



TRILOCK 900

Operating Manual

Your **Security.** Our **Solution.**

1	INTRODUCTION	2
1.1	COPYRIGHT	2
1.2	LIABILITY	2
1.3	PRODUCT MODIFICATIONS	2
1.4	PRODUCT OPTIONS	2
1.5	ABBREVIATIONS	2
1.6	SYMBOLS	3
2	SAFETY	4
2.1	MAINTENANCE SAFETY	4
2.2	OPERATIONAL SAFETY	4
3	PRODUCT DESCRIPTION	5
4	OPERATING FEATURES	6
4.1	CONTROL PANEL *	6
4.2	BASIC OPERATION	7
4.3	FREE PASSAGE	7
4.4	PASSAGE	8
4.5	PASSAGE WITH AUTOMATIC UNLOCKING IN CASE OF A POWER-FAILURE	8
4.6	COLLAPSIBLE ARM *	8
5	FAIL-SAFE OPERATION *	9
6	FAIL-SECURE OPERATION *	10
7	MAINTENANCE	11
7.1	DAILY	11
7.2	WEEKLY	11
7.3	MONTHLY	11
7.4	ANNUALLY	11
8	TROUBLESHOOTING	12
8.1	MECHANICAL	12
8.2	ELECTRICAL	12
8.3	FAILURE SIGNALLING	12
8.3.1	Failure codes	13
8.3.2	Multiple failures	13
9	APPENDIX	14

1 Introduction

This manual is written for the owner of this product, providing information about:

- Operating the Product
- Maintenance on the Product

Please read this manual carefully, it contains information that will assist you, with operating and maintenance, so that a long, useful and safe 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 your supplier.

1.1 Copyright

This manual was prepared and issued by Boon Edam. All rights are reserved. The information in this manual is property of Boon Edam. Disclosure of this information or any part of it to third parties is not permitted, except with prior and express written permission of Boon Edam.

1.2 Liability

The product is designed, tested and produced in accordance with strict international regulations. Correct operation can only be assured when 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

- | | | | |
|----------|--------------------------|-------|----------------------------|
| • ACW | Anti Clock Wise | • PDA | Personal Digital Assistant |
| • CAN | Controller Area Network | • PWM | Pulse Width Modulation |
| • CW | Clock Wise | • RAM | Random Access Memory |
| • ESD | Electro Static Discharge | • ROM | Read Only Memory |
| • E-tray | Electronics tray | • RTC | Real Time Clock |
| • LED | Light Emitting Diode | • TR | Trilock |
| • PCB | Printed Circuit Board | | |





1.6 Symbols

The following symbols are used in this manual



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

2 Safety

2.1 Maintenance Safety

	WARNING! Be aware and avoid contact with moving parts.
	WARNING! It is not allowed to make changes or switch off any safety features without authorisation from Boon Edam.
	WARNING! Switch off the power supply before starting maintenance or other work on the product.
	CAUTION! Do not use water near the drive unit and control boxes.

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 Product description

The Trilock 900 is designed to provide access or admission control into high volume pedestrian traffic locations. The stainless steel cabinet and reliable mechanism are suitable for any interior application. The cabinet provides sufficient space to mount various access control systems, interface controllers, and other electronics.

The Trilock 900 consists of an operating mechanism, microprocessor control electronics, stainless steel cabinet, hub and arm assembly. The electronic components are mounted on a tray behind the side panel.

The Trilock 900 is available with controlled, blocked or free passage in either direction. In addition the Trilock 900 is available with fail-safe and fail-secure options.

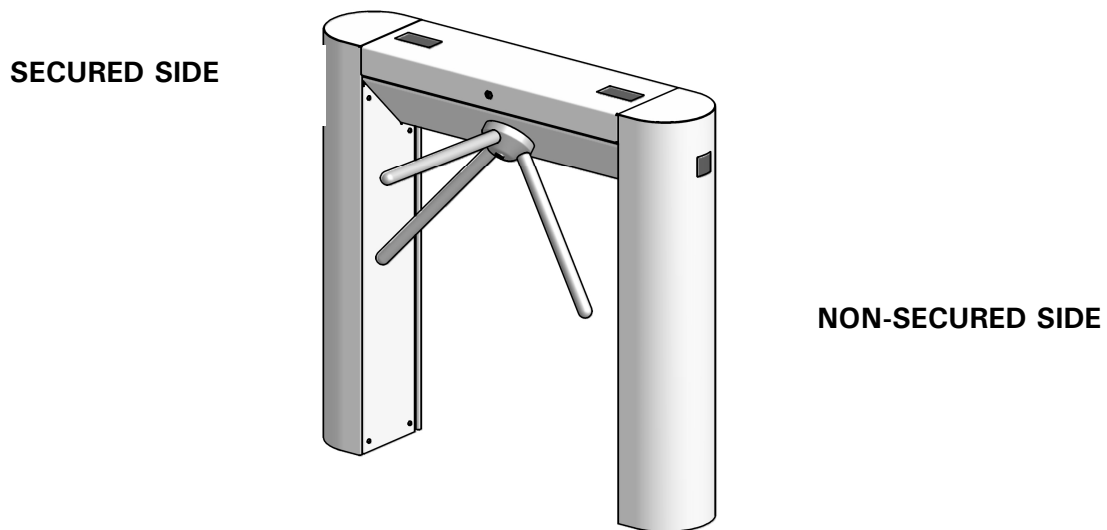
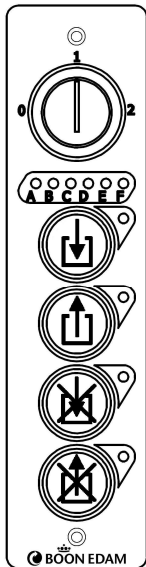


Figure 3.1: Trilock 900

4 Operating features

4.1 Control panel *

The control panel can be used to activate various modes for externally releasing or blocking the Trilock 900 mechanism. There is no difference if an access control system or an external control panel operates the Trilock 900.



Key switch: position 0 (Off)

When the key switch is placed in the off position, the control panel is locked and cannot be used. The operating mode of the Trilock 900 cannot be changed with the buttons.

Key switch: position 1 (On)

The control panel can be used for authorisations and locking. Changes to the operating mode of the Trilock 900 can be made with the buttons.

Key switch: position 2 (Free entry / exit)

This switch position releases the armset for rotation in any direction, allowing a free passage.

Note: Press the two middle buttons for 4 seconds to reset the Trilock 900.

The lower switch is also used to turn the Bluetooth device on. Please refer to the PDA Operating Manual for more information.

Failure indicator



On the control panel a failure signalling panel is integrated. This indicator can show various failure codes for feedback to users and service engineers. See chapter 8 for more information on the failure signalling.

Pulse entry



When the "pulse entry" button is pressed, the Trilock 900 mechanism will be unlocked and can be rotated clockwise or anti-clockwise for 120° allowing one person to pass the Trilock 900 and enter. Pressing the button till a "beep" is heard will place the Trilock 900 in a free entry mode.

Pulse exit



When the "pulse exit" button is pressed, the Trilock 900 mechanism will be unlocked and can be rotated clockwise or anti-clockwise for 120° allowing one person to pass the Trilock 900 and leave. Pressing the button till a "beep" is heard will place the Trilock 900 in a free entry mode.

Blocked entry



When the "blocked entry" button is pressed, the Trilock 900 mechanism is blocked, without any possibility for the user to pass through. All authorisations will be lost. When the button is pressed again, the Trilock 900 returns to normal operation.

Blocked exit



When the "blocked exit" button is pressed, the Trilock 900 mechanism is blocked, without any possibility for the user to pass through. All authorisations will be lost. When the button is pressed again, the Trilock 900 returns to normal operation.

4.2 Basic Operation

A waist height security barrier must be used properly. The objective is to allow only authorized persons into a restricted area (for units with access control). To withstand vandalism and attempts to improperly penetrate into the secured area, the Trilock 900 is durably constructed.

The following guidelines must be followed to insure safe, orderly passage:

- Present proper identification to the access control device. Identification will be verified and the access control system will release the Trilock 900 mechanism for passage (for that direction only). Generally, a click is heard when the unit unlocks. Lights on the access control device or on the Trilock 900 may also indicate an open or unlocked status.
- The user moves toward the extended arm and should grasp the arm with one hand and push the armset forward. While continuing to push the armset, the individual should walk forward following the Trilock 900 rotation.
- As the Trilock 900 arm moves in its arc, the arm starts to rotate down and away from the person passing through the unit. Release the arm of the Trilock 900 and complete the passing through the Trilock 900. The arm will continue movement until it re-centres and is ready for the next passage.
- Passage through the Trilock 900 should be at a controlled, slow, walking pace. Running or pushing the arms at a rapid rate is never acceptable.
- When properly used the Trilock 900 is a valuable and extremely safe piece of equipment.

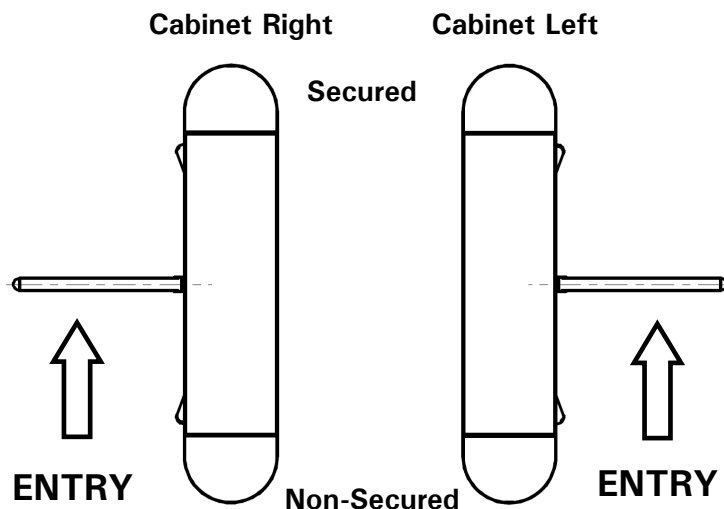


Figure 4.1 Position of cabinet, entering the facility

4.3 Free passage

In the free passage mode it is always possible to pass the Trilock 900 with a simple push on the armset. This type of operation is possible in one or two directions.

4.4 Passage

After a "pulse in" or "pulse out" (using an access control system or a push-button) the Trilock 900 will be unlocked and can be rotated clockwise or anticlockwise for 120°. The mechanism is controlled electro mechanically. This type of operation is possible in both directions.

4.5 Passage with automatic unlocking in case of a power failure

After a "pulse in" or "pulse out" (using an access control system or a push-button) the Trilock 900 will be unlocked and the armset can be rotated clockwise or anticlockwise for 120°. After this, the Trilock 900 will be locked. The mechanism is controlled electro mechanically. In case of power failure the Trilock 900 can be used freely in one or two directions.

4.6 Collapsible arm *

The Trilock 900 with collapsible arms is available in two operating modes.

1) It is possible to pass the Trilock 900 with a simple push on the armset. This operation is possible in one or two directions.

2) After a "pulse in" or "pulse out" (using an access control system or a push-button) the Trilock 900 armset will be unlocked and can be rotated clockwise or anticlockwise for 120°. The collapsible arm mechanism is controlled electro mechanically and is released in case of power failure. The collapsible arm will fall down by gravity. This is possible in both directions.

Note: The collapsible armset is not available on any mechanism with a fail-safe turning mechanism. Choices are limited to free or fail-secure. The fail-safe function is accomplished by the collapsible armset. During a power failure or fire alarm* the turning mechanism is automatically blocked. The horizontal arm is released automatically, allowing it to drop down, and the passage through the Trilock 900 is unrestricted.

5 Fail-safe operation *

Fail-safe operation implies that in case of a power failure or fire alarm* the Trilock 900 can be passed without authorisation. Security has a lower priority. The following fail-safe operating modes are possible for the rigid and collapsible armset.

Rigid armset

When a rigid armset with a fail-safe mechanism is installed the Trilock 900 operation is as follows. In case of a power failure or fire alarm* the lock in the turning mechanism is automatically released. The armset can turn freely and the passage is unrestricted.

Collapsible armset

When a collapsible armset with a fail-secure (fail-lock) mechanism is installed the Trilock 900 operation is as follows. During a power failure or fire alarm* the turning mechanism is automatically blocked. The horizontal arm is released automatically, allowing it to drop down, and the passage through the Trilock 900 is unrestricted.



6 Fail-secure operation *

Fail-secure operation means that in case of a power failure or fire alarm* the Trilock 900 cannot be passed. Security has the higher priority. The following fail-secure operating mode is possible for the rigid armset.

When a rigid armset with a fail-secure (fail-lock) mechanism is installed the Trilock 900 operation is as follows. During a power failure or fire alarm* the turning mechanism is automatically blocked. The armset cannot turn and the passage through the Trilock 900 is restricted.

Note: Fail-secure operation is not possible in combination with a collapsible armset.

7 Maintenance

	<p>WARNING! Switch off the power of the door during maintenance or other work.</p>
	<p>CAUTION! Do not use water near the drive-unit or control boxes.</p>

This schedule can be used as a checklist to maintain the Trilock 900 in its correct condition.

7.1 Daily

Check the general operation of the Trilock 900.

7.2 Weekly

Cleaning of stainless steel parts:

- Clean these parts with a little water and a sponge.
- Dry these parts with a clean cloth.
- Spray Stainless Steel Polish & Cleaner on the dry parts and rub them with a dry clean cloth.

7.3 Monthly


Cleaning of stainless steel parts:

- Clean these parts with water and a sponge.
- Dry these parts with a clean cloth.
- Spray Stainless Steel Polish & Cleaner on the dry parts and rub them with a dry clean cloth.

7.4 Annually

Once a year the Trilock 900 needs a major maintenance service. This service should be carried out by Boon Edam or by an authorised dealer.

8 Troubleshooting

	<p>WARNING! Switch off the power of the door during maintenance or other work.</p>
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8.1 Mechanical

Problem	Possible Cause	Action
Unusual noise	<ul style="list-style-type: none"> Loose mechanical parts or damaged parts 	<ul style="list-style-type: none"> Localise the source of the unusual noise. Consult your service department.

8.2 Electrical

Problem	Possible Cause	Action
Trilock 900 stays locked	<ul style="list-style-type: none"> Blocked function (on control panel) is enabled. Defective control unit 	<ul style="list-style-type: none"> Disengage the Blocked function. Contact the service department of Boon Edam.
Trilock 900 does not stay locked.	<ul style="list-style-type: none"> Control system failure Power supply Fire alarm 	<ul style="list-style-type: none"> Check cable connection power supply. Check power supply and the fuse Reset by switching power off and power on. Check mechanism Consult your Boon Edam Service Agent.

8.3 Failure signalling

To signal failures and active safeties to maintenance engineers, a failure signalling panel consisting of a six-LED display is integrated on the control panel. The six LED's (A, B, C, D, E and F) are combined to show codes that represent a failure. The failure signalling on the control panel is shown in Figure 8.1. After the problem has been resolved, the failure code indication will disappear and the Trilock 900 resumes normal operation.

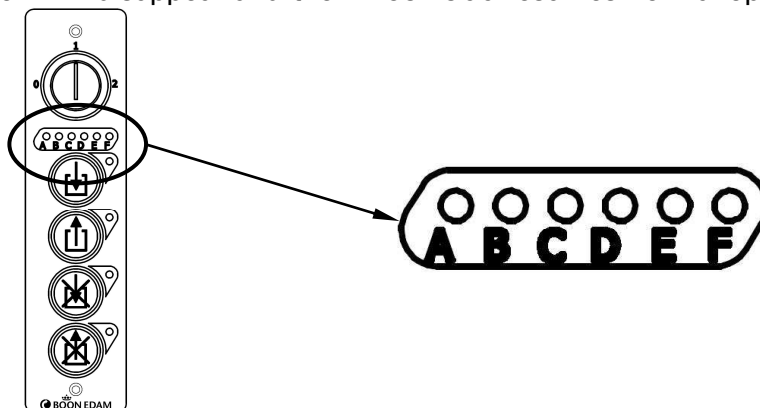


Figure 8.1 Failure signalling on control panel

8.3.1 Failure codes

In Table 8.1 the various codes are listed, which can be shown on the control panel. A "1" means the LED is on, no value means the LED is off.

In case of a failure, an easy method to read the code is the following. Look at the code shown and remember the LED's that are active. Look up the first LED active in the table. So, if LED "A" is active, find the first row from the top where the "A"-column is "1". Follow the same procedure for the remaining LED's, and the code has been found.

8.3.2 Multiple failures

If multiple failures are active at the same time, blinking codes are used to display these failures at the same time. The first failure active is shown on the control panel for three seconds. After these three seconds the display pauses for half a second. During this pause all LED's are off. Subsequently, the next failure (if any) is shown. When all failures have been shown, the process starts over again.

Description of activations and failures	A	B	C	D	E	F	Code
Product not ready (after power-up)	1	1	1	1	1	1	63
Controller error	1		1			1	41
Configuration error	1				1	1	35
Fire alarm active		1		1	1	1	23
Control panel failure		1		1	1		22
End switch failure		1			1	1	19
Communication Error			1	1	1		14
Product not calibrated			1	1		1	13

Table 8.1 Failure codes

9 Appendix

This chapter may contain information specific to the project.

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