# ICOM IC-F121/221 Series Radio
# to 223 Series Adapter Panels

VOIProven

TELEX
Radio Dispatch

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# to 223 Series Adapter Panels

## 1.0   General

This application note is intended to show how to assemble a cable and setup the hardware of different 223 series adaptor panels (TRA-223, DSP-223 and IP-223) to the ICOM F121/221 mobile radio. Only control of a dedicated channel is supported.

## 2.0   Interconnect Cable Assembly

A cable assembly is required to interconnect the DB-25 output of the various 223 Series adapter panels to the ICOM OPC-617 DB-9 Pin Accessory option cable.  Use Table 1 to manufacture this interconnect cable assembly.

TABLE 1. Interconnect Cable Assembly

| TRA-223 DB-25 Pin | DSP-223 DB-25 Pin | IP-223 DB-25 Pin | ICOM DB-9 Pin | Signal |
|---|---|---|---|---|
| 25 | 25 | 25 | 4 | MIC+ |
| 24 | 24 | 24 | 3 | RX+ |
| 14 | 14 | 14 | 5 | PTT |
| 7 | 7 | 7 | 7 | GND |
| 10 | 10 | 20 | 6 | COR |

# 3.0 223 Series Panels

## 3.1 TRA-223 Setup

The TRA-223 requires no modification.

### 3.1.1 TRA-223 Dip-Switch Settings

Use Table 2 to set the dip switches for the TRA-223.

**REFERENCE:** For more information, see the TRA-223 Technical Manual (P/N 803570).

TABLE 2. TRA-223 Dip Switch Settings

| Switch | Setting | Signal |
|--------|---------|--------|
| 1 | As appropriate | 2-Wire = On<br>4-Wire = Off |
| 2 | As appropriate | 2-Wire = On<br>4-Wire = Off |
| 3 | As appropriate | Full-Duplex = On<br>Half-Duplex = Off |
| 4 | Off | Squelch |
| 5 | Off | Radio RX Level<br>On = Speaker<br>Off = High Impedance |
| 6 | Off | Radio TX Level<br>On = Low Level<br>Off = High Level |
| 7 | On | Ground on PTT Relay Common |
| 8 | Off | Ground on Monitor Relay Common |

## 3.2 DSP-223 Setup

No software programming is required.

### 3.2.1 DSP-223 Jumper Settings

To **set the DSP-223 jumpers**, do the following:

1. Set the following jumpers to the **A position:**

   - J12, J14, J15, J22, J23, J24, J25, J27.

2. Set the following jumpers to the **B position**:

   - J13

3. Solder **JP2** close.

**REFERENCE:** For more information, see the DSP-223 Technical Manual (P/N 803274).

### 3.3    IP-223 Setup

#### 3.3.1    IP-223 Jumper Settings

Use Table 3 to configure the IP-223 jumper settings.

TABLE 3. IP-223 Jumper Settings

| Line 1 | Jumper Setting | Line 2 |
|---|---|---|
| J33, J34 | B = 4-Wire | J5, J6 |
| J16, J21 | A = Single Ended | J19, J20 |
| J14 | Hanging on center pin = 10K Ohm | J24 |
| J3, J9, J11 | A = Single Ended | J25, J28, J29 |
| J13 | B = High | J27 |
| J17,  J22 | B = 600 Ohms | J10, J15 |
| R377 | Solder bridge the pads together | R381 |

# 4.0  Radio Modifications

To **modify the radio,** do the following:

1.  Remove the **radio bottom cover**.
2.  Solder **bridge pad D**.
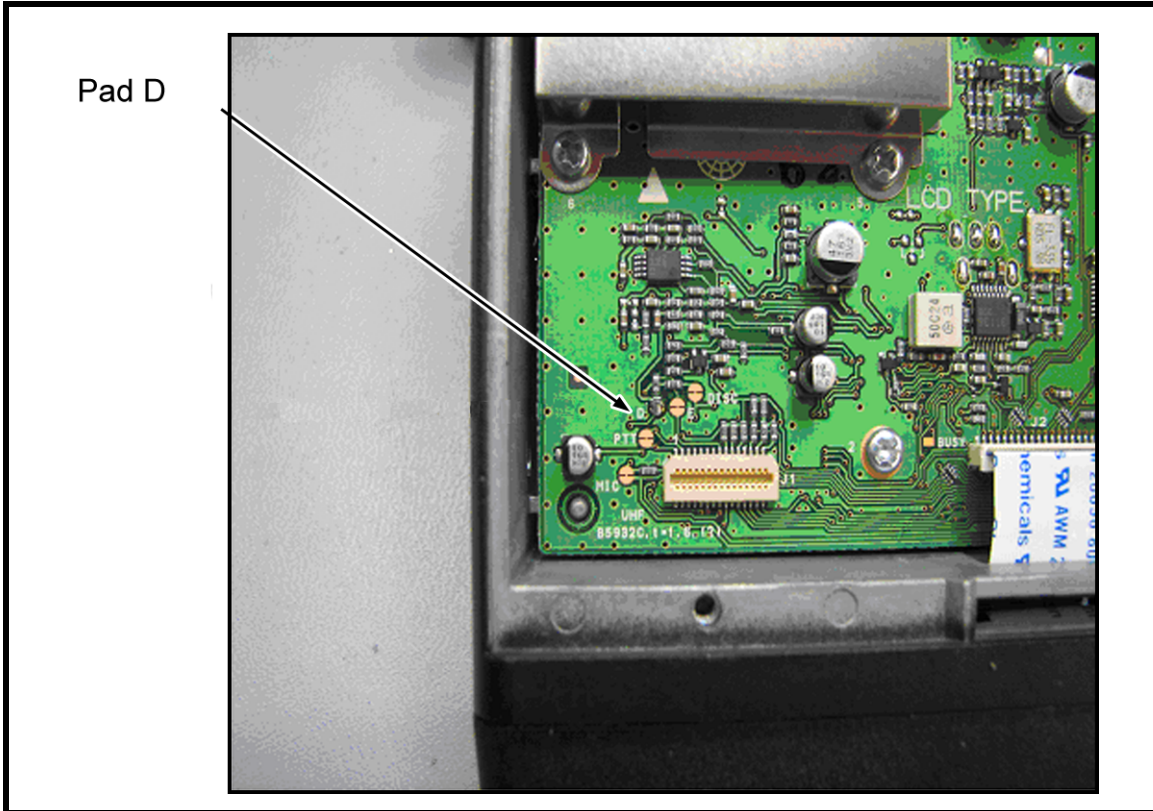    *Pin 4 of the DB-9 connector is enabled to accept external TX audio in.*



FIGURE 1.  Radio Pad D

**Notes:**

| Revision History | | |
|---|---|---|
| **Document Title:** ICOM  IC-F121/221 Series Radio to 223 Series Adapter Panels | | |
| **Document Number**: AN-DISPATCH-022 | | |
| **Revision** | **Change Description** | **Date** |
| A | Update brand, format and new document number. | 30-NOV-2009 |
| B | Para: 2.0, Table 1: TRA-223 DB-25, para: 3.1, instruc: 3.2.1, Table 3: Jumper setting. | 30-APR-2010 |

**Suggestions or comments:**

Contact technical support with suggestions or comments concerning this application note.

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