



Caution: The radio produces a specific audio level at the maximum rated power. It is the sole responsibility of the end-user to ensure applicability and compliance with the relevant legal regulations defining the noise level an individual can be subjected to.

Introduction

The TPA-AA-202 accessory cable kit is used to connect external third-party accessories, such as speaker microphones and headsets, to the accessory connector at the rear of the radio.

Connecting an Accessory

1. Verify that your accessory is compatible with the accessory connector, refer to [Table 1.1](#).
2. When connecting an accessory, make sure it meets the following specifications:
 - speaker impedance: $32\ \Omega$ ($16\ \Omega$ min.)
 - speaker power: $0.25\ W_{\text{rms}}$ (min.)
 - microphone: electret, approximately $1\ k\Omega$
 - PTT switch: not in series with microphone.



Note: If your accessory has a PTT switch in series with the microphone, the accessory cannot be used. The PTT needs to be a separate signal and must be made available at the connector separately; it must not be multiplexed on any other signal.

3. Disassemble the kit as described in “[Disassembly and Reassembly](#)” on page 3.
4. Solder the wires of the accessory cable kit to the interface of your accessory (refer to [Table 1.1](#) on page 2).
5. Modify the components on the accessory connector PCB as follows (refer to [Figure 1.2](#)). Note that some components may already be fitted by default.
 - For all accessories with differential speaker (not referenced to ground), fit a $0\ \Omega$ link (1206) at position C1.
 - For all accessories with a single-ended speaker (referenced to ground), fit a $4.7\ \mu\text{F}$ capacitor (ceramic, 1206, X7R, 16 V) at position C1 instead of the fitted $0\ \Omega$ link (1206).

- To disable the radio’s internal speaker, fit a 0Ω link (0603) at position R3.
- When using an external switch to control the ACC PTT line, for example in a hands-free vehicle kit, fit a 0Ω (0603) link at position R4.
- To enable an external function button, fit a 12kΩ resistor (0603, 1/10W±5%) at position R1.

Reassemble the kit as described in “Disassembly and Reassembly” on page 3.

Table 1.1 Accessory cable – wires and signals

Signal name	Wire	Description	Signal type	Signal level	Output impedance/current	Input impedance
AUD TAP OUT	white/ blue stripe	Programmable tap point out of the Rx or Tx audio chain, DC-coupled	Analog audio	0.69V _{pp} for 60% deviation at 1kHz (-10dBm into 600Ω)	600Ω	–
AUD TAP IN	blue	Programmable tap point into the Rx or Tx audio chain, DC-coupled	Analog audio	0.69V _{pp} for 60% deviation at 1kHz (-10dBm into 600Ω)	–	100kΩ DC to 100kHz
ACC PWR	brown	Accessory power	DC supply	3.3V nominal	100mA (max)	–
ACC RXD	yellow	Serial receive data	3V3 CMOS	high = 0 low = 1	–	–
ACC TXD	green	Serial transmit data	3V3 CMOS	high = 0 low = 1	1 mA (max)	–
ACC GPIO1	violet	Accessory sense (internal speaker disable)	3V3 CMOS	high = 1 low = 0	1 mA (max)	–
ACC GPIO2	white/ red stripe	Accessory sense	3V3 CMOS	high = 1 low = 0	1 mA (max)	–
ACC MIC	orange	External microphone input (electret) Dynamic microphones are not supported.	Analog audio	9.5V _{rms} for 60% modulation at 1kHz, DC-coupled	–	2.2kΩ
GND	black	Analog ground	Ground	–	–	–
ACC PTT	gray	External press-to-talk input	Analog DC	0 to 2.5V, PTT=0	–	27kΩ
ACC SPKR–	white	External speaker differential output	Analog audio	+6.5V _{pp} ^a differential	To drive 16Ω differentially	–
ACC SPKR+	red	External speaker differential output	Analog audio	+6.5V _{pp} ^a differential	To drive 16Ω differentially	–

^a Dependent on battery charge level.

Disassembly and Reassembly

1. Use a Torx T6 screwdriver to remove the screw ①, and remove the accessory housing seal ②, and the accessory seal plate ③.
2. Fold out the accessory connector PCB ④.



Important: During reassembly, make sure that the accessory housing seal ② is inserted correctly inside the accessory connector housing ⑤.

Reassembly is carried out in reverse order of the disassembly.

Figure 1.1 Components of the accessory cable kit

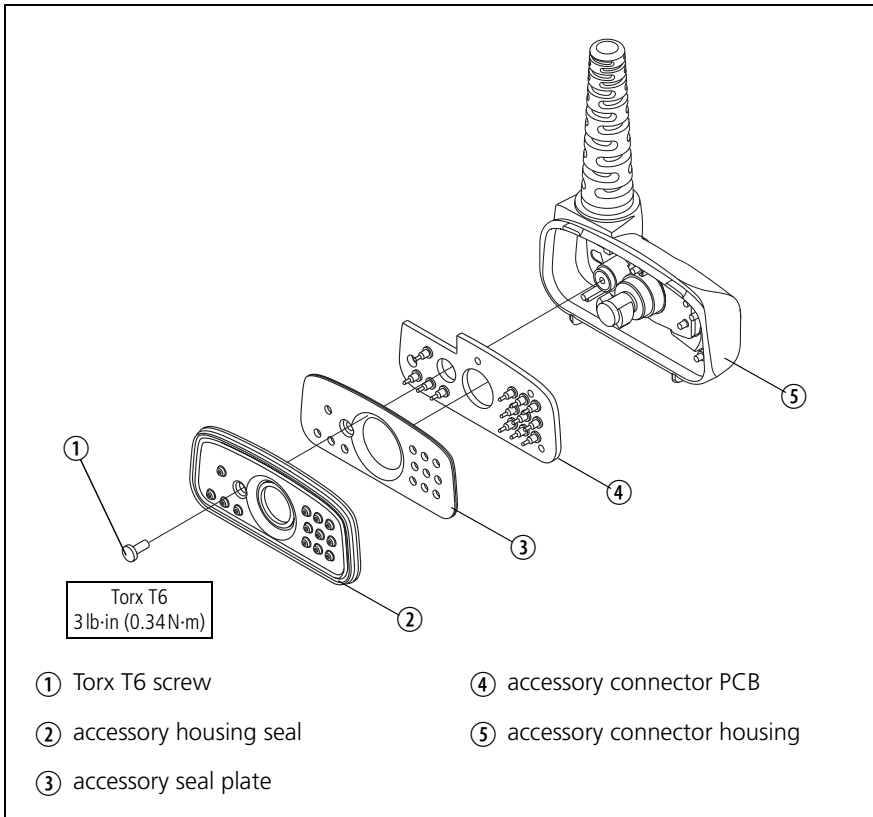


Figure 1.2 Accessory connector PCB and circuit diagram

