

Protecting People, Industry and Productivity



Stainless Steel Modular Gate Switches



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 personnel protection)
- Solenoid Locking Safety Switches with machine 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 a 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.

amGardS40 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						

amGardS40

Stainless Steel Modular Gate Switches - Configuration Examples

<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>
	

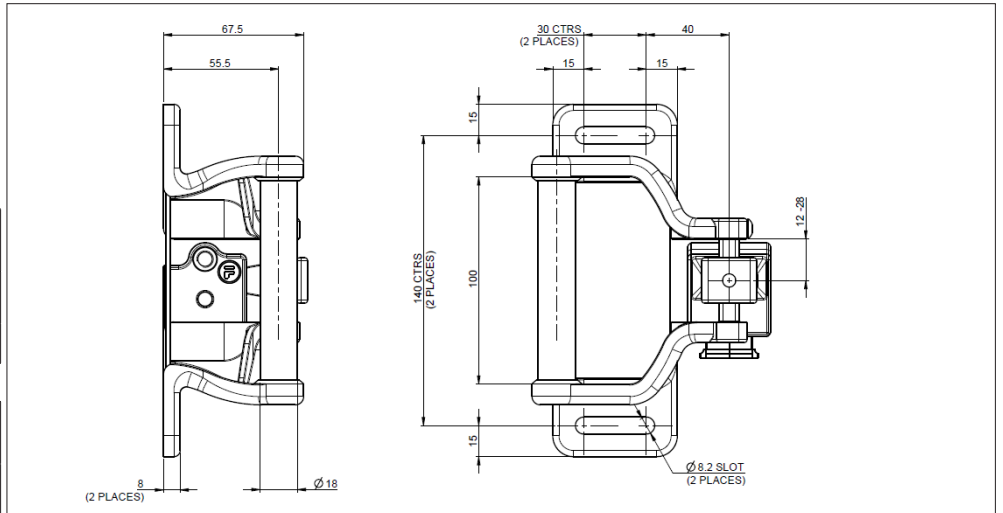
Actuators

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.

S40 Hinged Handle Technical Specification	
Housing Materials	Stainless Steel to BS3146
Retention Force (locked)	10,000N
Mechanical Life	>1,000,000 Switching Cycles
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor



S40 Hinged Handle Options & Ordering Information	
Part Number	Description
S40HS1	Hinged Handle - Short Reach

Safety Functions - S40 Hinged Handle		Part No
Safety Function 1	Provides link from interlock to door	S40HS1

Actuators

S40 Slidebar

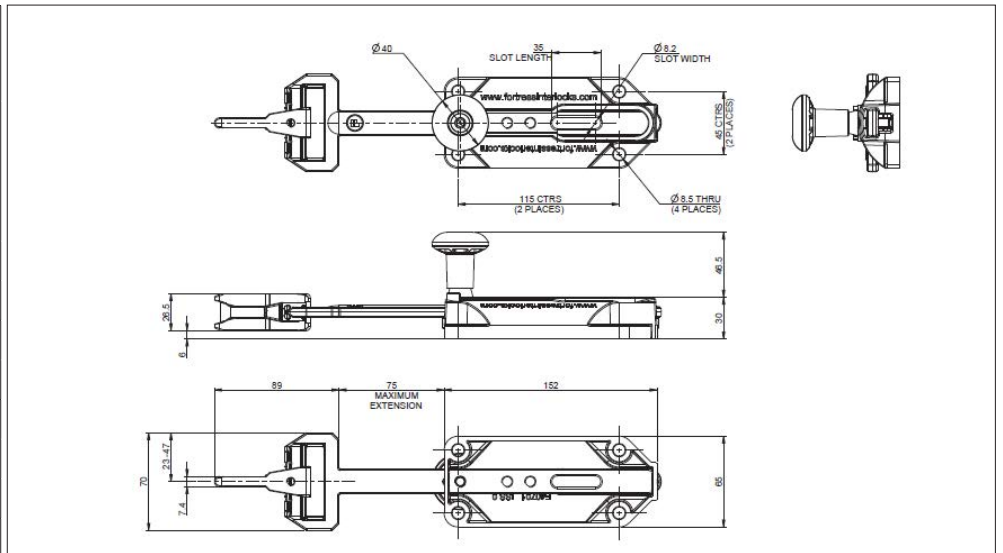


- Used in conjunction with the "S40AT Head"
- Particularly useful for application using small radius hinged doors
- Stainless steel casting
- Built in lock-out facility to accommodate a maximum of 4 padlocks with up to 8mm diameter shackles

S40 Slidebar Technical Specification	
Housing Materials	Stainless Steel to BS3146
Colour	Stainless Steel
Operating Force (spring loaded)	12N
Retention Force (locked)	10,000N
Mechanical Life	>1,000,000 Switching Cycles
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor

Safety Functions - S40Slidebar		Part No		
Safety Function 1	Provides link from interlock to door	S40SI / S40SF	S40SN	S40SS
Safety Function 2	Internal handle allows escape			

S40 Slidebar Options & Ordering Information					
Part Number	Description	Spring	Int. Handle	Int. Handle allows locking on inside	Handing
S40SI2	Slidebar		✓		Left
S40SI4	Slidebar		✓		Right
S40SN2	Slidebar				Left
S40SN4	Slidebar				Right
S40SS2	Slidebar	✓			Left
S40SS4	Slidebar	✓			Right
S40SF2	Slidebar			✓	Left
S40SF4	Slidebar			✓	Right



Head Modules

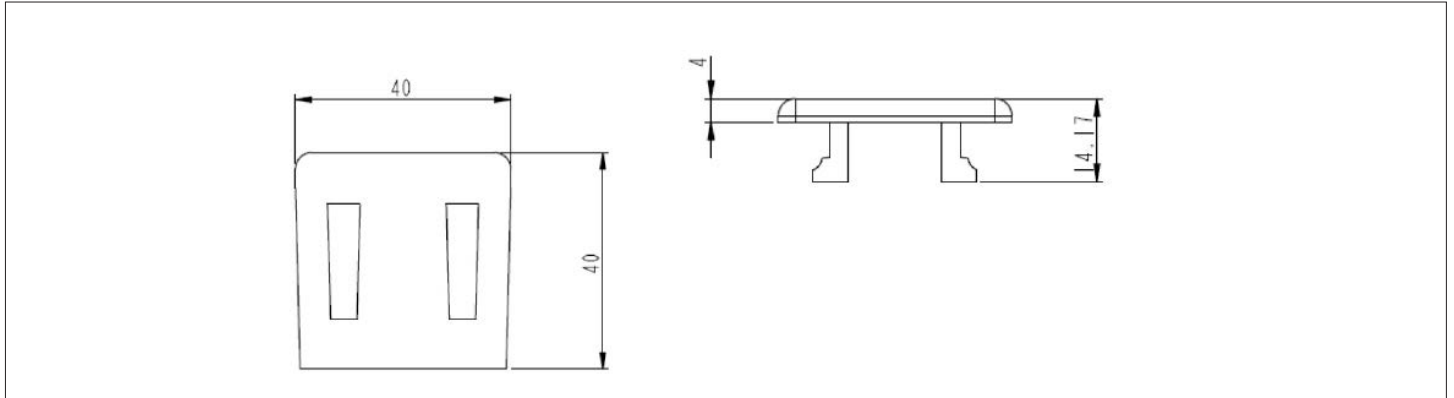
S40 Cap



To terminate assemblies without heads, for example solenoid controlled key release.

- Removeable to allow for modification.

S40 Cap Technical Specification	
Materials	Stainless Steel to BS3146
Colour	Stainless Steel
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor
S40 Cap Ordering Information	
Part No.	Description
S40C6	Cap



Head Modules

S40 AT Slimline Head & Tongue Actuator



- Full 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.

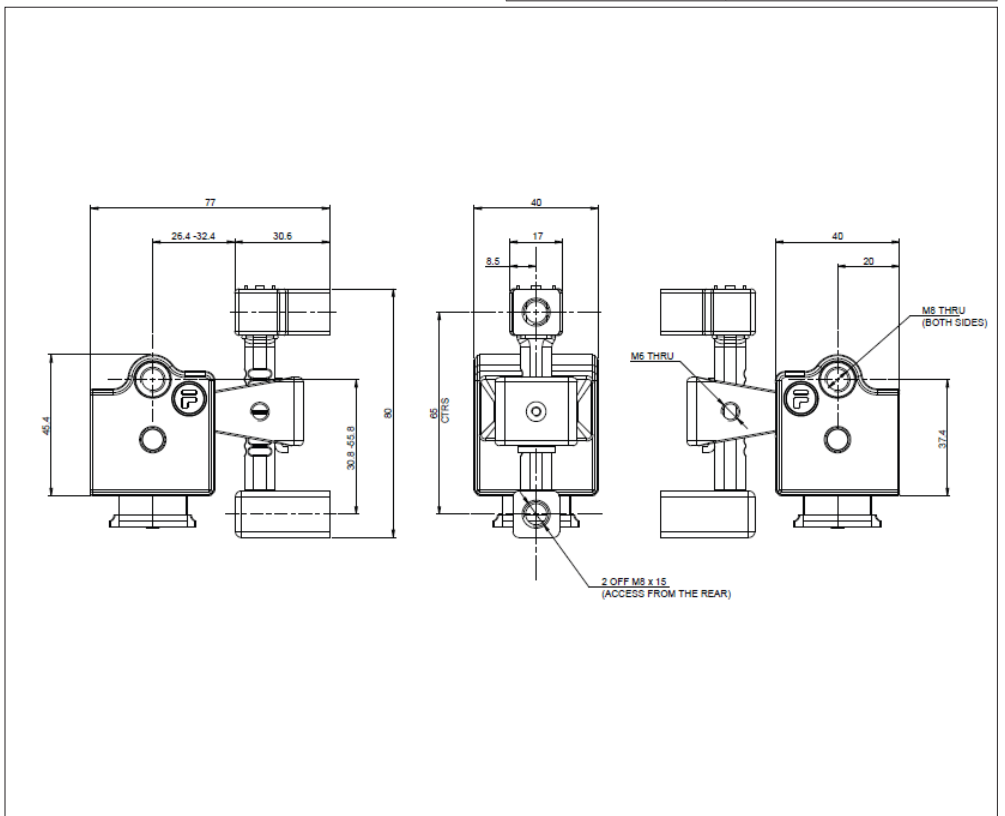
S40 AT Slimline Head & Tongue Technical Specification	
Housing Material	Stainless Steel to BS3146
Colour	Stainless Steel
Retention Force (locked)	10,000N
Mechanical Life	>5,000,000 Switching Cycles
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor

Safety Functions - S40 AT Slimline Head		Part No	
Safety Function 1	Retain Actuator	S40S6	S40S7
Safety Function 2	Transfer motion of actuator removal into breaking of safety contacts		
Safety Function 3	Prevents insertion of actuator when "locked out"		

Safety Functions - S40 AT Slimline Tongue		Part No
Safety Function 1	Provides link from interlock to door	S40SA

S40 AT Slimline Head & Tongue Options Ordering Information

Part Number	Description
S40S6	S40 AT Slimline Head
S40S7	S40 AT Slimline Head c/w Drop Down Lockout
S40SA1	proS40 AT SlimlineTongue Front Handing
S40SA2	proS40 AT Slimline Tongue Left Handing
S40SA3	proS40 AT SlimlineTongue Back Handing
S40SA4	proS40 AT Slimline Tongue Right Handing



Adaptors

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).

S40 Lock Adaptor Technical Specification	
Housing Materials	Stainless Steel
Internals	All Stainless Steel
Mechanical Life	>1,000,000
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor

S40 Lock - Adaptor for Safety

This unit ensures that the door cannot be opened until the key has been turned, and the machine/process cannot be restarted without returning the key(s). It can furthermore prevent personnel being accidentally locked inside a guarded area.

- Provides a unique link to the mGard range.
- Up to 3 key adaptors in one configuration.
- Key sequence - releases all keys at once (runner bar)

S40 Lock - Adaptor for Access

Ideally suited for authorised access only, or linked access to other machinery. Ensures a specific sequence of operation and can be stacked or combined with other adaptors.

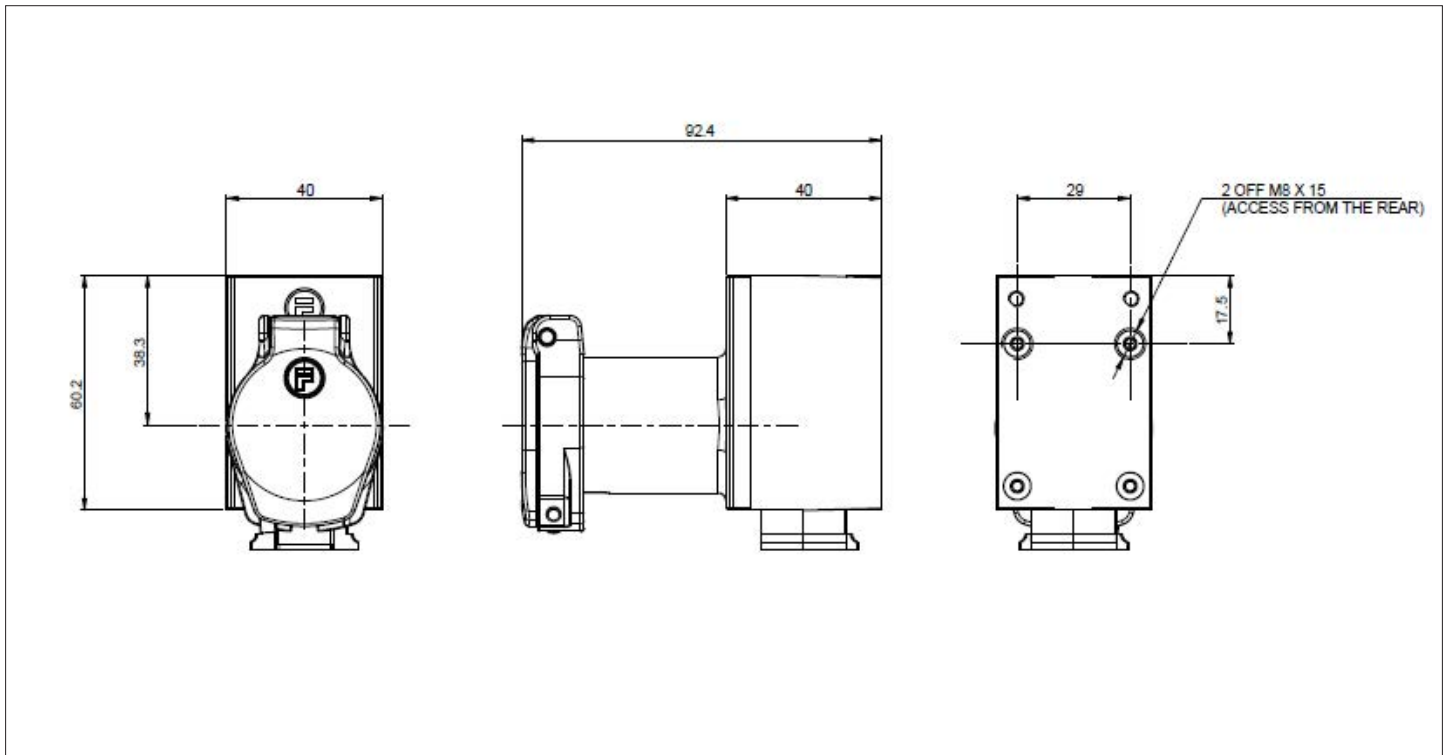
- Provides a unique link to the mGard range.
- Up to 3 key adaptors in one configuration.

Safety Functions - S40 Lock - Safety		Part No
Safety Function 1	Door cannot be opened unless safety key inserted in lock	S40SKL/R
Safety Functions - S40 Lock - Access		Part No
Safety Function 1	Door cannot be opened unless access key inserted in lock	S40AKL/R
Safety Function 2	Breaks safety contacts when access key inserted in lock	

S40 Lock - Access & Safety Adaptor Ordering Information

Version	Lock Type	Lock Description	Access Lock Part No.	Safety Lock Part No.
Standard	CLSS	Standard CL Lock with stainless steel dustcover	S40AKL2	S40SKL2
Standard	CLSL	Standard CL Lock with stainless steel padlockable dustcover	S40AKL3	S40SKL3
Standard	MLSS	Masterable ML Lock with stainless steel dustcover	S40AKL7	S40SKL7
Standard	MLSL	Masterable ML Lock with stainless steel padlockable dustcover	S40AKL8	S40SKL8
Releasing	CLSS	Standard CL Lock with stainless steel dustcover	S40AKR2	S40SKR2
Releasing	CLSL	Standard CL Lock with stainless steel padlockable dustcover	S40AKR3	S40SKR3
Releasing	MLSS	Masterable ML Lock with stainless steel dustcover	S40AKR7	S40SKR7
Releasing	MLSL	Masterable ML Lock with stainless steel padlockable dustcover	S40AKR8	S40SKR8

*Releasing versions are they 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.



Adaptors

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 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.

S40 E Technical Specification	
Housing Materials	Stainless Steel to BS3146
Colour	Stainless Steel
Internals	All Stainless Steel
Mechanical Life	>1,000,000 Switching Cycles
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor

S40 E - Extracted Key Lock Adaptor

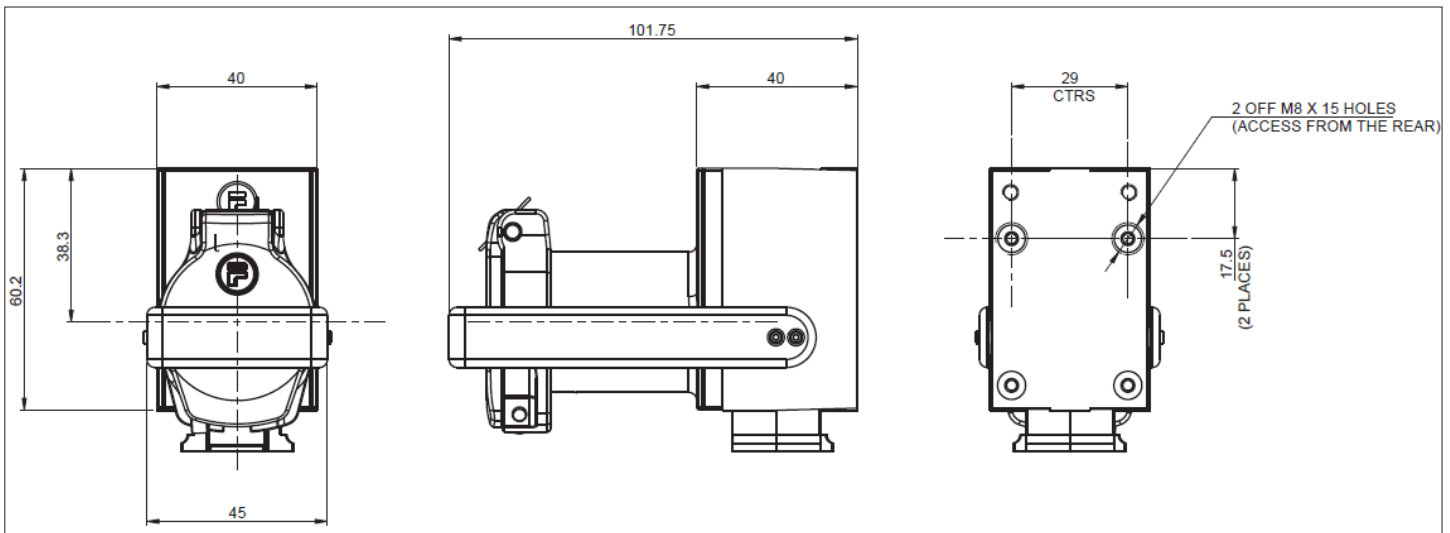
This unit ensures that the door cannot be opened until the key has been removed from the lock, and the machine/process cannot be restarted without returning the key(s). It can furthermore prevent personnel being accidentally locked inside a guarded area.

- Provides unique link to mGard range.
- Only 1 Extracted key adaptor can be fitted in a configuration.

Safety Functions - S40E		Part No
Safety Function 1	Does not allow safety contacts to be made unless safety key inserted in lock	S40EKL/R

S40 E Ordering Information

Lock Type	Lock Description	Part No.	Lock Type	Lock Description	Part No.
Standard	Standard CL Lock with stainless steel dustcover	EKL2	Releasing	Standard CL Lock with stainless steel dustcover	EKR2
Standard	Standard CL Lock with stainless steel padlockable dustcover	EKL3	Releasing	Standard CL Lock with stainless steel padlockable dustcover	EKR3
Standard	Masterable CL Lock with stainless steel dustcover	EKL7	Releasing	Masterable CL Lock with stainless steel dustcover	EKR7
Standard	Masterable CL Lock with stainless steel padlockable dustcover	EKL8	Releasing	Masterable CL Lock with stainless steel padlockable dustcover	EKR8



Adaptors

S40 IR - Escape Release Adaptor



S40 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.

S40 IR Technical Specification	
Housing Materials	Stainless Steel
Internals	All Stainless Steel
Mechanical Life	>1,000,000
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor

S40 IR Ordering Information

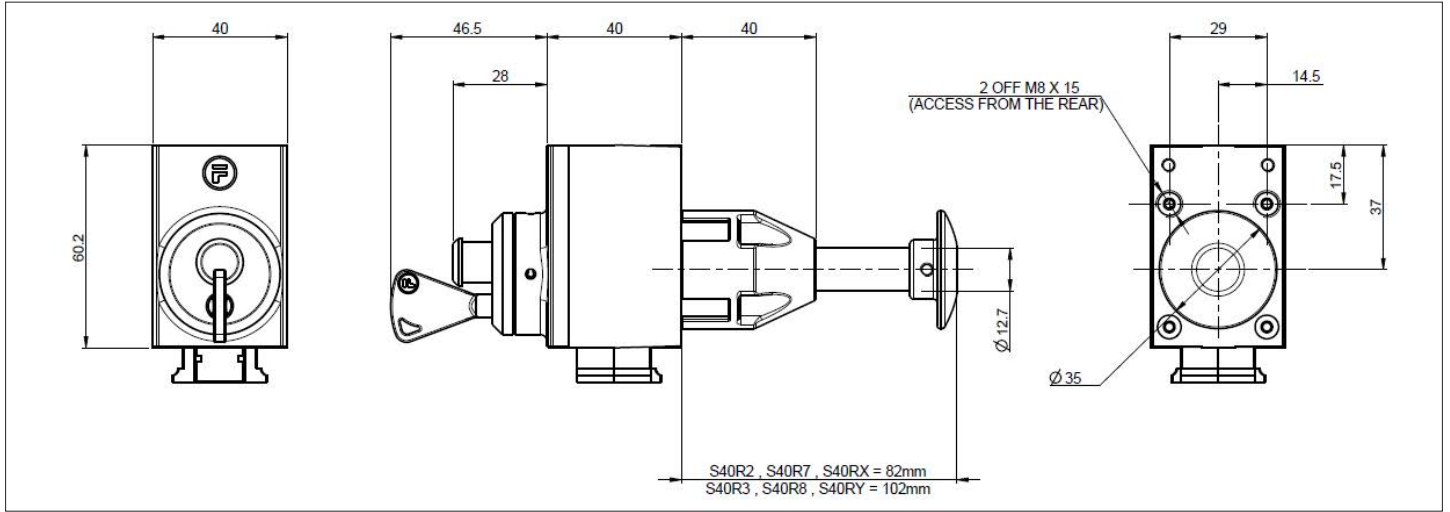
Version	Post Thickness	Part No.	Version	Post Thickness	Part No.	Version	Post Thickness	Part No.
Key Reset	60mm	S40R2	Pull Reset	60mm	S40R7	Front Reset (no key)	60mm	S40RX
Key Reset	80mm	S40R3	Pull Reset	80mm	S40R8	Front Reset (no key)	80mm	S40RY
Key Reset	Variable	S40R4	Pull Reset	Variable	S40R9	Front Reset (no key)	Variable	S40RZ

Safety Functions - S40 IR

Safety Functions - S40 IR		Part No		
Safety Function 1	Transmit movement (for locking & contact break purposes) when escape not used	S40R2/3/4	S40R7/8/9	S40RX-YY/Z
Safety Function 2	Unlocks during escape release & transmits motion to safety contacts			

Adaptors

S40 E - Escape Release Adaptor



Electrical Switching / Locking

S40 Stop - Stainless Steel Non Solenoid Switch Body - Standard



Safety switch interlock for use in S40 range.

- Dual force break normally closed safety circuits.
- Single normally open monitor contact.
- LED status indication.
- PLe
- Stainless steel construction
- IP69K

S40 Stop - Standard Ordering Information

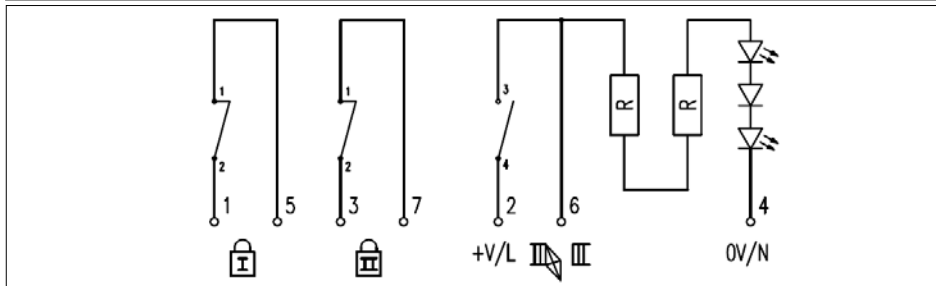
Version	Control Voltage	Part No.
Standard	24V AC/DC	S40ST401

Safety Functions - S40 Stop

Safety Function 1	Part No
Turns mechanical movement of head / lock into operation of safety contacts	S40ST

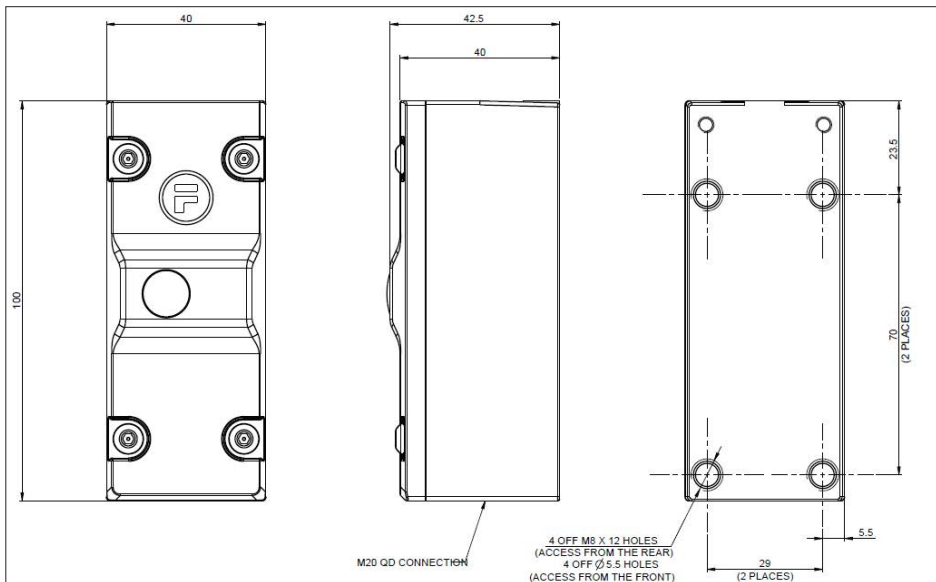
NOTICE!
If, as a result of risk assessment, it cannot be discounted that persons can be enclosed within a danger zone, then guard locks with additional removable keys (safety keys) must be used or comparable measures must be taken - GS ET 19.

Wiring Diagram - S40 Stop



S40 Stop Technical Specification

Housing Materials	Stainless Steel
Ingress Protection	IP69K
Mechanical Life	>1,000,000 Switching Cycles
Performance Level	PLe
B10d	5,000,000
Ambient Temperature	-5°C to +60°C (23°F to 140°F)
Maximum Frequency of Ops	7,200 per hour
Connector Type	Spring Activated Vibration Proof Block
Switches Conformance	DIN VDE 0060 Part 206 & IEC 947-5-1
Switching Contact Element	2NC and 1NO
Safety Circuit Switching Principal	Positive Break (2N/C) Dual Channel
Maximum Switch Current	3A
Minimum Switch Current	1mA at 5VDC
Maximum Switching Voltage	230V AC Max
Utilisation Category	AC 15 or DC 13
Control Voltages	24V ac/dc, 110V ac, 230V ac
Insulating Voltage	2500V AC
Insulating Resistance	20M Ohm
Cable Size	28 - 24 AWG
B10d	5,000,000
DC	99%
λ_b	10%
Diagnostic Coverage	Position Monitoring
Environment	Indoor & Outdoor



Electrical Switching / Locking S40 Lok - Stainless Steel Slimline Solenoid Controlled Body



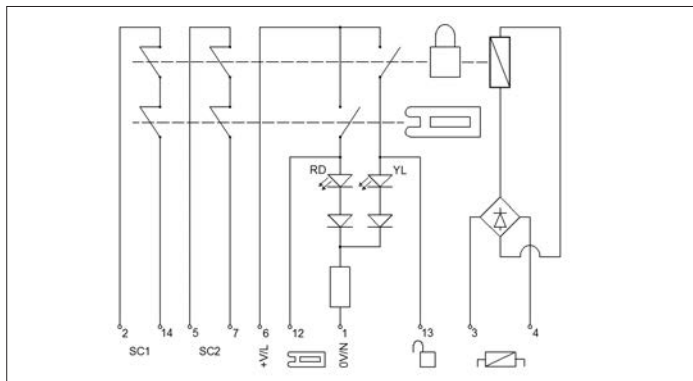
S40 Lok Solenoid Controlled Body is used to manage activities by means of a solenoid control element. The case is stainless steel with an IP69 rating for use in full wash down areas.

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).

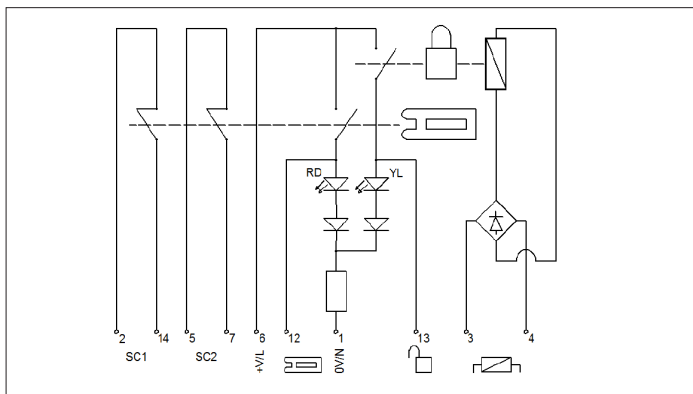
S40 Lok - Standard	
On supplying power to the solenoid the unit becomes unlocked. This is the recommended set up for most machine guarding applications. A special key driven override facility is included to unlock the unit in the event of a power failure. Available in Standard and Releasing Versions.	
<ul style="list-style-type: none"> • LED indicators for status identification. • Ideal for machines with run-down cycles • Split voltage available on request. • To be used with safety relay and/or safety PLC control systems. 	

S40 Lok - Power to Lock	S40 Lok - Un-Monitored Solenoid	Safety Functions - S40 Lok	Part No								
<p>On supplying power to the solenoid the unit becomes locked. This is not the recommended set up for most machine guarding applications. However, it allows faster access and exit in the event of a power failure. Available in Standard and Releasing Versions.</p> <ul style="list-style-type: none"> • LED indicators for status identification. • Split voltage available on request. • To be used with safety relay and/or safety PLC control systems. 	<p>On supplying power to the solenoid the unit becomes unlocked, however only a single monitoring contact is closed. This is a popular configuration for where the solenoid performs a process control rather than safety function. A special key driven override facility is included to unlock the unit in the event of a power failure. Available in Standard and Releasing Versions.</p> <ul style="list-style-type: none"> • LED indicators for status identification. • To be used with safety relay and/or safety PLC control systems. 	<table border="1"> <tr> <td>Safety Function 1</td> <td>Turns mechanical movement of head / lock into operation of safety contacts</td> <td rowspan="2">S40SL</td> <td rowspan="3">S40SR</td> </tr> <tr> <td>Safety Function 2</td> <td>Solenoid mechanism holds door locked</td> </tr> <tr> <td>Safety Function 3</td> <td>Solenoid overridden and safety contact activated on operation of an push IR or I6/7</td> </tr> </table>	Safety Function 1	Turns mechanical movement of head / lock into operation of safety contacts	S40SL	S40SR	Safety Function 2	Solenoid mechanism holds door locked	Safety Function 3	Solenoid overridden and safety contact activated on operation of an push IR or I6/7	
Safety Function 1	Turns mechanical movement of head / lock into operation of safety contacts	S40SL	S40SR								
Safety Function 2	Solenoid mechanism holds door locked										
Safety Function 3	Solenoid overridden and safety contact activated on operation of an push IR or I6/7										

S40 Lok Monitored Solenoid Wiring Diagram



S40 Lok Un-Monitored Solenoid Wiring Diagram



S40 Lok Technical Specification		Standard S40 Lok	Power to Lock S40 Lok	Un-Monitored Solenoid S40 Lok
Housing Materials	Stainless Steel	•	•	•
Ingress Protection	IP69	•	•	•
Mechanical Life	>1,000,000 Switching Cycles	•	•	•
Performance Level		PLe	PLe	PLc to PLe*
Ambient Temperature	-5°C to + 60°C	•	•	•
Switches Conformance	DIN VDE 0060 Part 206 & IEC 947-5-1	•	•	•
Actuator Contact		2NC 1NO	2NC 1NO	2NC 1NO
Solenoid Contacts		2NC 1NO	2NC 1NO	1NO
Safety Circuit Switching Principal	Positive Break Dual Channel	•	•	•
Maximum Switch Current	DC13: Le=0.5A, Ue=24V DC AC15: Le=1A, Ue=24V AC	•	•	•
Minimum Switch Current	1mA at 5 VDC	•	•	•
Control Voltages	24V ac/dc	•	•	•
Solenoid Power Rating	350mA max @ 24V DC	•	•	•
Solenoid Rating (Duty Cycle)	100%	•	•	•
Solenoid Voltage	24V ac/dc	•	•	•
Solenoid Voltage Tolerance	90% to 110% of nominal	•	•	•
Cable Size	26 - 14 AWG	•	•	•
B10d	5,000,000	•	•	•
DC	99%	•	•	•
λ _s	10%	•	•	•
Diagnostic Coverage	Position Monitoring	•	•	•
Quick Disconnects	Various Options	•	•	•
Environment	Indoor & Outdoor	•	•	•

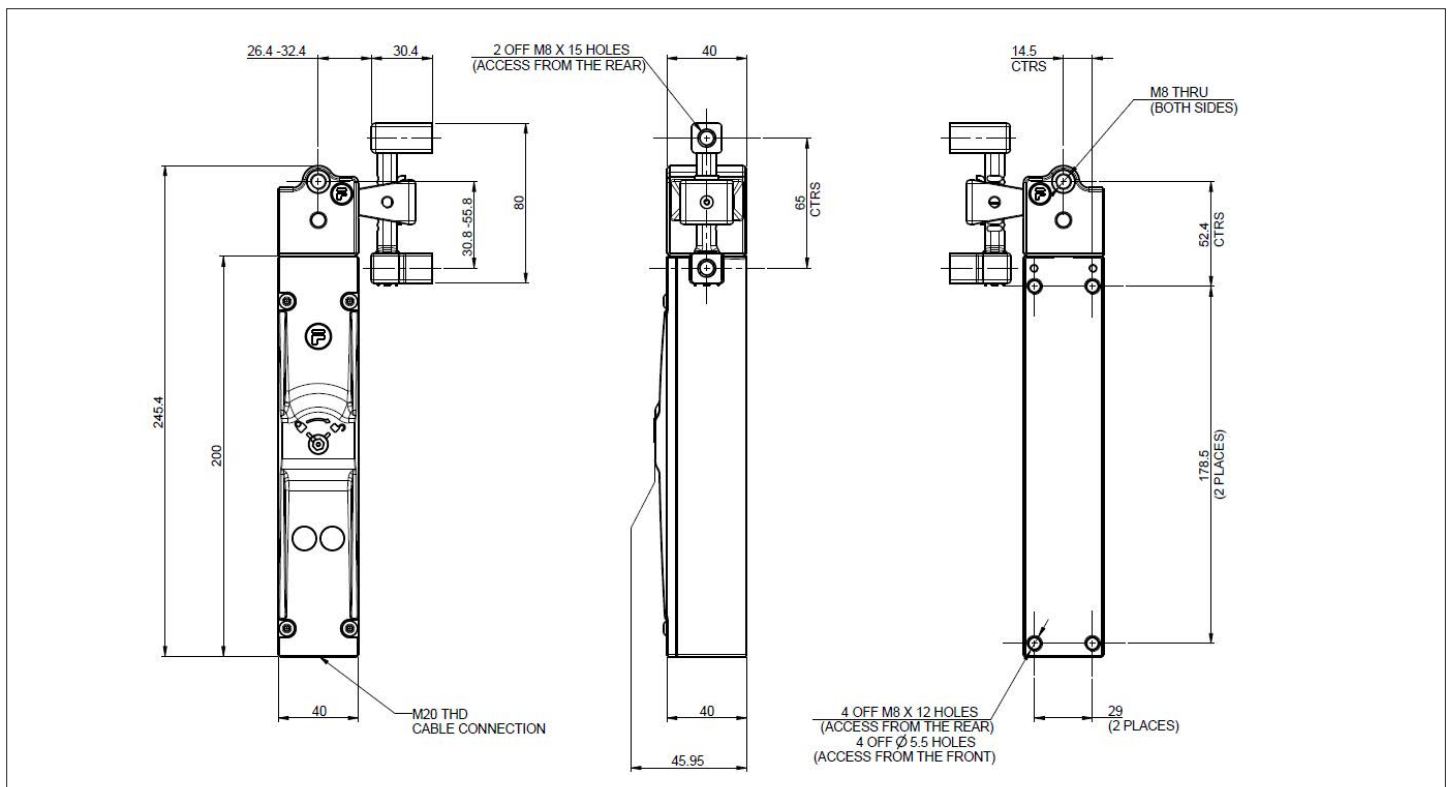
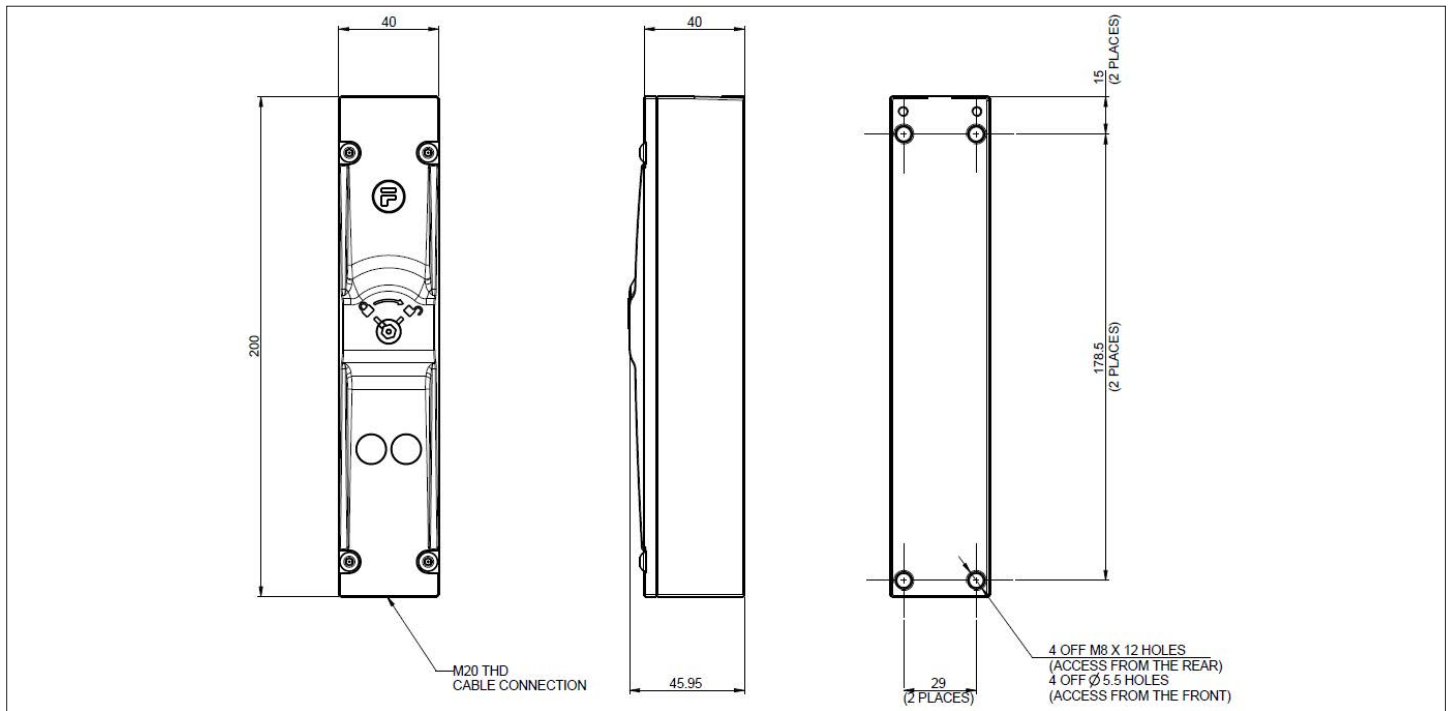
* depending on application

NOTICE!

If, as a result of risk assessment, it cannot be discounted that persons can be enclosed within a danger zone, the guard locks with additional removable keys (safety keys) must be used or comparable measures must be taken - GS ET 19.

Electrical Switching / Locking S40 Lok - Stainless Steel Slimline Solenoid Controlled Body

S40 Lok Ordering Information							
Push IR Compatible	Solenoid Locking	Solenoid Switches	Part No.	Push IR Compatible	Solenoid Locking	Solenoid Switches	Part No.
X	Power to Unlock	Safety (2NC & 1NO)	S40SL411	✓	Power to Unlock	Safety (2NC & 1NO)	S40SR411
X	Power to Unlock	Monitor Only (1NO)	S40SL416	✓	Power to Unlock	Monitor Only (1NO)	S40SR416
X	Power to Lock	Safety (2NC & 1NO)	S40SL471	✓	Power to Lock	Safety (2NC & 1NO)	S40SR471
X	Power to Lock	Monitor Only (1NO)	S40SL461	✓	Power to Lock	Monitor Only (1NO)	S40SR461



Electrical Switching / Locking S40 Foot - Stainless Steel Foot



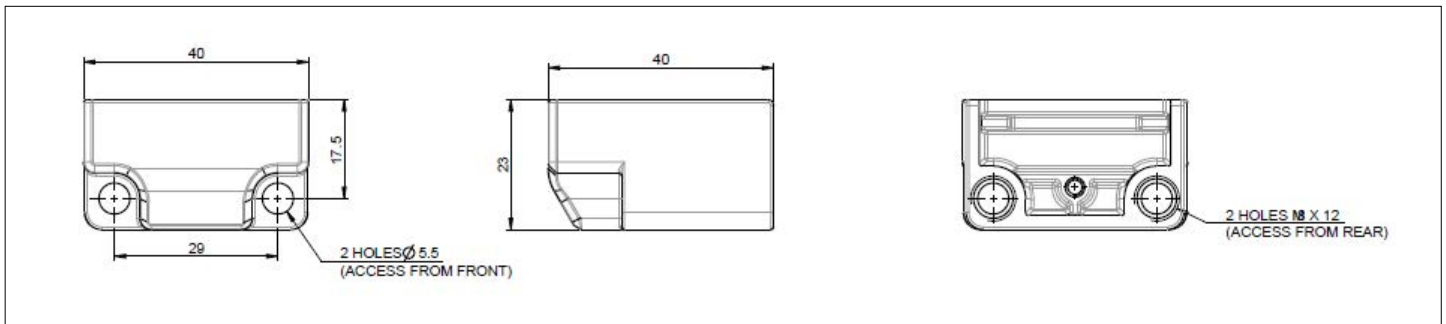
To terminate non-switch configurations

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

S40Foot Technical Specification	
Materials	Stainless Steel to BS3146
Colour	Stainless Steel
Ambient Temperature	-5°C to 80°C (23°F to 176°F)
Environment	Indoor & Outdoor

Safety Functions - S40Foot		Part No
Safety Function 1	Retains lower end of product	S40FT

S40Foot Ordering Information	
Version	Part No.
Foot	S40FT0



Option Pod S40 Option Pods - Lamps, Pushbuttons, Key Selector Switch & Emergency Stop



S40Option Pod module is used to 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.

Lamp Option Pod is an Ideal complimentary module where multiple interlocks are used to enhanced identification of status. Pushbutton Option Pod is ideal for use as an emergency stop or request to start/stop.

Lamps

- Easy, clear identification of machine status.
- Can be configured up to three lamps / pushbuttons.

Pushbuttons

- Request start/stop at the gate.
- Can be configured up to three pushbuttons.
- Illuminated pushbuttons.

Emergency Stop

- 2 NC Safety contacts
- Pull
- Illuminated option for pull

Selector Switch

- 2 Position
- Illuminated - Latching
- Illuminated - Momentary

Key Selector Switch

- 2 Position


Common power supply on individually wired options.

S40 Option Pod Technical Specification	
Housing Materials	Stainless Steel to BS3146
Ingress Protection	IP69K
Operating Force	0.5Nm
Ambient Temperature	-5°C to + 80°C (23°F to 176°F)
Cable Size	26-14 AWG
Connector Type	Spring Activated Vibration Proof Block
Control Voltages	24V DC
Lamp Life	100,000 hrs on time
Switches Conformance	DIN VDE 0060 Part 206 & IEC 947-5-1
Switching Contact Element	Emergency Stop - 2NC
	Pushbutton - 1NO
	Keypress - 2NC/2NO
EStop Switching Principal	Positive Break
Maximum Switch Current	0.1A
Maximum Switching Voltage	230V ac
Utilisation Category	AC 15 or DC 13
Environment	Indoor & Outdoor

Option Pod

S40 Option Pods - Lamps, Pushbuttons, Key Selector Switch & Emergency Stop

1. Select S40 Option Pod		
Pushbutton / Lamp / Sensor proOption Pod Version	Wiring	Part No.
Stand Alone Pod	Common Power Supply	B0
To suit S40Stop or S40Lok Body		B1
Stand Alone Pod	Individually Wired (volt free contacts)	C0
To suit S40Stop or S40Lok Body		C1

2. Select S40 Option Body Buttons/Lamps		Button Type	Colour / Option	Part No.
	Illuminated Buttons		Red	S40P1
			Yellow	S40P2
			Green	S40P3
			Blue	S40P6
			White	S40P7
		E-Stop Illuminated		S40EI
		Non-illuminated Buttons	Black	S40PB
	Non-illuminated E-Stop	E-Stop (pull)	S40EP	
	Lamps		Red	S40LR
			Yellow	S40LY
			Green	S40LG
			Blue	S40LB
			White	S40LW
	Illuminated Selector Switch	2 Position - Latching		S402E
		2 Position - Momentary		S402F
Key Selector Switch	2 Position		S40K5	

