



URI	Maxon SM6000	Maxon SD170/160	Maxon SM2500	Icom F121/221
<b>Receive</b>				
9 - MIC IN	3 - SPKR HI	9 - SPKR OUT	7 - RX AUD	2 - AF OUT
13 - GND	4 - GND	4 - GND	13 - GND	7 - AF Ground
8 - COR-DET	9 - DCD	6 - CD	3 - BUSY/SQ	6 - Horn/COS
<b>Transmit</b>				
1 - PTT	12 - PTT/RTS	3 - PTT	6 - PTT	5 - PTT IN
10 - LEFT_OUT	5 - MIC HI	1 - DATA IN	10 - MIC AUD	4 - MOD IN
19 - GND	4 - GND	4 - GND	13 - GND	7 - AF Ground

Note: The URI Pin Out is on the DB-25F side of the URI .

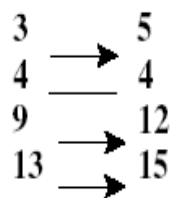
DB15 Pinouts	
Pin#	Description
1	Busy
2	Programmable I/O
3	Speaker Hi
4	Gnd
5	Mic Hi
6	RSSI
7	Ignition Sense
8	Audio to DTMF In
9	DCD
10	Flat Audio
11	Data
12	PTT/RTS
13	Speaker Low
14	Buffer ASIC Volume Out
15	Mic Low

### Receive Radio

Pin 3, 4, 9, 13

### Transmit Radio

Pin 4, 5, 12, 15



## Maxon SM6000 Series

Note: The SM6000 Series has a built-in single channel controller.

The SM6000 has a HD15 jack, which is the 3 row version.

## DB-15 CONNECTOR

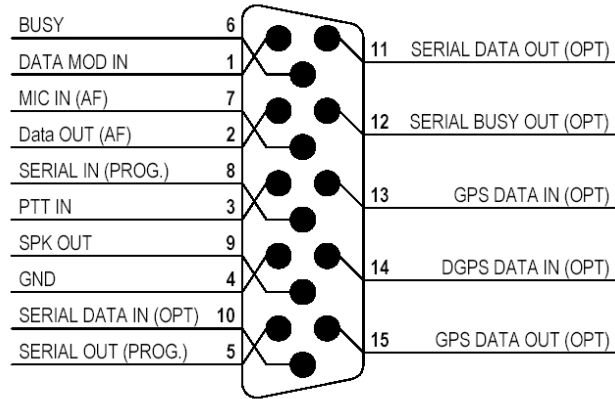


Figure 8.1. Pin-outs of DB-15 connector

## Pin Out for Maxon SD170 Series Data Radios

DB 15		
Pin#	Description	Levels
1	NC/Audio Out - Rx Audio	Audio In
2	TX TONES	Mic Audio
3	BUSY/SQ - Busy	Low
4	CALL - Aux/Call Switch	Low
5	MONITOR - Monitor Button	See LK8, LK9
6	PTT IN - PTT	Low
7	RX AUDIO IN - RX Audio	Audio
8	ALERT TONE OUT - Ext Alert	Alert Audio
9	CALL LED - Green LED	High
10	MIC/CONTROL - Mic Audio	See LK6, LK7
11	AUDIO MUTE - Mute	Low
12	TX ENABLE - Transmit Enable	Low
13	GND	0V
14	VCC - 8V	8VDC
15	N/C	

**Receive Radio**  
Pin 3, 7, 13

**Transmit Radio**  
Pin 6, 10, 13

3 → 6

7 → 10

13 — 13

## Maxon SM2500 Series

The SM2500 has a HD15 jack, which is the 3 row version.

Instructions on how to modify Icom F121, F121S, F221, and F221s commercial radios for use as repeater radios.

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## **Repeater Mod for ICOM IC-F121, IC-F121S, IC-F221, and IC-F221S radios.**

Modifying this series of radios for repeater use is a fairly simple process. All that is required is basic soldering skills and the Icom programming software.

These radio can be connected back to back to make a simple repeater with a hang time of up to 25 seconds. Or they can be connected to an external controller.

### **Hardware Modifications**

1. Open the case
2. Located the split pad on the right hand side of the board labelled "F" if it isn't labelled it the split solder pad closest to the RX marking at the front of the radio near the metal box where the external cable plugs in.
3. Plug in an OPC-617 cable, and replace the cover.
4. The radios are programmed as follows.  
In the Common – Expert menu Set RX EXO tp on this makes the horn out put line in to an active low COS line.  
EPPT/FTSW set to EPPT  
Set the EPPT timer to the desired hang timer 0 – 25 seconds  
If Tone Mute EPTT is ON no CTCSS tones will be sent regardless of the channel programming.

The pin out for the OPC-617 cable is as follows

1. Dimmer cont. IN or IGSW cont. IN
2. AF OUT
3. Detector AF OUT
4. Mod. IN
5. PTT control IN or
6. Horn drive cont. OUT → Active Low COS
7. AF GND
8. Detector AF GND
9. Mod. GND