

Saab TransponderTech

R4 Display SW Update Instruction



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Saab TransponderTech AB, SWEDEN

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iii Manual Part Number and Revision

Part number 7000 108-048, revision E

iv Questions and Support

Contact Saab TransponderTech Support:

support@transpondertech.se , ph +46 13 189420.

CONTENTS

- 1 GENERAL 1
- 2 BEFORE THE UPGRADE 1
- 3 PROGRAMMING THE R4 DISPLAY UNIT 1
 - 3.1 Equipment Needed 1
 - 3.2 Electrical Connection 1
 - 3.2.1 Using the Recommended Equipment 2
 - 3.2.2 Using a Custom RS422 Port 2
 - 3.3 Installation of the R4 Display Update Software 3
 - 3.4 Programming the R4 Display 3
- 4 AFTER THE UPGRADE 7
- 5 TROUBLESHOOTING 7
 - 5.1 R4 Display Download Does Not Indicate Start of Download 7
 - 5.2 R4 Display Download Halts While Downloading Software 7
 - 5.3 The Yellow LED is Not Lit Up at Power On 7
 - 5.4 The Red LED is Lit at the End of the Programming Sequence 7
- APPENDIX A - USB TO RS422 I/O ADAPTER ORDERING INFO 8

1 GENERAL

The R4 Display unit can be programmed / updated through its serial interface. This is an instruction describing the process of programming / upgrading the R4 Display software.

2 BEFORE THE UPGRADE

It must be expected that all system settings stored in the display may be erased and replaced with default values following the upgrade. Thus, if the display to be upgraded is configured for a particular installation, all system settings must be recorded before the unit is programmed.

3 PROGRAMMING THE R4 DISPLAY UNIT

To program the R4 Display the following steps are required:

1. Set up a serial RS422 connection between a PC and the R4 Display
2. Install the software load program and software modules
3. Update the R4 Display software using the software load program

3.1 Equipment Needed

In this document it is assumed that the following equipment is available:

- A PC
- An R4 Display unit
- Power supply for the R4 Display (power cable and 24V power source)
- Display SW update package separately supplied by Saab TransponderTech AB
- An RS422 interface

For a seamless installation it is recommended that the following equipment be used:

- A PC with a USB port
- R4 Display SW Update Cable (7000 100-181), ordered separately from Saab TransponderTech AB
- USB to RS422 I/O Adapter (7000 000-181) including CD and installation guide, ordered separately from one of the suppliers listed in Appendix A or from Saab TransponderTech AB (see Installation Manual for contact details)

3.2 Electrical Connection

There are two options when it comes to setting up the serial connection: using the recommended equipment (USB to RS422 I/O Adapter and R4 Display SW Update Cable) or using a custom RS422 port (e.g. PCI-card or RS232-RS422 adapter). Depending on the equipment configuration the serial connection should be set up as described in the following chapters.

3.2.1 Using the Recommended Equipment

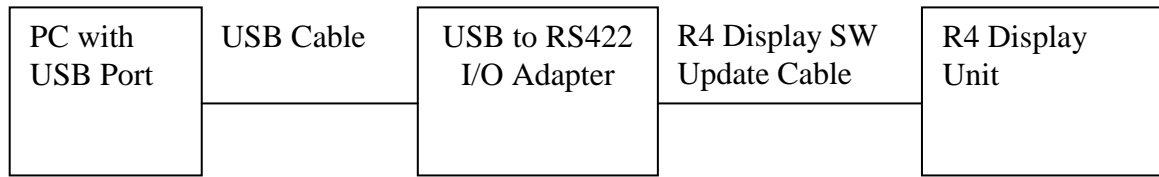


Figure 1 Serial Connection Using USB-RS422 Adapter

The R4 Display unit can be programmed through the USB to RS422 I/O Adapter and the R4 Display SW Update Cable as seen in Figure 1. To connect the R4 Display to a PC with the recommended adapter, follow these steps:

1. Install the USB to RS422 I/O Adapter according to its installation guide
2. Make sure that the adapter is properly installed and connected to the USB port of the PC
3. Connect the R4 Display SW Update Cable to the USB to RS422 I/O Adapter and to the R4 Display
4. Make sure that the R4 Display unit is connected to a 24V power source

3.2.2 Using a Custom RS422 Port

The R4 Display is programmed through a serial port normally called “R4 Transponder”. In a R4 Navigation System the port is called “User Port 3”. See the Installation Manual for details of the port. If a custom RS422 port is used, the pins of that port can be connected either to the R4 Display SW Update Cable (9-pin DSUB connector) or directly to the R4 Display (18-pin Maxi-Con-X connector) to set up a serial connection, see Table 1 for wiring details.

	R4 Display Data Connector, Maxi-Con-X 18-pole	R4 Display SW Update Cable Connector, DSUB 9-pole	Custom RS422 Adapter
Function	Pin nr.	Pin nr.	Connect To Function
Rx- (A)	8	1	Tx- (A)
Rx+ (B)	7	2	Tx+ (B)
Tx+ (B)	1	3	Rx+ (B)
Tx- (A)	3	4	Rx- (A)
Shield	12	5	Shield

Table 1 Pin-Assignment of Display and Update Cable for Custom RS422 Adapter Connection

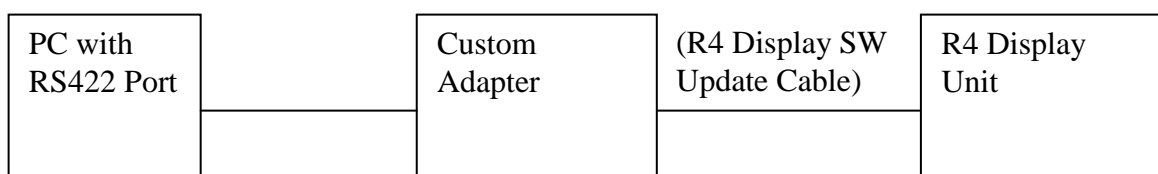


Figure 2 Serial Connection Using a Custom RS422 Port

To connect the R4 Display to a PC with a custom RS422 port (Figure 2), follow these steps:

1. Make sure that the RS422 interface is properly installed and that it is configurable for 115200bps, 8 data bits, 1 stop bit, no parity and no flow control
2. If the update cable is to be used, make sure that it is connected to the R4 Display
3. Connect the pins of the R4 Display Maxi-Con-X / Update Cable DSUB connector to the correct pins of the custom RS422 port, see Table 1
4. Make sure that the R4 Display unit is connected to a 24V power source

3.3 Installation of the R4 Display Update Software

- Create a new folder on your hard drive
- Copy all display sw files provided by Saab TransponderTech AB to the newly created folder
- Determine the COM port used by the USB to RS422 I/O Adapter (check adapter installation guide)

3.4 Programming the R4 Display

To update the software in the R4 Display follow these steps:

1. Make sure that the serial connection is properly set up in accordance with previous chapters.
2. Connect power to the R4 Display unit.

NOTE: MAKE SURE THAT THE DISPLAY IS CONNECTED TO A STABLE POWER SUPPLY DURING THE COMPLETE UPDATE PHASE

3. Start the program “R4DisplayDownloadX.Y.exe” on your PC.

4. In the list box in the first view (Figure 3) select the COM port number assigned to the USB to RS422 I/O Adapter.

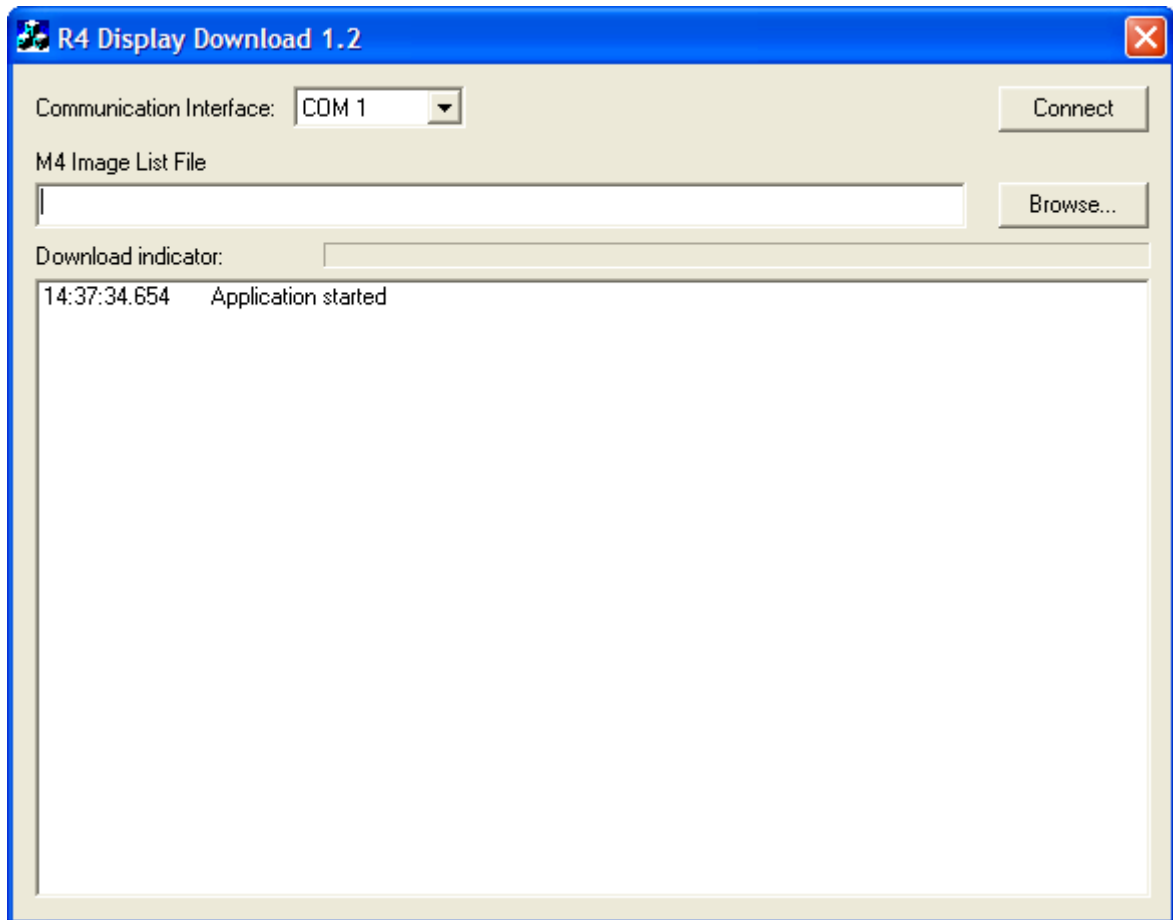


Figure 3 R4 Display Download View

5. Press the *Browse* button (Figure 4) and open the M4 image list file located in the folder that was created in chapter 3.3 of this instruction.

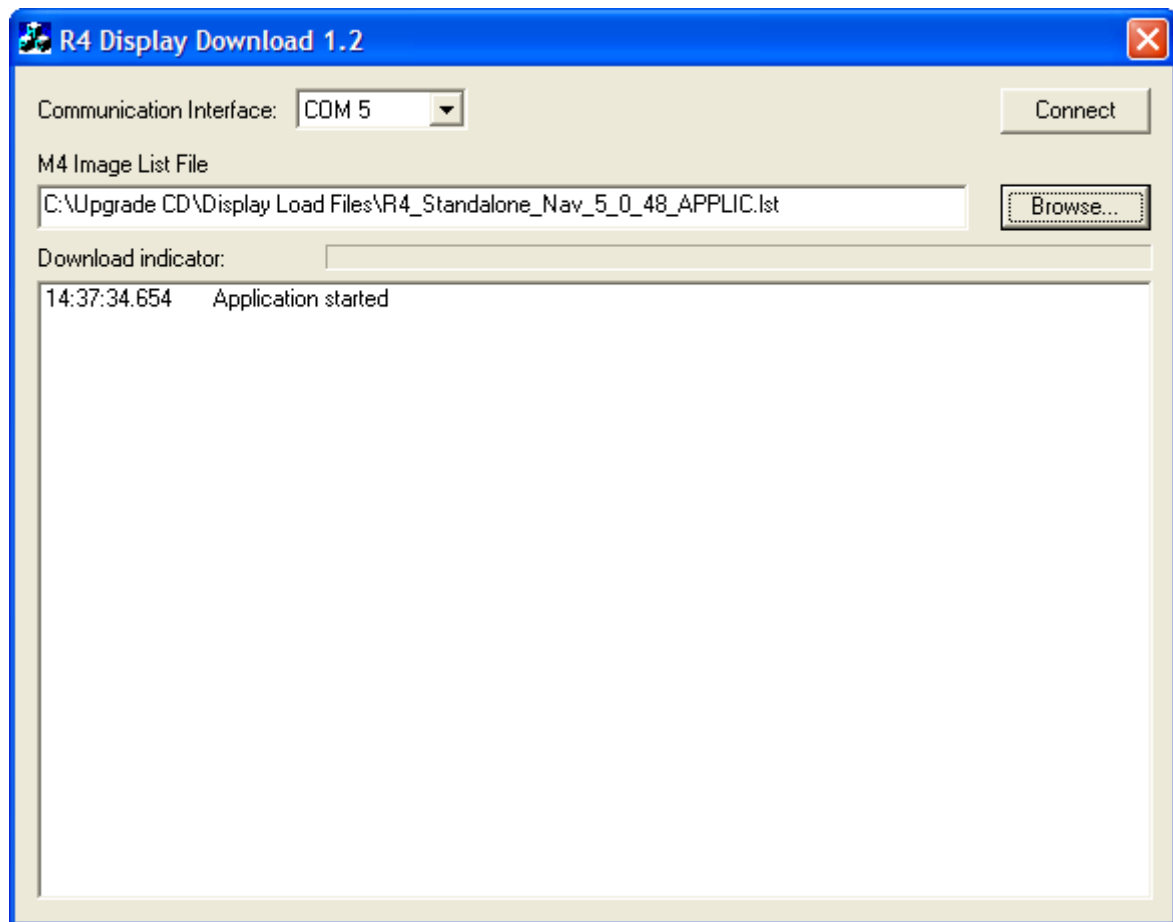


Figure 4 R4 Display Download with Selected Image List File

6. Click the *Connect* button to start the software update.
7. Follow the instructions presented in the list view and in pop-ups. The software update consists of the loading of a number of software modules and for each module a number of operations has to be performed (steps 8-11). The numbers of software modules installed could vary depending on the installation.
8. Press and hold the “4” button on the display unit and simultaneously press the power button to turn on the R4 Display. The yellow LED on the R4 Display should light up and R4 Display Download will start downloading the current software module. The download progress is shown in the “Download indicator” progress bar.

NOTE: IT IS IMPORTANT NOT TO INTERRUPT THE DOWNLOAD PROCESS BY EITHER DISCONNECTING THE POWER OR REMOVING THE COMMUNICATION CABLE

9. When R4 Display Download indicates that the download is finished, the R4 Display will proceed to write the downloaded image to flash memory. The yellow LED will continue flashing.

DO NOT SWITCH OFF THE DISPLAY UNIT WHILE THE YELLOW LED IS FLASHING

10. When the module has been written to flash, the green LED will light up to indicate success. If the red LED lights up, see part 3 “Troubleshooting” in this instruction.
11. When the green light turns on, switch off the display unit by pressing and holding the power button for 3 seconds. Also see the information presented in the R4 Display Download listing view and pop-up windows. If there are more software modules to install, return to step number 8.
12. When the software loading is complete R4 Display Download will ask the user to turn on the R4 Display and verify that the correct software versions have been loaded (Figure 5). It should be noted that the first boot-up after software update could take some time (up to 2 minutes). When the versions have been verified the software update is complete.

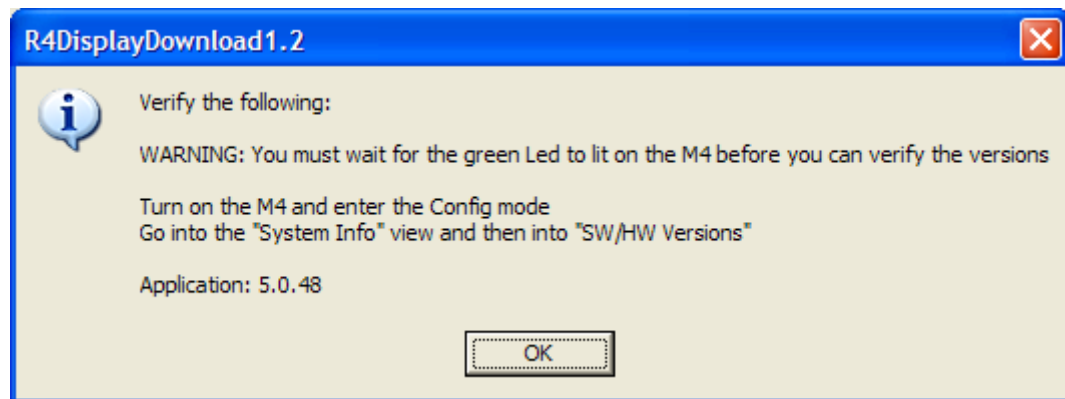


Figure 5 R4 Display Download Pop-Up Window Showing How To Verify Software Version

13. When the software has been successfully downloaded, disconnect the software update cables.

4 AFTER THE UPGRADE

If necessary, reinstall the configuration parameters and settings noted before the unit was programmed in accordance with section 2 above. Refer to the installation manual for the system in question for details if necessary.

5 TROUBLESHOOTING

5.1 R4 Display Download Does Not Indicate Start of Download

- Button “4” was not pressed at power-up; the yellow LED is not lit
- If button “5” is pressed during power-up, the yellow LED will be lit, but download will not work
- Wrong COM port is used in the software load program, consult the installation guide for USB to RS422 I/O Adapter
- Some other program is blocking the COM port, close active programs
- USB to RS422 I/O Adapter (if used) or custom RS422 port is not properly installed, check the installation guide
- The RS422 connection is not set up properly, refer to part 3.2
- R4 Display SW Update Cable or custom adapter is not correctly assembled, refer to part 3.2

5.2 R4 Display Download Halts While Downloading Software

- Close the software download program and restart the software download, see chapter 3.4

5.3 The Yellow LED is Not Lit Up at Power On

- Button “4” was not pressed hard enough at start-up
- There is no power applied to the R4 Display

5.4 The Red LED is Lit at the End of the Programming Sequence

- The RS422 serial connection is not properly set up, see part 3.2

APPENDIX A - USB TO RS422 I/O ADAPTER ORDERING INFO

The USB to RS422 I/O Adapter (7000 000-181), or “USB-COMi USB to RS422/RS485 Adapter”, can be ordered from the locations listed below. The adapter can also be supplied by Saab TransponderTech AB (for contact details see www.transpondertech.se).

Note: Make sure that the adapter ordered is the USB to RS422/RS485 Adapter (COMi) and not the USB to RS232 Adapter (COM).

Asia

<http://esysmall.com>

<http://www.dawoonet.co.kr>

Australia

<http://www.dontronics.com>

<http://www.technman.com>

Europe

<http://www.easysync.co.uk>

USA

<http://www.saelig.com>