

Technical Note TN-1471c

Wiring Third-Party Accessories to Tait Portable Radios

22 March 2010

This Technical Note applies to portable radios of the TP9100, TP8100 and Orca/TOP5000 series.

1. Introduction

Tait provides the following information for suppliers and integrators to consult in order to adapt third-party accessories for use with Tait portable radios.

Disclaimer

Use of this information is at your risk. No guarantee or expectation can be provided that any third party product will necessarily work as intended with Tait portable radios. You should make your own assurances and assessment that the products of interest to you can be inter-connected with Tait portable radios. Assistance for specific projects or implementation advice cannot be provided.

Copyright

The information in this document and the documents referred to in this Technical Note are the intellectual property of Tait Electronics Limited. This information may only be used in relation to adapting accessory products for operation with Tait radios, any other use must have specific approval from Tait Electronics Limited.

Resources

The documents referred to in this Technical Note are available from the Technical Support website (www.taitworld.com/technical/). Select the Portable Radios link and then the particular model, followed by the link to Documentation – Accessories.

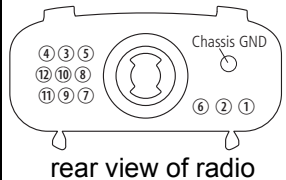
Contacts

Authorised Tait dealers, or purchasers of Tait portable radios, may contact Tait Technical Support (support@taitworld.com) with queries, though it is not possible to guarantee that detailed advice for adapting third-party products can be given.

When sending queries, mention your use of this document, the portable radios being worked with, the third-party product and the overall product application.

2. TP9100 Series

Accessory Connector Pinout

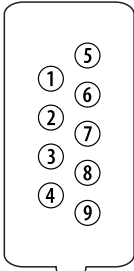
| Pinout | Pin | Signal name | Description | Signal type |
|-------------------------------------------------------------------------------------------------------------|-----|-------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
|  <p>rear view of radio</p> | 1 | AGND | Analog ground | Ground |
| | 2 | ACC PWR | Switched 3.3V supply. Supply is switched off when radio is switched off. | Power |
| | 3 | ACC RXD | Asynchronous serial port – Receive data | Digital, 3V3 CMOS |
| | 4 | AUD TAP OUT | Programmable tap point out of the Rx or Tx audio chain. DC-coupled. | Analog |
| | 5 | ACC TXD | Asynchronous serial port – Transmit data | Digital, 3V3 CMOS |
| | 6 | ACC MIC | Accessory microphone input. Electret microphone biasing provided. Dynamic microphones are not supported | Analog |
| | 7 | ACC GPIO2 | Programmable function and direction. | Digital, 3V3 CMOS input; open collector output with pullup |
| | 8 | AUD TAP IN | Programmable tap point into the Rx or Tx audio chain. DC-coupled. | Analog |
| | 9 | ACC SPKR- | Accessory speaker output. Balanced load configuration. | Analog |
| | 10 | ACC GPIO1 | Programmable function and direction. | Digital, 3V3 CMOS input; open collector output with pullup |
| | 11 | ACC SPKR+ | Accessory speaker output. Balanced load configuration. | Analog |
| | 12 | ACC PTT | PTT input from accessory, multiplexed with accessory function key. | Analog |

Accessories

| Order Code | Designation | Documentation |
|------------|-----------------------------------|---------------|
| TPA-AA-201 | TP9100 Accessory Connector Kit | 402-00028-xx |
| TPA-AA-202 | TP9100 Accessory Cable Kit | 402-00029-xx |
| TPA-AA-210 | TP9100 Hirose Accessories Adapter | 402-00058-xx |

3. TP8100 Series

Accessory Connector Pinout

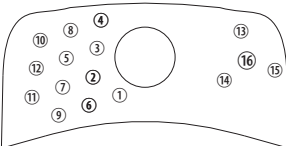
| Pinout | Pin | Signal name | Description | Signal type |
|-------------------------------------------------------------------------------------------------------------|-----|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
|  <p>side view of radio</p> | 1 | ACC TXD | Asynchronous serial port. Data direction is from radio to PC. | Digital, 3V3 CMOS |
| | 2 | ACC SPKR– | External speaker negative output. Balanced load configuration. | Analog |
| | 3 | ACC GPIO1 | General purpose input/output. Function and direction depends on the radio model. A radio with standard firmware uses the input from pin 3 to detect whether an accessory is present. (If an accessory is present, the radio disables the internal speaker.) | Digital, 3V3 CMOS input; open collector output with pullup |
| | 4 | ACC PWR | Switched and current-limited supply from radio to accessory. Supply is switched off when the radio is powered off. | Power Output voltage range is typically 6.0 V to 8.4 V, current limited to 50 mA maximum. |
| | 5 | GND | Analog ground. | Ground |
| | 6 | ACC PTT | External PTT input. Analog signal to allow multiplexed buttons in external devices such as speaker-microphones. Two levels are defined for button presses, thus creating three inputs to the system on the single wire. | Analog |
| | 7 | ACC SPKR+ | External speaker positive output. Balanced load configuration. | Analog |
| | 8 | ACC MIC | Auxiliary microphone input. Electret microphone biasing is provided. Dynamic microphones are not supported. | Analog |
| | 9 | ACC RXD | Asynchronous serial port. Data direction is from PC to radio. | Digital, 3V3 CMOS |

Accessories

| Order Code | Designation | Documentation |
|--------------|--------------------------------------|---------------|
| TPK-AA-001 | TP8100 Hirose Accessory Adapter | 402-00066-xx |
| TPK-AA-002B | TP8100 7.5 mm Accessory Adapter | 402-00059-xx |
| TPB-AA-005 | TP8100 Accessory Connector Kit | 402-00057-xx |
| 219-03164-00 | TP8100 Speaker Mic Replacement Cable | Not available |

4. Orca/TOP5000 Series

Accessory Connector Pinout

| Pinout | Pin | Signal name | Description | Signal type |
|-------------------------------------------------------------------------------------------------------------|-------|---------------|--------------------------------------------|-----------------------------------------------|
|  <p>rear view of radio</p> | 1 | GND | External microphone ground (electret) | Ground |
| | 2 | +7V5 ACC | Accessory power | Power 7.0 V* nominal, 20 mA max. |
| | 3 | RXD ACC | Serial receive data | CMOS |
| | 4 | RX-DET-AF-ACC | Unmuted receive audio | Analog audio 1.15-1.6 VDC 53-225 mVrms |
| | 5 | TXD ACC | Serial transmit data | CMOS |
| | 6 | EXT MIC | External microphone input (electret). | Analog audio, 11 mVpp (typical) DC-coupled |
| | 7 | SENSE-1 ACC | Accessory sense | CMOS |
| | 8 | MOD AUDIO | Modulator input | Analogue audio 0-4.8 Vpp 2.4 VDC |
| | 9 | EXT SPKR- | External speaker differential output | Analog audio, ±6.5 Vpp differential |
| | 10 | SENSE-0 ACC | Accessory sense (internal speaker disable) | CMOS |
| | 11 | EXT SPKR+ | External speaker differential output | Analog audio, ±6.5 Vpp differential |
| | 12 | EXT PTT | External press-to-talk input | Analog DC, 0-5 V, PTT = 0 V |
| | 13-15 | GND | Analog ground | Ground |
| | 16 | RF | Accessory antenna connection | Tx: 5 Wrms (max) |

* Dependent on battery charge level

Accessories

| Order Code | Designation | Documentation |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| TOPA-AA-006G TOPA-AA-007G TOPA-AA-106G TOPA-AA-107G | TOP5000 Accessory Connector Kit with P-Clip TOP5000 RF Accessory Connector Kit with P-Clip TOP5000 Accessory Connector Kit with D-Clip TOP5000 RF Accessory Connector Kit with D-Clip | 402-00065-xx |
| TOPA-AA-005G | TOP5000 7.5mm Accessory Adapter | Not available |

5. Publication Information

Related Documentation None.

Compliance Issues None.

Compatibility Issues None.

CSO Instruction Inform all service staff and dealers of the released information.

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Distribution Level Public.

Document History

| Issue | Date | Description | Author |
|-------|-----------------|---------------------------------------------|-------------|
| – | 17 July 2009 | First release | K Ebrecht |
| b | 15 October 2009 | Corrected Pin10's name page 2 | G Brenchley |
| c | 22 March 2010 | Changed TP8100 ACC PWR output voltage range | K Ebrecht |