



SESAM 800 RXD

RANGE EXTENDER

Revision History

Version	Date	Reason
A0	2019-05-29	First realeased version
B0	2019-08-30	Range Extender instead of Repeater
B1	2026-04-01	New manual layout and updated address

List of figures

Figure 1.	S800 RXD Range Extender display and buttons	5
Figure 2.	S800 RXD Range Extender indicators, connections and jumper	5
Figure 3.	Drilling measure	6
Figure 4.	Power connection	7
Figure 5.	Operating mode selection with jumper J1	7
Figure 6.	Memory card and display slots in the Range Extender	13

List of tables

Table 1.	Technical Specifications, Sesam 800 RXD Range Extender	4
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Table of Contents

1	Overview	4
2	Technical Specifications	4
3	Description of the Range Extender	5
4	Installation of the Range Extender	6
4.1	Placement of the Range Extender	6
4.2	Antenna Placement	7
4.3	Power Connection	7
4.4	Operating modes	7
5	Learn transmitter/s to the Range Extender	8
5.1	Erasing Transmitters in the Range Extender	8
5.2	Re- configuring a Transmitter in the Range Extender	9
6	PIN Protection	10
6.1	To configure the PIN-lock do the following:	10
6.2	To unlock the Range Extender do the following:	10
6.3	To change/delete Range Extender PIN do the following:	11
7	Memory Card (MC)	12
7.1	Copying Information from a Memory Card to a New Range Extender	12
7.2	Copying Information from a Range Extender to a Memory Card	13
8	Display	14

1 Overview

The Sesam 800 Range Extender is compatible with all Sesam 800 industrial transmitters and receivers. The Range Extender can easily be added to an existing system. No additional configuration of the transmitter and receiver is necessary.

The Range Extender works on the same frequency as the transmitter and the receiver. The Range Extender only adds a short delay to the transmission, typically 30ms. The Range Extender will not forward packets coming from other Range Extenders.

The Sesam 800 RXD Range Extender have the potential to double the operating range of the Sesam 800 system.

! It is only possible to use one Range Extender per link. (i.e. no daisy-chaining).

! Note! The Range Extender is not compatible with Sesam 800 Mobile products.

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

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

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.

2 Technical Specifications

Operating frequency:	869,8 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
IP- class:	IP65
Power Supply:	230 V AC 50 Hz 15 mA, max 4A fuse
Fuse on current loop:	2,5AT/250 V AC (IEC 60127-2/V)
Dimensions:	135 x120 x 50 mm
Weight:	450g
Screw size	TX20

Table 1. Technical Specifications, Sesam 800 RXD Range Extender

3 Description of the Range Extender

Sesam 800 RXD Range Extender:

- Integrated display and configuration buttons.
- Memory capacity: up to 500 transmitters.
- The Range Extender can be equipped with a detachable memory card containing a backup of all configuration parameters.

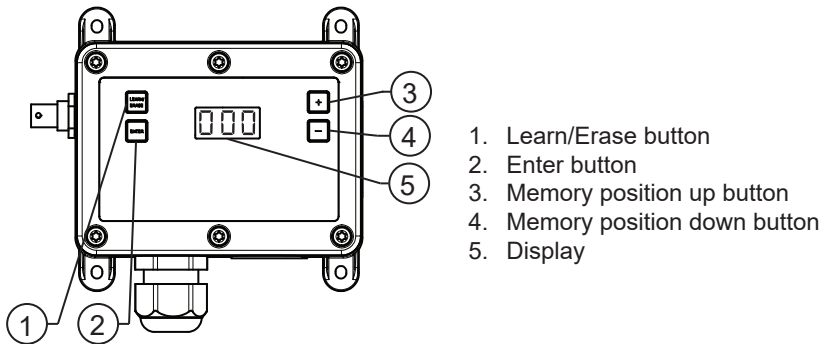


Figure 1. S800 RXD Range Extender display and buttons

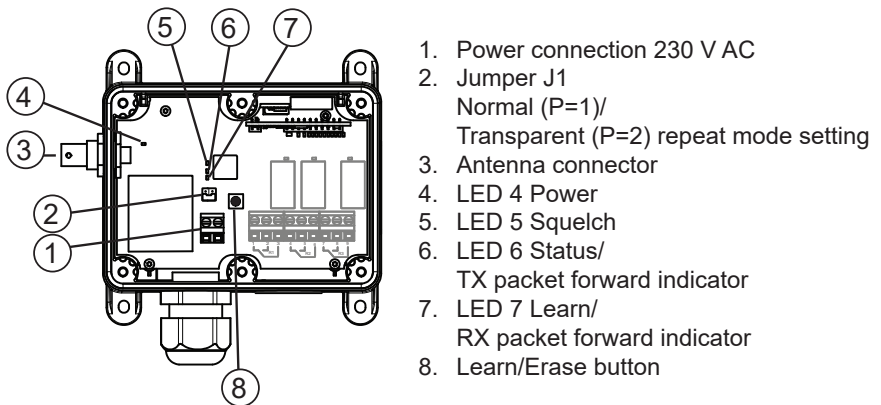


Figure 2. S800 RXD Range Extender indicators, connections and jumper

4 Installation of the Range Extender

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 Range Extender; therefore only certified electricians are allowed to open the lid.

4.1 Placement of the Range Extender

The Range Extender should optimally be placed half way between the transmitter and receiver when the receiver and the transmitter are furthest apart.

Think of the antenna's size and influence of any metal objects when choosing placement. If possible, mount the Range Extender with the cable glands facing downwards.

The Range Extender is preferably screwed with four TX20/4 mm screws suitable for the surface.

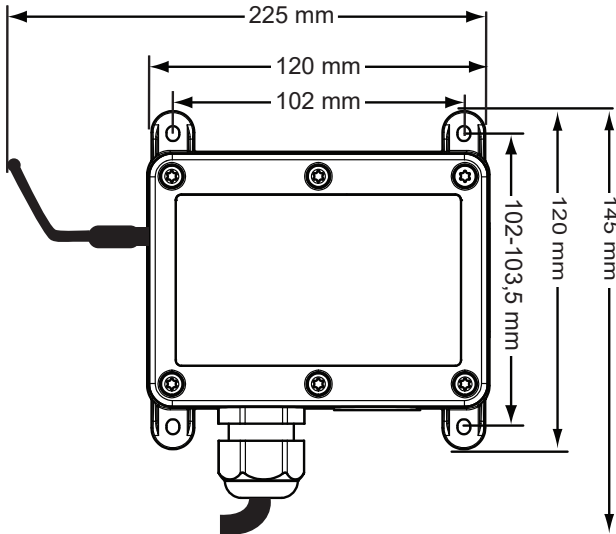


Figure 3. Drilling measure

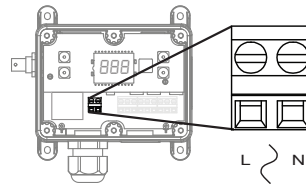
4.2 Antenna Placement

Attach the supplied antenna to the antenna connector on the Range Extender. Note that the antenna must not be placed near metal objects such as wiring, tin roof, etc. If an antenna cable is needed, contact Åkerströms Björbo AB.

4.3 Power Connection

Only certified electricians are allowed to open the lid.

1. Unscrew the 6 screws holding the Range Extender lid.
2. Connect the power connection.
3. Mount the lid and tighten all screws with TX20, torque 2.0 Nm.



Line (L), Neutral (N)

Figure 4. Power connection

4.4 Operating modes

The Range Extender has two operating modes:

- Normal mode (P1, default) - Repeat Sesam 800 transmitter radio packets with previously learned ID's only. Jumper J1 removed. This mode is recommended to minimize the use of the Sesam 800 frequency.
- Transparent mode (P2) - Repeat all Sesam 800 transmitter radio packets. Jumper J1 fitted

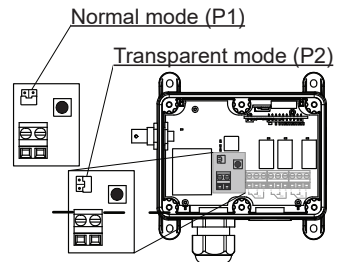


Figure 5. Operating mode selection with jumper J1

Change operating mode:

1. Power off the Range Extender.
2. Unscrew the 6 screws holding the Range Extender lid.
3. Carefully remove the display board.
4. Change jumper J1 to desired position P1 or P2 (see Figure 5).
5. Mount the lid and tighten all screws with TX20, torque 2.0 Nm.
6. For position P1, learn transmitters to the Range Extender, see chapter 5.

5 Learn transmitter/s to the Range Extender

If Jumper J1 is set to P1 position (recommended), the Range Extender must learn the id of all transmitters in the system. Learn the transmitter/s the same way as for the receiver. Follow the steps below:

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).
 - a. Transmitters Keyring K3 and Small S3:
Press button 1 on the transmitter if buttons 1-3 is used for activating the relays in the receiver.
 - b. Transmitter Small S6 and Medium M6:
Press button 1 on the transmitter if button 1-3 is used for activating the relays in the receiver.
Press button 4 on the transmitter if button 4-6 is used for activating the relays in the receiver.
 - c. Transmitter Large L15:
Press the button on the transmitter that is used for activating relay 1 in the receiver.
2. The display shows “A L L” if the learn process is successful and the Range Extender will return to normal operating mode automatically.

5.1 Erasing Transmitters in the Range Extender

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.
4. 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 and hold the Learn/Erase button for 5 seconds to erase all memory positions.
3. The display will show “DEL” “ALL” and return to normal operation.

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

5.2 Re- configuring a Transmitter in the Range Extender

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

Erase the original memory position before proceeding with the configuration.

6 PIN Protection

The Range Extender can be protected from unauthorized configuration by a 4-digit PIN code.

When a PIN-code is configured, all buttons on the Range Extender are locked except the button used to enter the code (Enter button).

6.1 To configure the PIN-lock do the following:

1. Power on the Range Extender.
2. Press the Enter button and hold it down for 5 seconds. The display should now show 'Pin new' followed by '___'. If the user is inactive for more than 10 seconds in the PIN configuration mode the Range Extender will return to normal operations.
3. Enter the first digit of the code by using the '+' and '-' buttons. Press the 'Enter' button when finished.
4. Repeat the above step for digit 2-4.
5. When all 4 digits are entered the display will show 'rpt' (repeat). The code must be repeated to be accepted. Enter the code once more.
6. If the code is entered successfully the display will show 'Stn' (stored).
7. The Range Extender will automatically be locked after 10 seconds of button inactivity. The display will show 'LOC' when the Range Extender switches to locked mode.

6.2 To unlock the Range Extender do the following:

1. Press the Enter button and hold it down for 5 seconds. The display should now show 'Pin' followed by '___'. If the user is inactive for more than 10 seconds in the PIN configuration mode the Range Extender will return to normal operations.
2. Enter the first digit of the code by using the '+' and '-' buttons. Press the 'Enter' button when finished.
3. Repeat the above step for digit 2-4.
4. When all 4 digits are entered correctly the display will show 'PAS' (passed) and the buttons on the Range Extender will be unlocked for 60 seconds. If the PIN is incorrect the display will show 'Err'.
5. The Range Extender will automatically be locked after 60 seconds of button inactivity. The Range Extender can also be manually locked by pressing the Enter button for 5 seconds. The display will show 'LOC' when the Range Extender switches to locked mode.

6.3 To change/delete Range Extender PIN do the following:

The PIN can only be changed by unlocking the Range Extender and making a “delete all” erasing all configurations on the Range Extender.

7 Memory Card (MC)

The Range Extender can be fitted with an optional Sesam 800 memory card. This card will save a backup of the Range Extender configuration.

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

7.1 Copying Information from a Memory Card to a New Range Extender

1. Power off the Range Extender.
2. Unscrew the 6 screws holding the Range Extender lid.
3. Carefully remove the display board.
4. Insert the memory card that you want to copy in the memory card slot in the Range Extender (see Figure 6).
5. Mount the display card in the display card slot (see Figure 6).
6. Start the Range Extender.

The display will show “CP” when the copy operation is completed.

Note that the memory in the Range Extender has to be empty before copying the memory card to the Range Extender (see section 5.1 for information on how to delete the memory).

7. If the memory card shall be used as a backup, remove it; store it in a clean environment free from static electricity. If not, mount the lid and tighten all screws with TX20, torque 2.0 Nm.

7.2 Copying Information from a Range Extender to a Memory Card

Note that the memory card has to be empty before copying the Range Extender memory to the card. To remove information from a memory card, insert the card in a new Range Extender and erase all transmitters (see section 5.1).

1. Power off the Range Extender.
2. Unscrew the 6 screws holding the Range Extender lid and remove the lid.
3. Carefully remove the display board.
4. Insert the memory card that you want to copy all parameters to in the memory card slot (see Figure 6).
5. Mount the display board in the display board slot (see Figure 6).
6. Start the Range Extender and wait for approximately 5 seconds.

The display will show “CPY” “to” “CRD” when the copy operation is completed.

7. If the memory card shall be stored; store it in a clean environment free from static electricity. Remove the display board and the memory card.
8. Mount the display board and the lid. Tighten all screws with TX20, torque 2.0 Nm.

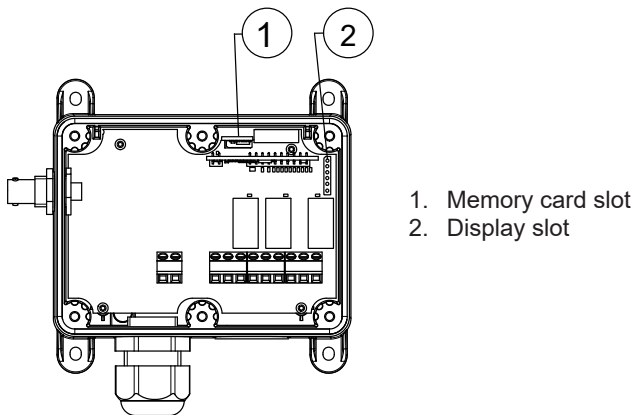


Figure 6. Memory card and display slots in the Range Extender

8 Display

The display is used to show the status of the Range Extender operation.

When powering up the Range Extender the display will show the following:

- rPt – Short for Range Extender
- l.0 – Version information
- P=1 – Range Extender operating mode.
- or P=1 – Repeat only configured Sesam 800 transmitters,
- P=2 P=2 – Repeat all Sesam 800 transmitters (transparent repeat mode).
This mode can be configured by using jumper J1.

During normal idle operation the display will show:

When a transmission is repeated the display will show:

- rPt – Start of repeated packet transmission
- 001/ALL – Memory position of transmitter,
or “ALL” when in transparent mode
- 5,6,7...n – Packet count of repeated transmission.
The Range Extender will send approximately 4 radio packets/second.
- End – End of repeated transmission /transmitter button released.

If a packet is repeated back to the transmitter the display will show a decimal point.



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