Operation Installation Maintenance

Speedlane 900



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GENERAL INFORMATION

1 Introduction

This manual is written for the service and installation engineer, it provides information about:

- Operating the Product.
- Installing the Product.
- Electrical characteristics of the Product.
- Maintenance on the Product.

Please read this manual carefully, it contains information that will assist you with all aspects of installation and maintenance, including operation of electrical parts, so that a long and useful machine life can be achieved.

This manual has been written with the maximum care and attention. Nevertheless, if certain parts are unclear to you or contain errors, you can contact the Boon Edam manufacturing facilities.

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1.2 Liability

The product is designed, tested and produced in accordance with strict international regulations. Correct operation can only be assured when regular maintenance is undertaken annually (subject to frequency of use) by Boon Edam or an approved agent. For replacement, original parts should be used, so that a correct operation is guaranteed. The warranty on the product will end prematurely if the product is installed or maintained by unapproved engineers.

1.3 Product modifications

Boon Edam makes every effort to ensure that this manual is reviewed whenever significant changes are made to the design. However, Boon Edam has the reserved rights to improve her products without notice. Therefore it is possible that the installed products show some differences with the description in this manual.

1.4 Product options

The options of the product are marked with an asterisk (*) in the text of this manual. The options that are actually included on the product manufactured are mentioned on the drawing list of the enclosed drawing.

1.5 Abbreviations

- FI Frequency Inverter
- LCD Liquid Crystal Display •
- Light Emitting Diode LED •
- Multibeam Receiver MBR
- Multibeam Transmitter MBT •

1.6 Symbols

Warnings and cautions



WARNING!

Risk of personal injury or loss of life.

CAUTION!

The material may be damaged or the operation of the product affected.

•

- N.C. Normally Closed • N.O. Normally Open
 - PCB Printed Circuit Board
 - UPS Uninterrupted Power Supply

MCB Microcontroller Board

2 Safety

2.1 Installation and maintenance Safety

	-
	WARNING! Switch off the power supply of the product before working on the product.
	WARNING! When the power supply cannot be switched off, service and maintenance activities are to be undertaken only by trained engineers fully aware of potential danger involved.
	WARNING! Be aware and avoid contact with moving parts.
	WARNING! Check that all safety devices and systems are fully operational after installation of the product or after maintenance has been carried out.
	WARNING! It is not allowed to make changes or switch off any safety features without authorization from Boon Edam.
	WARNING! Make sure that the dynamic and static forces are within the permissible values. See Safety Instruction for further details.
•	CAUTION! The material may be damaged or the operation of the product affected if the installation procedure is not followed correctly.
!	CAUTION! Some of the electronic components in the products covered by this manual contain Electro Static Discharge (ESD) sensitive devices. It is highly recommended that service and maintenance engineers follow the ESD guidelines and procedures when handling such devices.

2.2 Operational Safety

WARNING! Any children or minors using the product must be supervised and accompanied by a responsible adult. Boon Edam does not accept any liability if this rule is not enforced.
WARNING! This product should not be considered as a playground.

3 Technical description

3.1 General

The Speedlane 900 consists of two opposite units (basic unit), each of which has been equipped with a mechanism operating the glass door wings. The door wings slide from a casing resulting in a standard position with completely blocked access (normally closed). The access width with both door wings fully opened is 20 inch or 510 mm. This width is narrow enough to prevent two persons passing the Speedlane 900 while walking next to each other. The wide Speedlane 900 has an opening of 35 ³/₄ inch or 910 mm for the access of wheelchairs and trolleys.

The unit is 39 3/8 inch or 1000 mm high (excluding the top plate). The total length of the standard Speedlane 900 is 54 15/16 inch or 1395 mm; the length of the long Speedlane 900 is 101 9/16 inch or 2580 mm. This length is required for proper (secure) interaction between the sensors and the sliding door wings in the normally open mode.

The height of the glass door wings of the standard Speedlane 900 is 35 7/16 or 900 mm; the height of the high Speedlane 900 is 47 ¼ or 1200, 55 1/8 or 1400, 63 or 1600, 70 7/8 inch or 1800 mm. This height has been chosen to prevent people attempting to climb over the door wing.

The chosen width, and the opening and closing speed result in a capacity of 25 to 30 persons per minute in one direction, depending on the authorization system chosen. In a fully open situation, without authorization, the capacity can be increased to 120 persons per minute.

All described components are mounted in the Speedlane 900. The Speedlane 900 is driven by two 3-phase motors. The motor is connected to a control system, which consists of a control unit and a frequency inverter.



The Speedlane 900 can be operated with an authorization system for example a card reader system or biometric system. Additionally the Speedlane 900 can be operated with an option external control panel for remote operation.

3.2 Drive system

Two 3-phase motors with worm gear reduction power the Speedlane 900 doors. The drives are specifically designed for the Speedlane 900. One motor is installed in the master unit and the other motor is housed in the slave unit.

The motors are connected to and monitored by a controlling system that consists of a Microcontroller Board (MCB) and a Frequency Inverter (FI). The output shaft moves the doors through a parallel gear.

Each motor is equipped with an angle encoder that is connected directly to the motor's drive shaft. Using these angle encoders the motor's speed and position is monitored continuously.

The electric motor has the following advantages:

- Silent operation;
- For safety reasons the door wing can be stopped by hand;
- For security reasons the blocking of the door wing is detected.

3.3 Spring unit on the wide and wide high versions

A pre-loaded spring unit has been fitted to the wide and wide high versions of the Speedlane 900 to compensate for the weight of the glass panel.

When the door wing is close to its fully open or closed position, the motor has to lift the panel during the final part of the movement.

The design of the spring construction is such that in the middle position no lift force is generated by the spring. In this situation the spring unit generates no force in the movement directions, thereby not affecting the light movement.

When the door wings move towards the open or close position the weight of the panels is fully compensated.

The position and movement of the spring unit has been carefully chosen in such a way that the torque generated by the spring system closely follows the torque needed to move the door wings. In this way the increasing torque needed to lift the glass panel is constantly compensated by the spring unit.

3.4 Control unit

The control system and any other components can be reached by removing the top plate(s) and/or one or more of the side plates. The master Speedlane 900 unit houses the control system, comprising of the MCB, the FI and a MBR. The MCB incorporates a microcontroller and the in- and outputs are located on one side of the MCB. The master Speedlane 900 unit is always placed to the left when viewed from the non-secured side.

3.5 Safety and security sensors

The units are fitted with safety and security sensors, which monitor persons passing the door wings and also perform a safety function.

The Multibeam safety and security sensor system consists of 16 (24 on the long version and 29 on the long high version) infrared transmitters and receivers. The transmitters and receivers are operated in such a way that each individual receiver will only respond to its designated transmitter. This makes the system insensitive to sunlight, fluorescent lighting or other light 'pollution'. The Multibeam and MCB communicate through a RS-485 link.

Children (<= $35 \frac{1}{2}$ inch or 900 mm) are not detected by the security sensors, but are detected by the safety sensors between the doors. The emphasis is on maximising safety and not on access security. The safety sensors are placed (at 7 inch or 180 mm and 23 inch or 580 mm from finished floor level) to ensure optimal safety.

OPERATION

4 Operating concept

4.1 Operating functions

The Speedlane 900 consists of two opposing units. The barrier is formed by two sliding doors. In a single Speedlane 900, each unit is equipped with one sliding door. In a set-up with multiple adjacent Speedlanes, each unit (except for the outside ones) is equipped with two sliding doors. A number of specific alarms are raised in case of unauthorized use.

4.1.1 Normally closed mode (default setting)



Normally closed

A person is given authorization by presenting a card to the card reader or when the push button is pressed (depending on the authorization system chosen). When an authorized person enters or is already in the Secure (Non-Secure) zone, the door wings will open. After the person has passed the safety zone, the door wings will close immediately. When no one passes through the Speedlane 900, the door wings will close after 8 seconds (maximum authorization time).

When authorization by means of an access control system proceeds more quickly than persons are passing the Speedlane 900, a maximum of 3 (default value, adjustable between 1 and 10) authorizations will be kept in memory. Each authorization has a maximum duration of 8 seconds. This means that when a person passes the Speedlane 900, the authorization time is reset and the next person gets a maximum authorization time of 8 seconds. The door wings remain open until the last authorized person has passed the safety zone of the Speedlane 900. Then the door wings will close immediately.

4.1.2 Normally open mode (optional for long Speedlane 900)

In the normally open mode the door wings are always open. The door wings stay open when an authorized person enters the Speedlane 900. The door wings close when an unauthorized person enters the Speedlane 900.

When authorization by means of an access control system proceeds more quickly than persons are passing the Speedlane 900; a maximum of 3 (default value, adjustable between 1 and 10) authorizations will be kept in memory. Each authorization has a maximum duration of 8 seconds. This means that when a person passes the Speedlane 900, the authorization time is reset and for the next person there is a maximum authorization time of 8 seconds again.

4.1.3 Direction types

The following direction types can be selected by using the optional control panel.

• Controlled access in both directions:

Access in both directions requires authorization. Each unauthorized movement constitutes an alarm situation.

- Controlled access in one direction and free access in the opposite direction: Only one direction requires authorization. The other direction does not require authorization provided no one attempts to pass the Speedlane 900 (authorized or unauthorized) from the opposite direction.
- **Controlled access in one direction and blocked passage in the opposite direction:** Only one direction requires authorization. The other direction is permanently blocked. In this situation the Speedlane 900 can only be passed in a single direction, thus creating a traffic control.
- Free access in both directions: The Speedlane 900 can be passed in both directions without authorization. It is recommended to select this mode by using the "Open" functionality.
- Blocked access in both directions: The Speedlane 900 cannot be passed.

4.1.4 Access control

When a person is authorized by the access control system, the access control system gives a pulse to the Speedlane 900 control system. If the person passes the door panels a booking pulse can be given to the access control system.

4.2 Security

Whatever the stationary position of the door wings, they will always be locked. This will prevent movement of the door wings by hand.

4.2.1 Intruder alarm

When an unauthorized person steps in the Speedlane 900 a sound signal will be activated. In normally closed mode the door wings stay closed and in normally open mode the door wings will close. When the person is standing in the Secure (Non-Secure) zone and authorizes, the door wings will open.



Intruder

4.2.2 Opposite direction alarm

When an unauthorized person is standing in the Speedlane 900 (Secure-, Non-Secure- or safety zone) and a second person approaches from the opposite direction, the second person can be authorized. However, the first person needs to leave the Speedlane 900 within 8 seconds (default) before the second person can actually pass the Speedlane 900 on his authorization.



Opposite direction

4.2.3 Tailgating alarm

When an unauthorized person is standing in the Speedlane 900 and a second person is approaching from the same direction, the second person can be authorized.

The first person has to leave the Speedlane 900 at the side the other person is approaching to allow the second person to pass. When the unauthorized person does not step out, this person can pass the door wings using the authorization of the second person. The second person then needs to be authorized again to be able to pass the Speedlane 900.



Tailgating

4.2.4 Low security mode (default setting)

When a person who has been authorized to enter the Secure (Non-Secure) zone is closely followed by a second person who has not been authorized, the authorized person will be allowed to enter. The second person will not. The door wings will only close after the first person when the second person is not in the safety zone. A sound signal will be activated. If the door wings are closing and the unauthorized person steps in the safety zone the door wings will stop directly and open with slow speed.

When an authorized person steps into the Speedlane 900 and steps out, the authorization will remain active for 3 seconds (adjustable).

4.2.5 Medium security mode

The medium security level is like the low security level; only the safety zone area that is used to detect unauthorized persons is narrower. This results in a higher level of tailgating prevention.

When an authorized person steps into the Speedlane 900 and steps out, the authorization is void.

4.2.6 High security mode

When a person who has been authorized to enter the Secure (Non-Secure) zone is closely followed by a second person who has not been authorized, the authorized person will be allowed to enter. The second person will not. The door wings will close after the first person and a sound signal will be activated. If the unauthorized person is in the safety zone the door wings will close with a slow speed. The door wings will close on the person or object, but if the door wings detect an obstruction they will open again.

With authorizations in one direction only, when an authorized person steps into the Speedlane 900 and steps out, the authorization is void.

4.2.7 Traffic mode

It is possible to generate intelligent traffic control in case of a complete lane of Speedlanes. The following settings are possible:

- **Traffic mode in both directions.** This is the default setting; persons can be authorized for both directions.
- Traffic mode in Secure direction.
 Only persons passing in the Secure direction can be authorized.
 The Non-Secure side LED-display shows a red cross (X) continuously.
- Traffic mode in Non-Secure direction.
 Only persons passing in the Non-Secure direction can be authorized.
 The Secure side LED-display shows a red cross (X) continuously.

4.3 Safety

4.3.1 Optical safety

When the low or medium security level is selected, an advanced optical sensor system prevents the door wings from closing when a person or object is located in the safety zone.

When the door wings close, while a person is standing in the safety zone, the door wings will open again with a slow speed. When the person has left the Speedlane 900 the door wings will close.



Optical safety

When the high security level is selected, and a person is in the safety zone, the door wings will close with a slow speed. The door wings will close on the person or object, but will immediately reopen when detecting an obstruction.

4.3.2 Mechanical safety

In the high security level, the door wings will start to open slowly, when the door wings close while a person is caught between them, and the person can leave the Speedlane 900. After two seconds the door wings will start to close slowly. When the door wings remain blocked the sequence of opening and closing will be repeated two more times. The blocking action will generate an alarm on the optional external control panel.

While the door wings are closing slowly, all other safety features remain operational. All authorizations will be reset and no new authorizations will be possible until the door wings are closed. When the open position is activated or a fire alarm occurs during the blocking sequence, the sequence will be interrupted and the Speedlane 900 immediately goes to its open or fire alarm position.



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4.3.3 Power failure

In case of a power failure, the Speedlane 900 can be operated by a battery backup. The Speedlane 900 is then ready for normal operation. Before this battery is completely empty the last action is to either open or close the doors as configured. When the power is restored, the Speedlane 900 will switch over to the mains power again.



Emergency power supply

4.3.4 Fire alarm

In case of a fire alarm, as standard the door wings will open completely, allowing free passage through the barrier. In case of simultaneous power-failure, the battery backup will activate this operation. When the fire alarm is reset, the door wings will slowly turn to their closed position.

The Speedlane 900 is then ready for normal operation. In case of a fire alarm all other safety features will be disabled. The fire alarm position always takes precedence over the locked position.



Fire Alarm



4.4 User feedback

4.4.1 Feedback signals

Standard signalling (default setting)

- When the Speedlane 900 initialises, the display on both sides will be red (x). If initialising fails after three attempts the display on both sides will blink red (x).
- When the Speedlane 900 is locked the displays will be red (\mathbf{X}) on both sides.
- When the Speedlane 900 is open the display on both sides will be green (**N**).
- When there is a fire alarm the display of the Speedlane 900 will be green (下) on both sides.
- When an unauthorized person enters the Speedlane 900 the display on both sides will blink red (×).
- When an authorized person enters the Speedlane 900 the display of the entering side will be green (下). If the person is in the Speedlane 900 the display will be directly red (×) and the next person can be authorized. If there are more authorizations the display will become green (下), turn red (×) when the person is in the Speedlane 900 and become green (下) for the next authorized person when the first authorized person has left the Speedlane 900. After the last authorized person the display will be red (×), and the doors will close.

Alternative signalling

- When the Speedlane 900 initialises, the display on both sides will not be lit. If initialising fails after three attempts the display on both sides will blink red (×).
- When the Speedlane 900 is locked the display will be red (\mathbf{X}) on both sides.
- When the Speedlane 900 is open the display on both sides will be green (下).
- When there is a fire alarm the display of the Speedlane 900 will be green (\mathbb{N}) on both sides.
- When an unauthorized person enters the safety zone of the Speedlane 900 the display on both sides will blink red (×).
- When an authorized person enters the Speedlane 900 the display of the entering side will be green (下) for one second. If the person is in the Speedlane 900 the display will be directly red (X) and the next person can be authorized. If there are more authorizations the display will become green (下) for one second, turn red (X) when the person is in the Speedlane 900 and become green (下) (for one second) for the next authorized person when the first authorized person has left the Speedlane 900. After the last authorized person the display will be off, and the doors will close.



4.4.2 Other alarms

• Malfunction alarm

When the Speedlane 900 fails to initialise an alarm is generated. The alarm is also generated when the Speedlane 900 is mechanically blocked during operation.



Malfunction alarm

• Anti-masking detection

The Speedlane 900 has an anti-masking detection. Masking is the condition when one of the sensors is triggered (covered) continuously for more than 10 seconds. When one of the sensors notices masking, the acoustic alarm will be activated after ten seconds. The alarm continues for three seconds. This alarm will also be activated when a person stays to long in the detection area. The alarm repeats after ten seconds.



Anti masking



• Intruder alarm (entry/exit)

When an unauthorized person enters the Speedlane 900 and activates one of the sensors, the acoustic alarm is generated. The alarm can be switched off or changed to "partial" mode. Partial mode means that the alarm will only be triggered when the intruder is standing in the safety zone of the Speedlane 900.



Intruder

• Door open alarm

When the door wings remain open an alarm is given after a number of minutes.

4.5 Control panel *

The Speedlane 900 can be connected to an external control panel. Please see the Boon Touch control panel manuals for additional information.



INSTALLATION

5 Installation procedure			
	WARNING! Risk of personal injury or loss of life.		
	WARNING! When working on a multiple Speedlane 996, also switch off the power of any adjacent Speedlanes		
!	CAUTION! The material may be damaged or the operation of the product affected.		
!	CAUTION! Before you start the installation, check your product on possible options.		
!	CAUTION! Check that all safety devices and systems are fully operational after installation of the door or after maintenance has been carried out.		



5.1 General installation

5.1.1 Packaging

Each Speedlane 900 cabinet will arrive individually packaged.

Speedlane Model	Length	Width	Height	Weight
900	70" (1780 mm)	24" (620 mm)	49" (1250 mm)	618 Lbs. (280 Kg)
900 High	70"	24"	49"	705 Lbs. (320 Kg)
900 Wide	70"	31" (810 mm)	49"	705 Lbs. (320 Kg)
900 High Wide	70"	31"	49"	925 Lbs. (420 Kg)

The following approximate crate sizes and weight apply:

5.1.2 Tool Requirements

The following tools are needed for installation of the Speedlane 900 units.

- Basic SAE End wrench set.
- Basic SAE Socket Set.
- SAE Allen Wrench Set.
- Precision Flat Blade Screw Driver, 1.5-4mm.
- Hammer Drill with rotary hammer drill bits (for concrete anchoring).
- Masonry Anchor Kit.
- 4' Level.
- Tape Measure.
- Electrical Fish Tape (for pulling cables).
- Electrical Wire Stripping and Cutting Pliers.
- 4" to 6" Nylon Cable Ties.

5.1.3 Anchoring Methods

There are many anchoring methods. Typically, Speedlanes are anchored to concrete slabs.

Boon Edam recommends using 3/8" masonry anchors or 10mm wired rods and chemical anchors.



Sample Masonry Anchors

5.1.4 Connections

Please use the following torque values for bolt connections, unless stated differently in the installation manual.

Bolt size	Torque value
M10	47 Nm
M 8	24 Nm
M 6	10 Nm



5.2 Floor layout

5.2.1 20 3/32" (510mm) Standard lane Layout

The floor layout is typically set-up for a 20 3/32" (510 mm) opening from cabinet top to cabinet top. Layout templates are also available which can be used to assist in the layout. The center of each cabinet will be 35 7/16" (900 mm) on center of cabinets. The distance between the wing panels should be approximately 3 5/32" (80mm).

Always refer to construction drawings for field dimension verification.



Typical 20 3/32" (510 mm) Standard lane Floor Dimension Layout

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5.2.2 35 13/16" (910mm) Wide lane Layout

The floor layout is typically set-up for a 35 13/16" (910mm) opening from cabinet top to cabinet top. Layout templates are also available which can be used to assist in the layout. The center of each cabinet will be 59 1/16" (1500 mm) on center of cabinets. The distance between the wing panels should be approximately 3 5/32" (80mm).

Always refer to construction drawings for field dimension verification.



Typical 35 13/16" Wide lane Floor Dimension Layout



5.2.4 Conduit layout

Typical conduit layout for a Speedlane utilizes five conduits for a single lane.

Always refer to site specific drawings for correct detail and number of conduits.

For the Speedlane:

• 3 x 1 3/4" conduits connecting each Master and Slave unit. This is for running the wiring for the sensors, motors, and LED displays.

Additionally, you will need the following conduits:

- 1 x Conduit to the ACS system.
 - This is for the card readers, alarm interfacing, and lane control.
- 1 x Conduit to the Fire Alarm system.
- 1 x Conduit for Mains Power supply.



Typical Conduit Layout



5.2.6 Multiple Lane Conduit Layout

Multiple lanes require additional conduits. The following illustration represents a typical multiple lane conduit layout.

Always refer to site specific drawings for correct detail and number of conduits.

Rules to follow when running conduit to multiple lanes:

- Always make sure to run minimum of two (2) 1 1/2" conduits between each lane.
- **Always** verify the proper number and location of conduits for Mains Power, ACS, Fire Alarm, Remote Control Panels and any other interface equipment that may integrate with the Speedlane units.



Typical Multiple Lane Conduit Layout



5.3 Anchoring

5.3.1 Anchoring points

The anchoring points for a narrow or wide Speedlane 900 are the same. The Speedlane can be directly installed and anchored on the finished floor or with the use of an installation kit.



Anchoring to Floor Dimension Layout

OIM - Manual Speedlane 900



5.4 Opening the Speedlane before installation

As the units come pre-assembled, the top and side panels need to be taken off before anchoring the unit to the floor.

5.4.1 Removing top plate

To be able to take the side panels out the top plate(s) need to be removed. For all high units the top plate comes in two sections.

Insert an Allen key wrench and loosen the Allen bolt





5.4.2 Removing Side panel

To be able to remove the side panels the top plate(s) need to be removed first.

Make sure to remove the earth connection wire.



Turn panel out at the inside.

Be sure to disconnect the Earth (PE) cable.





5.4.3 Remove middle section

When removing the middle section please make sure to disconnect the sensor wiring as well as the earth connection wire.



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5.5 Anchoring to the floor

The Speedlane 900 can be anchored directly to the floor. Use the dimensions as shown in the Anchoring points drawing.

Drill the holes and anchore the Speedlane to the floor using 3/8" masonry anchors or 10mm wired rods and chemical anchors.

Make sure that the Speedlane is level, if needed use shims to level the unit.

5.5.1 Anchoring with mounting plates

The Speedlane 900 can also be anchored using mounting plates. The pictures below will also show a mounting template.

Mount the plates to the template.

Position the template at the exact place with the marks on the centerlines and check it with a level.

Drill the holes for the threaded ends or chemical anchors, using the templates. The mounting in the floor must hold a load of 750 N for a single bolt.

Recommended:

Chemical anchors M10. When chemical anchors are used, drill the holes at least 90 mm deep in the floor.

Remove the template before mounting the frame.

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Place the frame on the mounting plates

Check with a level if the frame is correctly placed.

• If this is correct, bolt the frame to the mounting plates.

If not correct, use shim plates to level the Speedlane



Complete installation of the frame



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5.6 Doorwing glass installation

The doorwings of all high Speedlane 900 models will come in a separate box inside the crate. The doorwings of the 35 7/16" [900 mm] high Speedlane will be pre-installed in our factory.

Loosen the three bolts of the clamping strip.



Before inserting the glass make sure that the plastic ring is installed and that the wax paper is on both sides.

Insert the glass and tighten the bolts while holding the glass panel in place.

Check the glass with a level after installation.



5.6.1 Installation of high cabinet glass

As mentioned the glass of the high Speedlanes will be delivered separate and needs to be installed on site.

Loosen the two clamping screws.





- The sensor wires are free.
- Cut out in glass is on the correct side.
- (Intermediate units have them on both sides.





Position the glass over the cut-out and lower it in.



Tighten the clamping screws again.



5.6.2 Options

For the long Speedlane additional tubes need to be installed as shown below.



Please see project specific drawings for the mounting locations and wiring.



6 Electrical wiring

Most wiring will come factory installed, only the external wiring and wiring between the master and slave will need to be connected on site.

Mentioned wiring is a general overview.

Please refer to project specific electrical drawings.

6.1 Wiring between the Master and Slave unit

The following cables run between the master and slave unit. All cables are supplied from the factory.

- A Mater cable
- 1. Motor cable (4 x 0.75mm2 or 4 x 18 gauge)
- 2. Multi-beam cable (Multi beam for High model (
 - (5 x 0.5mm2 or 8 x 20 gauge) (5 x 0.5mm2 or 8 x 20 gauge) (21 x 0.5mm2 or 21 x 20 gauge)
- 3. Master Slave connection
 - Motor encoder
 - Authorization LED
 - Traffic LED's

6.2 External wiring connection

- 1. Mains power.
- 2. Fire alarm contact.
- 3. Access control.
 - Authorization pulse in and out.
 - Return signals in and out.
 - Alarm contacts.
- 4. Control panel.

6.3 Wire connection locations

6.3.1 Internal

Motor cable.

The motor in the slave unit will need to be connected directly to the frequency controller in the master unit.

Multi-beam.

The multi-beam cable runs from the master unit to the slave unit. With a high unit the cables will be marked with 1 and 2 and need to be connected to the corresponding multi-beam transmitter.

Master – Slave connection.

The master – slave connection cable runs from the master unit to the slave unit. It is connected to the terminal strip in the slave, wire number 1 to terminal 1, wire 2 to 2, etc.

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6.3.2 External

Mains power.

The mains power is connected to the terminal strip located in the master unit. Terminals are labelled L - N and the PE sign.

Fire alarm.

The fire alarm contact needs to be a N.C. (Normally Closed) contact. It is connected directly to the microcontroller board Fire alarm connector D – terminal 15 & 16.

Access control

Authorization pulses In and Out are connected directly to the microcontroller board.Pulse Inconnector F – terminal 16 & 17.Pulse Outconnector E – terminal 16 & 17.Return Signal Inconnector F – terminal 11 & 12.

Return Signal In	connector F – terminal 11 &	12.
Return Signal Out	connector E - terminal 11 &	12.

Alarm contact can be connected to the relay's.

General alarm	Relay K0 – terminal 11 common, 12 N.C., 14 N.O.
Intruder alarm In	Relay K1 – terminal 11 common, 12 N.C., 14 N.O.
Intruder alarm Out	Relay K2 – terminal 11 common, 12 N.C., 14 N.O.



7 Microcontroller board

The MCB microcontroller board is located on the secured side under the top panel of the master unit.

Adjustment of the settings should not be necessary, all settings are pre-programmed in the Boon Edam factory in accordance with the project's checklist.



7.1 Connections to the MCB

Below is a list of all the connections to the MCB

Access control pulses

Control panel

Return signals Fire alarm

Connector A						
	PCB	FUNCTION		PCB	FUNCTION	
1	+24V		11	CLXA		
2	LEDGR1	Green LED secure	12	GND		
3	LEDRD1	Red LED secure	13	LNK1		
4	+24V		14	LNK2		
5	LEDGR2	Green LED non-secure	15	LNK3		
6	LEDRD2	Red LED non-secure	16	LNK4		
7	+24V		17	LNK4		
8	ENC_2B	Encoder slave B	18	LNK3		
9	ENC_2A	Encoder slave A	19	LNK2		
10	GND		20	LNK1		
	Connector B					
		Conne	ector	В		
	РСВ	Conne FUNCTION	ector	B PCB	FUNCTION	
1	PCB +24V	Conne	ector	B PCB +24V		
1 2	PCB +24V RS1A	Conne FUNCTION Multibeam RS485 B	ector 11 12	B PCB +24V +5V		
1 2 3	PCB +24V RS1A RS1B	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A	11 12 13	B +24V +5V CNT1	FUNCTION	
1 2 3 4	PCB +24V RS1A RS1B GND	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A	11 12 13 14	B +24V +5V CNT1 +24V	FUNCTION	
1 2 3 4 5	PCB +24V RS1A RS1B GND +24V	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A	11 12 13 14 15	B +24V +5V CNT1 +24V +5V	FUNCTION	
1 2 3 4 5 6	PCB +24V RS1A RS1B GND +24V RS2A	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A Multibeam RS485 B	11 12 13 14 15 16	B +24V +5V CNT1 +24V +5V CNT2	FUNCTION Intruder alarm sec Intruder alarm non sec	
1 2 3 4 5 6 7	PCB +24V RS1A RS1B GND +24V RS2A RS2B	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A Multibeam RS485 B Multibeam RS485 A	11 12 13 14 15 16 17	B +24V +5V CNT1 +24V +5V CNT2 N.C.	FUNCTION Intruder alarm sec Intruder alarm non sec	
1 2 3 4 5 6 7 8	PCB +24V RS1A RS1B GND +24V RS2A RS2B GND	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A Multibeam RS485 B Multibeam RS485 A	11 12 13 14 15 16 17 18	B +24V +5V CNT1 +24V +5V CNT2 N.C. N.C.	FUNCTION Intruder alarm sec Intruder alarm non sec	
1 2 3 4 5 6 7 7 8 9	PCB +24V RS1A RS1B GND +24V RS2A RS2B GND +24V	Conne FUNCTION Multibeam RS485 B Multibeam RS485 A Multibeam RS485 B Multibeam RS485 A	11 12 13 14 15 16 17 18 19	B +24V +5V CNT1 +24V +5V CNT2 N.C. N.C. N.C.	FUNCTION Intruder alarm sec Intruder alarm non sec	



	Connector C					
	PCB	FUNCTION		PCB	FUNCTION	
1	CLX1		11	FC FF	Freq. Inverter forward	
2	GND		12	GND	•	
3	+24V		13	N.C.		
4	ENC_1A	Encoder master B	14	FC_RW	Freq. Inverter reverse	
5	ENC_1B	Encoder master A	15	GND	•	
6	GND		16	N.C.		
7	N.C.		17	SPEED	Freq. Inverter speed	
8	N.C.		18	GND		
9	N.C.		19	N.C.		
10	N.C.		20	GND		
		Conn	ector	D		
	PCB	FUNCTION		PCB	FUNCTION	
1	FR IN	Free non sec	11	OPEN	Open	
2	GND		12	GND		
3	FR_OUT	Free sec	13	CLOSE		
4	GND		14	GND		
5	FR_I/O	UPS Battery low	15	FIRE	Fire alarm	
6	GND	,	16	GND	Fire alarm GND	
7	PU_IN	Pulse non sec	17	FCL	UPS Power failure	
8	GND		18	GND		
9	PU_OUT	Pulse sec	19	GND		
10	GND		20	GND		
		Conn	ector	E		
	PCB	FUNCTION		PCB	FUNCTION	
1	+24V		11	N.C.	Card reader sec reply	
1 2	+24V +5V		11 12	N.C. COM	Card reader sec reply Card reader sec reply	
1 2 3	+24V +5V GND		11 12 13	N.C. COM OPEN	Card reader sec reply Card reader sec reply Alarm NO	
1 2 3 4	+24V +5V GND OPEN	Traffic LED +24V	11 12 13 14	N.C. COM OPEN CLOSE	Card reader sec reply Card reader sec reply Alarm NO Alarm NC	
1 2 3 4 5	+24V +5V GND OPEN CLOSE	Traffic LED +24V Traffic LED GND	11 12 13 14 15	N.C. COM OPEN CLOSE COM	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common	
1 2 3 4 5 6	+24V +5V GND OPEN CLOSE COM	Traffic LED +24V Traffic LED GND Traffic green sec	11 12 13 14 15 16	N.C. COM OPEN CLOSE COM IN0	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN	
1 2 3 4 5 6 7	+24V +5V OPEN CLOSE COM OPEN	Traffic LED +24V Traffic LED GND Traffic green sec	11 12 13 14 15 16 17	N.C. COM OPEN CLOSE COM IN0 GND	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND	
1 2 3 4 5 6 7 8	+24V +5V GND OPEN CLOSE COM OPEN CLOSE	Traffic LED +24V Traffic LED GND Traffic green sec 	11 12 13 14 15 16 17 18	N.C. COM OPEN CLOSE COM IN0 GND IN1	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec	
1 2 3 4 5 6 7 8 9	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec	11 12 13 14 15 16 17 18 19	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec	
1 2 3 4 5 6 7 8 9 9 10	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply	11 12 13 14 15 16 17 18 19 20	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C.	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec	
1 2 3 4 5 6 7 7 8 9 9 10	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn	11 12 13 14 15 16 17 18 19 20 ector	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec	
1 2 3 4 5 6 7 8 9 10	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION	11 12 13 14 15 16 17 18 19 20 ector	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION	
1 2 3 4 5 6 7 7 8 9 10	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION	11 12 13 14 15 16 17 18 19 20 ector	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply	
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 1 \\ 2 \\ \end{array} $	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION 	11 12 13 14 15 16 17 18 19 20 ector 11 12	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB 	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply	
1 2 3 4 5 6 7 8 9 10 10 1 2 3	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION 	11 12 13 14 15 16 17 18 19 20 ector 11 12 13	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB 	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO	
1 2 3 4 5 6 7 8 9 10 10 1 2 3 4	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION Traffic LED +24V	11 12 13 14 15 16 17 18 19 20 ector 11 12 13 14	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB 	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO Door open alarm NC	
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ \end{array} $	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION Traffic LED +24V Traffic LED GND	11 12 13 14 15 16 17 18 19 20 ector 11 12 13 14 15	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB 	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO Door open alarm NC Door open alarm common	
1 2 3 4 5 6 7 7 8 9 10 10 11 2 3 4 4 5 6	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION Traffic LED +24V Traffic LED GND Traffic green non sec	11 12 13 14 15 16 17 18 19 20 ector 11 12 13 14 15 16	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB 	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO Door open alarm NC Door open alarm common Card reader non sec IN	
1 2 3 4 5 6 7 7 8 9 10 10 11 2 3 4 4 5 6 6 7	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION Traffic LED +24V Traffic LED +24V Traffic LED GND Traffic green non sec 	11 12 13 14 15 16 17 18 19 20 ector 11 12 13 14 15 16 17	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB 	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO Door open alarm NC Door open alarm common Card reader non sec IN	
1 2 3 4 5 6 7 7 8 9 10 10 11 2 3 4 4 5 6 6 7 7 8	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION Traffic LED +24V Traffic LED +24V Traffic LED GND Traffic green non sec 	11 12 13 14 15 16 17 18 19 20 ector 11 12 13 14 15 16 17 18 17 18 17 18 19 19 20 11 11 12 13 14 15 16 17 18 19 19 20 11 11 12 13 14 15 16 17 18 19 19 20 11 11 12 13 14 15 16 17 18 19 19 20 11 11 12 11 12 11 12 12 12 12	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB -	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO Door open alarm NC Door open alarm common Card reader non sec IN Card reader non sec IN Card reader non sec IN Card reader non sec GND Traffic sec	
1 2 3 4 5 6 7 7 8 9 10 11 2 3 4 4 5 6 6 7 7 8 9	+24V +5V GND OPEN CLOSE COM OPEN CLOSE COM OPEN PCB 	Traffic LED +24V Traffic LED GND Traffic green sec Traffic red sec Card reader sec reply Conn FUNCTION Traffic LED +24V Traffic LED +24V Traffic LED GND Traffic green non sec Traffic red non sec	11 12 13 14 15 16 17 18 19 20 ector 11 12 13 14 15 16 17 18 19 10 17 18 19 19 20 11 11 12 13 14 15 16 17 18 19 20 11 11 12 13 14 15 16 17 18 19 20 11 11 12 16 17 18 19 20 11 11 12 11 11 12 12 12 12 12	N.C. COM OPEN CLOSE COM IN0 GND IN1 GND N.C. F PCB -	Card reader sec reply Card reader sec reply Alarm NO Alarm NC Malfunction alarm common Card reader sec IN Card reader sec GND Traffic non sec FUNCTION Card reader non sec reply Card reader non sec reply Door open alarm NO Door open alarm NC Door open alarm C Door open alarm common Card reader non sec IN Card reader non sec IN Card reader non sec GND Traffic sec	



7.2 Multibeam

The Multibeam is an interface between a MCB and a 16 Microcell-type beam. This simplifies the wiring of the beams and reduces the number of connections to the controller by using RS-485 communication.

The product is composed of two modules, one controlling the emitters, the other controlling the receivers and the communication. The connection between the Multibeam and the MCB consists of a 4-wire cable, two for the power supply and two for the RS-485 communication.

A 5-wire cable makes the connection between the transmitter module (MBT) and the receiver module (MBR). If this link between the two modules is not correct, the green light on the transmitting module will remain off and the Multibeam will not work properly.

Anti-masking detection.

When one of the sensors is triggered (covered) for more than 10 seconds, this is considered to be masking. This alarm will also be activated when a person stays to long in the detection sensors. When one of the sensors notices masking, the acoustic alarm will be activated after ten seconds. The alarm continues for three seconds. The alarm repeats after ten seconds.

7.2.1 Transmitter

The transmitter is located in the Slave unit.

With a multi-lane installation it can happen that the emitters of one Speedlane 900 have influence on the receivers of the adjacent Speedlane 900.

This can be adjusted with the potentiometer on the emitter. With the potentiometer on the Multibeam emitter, you can reduce/increase the power to the Multibeam emitters.



Transmitter module



7.2.2 Receiver

The receiver and communication module is located in the master unit.

RS458	SW1	To Emmit	LEDS	Flat cable print
• • • •		• • • • •	*******	••••••

Receiving and communication module

The MBR is equipped with 4 DIP-switches. These switches allow for choosing the operating mode of the RS485 communication.

For the Speedlane 900 the DIP-switches of the MBR must be in the following configuration:

- Switch 1 = ON
- Switch 2 = ON
- Switch 3 = OFF
- Switch 4 = OFF

If a second Multibeam is mounted in a long or high Speedlane 900 the 4 DIP-switches of the second MBR must be set in the following configuration:

- Switch 1 = ON
- Switch 2 = ON
- Switch 3 = OFF
- Switch 4 = ON

The RS485 is directly connected to the Microcontroller Board. Beside the RS485 this connection also takes care of the power supply (24VDC) of the complete Multibeam system.

On the receiving module 16 red LED's provide the beams status. Each beam has its own LED. When a beam is interrupted this LED will lit red. In case of a broken transmitter or receiver this same LED will light up.



7.3 Position of multibeam sensors

7.3.1 Standard model (Master)



7.3.2 Standard High model (Master)



7.3.3 Extended High model (Master)





7.4 Function of the sensors

Most sensors in the Speedlane have multiple functions. Depending on the settings their function changes as well.

7.4.1 Closing after passage

Depending on the direction:

In low security mode

- Sensor 6 or 14 triggers the closing of the wings.

In medium or high security mode

- Sensor 7 or 8, sensor 15 or 16 triggers the closing of the wings.





7.4.2 Safety zone

In low security mode.

- Sensor 1, 7, 8, 9 15, 16 or 7, 8, 9, 15, 16 triggers the closing of the wings.

In medium mode.

- Sensor 1, 9 or 7, 8, 9, 15, 16 triggers the closing of the wings.



7.4.3 Return signal

Depending on the authorization direction and passage a return signal can be generated.

In one direction it is done by sensors 7 & 1 and the other direction by sensors 15 & 1.



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7.5 Start-up



WARNING!

No persons should stand in the Speedlane 900 during the Start-up procedure, as all safety features are temporarily disabled.

Generally, the Speedlane 900 will be pre-configured by Boon Edam and is ready for use after proper installation. Any user programmable settings have been set to their default values and need no further adjustment. Setting up the Speedlane 900 for operation can be accomplished by using the start procedure as described below.

- Ensure the Speedlane 900 has been placed and installed correctly.
- Ensure that the main switch is off (located next to the MCB).
- Ensure that the electrical connections have been made as described.
- Switch on the UPS by pressing its POWER button, located at the bottom of the UPS
- Switch the power on with the main switch.
- The Speedlane 900 starts to initialise, enabling the encoder to determine its range, as a result the door wings open and close.

Do not stand in the Speedlane 900 during the initialisation process.

- While the Speedlane 900 is initialising all security features will be disabled.
- Wait for the product to take its starting position.
- Check the security and safety.
- Check the operation of the Speedlane 900.
- Perform the running in of the Speedlane 900.

When a door wing is blocked while it is closing, the door will re-open automatically and attempt to close 3 times. After 3 times the traffic indication signals will blink red. When this happens, the power needs to be switched off or reset sequence is pushed and the obstacle removed. Then the start-up procedure can be activated again.

7.5.1 Calibration sequence

The correct calibration sequence is that:

The door wings first open and then close.

If this is not the calibration sequence, then the motor phases have to be switched.

7.5.2 Testing

Testing the operation of the Speedlane 900.

Test and activate the following user inputs: card in, card out, free in, free out, open, block in, block out and fire alarm.

Check the following UPS inputs: battery low and power failure (UPS connector D pins 3, 4 (ground) and 5).

7.5.3 Running in

It is recommended that after installation a period of supervised running in is carried out to test for any installation or technical problems. To enter the running in mode press the Escape button on the main control board for 3 seconds. Pressing the Escape button again will stop the running in sequence.

A 5 minutes running in period is recommended.



8 The MCB





8.2 Adjustments selection menu

The Speedlane 900 has a build in selection menu.

The selection menu is shown on the LCD screen and operated with the four push buttons directly under the display.

When adjusting the selection menu it is recommendable to switch the Speedlane 900 in the 'Open' position.

The table below gives the menu items with the default settings and the setting range.

Menu Item	Default	Range
Signalling mode	Standard	Standard, Alternative
Security mode	Low	Low, Medium, High
Model selection	Standard	Standard, Wide, High, Extended, Wide/High, Wide/Extended, High/Extended, Wide/High/extended After selecting a High model, the number of sensor pairs 1 to 5 must be chosen. After selecting an extended model, the number of sensor pairs 1 to 4 must be chosen.
Door closing speed	4 1	14 (Low security mode)1 (Medium and High security mode)
Sensor usage	All	All, Spare
Entry time [seconds]	8	120
Hold time [seconds]	3	120
Reply time [deci seconds]	3	120
Gate open	Pulse open	Sensor open, Pulse open
Intruder alarm	On	On, Partial, Off
Error state	-	Service item: Indicates error state
Encoder data	-	Service item: Displays encoder data
Multibeam	-	Service item: Displays multibeam state
Maximum authorizations	3	110
Buzzer	On	On, Off
Last action	Open doors	Open doors, Close doors
Card reader mode	1xreturn/1xread	1x return signal / 1x read signal, 2x return signal
Free In / Out mode	Normal	Normal, Special
Frequency inverter model	Mitsubishi FR-D	Mitsubishi FR-D, Omron V7
Default settings	-	Service item: Restore default settings

Default settings

Left and Right:

- Can be used to scroll through options within the same menu level. *Enter:*

- Can be used to go to the next menu level, in the lowest menu level.

- Is used to store the chosen value or option.

Escape

- Can be used to leave the menu level, in the highest menu level.
- Is used to reset the complete system.



The Selection Menu is divided into three levels; the first level consists of one main screen, the second level contains sixteen menu's for different selections. In the third level the parameters of the sixteen selections can be adjusted.

When an adjustment is made in the third level, this will be saved by pushing the '*Enter*' button. At the same moment the Selection Menu proceeds to the second level. If an adjustment is wrongly made and it does not need to be stored in the memory, the '*Escape*' button has to be used. In this situation the Selection Menu proceeds to the second level, but without storing the changes.

If the push buttons are not used for three seconds while the Selection Menu is in the third level, the Selection Menu jumps back to the second level. The same happens in the second level, but with a response time of five seconds. When the Selection Menu jumps from the second level to the first level, the Speedlane 900 will reinitialise and adjustments in parameters will be stored in the memory of the microprocessor.

8.3 Menu items

8.3.1 Signalling mode

Two types of signalling that can be used (standard and alternative signalling).

Standard signalling.

Will always indicate the Speedlane 900 status with the authorization LED's (green arrow / red cross).

Alternative signalling.

Will show no signals unless a person authorizes or tries to pass the barrier unauthorized. Another effect of selecting the alternative signalling mode is that only the sensors in the safety zone will trigger the intruder alarm.

8.3.2 Security Mode

The security menu is used to select the type of security. The options are:

- Low security; first priority is safety
- Medium security
- High security; first priority is security.



8.3.3 Model

The model menu is used to select the already pre-programmed software. The 8 different programmes correspond with the 8 Speedlane 900 types:

- SL900 standard Speedlane 900
- SL900H standard Speedlane 900 with high glass wings
- SL900HL extended Speedlane 900 with high glass wings
- SL900L extended Speedlane 900
- SL900W wide Speedlane 900
- SL900HW wide Speedlane 900 with high glass wings
- SL900LW extended and wide Speedlane 900
- SL900HLW extended and wide Speedlane 900 with high glass wings

When one of the high Speedlane 900 models is selected, a further selection has to be made on the number of additional safety sensor pairs (1 to 5).

In case of an extended Speedlane 900 model, a further selection has to be made on the number of additional sensor pairs (1 to 4).

- 47 Inch 1200 mm 0 sensor pairs
- 55 Inch 1400 mm 2 sensor pairs
- 63 Inch 1600 mm 3 sensor pairs
- 71 Inch 1800 mm 4 sensor pairs

Non-standard high versions of the Speedlane 900 will demand different sensor settings.

If the Speedlane 900 is an extended (L) model, than a selection has to be made between the normally open or normally closed operating mode. For all other Speedlane 900 types automatically the normally closed mode is selected.

8.3.4 Door Closing Speed

The closing speed of the door is divided into four steps:

- 4: Highest speed
- 3:
- 2:
- 1: Lowest speed

This adjustment is only applicable for closing the doors, not for the opening speed. When the Medium or High security mode is selected only speed 1 is possible.



8.3.5 Sensor usage

In the "Sensor usage" selection the choices "All" or "Spare" can be made.

- All
 - All sensors are active.
- Spare

Sensor 2 and 10 are not active and can be used as spares.

8.3.6 Entry time

The entry time to pass the Speedlane 900 is adjustable from 1 to 20 seconds. The entry time is the time between an authorization and passing the Speedlane 900. If this time is finished the Speedlane 900 closes.

8.3.7 Hold time

The hold time is the time when an authorization is active and a person steps back out of the Speedlane 900. In the low security mode the authorization stays active for this time. In the high security mode the authorization is lost when stepping out of the Speedlane 900. If the hold time is finished the Speedlane 900 closes (normally closed mode). The hold time is adjustable from 1 to 20 seconds.

8.3.8 Reply time

The reply time is the length of a pulse to an access control system when a person has passed the Speedlane 900. The reply time is adjustable from 0.1 to 2 seconds.

8.3.9 Gate open

In the "Gate open" selection the choices "Sensor open" or "Pulse open" can be made.

• Sensor open:

The Speedlane 900 opens directly when an authorization is made and stepping into the lane.

 Pulse open: The Speedlane 900 opens directly when an authorization is made.

8.3.10 Intruder alarm

In the "Intruder alarm" selection the choices "On", "Partial" or "Off". Can be made.

- On.
 - Any sensor will trigger the Intruder alarm buzzer.
- Partial.
 Only the sefety set
 - Only the safety sensors will trigger the Intruder alarm buzzer.
- Off.

Buzzer is off, function the same as the On selection.



8.3.11 Error state (Service item)

In this menu you can monitor what is wrong in the Speedlane 900. The following errors can be displayed:

- Last status of Speedlane 900 when error happened.
- Multibeam communication error.
- Calibrate error. When initialising fails.
- Encoder master or slave error. A/B phase signals are changed.

If there are more errors at the same time, each error will be displayed for one second. You can leave this menu by pressing "Escape".

8.3.12 Encoder data (Service item)

In this menu you can monitor the value of the master and slave angle encoders. When the door wings are open the value of both angle encoders should be (around) zero. However, with moving door wings, momentarily a small negative value (\pm -200) in the open position is normal. When the door wings are closed both value encoders should have a positive value (>25000).

8.3.13 Multibeam (Service item)

In this menu you can monitor the multibeam state and operation. The top row of 16 digits indicates the state of the 16 sensors of the first multibeam and the lower row of the second multibeam. A '0' indicates that a sensor is installed. A '1' indicates either that no sensor is fitted, that the sensor is activated or that the sensor malfunctions.

A typical display for a high Speedlane 900 (with 5 additional sensor pairs) can show: 0000000000000000

1111110001111100

8.3.14 Maximum authorizations

The maximum authorization menu is used to set the maximum number of authorizations that can be kept in memory. It is adjustable from 1 to 10 authorizations.

8.3.15 Buzzer

In the "Buzzer" selection the choices "On" or "Off" can be made. In the "Off" position all functionality still works only the buzzer will not beep anymore.

8.3.16 Last action

In this menu you can select the last action to be performed by the Speedlane 900 in case of low battery power (long period of mains absence): open or close.

8.3.17 Card reader mode

In this menu you can select the card reader mode of the Speedlane 900: 1x return signal/1x read signal or 2x return signal



8.3.18 Free In/Out mode

In the "Free In/Out mode" selection the choices "Normal" or "Special" can be made. Normal mode.

When a person enters the Speedlane the door wings open and after passing the door wings they close again. However when someone holds his hand over the ingoing sensors the door wings will open allowing persons from the other direction to pass the Speedlane. Special mode.

When someone enters from the other direction the door wings will close before that person can pass them.

8.3.19 Frequency Inverter Model

In this menu you can select the model of frequency inverter which is used: Mitsubishi FR-D or Omron V7.

8.3.20 Restore Default Settings (Service item)

It is possible to restore all default settings in the Selection Menu with one action. The default values are set by pressing '*Enter*' in the menu '*Default*' in level two. After ten seconds the Speedlane 900 will reinitialise and all the adjustments are restored to the factory settings.



CHANGING OPERATION

9 Description of the Frequency Inverter (FI)

The Frequency Inverter has an integrated control panel, which can be used to configure a number of settings. To verify if the product operates properly the display of the module can be used. If necessary (e.g. for testing), the drive can also be started, stopped, etc. using the module keys.

NOTE!: Normally no changes will have to be made to the Frequency Inverter parameter settings. Only in case the factory (Boon Edam) settings are incorrect or have been lost it will be necessary to restore the factory (Boon Edam) settings.

9.1 Operation using the integrated control panel

The integrated control panel provides a quick and easy operation of the Frequency Inverter and displays several operational signals and error messages. The "Setting dial" provides a quick and direct access to all important drive parameters.



Control panel



9.2 Example of changing a parameter setting

The parameter settings of the inverter are controlled via the integrated control panel. The selection and setting of the parameters is increased or decreased via the "setting dial". The example below shows the operational steps for changing the Maximum frequency parameter (Pr. 1) setting from 120.0 to 50.00 Hz.



• Press (MODE) twice to return the monitor to frequency monitor.

Parameter setting example



9.3 Restoring factory default parameter settings

The procedure below shows the operational steps for returning the parameter settings of one parameter or all parameters to the factory default of the Frequency Inverter manufacturer.

NOTE!: After this factory reset a number of parameters must be set to the Boon Edam (BEBV) setting. See section 10.1.



Default parameter settings



10 Changing the frequency inverter parameter set



WARNING!

Risk of personal injury or loss of life.

CAUTION! The material may be damaged or the operation of the product affected.

The main parameters are factory set by Boon Edam. The supplier of the FI sets all other parameters.

NOTE!: Changing the parameter set should only be carried out when troubleshooting has revealed that the Speedlane 900 is free from any malfunctions.

NOTE !: Only a limited number of parameters may be changed.

It is important to know that not all parameters are given here. Each Speedlane 900 type has a different parameter set to give the best operation.

Туре	900	900-H	900-W	900-L	900-HW	900-HL	900-LW	900-HLW
Standard	Х							
High		Х			Х	Х		Х
Wide			Х		Х		Х	Х
Long				Х		Х	Х	Х

Variations of the Speedlane 900

General parameter description is given.

No.	Function	Description	Unit
Pr.00	Start up boost	Start up boost setting	%
Pr.01	Maximum speed	Maximum speed setting	Hertz
Pr.02	Minimum speed	Minimum speed setting	Hertz
Pr.03	Voltage Pr.19 by Freq.	Frequency at voltage Pr.19	Hertz
Pr.19	Voltage by Freq. Pr.03	Voltage at frequency Pr.03	Volt
Pr.125	Terminal 2 gain	Change the frequency at maximum analog input	Hertz

General parameter description



10.1 Boon Edam parameter settings

After a factory reset of the frequency inverter more parameters than given in the tables below must be set to the default (BEBV) setting.

Please refer to the frequency inverter checklists in section 16.2.

Speedlane 900 Standard, High and Long types Boon Edam default parameters and range.

No.	Function	900&L	900&L	900-H&HL	900-H&HL
		Default (BEBV)	Setting range *	Default (BEBV)	Setting range *
Pr.00	Start up boost [%]	30	0-30	30	0-30
Pr.01	Maximum speed [Hz]	80	No range	80	No range
Pr.02	Minimum speed [Hz]	5	No range	5	No range
Pr.03	Voltage Pr.19 @ Freq. [Hz]	26	20-26	26	20-26
Pr.19	Voltage @ Freq. Pr.03 [V]	75	70-80	75	70-80
Pr.125	Terminal 2 gain [Hz]	125	100-150	125	100-150

Parameter default and setting range – Standard, High and Long

Speedlane 900 Wide Boon Edam default parameters and range.

NOTE!: The parameter settings for the Speedlane 900 Wide are for lanes which have a spring unit installed.

No.	Function	900-W&LW	900-W&LW	900-HW&HLW	900-HW&HLW
		Default (BEBV)	Setting range *	Default (BEBV)	Setting range *
Pr.00	Start up boost [%]	30	0-30	30	0-30
Pr.01	Maximum speed [Hz]	80	No range	80	No range
Pr.02	Minimum speed [Hz]	5	No range	5	No range
Pr.03	Voltage Pr.19 @ Freq. [Hz]	26	20-26	26	20-26
Pr.19	Voltage @ Freq. Pr.03 [V]	75	70-80	75	70-80
Pr.125	Terminal 2 gain [Hz]	100	No range	100	No range

Parameter default and setting range – Wide

* Settings higher than the default (Boon Edam) setting are only allowed when the measured dynamic force is below 400N.

NOTE!: Changes to the Frequency Inverter settings only become effective when the power to the unit has been switched off and on again.

NOTE!: Please refer to the Mitsubishi Frequency Inverter Instruction Manual for more details on the parameters and their setting.



CAUTION!

After changing any of the parameter settings it should be ensured that the Speedlane 900 is safe to operate and complies with the norms.



11 Uploading Speedlane 900 software

11.1 Uploading the software

In some cases the Speedlane 900 software will need to be updated.

The computer program *Flash Magic* is used to upload the Speedlane 900 software into the microprocessor. Connect your computer to the communication port on the MCB. To enter the programming mode carry out the following steps:

- 1. Press left button and keep pressed
- 2. Press right button
- 3. Release right button
- 4. Release left button

The controller is now in the programming mode. On the traffic display both the red cross (\times) and the green arrow (\mathbb{N}) are lit.



МСВ



When this program is started, the following screen is shown.

🗰 Flash Magic	
<u>File I</u> SP <u>O</u> ptions <u>T</u> ools <u>H</u> elp	
1 COM Port: CDM 1 Baud Rate: 19200 Device: 89C51RA2xx ▼ Oscillator Freq. (MHz): 16.000000	2 Erase block 0 (0x0000-0x0FFF) Erase block 1 (0x1000-0x1FFF) Erase all Flash+Security+Clks Erase blocks used by Hex File
Hex File:	Browse
Modified: Unknown	more info
4 Verify after programming Set Security I Generate checksums Set Security I Execute 6 clks/cycle Visit the "Flash Magic" home page for info on the www.esacademy.com/software/flashmagic	Bit 1 Bit 2 Bit 3 Start

To make a communication connection between the computer and the microprocessor, all the fields in block 1 must be filled in. When these adjustments are not filled in correctly, there will be no communication possible between the computer and the microprocessor.

11.1.1 Field 1

First the communication port must be selected, click on the arrow on the right side of the *COM-Port* field. Select *COM1*.

_			
	COM Port:	COM 1	-
	Baud Rate:	19200	•
	Device:	89C51RA2xx	•
0	Oscillator Freq. (MHz):	16.000000	

Set the Baud Rate to 19200 in the same way.

Select the device by clicking on the arrow on the right side of the *Device* field. Select XA-G49.

Set the oscillator frequency to 11 MHz by typing 11 in the Oscillator Freq (MHz) field.

The communication settings are now ready.

BOON EDAM

11.1.2 Field 2

Select the blocks to be erased in block 2.

NEVER choose the option Erase all Flash + Security!!!

Choose the option Erase blocks used by Hex File.



11.1.3 Field 3

Select the hex file, which has to be uploaded into the microprocessor. Use the browse button to select the Hex file.

3			
Hex File:			Browse
	Modified: Unknown	more info	

11.1.4 Field 4

In block 4 the Verify after programming option has to be chosen, the rest can stay blank.





11.1.5 Field 5

Press the *Start* button to start the uploading. Wait till *Start* is displayed again, the program is now ready for another upload to the next microprocessor. For each new upload cycle, only *Start* needs to be pressed.

To leave the programming mode and to enter the normal operating mode, press the right (Reset) button and release it.



12 Closing the Speedlane

12.1 Middle cover

First mount the middle cover plate with the hexagon socket bolt with plastic cylinder. Make sure to connect the sensor wiring when installing the middle cover.



12.2 Side cover

After installation of the side covers make sure to connect the Earth cable





2. Turn panel in at the inside.



12.3 Top plates

Before placing the top plate(s) turn the Allen screws out and push the washer out.

With a one piece top plate place one side over the screw and slowly lower the other side.



With a two piece top plate.

Place the center part first and slowly lower the top plate into place.

Insert an Allen key wrench and tighten the Allen bolt





12.4 Parts list



Parts list

A03 Frame A04 Washer M10 A05 Nut M10 A06 Glass (door wing) A07 Top plate A08 Cover plate, without opening door A09 Cover plate, with opening door A10 Inside cover plate, secured side

- A11 Inside cover plate, non secured side A12 Outside cover plate, secured side
- A13 Outside cover plate, non secured side
- A14 Floor mounting plate small
- A15 Floor mounting plate big

A18 Hexagon head screw M8 x 30 DIN 933 A19 Plastic cylinder glass mounting

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 Version:
 2014/11

 Edition:
 SL900 -OIM - USA



MAINTENANCE

13 Maintenance

For detailed troubleshooting information please refer to chapter 14 Troubleshooting.

13.1 General

- The technician should report to a contact or to the reception desk and should always ask if there are any particulars.
- Make sure to write down any remarks made by the customer on the checklist.
- Perform a visual check for broken glass (sharp edges) or other damages.
- Check the whole unit for unusual noises.
- Check the details of the location on the maintenance checklist (product type, product no.).
- In case of malfunctions events can be viewed using in the error state.
- Remove the top plate and side cover to get access to the drive system and electronics.
- Check out with contact and/or at reception desk.

13.2 Electrical

- Check the safety functions.
- Perform a function test, control panel functions.
- Check the operation of the sensors.
- Check earth screen and earth leads.
- Check the electrical wiring, especially for damages near moving parts.
- Check the motor unit and brake.

13.3 Mechanical

- Check the floor mountings and fasten where needed.
- Check the motor mountings and fasten where needed.
- Check the whole installation for correct alignment with floor (surroundings).



13.4 Maintenance checklist

@ BOON EDAM					Maintenance Checklist: Speedlane										
0	Object no.: Door no. : Object : Location :														
Dat	9:	с	с	Α	G	0	N			с	С	Α	G	ο	N
		н	L	D	R	κ	о			н	L	D	R	κ	о
Wo	k slip no. :	Е	Е	J	Е		т			Е	Е	J	Е		т
	-	С	Α	U	Α		E			С	Α	υ	Α		E
Nar	ne technician :	ĸ	N	S T	S E		S			ĸ	N	S T	S E		S
1.	General							5	Safety / functions						
а	Visual	х	х			0		а	Control panel	х	х			0	
b	Noise	х				0		b	Closing speed	х		х			
								с	Access control system pulse	х		х		0	length sec.
2.	Drive							d	Alarm	х				0	
а	Motor unit (operat.+noise)	х				0		е	All functions	Х		х		0	
b	Motor mounting bracket	х				0		f	Wiring	х				0	
с	Relays	х				0		g	Door wing impact force	х		х		0	
								h	Security level / Block det.	х		х		0	
3.	Interior							i	Model / Number of sensors	х		Х		0	
а	Moving parts	х	х			0		j	Sensor usage	х		х		0	
b	Bearings	х	х			0		k	Last action; in case of UPS	х		х		0	
с	Internal mounting parts	х				0									
d	Gate mounting	Х				0									
4	Door wings														
а	Door wing mounting	Х	Х			0									
b	Glass	Х				0									
√	= Checked and OK X = Wor	k to	be ca	arrie	d ou	ıt									
R	ecommendations + Remarks														
.															
· · · · · · · · · · · · · · · · · · ·															
·····															
s	igned as correct by client:														
С	On behalf of client (please print):														
F	Function: (Signature and stamp)														

Maintenance checklist



TROUBLESHOOTING

14 Troubleshooting

	WARNING! Switch off the power supply of the product before working on the product.
	WARNING! Risk of personal injury or loss of life.
!	CAUTION! All installation and maintenance work on the product must be carried out by Boon Edam personnel or by an approved agent.
!	CAUTION! The material may be damaged or the operation of the product affected.

14.1 Microcontroller Board

- Check the fuse when the LCD-display of the MCB does not work. The fuse is located in the power connector. When the fuse appears to be all right, the MCB might need to be replaced.
- Try powering down the whole Speedlane 900 by shutting down the UPS and waiting for approx. 30 seconds before powering it back up.
- Check the connections of the Multibeam.
- Check error state of the Speedlane 900.



14.2 Error code

An example of the error message is shown

Closing Close Slow Fire alarm



E	Error Code		Description	Possible Cause / Action		
1st	2nd	3rd				
0			Idle state	No active input while in error		
1			Force open state			
2			Force close state			
3			Free entry state	7		
30			Opening			
31			Opened	Free entry input fault		
32			Closing			
33			Closed			
4			Free exit state	7		
40			Opening			
41			Opened	Free exit input fault		
42			Closing			
43			Closed			
5			Grant entry state)		
50			Opening			
51			Opened	Card reader entry error		
52			Closing			
53			Closed			
54			Shut			
6			Grant exit state)		
60			Opening			
61			Opened	Card reader exit error		
62			Closing			
63			Closed			
64			Shut			
7			Alarm state	Unit in alarm		
8			Intruder entry state	Check tailgating operation entry		
9			Intruder exit state	Check tailgating operation exit		
	1		Stop	Check motor		
	2		Open slow			
	3		Close slow			
	4		Open fast			
	5		Close fast			
		1	Fire alarm	Check fire alarm signal		
		2	Open button	Button stuck / broken		
		4	Low battery	Check UPS		
		8	Power failure	Check Speedlane on power supply		

Speedlane 900 Error states



14.3 Frequency inverter

The Frequency Inverter uses a number of error codes, which are shown in the table below. For a complete list of fault and alarm indications please refer to vendor documentation.

Error code	Function Name	Definition
1 30.3	Overcurrent trip during acceleration	The inverter output current rose to or above about 200% of the rated inverter current during acceleration.
5 30.3	Overcurrent trip during constant speed	The inverter output current rose to or above about 200% of the rated inverter current during constant-speed operation.
8.003	Overcurrent trip during deceleration or stop	The inverter output current rose to or above about 200% of the rated inverter current during deceleration or stop.
E.O., I	Regenerative overvoltage trip during acceleration	Excessive regenerative energy or surge voltage occurred during acceleration.
5.003	Regenerative overvoltage trip during constant speed	Excessive regenerative energy or surge voltage occurred during constant speed.
8.003	Regenerative overvoltage trip during deceleration or stop	Excessive regenerative energy or surge voltage occurred during deceleration or stop.
6,C H N	Motor overload trip (electronic thermal relay function)	Overload or reduced cooling capability during low- speed operation Protection from burning due to motor temperature rise.
E.F.H.F	Inverter overload trip (electronic thermal relay function)	Current more than 150% of the rated output current flew and overcurrent shut-off did not occur. Output transistor protection from overheat.
8.F1 n	Fin overheat	Temperature rise of the heat sink.
E. GF	Output side earth (ground) fault overcurrent	Ground fault occurred on the inverter's output side.
E.OHF	External thermal relay operation	External thermal relay provided for protection from overheat was actuated (contact open).
E. PE	Parameter error	Error occurred in the parameter stored.
E.r. E.f.	Retry count excess	Operation could not be resumed properly within the pre-set number of retries.
E.C PU	CPU error	Arithmetic operation of the built-in CPU does not end within the predetermined time.

Frequency Inverter error codes



14.4 UPS

The UPS has a number of error conditions that are shown in the table below. For a complete overview please refer to the UPS user manual.

Problem	Cause	Solution
UPS always operates on	There is no line voltage	The power supply cable is not correctly
the batteries		connected to the UPS or to the power
		output socket.
	Fluctuating line voltage	Find cause of problem or switch to a
		different power outlet
	UPS input circuit breaker is	Reset circuit breaker (on the back of
	tripped	UPS) by pressing the plunger in
	The mains fuse is tripped	Replace the mains fuse
The UPS is overloaded	The connected equipment	Check all the loads connected to the
	exceeds the specified	output
	maximum load	
UPS will not operate on	The UPS has operated with	Recharge them for at least 24 hours by
the batteries	no mains voltage for a long	connecting the UPS to the mains. Then
	time and has not been able	perform a self-test.
	to recharge the batteries.	
	The batteries are flat due to	Recharge them for at least 24 hours by
	not using the UPS for a long	connecting the UPS to the mains. Then
	period.	perform a self-test.
	The batteries have run	Batteries may need to be replaced after a
	down	number of years, depending on number
		of discharges and ambient temperature
Battery self test failure	Battery in a poor condition	Recharge them for at least 24 hours by
		connecting the uninterrupted power
		supply to the mains. Then perform a self-
		test.
		Replace battery if problem persists.
UPS will not deliver power	Connection problem	Check that the loads are correctly
to the output		connected to the output socket and that
		the multiple sockets used are operating
		in a proper manner
Over/under supply voltage	Problems with the supply	The UPS has a diagnostic feature that
	voltage	displays the utility voltage.

UPS errors

Changes to the battery self test time interval can be made.

Refer to the UPS user manual for more information.

The UPS performs a self-test automatically when turned on, and every two weeks thereafter (by default). One of the alternative settings is to perform a self test at power up.



14.5 Other errors

	WARNING! Risk of personal injury or loss of life.
!	NOTE! The material may be damaged or the operation of the door affected.

The table below shows a summary of other possible errors.

Problem	Cause	Solution
Door wings do not move.	Supply voltage	Check supply voltage and fuse.
	Motor runs normally	Mechanical defect in transmission or slot.
	Motor overheating	Door runs too heavy and/or FI settings.
	Motor not running	FOUT and VMAX values, replace the motor.
	Defective Multibeam	Check the Multibeam status.
Door turns slowly.	FI setting	Check the value of the parameters n011 to n017.
LED's blink red, doors are	One of the two angle	Switch A and B signals of one angle encoder.
closing and opening	encoders isn't	Check the encoder status in the menu.
continuously, alternated	connected properly	
with acoustic alarm		
Door will not turn, no	Both angle encoders	Switch A and B signals of both angle encoders.
acoustic alarm, traffic	aren't connected	Check the encoder status in the menu.
signals and intruder alarm	properly	
work properly		

Other errors



TECHNICAL SPECIFICATIONS

15 Technical specifications

15.1 Motor

Input power:	Input power when not used: 30 Watt
	Maximum input power: 350 Watt
Motor type:	3-phase asynchronous motor, 6 poles
Voltage:	3 x 240 V (triangular), 50 Hz
Power:	0.25 kW ID=25% (S3) (per unit)
Motor speed:	900 rev/min
Gearbox reduction:	15:1
Protective system:	IP 54
Temperature sensing:	135 degrees Celsius
Door wing speed:	Maximum 0.75 m/sec
Door lock:	Dead centre mechanism

15.2 Control

Microcontroller: Frequency inverter:	16 bits micro processor Input: 200 – 240 V AC, 50/60 Hz
	Output: 200 – 240 Vmax AC, 2.5 A
Nominal motor power:	0.4 kW

15.3 Sensors

Power supply:	12-24 VDC, 100mA
Min. distance:	1m
Max. distance:	10m
Temp. range:	-20°C / +55°C
Response time:	±20ms

15.4 Complete barrier

Type: Application: Capacity:	Two-wing stainless steel access control barrier with sliding doors Barrier that allows controlled access to authorized persons Controlled access (1 direction), nominal capacity: 15 to 30 persons/minute. Combined controlled access in 2 directions, Free entry/exit, nominal capacity: 120 persons/min
Finish:	Stainless steel, AISI 304 with a K240 grain finishing, plating material. Stainless steel, AISI 304 with a K240 grain finish, end column
Door wing:	Glass, 10 mm transparent, tempered
Door height:	900 mm standard (opt. 1200, 1400, 1600 or 1800 [mm])
Weight:	2x150 kg, including glass (standard version)
Installation:	Chemical anchors
Cabling:	Power supply, operating panel optional, fire alarm & communication cables (see drawings)
Power supply:	240 VAC, 50/60 Hz
Fuse:	16 A slow (structural)



16 APPENDICES

16.1 Spare Part list

BOON EDAM Speedlane 900 SL SPARE PART LIST			
Art. Nr.	Description	Quantity	Quantity
		1 > 5 doors	6 >
50080634	PCB Speedlane including speed patch	1	1
50070145	Multibeam flat-cable. receiver mod.	1	2
50070146	Multibeam flat-cable. emitter mod.	1	2
50071447	Frequency controller FR-D720S-025-EC	1	1
50071446	Netfilter FFR-CS-050-14A-RF1	1	1
50050824	No-Break unit Smart Ups 750 VA	1	1
50070147	Multibeam extension cable 1,3m	2	2
50070142	Multibeam Eye (transmitter + receiver)	2	2
65200049	Motor WHD450pwx 120W SL (Used before February 2004)	1	2
65200051	Motor WHD550pwx 250W SL cable 1mtr	1	2
50080662	Divider module PCB Multibeam SL	1	2
50080661	Sensor module PCB for Multibeam SL	2	4
59772000	Flat-cable fem-fem 15cm	1	2
59772001	Flat-cable fem-fem 50cm	1	2
59772003	Flat-cable fem-fem 175cm	1	2
59772004	Flat-cable fem-fem 350cm	1	2
59772005	Flat-cable fem-fem 40cm 34p	1	2
50080657	Authorization PCB SL	1	2

Spare part list
BOON EDAM

16.2 Checklists Frequency Inverter

🕐 BOON EDAM			Checklist Frequency Inverter Speedlane - SL										
Project	number :	Date :						FR-D720S-025-EC					
Door number: Engineer :													
Paramet	e Parameter		Default	BEBV	On-site	Parameter	Parameter			Default	BEBV	On-site	
No.	Description		setting	setting	setting	No.	Description			setting	setting	setting	
Pr.00	Start up boost	%	6	30									
Pr.01	Maximum speed	Hz.	120	80									
Pr.02	Minimum speed	Hz.	0	5									
Pr.03	Voltage Pr.19 by Freq.	HZ.	50	26									
Pr.07	Acceleration time	sec.	5.0	0.0									
Pr.08	Deceleration time	sec.	5.0	0.0									
Pr.09	Max premisable Curr.	А	3.4	0.0									
Pr.10	Freq. DC braking	Hz.	3										
Pr.11	DC braking time	sec.	0.5	0.0									
Pr.12	DC per. of Voltage	%	4										
Dr 17	MDC input coloction		0	2									
Pr.17 Pr 19	Voltage by Freq Pr 3	V	U 8888	2 75	*								
	Voltage by freq fris	1 ·	0000	73									
Pr.72	PWM frequency		1	15									
Pr.73	Input selection		1	0									
Pr.77	Parameter write sel.		0	2									
D= 117	Dil serve station m	_	0	24									
Pr.117	PU comm. station nr.	-	0	24									
Pr.122	PU comm. check time	sec.	0	9999									
Pr.125	Terminal 2 gain	Hz.	50	125	**								
Pr.160	Extended func. Dis.		9999	0									
	_	-											
		-											
		1											
		1							-			L	
		1											
* Setting range Pr.19 is between 70 and 80 V **Setting range Pr.125 is between 100 and 150Hz.													
Permissible dyn force: <200 mm 400 N 300 mm 700 N >500 mm 1400 N													
Measured dyn, force: 50mm N 300mm N 500mm N													
,													
Inomin	al: A Max.: 0.3A	L			Istart:	A Max	x.: 0.8A						



@ BOON EDAM			Checklist Frequency Inverter Speedlane - SL Wide											
Project number :			Date :							FR-D720S-025-EC				
Door number:			Engineer :											
							-			-				
Paramet	ei Parameter		Default	BEBV	On-site	Parameter	Parameter	r		Default	BEBV	On-site		
No.	Description		setting	setting	setting	No.	Descriptio	n		setting	setting	setting		
Pr.00	Start up boost	%	6	30										
Pr.01	Maximum speed	Hz.	120	80										
Pr.02	Minimum speed	Hz.	0	5										
Pr.03	Voltage Pr.19 by Freq.	Hz.	50	26										
Pr.07	Acceleration time	sec.	5.0	0.0										
Pr.08	Deceleration time	sec.	5.0	0.0										
Pr.09	Max premisable Curr.	Α	3.4	0.0										
Pr.10	Freg. DC braking	Hz.	3											
Pr.11	DC braking time	sec.	0.5	0.0										
Pr.12	DC per. of Voltage	%	4											
D. 17	MDC is sub-sub-sub-sub-sub-		0	2										
Pr.17	MRS input selection	V	0000	 	*									
P1.19	Voltage by Freq P1.5	v	0000	75										
Pr.72	PWM frequency		1	15										
Pr.73	Input selection		1	0										
Pr.77	Parameter write sel.		0	2										
Pr.117	PU comm. station nr.		0	25										
Pr.122	PU comm. check time	sec.	0	9999										
Pr.125	Terminal 2 gain	Hz.	50	100										
Pr.160	Extended func. Dis.		9999	0										
		-												
-														
		1							1					
		1							1					
* Setting range Pr.19 is between 70 and 80 V														
Permissible dyn. force: <200				400 N			300mm	700 N	>50	0mm	1400 N			
Measured dyn. force: 50mm N 300mm N 500mm N														
Inomin	nal: A Max.: 0.3A				Istart:	A Max	x.: 0.8A							

16.2.1 Checklist Frequency Inverter Wide and High Speedlane 900



16.3 Software updates

The major changes for each software version are given in below.

NOTE!: Wide Speedlanes with the spring unit, must use one of the software versions A18-A19.1. Wide Speedlanes without the spring unit, must use one of the software versions A17-A17.4.

Software version	Major changes
A11	Intruder alarm (partial), no buzzer in zone B.
	High security (always closing) is no longer available.
	Improved free in/out, gate goes open directly after an authorization, even if it is
	halfway closing.
A12	When standing in the safety zone while giving an authorization, the gate will open
	after stepping out of the safety zone
A13	Software improved. Free in/out door wings cannot close while standing in the
	gate
A14	Default setting card reader mode now 1xRead signal and 1xBooking signal. Also
	available 1xBooking in and 1xBooking out.
A15	High security in combination with free out is improved. After stepping out of the
	gate after free in/out passing the gate closes directly.
A16	Program was cleaned up. Free out functionality is improved
A17	Program is stable
A17.1	Authorization signalling did not become green with fire alarm.
	In high security mode it was possible to sneak in from the opposite side, the gate
	stays open but still works.
A17.2	Free in bug was solved. Mostly free out is used.
A17.3	This version is used for any wide gate without the spring construction
A17.4	After malfunction an auto reset is done when safety sensors (1, 7, 8, 9, 15 and
	16) are free
A18	For any wide gate in combination with the spring construction. Maximum retry to
	close is 5 times. Speed change for all wide gates, closing speed 1 is not available
	anymore for other types. Solved the bug that authorization light goes out and no
	authorizations are possible when someone passes the gate and stays in the last
	sensors of the gate until it is closed. The authorization lights will not go out, the
A 4 0 4	red cross stays on.
A18.1	while opening an entry passage is started, it is not possible to close the gate by
A 10 0	After molfunction on oute react in done when acfety concern (1, 7, 8, 0, 15 and
ATO.Z	After frage free
Δ18.3	Multibeam read out added to the program
Λ10.3 Λ10.3	Authorization signalling is changed in combination with conser open made a
A 10.4	ross was shown after 2 or more authorizations
Δ10.1	Frequency Inverter can be selected, this makes it possible to use new software
A 13.1	versions with the older Omron inverter
L	

Software updates

Please note that when updating the software in the Speedlane 900 the old version is completely overwritten by the new version. This can only be done in case the current software does not contain custom functionality. Otherwise 'custom' software will be overwritten and customer specific settings need to be set again.



16.4 Menu structure



OIM - Manual Speedlane 900