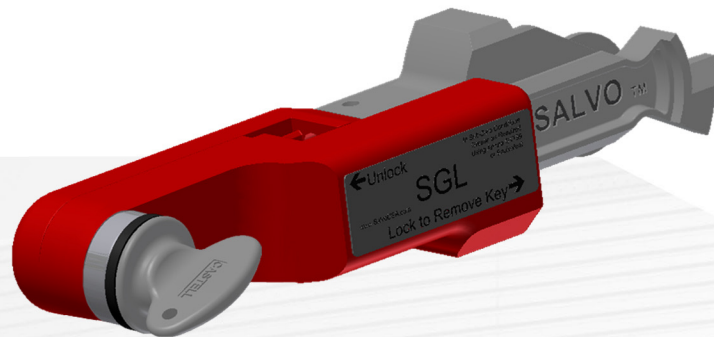




SERV TRAYVOU
INTERVERROUILLAGE

aqd Industrial Product
»»»»



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.

Salvo Dockmonitor 7

Salvo DockMonitor software monitors via real time connection to loading docks. It displays live information on docks as well as a wide range of information on loading dock performance such as percentage utilisation, loading times, idle times, shift to shift comparison and maintenance reports.



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

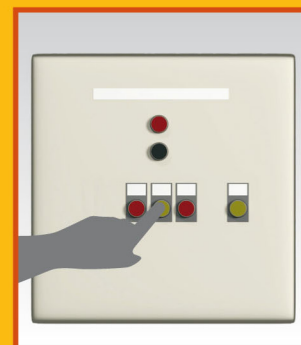
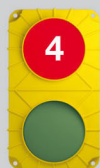
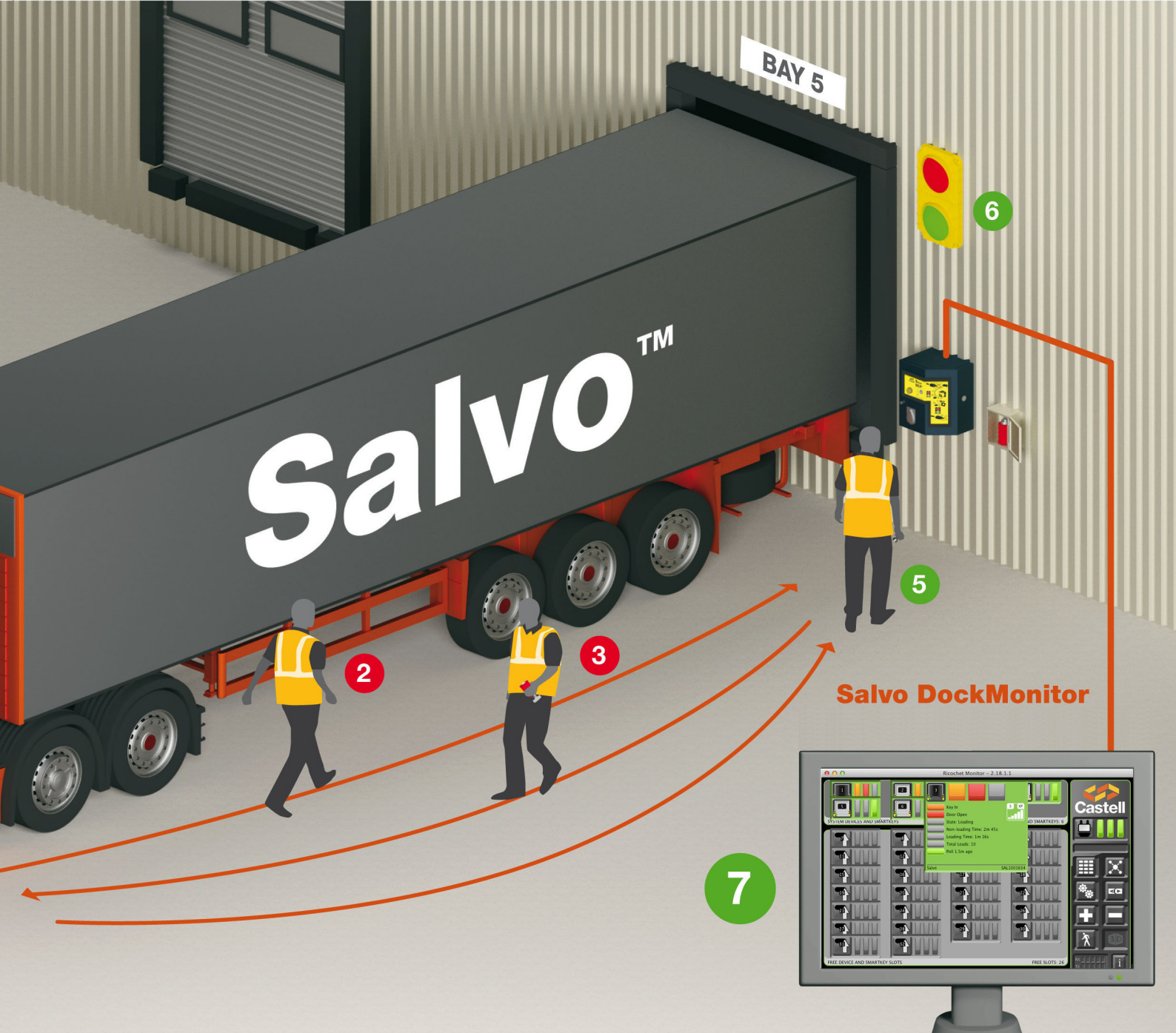


The Salvo Susie is collected from the storage area. (Usually located next to the bay area.)

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



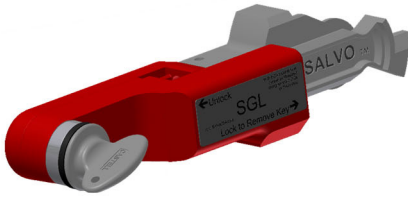
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The Salvo SGL is placed over the emergency airline coupling releasing the trapped Salvo key and locking the Salvo SGL on. The trailer brakes are locked on. The Salvo key is then taken back to the Salvo Control Panel (SCP*) at the loading bay.

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*).

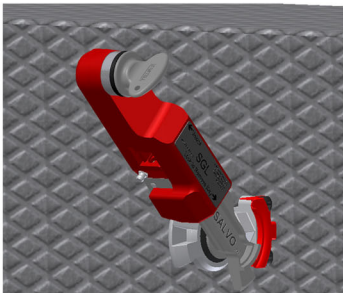


The Salvo Glad Hand Lock (SGL) is a key operated mechanical locking device designed to fit on to all European and US trailers, emergency brake line connectors. Its purpose is to prevent re-connection of the air brake hose, thereby immobilising the trailer. When fitted, the SGL can only be removed with the permit key.

Salvo SGL

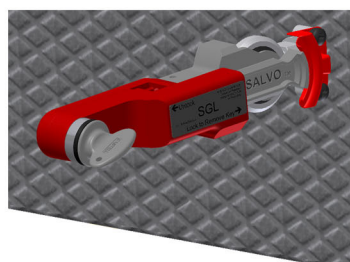
Operation

①



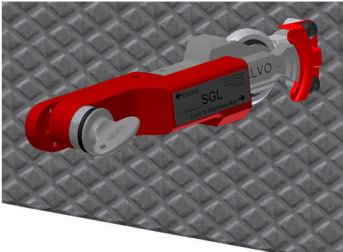
Disconnect the airline from the trailer connector, then engage the centre peg of the SGL on to the air line connector on the trailer.

②



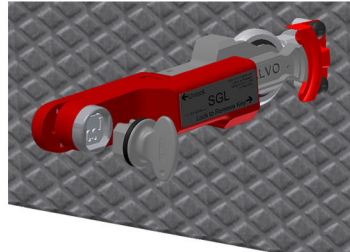
Rotate SGL downwards.

③



Slide the SGL lock portion towards the air line connector.

④



Only when the Salvo SGL is on the connector can the key be rotated anti-clockwise and removed.

Removal of the SGL lock is the reverse of the above procedure.
When operation is complete, please return to its normal storage location or issuer.

Precautions



Salvo SGL is heavy. During the course of normal use, it may become dirty, greasy and slippery. If you drop it on your foot, you may sustain serious injury. Handle with care. Wear appropriate personal protective clothing.

Maintenance

A lubrication point is provided adjacent to the key entry aperture and trigger mechanism. The recommended lubricant is Armna G4789 or equivalent. The recommended lubrication interval is 6-12 months as required. Keeping the Salvo SGL clean will ensure long and reliable service.



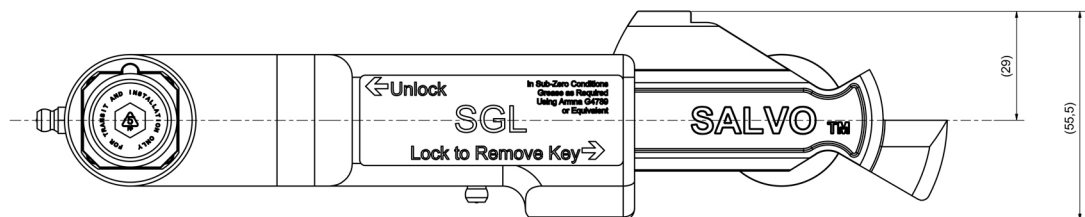
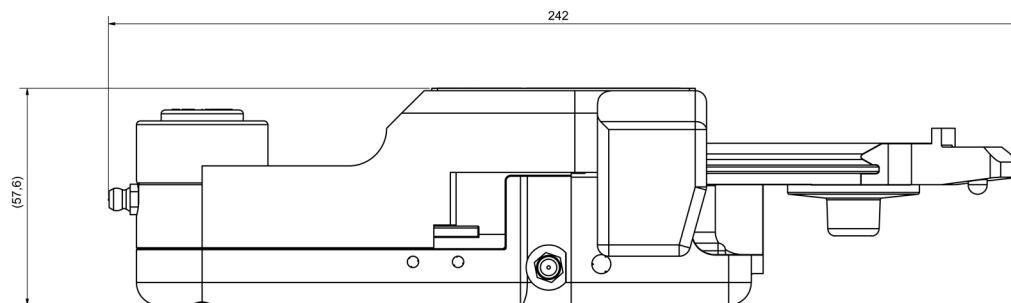
Technical Data

Working Temperature	Min -25°C (ice free) Max. +55 °C
Weight	2,0 kg
Housing Material	Light alloy / Stainless steel
Lock Material	Stainless Steel
Standards	Conforms with; (EU) ISO 1728-1980 Palm Type Coupling (USA) SAE J318 Glad Hand Connector

Drawing

Dimensions:
in mm

SALVO SGL



Order Information

Please advise part number, symbol and dog tag when ordering.

(** mandatory information)

Part Number**

006504

Symbol**

please advise

Dog Tag**

please advise



Salvo Club

The Salvo Club helps ensure loading dock safety. The Salvo Club brings added safety to loading dock procedures by locking a vehicle's steering wheel. The Salvo Club can be attached to vehicle steering wheels of varying sizes and will remain locked in place once the Castell key is removed. When loading/unloading procedures are complete, the Castell key may be replaced, and the Salvo Club can be removed allowing the vehicle driver to depart from the loading bay.

Operation

①



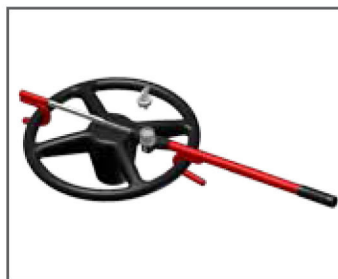
Begin by fully closing the two halves of the Salvo Club. Then place the Salvo Club in position over the steering wheel.

②



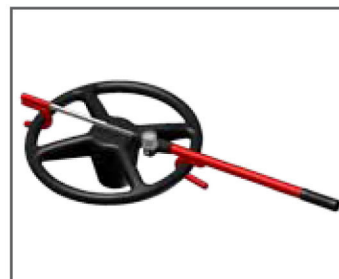
Slide the two halves of the Salvo Club apart, engaging the hooks inside the wheel.

③



Rotate and remove the key.

④



The Salvo Club is now locked in place restricting rotations of the steering wheel.

Precautions



Salvo Club will not prevent a vehicle drive-away. It's purpose is to provide a warning that loading/unloading activity may still be ongoing.

Handle with Care. Beware of pinch points where the two halves slide/telescope together.

Maintenance

Apply lubrication to the inner plungers. The recommended lubricant is Armna G4789 or equivalent. The recommended lubrication interval is 6-12 months as required. Keeping the Salvo Club lock clean will ensure long and reliable service.



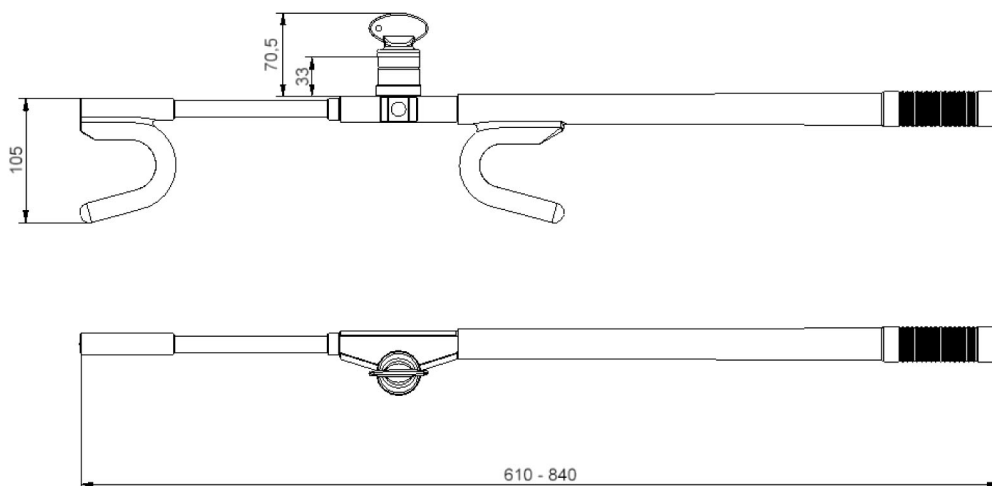
Technical Data

Working Temperature	NA
Weight	1,5kg
Housing Material	Steel/Cro-moly Steel Construction with heat treated steel hook
Lock Material	Stainless Steel/Brass
Steering Wheel Size	Min. 22cm Internal Diameter; Max. 48cm Internal Diameter

Drawing

Dimensions:
in mm

SALVO CLUB



Order Information

Please advise part number and symbol when ordering.

(** mandatory information)

Part Number**

006476

Symbol**

please advise

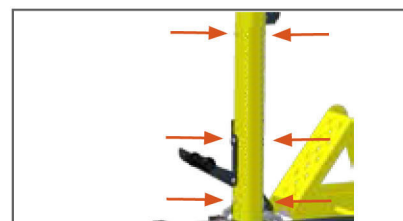
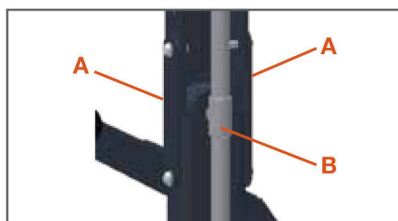


Salvo Chock

Salvo Chock is a device designed to immobilise non articulated goods vehicles whilst they are being loaded and unloaded. When used in conjunction with other Salvo products, it can prevent inadvertent or unauthorised drive-aways. It is designed to be deployed on the drivers side front wheel of the vehicle. Salvo Chock introduces discipline into the chocking procedure by interlocking the chock and the loading bay. If the chock is not correctly fitted, the bay door cannot be opened. Like all of the existing products in the Salvo range, Salvo Chock relies on Castell's time-proven trapped-key technology

Before Use

- ① When the chock is received, it will be configured for transit. To make the Chock ready for use, the Lock Support Arm must be secured in the operational position.
- ② The Lock Support Arm must be raised to the vertical position and the Securing Plates (A) fitted to prevent any movement of the arm. The Retention Sleeve (B) should be slid into position around the joint in the spigot.
- ③ To complete the assembly the cover should be fitted with the fixings provided in 6 positions. The Chock is then ready for use.



Operation

The Salvo Chock is designed as a part of a safety system to prevent accidental drive aways. The Salvo Chock ensures the vehicle is locked in position before the loading bay door can be opened

- ① Salvo Chock assembly is fitted loosely around drivers-side front wheel. Rotate the catch anti-clockwise to the 'up' position, as shown.
- ② Press the pedal until the two chocks contact the tyre. Continue until lock springs into place.
- ③ Remove the untrapped key. The chock is now secured in place.



Precautions



Salvo Chock is designed to fit any size or type of rigid vehicle from 3 to 26 tonnes with tyre outside diameter from 27.5 to 42 inches (700 to 1070 mm). To prevent the risk of manual handling injury, only move the chock around using the mobility handle (see photos under Operating Instructions).

Handle with Care. Beware of pinch points where the two halves slide/telescope together.



Maintenance

Periodic visual checks should be carried out by the site manager / safety officer. Do not lubricate lock barrel with oil or grease, use CK Dry Powder Graphite if necessary.

The recommended grease to lubricate sliding parts is Armna G4789 or equivalent.

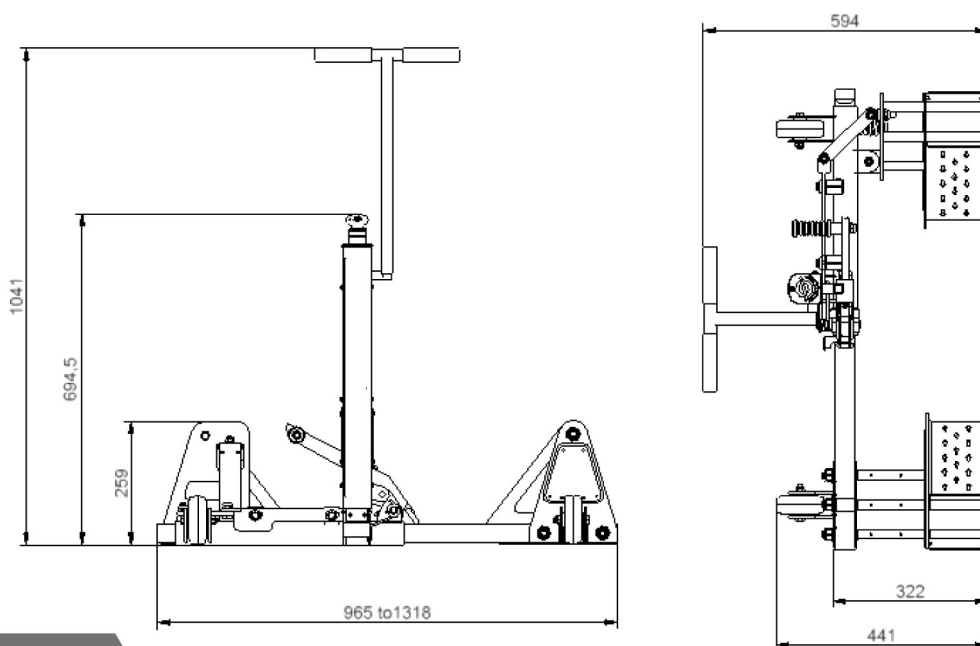
Technical Data

Material	Powder coated carbon steel and aluminium
Weight	26kg
Colour	Safety yellow/graphite grey

Drawing

Dimensions:
in mm

SALVO CHOCK



Order Information

Please advise part number and symbol when ordering.

(** mandatory information)

Part Number**

007058

Symbol**

please advise



SCP+

The Salvo Control Panel Plus (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 of status and operation. Installation is via plug in terminals on the internally mounted PCB.

Operation

The Salvo Control Panel is designed as part of a safety system to prevent accidental drive aways. The Salvo Control Panel ensures that the loading bay door cannot be opened before the vehicle airline is disconnected via the Salvo Susie coupling and the key has been transferred from the coupling to the SCP+.

- 1 SCP+ with bay controls isolated, ready to receive key.
- 2 Insert key and turn clockwise.
- 3 SCP+ with bay controls energised, ready to open door and deploy dock leveller.



Specifications

Temperature (Operating)	Min: -25°C, Max: +55°C
Size	300mm(H) x 220mm(W) x 157mm(D) (172mm with Mounting)
Mounting Hole	160mm(H) x 140mm(W) (Mounting Plate) – M8 Fixings 260mm(H) x 160mm(W) (Enclosure) – M8 Fixings
Material	Enclosure – Mild Steel to BS 1449 HR4 Lock Portion – Stainless Steel 304/316
Weight	5.5 kg
Cable Entry Size	M20 x 2
Switch Approvals	IEC947-1.3 IEC947-5 BS EN60947 VDE 0660
UL Listed	TBA
Ingress Protection	IP55 Enclosure
Switch Rating	Continuous, unattended, remote
Power Supply Required	24VDC
Max Power Consumption	20VA / 20W
Power Frequency	50/60Hz
Relay Specification	Max switching voltage 240VAC 6A Max switching current 6A



Component Inputs

- SPSB (Salvo Power Supply + Beacon)
- SADL (Salvo Automatic Door Lock)
- SBDS (Salvo Bay Door Sensor)

Component Outputs

- Traffic Light
- Door Control
- Dock Leveller Control
- Amber Beacon

Precautions



Lockout/ Tagout:

Before installing and using your SCP+ unit, a proper lockout/ tagout procedure should be developed for this unit and related energy sources.

Training:

Only those trained in the proper use of this equipment should be allowed to install, use and maintain it.

Installation:

Proper installation will ensure safe operation and long life of this product.

Never use this product for anything other than its intended purpose.

It is recommended to route cabling via the cable gland access provided at the base of the unit. Remove knock-outs and fit cable glands provided.

Always make connections to this device in accordance with instructions set forth in this manual and any applicable electrical codes for your area.

A lockable, local disconnect is recommended to properly isolate this unit.

Constantly be aware of vehicle traffic on or near the loading bays.

ESD electrostatic discharge: circuit boards are vulnerable to damage by electrostatic discharge. Before handling any boards ensure you dissipate your body's charge.

Operation/ Maintenance:



WARNING – Disconnect Electrical Supply Before Opening Unit.

Never operate this unit with the access door open.

Never place any body parts near exposed electrical components.

Avoid poking/ prodding into unit with tools that can conduct electrical current.

Never force the electrical contacts or key solenoid to manually operate this unit.

Failure to follow this instruction could void the manufacturer's warranty

Preinstallation Check

When preparing to wire multiple devices together for a "system" configuration, it is best to ensure the correct operation of each device independently before starting, to help reduce troubleshooting time later in the event of discrepancy.

Prior to installation, when applying equipment on a new supply circuit, always ensure the correct line voltage exists and is stable. Remember to shut the power off, after this is checked and before performing any wiring of the system.



Installation 1/4

Steps for installing the SCP⁺

Step 1: Specify location of SADL (inside / outside)

Step 2: Mount SCP⁺

Step 3: Install multi-core cable

Step 4(1): Install Traffic Lights

Step 4(2): Install SPSB

Step 5(1): Install SADL

Step 5(2): Connect Door Close Limit Interface

Step 6: Connect Auto Door Control Interface

Step 7: Connect Dock Leveller Control Interface.

Step 8: Connect power (24VDC)

1 - Specify Location of SCP⁺

Before carrying out installation it is extremely important to determine the location of the SCP⁺. This would depend on the specific site requirement.

The options being:

- Mounted inside the Warehouse where the warehouse staff controls the Salvo coupling.
- Mounted Outside the Warehouse where the shunters/drivers control the Salvo coupling
- If in any doubt contact the site project manager or the Castell Product Manager.

2 - Mount SCP⁺

Depending on site conditions, Ideally the SCP⁺ should be mounted 1.5m above floor level. If mounted outside the building, it should be mounted beneath the traffic lights.

If mounted inside the building it should be located adjacent to the dock controls.

3 - Install Multi-core Cable

Consideration should be taken on how the cables are going to run to the various peripherals.

An assessment of site conditions needs to be taken to determine the type of cable used. Armoured cable is suggested for areas of low level of protection against damage by vehicles. CY or SY cable to be used where there is a good level of protection.

The more peripherals and interface connections need, the more cores are required. Consult the wiring diagram to determine the number of cores needed. It is suggested the power cabling is run separately where practicable.

Care should be taken to route and secure all wiring to the Control PCB to avoid interference with the enclosure locking mechanism.



Installation 2/4

4 (1) - Install traffic Lights

Our standard 24VDC traffic lights are to be used (re SETL).
Connect to Connector 8 Term 7,8,9,10.

9: connect to +ve terminal of red traffic light.

7: connect to +ve terminal of green traffic light.

10 & 8: connect to -ve terminal of both red and green traffic light.

4 (2) - Install SPSB

Mounting Holes:

90mm(H) x 94mm(W) (SPSB) – M5 Fixings

Connections:

Connector 1, Terminals 1, 2 & 3 (SCP⁺)

1: Connect to +V terminal of PSU

2: Connect to –V terminal of PSU

3: Connect to Earth terminal of PSU

Connector 8, Terminals 5 & 6 (SCP⁺)

5: Connect to + terminal of Beacon connector block

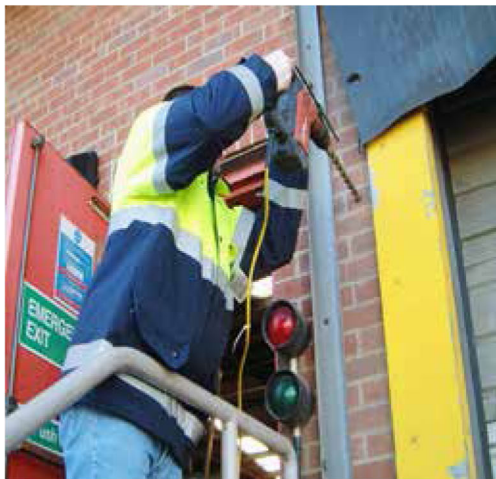
6: Connect to – terminal of Beacon connector block



Installation 3/4

5(1) - Install SADL

Our standard 24V door locks are to be used (re SADL).
Connect to terminal 1, 2, 3 & 4 of Connector 2 and terminal 10 of Connector 8.
Connector 2: terminal 1 connect to terminal 2 of SADL (Door Lock)
Connector 2: terminal 2 connect to terminal 14 of SADL (Door Lock)
Connector 2: terminal 3 connect to terminal 4 of SADL (Door Lock)
Connector 8: terminal 4 connect to terminal 3 of SADL (Door Lock)
Connector 8: terminal 10 connect to terminal 1 of SADL (Door Lock)



If locating the SCP+ outside, find a suitable route for the cable through the building wall, and drill cable hole as shown.



Typical SCP+ installation location outside warehouse.



Typical SCP+ installation location using mounting plate.



Typical SCP+ installation location outside warehouse on pedestal.



Installation 4/4

5(2) - Connect Door Close Limit Interface

In the case of an automatic door there is not a requirement for the SADL however there is a requirement for a signal from the door control panel to indicate the bottom limit.

Connector 2 terminal 1 & 2: connected to bottom limit volt free contacts of the Door control panel.

6 - Auto Door Control Interface

It is the case of an automatic door it is necessary to prevent opening of the door when the Castell Key is in the free position.

Connect to Connector 2 terminal 7 & 8:

The 7 & 8 terminals to be connected in series with the Door up push button wiring. OR:

The 7 & 8 terminals to be connected across the door inhibit terminal of the Door control panel.

Please note that the SCP⁺ is a failsafe device therefore if there is a failure then the door cannot be opened.

7 - Connect Dock Leveller Control Interface

It may be necessary to prevent activation of the dock leveler when the door is closed.

Connect to terminal 5 & 6 Connector 2.

The 9 & 10 terminals to be connected in series with the Dock leveler raise push button wiring. Please note that if there is a power failure, then the dock leveller cannot be raised.

8 - Power Supply Input



Connect 230/110VAC supply to SPSB (supply to be fused at 3A)

Connect Live to L (AC) terminal of PSU

Connect Neutral to N (AC) terminal of PSU

Connect Earth to Earth terminal of PSU

Means of Isolation should be located adjacent to the device and should be clearly marked and easily accessible.

9 - Check Functions

Check all Functions

10 - Fuse Replacement

The SCP⁺ internal fuse is located above the PCB, adjacent to connector TB4, marked "F/Panel Fuse"
Fuse Rating; 3Amp GSL003 Ø5 x 20mm Time-Lag Glass Tube Fuse (RS668-6007)



Function

Function	Condition
Key Free	Door de-activated SADL de-energized Traffic light green Orange beacon OFF Dock leveler de-activated Vehicle restraint de-activated SCP+ lights (Green if ext, Red if int)
Key Trapped, Door Closed	Door activated but not yet opened SADL energized but not yet opened Traffic light green Orange beacon ON Dock leveler de-activated Vehicle restraint activated SCP+ lights (Green if ext, Red if int)
Key Trapped, Door Open	Door activated and opened SADL energized and unbolted Traffic light red Orange beacon ON Dock leveler activated Vehicle restraint activated SCP+ lights (Red if ext, Green if int)

Wiring

Connect ID	Description	Power Rating	Cable Size
24VDC	24VDC power connections Connector 1 Term 1 & 2	20w	1.5mm ²

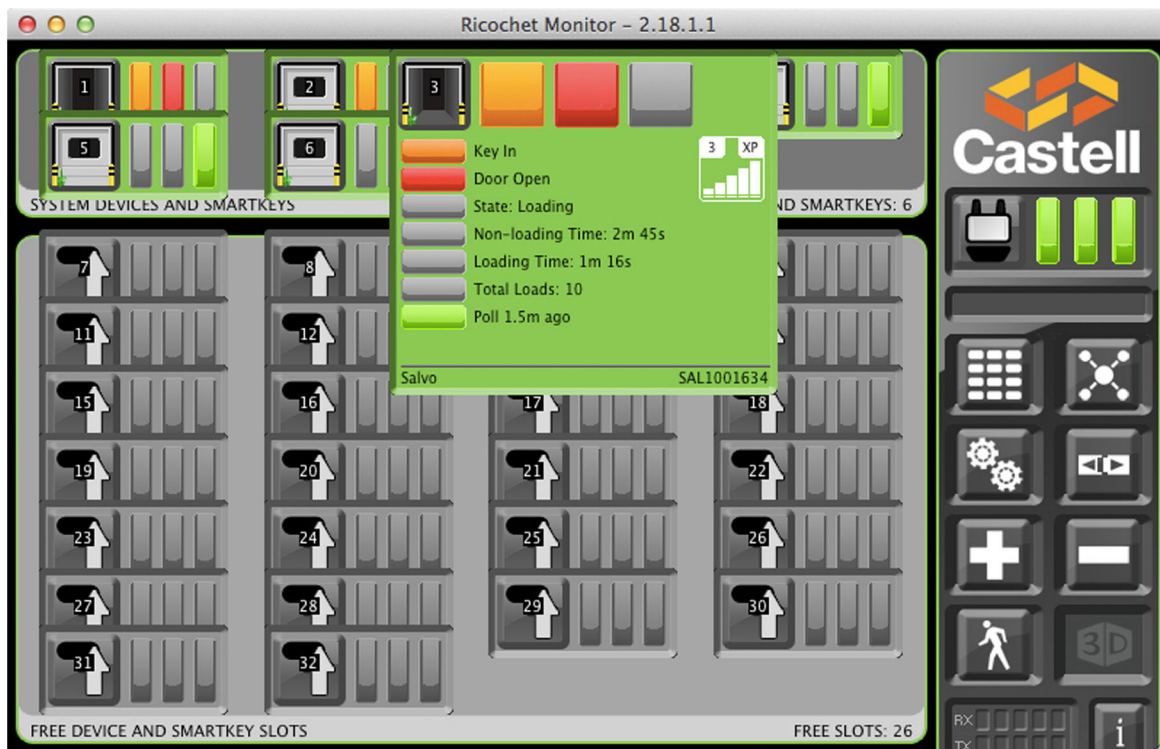
Connect ID	Description	Cable Size
SADL/Door Closed	Solenoid controlled door lock or the door closed contact in the door control panel.	1.5mm ²

Connect ID	Description	Power Rating	Cable Size
Auto Door	N/O contacts to interlock with the door.	6A	1.5mm ²
Dock Leveller	N/O contacts to interlock with the Dock leveller.	6A	1.5mm ²
Traffic Light	Change over contacts to control the traffic lights (24VDC).	6A	1.5mm ²
Beacon	N/O contacts to control beacon (24VDC).	6A	1.5mm ²
Aux 1	Change over contacts to control other peripherals.	6A	1.5mm ²



Increasing Your Operational Efficiency

The pressure in modern logistics environments is huge. Increased fuel costs, congestion, tight delivery schedules and safety are all issues that distributors and manufacturers face in a highly competitive market. When capacity is tight, the cost of installing an additional loading dock can run in to tens of thousands of pounds. The cost of having people and assets sat waiting for docks to become available during busy periods can also be significant. Castell has addressed this challenge and developed Salvo DockMonitor to enable loading operations to run more efficiently by providing crucial information in real time. Increasing efficiency at the loading dock can bring big rewards such as reducing the number of loading docks required in a facility and ensuring assets are utilised to the highest level of efficiency.



Managing Information Systems

Introducing Salvo™ DockMonitor – an innovation in loading efficiency

Designing the Salvo DockMonitor involved our customers from an early stage to ensure the right information is delivered in the right manner. Castell has worked closely with customers to ensure a full understanding of their requirements.

Dockmonitor comprises the standard Salvo safety components, a data gathering and analysis device and a live graphical interface running on a PC to display overall site performance or individual dock statistics. Using the system's report function generates graphical reports on utilisation, loading times, idle times, shift to shift comparison and maintenance reports. This information can be exported to a range of standard file formats to enable further review and analysis.



Salvo™ DockMonitor delivers benefits in four key areas: Efficiency, tracking, manufacturing and safety

- Enables the improvement of the efficiency of loading operations
- Enables the increase of the capacity of existing facilities
- Helps avoid the costs associated with the unnecessary expansion of facilities
- Allows individual dock to dock and shift to shift comparisons of dock performance
- Enables real time usage to be recorded and therefore align maintenance plans with actual real time requirements
- Provides alarm generation when performance is below user-definable benchmarks
- Delivers vehicle identification and traceability for each operation
- Delivers exportable data to enable in depth analysis

