OPERATING MANUAL

SESAM 800 MOBILE

CONFIGURABLE

M6, S3, RXM

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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 Service

Contact your Åkerströms Björbo AB dealer for service or support. Warranty work must be performed by Åkerströms or authorized service center.

4 Maintenance

For cleaning use a dry cleaning cloth, if necessary use a wet cleaning cloth and a soap solution. Never use an alcohol-based product for cleaning; it can seriously damage the plastic. Do not use pressure washer on the product!

5 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)	
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**	**S800S3**
IP- class:	IP67	IP67
Dimensions:	100 x 60 x 25 mm	75 x 46 x 22 mm
Weight:	130g	80g
Battery type:	2*AA/LR06 Alkaline	2* AAA/LR03 Alkaline
Screw size:	PH2	PH00

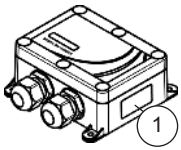
Table 1. Technical Specifications, Sesam 800 Configurable

6 Short Description of the System

6.1 Receiver

Main features:

- 6 solid state outputs.
- Each output is user configurable as either momentary or remaining.
- Waterproof (IP67).

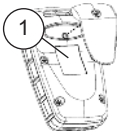


1 Type label position

6.2 Transmitters

M6

- 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.



1 Type label position

S3

- Small size 3- button transmitter.

7 Description of the Receiver

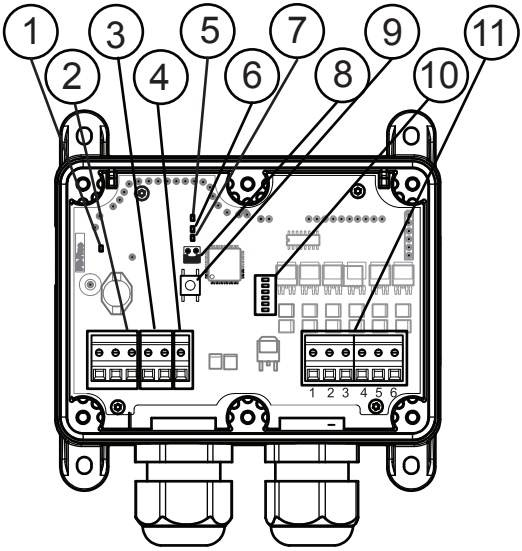


Figure 1. Sesam 800 RXM model indicators, connections and jumper

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
9. Learn/Erase button
10. LED indicators for outputs
11. Output connectors 1...6

7.1 Indications on the Receiver

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

The indications on the LEDs are as follows:

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

LED 5 Squelch (⑤)
Indicates a detected signal on the operating frequency band.

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

LED 7 Learn (⑦)
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 (⑩)
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.

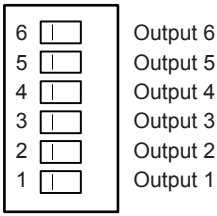


Figure 2. Output LED numbering and relationship with output terminals

8 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 0.75mm^2. Max cable length 5 meters.

8.1 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

1. Drill 4 holes (for measures see Figure 11).
2. 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 Figure 1).

Connect the equipment to be controlled to output terminals 1...6 (see ⑪ in Figure 1) and equipment ground to position 2 (see ② in Figure 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 mm^2 cable (see Figure 3).

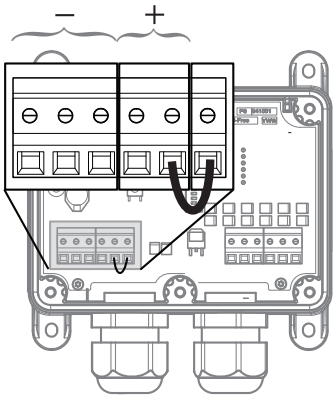


Figure 3. Configuring internal supply of output power

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.

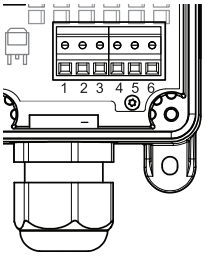


Figure 4. Numbering of outputs

Output (see fig. 4)	1	2	3	4	5	6	
Button (see fig. 5)	1	2	3	4	5	6	M6
	⇧		⇩				S3

Table 2. Functional diagram for installation of cable

Step 5

System Check

- Ensure that wiring to all components is correct and all loose wires are cable tied and secure.
- If necessary pair transmitter (see chapter 12).
- By pressing the buttons on the transmitter, verify that all functions work correctly as described in table 2. Note that some of the buttons may be set as remaining (see chapter 13).

9 Description of the Transmitter

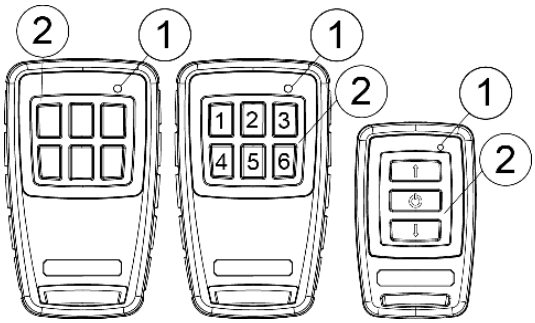


Figure 5. Transmitter indicator and buttons

9.1 Indications on the Transmitter

Normal operation

Quick flashing RED =	Sending message but no feedback available from the receiver.
Continuous GREEN =	Output activated in the receiver (feedback information from receiver).

Stand-by mode (S3 only)

Slow flashing GREEN = The transmitter is in stand-by mode.

Battery warning

Continuous RED after activating a command = Low battery.

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

10 Operation

The transmitter is delivered with the batteries not installed. Insert the batteries according to chapter 11.

The object is controlled via the buttons on the transmitter. Press the buttons on the transmitter in order to controll the object. Some of the buttons may be set as remaining functions.
For relationship between outputs and buttons see Table 2.

10.1 Activate/Deactivate the transmitter (S3 only)

Activate

Activate the transmitter by pushing the on/off button  until the transmitter indicator starts flashing green.

Deactivate

Turn off the transmitter by pushing the on/off button  until the indicator stops flashing red.

10.2 Auto-Off

The transmitter will shut itself off after 15 minutes, if no buttons have been pressed.

11 Replacing Batteries in the Transmitter

If the status indicator 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 six screws on the backside of the transmitter cover with screwdriver M6: PH2, S3: PH00.
2. Carefully remove the cover by lifting up the front of the cover.
3. Remove the used batteries
4. Insert new batteries. Make sure the batteries are inserted in the correct polarity.
5. Close the cover by first inserting the backside of the cover in the transmitter, and then pushing the front down.
6. Tighten the six screws with torque M6: 1.0 Nm, S3: 0.14 Nm.

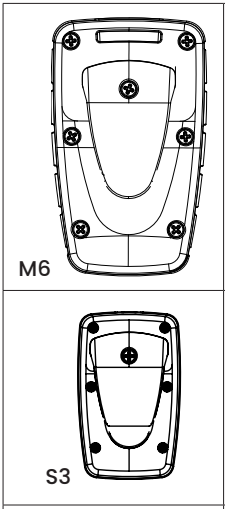


Figure 6. Battery cover and the screws holding the cover

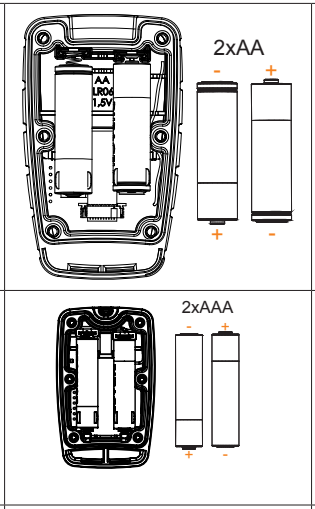


Figure 7. Batteries inserted in the transmitter

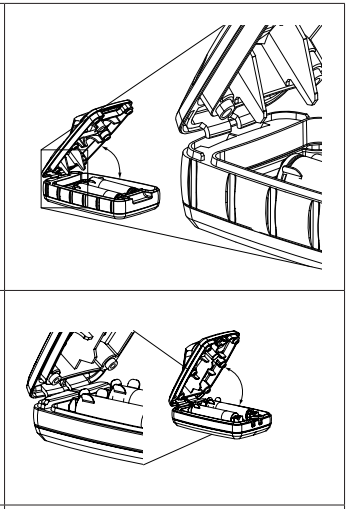


Figure 8. Backside of the cover inserted in its position

12 Pairing Receiver and Transmitter

If any part of the system has been replaced, the receiver and transmitter need to be paired together. Follow the steps below (please notice that this is for one transmitter see section 12.1 for more than one transmitter):

1. Open the lid on the receiver (6 screws).
2. Push the “Learn/Erase” button until LED 7 (see Figure 1) is ON.
3. The Learn Mode will be active for 10 seconds (as long as LED 7 is ON).
4. Press a button on the transmitter. LED 7 flashes 3 times if the learn are successful.
5. Mount the lid and tighten the screws with 2.5 Nm.
6. 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. Notice that if more than one transmitter is paired to the receiver this will delete all transmitters.

12.1 Pairing Multiple Transmitters

The delivery settings allow the receiver to learn 1 transmitter (see Figure 9). For the position of the jumper in the receiver see ⑧ in Figure 1.

Figure 9. Jumper in place for one transmitter, default

Figure 10. Jumper in multiple transmitter mode, J2

However, the system is capable of using up to 3 transmitters. To enable this function, power off the receiver and place the jumper in the J2 (right) position (see Figure 10).

- For safety reasons the receiver is inactive for five seconds when switching between two transmitters.
- See chapter 12 for pairing instructions.

13 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/s and receiver must be paired before output configuration can be done, see chapter 12.

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

To configure the receiver outputs do the following:

1. Power off the receiver.
2. Disconnect the Output Power Input terminal, see figure 3.
3. Place the jumper in the J1(left) position 
   (for position see ⑧ in Figure 1).
4. Press and hold the “Learn/Erase” button (see Figure 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 Figure 1).
6. Release the button. The Output LEDs will now display the current toggle configuration. LED 7 (see ⑦ in Figure 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.
9. Power off the receiver.
10. Reinstall the Jumper in its previous setting.
11. Start the receiver.

14 Receiver Drill Measures

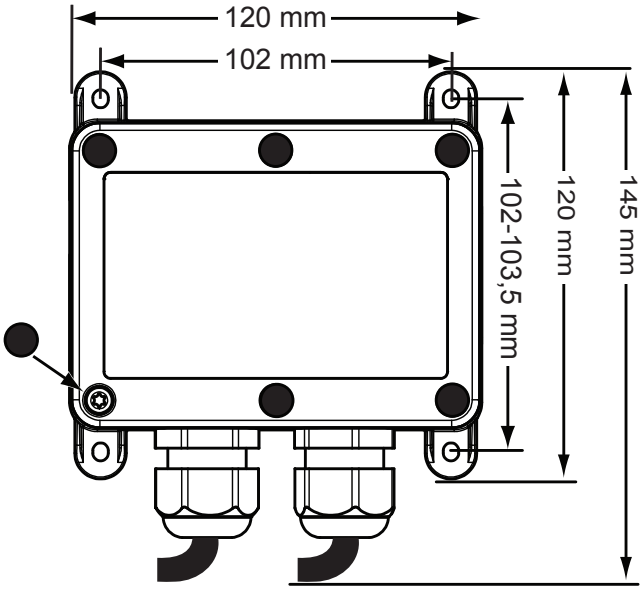


Figure 11. Receiver drill measure

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

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