OPERATING MANUAL

SESAM 800

CONFIGURABLE

947422-000 -A0

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1 Introduction

This manual only covers the installation of the Sesam radio remote system. The Sesam system is not a complete remote control 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 object depends on the specific installation and is outside the scope of the Sesam.

The approvals for the Sesam radio remote control system are 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 AB. No liability for the controlled object or the controlled objects actions will be accepted by Åkerströms Björbo.

2 Scope

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

⚠ = This symbol highlights extremely important information.

3   Technical Specifications

System Specifications	
Operating frequency band:	869 MHz, 12 channels
Channel separation:	25 kHz
Power output:	≤ 5 mW
Functional sensitivity:	Better than -107 dBm BER 10-4
Transmission principle:	GMSK, TDMA
Operating Temperature:	-25°C - +55°C
Storage Temperature:	-40°C - +85°C
Receiver specifications	**S800RXM**
IP- class:	IP67
Power Supply:	12-24 V DC 25 mA at 12 V DC (SELV), must be fused with 3A fuse (SAE J1284)
Conversion box for 230 V AC:	1..6 relays 16A/250 V AC
Max switching capacity of outputs:	3A/24 V DC
Total load on all outputs:	Max 3A/24 V DC
Dimensions:	120 x120 x 50 mm
Weight:	350g
Transmitter Specifications	**S800M6**
IP- class:	IP67
Dimensions:	100 x 60 x 25 mm
Weight:	130g
Battery type:	2*AA/LR06 Alkaline

Table 1.   Technical Specifications, Sesam 800 Configurable

4 Short Description of the System

4.1 Receiver

Main features:

- 6 solid state outputs.

- Each output is user configurable as either momentary or remaining.

- Waterproof (IP67).

4.2 Transmitters

M6 is a medium size 6- button transmitter. The transmitter comes in 2 different models, one with no button print and one with the button print 1..6. For the unit with no print there is a default or custom made label frame. The transmitters are very rugged and waterproof (IP67).

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5 Description of the Receiver
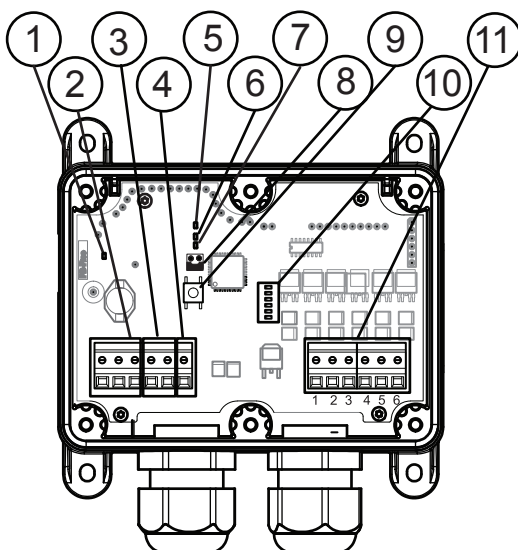
Figure 1.   Sesam 800 RXM model indicators, connections and jumper

1. *Power LED*
2. *Ground*
3. *Positive (+) 12-24 V DC connector*
4. *Output power input*
5. *LED 5*
6. *LED 6*
7. *LED 7*
8. *Jumper J1*
9. *Learn/Erase button*
10. *LED indicators for outputs*
11. *Output connectors 1..6*

Jumper J1 should be in its' delivery setting.

Jumper J1 must be placed in left position in order to configure output functions.
Note! Only during configuration.

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5.1   Indications on the Receiver

The Sesam 800 RXM model has LED indicators that indicates different parameters (see fig. 1 for positions of the LEDs).

The indications on the LEDs are as follows:

Power LED (see ① in fig. 1)
Indicates whether the receiver is powered on or not.

LED 5 Squelch (see ⑤ in fig. 1)
Indicates a detected signal on the operating frequency band.

LED 6 Status (see ⑥ in fig. 1)
Indicates that information from a transmitter paired with the receiver has been received.

LED 7 Learn (see ⑦ in fig. 1)
Indicates if the transmitter is in Learn Mode. In Learn Mode LED 7 is lit. In Configuration Mode LED 7 is slowly blinking.

Outputs LEDs (see ⑩ in fig. 1)
Indicates the state of outputs 1..6. Output LED 1 is the bottom one, output LED 6 is the top one. An activated output is indicated by a LED in ON state.

```
6 [  ]    Output 6
5 [  ]    Output 5
4 [  ]    Output 4
3 [  ]    Output 3
2 [  ]    Output 2
1 [  ]    Output 1
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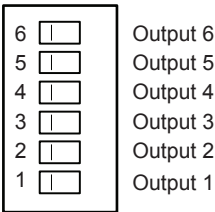
Figure 2.   Output LED numbering and
relationship with output terminals

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6 Installation of the Receiver

The permanent installation of the receiver must include fuses that protect the equipment and wiring from over current and short-circuit. The power supply to the receiver must be fused with 3A as close to the battery as possible. The cable must be of outer diameter 6-12 mm and each the power conductor at least 0.75mm². Max cable length 5 meters.

6.1 Mounting Steps

Step 1

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. Mount the receiver with the cable glands facing downwards.

If possible mount the receiver inside a control cabinet. Note that this is only possible if the cabinet is made out of plastic or materials that not have a negative effect on radio emissions.

Step 2

Drill 4 holes (for measures see fig. 9).

Mount the receiver.

Step 3

Connect wiring for output signals and power supply. Use cable ties to secure the wires and ensure that the wiring will not be affected by abrasion, heat and/or exhausts.

Connect 12-24 V DC (+) to position 3 and ground (-) to position 2 (see ③ and ② in fig 1).

Connect the equipment to be controlled to output terminals 1..6 (see ⑪ in fig. 1) and equipment ground to position 2 (see ② in fig. 1). If the outputs are to be powered by the same 12-24 V DC supply as the receiver place a jumper between the Output Power Input (SW) and Positive (+) 12-24 V DC using a 0,75 mm² cable (see fig. 3).
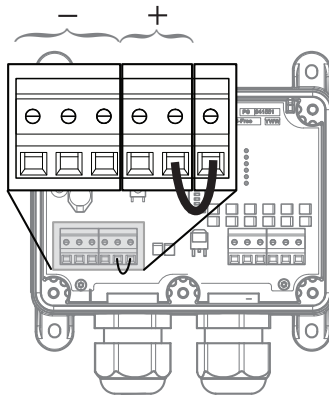

Figure 3.   Configuring internal supply of output power

Step 4

Connect wiring for output signals and power supply. Use tie wraps to secure the wire and ensure that the wiring will not be affected by hot parts and/or exhausts. The power supply (+) to the receiver must be fused with a system adapted fuse as close to the battery/power supply as possible.
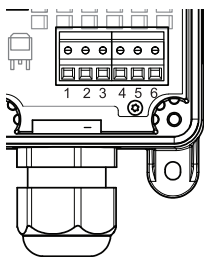

Figure 4.   Numbering of outputs

Output (see fig. 4)	1	2	3	4	5	6
Button (see fig. 5)	☐1	☐2	☐3	☐4	☐5	☐6

Table 2.   Functional diagram for installation of cable

Step 5

System Check

- Ensure that wiring to all components are correct and all loose wires are cable tied and secure.

- If necessary pair transmitter (see chap. 10).

- By pressing the buttons on the transmitter, verify that all functions work correctly as described in table 3. Note that some of the buttons may be set as remaining (see chap. 11).
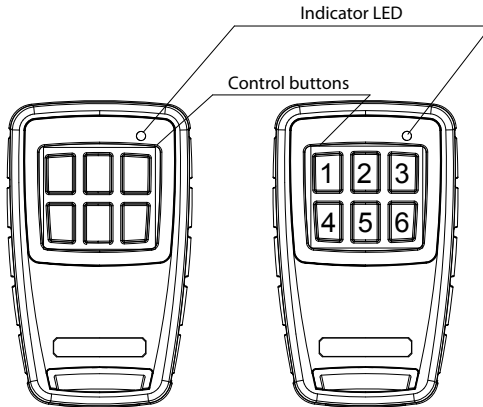
7   Description of the Transmitter

Figure 5.   The Sesam 800 M6 transmitter indicator and buttons

7.1   Indications on the Transmitter

Normal operation

Quick flashing RED LED =   sending message but no feedback available from the receiver.

Continuous GREEN LED =   Output activated in the receiver (feedback information from receiver).

Battery warning

Continuous RED after activating a command =   Low battery.

3 long RED LED flashes =   Battery depleted, transmitter can not send commands.

8   Operation

The object is controlled via the buttons on the transmitter. Press the buttons on the transmitter in order to controlling the object. Some of the buttons may be set as remaining functions.

For relationship between outputs and buttons see table 2.

9   Replacing Batteries in the Transmitter

If the indication LED on the transmitter indicates low battery, replace the batteries promptly. Before changing the batteries 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. 6).

2. Carefully remove the cover by lifting up the front of the cover (see fig. 8).

3. Remove the used batteries and insert new batteries (see fig. 7).

4. Close the cover by first inserting the rear of the cover into the transmitter, and the pushing the top back down.
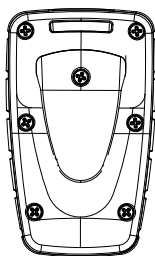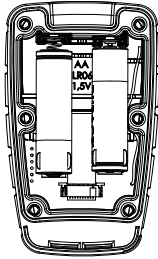
5. Tighten the 6 screws (torque 1,0 Nm).

Figure 6.   Battery cover and the screws holding the cover

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Figure 7.

Batteries inserted in the transmitter. Make sure the batteries are inserted with the correct polarity
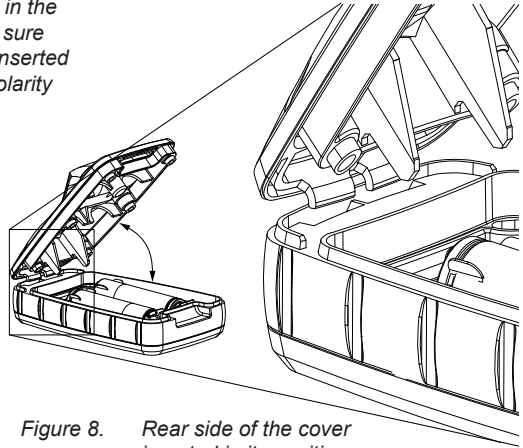
Figure 8. *Rear side of the cover inserted in its position*

10 Pairing Receiver and Transmitter

If any part of the system has been replaced, the receiver and transmitter needs to be paired together:

- Open the lid on the receiver (6 screws).

- Push the "Learn/Erase" button until LED 7 (see fig. 1) is ON.

- The Learn Mode will be active for 10 seconds (as long as LED 7 is ON).

- Press a button on the transmitter. LED 7 flashes 3 times if the learn is successful.

- Mount the lid and tighten the screws with 2.5 Nm.

- Mount the caps over the screws.

To delete a transmitter from the receiver, push the "Learn/Erase" button until LED 7 is ON. Continue by pressing the "Learn/Erase" button once more until LED 7 is OFF.

11 Output Configuration

Each of the 6 outputs in the receiver can be configured as either momentary or remaining (latched) using a special configuration mode.

Note! The transmitter and receiver must be paired before output configuration can be done, see chapter 10.

⚠ **Caution.** All outputs must be disabled before configuration by disconnecting the Output Power Input (SW) terminal (see fig. 3).

To configure the receiver outputs do the following:

1. Power off the receiver (if you have a conversion box for 230 V AC wait 10 seconds).

2. Disconnect the Output Power Input terminal, see figure 3.

3. Install Jumper J1 in left position (see fig 1).

4. Press and hold the "Learn/Erase" button (see fig. 1) while powering on the receiver.
   (If Jumper J1 is in left position at power up and the "Learn/Erase" button is not pressed the receiver will stop and indicate error 4. Restart the receiver while pressing the "Learn/Erase" button.)

5. Continue to press the button until all Outputs LEDs are lit (see ⑩ in fig. 1).

6. Release the button. The Output LEDs will now display the current toggle configuration. LED 7 (see ⑦ in fig. 1) will indicate relay configuration mode with a slow blink (1 Hz).

7. Use button 1..6 on the transmitter to configure the outputs as momentary or remaining (latched). Output LED lit indicates remaining mode active.

8. To store the configuration press the learn button for 1 second. Successful store is indicated with 3 flashes on LED 7.

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9. Power off the receiver (if you have a conversion box for 230 V AC wait 10 seconds).

10. Reinstall the Jumper J1 in its delivery setting.

11. Start the receiver.

12 Receiver Drill Measures

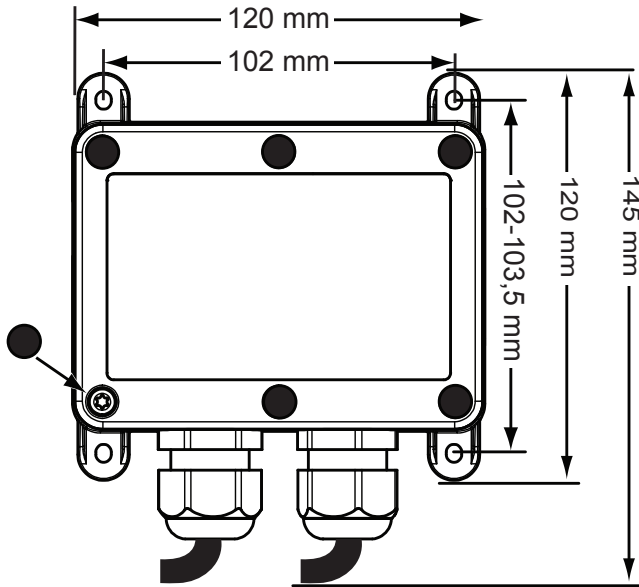*Figure 9.   The receiver shall be attached with 4 mm screws that are suitable for the surrounding environment*

Åkerströms Björbo AB
Box 7, SE-785 21 Gagnef, Sweden
street Björbovägen 143
SE-785 45 Björbo, Sweden
Phone +46 241 250 00
Fax +46 241 232 99
E-mail sales@akerstroms.com
www.akerstroms.com

akerstroms.com