



OPERATING MANUAL

SESAM 800 L99 USA



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1 Introduction

This manual only covers the installation of the Sesam radio remote door opening system. The Sesam System is not a complete door opening system: it provides only the set of outputs that are driven according to the actions performed by the operator of the transmitter. The way the set of outputs is used for controlling the doors depends on the specific installation and is outside the scope of the Sesam.

The approvals that the Sesam radio remote control system is only valid for the system itself.

The complete remote control system, where the controlled object is one part, has to be tested and approved according to the standards/norms that are applicable and specific to the controlled object. it is not the responsibility of Åkerströms Björbo.

2 Scope

The following guide must be used when installing Åkerströms Sesam door opening system to ensure secure, safe operation. The installation must be carried out by a certified electrician.

FCC Part 15 and Industry Canada RSS Notice

This device complies with Part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference that may cause undesired operation of the device

RSS FCC Partie 15 et du Canada Avis à Industrie

Cet appareil est conforme à la Partie 15 des règlements de la FCC et Industrie Canada exempts de licence standard RSS (s). Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence pouvant causer un mauvais fonctionnement du dispositif



WARNING:

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY CONTROL CHIEF® CORPORATION COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

3 Technical specifications

Table 1. Technical Specifications, Sesam 800 L99 & RXD

System Specifications	
Operating frequency:	926.5 MHz
Channel separation:	25 kHz
Power output:	< 5 mW
Functional sensitivity:	≤ -107 dBm BER 10-4
Transmission principle:	GMSK, TDMA,
Operating Temperature:	-25°C - +55°C
Storage Temperature:	-40°C - +85°C
Receiver specifications:	
IP- class:	IP65
Power Supply:	115 VAC 60 Hz 15 mA, 4AT fuse.
Max switching capacity of relays:	2A/250VAC with $\cos\phi=1$
Total load on all relays:	4A/250VAC (not exceeding 2A on any single relay)
Relay- type	SPDT
Fuse on current loop:	2,5AT/250VAC (IEC 60127-2/V)
Dimensions:	135 x120 x 50 mm
Weight:	450g
Screw Size:	TX20

4 Description of the system

4.1 Receiver

This document covers receiver model Sesam 800 RXD, 115 VAC (tbd).

- 3 Single Pole Double Throw relays.
- Integrated display and configuration buttons.
- Memory capacity: up to 500 transmitters.
- The receiver can be equipped with an detachable memory card containing a backup of all configuration parameters.

4.2 Transmitter

This document covers the Sesam 800 L99 transmitter. Important features are:

- A transmitter suitable for controlling up to 1000 different doors.
- Integrated back lighted display
- Optional cassette with external power.

5 Description of the Sesam 800 RXD receiver

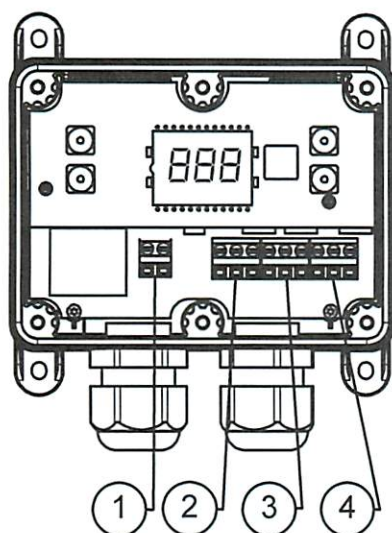


Figure 1. Sesam 800 RXD 115 VAC model connections

1. Power connection
2. Connection to relay 1, ARROW UP
3. Connection to relay 2, STOP
4. Connection to relay 3, ARROW DOWN

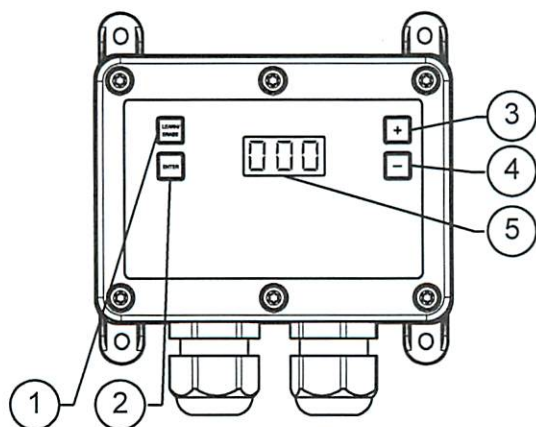


Figure 2. Sesam 800 RXD model display and buttons

1. Learn/Erase button
2. Enter button
3. Memory position up button
4. Memory position down button
5. Display

6 Installation of the receiver

The permanent installation of the receiver must include fuses that protect the equipment and wiring from overcurrent and short-circuit. In detail the power supply of the receiver and all relay contacts must be fused.

All fuses are used as disconnecting devices. The fuses shall be easily accessible, must submit a contact gap of at least 3.0 mm and have to be placed in the line pole. Note that the fuse must be compatible with IEC 60127-2/V.

After the installation of the equipment, the installed cables must be bound together in pairs (i.e. by using a cable binder) very close to the terminal blocks.

Note that there might be hazardous voltage in the receiver, therefore only certified electricians are allowed to open the lid.

6.1 Placement of the receiver

Select a location that is within the environmental limitations of the receiver and where it is difficult for unauthorized persons to obtain access to the receiver. If possible, mount the receiver with the cable glands facing downwards.

For the drilling measure of Sesam 800 RXD see chap.15.

The receiver is preferably screwed with 4 mm screws suitable for the surface.

6.2 Connections on the receiver

The receiver is equipped with connections for relays, power and an external antenna (see fig. 1 and fig. 2).

The connections for power connection are, from left to right:

- Line (L)
- Neutral (N)

The connections for each relay are, from left to right:

- Common terminal
- Normally opened (NO)
- Normally closed (NC)

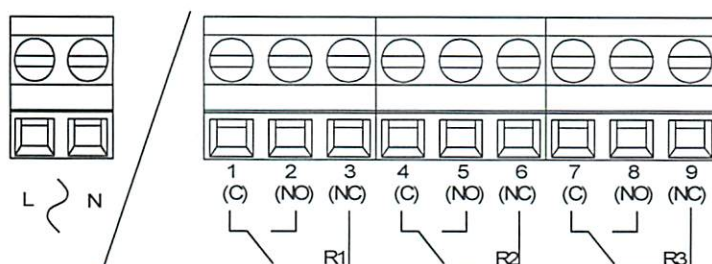


Figure 3. Power connection and Relay connection

Connection exemple:

- R1 = UP
- R2 = STOP
- R3 = DOWN

7 Indicators on the receiver

The Sesam 800 RXD model has an integrated display that shows additional system relevant information (Fig. 2).

At activation of a certain function, the transmitter memory position will be shown in the display window.

If a relay is activated, the following will be shown in the display:

- Left decimal point: Relay 1 activated.
- Both decimal points: Relay 2 activated.
- Right decimal point: Relay 3 activated.
- Number of used memory position.

At start up, the display will show system information in the following order:

- System version.
- “E r d” if a memory card is installed.
- Programmed door number

8 Configuration of the receiver

8.1 Basic configuration

1. Choose the door number that shall be used (0-999) and enter the number on the transmitter
2. Press the “Learn/Erase” button.
The display window shall show “L r n” followed by the memory position that the transmitter will be stored in. The right decimal on the display flashes as long as the Learn mode is active (10 seconds).
3. Press ARROW UP on the transmitter

The display shows “A []” if the learn process is successful and the receiver will return to normal operating mode automatically. The display will now show the new door number.

8.2 Advanced configuration

This configuration allows the user to choose at what memory position a certain transmitter shall be stored in.

Adding a transmitter in a certain memory position

1. Press the “Learn/Erase” button.
The display window shall show “L r n” followed by the memory position that the transmitter will be stored in.
The right decimal on the display flashes as long as the Learn mode is active (10 seconds)
2. To select what memory position to use (memory positions can be 1-500) press the Memory Position UP or Memory Position DOWN buttons (see fig. 2). The left decimal on the display indicates whether the chosen memory position is already used.
3. Press ARROW UP on the transmitter

The display will show “A []” and will return to normal operating mode.

8.3 Erasing transmitters in the receiver

Erasing individual transmitters

1. Press the “Learn/Erase” button.

The display shows “L r n” followed by the memory position that will be erased. This mode will be active for 10 seconds.

2. Change what memory position to delete (1 to 500) by using “+” and “-” buttons.

The left decimal in the display window indicates whether the memory position is in use or not (note that two decimals are shown in the display).

3. Press the “Learn/Erase” button to remove the selected memory position.

The display will show “d E L” and return to normal operation.

Erasing all transmitters

1. Press the “Learn/Erase” button.

The display shows “L r n” followed by the memory position that will be erased. This mode will be active for 10 seconds.

2. Press the “Learn/Erase” button for 5 seconds to erase all memory positions.

The display will show “d E L” “A L L” and return to normal operation.

All transmitters are now erased from the receiver memory and, if connected, the memory card.

8.4 Re- configuring a transmitter in the receiver

If the user attempts to program a transmitter that is already programmed in the receiver, the display will show “E r r l” followed by the original memory position on the display.

Erase the original memory position before proceeding with the configuration.

8.5 High Security Transmission Mode

The High Security Transmission Mode uses encrypted authentication to ensure that the receiver only replies to commands from transmitters stored in the memory. This mode makes it difficult to scan and record messages that could, with the right technology, open doors without using an authentic coded transmitter.

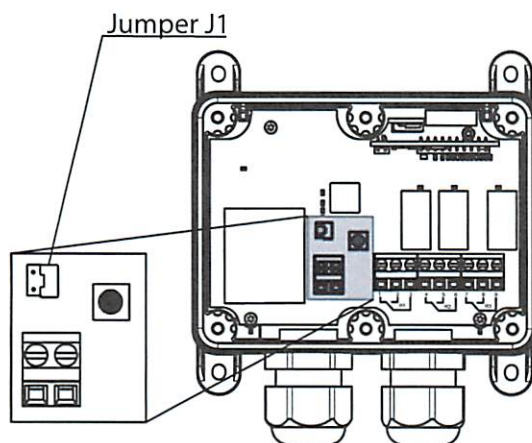


Figure 4. Jumper J1 shown with high security transmission mode enabled.

To enable the High Security Transmission Mode, close jumper J1 (see fig. 4) and restart the receiver. At startup, the display will show “5 E [”.

The high security mode will slightly increase the response time and reduce the operating range.

8.6 Memory card

A memory card is useful in applications where many transmitters are used to control one single receiver. The receiver can be equipped with a detachable memory card containing a backup of all configuration parameters.

If a receiver needs replacement, the user only has to install a new receiver of the same type and insert the memory card in the new receiver in order to get the same functionality as in the old receiver.

If more receivers with the same configuration are needed, remove the card and perform the copy operation on a new receiver.

8.6.1 Copying information from a memory card to a new receiver

1. Turn the power off the receiver.
2. Unscrew the 6 screws holding the receiver lid.
3. Carefully remove the display card.
4. Insert the memory card that you want to copy in the memory card slot in the receiver (see fig. 5).
5. Mount the display card in the display card slot (see fig. 5).
6. Start the receiver:

The display will show “C P 5” when the copy operation is completed.

Note that the memory in the receiver has to be empty before copying the memory card to the receiver (see chap. 8. 3 for information on how to delete the memory).

7. If the memory card will be used to copy the configuration on to other receivers or if the memory card shall be used as a backup, remove it. If not, mount the lid and tighten all screws with TX 20, torque 2,0 Nm.

8.6.2 Copying information from a receiver to a memory card

Note that the memory card has to be empty before copying the receiver memory to the card. To remove information from a memory card, insert the card in a new receiver and erase all transmitters (see chap. 8.3).

1. Turn the power off the receiver.
2. Unscrew the 6 screws holding the receiver lid and remove the lid.
3. Carefully remove the display card.
4. Insert the memory card that you want to copy all parameters to in the memory card slot (see fig. 5).
5. Mount the display card in the display card slot (see fig. 5).
6. Start the receiver and wait for approx. 5 seconds.

The display will show “E P Y” “Ea” “Ed” when the copy operation is completed.

7. Remove the display card and the memory card. If the memory card shall be stored; store it in a clean environment free from static electricity.
8. Mount the display card and the lid. Tighten all screws with TX 20 torque 2,0 Nm.

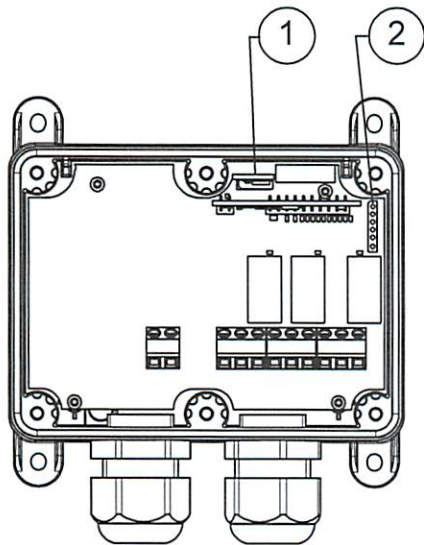


Figure 5. Memory card and display slots in the receiver

1. Memory card slot
2. Display slot

9 Description of the Sesam 800 L99 transmitter

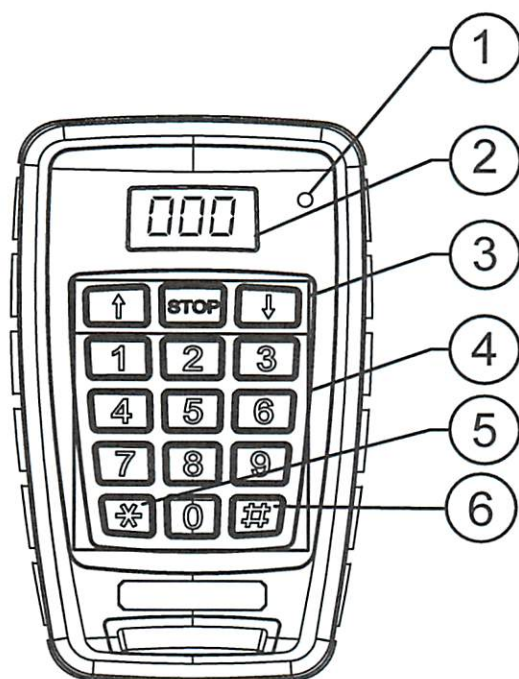


Figure 6. The Sesam 800 L99 transmitter indicators and buttons.

- 1. Indicator LED.
- 2. Display
- 3. Function buttons (from left to right ARROW UP, STOP, ARROW DOWN)
- 4. Numeric Entry
- 5. * Increase display value
- 6. # Decrease display value

9.1 Indications on the transmitter

9.1.1 LED indicator

Normal operation

Quick flashing RED = sending message.

Continuous GREEN = Relay activated in the receiver (Feedback information from receiver).

Battery warning

3 long RED flashes = Battery depleted, transmitter cannot send commands.

Continuous RED after activating command = Low battery.

9.1.2 Display

The display shows system- relevant information during start up and operation.

At startup, the transmitter software version followed by battery voltage is displayed. After this, the transmitter enters normal operation mode. In this mode, the display shows the door number that will be activated if any of the ARROW UP, STOP, ARROW DOWN buttons are pressed.

If the display indicates “L 0 b A E”, replace the batteries.

9.1.3 Buttons on the transmitter

The transmitter is equipped with 15 buttons, namely ARROW UP, STOP, ARROW DOWN, buttons 0-9, * and #.

ARROW UP, STOP and ARROW DOWN buttons are used for controlling the door movements. 0-9 buttons are used for selecting what door to control.

The function buttons * and # are used for increasing and decreasing the door number shown in the display.

10 Using the system

In order to control a door, enter the door number using the transmitter buttons, check that the correct number has been configured in the receiver on the display, and press the desired function (ARROW UP, STOP or ARROW DOWN). The buttons * and # can be used to either increase or decrease the value shown in the display respectively.

11 Configuration of the transmitter

11.1 Group ID

All Sesam 800 transmitters have a factory pre-programmed unique identity (ID). This is a number between 1000000 and 16777214.

In addition to the pre-programmed unique ID, the Sesam L99 has support for Group ID. A group ID consists of a six digit number that the user can configure on the transmitter. Transmitters with the same Group ID is considered identical by the controlled receivers. This means that transmitters can be organized in groups. This increases the flexibility and simplifies the maintenance on large installations. Each receiver is capable of learning/storing up to 500 Group IDs, one for each position on the memory card.

If no Group ID is configured, the transmitter will use factory ID settings.

11.1.1 Configuration of the Group ID in the transmitter

1. Choose a suitable Group ID (either a new code, 000001 to 999999 or an group code already in use).
2. Remove the back side of the transmitter (see fig. 8).
3. Remove one battery.
4. Press the bottom left button (*) on the transmitter while inserting the battery.
5. Continue pressing the button until the text “Group ID” is displayed in the transmitter display.
6. Enter the six digit code using the keyboard (the transmitter LED will flash once for each button that is pressed).

After the entire code has been entered in the transmitter, the transmitter display will show “Group ID” followed by the entered value.

7. Save the entered Group ID by pressing “#” button on the transmitter within 10 seconds.

If the Group ID has been accepted, the display window will show “Group ID”.

8. Verify the transmitter functionality by testing the transmitter on a receiver with the correct Group ID.
9. Mount the back side of the transmitter (see fig. 10).

The transmitter can be restored to factory settings by entering “000000” as ID. For safety reasons, only group ID's less than 100000 can be viewed using this configuration method.

11.2 Display window illumination

The display on the Sesam L99 has built in automatic illumination that can be ON or OFF. Typically, the battery life will increase by turning the illumination OFF.

11.2.1 Configuration of the display window illumination

1. Remove the back side of the transmitter (see fig. 8).
2. Remove one battery.
3. Press the bottom right button (#) on the transmitter while inserting the battery.
4. Continue pressing the button until the text “L E d” is displayed in the transmitter display.
5. The new settings (“0 n” or “0 F F”) will be shown in the display.
6. Verify the transmitter functionality.
7. Mount the back side of the transmitter (see fig. 10).

12 Installation of cassette

Connect the cassette to 12/24V DC where the brown cable is connected to (+) and the blue cable to ground (-).

If the cable is connected wrong a fuse inside the cassette will blow. This fuse can be ordered from Åkerströms Björbo Ab, art.nr 943696-000. To change the fuse:

1. Open the cassette by unscrewing the two screws on the backside.
2. Lift the card up and use a tweezer to remove the old fuse and replace it with the new one.
3. Mount the card and lid and tighten the screws with PH2.

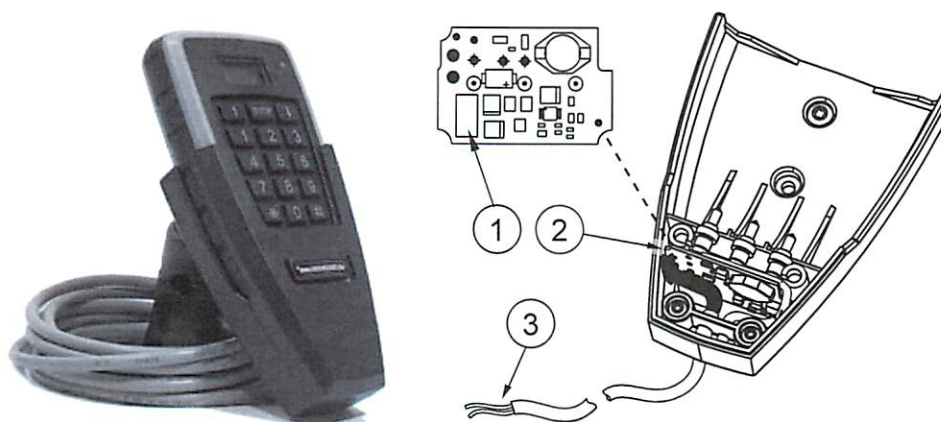


Figure 7.

1. Fuse placement on card
2. Card placement in cassette
3. Brown (+) and blue (-) cable

13 Replacing batteries in the transmitters

If the display on the transmitter indicates “L b A t”, replace the batteries promptly. Note that changing of batteries must take place in a clean environment free from static electricity.

The batteries are changed as follows:

1. Open the battery cover by unscrewing the 6 screws on the backside of the transmitter housing (see fig. 8).
2. Carefully remove the cover by lifting up the front end of the cover (see fig. 11).
3. Remove the batteries.
4. Insert the new batteries.
5. Close the cover by first inserting the backside of the cover in the transmitter, and then pressing the front down (see fig. 10).
6. Tighten the 6 screws with PH2 (torque 1 Nm).



Figure 8. Back side of the cover inserted in its position.

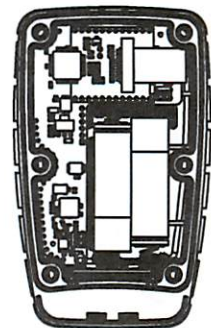


Figure 9. Batteries in the transmitter

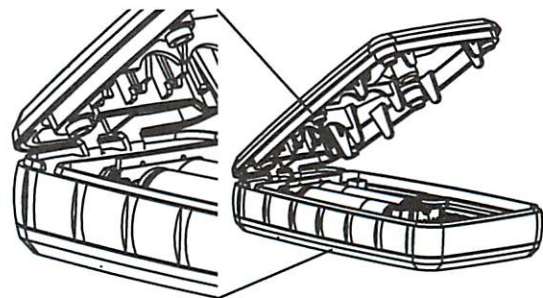


Figure 10. Battery cover and the screws holding the cover

14 Error codes

14.1 Error codes, Sesam 800 RXD

Table 2. Error codes Sesam 800 RXD

ID already programmed	1
Memory full	2
Memory card mismatch during power up	10
Memory card write error. Maybe memory card has been removed during operation.	11
Memory card copy to verify error	12
Internal errors. The unit needs service	3, 5 30, 31 and 32
Line power unstable	4

14.2 Error Codes Sesam 800 L99

Setting Group ID, timed out =1

Buttons stuck at start-up =6

If any other error codes are displayed, the transmitter needs service by an authorized service engineer.

15 Receiver drill measure for Sesam 800 RXD

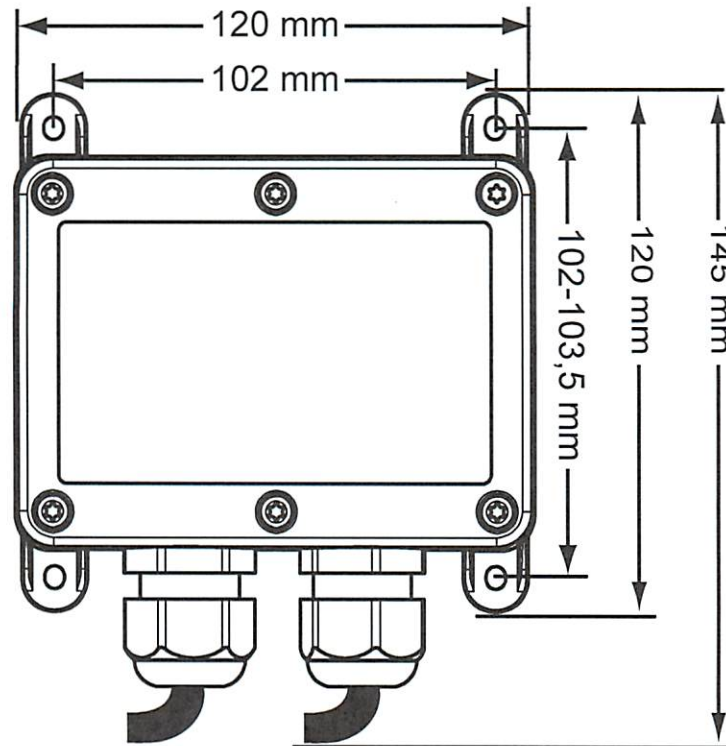


Figure 11. Use 4 mm screws to mount the receiver.



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