

# Application Note

**AN #: 538**

DATE: 21-May-03

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**PYRAMID MODEL #:** 2012 / 2016 / Merlin

**RADIO MODEL:** Kenwood TK-x30 Series (Non "G" type)

**ENGINEER:** W. Carlin

**APPROVAL INITIALS**

ENGINEER

DEPT. HEAD

| Connections: | Pyramid      | Function       | Radio     |
|--------------|--------------|----------------|-----------|
|              | Black/Shield | Ground         | J4 Pin 15 |
|              | White        | Tx Audio Out   | J4 Pin 10 |
|              | Blue         | On-Air Detect  | N/C       |
|              | Green        | PTT Out        | J4 Pin 8  |
|              | Red          | Switched B+    | J4 Pin 7  |
|              | Yellow       | Rx Audio In    | J4 Pin 4  |
|              | Violet       | COR            | J4 Pin 11 |
| (Optional)   | Brown        | Audio Mute Out | J4 Pin 1  |
|              | Grey         | Mic Mute       | N/C       |

**2012/Merlin Jumpers:** J1 [Out] TX audio level  
J2 [In] PTT loop back

**Pyramid Program:** Mobile COR Polarity: High  
Mobile Type: Conv.  
On-Air Polarity: Low  
I/O Pin 9 Mute

**2016 Jumpers:** J1 [In] PTT loop back  
J2 [Out] TX audio level

## Additional Modifications (2012/2016/Merlin):

2012: Change R34 to 10K.

2016/2017: Change R54 to 10K.

If audio mute is used (Brown wire connected to J4 pin 1), perform the following modifications:

2012: Remove Q3 and add a jumper from Q3 base to Q3 collector.

2016: Remove Q8 and add a jumper from Q8 base to Q8 collector.

2017: Remove Q8 and add a jumper from Q8 gate to Q8 Drain.

## Additional Modifications (Radio):

1. MCOR signal: Add a jumper from IC103 Pin 4 to CN106 pin 9 (HN2).
2. Tx Data input to radio: On the TK-x30 control PCB install a jumper from CN106 pin 8 (HN1) to VR301 center pin on the RF PCB. The max deviation for the x30 series will need to be re-adjusted.
3. Modify the mic as shown on page 2.
4. If audio mute is used (Brown wire connected to J4 pin 1), perform the following modifications: On the TK-x30 control PCB (bottom side), remove R131 and install a jumper from CN105 pin 2 (HK) to Q107 base.

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