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# TONE TERMINATION PANELS



## TTP1, TTP2

The TTP1 or TTP2 provide the interface between tone remotes using the industry standard tone format and any two-way radio base station allowing remote control of a two-way radio base station or repeater over a 600 ohm voice grade audio path. Interfacing the TTP1 or TTP2 termination panel is straight-forward. The audio input and output points are compatible with a wide range of radio microphone input and receiver audio output circuitry and a wide dynamic range allows for changes in phone line levels while providing reliable operation. A 2175 Hz notch filter removes the key tone from the modulation audio while a highly advanced sequential tone detection algorithm eliminates the possibility of falsing the termination panel into a transmit condition. The monitor circuit, for tone squelch disable, is selectable either for a timed output, or monitor until PTT. Two frequency selection is latching and will control transmit as well as receive for each channel.



## MR 200 Series

The MR200 series termination panels are low cost multi-featured tone termination panels that allow single channel remote control of the Radius and Maxtrac type radios with no radio modification required. TX key is 1950 Hz and monitor function is 2050 Hz. The panels come housed in a rugged aluminum and vinyl clad steel enclosure. Features include: simple modular plug connections, remote and / or local operation, provides PTT and monitor functions, separately adjustable TX & RX audio amplification, and PL - DPL compatibility. Trunking ready, allows status tones to be heard by the remote user while the remote is keyed. The MR202 is a two frequency version that requires a jumper be added inside the radio.



## JM 200

The JM200 is a tone termination panel designed for single channel or system use on the Johnson Challenger or 8600 series trunking radios. TX key is 1950 Hz and off-hook function is 2050 Hz. The panels come housed in a rugged aluminum and vinyl clad steel enclosure. Features include: simple modular plug connections, remote and / or local operation, provides PTT and off-hook functions, separately adjustable TX & RX audio amplification. Unit requires that receive audio in radio be jumpered to the radio microphone jack. Unit allows trunking status tones to pass back to properly equipped remotes enabling tones to be heard while remote is keyed.



## TTP - Multifunction, TTP-BCD

Four, six, eight and ten frequency versions of the TTP series tone termination panel. The panels are housed in a sturdy, steel and aluminium enclosure and provide LED indication of PTT, monitor and selected function tone. Frequency or function selection is accomplished by a 1 of 10 relay outputs that are jumper selectable for a latching or momentary operation. Available options include full duplex and four wire operation. A BCD version is available for radios equipped for BCD operation. (GM300, Kenwood-90)

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## Specifications

Subject to change without notice.

### TTP1 - Single frequency with monitor, TTP2 - Two frequency with monitor

Size: 2.9" wide  
.75" high  
5.25" long

Connections:  
modular to phone line  
screw terminals for radio connections

General:

Input voltage: +12 to +13.8 Vdc @ 150 mA  
(18 mA idle)  
Line impedance: 600 ohms  
Line output level: +7 dBm max. Preset to 0 dBm  
Line input level: -5 dBm to +5 dBm (0 dBm typical)  
Rx input level: 35 mVrms to 530 mVrms  
Notch filter: 2175 down 50 dBm from 1000 Hz  
reference

Control tones:  
F1 transmit: 1950 Hz  
F2 transmit: 1850 Hz  
Monitor (tone squelch disable) :2050 Hz  
Security tone: 2175 Hz  
Tx hold tone: 2175 Hz  
Time tolerance:  
Security tone: 140 mS +/- 10%  
Function tone: 40 mS +/- 10%

Control function outputs:

PTT: form "A" relay contacts  
Frequency selection: form "C" relay contacts  
Monitor: form "C" relay contacts

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### MR200 - Single frequency with monitor, MR202 - Two frequency with monitor

Size: 5.5" wide  
1.5" height  
6.5" depth

Connections:  
Modular to radio (cable supplied)  
a. MR Panel to radio.  
b. Desk microphone to MR  
panel  
Modular or screw terminal to phone line.

General:

Same as TTP1 & TTP2

Control tones:

Same as TTP1 & TTP2

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### JM200 - Single frequency with off-hook function

Size: 5.5" wide  
1.5" height  
6.5" depth

Connections:  
Modular to radio (cable supplied)  
a. JM Panel to radio.  
b. Desk microphone to JM panel  
Modular or screw terminal to phone line.

General:

Same as TTP1 & TTP2

Control tones:

Same as TTP1 & TTP2

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### TTP - Multifunction

Size: 5.5" wide  
1.5" height  
7.5" depth

Connections:  
modular to phone line  
screw terminals for radio connections

General:

Same as TTP1 & TTP2

Control tones:

Specifications are the same as the TTP1 & TTP2  
with the following possible additional tones.

Control function outputs:  
PTT: form "A" relay contacts  
Frequency selections: form "C" relay contacts  
Monitor: form "C" relay contacts

F3: 1750 Hz. F4: 1650 Hz.  
F5: 1550 Hz. F6: 1450 Hz.  
F7: 1350 Hz. F8: 1250 Hz.  
F9: 1150 Hz. F10: 1050 Hz.