



Salvo™

User Manual



Section 1- Couplings

Salvo Susie.....	4
Salvo SGL (Glad Hand Lock)	6
Salvo Type 1.....	8
Salvo Club.....	10
Salvo Chock.....	12

Section 2 - Powered Doors

Salvo SCP+ (Salvo Control Panel Plus).....	15
Salvo Safety Proximity Sensor (for Sectional Doors).....	24
Salvo Safety Limit Switch (for Roller Shutter Doors).....	26
Salvo Transformer.....	28
Salvo Power Supply & Beacon (SPSB)	29

Section 3 - Manual Doors

SMDL-AIS-SMDB/SDMC (Manual Door Lock)	32
SMDL-AI-SMDB/SDMC (Manual Door Lock)	35
SADL-SMDB/SDMC (Automatic Door Lock).....	38

Section 4 - Loading Bay Barriers

Salvo Bollard.....	42
--------------------	----

Section 5 - Peripherals

Salvo Pedestal.....	45
Salvo Enclosure.....	46
Salvo Traffic Lights.....	47

Section 6 - Safety Critical Information

Safety Critical Information.....	49
----------------------------------	----

Section 1

Couplings



The Salvo Susie lock is a key operated mechanical locking device designed to fit on to all UK trailer, emergency brake line connectors. It's 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 key. The Salvo Susie has an ergonomically designed grip. This enables the lock to be fitted and removed efficiently in wet and cold weather. The grip design provides protection to oil and grease making it ideal for harsh environments.

Salvo Susie

Operation

The Salvo Susie lock is designed as a part of a safety system to prevent accidental drive aways. The Salvo Susie interlock ensures the vehicle air line is disconnected before the loading bay door can be opened.

- 1 **Disconnect the airline from the trailer Susie air line connector.**
- 2 **Slide the Salvo Susie lock over the exposed air line connector.**
- 3 **Rotate the key anti-clockwise and remove the key.**



To remove the Susie lock from the trailer, insert and rotate the key clock-wise. Pull the lock off the Susie air line connector. When the operation is complete the unit should be returned to either the storage enclosure or to the issuer.

Precautions



Salvo Susie 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 at the opposite end of the key entry aperture. The recommended lubricant is Armna G4789 or equivalent. The recommended lubrication interval is 6-12 months as required. Keeping the Salvo Susie lock clean will ensure long and reliable service.

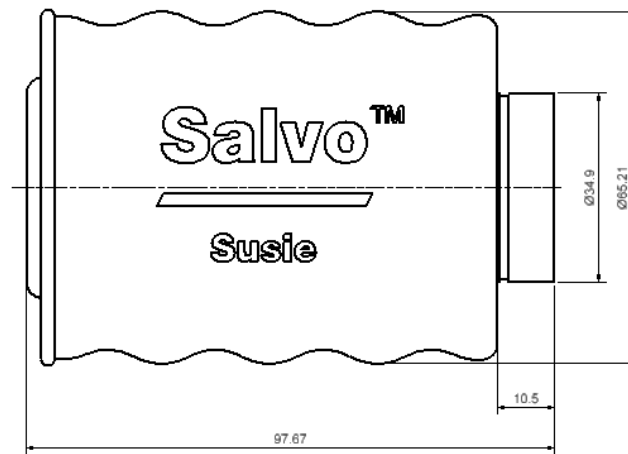
Technical Data

Working Temperature	Min -25°C (ice free) Max. +55 °C
Weight	1,0 kg
Material	Stainless steel lock complete with TPE (Thermoplastic Elastomer) sleeve
Standards	(UK) BS AU138b.C type coupling

Drawing

Dimensions:
in mm

SALVO SUSIE



Order Information

Please advise part number, symbol and dog tag when ordering.
(mandatory information)**

Part Number**

005959

Symbol**

please advise

Dog Tag**

please advise



The Salvo Glad Hand Lock (SGL) is a key operated mechanical locking device designed to fit on to all European and US trailer, 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

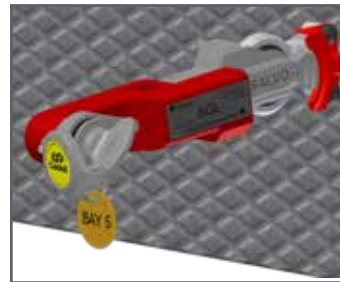
Operation

①



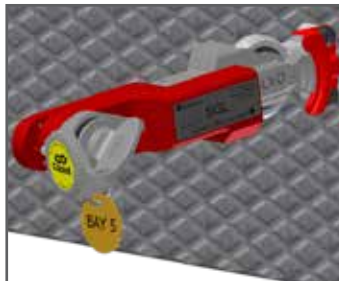
Disconnect the airline from the trailer connector, then engage the centre peg of the SGL on to the air line connector on the trailer.

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.

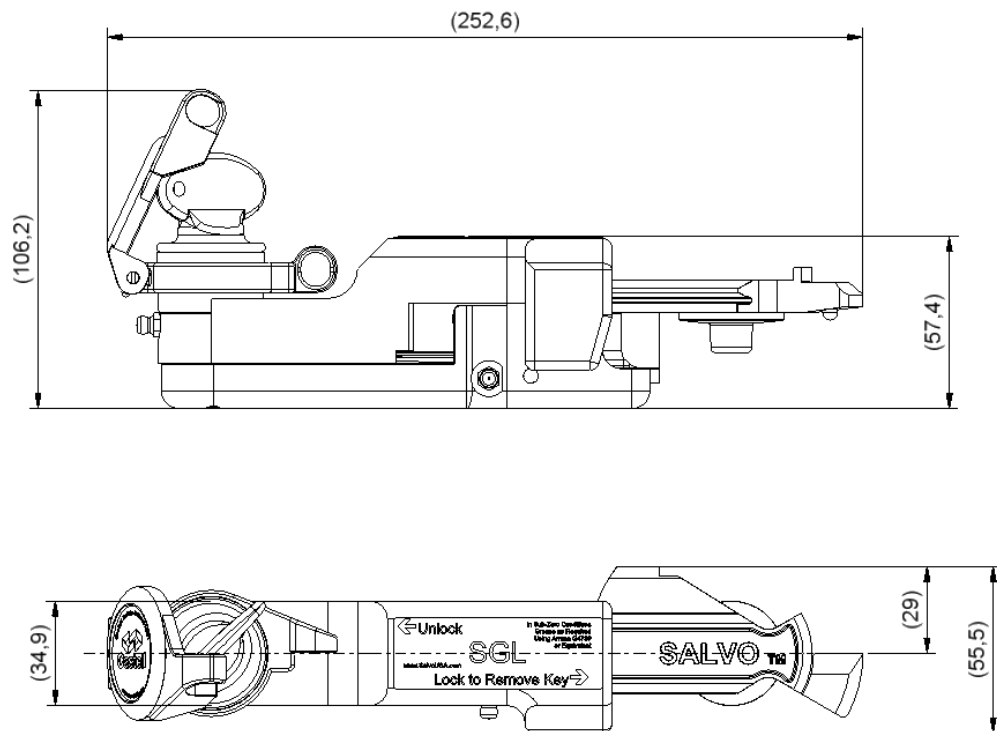
Technical Data

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 Type 1

User Guide



The Salvo Type 1 lock is a key operated mechanical locking device designed to fit on to all Australian Type 1, emergency brake line connectors. Its purpose is to prevent re-connection of the air brake hose, thereby immobilising the trailer. When fitted, the Salvo Type 1 can only be removed with the permit key.

Salvo Type 1

Operation

- 1 Disconnect the air line from the Trailer Type1 air line connector.
- 2 Slide the Type1 lock over the exposed air line connector.
- 3 Rotate the key anti-clockwise and remove the key.



To remove the Type1 lock from the trailer, insert and rotate the key clock-wise. Pull the lock off the Type1 air line connector. When the operation is complete the unit should be returned to either the storage enclosure or to the issuer.

Precautions



Salvo Type 1 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

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 Type 1 lock clean will ensure long and reliable service.

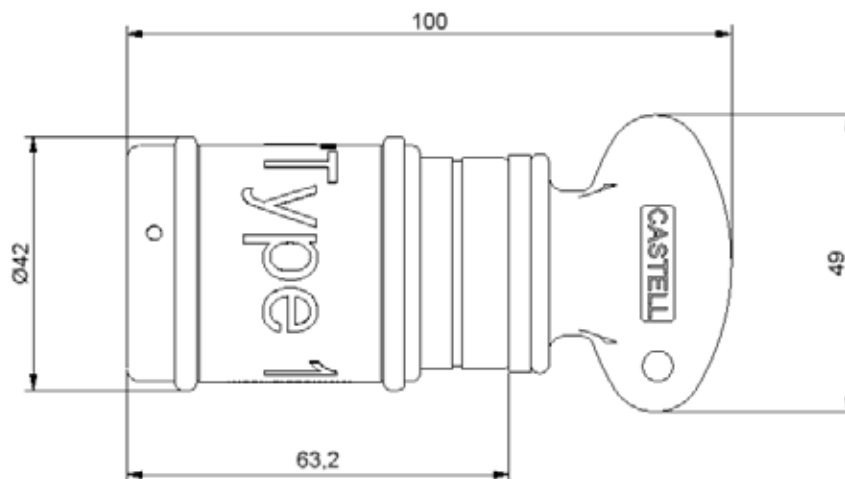
Technical Data

Working Temperature	Min -25°C (ice free) Max. +55 °C
Weight	0,5 kg
Housing Material	Stainless steel
Lock Material	Stainless Steel
Standards	Conforms with; AS4945-2000

Drawing

Dimensions:
in mm

SALVO TYPE 1



Order Information

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

(** mandatory information)

Part Number**

006505

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.

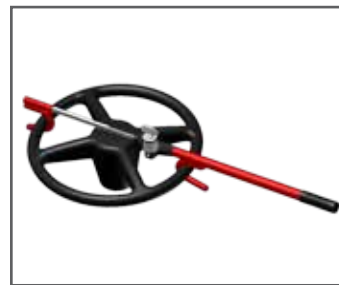
Operation

①



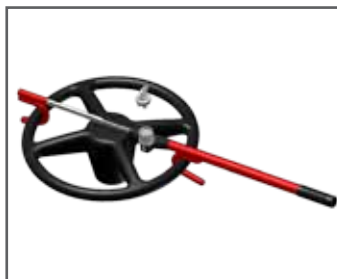
Begin by fully closing the two halves of the Salvo Club. Then place the Salvo Club in position over the steering wheel.

②



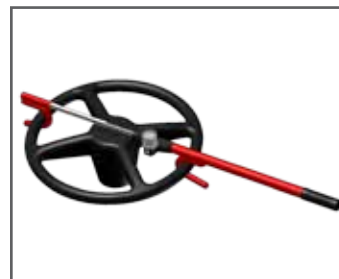
Slide the two halves of the Salvo Club apart, engaging the hooks inside the wheel.

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.

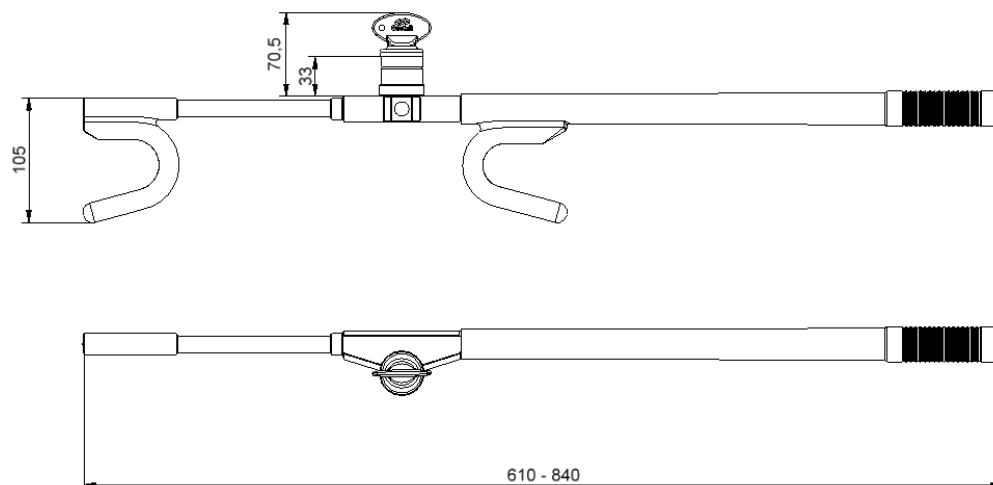
Technical Data

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

User Guide

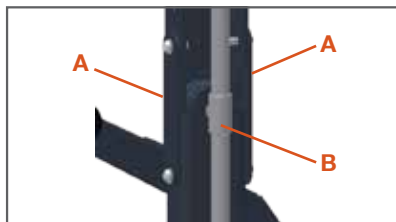


Salvo Chock

Salvo Chock is a device designed to immobilise nonarticulated 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.

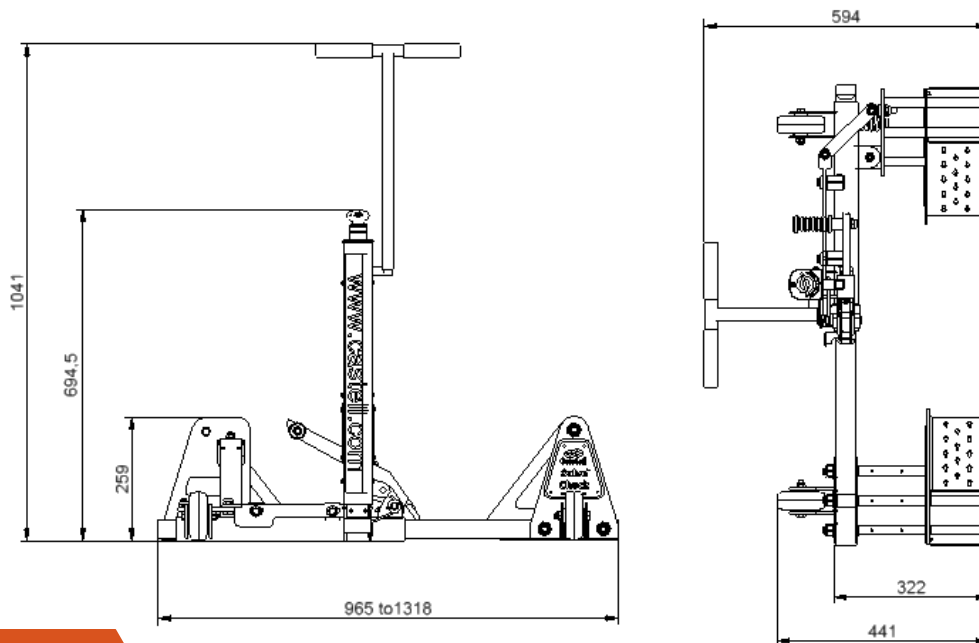
Technical Data

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



Section 2

Powered Doors

Salvo Control Panel (SCP+)

User Guide



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.

SCP+

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

In 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 leveller when the door is closed.

Connect to terminal 5 & 6 Connector 2.

The 9 & 10 terminals to be connected in series with the Dock leveller 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)

Salvo Control Panel (SCP⁺)

User Guide



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)

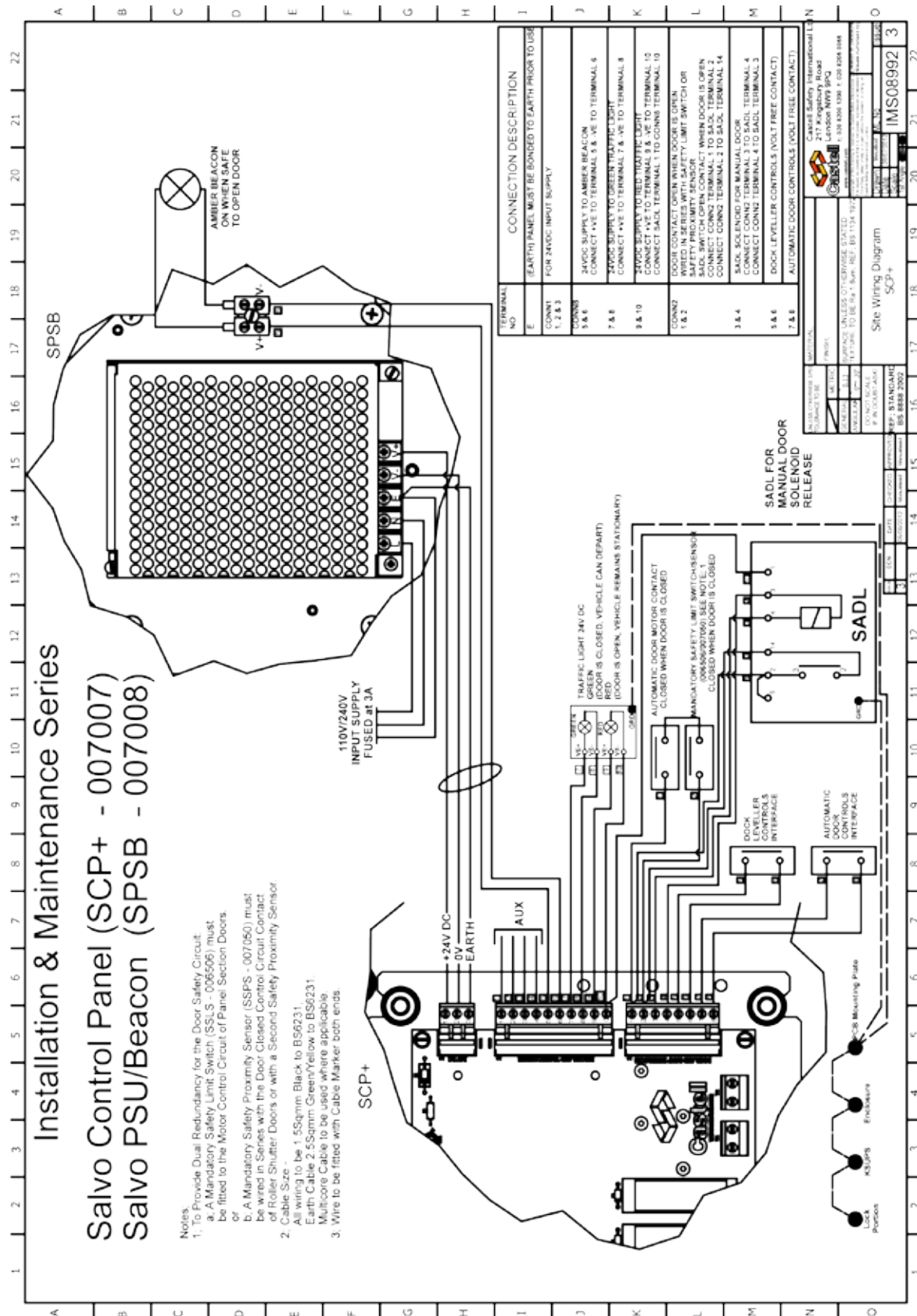
Wiring

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

Wiring Diagram



Salvo Control Panel (SCP⁺)

User Guide



Order Information

Please advise part number and symbol when ordering.
(* **mandatory information**)

Part Number**

Symbol**

007007

please advise

Salvo Safety Proximity Sensor

User Guide



Salvo Safety Limit Switch

The Salvo Safety Proximity Sensor is designed for use with Roller Shutter Doors, where mechanical Roller Switches cannot be used. It should be mounted in accordance with these instructions, as close to the door frame as possible, to prevent accidental damage.

Specifications

Proximity Switch

Contact Form/Style	Normally Open
Switching Capacity (Resistive)	120 W/VA Max
Switching Voltage	1500 VAC Max
Switching Current	3.0 A. Max
Carry Current	5.0 A. Max
Breakdown Voltage	3000 VDC Min
Contact Resistance	80 mOhms Max
Switching Distance	15mm Min
Operating Temperature Range	-20°C / +85°C
Storage Temperature	-25°C / +90°C
Case Material	Brass (Nickel Plated)
Cable	2 x 0.5mm ² PVC covered Black, insulated Brown / Blue.

Metal Threaded Magnet

Switching Distance	Normally Open
Operating Temperature	-20°C / +85°C
Storage Temperature	-25°C / +85°C
Case Material	Brass (Nickel Plated)

Precautions

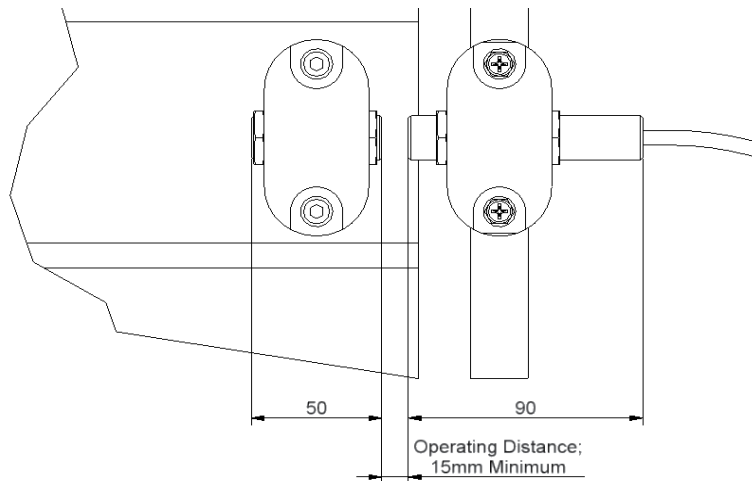


Installation should be carried out by a competent and qualified person who has read and understood these instructions. Do not use this product as a safety or emergency stop device, or in any other application where failure of the product could result in personal injury. Handle with Care. Beware of Pinch points where the two halves align. Castell Safety recommends that this switch is wired in series with the door down limit switch. Where this is not possible two switches should be used (see Installation Wiring Diagram – IMS08992).

Maintenance

From time to time, check that all fixing screws remain tight.

Installation



- 1 The magnet should be mounted low enough on the door to ensure it does not reach the point where the door begins to be rolled, when the door is fully opened.
- 2 Align the Switch bracket with the Magnet, mark and drill holes and fix to the frame.
- 3 Ensure the Switch and Magnet align when the door is fully closed.
- 4 Adjust the Switch and Magnet to meet the acceptable operating distance.



Order Information

Please advise part number when ordering.
(mandatory information)**

Part Number**

007050

Salvo Safety Limit Switch

User Guide



Salvo Safety Limit Switch

The Salvo Safety Limit Switch comprises a mechanical roller switch and bracket set. It is mounted so that the roller is actuated by the opening and closing of the loading bay door. It should be mounted in accordance with these instructions, in a raised position to prevent accidental damage.

Specifications

Product Type	Miniature Safety Limit Switch
Actuator	Side Rotary
Lever Style	Roller Adjustable
Circuitry	1NC 1NO DPST Snap Action
Ampere Rating	10 A (Thermal)
Supply Voltage	240VAC / 250VDC
Housing Material	Plastic
Termination Type	M20
Housing Type	EN 50047
Sealing	IP67 (EN60947-5-1)
Approvals	UL, CSA, CE, CCC, TUV
Mechanical Life	15 Million Cycles
Operating Temperature Range	-30°C to 70°C (-22°F to 158°F)
Agency Approvals and Standards	EN60947-5-1, UL508, CSA C22.2 No14, GB14048.5

Precautions



Installation should be carried out by a competent and qualified person who has read and understood these instructions. Do not use this product as a safety or emergency stop device, or in any other application where failure of the product could result in personal injury. Handle with Care. Beware of Pinch points where the two halves slide/telescope together. Castell Safety recommends that this switch is wired in series with the door down limit switch (see Installation Wiring Diagram – IMS08992).

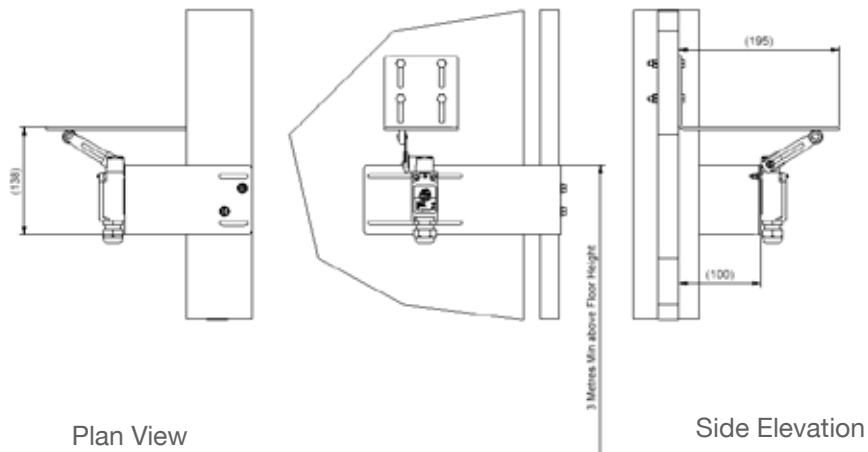
Maintenance

From time to time, check that all fixing screws remain tight.

Salvo Safety Limit Switch

User Guide

Installation



- ① The limit switch mounting bracket should be positioned approximately 3m above floor height.
- ② Align the bracket on the bay door rail and mark the position of the holes.
- ③ Drill the holes, and secure the bracket in place using the fixings provided.
- ④ Position the door bracket to ensure that the switch roller is actuated when the door is fully closed.



Order Information

Please advise part number when ordering.
(mandatory information)**

Part Number**

005606



Salvo Transformer is used to convert power supplies of 415VAC down to 230VAC. It is only required on sites where 230VAC is not available. It is supplied as mounted in a polycarbonate enclosure

Salvo Transformer

Specifications

Enclosure	Polycarbonate, 180mm (h) x 182mm (w) x 111mm (d)
Cable Entry	2 x M20 Glands
Transformer	63VA Transformer Input (0-230V - 400V) Output (2 x 0-115V)

Precautions



Installation should be carried out by a competent and qualified person who has read and understood these instructions.

Order Information

Please advise part number when ordering.

(mandatory information)**

Part Number**

007264

Salvo Power Supply & Beacon (SPSB)

User Guide



The Salvo Power Supply converts 110/240V to 24VDC to power the SCP+, providing a safer power level at the user interface. The SPSB is mounted to the interior wall of the warehouse, adjacent to the Loading Bay and is combined with an Amber Beacon to provide notification that the Loading Bay has been activated and it is safe to open the bay door and commence loading or unloading.

Salvo Power Supply & Beacon

Specifications

Power Supply	
Input	
Voltage	100~240VAC (88V ~ 264VAC – Full Range)
Frequency	47 - 63Hz
Current	<2A@115V and 1.2A@230V AC input, full load
Inrush Current	<40A@230VAC input, Cold Start at 25°C ambient
Leakage Current	<2.0mA@240VAC input
Output	
Voltage	24V
Rated Load	0A
Range Load	3.2A
Output Tolerance	+/- 1%
Line Regulation	+/-0.5%
Load Regulation	+/-0.5%
Ripple Noise MAX	120mV
Efficiency (Typ)	85%
Power	76.8W

Specifications

Enclosure

Material	RAL 7035 Grey Polycarbonate – IEC 60695-1-2
Dimensions	205mm(W) 220mm(H) 140mm(D)
Mounting Details	94mm(W) 90mm(H) – M5
Operating Temperature	-25°C to +115°C
Shock Resistance	20 Joules (IK10)
Ingress Protection	IP65

Beacon

Material	White Polycarbonate
Dimensions	Ø85mm x 81mm(H)
Voltage	11/35VDC
Current	50mA
Operating Temperature	-20°C to +70°C
Ingress Protection	IP65
Cable Entry Size	M20 x 2

Precautions



WARNING – Disconnect Electrical Supply Before Opening Unit



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



Installation of this equipment, other than for its specified use, may impair the operation and safety integrity of this product.



Installation should be carried out by a competent and qualified person who has read and understood these instructions. Any electrical installation must comply with standard “BS7671 – Requirements for Electrical Installations”, commonly referred to as the IEE Wiring Regulations, or any particular regulations and practices, specified by the local electricity supply company at the time of installation. Installation must be carried out by competent personnel qualified to IEE 17th Edition or any equivalent regulations in force at the time of installation.

Order Information

Please advise correct part number when ordering.

(mandatory information)**

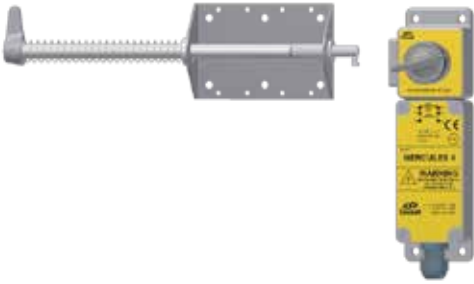
Part Number**

007008



Section 3

Manual Doors



SMDL-AIS-SMDB

The SMDL-AIS (Salvo Manual Door Lock) Is a mechanical interlock used to positively bolt loading bay doors in the closed position. The switch contacts can be used for controlling power to the dock leveller or other ancillary electrical devices e.g. traffic lights. The unit incorporates a locking bolt which passes through the door running rail and into the lock body. Only when the key is inserted and turned, can the locking bolt be disengaged, allowing the door to be opened. The turning of the key closes the switch contacts.

Operation

When correctly installed, the loading bay door is locked in the down position and the key is removed. With the key removed, the switch contacts are open and the dock leveller is disabled.

To operate, first insert the key and rotate clock-wise. The locking bolt can now be rotated on its axis and released.

The loading bay door can now be opened. With the door open, the key is retained in the lock. The dock leveller can now be operated as normal.

①



Insert the key into the lock.

②



Rotate the key clockwise.

③



Rotate the locking bolt.

④



Release the locking bolt and open the door.

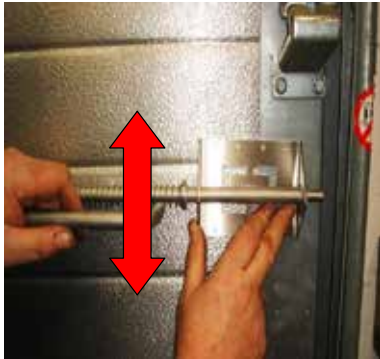
Precautions



Installation should be carried out by a competent and qualified person who has read and understood these instructions.

Installation

Fixing Instructions



Step 01: First ensure the door is fully closed. Determine the position of the locking bolt to ensure that either parts do not clash with existing door fixings. Suggested height between 1.5m and 2m from floor level.



Step 02: Mark the position of the bolt clearance hole on the inside of the door running guide. Check that the lock and bolt do not clash with bay controls.



Step 03: Drill the clearance hole in the running guide using a 25mm tank cutter.



Step 04: Determine the position of the lock body, ensuring that the bolt entry hole aligns with the already secured locking bolt.



Step 05: Use the hole in the door running guide to align the lock.



Step 06: Mark and drill the positions of the mounting bracket holes.



Step 07: Fix the lock and bracket in place with the screws provided.



Step 08: With the door fully closed, engage the bolt into the lock body, through the previously drilled hole in the door running guide. Mark the positions of the fixing holes in the door.



Step 09: Drill and pop-ribose two positions. Check that the bolt rotates freely, then drill remaining holes and pop rivet in place.

Specifications

Weight	1,1 kg
Bolt Material	Stainless steel
Housing Material	Stainless Steel
Lock Material	Stainless Steel
Rating	10A
Ingress Protection	IP65
Termination	PG11
Approvals	VDE, UL, CSA
Mechanical Life	200,000 Cycles
Operating Temperature Range	-30°C to 80°C (-22°F to 176°F)

Maintenance Instructions

Under normal operating conditions very little maintenance is required. If used in dusty conditions, blowing out with compressed air will prevent a build up of sediment in the locks.

The use of powdered graphite is recommended if necessary. Under no circumstances, however, should the locks be oiled or greased as this causes the locks to clog and malfunction.

All locking systems should be checked regularly for correct operation, security of fixings and condition of keys etc.

The function of all keys that should be trapped must be checked under operating conditions, as should the ease of removal of released keys.

In the event of malfunction, evident wear or damage, parts should be replaced or returned to Castell for repair if appropriate.

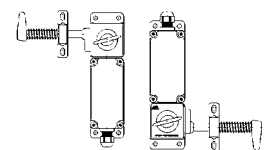
Users of interlock systems have a duty under Section 2 of the Health and Safety at Work etc Act 1974 to ensure that the systems are correctly installed and maintained in a satisfactory condition.

Order Information

Please advise correct part number and symbol when ordering.

(mandatory information)**

Part Number**	Description	Symbol**
006508	Hand 1, With Bolt	please advise
007044	Hand 1, With Chain Kit	please advise
006509	Hand 2, With Bolt	please advise
007045	Hand 2, With Chain Kit	please advise



Hand 1 Hand 2

SMDL-AI-SMDB/SDMC

User Guide



The SMDL-AI (Salvo Manual Door Lock) is a mechanical interlock used to positively bolt loading bay doors in the closed position. The unit incorporates a locking bolt which Passes through the door running rail and into the lock body. Only when the key is inserted and turned, can the locking bolt be disengaged, allowing the door to be opened.

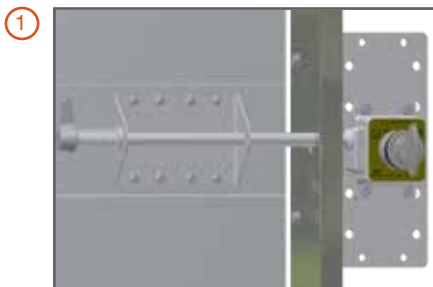
SMDL-AI-SMDB

Operation

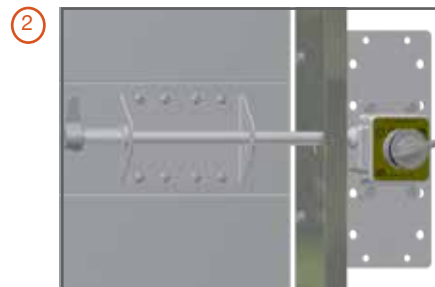
When correctly installed, the loading bay door is locked in the down position and the key is removed.

To operate, first insert the key and rotate clock-wise. The locking bolt can now be rotated on its axis and released.

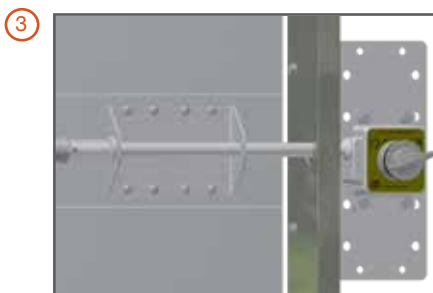
The loading bay door can now be opened. With the door open, the key is retained in the lock. The dock leveller can now be operated as normal.



1 Insert the key into the lock.



2 Rotate the key clockwise.



3 Rotate the locking bolt.



4 Release the locking bolt and open the door.

Precautions



Installation should be carried out by a competent and qualified person who has read and understood these instructions.

Installation

Fixing Instructions



Step 01: First ensure the door is fully closed. Determine the position of the locking bolt to ensure that either parts do not clash with existing door fixings. Suggested height between 1.5m and 2m from floor level.



Step 02: Mark the position of the bolt clearance hole on the inside of the door running guide. Check that the lock and bolt do not clash with bay controls.



Step 03: Drill the clearance hole in the running guide using a 25mm tank cutter.



Step 04: Determine the position of the lock body, ensuring that the bolt entry hole aligns with the already secured locking bolt.



Step 05: Use the hole in the door running guide to align the lock.



Step 06: Mark and drill the positions of the mounting bracket holes.



Step 07: Fix the lock and bracket in place with the screws provided.



Step 08: With the door fully closed, engage the bolt into the lock body, through the previously drilled hole in the door running guide. Mark the positions of the fixing holes in the door.



Step 09: Drill and pop-rivet two positions. Check that the bolt rotates freely, then drill remaining holes and pop rivet in place.

Specifications

Weight	1,1 kg
Bolt Material	Stainless steel
Housing Material	Stainless Steel
Lock Material	Stainless Steel
Operating Temperature Range	-40°C to 140°C (-40°F to 284°F)

Maintenance Instructions

Under normal operating conditions very little maintenance is required. If used in dusty conditions, blowing out with compressed air will prevent a build up of sediment in the locks.

The use of powdered graphite is recommended if necessary. Under no circumstances, however, should the locks be oiled or greased as this causes the locks to clog and malfunction. All locking systems should be checked regularly for correct operation, security of fixings and condition of keys etc.

The function of all keys that should be trapped must be checked under operating conditions, as should the ease of removal of released keys. In the event of malfunction, evident wear or damage, parts should be replaced or returned to Castell for repair if appropriate.

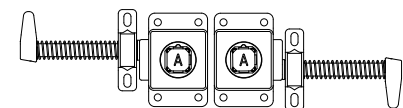
Users of interlock systems have a duty under Section 2 of the Health and Safety at Work etc Act 1974 to ensure that the systems are correctly installed and maintained in a satisfactory condition.

Order Information

Please advise correct part number and symbol when ordering.

(mandatory information)**

Part Number**	Description	Symbol**
006510	Hand 1, With Bolt	please advise
007041	Hand 1, With Chain Kit	please advise
006511	Hand 2, With Bolt	please advise
007043	Hand 2, With Chain Kit	please advise



Hand 1 Hand 2

SADL-SMDB/SDMC

User Guide



SMDL-AI-SMDB

The SADL is a keyless solenoid controlled Lock that locks and unlocks dependent upon the signal received from the Salvo Control Panel (SCP+). The unit incorporates a locking bolt which passes through the door running rail and into the lock body. Only when the signal is received from the SCP+, can the locking bolt be disengaged, allowing the door to be opened.

Operation

The SADL is a keyless solenoid controlled lock that locks and unlocks dependant on the signal received from the SCP+ unit. When the SGL is fitted to a truck the key is released and is then taken to be inserted into the SCP+. Once inserted and turned it will send a signal to the SADL illuminating the green LED and electromechanically allowing the removal of the bolt, this therefore allows the opening of the dock door or a chain barrier. When the bolt is removed, a yellow light illuminates indicating that access has been granted and will also send a signal back to the SCP+ locking the key in its panel, this prevents the removal of the permit key while loading is granted.

Precautions



Installation should be carried out by a qualified electrician. Please retain this document.

Wiring Instructions

Electrical Connection - Refer to Salvo Control Panel Wiring Diagram.

Installation

Fixing Instructions



Step 01: First ensure the door is fully closed. Determine the position of the locking bolt to ensure that either parts do not clash with existing door fixings. Suggested height between 1.5m and 2m from floor level.



Step 02: Mark the position of the bolt clearance hole on the inside of the door running guide. Check that the lock and bolt do not clash with bay controls.



Step 03: Drill the clearance hole in the running guide using a 25mm tank cutter.



Step 04: Determine the position of the lock body, ensuring that the bolt entry hole aligns. Use the hole in the door running guide to align the lock.



Step 05: Mark and drill the positions of the mounting bracket holes.



Step 06: Fix the lock and bracket in place with the screws provided.



Step 07: With the door fully closed, engage the bolt into the lock body, through the previously drilled hole in the door running guide. Mark the positions of the fixing holes in the door.



Step 08: Drill and pop-rievet two positions. Check that the bolt rotates freely, then drill remaining holes and pop rivet in place.

Specifications

Bolt Material	Stainless steel
Housing Material	Zink alloy to BS EN 12844
Finish	Red Polyester Powder Coat
Ingress Protection	IP67
Operating Force	0,5Nm
Retention Force - Locked	2500N
Max. Approach Speed	20M/min
Mechanical Life	>1,000,000 Switching Cycles
Max. Frequency of Operation	7,200/hour
Ambient Temperature	-5°C to 40°C (Mean over 24 hours = 35°C)
Max. Wire Cross Section to fit Connector	2,5mm ²
Connector Type	Spring Activated Vibration Proof Block
Switch Conformance	DIN VDE 0660 Part 206 & IEC
Switching	Positive Break
Switching Control	3A
Switching Voltage	230V AC max
Isolating Distance	2x2mm per Switch Element
Contact Material	24VAC/VDC

Maintenance Instructions

Under normal operating conditions very little maintenance is required. If used in dusty conditions, blowing out with compressed air will prevent a build up of sediment in the locks.

Under no circumstances, however, should the locks be oiled or greased as this causes the locks to clog and malfunction. All locking systems should be checked regularly for correct operation, security of fixings and condition of keys etc. The function of all keys that should be trapped must be checked under operating conditions, as should the ease of removal of released keys. In the event of malfunction, evident wear or damage, parts should be replaced or returned to Castell for repair if appropriate.


Users of interlock systems have a duty under Section 2 of the Health and Safety at Work etc Act 1974 to ensure that the systems are correctly installed and maintained in a satisfactory condition.

Order Information

Please advise correct part number when ordering.

(mandatory information)**

Part Number**	Description
006479	With Bolt
007051	With Chain Kit



Section 4

Loading Bay

Barriers

Salvo Bollard

User Guide



Salvo Bollard

The Salvo Barrier comprises a pair of bollards, a chain kit and a choice of interlock (see table below). Each bollard is bolted to the warehouse floor, either side of the loading bay door.

Operation

The SADL is a keyless solenoid controlled lock that locks and unlocks dependant on the signal received from the SCP⁺unit. When the SGL is fitted to a truck the key is released and is then taken to be inserted into the SCP. Once inserted and turned it will send a signal to the SADL illuminating the green LED and electromechanically allowing the removal of the bolt, this therefore allows the opening of the dock door or a chain barrier. When the bolt is removed, a yellow light illuminates indicating that access has been granted and will also send a signal back to the SCP⁺locking the key in its panel, this prevents the removal of the permit key while loading is granted.

Precautions



To maintain high visibility, periodically clean the bollard.
From time to time, check that all fixing screws remain tight.

Maintenance

To maintain high visibility, periodically clean the bollard. From time to time, check that all fixing screws remain tight.

Specifications

Post Material	Powder coated carbon steel
Cap Material	UV resistant ABS, black
Dimensions	1,016mm x 100mm x 150mm
Weight	16kg
Colour	Safety yellow
Mounting Hardware	Supplied

Installation

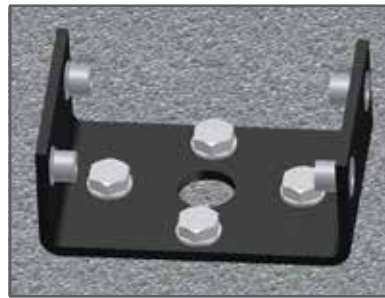
Fixing Instructions

Installation begins with bolting the footplate to the floor of the warehouse.

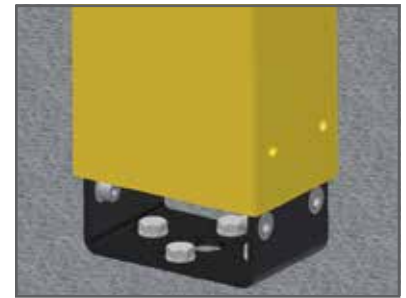
- ① Mark the position of the fixing holes on the warehouse floor and drill with a suitable masonry drill.



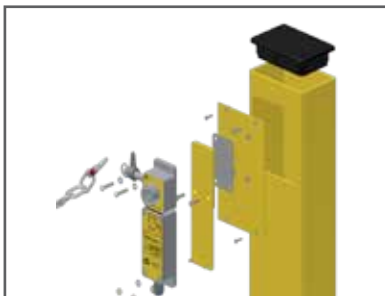
- ② Bolt the footplate to the floor using the fixings provided.



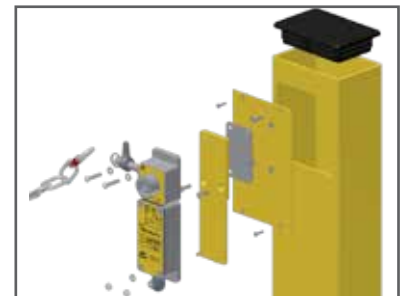
- ③ Lower the Bollard into place over the footplate.



- ④ Secure the Bollard to the footplate with the bolts provided.



- ⑤ Fit appropriate kit to Bollards, test accordingly to complete installation.



Order Information

Please advise correct part number when ordering.
(mandatory information)**

Part Number**	Description/System Components
006513	SCB-SMDL-AIS-1 c/w Chain Kit & Bollard
006514	SCB-SMDL-AIS-2 c/w Chain Kit & Bollard
006515	SCB-SMDL-AI-1 c/w Chain Kit & Bollard
006516	SCB-SMDL-AI-2 c/w Chain Kit & Bollard
006517	SCB-SADL c/w Chain Kit & Bollard



Section 5

Peripherals

Salvo Pedestal

User Guide



Salvo Pedestal

The Salvo Pedestal is bolted to the floor of the yard and is used primarily for installations that have a narrow bay pitch and limited wall access and fixing space. The pedestal is used in conjunction with Salvo Control Panel and Salvo Enclosure, double box.

Specifications

Post Material	Powder Coated Carbon Steel
Height	1.46m
Weight	15kg
Colour	Safety Yellow
Mounting Hardware	4 x M10 Rawl Bolts (supplied).

Precautions



To maintain high visibility, periodically clean the pedestal. From time to time, check that all fixing screws remain tight.

Maintenance

Installation

The location of the Pedestal is affected by the position of the existing bay canopy and/or curtains. Consideration must also be given to the accidental opening of the trailer doors during movement of the trailer. (Ensure that the trailer doors cannot strike the pedestal).

Additional steelwork (uni-strut) should be used to connect the pedestal to the bay wall, thereby providing greater stability. The SCP+ cable can be tied to the steel work for protection and support.



Order Information

Please advise correct part number when ordering.
(mandatory information)**

Part Number**

006480

Salvo Enclosure

User Guide



Salvo Enclosure

Salvo Enclosures are used for the safe and dry storage of the Susie and/or Palm/Glad Hand locks. The enclosure can be mounted at a location most suitable to site operations. For example, on the warehouse exterior wall, adjacent to the loading bay door, or on a pedestal between each loading bay.

Specifications

Surface Finish	Stainless Steel
Dimensions	200mm (w) x 300mm (h) x 131mm (d)

Precautions



To maintain high visibility, periodically clean the enclosure. From time to time, check that all fixing screws remain tight.

Installation

- ① Hold the enclosure against the wall to mark the position of the fixing holes.



- ② Drill the holes using an 6mm Dia. drill bit.



- ③ If required, insert wall fixing plugs into the holes.



Order Information

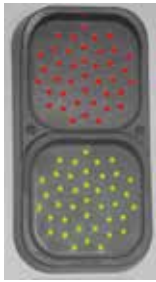
Please advise correct part number when ordering.
(mandatory information)**

Part Number**

006482

Salvo Traffic Light

User Guide



Salvo Traffic Lights are a means of communicating the status of the loading bay door. The lights can be mounted inside, outside or on both sides of the loading bay. When mounted inside, a red light indicates that the bay door cannot be opened. A green light indicates that the door can be opened and loading or unloading commenced. When mounted outside, a red light indicates that the door is open the the vehicle must not drive away. A green light indicates that the door is closed and the vehicle can depart.

Salvo Traffic Light
MRG Twin Series = © Copyright October 2004
EC European Community Registered Design 000321161-0001

Specifications

Dimensions	268mm (h) x 140mm (w) x 50mm (d)
Mounting	Surface
IP Rating (Front Assembly)	IP680 - IEC 60529, EN 60 529 (Components fully potted)
IP Rating (Rear Cavity)	IP400
Operational Temp. Range	-10°C - +50°C
Light Source	High Output LED
Light Output	40 x LED per circular array
Voltage	24VDC
Life Expectancy	+7 years
89/336/EEC [CENELEC - EN 50082-1]	EMC immunity: Light Industrial
89/336/EEC [CENELEC - EN 50081]	Emissions - Not applicable - EMC benign
73/23/EEC	Not applicable - Extra low voltage
2002/96/EC	Not applicable - Voluntary good practice

Precautions



Installation should be carried out by a qualified electrician. Please retain this document.
A seperate control system is required.
Do not wash with pressure jet.

Wiring

Refer to SCP+ wiring schematic diagram on page 24.

Order Information

Please advise correct part number when ordering.
(mandatory information)**

Part Number**

006538



Section 6

Safety Critical Information

The system must be designed to meet the requirements of the Health and Safety Executive and all current legislation. Attention is also drawn to the relevant codes of practice.

1. General Instructions

General guidance for the installation of all Castell products:-

- (a) Fixing of locks should be secure to prevent tampering or unauthorised removal. It is recommended that tamper-resistant screws and nuts are used or that they are sealed after tightening.
- (b) Fixing screws and brackets should be corrosion resistant and the appropriate tightening tongues and anti-vibration washers should be used.
- (c) Locks should not be used in ambient temperatures above 75 degrees Centigrade (167 degrees Fahrenheit) for brass figure and Q locks and 100 degrees Centigrade.
- (d) Locks and switches must be protected from the ingress of water and dust and products of suitable IP rating must be selected. Protective caps are available and locks can be selected with protective enclosures. The ingress of water and dust should be reduced by mounting the locks vertically, rather than 'face up', where possible.
- (e) Chemical corrosion of locks can be avoided with the various finishes for locks and keys that are available. Alternatively, most products are available in 100% stainless steel.
- (f) In general, the installation of Castell locks must not result in a torque in excess of 5.5 Nm (4 Lbs.ft) being transmitted through the lock centre via the key. This is a typical hand operating torque and additional leverage through the key, using tools of any kind, should be avoided.

2. Spare Keys, Master Keys, Spare Access Locks Actuation Bolts/Tongues

Castell will only supply spare keys and spare access lock bolts/ tongues when a signed order, with order number, is received on the customers headed paper. This is also required for figure lock master keys, in addition to which the customer is required to sign a document accepting responsibility for the use and storage of such keys. This is part of our ISO 9001 procedures and reflects our concern on this issue. Castell advise that extreme caution must be exercised when storing or using these products. Their use and security must be fully and adequately controlled using a permit to work system. Using spare/master keys or spare bolts/tongues will result in the defeat of the interlock system. Consequently this could lead to serious injury/fatality, damage to plant/machinery or damage to the product.

- Master keys are almost always unnecessary. Keys of the correct symbol should be used.
- Castell have an express order system for the rapid replacement of broken keys.

3. Verification

After installation it is essential to carry out a commissioning procedure to ensure that the interlock system performs the requirements for which it was designed. The procedures will vary considerably according to the application.

4. Training

Suitable training regarding the use and operation of the interlock system should be given to all relevant people. Castell can offer training if required.

5. Safe Installation of Castell Electrical Products

Note: A SECURE EARTH CONNECTION TO ALL LOCKS IS MANDATORY.

It is a requirement of the IEE regulations and other standards, that the exposed and accessible metal parts of an electrical assembly are adequately earthed. This requirement is particularly critical in the case of key actuated locks since the key is conductive and is deliberately grasped by operators. Castell electrical products can be grouped into two categories, those that are self-contained for front-of-board mounting, and those that are supplied un-mounted for back-of-board installation by the customer. The products that are mounted in boxes or housings are Class 1 equipment are provided with earthing tags, which MUST be bonded, by the earthing conductor, to earth (TNS System).

The lock portions and metal structure of products for back-of-board mounting MUST either be:-

(a) Connected directly to earth via an earthing tag on the mounting screws, OR

(b) Bonded, with a sound electrical connection, onto a conductive structure, which in turn, is connected to earth, ensuring the correct earth fault loop impedance. Installation of electrical equipment must be carried out by a qualified electrician using I.E.E. recommended practice. In particular, the correct rating of products and the earthing of attached locks and metal structures, as described above, is imperative.



Installation should be carried out by a competent and qualified person who has read and understood these instructions. Any electrical installation must comply with standard “BS7671 – Requirements for Electrical Installations”, commonly referred to as the IEE Wiring Regulations, or any particular regulations and practices, specified by the local electricity supply company at the time of installation. Installation must be carried out by competent personnel qualified to current IEE or any equivalent regulations in force at the time of installation.

Castell offer an installation and maintenance service for its products and will be pleased to offer advice.

6. Maintenance of Castell Interlocks



WARNING – Disconnect Electrical Supply Before Opening Unit

Under normal operating conditions very little maintenance is required. If used in dusty conditions blowing out with compressed air will prevent a build up of sediment in the locks. The use of powdered graphite is recommended if necessary. Under no circumstances, however, should the locks be oiled or greased as this causes the locks to clog and malfunction. All locking systems should be checked regularly for correct operation, security of fixings and condition of keys etc. The entrapment of all keys that should be trapped must be checked under operating conditions, as should the ease of removal of liberated keys. In the event of malfunction, evident wear or damage, parts should be replaced or returned to Castell for repair if appropriate. Users of interlock systems have a duty under section 2 of the Health and Safety at Work Act 1974 to ensure that the systems are not only correctly installed but are maintained in a satisfactory condition.

We are here to help. Castell offer an installation and maintenance service as well as advice on the selection of products.

EC-Declaration

We, the manufacturers, declare that the components, detailed herein and placed on the market, comply with all the essential health and safety requirements applying to them.

Empowered signatory:

Mr T.C. Whelan
Managing Director





The Future of Safety is Here



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