ÅKERSTRÖMS

OPERATING MANUAL

SESAM 800 K3, RX DIN USA

946415-000-A0

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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

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! **WARNING:**
CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY ÅKERSTRÖMS BJÖRBO CORPORATION COULD VOID THE USER`S AUTHORITY TO OPERATE THE EQUIPMENT.

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2.1 Safety Considerations

1. The safety guidelines in this manual are not intended to replace any rules or regulations or any applicable local, state, or federal governing laws. The following information is intended to be used in conjunction with other rules or regulations already in existence. It is important to read all safety information before operating any wireless radio remote control system.

2. Only properly trained persons designated by management should be permitted to operate wireless radio controlled equipment. Wireless radio controlled equipment should not be operated by any person who cannot read or understand signs, notices and operating instructions that pertain to the equipment.

3. Wireless radio controlled equipment should not be operated by any person with insufficient eyesight or hearing or by any person who may be suffering from a disorder or illness or is taking any medication that may impair judgment or the ability to operate equipment.

4. Ensure transmitter batteries are in good condition and power for receiver is correct. Installation and maintenance should be done only while the controlled equipment main power and receiver's power are off and locked out to prevent electrical shock.

5. Any person operating wireless radio controlled equipment should possess the following knowledge and/or skills:

• Knowledge of hazards particular to the equipment being operated

• Knowledge of safety rules for radio controlled equipment

• Knowledge of the radio transmitter

• Proper clearance of all moving parts on the radio controlled equipment

• Proper storage space for radio control transmitter when not in use

• Transferring radio control transmitter to another person

• Reporting unsafe or unusual operating conditions

• Remote controlled equipment capacity and limitations

• Procedures for testing controlled equipment

6. The Sesam remote control system is recommended for the remote operation of door opening equipment only. This unit is not intended for use on material handling, people moving or any other critical application.

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7. Radio controlled operators should always position themselves for the best view of the equipment they are controlling. The equipment should never be operated blindly. The operator should always remain at a safe distance, without losing line of sight with the equipment.

8. Transmitter switches should never be mechanically blocked ON or OFF for any equipment motion.

9. After daily operation, a secure storage space should be designated for the transmitter unit especially when not in use. This precaution is intended to prevent unauthorized use of the equipment.

10. The equipment operator should keep all body parts away from the door they are controlling. Do not attempt to operate the system without checking door for obstructions.

WARNING:

SECURE THE WIRELESS REMOTE CONTROL TRANSMITTER PRIOR TO PERFORMING ANY MAINTENANCE.

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11. The equipment has been tested for correct operation before delivery from the factory. However, it must not be used in critical or hazardous operation where incorrect operation may cause personal or equipment damage. If the equipment fails to respond or behaves improperly, the equipment operator should NOT operate the equipment AND should notify his/her supervisor immediately. When serious conditions are noticed (conditions that make the equipment unsafe to operate), the equipment should be shut down immediately and the supervisor notified.

CAUTION:

**THE RECEIVER UNIT OR RELAYS ARE NOT RATED AS EXPLOSION PROOF.
THE RECEIVER UNIT MUST NOT BE INSTALLED OR OPERATED IN EXPLOSIVE ENVIRONMENTS UNLESS APPROPRIATE SECONDARY ENCLOSURE MEASURES ARE TAKEN.**

WARNING:

THE UNIT MUST BE WIRED TO THE CORRECT VOLTAGE; FAILURE TO DO SO MAY DAMAGE THE SYSTEM.

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2.2   Warnings

1. Read this manual carefully before operating and installing this product.

2. Due to the complex nature of equipment, it is necessary to read the entire manual before installation.

3. Only authorized personnel should service this equipment. Unauthorized work on this unit will void the warranty.

4. This manual is for reference only; please call your distributor or Åkerströms Björbo if further assistance is required.

5. The equipment has been tested for correct operation before delivery from the factory. However, it must not be used in critical or hazardous operation where incorrect operation may cause personal or equipment damage.

6. After daily operation, a secure storage space should be designated for the transmitter unit especially when not in use.

7. Transmitter should be placed in a safe place when not in use to avoid accidental pressing of buttons.

8. The equipment should be equipped with all required safety devices as dictated by CMAA, OSHA, or all other applicable governing regulations.

9. Ensure transmitter batteries are in good condition and power for receiver is correct.

10. Installation and maintenance should be done only while the crane/machine's main power and receiver's power are off and locked out to prevent electrical shock.

11. Contents of the manual may be amended by the manufacturer without notice.

3 Technical specifications

Table 1.   Technical Specifications, Sesam 800 K3 & RX DIN

System Specifications	
Operating frequency:	926.5 MHz
Channel separation:	25 kHz
Power output:	< 2 mW
Functional sensitivity:	<= -107 dBm BER 10-4
Transmission principle:	GMSK, TDMA
Operating Temperature:	-25°C - +55°C
Storage Temperature:	-40°C - +85°C
Specifications RX DIN:	
Power Supply:	12-24V AC/DC
Max switching capacity of relays:	2A/250VAC with cosφ=1
Relay- type	SPDT
Fuse on current loop:	2,5AT/250VAC (IEC 60127-2/V)
Dimensions:	92 x72,5 x 30 mm
Weight:	84g
Specifications K3:	
IP- class:	IP65
Dimensions:	67 x 44 x 13 mm
Weight:	30g
Battery type:	2* CR 2025 Lithium cells
Screw Size:	PH00

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4 Description of the system

4.1 Receiver

This document covers receiver model Sesam 800 RX DIN

- 3 Single Pole Double Throw relays.
- Memory capacity: up to 100 transmitters.
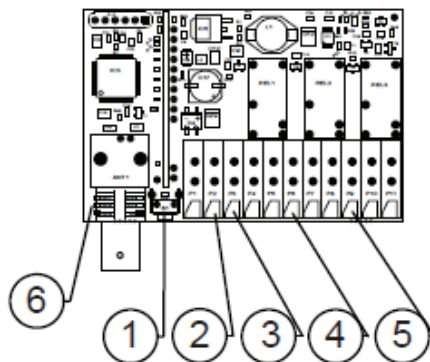- Designed for DIN rail

4.2 Transmitter

This document covers transmitter model Sesam 800 Keyring K3:

- Miniature 3 button transmitter.
- Suitable for controlling 3 non-response time critical functions.

5 Description of Sesam 800 RX DIN receiver

Figure 1. *Sesam 800 RX DIN model connections and buttons*
1. Learn/Erase button
2. Power connection,
3. Connection to relay 1
4. Connection to relay 2
5. Connection to relay 3
6. LED 5 Squelch
  LED 6 Status
  LED 7 Learn

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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 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.

SESAM RX DIN is to be mounted on a DIN rail. On the back there is a recess that the rail fits in (see 1 in fig. 2). When the recess is pressed against the rail the snap fit (see 2 in fig. 2) will lock the receiver to the rail automatically. Make sure it really snap securely. To remove, withdraw the snap fit and lift the receiver off the rail.
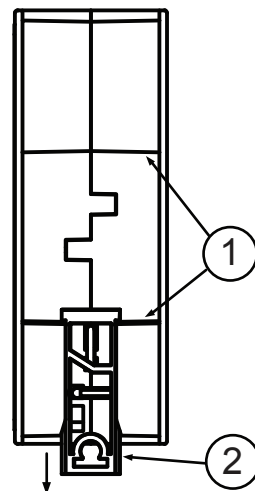
Figure 2.   DIN receiver, the lock for the rail.

6.2   Antenna connector

The antenna connector on the receiver may not be used and are therefor blocked.

6.3   Connections on the receiver

The receiver is equipped with connections for relays and power (see fig. 1).

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

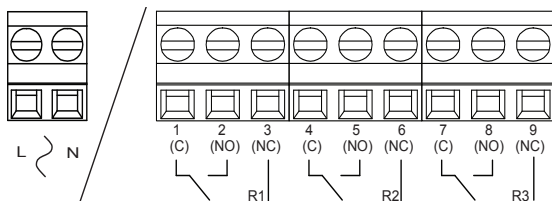•   Normally opened (NO)

•   Normally closed (NC)

Figure 3.   Power connection and Relay connection

Connection example:

•   R1 = UP

•   R2 = STOP

•   R3= DOWN

7 Indicators on the receiver

The Sesam 800 RX DIN model has three LED indicators that is displaying system information (see fig. 1 for positions of the LEDs).

The indications on the LEDs are as follows:

1. LED 5 Squelch: Indicates a detected signal on the operating frequency band.

2. LED 6 Status: Indicates that information from a transmitter associated with the receiver has been received.

3. LED 7 Learn: Indicates if the transmitter is in Learn Mode.

8 Configuration of the receiver

8.1 Basic configuration

1. Open the lid on the receiver. Open the lid of the receiver by pressing the snap fits on the sides with a screwdriver or similar and pull apart the cover.

2. Press the Learn/Erase button until LED 7 is ON. The Learn Mode will be active for 10 seconds (as long as LED 7 is ON).

   a. Transmitters Keyring K3: Press button 1 on the transmitter if buttons 1-3 shall be used for activating the relays in the receiver

3. LED 7 on the receiver flashes 3 times if the Learn procedure is successful.

4. Mount the receiver cover by match top and bottom together and press, the snap fits on the sides locks.

8.2   Advanced configuration

This configuration allows the user to determine which button activates a specific relay.

1.   Open the lid on the receiver, see basic configuration.

2.   Press the Learn/Erase button until LED 7 is ON. The Learn Mode will be active for 10 seconds.

   a.   Press the Learn/Erase button once in order to select relay one (the status LED will flash once).

   b.   Press the Learn/Erase button twice in order to activate relay two (the status LED will flash twice).

   c.   Press the Learn/Erase button three times in order to activate relay three (the status LED will flash three times).

3.   Press the button that shall be used for activating the selected relay in the receiver. If the configuration is accepted by the receiver, LED 7 flashes 3 times.

4.   Mount the lid on the receiver, see basic configuration.

8.3   Erasing all transmitters in the receiver

1.   Open the lid on the receiver.

2.   Press the Learn/Erase button until LED 7 is ON. The Learn Mode will be active for 10 seconds.

3.   Press the Learn/Erase button for 5 seconds (until LED 7 is OFF). All transmitters are now erased from the receiver memory.

4.   Mount the lid on the receiver.

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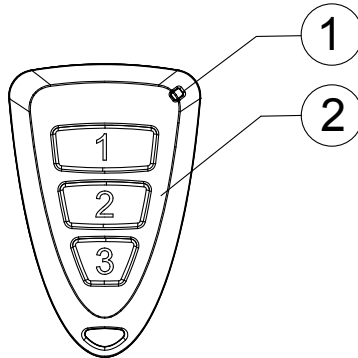# 9 Description of Sesam 800 K3 transmitter

Figure 4.   The Sesam 800 K3 transmitter indicators and buttons
1. Status LED
2. Buttons 1..3

9.1 Indications on the transmitter

Normal operation

Quick flashing RED = Sending message.

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

Fault indications

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

Continuous RED after activating command = Low battery.

Very quick flashing RED = Hardware error.

After battery insertion:

Yellow LED ON for 1 second followed by one GREEN flash.

10 Replacing batteries in the transmitter

10.1 Replacing batteries in Sesam K3

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 3 screws on the backside of the transmitter housing (see fig. 5).

2. Carefully remove the cover.

3. Remove the batteries.

4. Insert the new batteries (see fig. 6 and 7).

5. Close the cover.
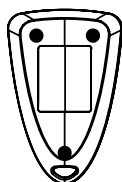
6. Tighten the 3 screws with PH00 (torque 0,14 Nm).
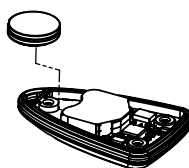
Figure 5.   *Battery cover*

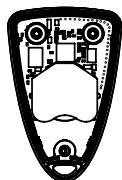*Figure 6.*   *Insert the batteries in the transmitter*

Figure 7.   *Batteries in its correct position*

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11 Error codes, Sesam 800 RX DIN

Any of the below error states is displayed with ten quick flashes on the Status LED (LED 6) regardless of fault.

ID already programmed
Memory full
Memory card mismatch during power up
Memory card write error. Maybe memory card has been removed during operation.
Memory card copy to verify error
Internal errors. The unit needs service
Line power unstable

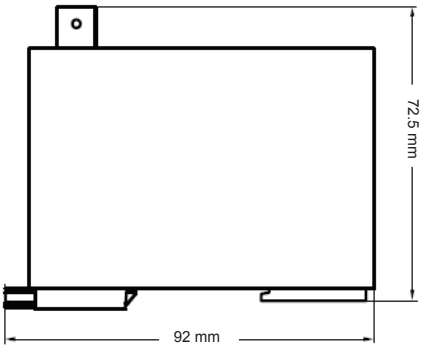*Table 2.   Error codes Sesam 800 RX DIN*

12 Measure for Sesam 800 RX DIN

Figure 8.   The RX DIN receiver measure.

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