TMAA01-02 RS-232 Board Installation Instructions

Introduction

The TMAA01–02 RS–232 board fits inside the radio in the options cavity and is connected to the main PCB by the internal options connector and loom.

The RS–232 signals are then made available on the 9-way D-range connector mounted on the RS–232 board. This connector fits through the external options connector hole provided in the radio chassis.

Important: The radio does not meet the IP54 protection standard once an RS–232 board has been installed unless the external options cover seal is installed.

Important: To comply with EN 301 489-5, all cables connected to the external options connector must be less than three metres (10 feet) in length.

D-range hood parts

D-range plug

RS-232 board
internal options connector

external options connector

Installation parts

external options cover seal

internal options loom

Installation Warning

Important: This equipment contains devices that are susceptible to static charges. The procedures outlined in this installation guide should therefore be carried out in a static–safe environment. You can obtain information on antistatic precautions and the dangers of electrostatic discharge (ESD) from standards such as ESD S4.1–1997 (revised) or BS EN 100015-4 1994. The Electrostatic Discharge Association website is http://www.esda.org/.

Operation

The TMAA01–02 RS–232 board provides a suitable interface to external devices requiring full RS–232 level compatibility. As well as supporting transmit and receive data lines, the board also supports RTS and CTS hardware flow control lines.
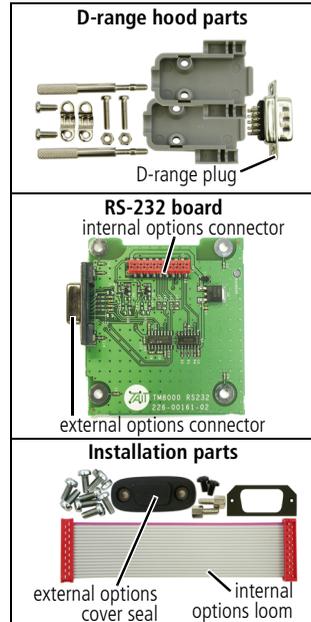
External options connector (SK2)—pins and signals

Pin	Description	Direction
2	serial transmit data	output from the radio
3	serial receive data	input to the radio
5	data ground	—
7	RTS using IOP_GPIO3	input to the radio
8	CTS using IOP_GPIO1	output from the radio
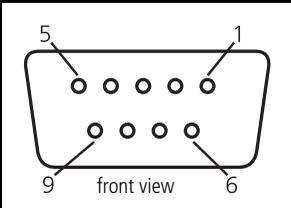
(diagram: 5 1 / front view / 9 6)

Hardware Flow Control

Although the serial transmit and receive lines are dedicated connections on the internal options connector, the RTS and CTS lines have to be assigned. For hardware flow control, these lines are set up in the programming application. RTS should be assigned to IOP_GPIO3 and CTS should be assigned to IOP_GPIO1.

Refer to the online help of the programming application for more information.

Installing the RS-232 Board

Parts Required

The following table describes the parts required to install an RS-232 board in a radio. The parts marked with an asterisk (★) are not shown in the RS–232 installation diagram and are used to connect to the radio's external options connector.

RS-232 board installation parts required

Quantity	Internal Part Number	Description	Reference
1	362-01111-XX[a]	foam seal	③
1	362-01108-XX[a]	cover seal	⑪
2	347-00011-00	4-40x3/16 screws	⑫
2	354-01043-00	screw-lock fasteners	⑦
4	349-02062-00	M3x8 screws	⑨
★1	240-00010-80	D-range plug	—
★1	240-06010-29	D-range hood	—

a. Contact Technical Support for the exact IPN (Internal Part Number)

Installation Procedure

1. Disassemble the radio in order to gain access to the options cavity.

   For detailed disassembly instructions, refer to the disassembly procedure in the service manual.

The circled numbers in the following instructions refer to items in the diagram on .

RS-232 board installation

①	radio lid	⑦	screw-lock fasteners
②	external options connector bung	⑧	mounting posts
③	foam seal	⑨	M3x8 self-tapping screws
④	external options connector cavity	⑩	internal options loom
⑤	RS-232 board	⑪	external options cover seal
⑥	external options connector	⑫	4-40x3/16 screws
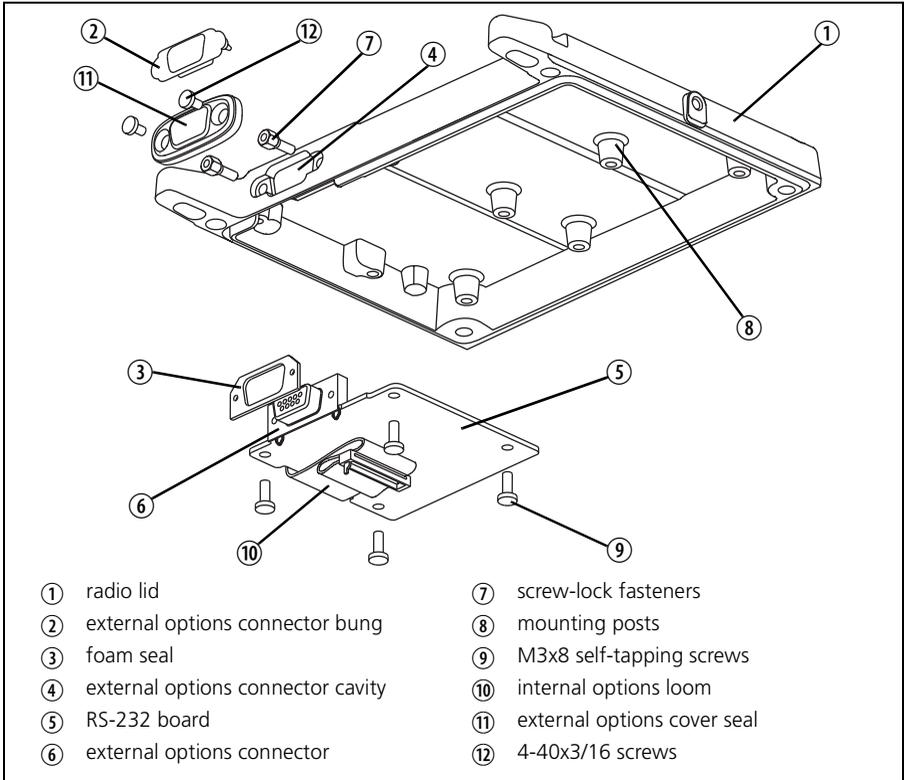
2. Remove the top cover and lid ① from the radio to access the options cavity.

3. Remove the external options connector bung ②, if it is fitted.

4. On the inside of the radio lid place the foam seal ③ over the external options connector cavity ④.

5. Plug one end of the internal options connector loom into the internal options connector on the RS-232 board.

6. With the top side of the RS-232 board ⑤ facing the radio lid, guide the external options connector ⑥ (the D-range connector on the RS-232 board) into the external options connector cavity.

> ✋ **Important:** The external options connector screw-lock fasteners must be tightened correctly before screwing the RS-232 board onto the mounting posts ⑧.

7. Screw the external options connector to the radio lid using the two screw-lock fasteners ⑦.

   Tighten the fasteners to a torque of 0.9N·m (8lbf·in).

Important: For the RS-232 board to be installed correctly in the radio's options cavity, the internal options connector loom ⑩ must be looped in the way shown in the diagram on the previous page.

8. Screw the RS-232 board to the mounting posts on the radio lid using four M3x8 self–tapping screws ⑨.

    Tighten the M3x8 screws to a torque of 1.9N·m (17lbf·in)

9. Plug the unattached end of internal options connector loom ⑩ into the internal options connector on the radio main PCB.

10. Refit the radio lid and top cover to the radio and screw the external options cover seal ⑪ over the external options connector, using the two 4–40x3/16 screws ⑫.

More Information

Refer to your radio provider for more information about this product.