

# TACT TA-4800 for MOTOTRBO™ DTP

## Overview

The standard TACT TA-4800 Radio/Telephone Interconnect with MOTOTRBO™ Digital Telephone Patch can be used as the gateway between a landline (PSTN, PABX, VoIP with an ATA or FXS port, or cellular with an FCT) telephone network and MOTOTRBO™ radio system. It allows MOTOTRBO™ Radio users to make and receive telephone calls.

**Note that if a TACT is ordered for TRBO DTP, the following changes will be made at the factory prior to dispatch:**

## TACT TA-4800 Programming with firmware V4833.61 or later

Using the TACT keypad, enter reset code:

**\*67709603#** - Master reset for TRBO DTP. This automatically sets up the following parameters:

*10 – 2	Delayed auto-answer (can be set to 1 for DTMF * to answer)
*34 – 3	Tones from speech EPROM V 99477.02
*40 – 4	Radio Mode Full Duplex
*41 – 1	Digital Mobile Radio Protocol TRBO DTP
*42 – 0500	Digital audio delay, phone to radio
*71 – 20	Radio Transmit gain, phone to radio
*72 – 00	Radio Receive gain, radio to phone

## Automatic Diversion to an Individual Mobile or Talk Group:

This mode is used to automatically divert incoming telephone calls to an individual radio or radio talkgroup. When an incoming telephone call is received, TACT dials the mobile number stored in memory as programmed below. Callers into TACT will hear normal ringback tone until the call is set up to a mobile.

To Activate Automatic Diversion to a Mobile or Talk Group from the Keypad of TACT:

- ① Press \* 86 tsr...r#, where tsr...r is the Target ID to which incoming telephone calls will be diverted.  
The target ID consists of Call Type (7 or 8), Time Slot (1 or 2) and the Radio ID (CPS configurable).
  - For Single Site and IPSC: Target ID = Call Type + Slot # + Radio ID.
  - For Capacity Plus: Target ID = Call Type + Radio ID.
  - Call Type = 7 (individual) or 8 (talkgroup).
  - Slot # = 1 or 2.
  - Target Radio ID length is CPS configurable.

**Note:** The target ID numbering system is fully explained in the next section of this guide, *Repeater Programming*.

- ① To turn this option off and revert to Auto-Answer / Manual Dial mode press \* 86 0 #.

Telephone calls coming into **Line 2** of TACT can be diverted to a different individual radio or radio talkgroup. Instructions are the same as above but use \*87 tsr...r#.

## Repeater Programming

All repeaters and radios in the fleet should be running the latest official Motorola TRBO firmware. For the Digital Phone Patch (“DTP”) to work, the DTP repeater and all radios needing access to DTP need to be configured using the CPS.

The MOTOTRBO™ repeater (eg. DR 3000) needs to have the optional Digital Telephone Patch purchased from and installed by an authorized Motorola dealer.

The DTP License for the DR3000 Repeater is part number HKVN4056  
The DTP License for the MTR3000 Repeater is part number HKVN4057

### Device Information

[Top](#) [Device Features](#)

### Device Features

Feature	Status
Digital	Free
- IP Site Connect	Free
- Capacity Plus	<i>Available for Purchase</i>
- Enhanced Privacy	Free
- Transmit Interrupt	Free
- Dynamic Mixed Mode	Free
- Enhanced GPS	Free
- Digital Phone Patch	Purchased
- Capacity Plus (Linked)	<i>Available for Purchase</i>

Under the **Accessories** section you need to configure the pins on the repeater’s rear connector as follows:

### Accessories

[Top](#) [GPIO Physical Pins](#)

### GPIO Physical Pins

	Feature	Active Level	Debounce
Pin #17	Ext Mic PTT	Low	<input checked="" type="checkbox"/>
Pin #19	Carrier Operated Relay	Low	<input type="checkbox"/>
Pin #20	Unassigned	Low	<input type="checkbox"/>
Pin #21	Unassigned	Low	<input type="checkbox"/>
Pin #22	Unassigned	Low	<input type="checkbox"/>

Under **Phone System** you need to set the *Deaccess Code* to ## (“hash hash” or “pound pound”) for TACT to be able to end calls properly. The remaining settings should be entered as shown below unless you have a need to change them.

**Note:** The *Response Required* check box allows you to turn group call auto-answer on or off.

- If it is un-checked (not ticked) then calls to a group will automatically connect after a single burst of ring tone to both the caller and the radio group.
- If it is checked (ticked) then calls to a group will ring until either a radio in the group answers the call by pressing their PTT button or the call times out. Use the *Response TOT* setting to set the number of seconds an unanswered call can ring for before it is disconnected. A normal PSTN phone rings for 45 to 90 seconds before it times out but this is perhaps too long for a MOTOTRBO™ phone patch system.

An explanation of each setting is available in the CPS help window.

**Target ID** settings allow you to specify how a radio is accessed by an incoming phone call. After TACT answers a call, the repeater will play a tone to the caller which tells them they need to enter a radio’s phone number:

The screenshot shows the configuration interface for a DR 3000 repeater. The left sidebar lists various settings categories, with 'Phone System' selected. The main window is titled 'Phone System' and contains the following settings:

- Deaccess Code: ##
- Busy TOT (sec): 15
- Response TOT (sec): 18
- TX Tone Duration (ms): 100
- TX Tone Interval (ms): 60
- Ring Tone Level (dB): -9
- Busy Tone Level (dB): -12
- Enable All Call:
- Response Required:

Below the Phone System section is the 'Target ID' section with the following settings:

- Length: 4
- Entry Time (sec): 30
- Validation Attempts: 3
- Request Tone Level (dB): -12

Two red arrows point to specific settings with explanatory text:

- One arrow points to the 'Response Required' checkbox with the text: "Check this for PTT to answer (TACT delayed auto answer) or uncheck for DTMF \* to answer (TACT manual answer)".
- Another arrow points to the 'Ring Tone Level (dB)' field with the text: "The volume of the ring tone and busy tone sent to the radio and telephone is programmable".

The number format is as follows:

## TSR...R

**T** is the type of call (7 = Private call to individual radio, 8 = group call)

**S** is the slot number of the phone gateway

**R...R** is the ID of the radio to be called (this number changes in length depending on the size of the radio ID's in the fleet and how the target ID *Length* is set)

In summary, the target ID *Length* is always set to the number of digits in your fleet's Radio ID's plus 2 digits (1 digit for call type and 1 digit for slot number). Note that if your fleet is Capacity Plus, you do not enter the time slot as this is automatically assigned by the system.

Examples:

If target ID *Length* is set to 4, this means a telephone caller will need to enter a total of 4 digits to call a radio (that is, radio ID's are 2 digits long).

**7103** = Private call, Slot number 1, Call radio ID 03

**8110** = Group call, Slot number 1, Group ID 10

If target ID *Length* is set to 6, this means a telephone caller will need to enter a total of 6 digits to call a radio (that is, radio ID's are 4 digits long).

**710003** = Private call, Slot number 1, Call radio ID 0003

**810010** = Group call, Slot number 1, Group ID 0010

If target ID *Length* is set to 10, this means a telephone caller will need to enter a total of 10 digits to call a radio (that is, radio ID's are 8 digits long).

**710000003** = Private call, Slot number 1, Call radio ID 00000003

**810000010** = Group call, Slot number 1, Group ID 00000010

The minimum target ID *Length* is 3 (Radio ID of 1 digit plus call type and slot).

Under **Channels / Zones** settings you need to set the slot number(s) the phone patch will use:

The screenshot displays the configuration interface for a DR 3000 device. On the left, a tree view shows the navigation structure: DR 3000 > Channels > Zone1 > Channel1. The main panel is titled 'Channel1' and contains several settings:

- Color Code:** 1
- Phone Gateway:** Slot 1
- IP Site Connect:** None
- Messaging Delay:** Normal
- RSSI Threshold (dBm):** -100

At the top of the main panel, there are navigation links: [Top](#), [Enhanced GPS](#), [RX](#), and [TX](#).

In the **Network** settings under **Link Establishment**, you'll need to set Link Type to None if you do not have IP Site Connect.

Link Establishment

[Top](#) [IP Site Connect](#)

Link Type:

Authentication Key:

Master IP:

Master UDP Port:

UDP Port:

Peer Firewall Open Timer (sec):

Master Archive File:

**IP Site Connect**

Beacon Duration (ms):

Beacon Interval (sec):

## Radio Programming

A radio button can be configured to make phone calls. In the example below the purple button has been programmed so that a short press dials a preset number and a long press allows the radio user to enter any number.

**Buttons**

[Top](#)   [Radio Buttons](#)   [Accessory Buttons](#)   [One Touch Access](#)   [Number Key Quick Contact Access](#)

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**Radio Buttons**

		Short Press	Long Press
	Orange Button	<input type="text" value="Emergency On"/>	<input type="text" value="Emergency Off"/>
	Side Button 1	<input type="text" value="Phone Call"/>	<input type="text" value="Phone Manual Dial"/>
	Side Button 2	<input type="text" value="Scan On/Off"/>	<input type="text" value="Nuisance Delete"/>
	Side Button 3	<input type="text" value="High/Low Power"/>	<input type="text" value="Repeater/Talkaround"/>
	Front Button 1	<input type="text" value="Zone Selection"/>	<input type="text" value="Unassigned"/>
	Front Button 2	<input type="text" value="Contacts"/>	<input type="text" value="Unassigned"/>

One Touch Access keys can be configured to make phone calls as in the following example where One Touch Access 2 is set to “Panasonic” which exists in the phone contact list:

**Buttons**

[Top](#)   [Radio Buttons](#)   [Accessory Buttons](#)   [One Touch Access](#)   [Number Key Quick Contact Access](#)

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**One Touch Access**

	One Touch Access	Mode	Call	Call Type	Text Message
▶	1	Digital	TrboTACT	Call Alert	None
	2	Phone Call	Panasonic	Group Call	None
	3	Digital	None	Group Call	None
	4	Digital	None	Group Call	None
	5	Digital	None	Group Call	None
	6	Digital	None	Group Call	None

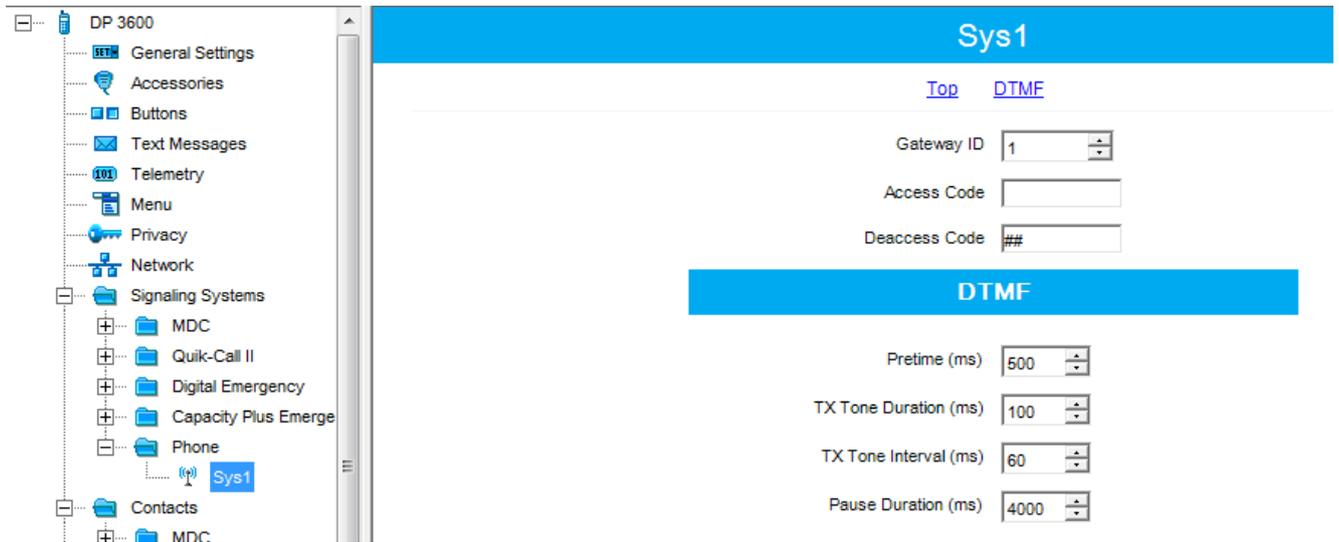
Within the *Signaling System* section of the CPS under *Phone* you should configure the phone gateway. The *Gateway ID* is the ID of the repeater with the phone patch installed. The *Access Code* is an optional prefix digit the PABX needs to dial an outside number (eg. 0 (“zero”)). This digit is then automatically dialed before any number provided by the radio user. If this is left blank then the radio user is prompted for the access code before dialing.

Setting the *Access Code* to a single P (“pause”) will cause the radio to not request an access code from the radio user when dialing and cause no digit(s) to be prefixed automatically to any dialed number.

The *Deaccess Code* should always be set to ## (“hash hash” or “pound pound”) which is used by the TACT to end a call.

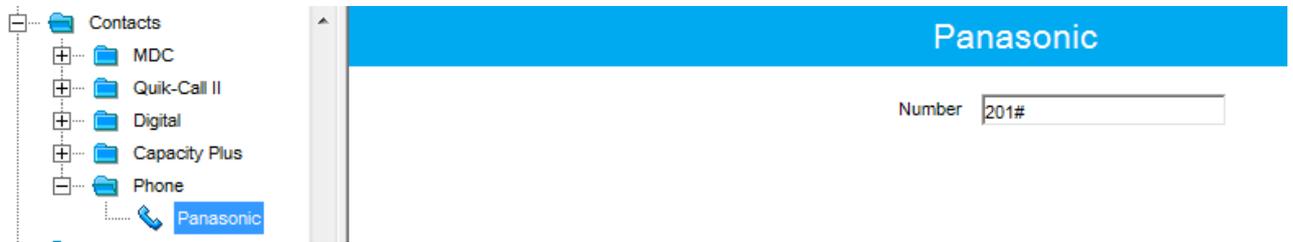
The DTMF settings should remain at default unless you have a good reason to change them.

A typical example is shown below.

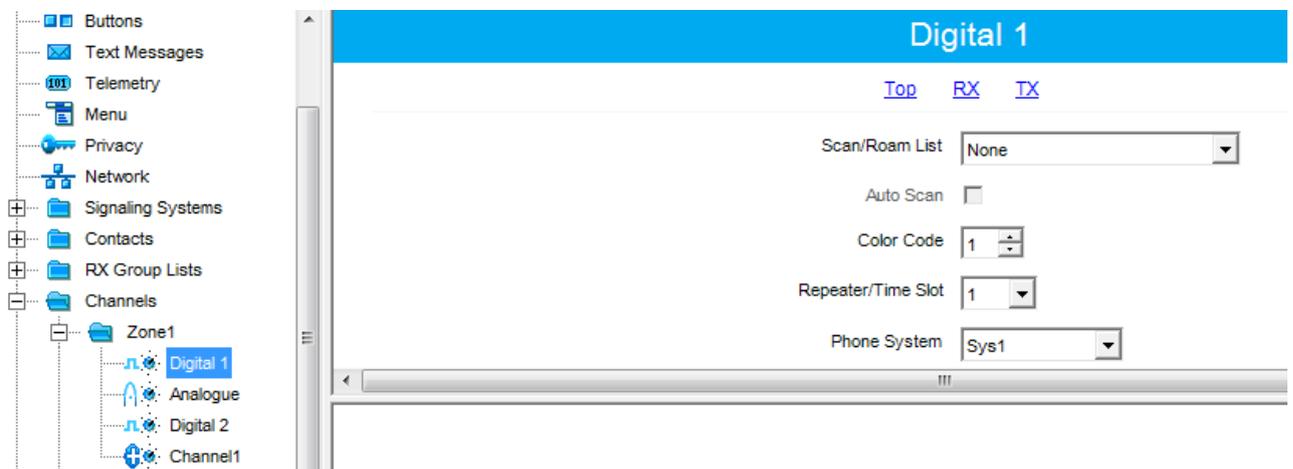


Phone contacts can be entered in the *Contacts* section under *Phone*.

In the example below, the entry “Panasonic” has been given the phone number “201#”. Always use a # (“hash” or “pound”) as the last digit when entering phone numbers as TACT uses this to know you have finished dialing. The hash is not sent out to the phone system.



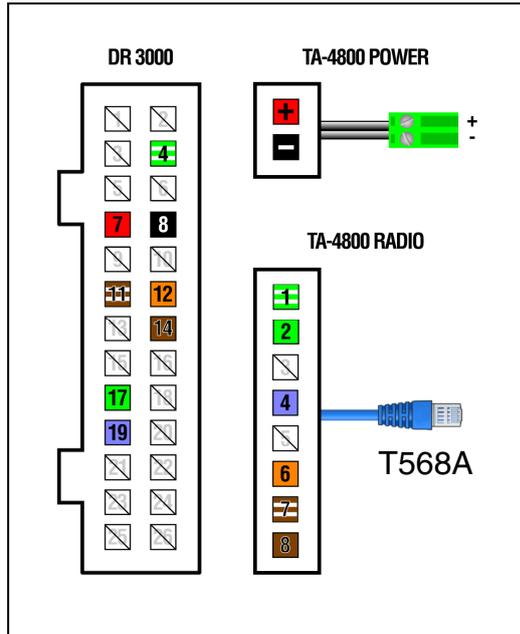
The phone system configured under *Signaling Systems / Phone* (see the previous example where we set up a phone system called “Sys1”) needs to be chosen as the *Phone System* within the *Channels / Zone* settings as shown below:



**REMEMBER:** Whenever you are entering a phone number into the *Contacts* list or free-dialing a number from a radio you must always end the number with a # (“hash” or “pound”) otherwise TACT will not know you have finished dialing.

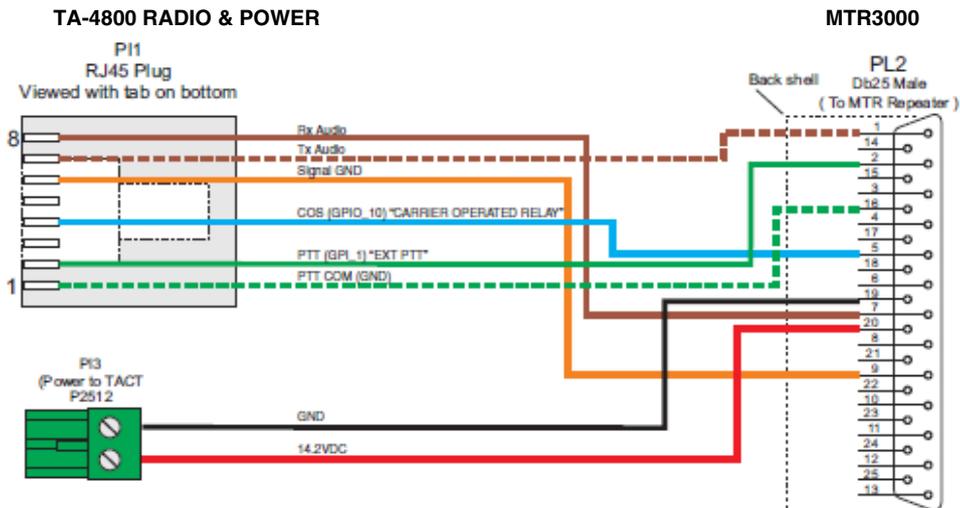
## Interface Cable Details for DR3000 Repeater

TRBO Repeater		TACT	
4	USB Ground	1	PTT Common
17	Prgm_In_1 (PTT In)	2	PTT Normally Open
19	Prgm_IO_2 (Monitor)	4	COS Indication from Radio
12	Audio Ground	6	Signal Ground (Return) (OV)
11	Tx audio	7	Audio OUT from TACT to Radio (Tx)
14	Rx Audio	8	Audio IN to TACT from Radio (Rx)



Part Number CA-5160/13

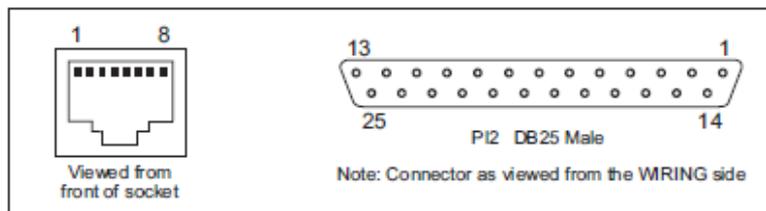
## Interface Cable Details for MTR3000 Repeater



### IMPORTANT

MTR3000 (J7 CONNECTOR) MUST BE PROGRAMMED VIA  
CPS FOR THE FOLLOWING

PIN 2 (GPI\_1) PTT - ACTIVE LOW (INPUT TO REPEATER) DEBOUNCE CHECKED  
PIN 5 (GPIO\_10) CARRIER OPERATED RELAY - ACTIVE LOW (OUTPUT FROM REPEATER)  
DEBOUNCE CHECKED



Part Number CA-5160/13DB25