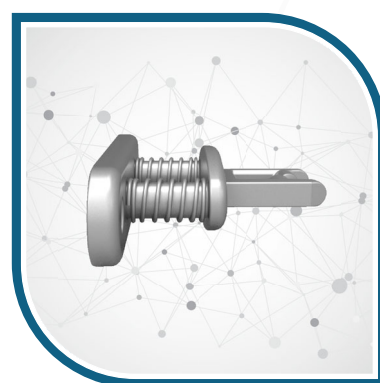
Product Code:	Part Number	Description:
*3400.48	DMA	Hand Operated Actuator c/w Spring



SELF ALIGNING ACTUATOR

- For use with all DM type locks
- Ideal for small radius hinged doors
- Horizontal adjustment: +/- 7.50mm
- Vertical adjustment: +/- 3.75mm
- Rotational adjustment: any angle in 360°

Product Code:	Part Number	Description:
*3400.12	DMS	Self Aligning Actuator



COMPRESSIBLE ACTUATOR

- For use with all DM type locks
- Ideal to absorb vibration on hatches/doors
- Can be used on small radius hinged doors
- Suitable for situations where the door is likely to be slammed

Product Code:	Part Number	Description:
*3400.26	DMC	Compressed Actuator

WINDER INTERLOCKS

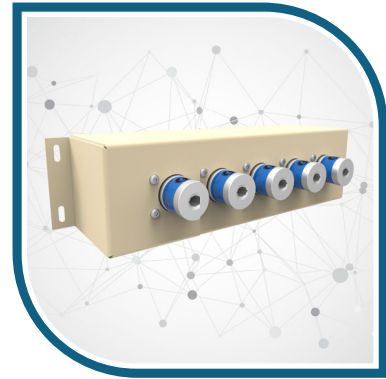


WINDER INTERLOCK - PANEL MOUNT

The winder interlock locks out the winder allowing artisans to work safely while doing maintenance.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked)
 - Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request
- Extremely varied combination of isolation/access keys possible
- Simply add modules to existing configurations
- Enclosed version (XMR-E) in Polycarbonate (Ip67)
- Each key/lock can be fitted with a 16A rotary switch (STD)

Product Code:	Part Number	Description:
	XM-WIP	Winder Interlock - Panel Mount



WINDER INTERLOCK - WALL MOUNT

The winder interlock locks out the winder allowing artisans to work safely while doing maintenance.

- Direct drive operation - positively opens contacts
- The standard sequence is: Key trapped (But not locked)
 - Power on, Key free - Power off (other sequences to be specified)
- Special switch ratings and/or contact arrangements available on request
- Enclosed version (XMR-E) in Polycarbonate (Ip67)
- Each key/lock can be fitted with a 16A rotary switch (STD)

Product Code:	Part Number	Description:
	XM-WIE	Winder Interlock - Wall Mount

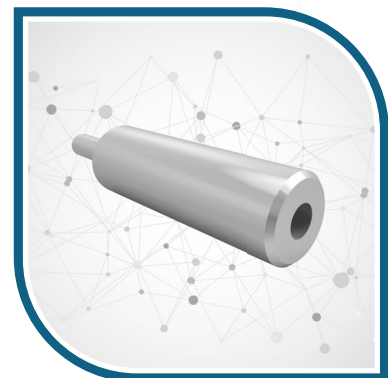
ACCESSORIES



SWITCH ADAPTOR

Switch Adaptor for the BM, DM & XM Range of Products (Including Gasket & Coupler).

Product Code:	Part Number	Description:
*3511.09	SWA	Switch Adapter



BOLT EXTENTIONS

Extension bolts used on the Bolt Locks. This extension bolt only extends the bolt length & does not extend the travel of the bolt. Custom length and material type is available on request.

Product Code:	Part Number	Description:
*3400.34	EXB-BM 22	22mm Extension Bolt
*3505.03	EXB-BM 50	50mm Extension Bolt
*3400.33	EXB-BM 100	100mm Extension Bolt

ACCESSORIES



BOLT ON BRACKET

To provide back of board mounting possibilities for BM, BMR, XM, XMR, DM and DMR configurations

Product Code:	Part Number	Description:
*3521.05	M-BOB	Bolt On Bracket



LOK LINK - MGARD TO AMGARDPRO ADAPTOR

This module allows mGard components to be linked directly to proLok and proStop units in the amGardpro range, and in doing so adds a directly attached safety switch and direct solenoid control option to the mGard range.





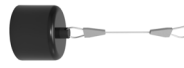



Product Code:	Part Number	Description:
*3999.32	LINK	Lok Link Adaptor

LOCK AND KEY SPECS

Fortress locks have over 200,000 different lock combinations. Besides the standard basic (CL) it is also possible to have a master series (ML) lock. The ML lock which can be operated by a special cut master key (MLK-SUGS) that fits any mastered lock in a specific mastered lock series. For ease of use all Fortress locks provide key insertion in two orientations.

Lock and key engravings

Each different key combination is allocated with an engraved code onto the lock and key, of up to maximum 30 characters (3 lines of 10 characters). This engraving code is used to identify locks and keys and is recorded in a database for continuous cross reference. Required engraving details are therefore to be provided with each order.

 <p>CLIN lock Standard CL Lock no dustcover</p>	 <p>CLK-SUS Standard key for use on all CL lock types</p> <p>CLK-LP Standard low profile key for use on all CL lock types</p>	 <p>Stainless Steel Dustcover</p> <p>CLDC</p>	 <p>Stainless Steel Padlockable Dustcover</p> <p>PLDC</p>	 <p>Rubber Dust Sleeve</p> <p>CL-RDS</p>
 <p>MLIN lock Standard ML Lock no dustcover</p>	 <p>MLK-SUGS Standard key for use on all ML lock types</p> <p>MLK-SUGS Master cut key for use on all ML lock types</p>	<p>Key And Lock engravings</p>  <p>Maximum 30 characters (3 lines of 10 characters)</p>		

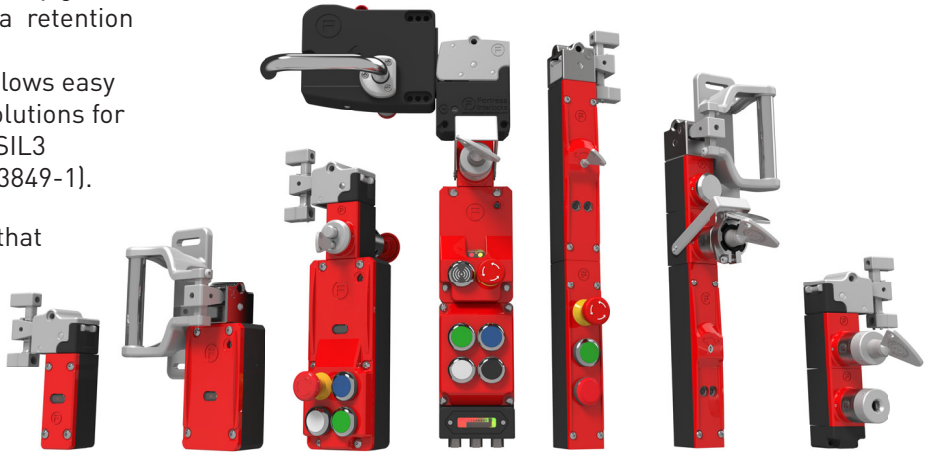


AMGARD PRO RANGE

amGardpro is the ultimate range of modular safety gate interlocks for heavy duty applications with a retention force of 10,000N. Its unique modular construction allows easy configuration; providing electro-mechanical solutions for practically any safeguarding application up to SIL3 (EN/IEC 62061), Category 4 and PLe (EN/ISO 13849-1).

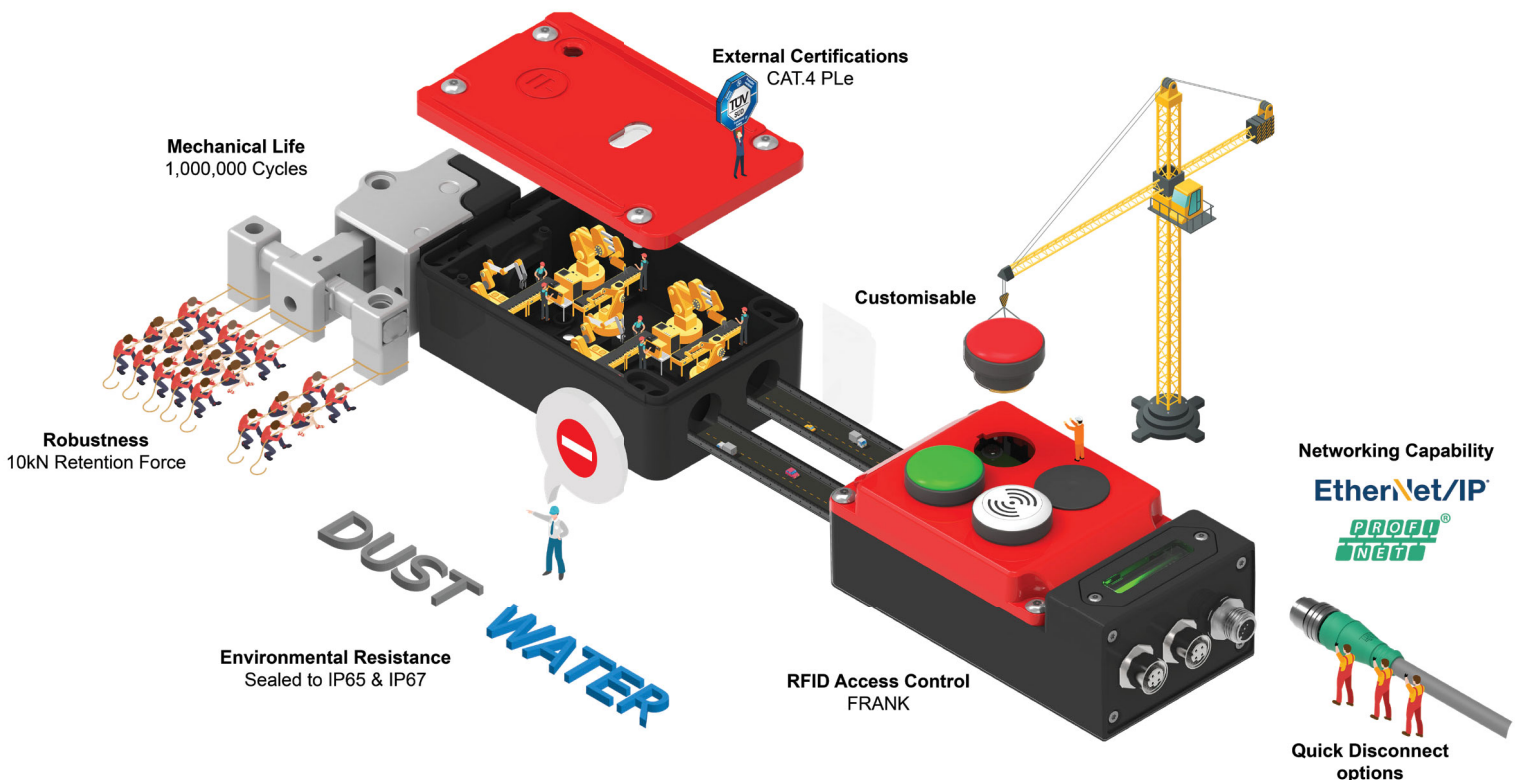
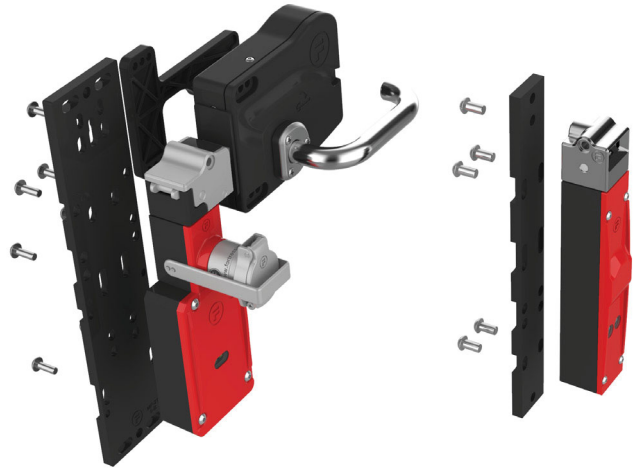
proNet is an addition to the amGardpro range that adds an Ethernet based networking capability.

Slimline pro houses the solenoid locking functionality in a body just 40mm wide.



FRANK is the integration of existing site RFID access cards as part of a software based access approval system for manufacturing areas. Data is collected in the Fortress system for data insights that can support efficiency analysis.

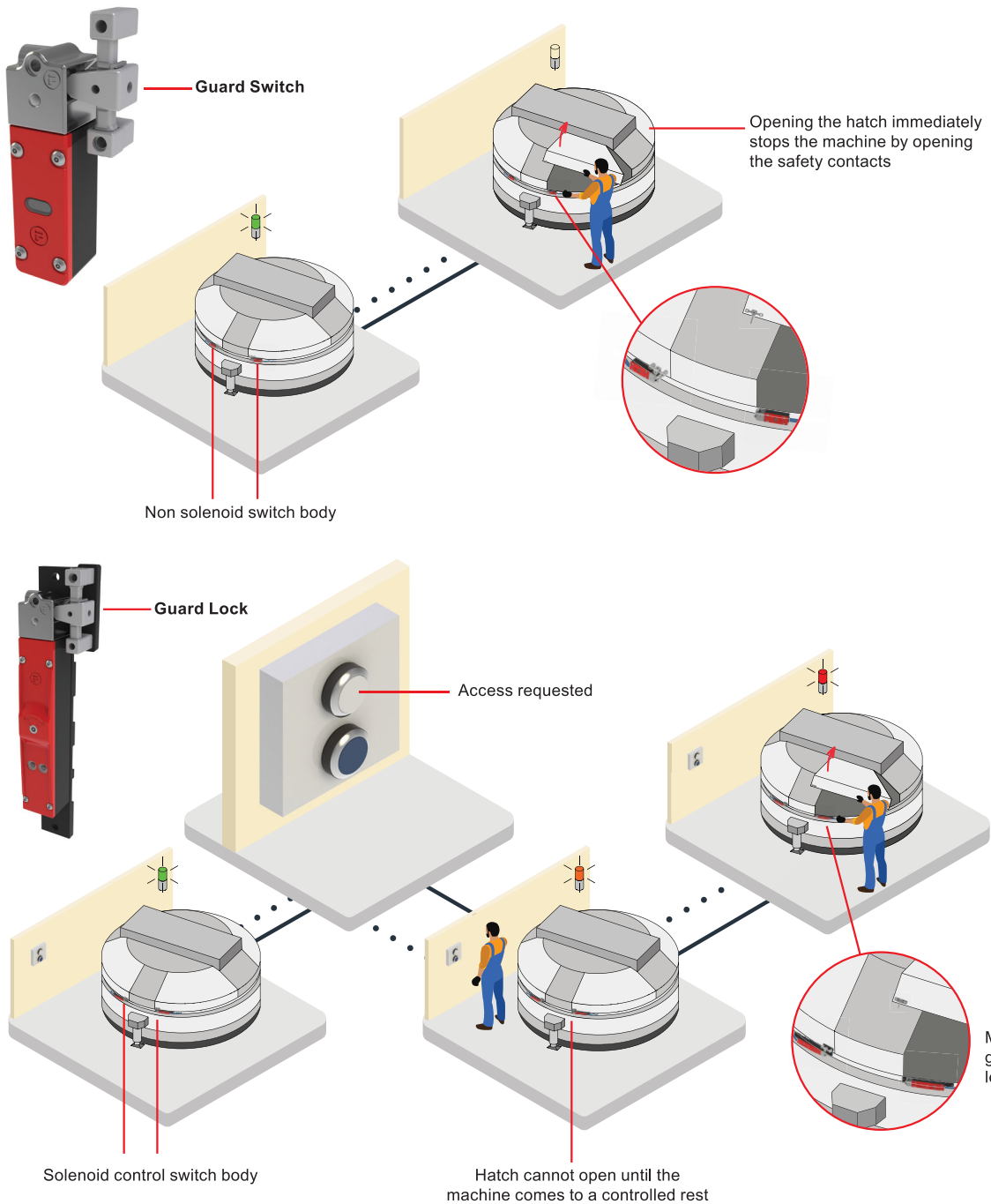
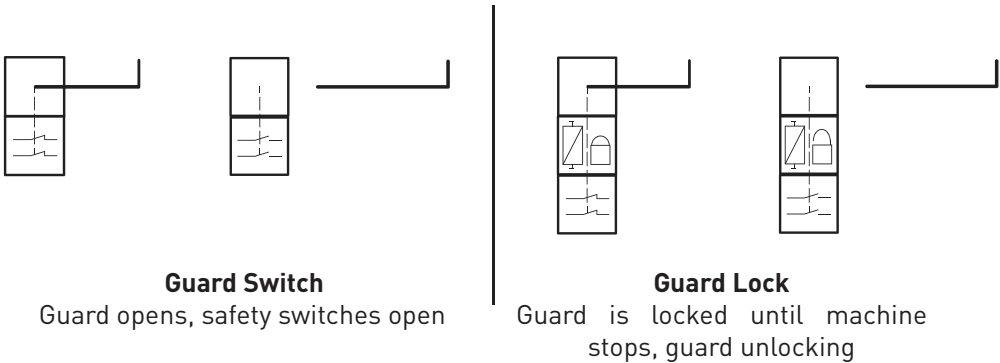
Mounting Plates ensure most of our configured amGardpro safety gate interlocks can be easily and simply fitted to machine guarding. The units arrive pre-fitted when the mounting plate and/or actuator plate suffix 'MPB1' is added to the configured part number.



Access Hatches

Application Requirement:

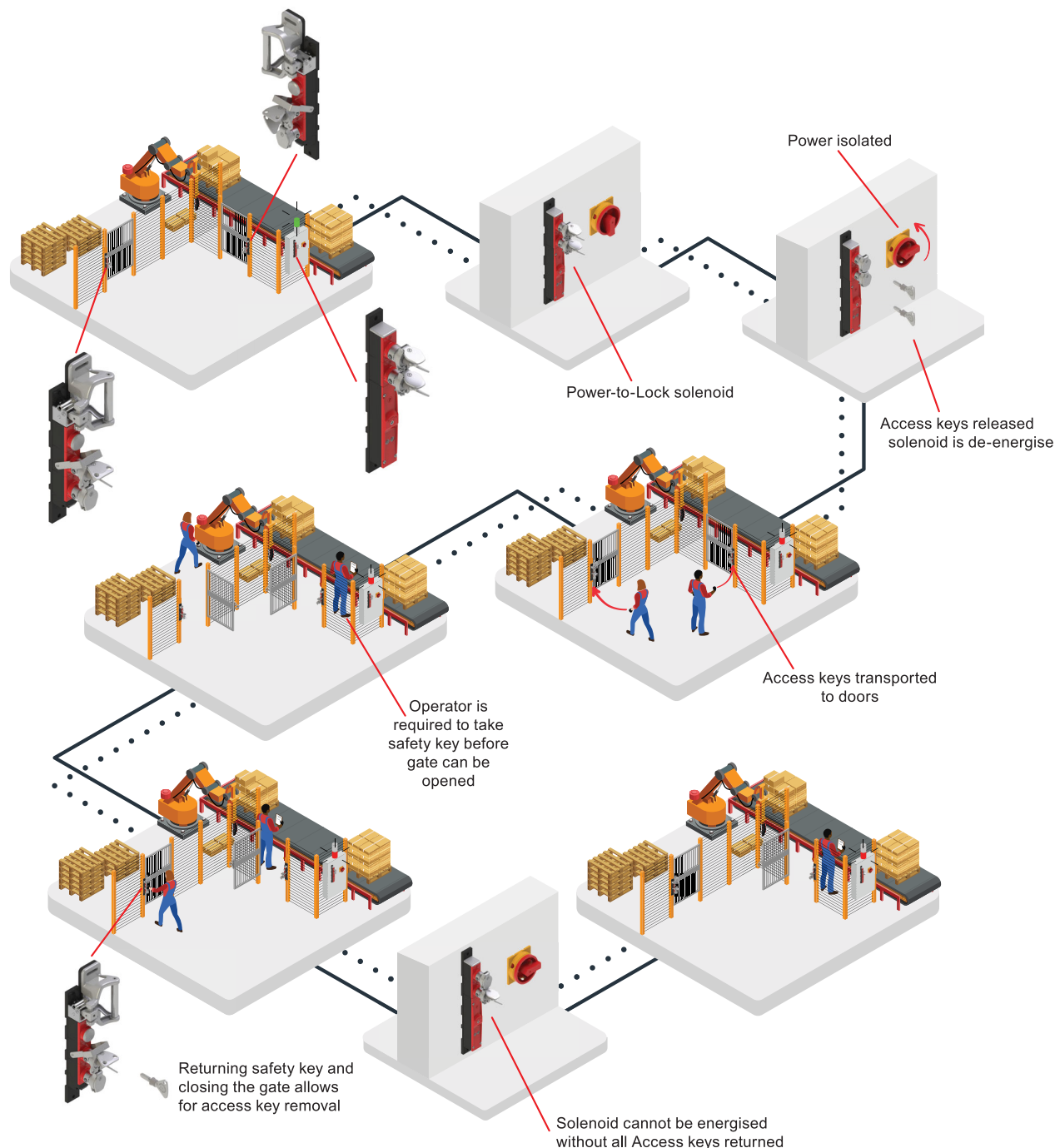
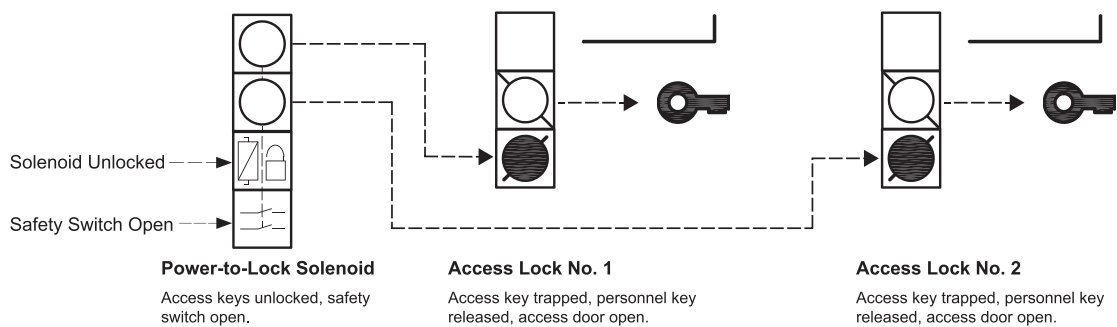
Access points can require safeguarding with safety switches to ensure the process cannot run with guards open. Wire-to-the-guard solutions are suited to fast and frequent access demands. Processes that do not stop instantly should be safeguarded with solenoid guard locking solutions that only unlock the guard when it is safe to access.



Robot Pallet Stacker

Application Requirement:

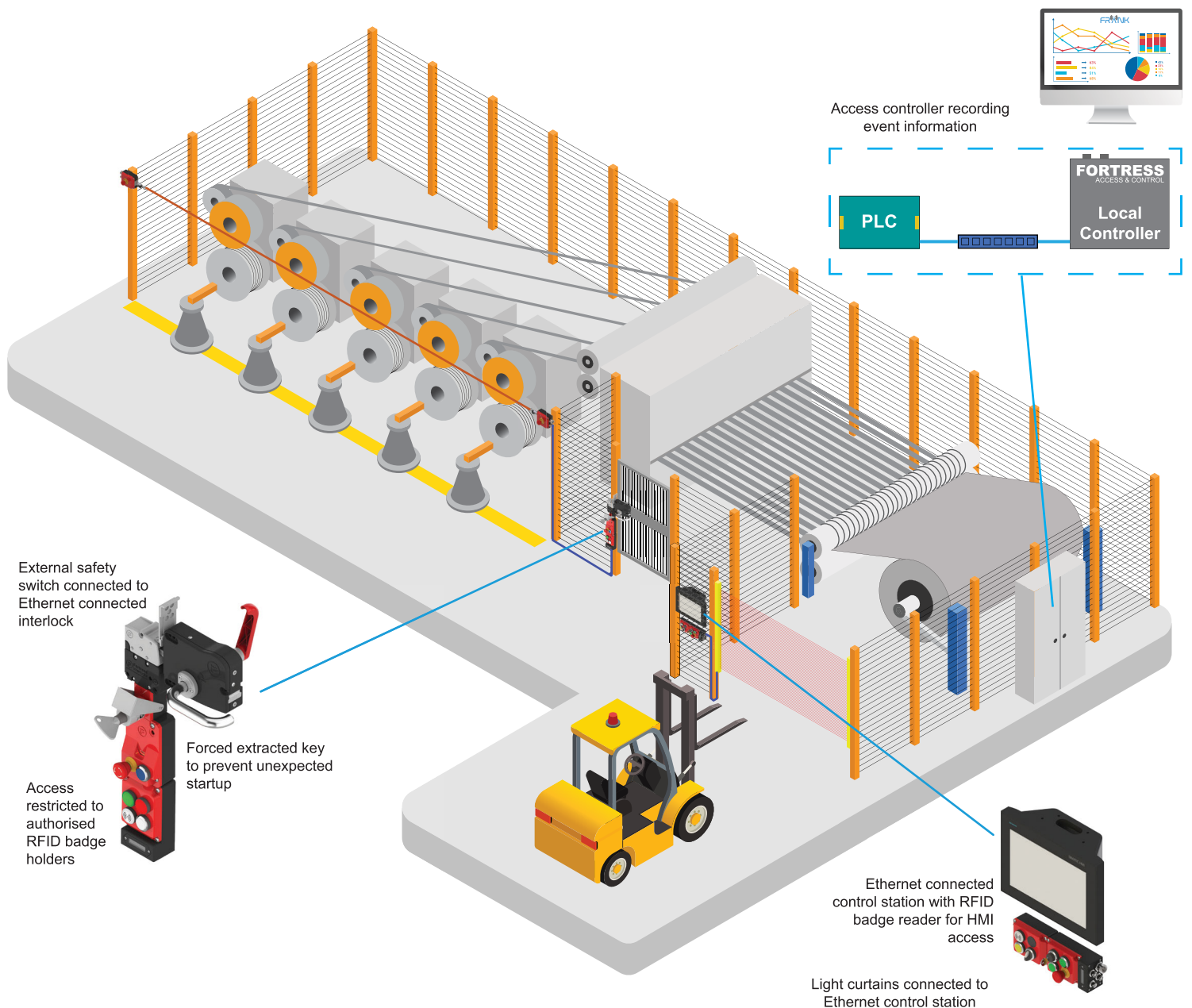
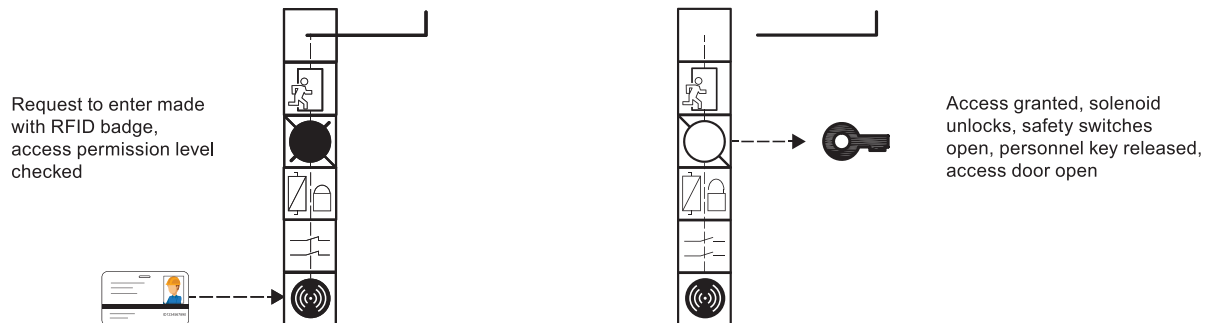
Access points can require safeguarding with safety switches to ensure the process cannot run with guards open. Wire-to-the-guard solutions are suited to fast and frequent access demands. Processes that do not stop instantly should be safeguarded with solenoid guard locking solutions that only unlock the guard when it is safe to access.



Slitting Line

Application Requirement:

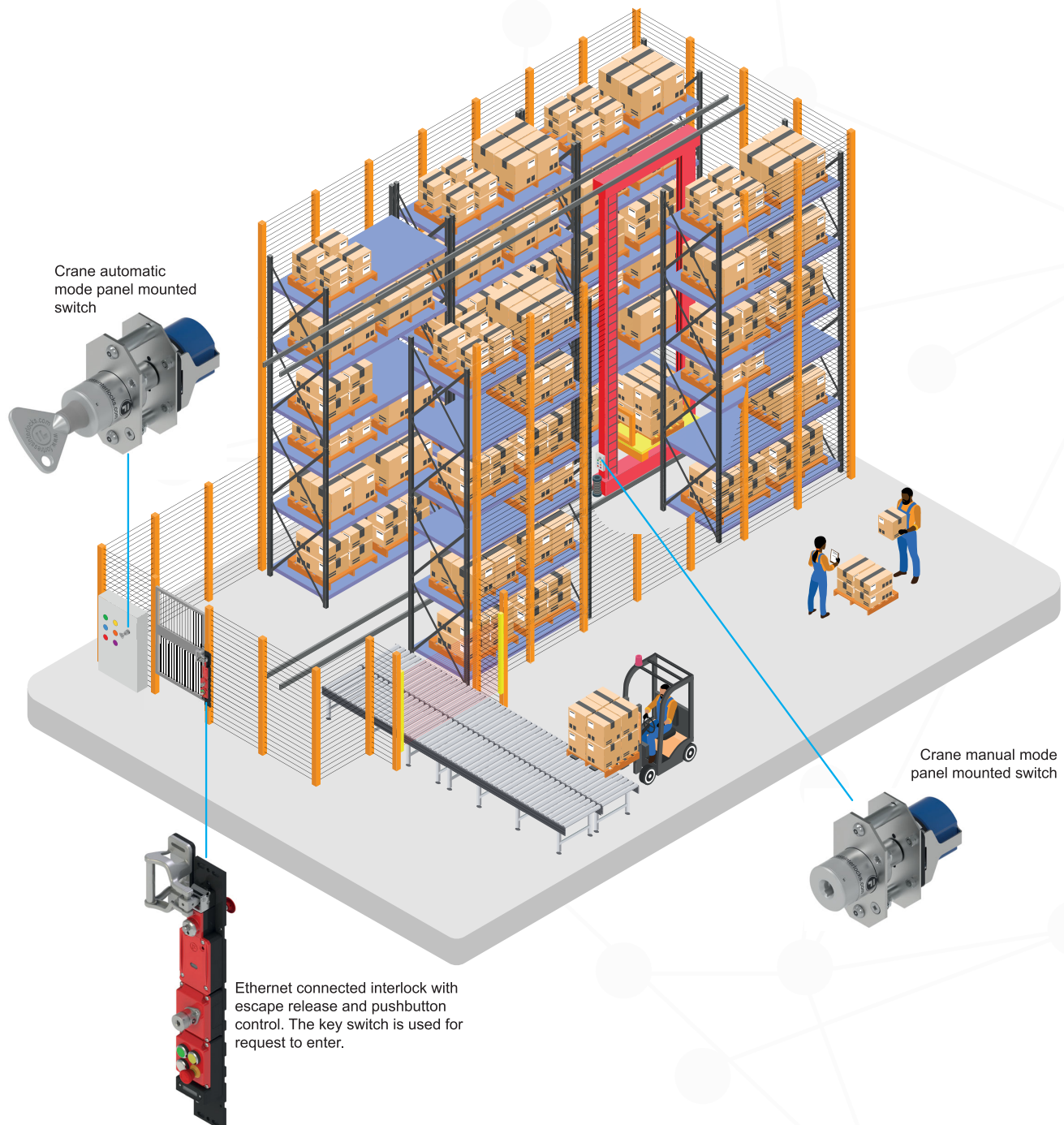
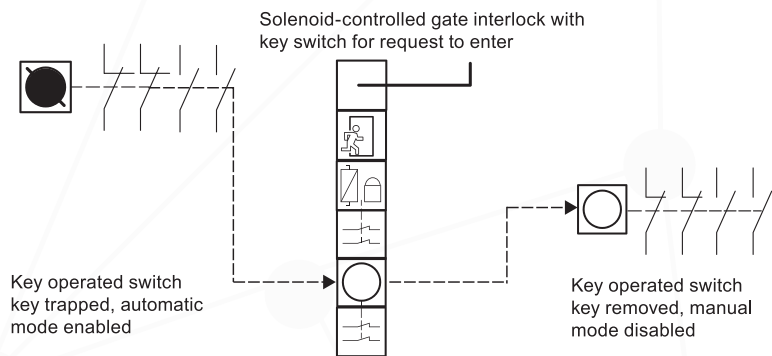
Slitting lines require multiple safeguarding methods to cover different hazards. Safety controls for light curtains, guard locks and grab wires are integrated into two Ethernet connected Fortress units in the below application. Access is provided via RFID badges. The Fortress FRANK controller manages permissions and records data insights to restrict access based on training levels; Access frequency and duration can then be used for productivity analysis.



Automated Storage & Retrieval Systems

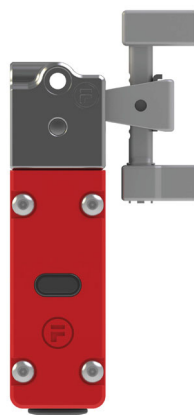
Application Requirement:

Automated storage and retrieval systems have aisle entry access at aisle ends and / or mid aisle points. For EN 528:2008 compliance, automatic crane control is disabled by a key switch mounted in an enclosure outside the aisle. This key permits access to the aisle via the interlock. The same key enables manual crane control via a key switch on the cart inside the aisle. See EN 528:2008 for further guidance.



Guard Switch

2NC, 1NO heavy duty safety switch.



SA4S6ST401

Guard Lock with Forced Extracted Key

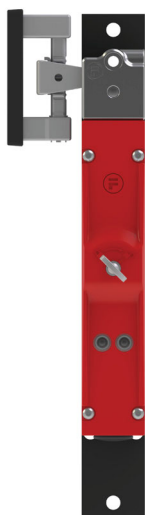
Personnel key is required to be taken by the operator before guard opens.



SD2S6EKL3ZL411MPB1

Guard Lock

Heavy duty Power-to-Unlock solenoid safety interlock.



SA2S6ZL411MPB1

Guard Lock with Single Action Escape Release

Ergonomic handle incorporates escape release in a single action. Operating red handle overrides locking mechanism and opens guard.



EI2A6SR411

Guard Lock with Escape Release

Heavy duty safety interlock with escape release. Activation overrides locking mechanism and creates stop command.



HS1S6R2ZR411

Guard Lock with Integrated Ethernet Communication

PROFINET/PROFIsafe connectivity to the interlock. Pushbuttons & emergency stop incorporated at the guard. Ethernet/IP CIP safety also supported.



EI2A6SR411N2BUWYNPF10

What is *proNet*?

Fortress' *proNet* allows Fortress devices to become distributed I/O on PROFINET or EtherNet/IP networks. Safety information is exchanged using the PROFIsafe or CIP Safety. The *proNet* module can be configured for standalone control functionality, to power external devices via quick disconnects or as part of an amGard*pro* interlock unit.

Product Features:

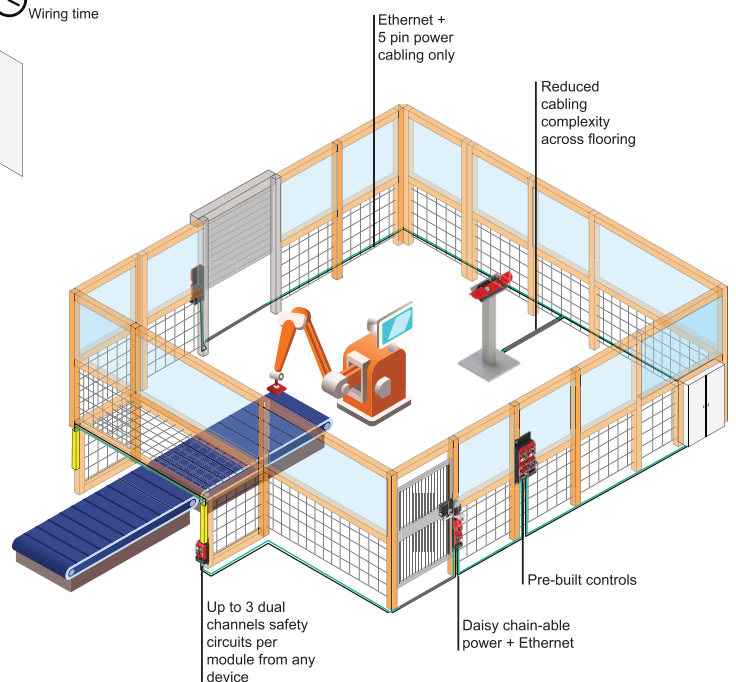
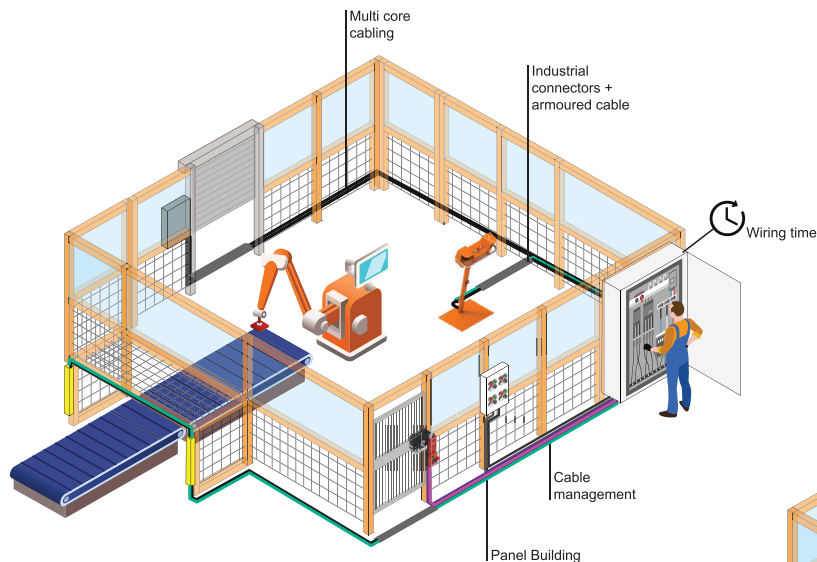
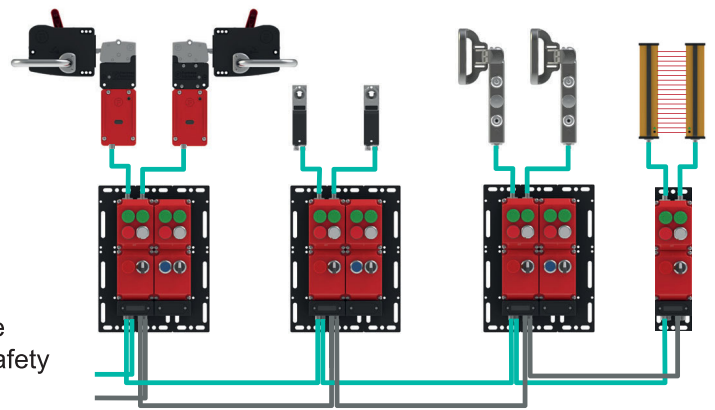
- 3 dual channel safety inputs are supported. Can be utilised for guard locking, emergency stops and enabling switch connection all within one unit.
- Standard I/O for pushbutton/lamp functionality is extendable up to 40 I/O per configuration.
- An integrated network switch facilitates 'daisy-chain' bus topologies with no additional hardware.
- I6 I/O is available as protected external I/O via quick disconnects.
- F-address are set via web interface or DIP switches.
- Diagnostic functions available via web interface (Supply voltage, Current F-address, Ethernet connection statistics).
- Variety of connection options including AIDA specification, M12 and 7/8" receptacles.

Control Stations

Fortress' *proNet* Control Stations are configurable network solutions aimed at reducing the cost of installation / ownership of bespoke fabrications with hardwired control functionality.

Costs associated with wiring time, panel building, panel space and the purchasing of enclosures, IO modules, terminals, multi core cables, industrial connectors at the machine or cell for the safety switches, sensors and interlocks can be avoided. Units arrive ready to be plugged into the network via quick disconnects.

Control and safety communication are transmitted over a single Ethernet cable plugged into the Fortress unit. 3 dual channel safety inputs are supported with 1 dual channel safety output.



Industrial Access Control with FRANK

Fortress RFID Access Network Keys

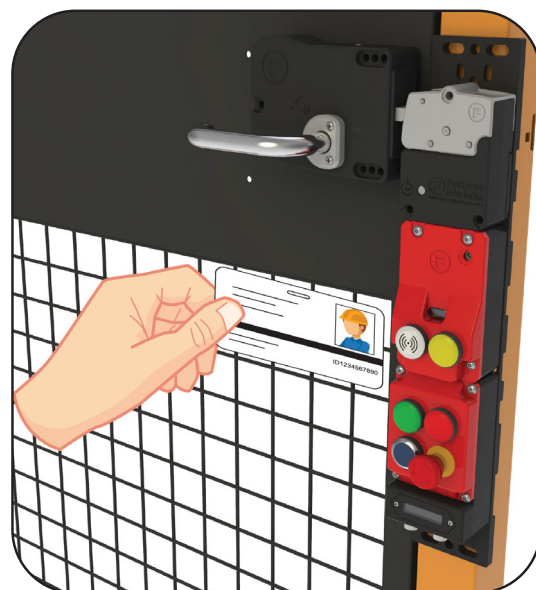
Interlocks control when you can access equipment safely, FRANK controls who can access equipment safely.

By integrating readers to suit the existing site RFID access cards into a Fortress device and providing a software based access approval control system; FRANK can be integrated into automation systems with simple input/outputs to a PLC.

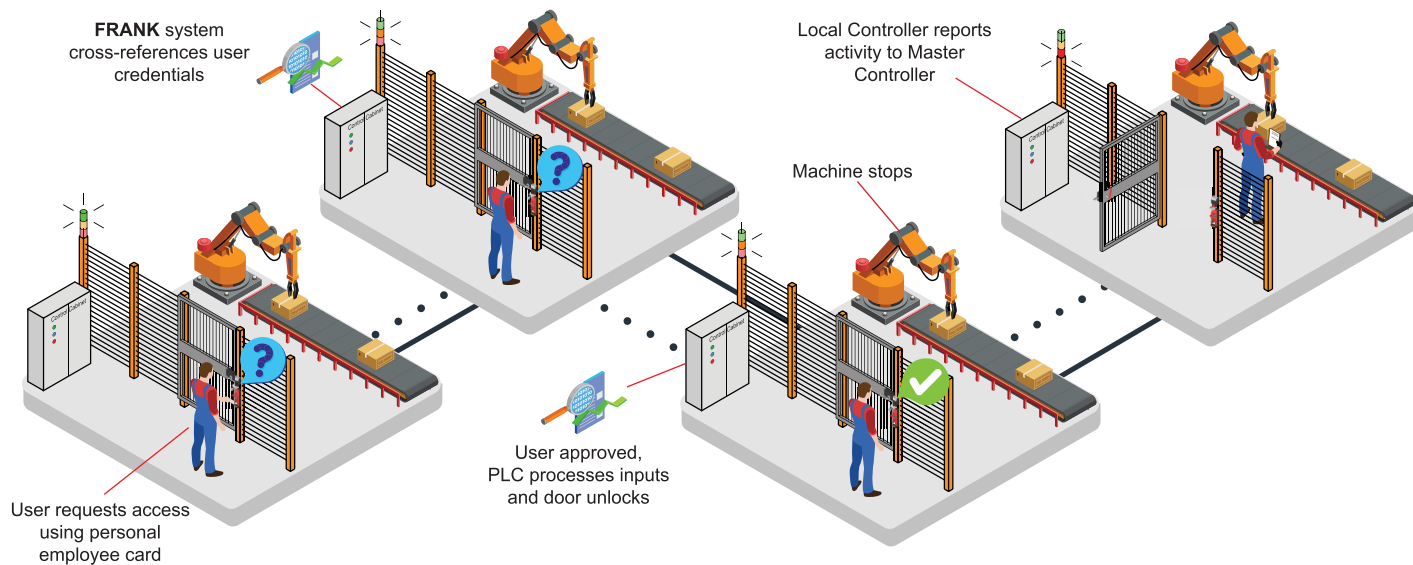
Data of who, when and where from access events is collated to a central point within facilities to allow for viewable events lists and data insights that can support efficiency analysis.

Fortress supports common card types including:

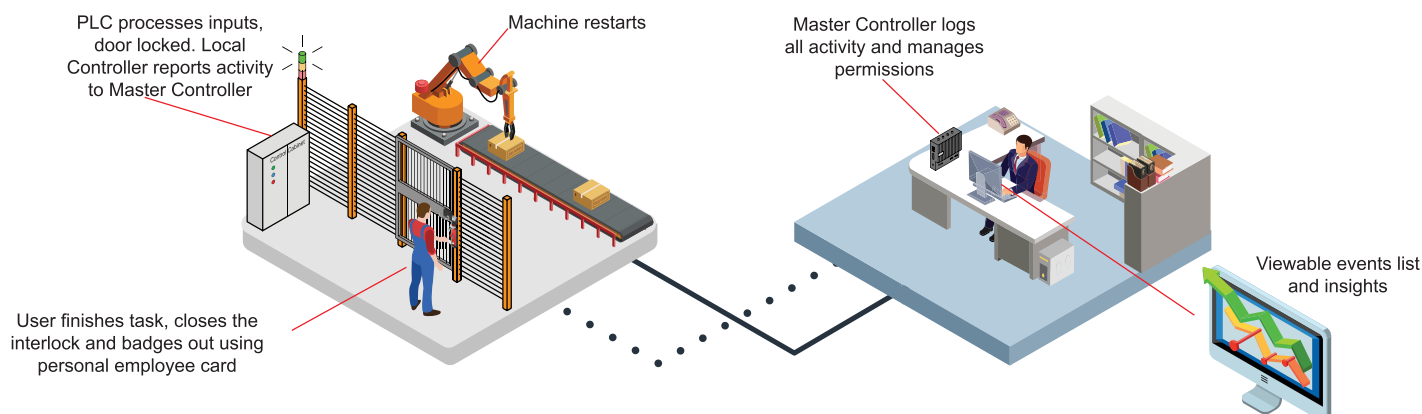
- 13.56MHz ISO 15693
- 13.56MHz with manufacturer's specific protocol
- 13.56MHz ISO 14443A
- 125kHz with manufacturer's specific protocol



Control Access



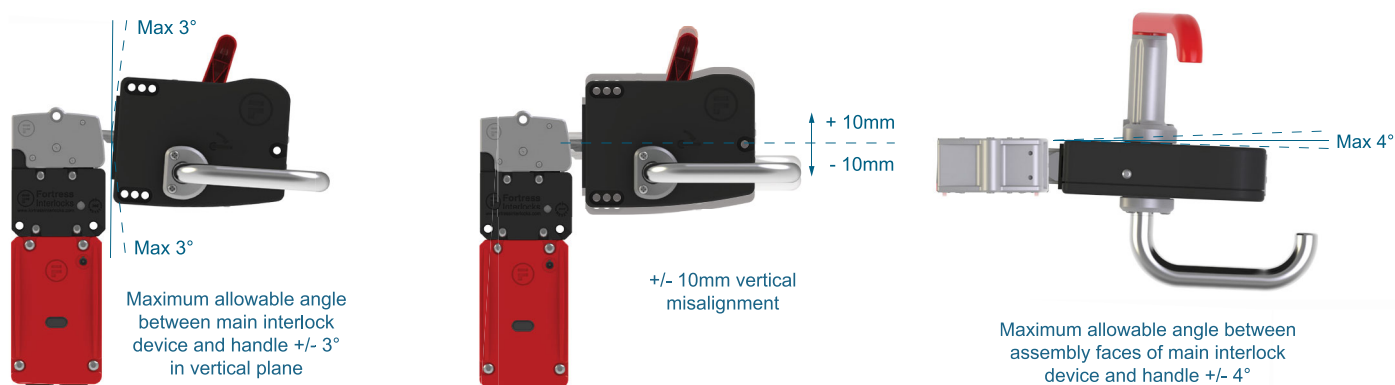
Manage Productivity



Misalignment Capability

Recognising that machine guarding installations often have a degree of variability and that guards move over time during use, Fortress provides market leading misalignment capability in the actuator offerings.

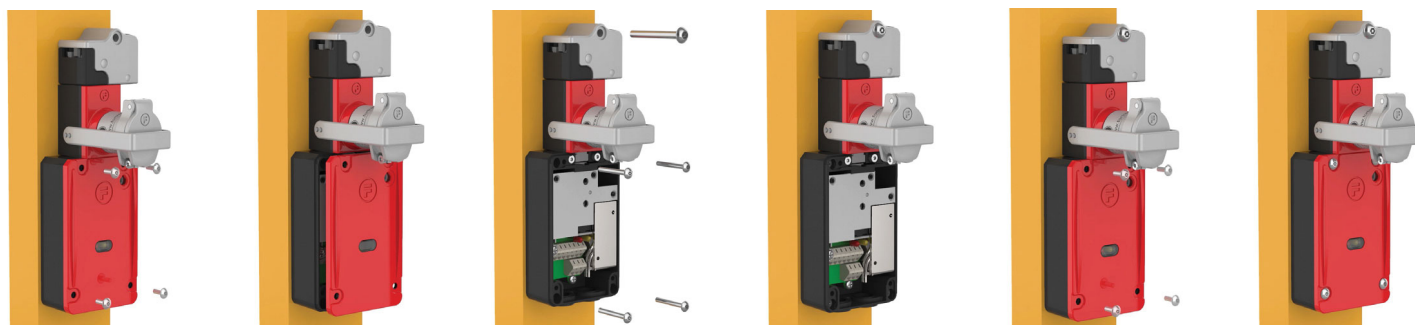
Actuator tongues can be moved vertically on a ratchet with angular misalignment also adsorbed by actuator design.



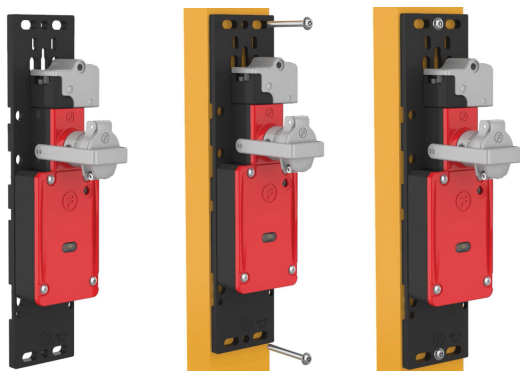
Mounting Plates

A series of packing and mounting plates to ensure most configured amGardpro safety gate switches can easily and simply be fitted to machine guarding. The configurable plates are a robust design of die cast aluminium and are suitable for both hinged and sliding guards. The packing and mounting plates are pre-fitted to the interlock when ordered together and the mounting plates. However, they can also be ordered separately.

Without Mounting Plates



With Mounting Plates



How To Configure:

The amGardpro online configurator allows you to add a mounting plate at the end of your configuration which will automatically select the correct mounting and packing plate that your configured unit requires.

Actuator

Tongue



Handle Actuator



Short Hinged Handle



Long Hinged Handle



Slidebar



Rotary Insertion Handle



Ergonomic Handle,
No Interior Handle

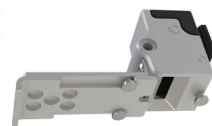


Ergonomic Handle, Open
& Close from Both Sides

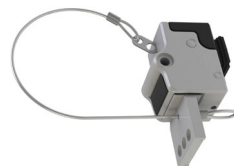


Accessories

Drop Down Lock-Out



Lock-Out Clip



Heads

Slimline Linear Insertion Head



Rotary Insertion Head



Linear Insertion Head



Single Action Escape
Release Head



Mechanical Ends

Cap



Escape Release Adaptors

Trapped Key Adaptors

Mounting Plates

Security Tool Reset



Pushbutton Reset



Extracted Key Adaptor



Safety Key Adaptor



Access Key Adaptor



Switches / Locks

Slimline Solenoid Controlled Switch Body



Solenoid Controlled Switch Body



Non Solenoid Switch Body



Option Pods

Slimline Pod



Key Switch Pod



Option Pod



Networked Option Pod



Mechanical Ends

Foot



5 Pin M12



8 Pin M12



10 Pin M12



12 Pin M12



19 Pin M23



Power & Data Connector Sets



Tongue & Rotary Insertion Handle



Ergonomic Handle



Slidebar



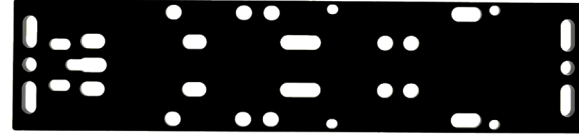
Hinged Handle



40 mm



80 mm



Step 1: Choose the Actuator, Handing & Head

Description	Information	Part No.
Linear Insertion Tongue	High strength and misalignment, suitable for all 'S' head configurations.	SA

Description	Information	Part No.
Tongue Slidebar Without a Spring	Sliding motion holds door closed. With no return spring slidebar remains in the position it is left in.	SN

Description	Information	Part No.
Tongue Slidebar With Return Spring	Sliding motion holds door closed. Return spring pulls the slidebar open when unlocked. Collision with interlock when closing guard avoided.	SS

Description	Information	Part No.
Short Hinged Handle	Short reach for use with 40mm wide units. (Removes need for separate handle on hinged guards).	HS1

Description	Part No.
Front Facing	1

Description	Part No.
Left Facing	2

Description	Part No.
Rear Facing	3

Description	Part No.
Right Facing	4

Description	Information	Part No.
Hand Operated	Hand operated actuator with return spring.	SD

Description	Information	Part No.
Tongue Slidebar With Internal Handle But No Return Spring	Sliding motion holds door closed. Same as a SN but escape release knob allows door to be opened only from the inside when main unit is unlocked.	SI

Description	Information	Part No.
Slimline Tongue Slidebar With Internal Handle c/w Spacer Behind The Knob	Same as a SI but escape release knob allows door to be opened and closed from the inside when main unit is locked.	SF

Description	Information	Part No.
Long Hinged Handle	Long reach hinged handle for use with 80mm wide units.	HL1

Description	Information	Part No.
Linear Insertion Slimline Head	High strength and durability, suitable for all 'S' actuators and front / left / rear / right facings.	S6

Insert Your Part Number Selection Here	Actuator	Handing	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock

Step 1: Choose the Actuator, Handing & Head

Description	Information	Part No.
Linear Insertion Tongue	High strength and misalignment, suitable for all 'T' head configurations.	TA

Description	Information	Part No.
Slidebar Without a Spring	Sliding motion holds door closed. With no return spring slidebar remains in the position it is left in.	TN

Description	Information	Part No.
Slidebar With a Return Spring	Sliding motion holds door closed. Return spring pulls the slidebar open when unlocked. Collision with interlock when closing guard avoided.	TS

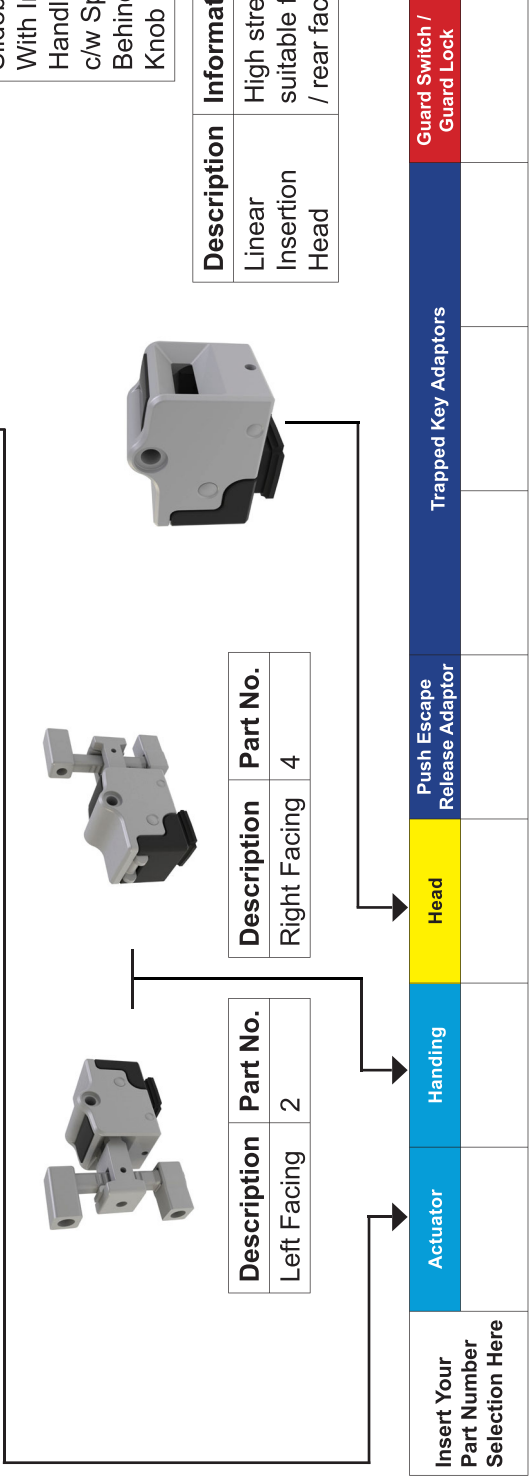
Description	Information	Part No.
proHandle No Internal Release	Ergonomic handle for machine guarding, but no method to open door from inside.	EN

Description	Information	Part No.
proHandle, With Internal Access Handle	Ergonomic handle for machine guarding. Internal access handle allows to be opened and closed from the inside.	EF

Description	Information	Part No.
Slidebar with Internal Handle But No Return Spring	Sliding motion holds door closed. Same as a TN but escape release knob allows door to be opened only from the inside when main unit is unlocked.	TI

Description	Information	Part No.
Slidebar With Internal Handle c/w Spacer Behind The Knob	Same as a TN but escape release knob allows door to be opened and closed from the inside when main unit is locked.	TF

Description	Information	Part No.
Linear Insertion Head	High strength and durability, suitable for all 'T' actuators and left / rear facings.	T6

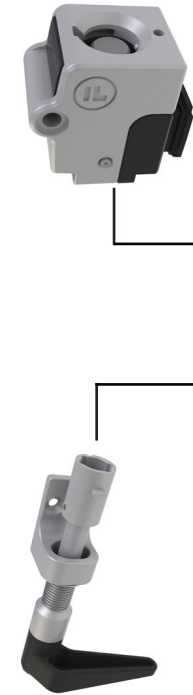


Step 1: Choose the Actuator, Handing & Head

Description	Information	Part No.
Rotary Insertion Handle	Turning motion holds door closed. Ideal for non locking set ups.	MA

Description	Information	Part No.
Single Action Escape Release Handle	Red handle overrides all locking mechanisms and opens safety contacts to allow escape release.	EI

Description	Information	Part No.
Single Action Escape Release Handle	Red handle overrides all locking mechanisms and opens safety contacts to allow escape release. Red handle can also close door from inside.	EJ



Description	Part No.
Left Facing	2

Description	Part No.
Right Facing	4

Insert Your Part Number Selection Here

Actuator

Handing

Head

Push Escape Release Adaptor

Trapped Key Adaptors

Guard Switch / Guard Lock

Description	Information	Part No.
Rotary Insertion Head	Rotary insertion head suitable for MA actuator and left / right facings.	M6

Description	Information	Part No.
Single Actions Escape Release Head	Single action escape release head with automatic reset. Suitable for EI and EJ handle actuators and left / right facing.	A6
Single Actions Escape Release Head with Key Reset	Single action escape release head with key reset. Suitable for EI and EJ handle actuators and left / right facing.	I6

Adaptors

Step 2: Do you want a Push Escape Release?

Description

A push escape release adaptor will allow guard to open even if unit is locked by keys and / or solenoid. A push escape release adaptor is not needed if a single action escape release head and handle combination have already been specified.



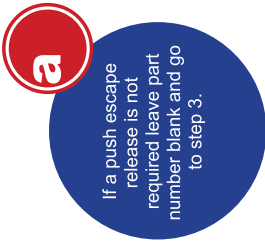
Description	Information	Part No.
Pushbutton Reset	Overrides all locking mechanisms and opens safety contacts to allow escape release. Simple push reset allows quick restart. Suitable for guards up to 60mm thick.	RX

Description	Information	Part No
Pushbutton Reset Variable Length	Same as RX but suitable. Suitable for guards up to 300mm thick.	RZ



Description	Information	Part No.
Security Tool Reset	Same as RX but key reset to ensure all incidents are reported those employees with a reset key.	R2

Description	Information	Part No.
Security Tool Reset Variable Length	Same as R2 but suitable. Suitable for guards up to 300mm thick.	R4



Insert Your Part Number Selection Here	Actuator	Handing	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock

Adaptors

Step 3: Choose an Trapped Key Adaptor

Forced Extracted Key For
Personnel To Carry Inside Area



Additional Safety Keys For Multiple
Personnel - SK



Access Key Required To
Unlock Guard - AK



Description	Part No.
Standard Lock	L
Releasing Lock (must be used if a push escape release or single action escape release head & handle selected).	R

Description	Part No.
Standard Lock no dustcover	1
Standard Lock with dustcover	2
Standard Lock with padlockable dustcover	3
Masterable Lock no dustcover	6
Masterable Lock with dustcover	7
Masterable Lock with padlockable dustcover	8

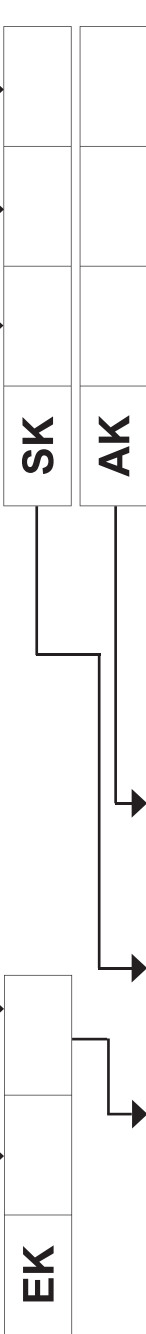
Description	Part No.
Standard Lock	L
Releasing Lock (must be used if a push escape release or single action escape release head & handle selected).	R

Description	Part No.
Standard Lock no dustcover	1
Standard Lock with dustcover	2
Standard Lock with padlockable dustcover	3
Masterable Lock no dustcover	6
Masterable Lock with dustcover	7
Masterable Lock with padlockable dustcover	8

Description	Part No.
Number of key adaptors required	1 - 9



Total
extracted,
safety & access
locks in one
configuration
is 9.



Insert Your Part Number Selection Here	Actuator	Handling	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock

Electrical Switching / Locking

Step 4: Choose an Electrical Switching / Locking Body

Description	Information	Part No.
Slimline LOK Body	Solenoid controlled safety switch. Holds door locked until signal sent to unlock. 40mm wide.	ZL
Slimline LOK Body - Releasing	Same as ZL but allows push escape release adaptor override locking means. Only 40mm wide.	ZR

Description	Information	Part No.
LOK Body	Solenoid controlled safety switch. Holds door locked until signal sent to unlock. 80mm wide.	SL
LOK Body - Releasing	Same as SL but allows push escape release adaptor or single action escape release head and handle to override locking means. Only 80mm wide.	SR

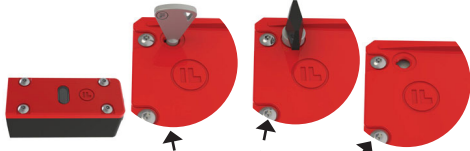
Description	Information	Part No.
STOP Body	Non-locking safety switch.	ST



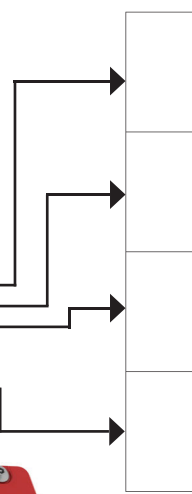
Voltage Options	Part No.
24v	4
proNet Connection (80mm wide variants only)	P
110v (80mm wide variants only)	1
230v (80mm wide variants only)	2
ASi (80mm wide variants only)	8



Solenoid Type & Override Options	Part No.
No Locking (Safety switch units only)	0
Power-to-Unlock Auxiliary Release	1
Power-to-Unlock Emergency Release	2
Power-to-Lock (24v, 110v & ASi only)	6



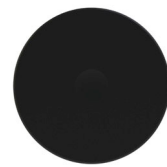
Safety Switching Principle Options	Part No.
Safety on guard locking for Power-To-Unlock solenoid locking units.	1
Power-To-Lock solenoid locking units are always safety on guard.	
Safety on guard power solenoid locking units.	6



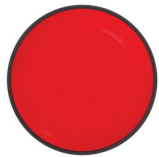
Insert Your Part Number Selection Here	Actuator	Handing	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock

Option Pods

Control Options - Once the basic interlock configuration is establish, control functions can be added in 'Option Pods'



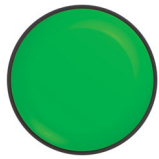
00
Blank



LR
Red Lamp



LY
Yellow Lamp



LG
Green Lamp



LB
Blue Lamp



LW
White Lamp



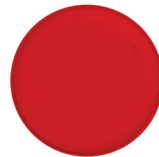
RG
RFID Reader



Please
contact Fortress
to confirm your
RFID reader.



ET
E-Stop (Twist Reset)



EP
E-Stop (Pull Reset)



EI
E-Stop (Illuminated
Twist Reset)



EM
E-Stop (With Additional
Monitoring Contacts,
Twist Reset)



2E
Latching Selector Switch
(Illuminated)



2F
Momentary Selector
Switch (Illuminated)



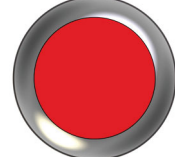
K5
Latching Key Switch
(90 Degree)



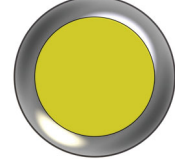
2E, 2F & K5
options can only
be fitted in top
right or bottom
left position.



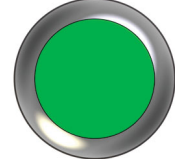
PB
Black Non Illuminated
Pushbutton



P1
Red Illuminated
Pushbutton



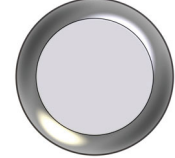
P2
Yellow Illuminated
Pushbutton



P3
Green Illuminated
Pushbutton



P6
Blue Illuminated
Pushbutton



P7
White Illuminated
Pushbutton



If you don't
require any
additional control
function, skip to
step 9.

Option Pods

Step 5: Slimline Option Pods



Individual power supply units are available on request.



Select your pushbuttons, selector switches and lamps from the control option section in this ordering sequence:

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



If an option pod isn't required, skip to wiring step 9.

Description	Part No.
Stand alone Slimline Pod with common power supply.	V
Slimline Pod to be fitted below proStop or Slimline proLOK unit with common power supply.	K

Y

Top

Middle

Bottom

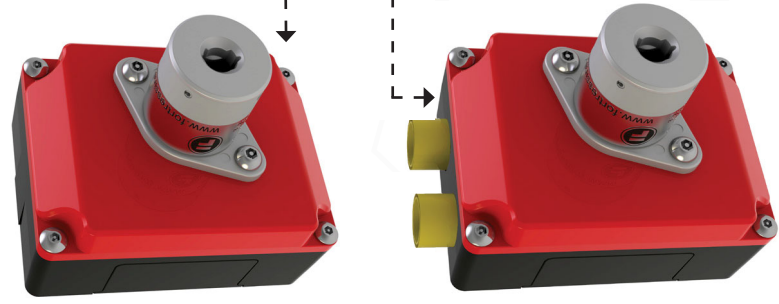
0

N

Insert Your Part Number Selection Here	Actuator	Handing	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock	Slimline Option Pod

Option Pods

Step 6: Key Switch Pods



Description	Part No.
Stand alone key switch pod with no holes on top of pod case.	0
Key switch pod with two holes on top for fitting to guard interlock assembly.	2

Description	Part No.
Standard Lock no dustcover	1
Standard Lock with dustcover	2
Standard Lock with padlockable dustcover	3
Masterable Lock no dustcover	6
Masterable Lock with dustcover	7
Masterable Lock with padlockable dustcover	8

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2NO / 2NC safety switch activated by key and separate from locking switches. Common uses are to request machine stop enable teach modes or prevent machine restart.

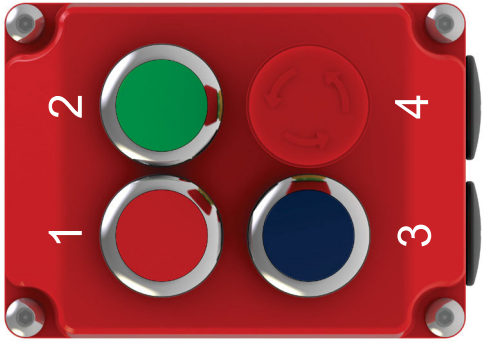
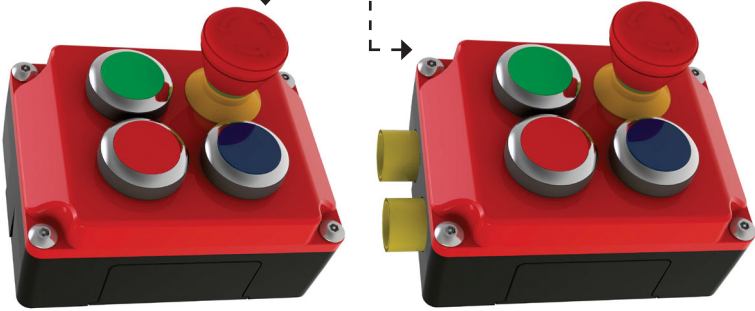


B **K**

Insert Your Part Number Selection Here	Actuator	Handing	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock	Key Switch Option Pod

Step 7: Option Pods

Description	Part No.
Stand alone option pod with no holes on top of pod case.	V
Option pod with two holes on top of pod case for fitting to proLOK body.	J



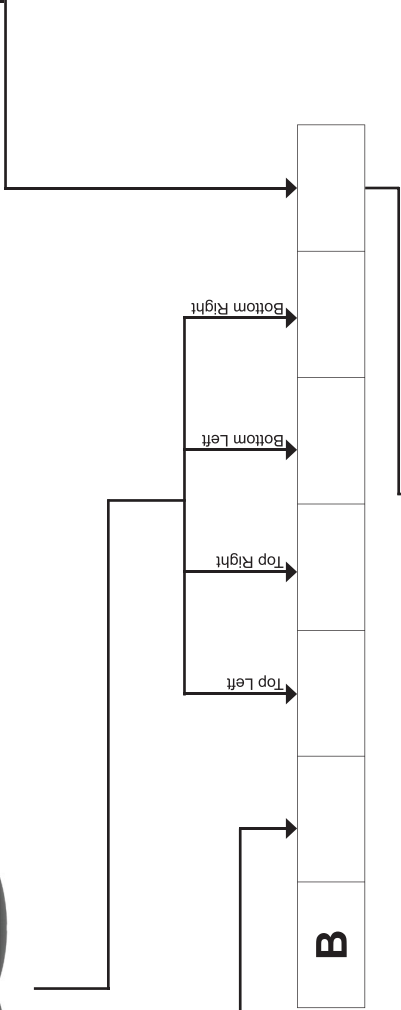
Select your pushbuttons, selector switches and lamps from the control option section in this ordering sequence:

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

Sensors - 24v Only	Part No.
No Sensor	N
Coded Magnet - Left Hand	C
Coded Magnet - Right Hand	D
RFID Sensor - Left Hand	X
RFID Sensor - Right Hand	Q
Magnetic Sensor - Left Hand	F
Magnetic Sensor - Right Hand	J



See step 1 for handing options.



Your Part Number Selection Here	Actuator	Handing	Head	Push Escape Release Adaptor	Trapped Key Adaptors	Guard Switch / Guard Lock	Option Pod

Option Pods

Step 8: Networked Option Pods

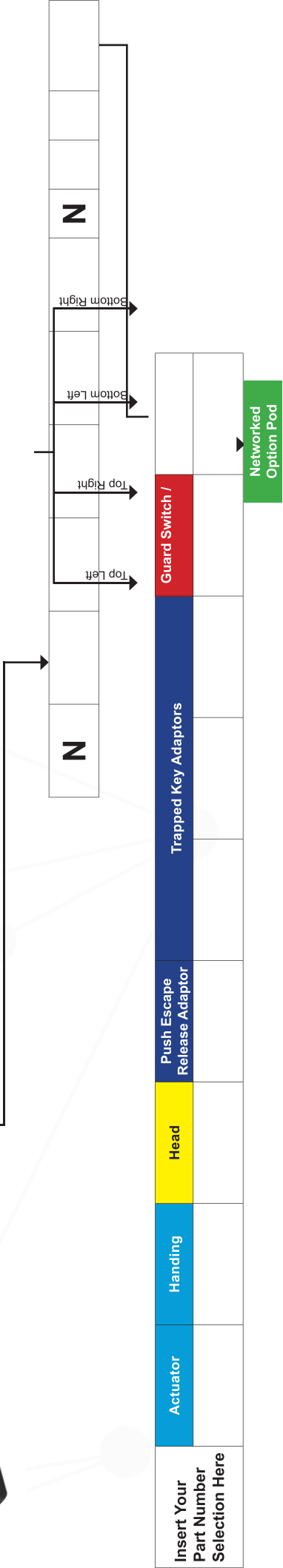
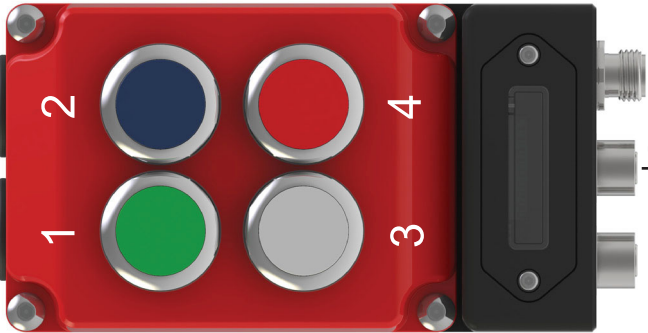
Description	PROFINET	Ethernet/IP
Networked option pod fitted to guard interlock assembly.	D	H



Connection Options	P
3 QD set - 1x male M12 power	
4 QD set - 1x male M12 power M12 5-pin, external safety switch inputs.	
4 QD set - 1x male M12 power M12 power, 2x data.	
4 QD set – 1x male power, 1x female power (5-pin 7/8”), 2x data.	
4 QD set - 1x male power, 1x female power (4-pin 7/8”), 2x data.	
4 QD set - 1x male M12 power M12 8-pin M12 female to power a stop.	
4 QD set - 1x male M12 power female for hardwired safety outputs.	

Select your pushbuttons, selector switches and lamps from the control option section in this ordering sequence:

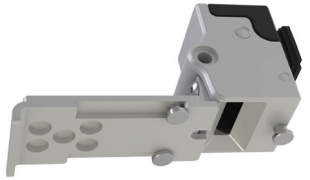
- 1. Top Left
- 2. Top Right
- 3. Bottom Left
- 4. Bottom Right



Step 10: Accessories



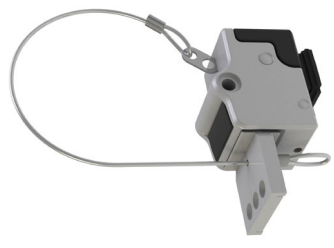
Description	Information	Part No.
Cap	To terminate assemblies without heads.	C6



Description	Information	Part No.
Drop Down Lock-Out	Padlockable addition to amGardpro head modules. Padlock holes only align when actuator is removed.	DD7



Description	Information	Part No.
Foot	To terminate non-switch configurations.	FT



Description	Information	Part No.	
Lock-Out Clip	Padlockable addition to amGardpro head modules. 3 x 8mm padlock holes only align when clip is fixed into head.	P	SL8 - suitable for 'S' head
			TL8 - suitable for 'T' head



AMGARD S40 RANGE

amGardS40 Stainless Steel Modular Gate Switches

amGardS40 is the latest range of safety interlock switches from Fortress Interlocks. Manufactured in 316 stainless steel, the range is modular in design, allowing a wide range of safety interlock switches to be configured to suit many industrial applications. The choice of configurations include:

- Solenoid Locking Safety Switches
- Solenoid Locking Safety Switches with internal release
- Solenoid Locking Safety Switches with “safety keys” (for personal protection)
- Solenoid Locking Safety Switches with machines control
- Non Solenoid Tongue Switches
- Non Solenoid Tongue Switches with machine control
- Mechanical Trapped Key Interlocks
- Machine Control Stations

The range is supplied in enclosures sealed to IP69K making it suitable to be pressure washed at high temperatures and has a retention force of 10,000N (greatest on the market) so it is ideal for ensuring guard doors are held closed until machines and/or processes are in safe condition. Each module has a slim body design of 40mm so that it can be easily fitted to 50mm guarding sections or areas where space is limited.














The rugged design and strength capability makes the S40 range an ideal choice for applications in the Food & Beverage, Pharmaceutical, Chemical and Construction Materials industries.


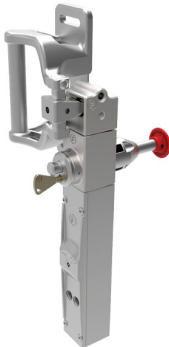






The graphic below shows the modules currently available in the range.

am

Gard

S40

amGard S40 Range						
	S40 Slidebar	S40 Hinged Handle	S40 Tongue Actuator		S40 Cap	S40 Slimline Head
Actuators				Head Modules		
	S40 IR Adaptor	S40 E Adaptor	S40 Lock Adaptor			
Adaptors						
	S40 Stop	S40 Lok	S40 Foot			
Electrical Switching / Locking						
	S40 Option Pod					
Option Pod						

<p>S40HS1S6SL411 Solenoid Locking Safety Switches</p> 	<p>S40HS1S6R2SR411 Solenoid Locking Safety Switches with Internal Release</p> 
<p>S40HS1S6SKL22AKL21SL411 Solenoid Locking Safety Switches with "Safety Keys" (personnel protection)</p> 	<p>S40HS1S6SL411B1EPP697 Solenoid Locking Safety Switches with Machine Control</p> 
<p>S40HS1S6ST401 Non Solenoid Tongue Switches</p> 	<p>S40HS1S6ST401B1EPP697 Non Solenoid Tongue Switches with Machine Control</p> 
<p>S40HS1S6SKL22AKL21FT0 Mechanical Trapped Key Interlocks</p> 	<p>S40B0EPP697 Machine Control Stations</p> 

ACTUATORS



S40 HINGED HANDLE

- S40HS1 - Hinged Handle - Short Reach.
- Used in conjunction with the S40 Head.
- Particularly useful for applications using small radius hinged doors (250mm min).
- Stainless steel casing.
- Mis-alignment of +/- 12mm.

Reference No:	Description:
S40HS1	Hinged Handle - Short Reach



S40 SLIDEBAR

- Used in conjunction with the "S40AT Head"
- Particularly useful for applications using small radius hinged doors
- Stainless steel casing.
- Built in lock-out facility to accommodate a maximum of 4 padlocks with up to 8mm diameter shackles.

Reference No:	Description:
S40SI2	Slidebar - Int.Handle (Left)
S40SI4	Slidebar - Int.Handle (Right)
S40SN2	Slidebar (Left)
S40SN4	Slidebar (Right)
S40SS2	Slidebar - Spring (Left)
S40SS4	Slidebar - Spring (Right)
S40SF2	Slidebar - Int.Handle allows locking on inside (Left)
S40SF4	Slidebar - Int.Handle allows locking on inside (Right)

HEAD MODULES



S40 CAP

- To terminate assemblies without heads, for example, solenoid controlled key release.
- Removable to allow for modification.

Reference No:	Description:
S40C6	Cap



S40 AT SLIMLINE HEAD & TONGUE ACTUATOR

- Fully Stainless Steel Construction
- Heavy duty tongue unit.
- Ideal for fast, frequent access.
- 4 position fixing at 90° increments allowing on site handing change.
- Misalignment tolerance of +/- 12mm.
- 6mm Overtravel allowance.
- Retention force 10,000N when top fixing is used.
- Mounted upside down it is self cleaning, ideal for dusty environments.
- 40mm width.
- 250mm door radius

Reference No:	Description:
S40S6	S40 AT Slimline Head Only
S40S7	S40 AT Slimline Head c/w Drop Down Lockout
S40SA1	S40 AT Slimline Tongue Front Handing
S40SA2	S40 AT Slimline Tongue Left Handing
S40SA3	S40 AT Slimline Tongue Back Handing
S40SA4	S40 AT Slimline Tongue Right Handing

ADAPTERS



S40 SAFETY & ACCESS LOCK ADAPTORS

S40 Lock Adaptor module is used to add to an amGardS40 unit, to include the provision of key control functionality. They can be used to provide the function of an access lock, or alternatively provide a safety key function. The releasing versions of the lock adaptors are the type that MUST be used in conjunction with any type of internal release function (push IR).

Reference No:	Description:
S40SKL	Safety Adaptor Standard
S40AKL	Access Adaptor Standard



S40 E - Extracted Key Adaptor

S40E Extracted Key Lock Adaptor is used to add to an amGardS40 unit, to include the provision of key control functionality. It can be used to provide an enhanced safety key function, where the door cannot be opened until the key has been removed from the lock. The releasing version of the extracted key adaptor (push IR) is the type that MUST be used if used in conjunction with any type of internal release function (push IR) or all in one head module with IR Handle.

Reference No:	Description:
EKL2	Standard CL Lock with s/s dustcover
EKL3	Standard CL Lock with s/s padlockable dustcover
EKR2	Releasing CL Lock with s/s dustcover
EKR3	Releasing CL Lock with s/s padlockable dustcover



S40 IR - Escape Release Adaptor

S40E IR Escape Release Adaptor module is used in conjunction with a releasing amGardS40 unit, to provide an escape function from an interlocked hazardous area. There are three versions, one with a key reset, one with a push button reset and one with a simple pull reset. The other option is the length of plunger needed to clear the door post thickness. This unit must always be mounted as the first module under the head.

Reference No:	Description:
S40R2	Key Reset - 60mm
S40R3	Key Reset - 80mm
S40R4	Key Reset - Variable
S40R7	Pull Reset - 60mm
S40R8	Pull Reset - 80mm
S40R9	Pull Reset - Variable
S40RX	Front Reset - 60mm
S40RY	Front Reset - 80mm
S40RZ	Front Reset - Variable

ELECTRICAL SWITCHING / LOCKING



S40 STOP - S/S NON SOLENOID SWITCH BODY - STANDARD

Safety switch interlock for use in the S40 range.

- Dual force break normally closed safety circuits.
- Single normally open monitor contact.
- LED status indication.
- PL
- Stainless steel construction
- IP69LK

Reference No:	Description:
S40SL411	Standard S40 Stop - 24V AC/DC



S40 LOK - S/S SLIMLINE SOLENOID CONTROLLED BODY

S40 Lok Solenoid Controlled Body is used to manage activities by means of a solenoid control element. The case is stainless steel with an IP69 rating for use in full wash down areas.

NOTE! There are 2 derivatives, normal and releasing. The releasing version is the type that MUST be used if used in conjunction with any type of internal release function (push I/R).

Reference No:	Description:
S40SL411	STANDARD SOLENOID
S40SL416	Power to Unlock - Safety
S40SL471	Power to Unlock - Monitor Only
S40SL471	Power to Lock - Safety
S40SL461	Power to Lock - Monitor Only
	PUSH IR COMPATIBLE
S40SR411	Power to Unlock - Safety
S40SR416	Power to Unlock - Monitor Only
S40SR471	Power to Lock - Safety
S40SR461	Power to Lock - Monitor Only



S40 FOOT - S/S FOOT

To terminate non-switch configurations

- Secures unit firmly to mounting surface.
- Removable to allow for modification.
- For use in trapped key solutions.
- Seals from dust ingress.

Reference No:	Description:
S40FT0	Foot

OPTION POD



S40 OPTION PODS

S40 Option Pod module is used either to add to an amGardS40 unit, or use as a standalone product. It may be used to include the use of pushbuttons, selector switches, lamps, and/or E-Stops within one IP69K enclosure.

Control elements can be pre wired with a common power supply to minimise external wiring or supplied with volt free contacts.

Reference No:	Description:	Reference No:	Description:	Reference No:	Description:
	COMMON POWER SUPPLY		ILLUMINATED BUTTONS		LAMPS
B0	Stand Alone Pod	S40P1	Red Illuminated Button	S40LR	Red Lamp
B1	Suit S40Stop / S40Lok Body	S40P2	Yellow Illuminated Button	S40LY	Yellow Lamp
	INDIVIDUALLY WIRED	S40P3	Green Illuminated Button	S40LG	Green Lamp
C0	Stand Alone Pod	S40P6	Blue Illuminated Button	S40LB	Blue Lamp
C1	Suit S40Stop / S40Lok Body	S40P7	White Illuminated Button	S40LW	White Lamp
		S40EI	E-Stop Illuminated		ILLUMINATED SELECTOR SWITCH
			NON - ILLUMINATED BUTTONS	S402E	2 Position - Latching Illuminated Selector Switch
		S40PB	Black Non-Illuminated Button	S402F	2 Position - Momentary Illuminated Selector Switch
		S40EP	E-Stop (Pull) Non-Illuminated		KEY SELECTOR SWITCH
				S40K5	2 Position Key Selector Switch



TGARD RANGE

Introduction to **tGard**

tGard is a compact metal bodied system that enables the configuration of various safety products including electrical safety gate switches (with or without guard locking), mechanical trapped key interlocks, and electrical operator controls either as separate devices or any combination of these three functions in one unit.

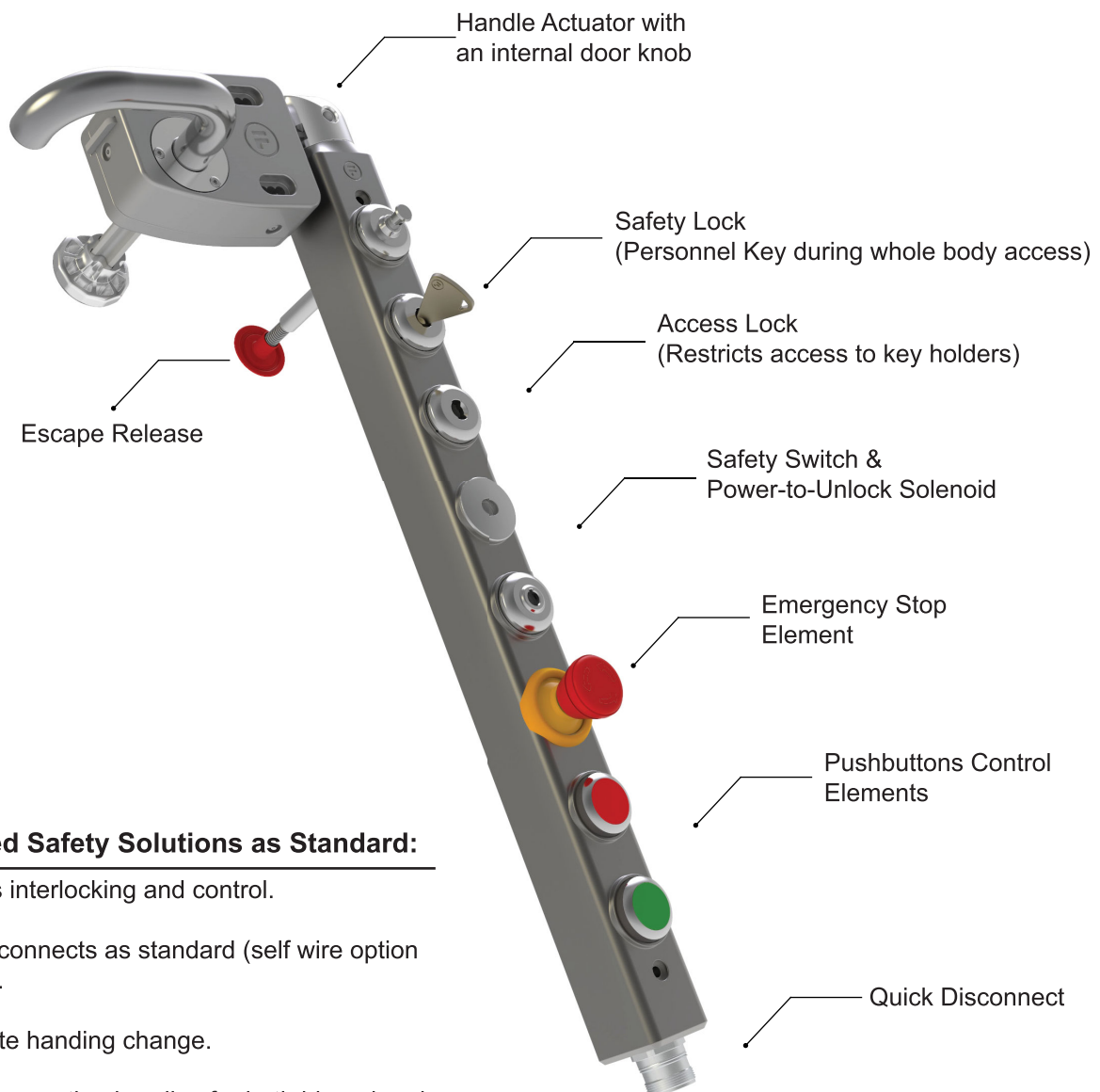
tGard offers “a customised safety solution, as standard”. Each order is defined by a range of tGard elements that include selector switches, safety switches (solenoid and non-solenoid), personnel keys, emergency release, pushbuttons, E-Stops, indicator lamps and a choice of operating handles for both hinged and sliding guard doors.

tGard’s metal body includes through-holes for quick installation on aluminium profiles, flat surfaces, doors and even back of panels without the need for mounting plates.

It is IP65 as standard and has been designed to be fully compliant with the machinery safety standards.



tGard Configuration Example



Customised Safety Solutions as Standard:

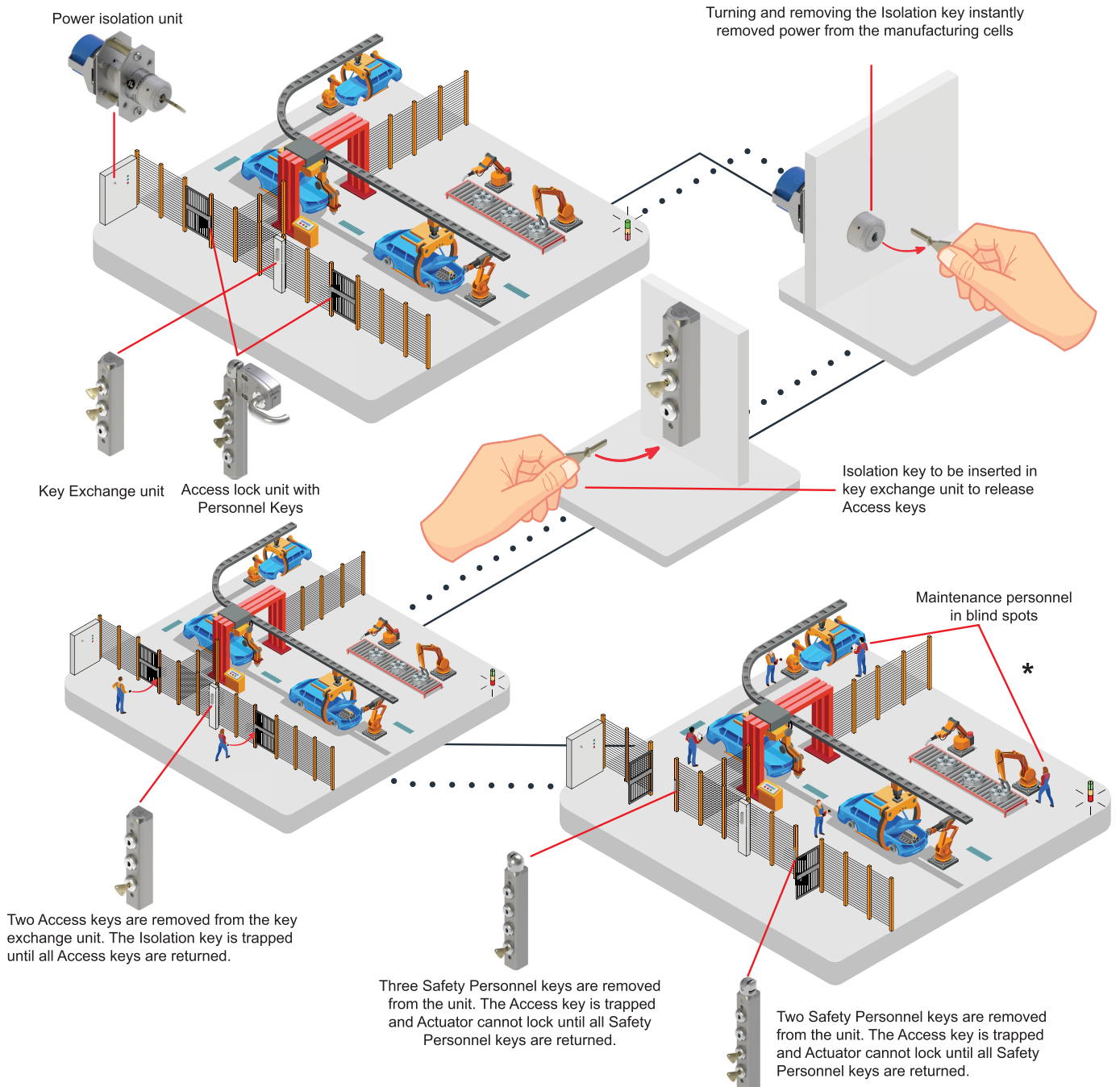
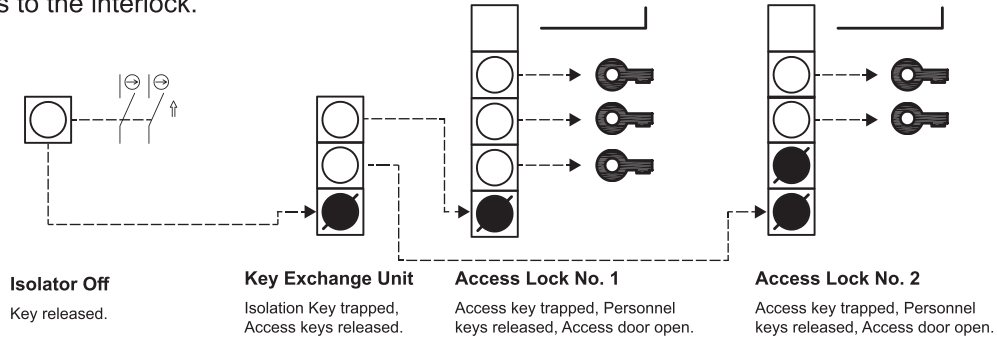
- Combines interlocking and control.
- Quick Disconnects as standard (self wire option available).
- Fast on site handing change.
- Choice of operating handles for both hinged and sliding guard doors.

Body Transfer Line

Application Requirement:

Due to the size of the safeguarded space surrounding body transfer lines in an automotive plant, there are blind spots where a maintenance personnel could be performing work unknowingly to a line operator requesting the line to run. This could lead to the line running while maintenance personnel are still working within the cell. Therefore, the transfer line must be safeguarded to ensure access into the line can only be permitted while power to the line has been isolated and the safety circuits remain open until all personnel have exited the safeguarded space returning their keys to the interlock.

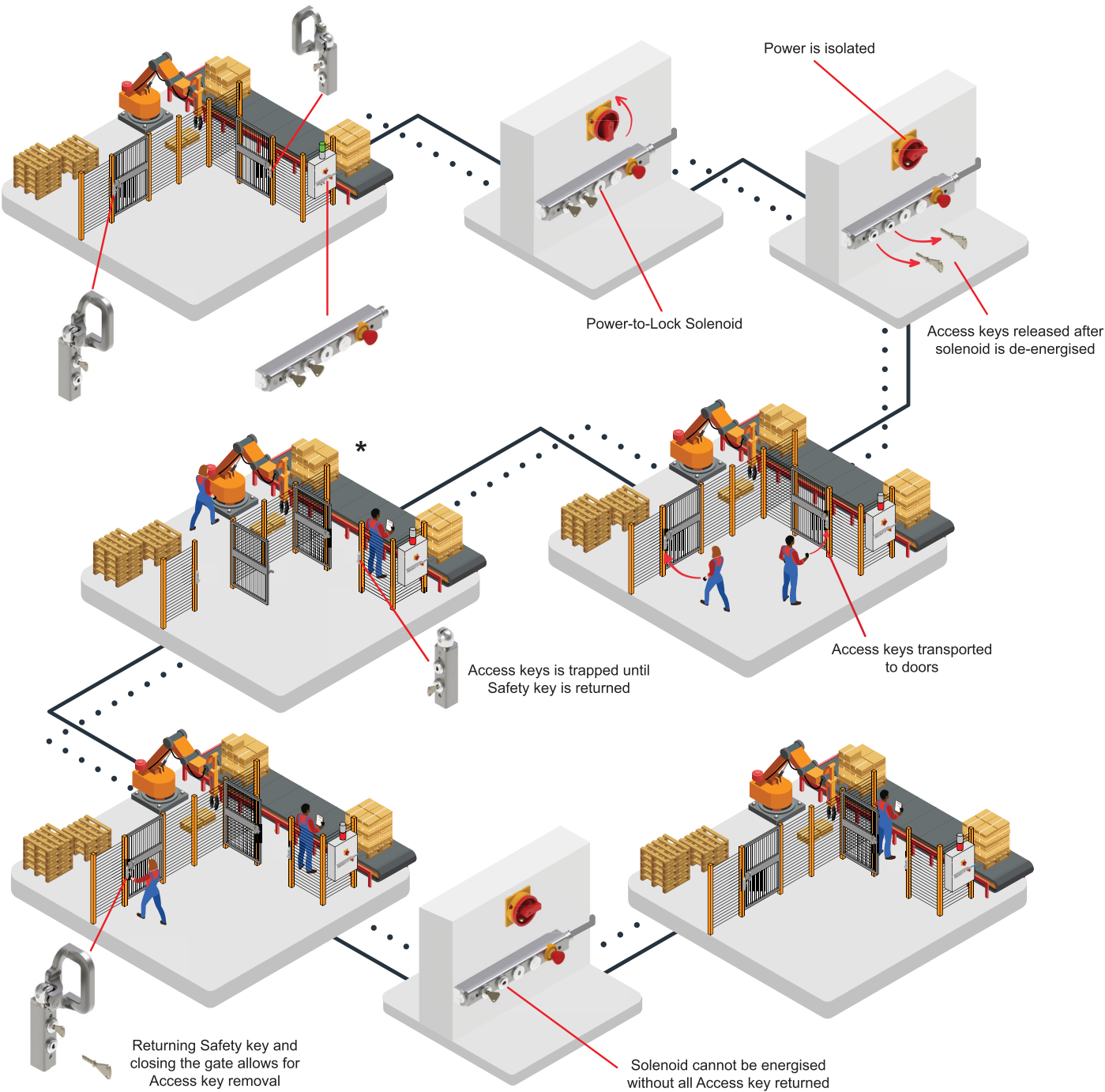
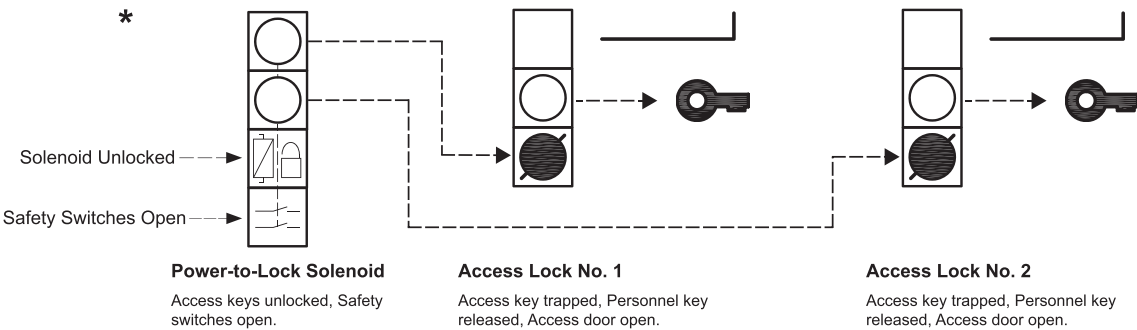
*



Robot Pallet Stacker

Application Requirement:

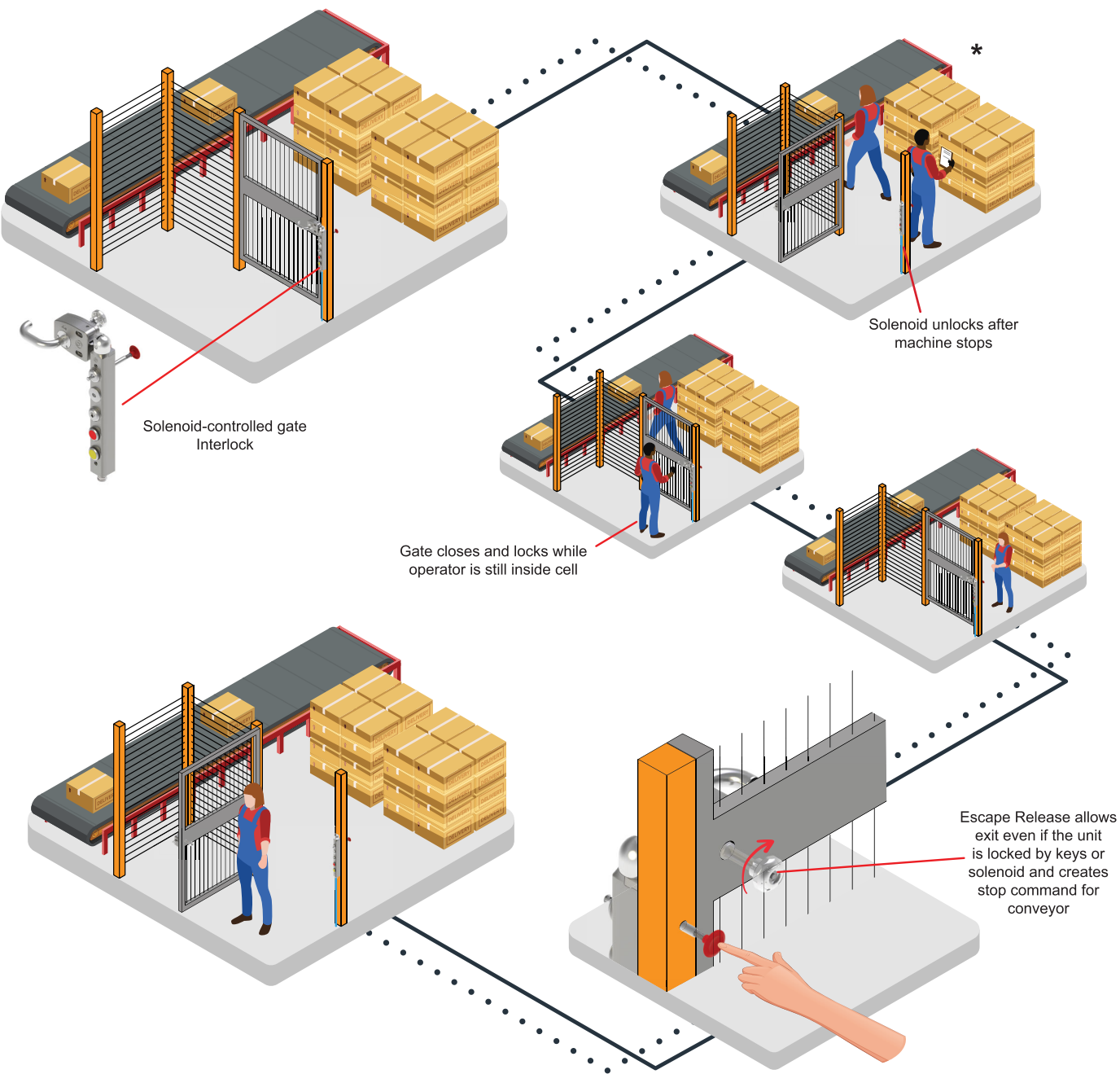
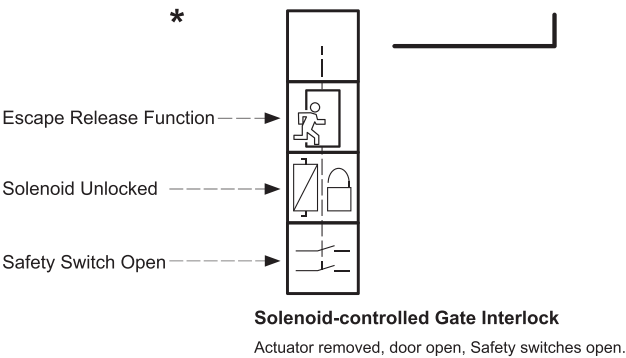
Robot arms require safeguarding measures during operation and when carrying loads. The robot pallet stacker below has two access points and a single central control panel. When mains power is isolated to the system, the Power-to-Lock solenoid is de-energised and Access keys for the access points are released. Mechanical only interlocks at the guard can be opened with an Access key whilst also providing a personnel key for the operator to take inside the cell to prevent restart.



Conveyor System

Application Requirement:

The conveyor system in an automated warehousing application below is safeguarded by interlocked guards. Access is required to remove incorrect packages or clear blockages on the conveyor. The solenoid interlock keeps the guard locked until the conveyor stops, pushbutton functionality for additional control is included. The inclusion of an escape release mechanism allows any operator who finds them self behind a locked guard to override the keys and / or solenoid to exit.



Guard Switch

2NC, 1NO Safety Switch



THENSMQ1

Guard Lock with Integrated Machine Control

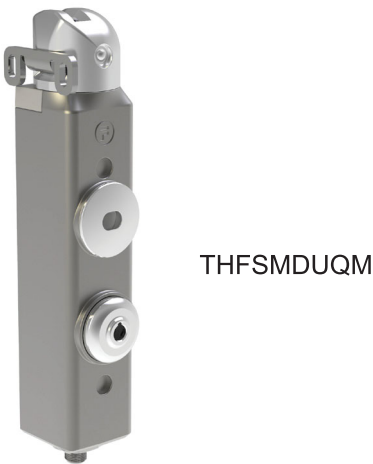
Personnel key available for operator to carry



THHSNSMDUEMP6P7Q9

Guard Lock

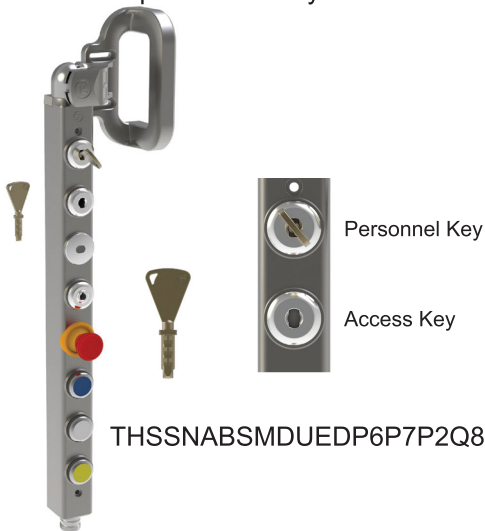
Power-to-Unlock solenoid with safety switch



THFSMDUQM

Guard Lock with Trapped Key Integration

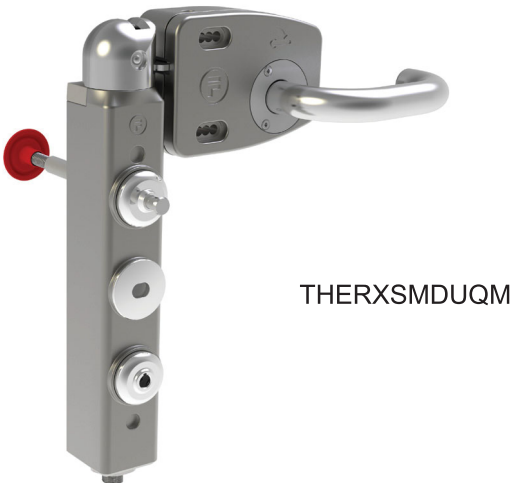
Access restricted to key holders,
personnel key available for operator to carry



THSSNABSMDUEDP6P7P2Q8

Guard Lock with Escape Release

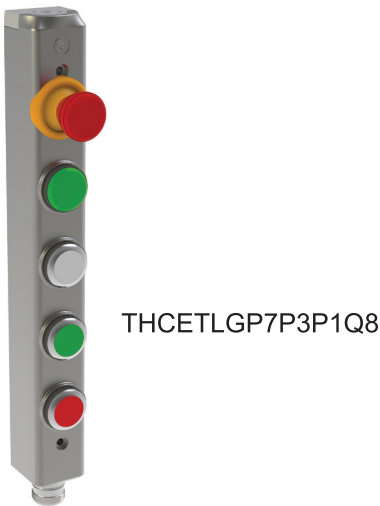
Power-to-Unlock solenoid with safety switch. Escape release overrides locking mechanism and creates stop command



THERXSMDUQM

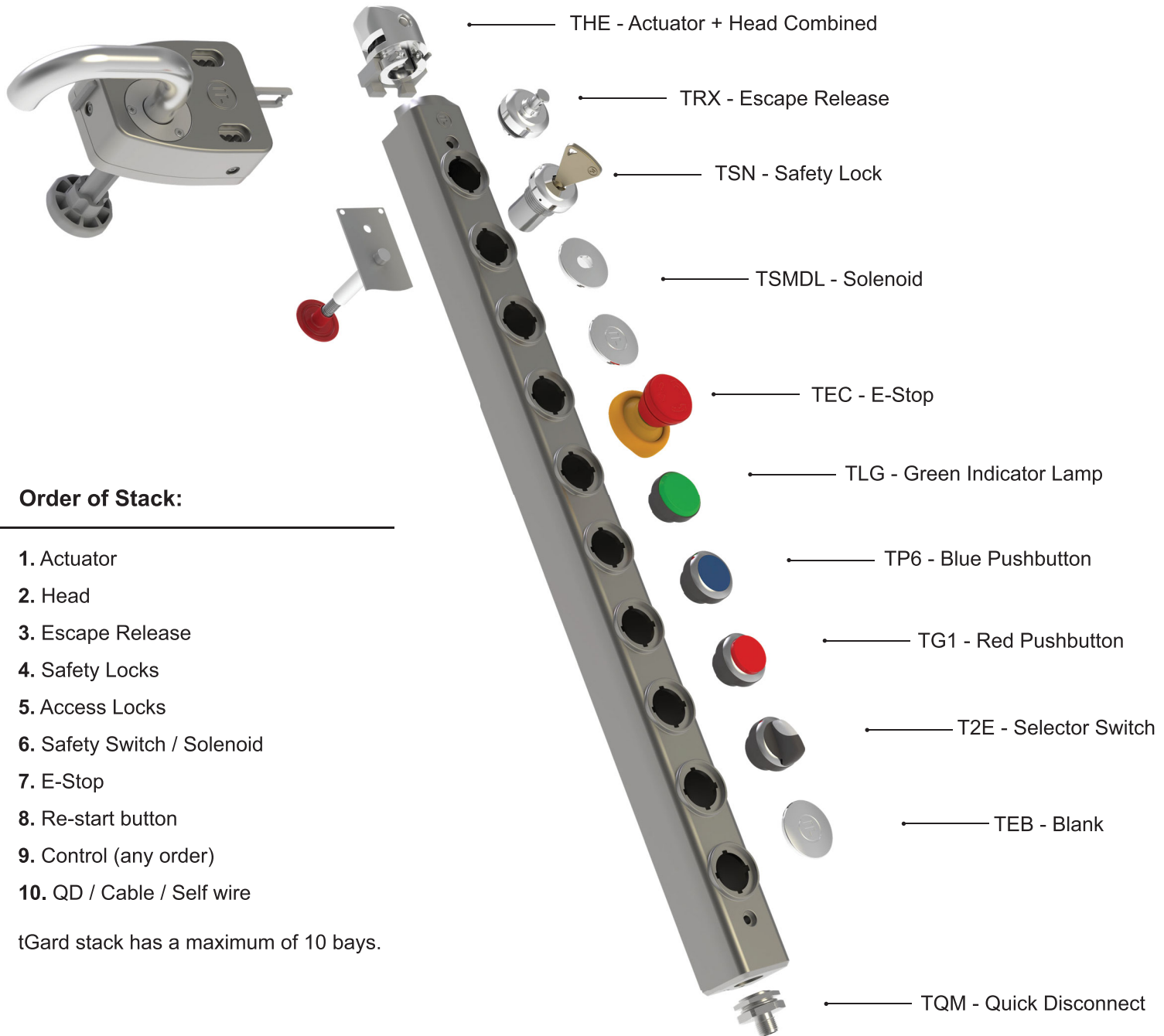
Control Station

Control Station with emergency stop, indicator lamp and pushbuttons



THCETLGP7P3P1Q8

Configuration tools are available on the Fortress website, www.fortressinterlocks.com/tgard-configurator



tGard Configuration Guideline

At the end of the selection process, the part numbers drop their "T", except the first item. Example:

THE + TRX + TSN + TSMDL + TEC + TLG + TP6 + TG1 + T2E + TEB + TQM =
THERXSNSMDLECLGP6G12EEBQM

When creating a tGard stack, the wiring of connections follow these rules:

1. Safety circuits are in fixed positions on each connector and comprise of volt free circuits.
2. Inputs / outputs are allocated from the bottom of the stack, ascending.
3. On any one element, the input is assigned first, then the output(s).
4. Outputs are +24v, taken from the +24v supply.
5. Selection of the connector depends upon the wiring requirements for inputs / outputs / safety circuit of the total stack.

Actuators

Step 1: Actuators



TAF
Fixed Actuator



All Actuators to be used in combination with a THM head module



TAH
Handle Actuator - Hinged Door



TAS
Handle Actuator - Sliding Door



THB
Blank Handle



TEN
Handle Actuator - (no internal knob)



TEH
Handle Actuator



The internal knob on TEH handle doesn't override the solenoid or lock. A TRX/Z (emergency release element) must be used to deliver that functionality

Heads

Step 2: Head Modules



You can combine a actuator with a head to generate a single part number



THC
Cap



THM
Head



THM + TAS = THS
Head module including sliding actuator



THM + TAH = THH
Head module including hinged actuator



THM + TAF = THF
Head module including fixed actuator



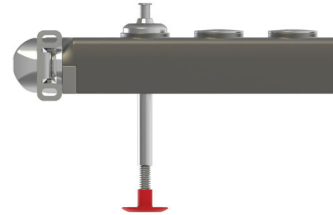
THM + TEN = THN
Head module including handle actuator (No internal knob)



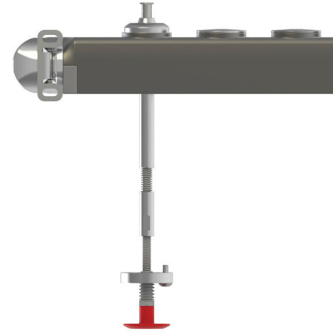
THM + TEH = THE
Head module including handle actuator

Core Elements

Step 3: Escape Release



TRX
Standard 60mm
Escape Release



TRZ
Variable length
Escape Release



Extended
version available
(TRZ) - < 300mm

Step 4: Safety & Access Lock Element



TSN
Standard Safety
Lock (No Key)*

TGN
Master Safety
Lock (No Key)*



TAB
Standard Access
Lock (No Key)*

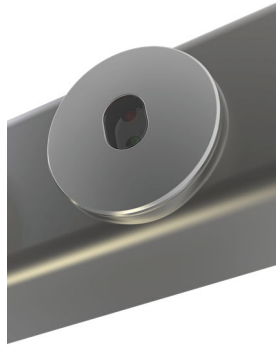
TQB
Master Access
Lock (No Key)*



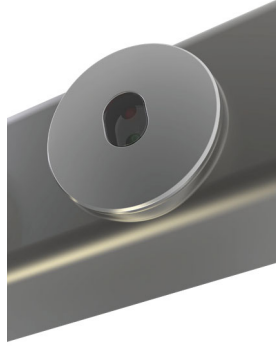
*All keys need
to be ordered
separately

Core Elements

Step 5: Safety Switches



TSM
Safety Switch



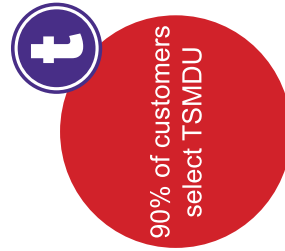
TSP
Safety Switch
with extra retention
force



TSS
Safety Switch -
No N/O monitor contact



Step 6: Solenoid Controlled Lock & Safety Switch Elements



TSMDU/L
Head & solenoid safety in series
TSMDU (Power-to-Unlock)
TSMDL (Power-to-Lock)



TSSEL
Safety on head element only (no monitoring
contact on head)
TSSEL (Power-to-Lock)

TSMEU/L
Safety on head element only
TSMEU (Power-to-Unlock)
TSMEL (Power-to-Lock)

Core Elements

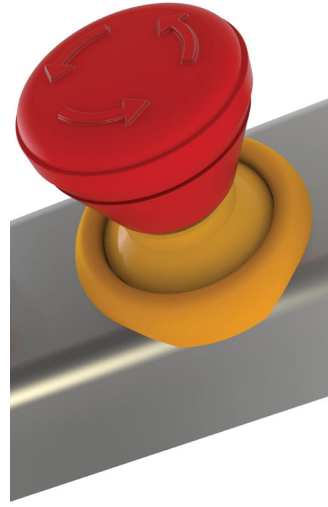
Step 7: Extension Blank Element



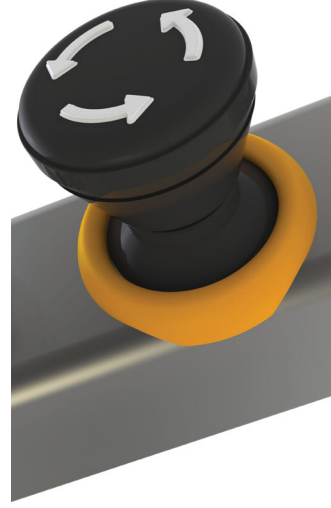
TEB
Extension Blank
Element

t
Can be used to
add extension bay
to a configuration

Step 8: Emergency Stop Element



TEC, TET, TEM, TEP, TEI
Emergency stop element, version
available with a monitoring contact or
illumination



TES
TES is Black version
of the TET

t
E-Stop
always
mounted at the top of
any control elements,
but below solenoid/head/
safety switches/locks.
TEM & TEI E-Stops can
be positioned at the
bottom of the stack

Core Elements

Step 9: Safety Re-Start Switch



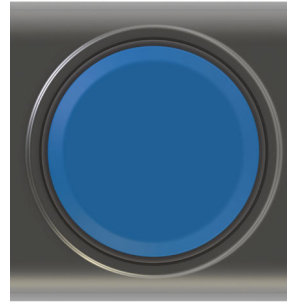
TSR

Safety Re-Start Switch - Blue



Location of
Safety Re-Start
Switch in stack
is highest control
element after
E-Stop's

Step 10: Indicator Lamp Element



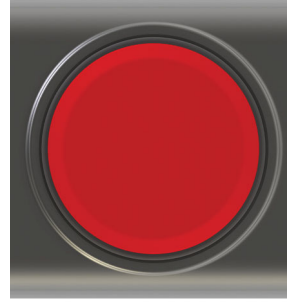
TLB

Indicator Lamp Element -
Blue



TLG

Indicator Lamp Element -
Green



TLR

Indicator Lamp Element -
Red



TLW

Indicator Lamp Element -
White















TLY








Indicator Lamp Element -
Yellow

Core Elements

Step 11a: Non-Illuminating Switches

					
TPB 1 N/O Pushbutton - Black	TPR 1 N/O Pushbutton - Red	TPG 1 N/O Pushbutton - Green	TPW 1 N/O Pushbutton - White	TPY 1 N/O Pushbutton - Yellow	TPZ 1 N/O Pushbutton - Blue
					
T2A 2 Position Selector Switch - Latching	T2V 2 Position Selector Switch - 1 N/O & 1 N/C	TK5 2 Position Selector Key Switch - Latching	TMB 1 N/O Mushroom Pushbutton - Black	T3D 3 Position Selector Switches - Momentary	T3H 3 Position Selector Switches - Momentary/Latching

Step 11b: Illuminating Switches

				
TP1 Pushbutton - Red	TP2 Pushbutton - Yellow	TP3 Pushbutton - Green	TP6 Pushbutton - Blue	TP7 Pushbutton - White
				
	T2E 2 Position Selector Switch - Latching		T3F 3 Position Selector Switches - Momentary	



Base Elements

Step 12a: Safety & Control Connectors



TQ1
5 Pin M12 QD



TQ2 / TQ3
8 Pin M12 QD



TQ4 / TQ5
12 Pin M23 QD



TQ7
14 Pin 7/8" UN2 QD

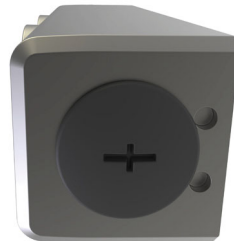


TQ8 / TQ9
19 Pin M23 QD

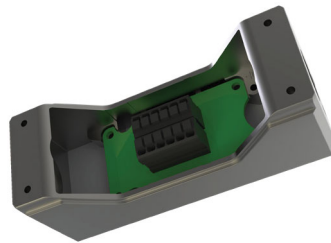


TQL / TQM
12 Pin M12 QD

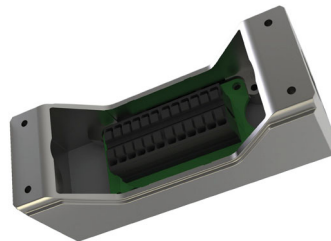
Step 12b: Foot, Self Wire Connectors, AS-interface



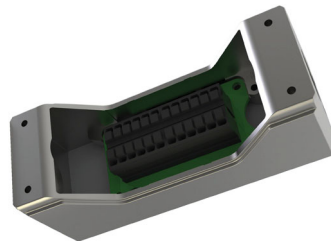
TBF
Foot Element



TW1
12 Terminals



TW3
24 Terminals



TW4
24 Terminals



TEBB4
Up to 2 AS-i nodes



TEBB8
Up to 4 AS-i nodes

Keys & Accessories

Step 14: Keys



TKS
Standard Key

TKM
Master Key

Step 15: Accessories



TLO
Lock-Out Clip





CASTELL DIVISION

Trapped key interlocking ensures that a process is followed and cannot be circumvented or short cut. The transfer of a key ensures that wherever personnel find themselves, in either starting or shutting down operations, they can be assured that they are safe. There are three simple steps in using trapped key components in an integrated safety system, what is being isolated, how many access points are there and what type of access is required. A key is used to start the process and remains trapped whilst the machine is running. The only way to remove the key is to isolate the hazard. This key is then used to gain access to the dangerous area and remains trapped in position while the gate or door is opened. The key can only be removed when the gate or door has been shut. In this way the key is either trapped when the machine is running and access cannot be gained, or the key is trapped while access is gained and the machine cannot be started.

The three points of trapped key interlocking



Designing interlock components into an integrated safety system

To design interlock components into an integrated safety system there are a number of key questions that need to be addressed.

- What is the operational flow to start and stop equipment?
- What is being isolated?
- Is there more than one system that needs to be isolated to make access safe?
- Is there a time delay required for safe access?
- How many access points are there?
- What is the type of access? Full body or part body?
- Severity of the possible injuries?
- What is the possibility of avoiding the hazard?
- What is the nature of the hazard?
- What energy sources are present?
- What is the operating environment?
- Use risk assessments as a guide to how the integrated safety system functions.

Today's production environment is very demanding. Pressures on supply chain efficiency and output are major considerations when developing manufacturing systems, Castell's approach to delivering solutions for machine guarding applications is to ensure that fast safe access can be gained. This means that efficiency is maintained whilst safety is not compromised.

Through this approach and the design of innovation products Castell's systems can be found in a vast range of applications across the globe. Working closely with industry Castell has ensured that products are available with the correct specifications, such as materials and finishes, to ensure a reliable operation for the environment.



Some of the areas where Castell products can be found are:



- Food and Beverage
- Aggregates and Mining
- Pharmaceutical and Chemical
- Paper, Pulp and Wood
- Steel, Aluminum and Precious Metal
- Automotive and Electronics
- Water and Recycling

Typical application areas:

Robot cells | Conveyors | Palletizers | Gas Turbines | Freezer Rooms | Automated Warehouse | Power Press | Spray Booths
Industrial Mixers | Pressure Vessels | Recycling | Rotating Machinery | Mixers and Blenders | Crushers | Bottling | Packaging

The original Castell interlock concept dates from 1922 and was developed for the electrical switchgear industry. This remains today a very important part of the Castell product portfolio. Castell delivers solutions across the electrical network from power stations to transmission equipment and from sub stations to incomer rooms. The ability to work across HV, MV and LV means that a Castell system can be used as a single solution to provide personnel safety and ensure equipment is used in the correct mode.

Our range of products has been developed over 90 years to provide the industry with interlocks of high quality and integrity. Working closely with key switchgear manufacturers has enabled Castell to produce interlocks designed specifically for use on the leading manufacturers own breakers, isolators, disconnectors and earth mechanisms.

Castell products are available in a range of materials and finishes, to ensure the correct specification interlocks. High temperature locks for use on electrostatic precipitators, stainless steel and weatherproof locks for use in sub-stations, chrome plated locks for areas where aesthetics are important and brass as standard for locks in dry, clean, non-corrosive environments.

Castell products are used in the following areas:



- Wind Turbine Isolation & Earthing
- Rail Electrification Systems
- Electrostatic Precipitators
- UPS Systems
- LV Distribution & Busbar Systems
- HV Transmission & Distribution Sub Stations
- Transformer Isolation & Earthing Systems

SwitchgearCastell has developed products to suit the following companies' equipment:
ABB | Alstom | Terasaki | Schneider Electric | Siemens | Hawker Siddeley | George Ellison

Product Overview

Isolation

Power Isolation

KSD



Control Switching

KS



KSE



Motion Sensing

BEMF



MSI



Solenoid Controlled Switching

KSS



KSSE



KSUPS



Time Delay Interlocking

DAE



TDI



TDR



Valve Interlocking

MBV



PSBV



K



KL



KF



KLF



KC



KLC



KP



KLP



FS / Q



Mechanical Isolation

Key Exchange Boxes

X



B



Y



Z



W



Part Body Access

AI



AI-HD



D



KE



AIS/Her cules



Olympus



Full Body Access

AIE



AIE-HD



BD



EDIX



KLE



AIES



Key Exchange

Access Control



Salvo™

Efficient & Safe Loading



Salvo Efficient & Safe Loading

Salvo prevents the accidental drive-away of a vehicle during loading or unloading of goods at a loading bay.

The Salvo links the articulated trailer to the loading bay door during the loading or unloading of goods.

The Salvo comprises of two sections:

- The lock that controls the movement of the articulated trailer Salvo Susie
- The lock that controls the opening of the loading bay door SCP+

Additionally, a data gathering and analysis software can be added to the system - Salvo DockMonitor.

The Salvo Susie is fitted to the emergency air line coupling when the trailer has been reversed into position at the bay. After successful fitment, a Salvo coded key is released from the Salvo Susie, locking the unit firmly onto the coupling. The coded Salvo key can only be released once the Salvo Susie has been fitted to the brake coupling. The coded Salvo key is then taken to the corresponding loading bay door and used to open the door.

The secret of the Salvo system is that only one Salvo key exists per bay, thus ensuring that the door can only be opened ONCE the trailer has been secured in place. To ensure the integrity of the system, each bay will have a different code.

Salvo Susie 2 3 4

The Salvo Susie is a key operated mechanical lock designed to fit on to all UK trailer, emergency brake line connectors. Its purpose is to prevent re-connection of the air brake hose, thereby immobilising the trailer. When fitted, the Salvo Susie can only be removed with the permit Salvo key.

Salvo Control Panel 5

The Salvo Control Panel (SCP+) is the main interface between the Salvo couplings and associated bay door controls. The SCP+ comprises of a wall mounted panel with easy to use Castell interlock key switch to allow operation of the bay. There is also panel indication to indication status and operation. Installation is via plug in terminals on the inside door of the panel. 6 When bay door is open, the Salvo key is trapped in the SCP+.

Salvo Wireless DockMonitor 7

Wireless technology now removes the expensive and cumbersome fit of hard wiring.

Using the latest wireless technology, Salvo Wireless DockMonitor can measure, display and record data that will enable you to access and monitor live bay usage information. This enables you to spot and implement efficiencies in your business avoiding the unnecessary costs associated with expansion or additional resources.



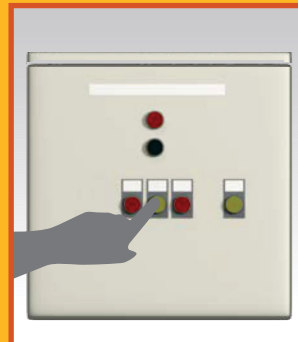
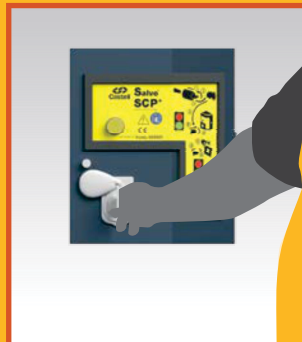
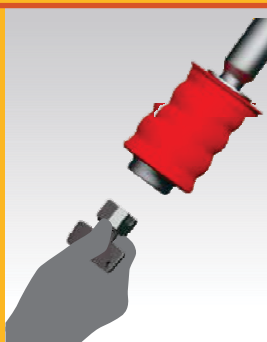
The driver reverses the vehicle onto the loading bay as normal.



The Salvo Susie is collected from the storage area. (Usually located next to the bay area.)



The Salvo Susie is then taken to the brake line coupling end of the trailer.



The Salvo Susie is placed over the emergency airline coupling releasing the trapped Salvo key and locking the Salvo Susie on. The trailer brakes are locked on. The Salvo key is then taken back to the Salvo Control Panel (SCP+) at the loading bay.

When the Salvo key is inserted and turned in the Salvo Control Panel (SCP+) the loading bay becomes energised (with no key inserted the bay door will not open).

The loader can now operate the loading bay door and dock leveller. When the bay door is open the Salvo key is trapped in the Salvo Control Panel (SCP+).

The background of the page is a technical drawing, likely a civil or mechanical engineering plan, featuring a grid pattern and various geometric shapes. A prominent blue diagonal band runs from the top-left towards the bottom-right, partially obscuring the drawing. The text 'TECHNICAL INFORMATION' is printed in white, bold, sans-serif capital letters within this band.

TECHNICAL INFORMATION

Pressure Equivalent Table

P.S.I	bar	kPa	
1	0.06	6.89	
5	0.34	34.48	1kPa = 0.01 bar
10	0.68	68.96	1MPa = 10.00 bar
20	1.37	137.93	1kg/cm ² = 1.00 atm
30	2.06	206.89	
50	3.44	344.82	1P.S.I = 6.895 kPa
75	5.17	517.24	1kPa = 0.145 P.S.I
100	6.89	689.65	1kg/cm ² = 14.223 P.S.I
125	8.62	862	
150	10.34	1034	
175	12.06	1206	
200	13.79	1379	
250	17.24	1724	
300	20.68	2068	

Cable Ratings

3 & 4 Core Copper PVC/SWA/PVC 600/100V Cables - SABS 1507/1990

Cable Size (mm ²)	PROPERTIES				Gland Size		
	Current Ratings		Volt Drop				
	Ground A	Ducts A	Air A	(mV/A/m)	3 Core	4 Core	5 Core
1.5	23	18	18	25.080	0	0	0
2.5	30	24	24	15.363	0	0/1	2
4	38	31	32	9.561	1	1	2
6	48	39	40	6.391	1	2	3
10	64	52	54	3.793	2	2	
16	82	67	72	2.390	2	2/3	
25	126	101	113	1.515	3	3	
35	147	120	136	1.097	3	3/4	
50	176	144	167	0.817	4	4	
70	215	175	207	0.576	4	4/5	
95	257	210	253	0.427	4/5	5	
120	292	239	293	0.348	5	5/6	
150	328	369	336	0.294	5	6	
185	369	303	384	0.250	6	6	
240	422	348	447	0.211	6	7	
300	472	397	509	0.189	6/7	7	

Utilization Categories IEC 947-4-1

Category	A.C. Contractors / Relays	Category	A.C. Switches / Isolators
AC-1	Non-inductive or slightly inductive loads, resistance furnaces	AC-20	Connecting and disconnecting under no-load conditions
AC-2	Slip-ring motors: Starting, plugging	AC-21	Switching of resistive loads including moderate overloads
AC-3	Squirrel-cage motors: Starting, switching off motors during running	AC-22	Switching of mixed resistive and inductive loads including moderate overloads
AC-4	Squirrel-cage motors: Starting, plugging, inching	AC-23	Switching of motor loads or other highly inductive loads
AC-11	Electromagnets for contractors, valves, solenoid actuators		

IP Rating for Enclosures

1st Digit	Protection from Solid Objects	2nd Digit	Protection from Moisture
0	No Protection	0	No Protection
1	Protected against Solid objects larger than Ø 50mm	1	Protected against Dripping Water
2	Protected against Solid objects larger than Ø 12mm	2	Protected against Dripping Water when tilted up to 15°
3	Protected against Solid objects larger than Ø 2.5mm	3	Protected against Spraying Water
4	Protected against Solid objects larger than Ø 1mm	4	Protected against Splashing Water
5	Protected against Dust	5	Protected against Water Jets
6	Dust Tight (Total Protection)	6	Protected against Heavy Seas / Powerful Water Jet
EXAMPLE Protection against dust — IP 54 — Protection against effects of splashing water		7	Protected against Temporary Immersion
		8	Protected against Continuous Submersion

Standard F.L.C. Data for 4 Pole Motors

Rated Power		Standard 3-Phase 4 Pole Motors Line Connected				Phase Connected (Star-Delta)*		Single Phase Motors
kW	HP	380V A	400V A	550V A	1000V A	380V A	400V A	230V A
0.37	0.5	1	1	0.72	0.4	-	-	3.4
0.55	0.75	1.6	1.5	1.16	0.64	-	-	4.6
0.75	1	2	1.9	1.4	0.75	-	-	5.8
1.1	1.5	2.6	2.5	1.9	1	-	-	8.4
1.5	2	3.5	3.3	2.5	1.3	-	-	11.2
2.2	3	5	4.7	3.6	1.9	-	-	16.4
3	4	6.6	6.3	4.8	2.5	-	-	21
4	5.5	8.5	8.1	6.2	3.3	4.9	4.7	28
5.5	7.5	11.5	10.9	8.6	4.5	6.7	6.3	37
7.5	10	15.5	14.7	11.5	6	9	8.5	-
10	13.5	20	19	14.3	7.5	11.6	11	-
11	15	22	21	16	8.7	12.8	12	-
15	20	30	28.5	22	12	17.4	16.6	-
18.5	25	37	35	27	14.3	21	20	-
22	30	44	42	32	17	25	24	-
30	40	60	57	43	23	35	33	-
37	50	72.5	69	53	28	42	40	-
45	60	85	81	62	33	49	47	-
55	75	105	100	76	40	64	61	-
75	100	138	131	100	53	79	75	-
90	125	170	161	123	65	99	94	-
110	150	205	195	152	78	119	113	-
132	175	245	233	179	91	142	135	-
160	220	300	285	218	117	174	165	-
200	270	370	351	268	149	215	204	-
220	300	408	388	296	161	237	225	-
250	350	475	451	344	200	275	262	-
315	430	584	555	422	240	339	322	-
355	480	636	604	477	265	369	350	-
375	500	670	636	503	278	389	369	-
425	580	760	722	548	303	441	419	-

*Values of F.L.C. as seen by the overload and main/delta contactors when phase connected within a Star-Delta starter.

Note: Ensure to check the rating plate of the motor prior to commissioning and switching on.



Branches

- Johannesburg
- Rustenburg
- Northwest



Distributors

- Kuruman (Voltex)
- Port Elizabeth (Rubicon)
- Richard's Bay (Magnet)
- Steelpoort / Kathu (Electro Diesel)
- Welkom (Welkom Winder Services)
- Zambia (Botech)

Deebar can also assist you in finding all your favourite brands. Below is just a few of the brands we can supply for you.

SIEMENS	EATON	EBI electric	technopost ® Energy Absorption System
HellermannTyton	HPH Hydraulic & Pneumatic Hub	MIMIC COMPONENTS	POWERMITE
TRANS ELECTRON	WACO	eurolux Lighting your way	ifm electronic
RL REEFLITE	Magnetic Switch Manufacturers	Schneider Electric	TOCO LIFTING
MITSUBISHI ELECTRIC	LEDWORX	EM ElectroMechanica	ACDC DYNAMICS
AZOLITE	RS Components	Advanced Product Technology Current Thinking	LONSPEARE SA (PTY) LTD
HAMAROSS Cables, Connectors & Electrical Products	LENBAR	BAND-IT ®	voltex

Terms and Conditions of Sale.

The under mentioned terms and conditions shall apply in respect of all sales by Deebbar of goods supplied to purchasers thereof from time to time.

Payment (Terms for Account Holders & COD Customers)

Terms of payment are strictly Cash on Delivery (COD).

1. For all export orders, 50% of the value of the orders must be deposited into Deebbar's banking account, prior to the commencement of manufacture.
2. Should final payment not be made by the due date, and the goods not yet collected, the Seller may upon the expiry of 30 days written notice to the client, cancel the order, return the goods into stock and part payments made will not be refunded.
3. Goods will only be released, once the payments made remain in Deebbar's account for a period of 8 days.
4. No other payment terms will be considered except by special written agreement.

Terms of payment for account holders.

1. Payment for the goods shall be made by the end of the month following the month in which they were dispatched.
2. Terms of payment: Nett no other payment terms will be considered except by special written agreement.
3. Should payment be delayed beyond the due date, the Sellers reserve the right to charge interest on all sums outstanding at a daily rate equivalent to an annual rate
4. Should payment be delayed beyond the due date, the Sellers reserves the right to suspend any deliveries of goods to the to the Purchaser pursuant to any unfulfilled orders and it comprises a contract to make deliveries by instalments, the Seller may upon the expiry of 30 days written notice of the intention to do so, sever it and treat the Purchaser as having repudiated it without prejudice to their claim for damages in respect of the aforesaid repudiation.

Delivery.

1. Except in the case of the goods outside South Africa, delivery of the goods shall take place and risk therein shall pass to the Purchaser upon delivery thereof at the place indicated by the Purchaser on his order, or when the goods are passed to a carrier or agent who accepts responsibility for delivery. Property of the goods will not pass to the purchaser until payment is received by Deebbar.
2. Any delivery rate indicated by the Sellers in a business is an estimate only and although the Seller will endeavour to comply with it they will be under no liability whatsoever for any delay in delivery or the consequences thereof howsoever arising.
3. Without prejudice to the foregoing the Sellers shall not be liable for non-delivery or late delivery of goods resulting from any cause beyond their reasonable control, including but not limited to strikes, riots, acts of God, and delays in transport or Force Majeure.

Packaging.

1. No charge will be made for the packaging of goods for delivery within South Africa.
2. Charges for the packaging of goods for export will be quoted upon request.

Reservation of ownership.

1. All goods remain the property of Deebbar until full payment has been received.

Liability for loss and damage.

1. Deebbar shall not be responsible for any loss or damage howsoever caused to the property or person of the Purchaser or any third party payment as a result of any defect in the goods.

Site Work.

1. Site and Installation work is normally quoted separately. When a pre- arranged date with the client is agreed upon for site work to be done, Deebbar will plan and allocate its Technicians accordingly. Should Deebbar's Installation team not be able to perform their duties as result of the client not giving us access for whatever reason, the client will be charged for standing time at the rate at the time of quoting. Should the area be outside the radius of 50 kilometers from head office (JHB) and our team arrives on site and the planned site work cannot take place, the client will be charged for travelling at a rate at the time of quoting plus travelling Time.

Returned goods.

1. Permission must be obtained by Deebbar before any standard production items are returned, quoting Deebbar's relative delivery note / invoice number. If return is due to no fault of ours and permission is granted, minimum service charge of 15% handling of Nett price will be made provided the goods are received in a re-saleable condition. Under no circumstances will items made to customers' specifications be returnable. We cannot accept any railage or transport costs being debited to our account.

Liability for defects expressed or implied.

1. Warranties against any defect in the condition, quality or suitability of the goods for said purposes whatsoever, whether patent or latent, are hereby excluded from the sale and the goods voetstoots, provided that Deebbar shall be liable to repair or replace if possible any defective part or portion of the goods caused by faulty design, materials or workmanship, Deebbar liability in terms of this clause:
2. Shall be limited to a period of sixty (60) days from the date of the delivery of the goods.
3. Shall be conditional upon:
 - The Purchaser notifying Deebbar in writing of the said defect immediately on manifestation thereof.
 - The Purchaser returning such defective parts or portion thereof to be repaired by anyone other than Deebbar at the Purchasers expense.
 - The Purchaser not causing or endeavouring to cause any such part or portion thereof to be repaid by anyone other than Deebbar in terms of the agreement of sales being strictly observed. Whether patent or latent, and the Purchaser indemnify Deebbar against any claim arising out of such defects made against it by any third party.
 - All the Purchasers obligations to Deebbar in terms of the agreement of sales being strictly observed.
4. Shall be excluded in the case of:
 - Prior repairs or modification by others. Defect attributable to incorrect operation or installation, abuse or neglect of the goods.

Entire agreement.

The Terms and Conditions herein constitute the entire agreement between the Purchaser acknowledged that no representations have been made by Deebbar or persons acting on its behalf which have induced the Purchaser to enter in to this agreement. No agreement in any way varying the Terms and Conditions of this agreement shall be of any force unless contained in writing and signed by the parties hereto.

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