

P-801 User's Manual

\*

OpenSky™

## P-801 User's Manual

Voice Terminal Radio

**tyco**  
Electronics

**MACOM**



## **P-801 User's Manual**

### **Notices to the user**

---

#### **Warning**

- Government law prohibits the operation of unlicensed transmitters within the territories under government control.
- Illegal operation is punishable by fine or imprisonment or both.
- Refer service to qualified technicians only.
- Do not operate your transceiver in explosive atmospheres (gases, dust, fumes, etc.)

---

#### **FCC Warning**

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

---

**P-801 User's Manual**

## **P-801 User's Manual**

### **Information to the digital device user required by the FCC**

---

#### **FCC limits**

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

---

#### **RF Interference**

This equipment generates and uses radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures.

- Re-orient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the a service center for technical assistance.

### **Accessory Installation**

#### **Overview**

The P-801 can be used with a variety of optional accessories including; batteries, antennas, and microphones. This section tells you how to install the accessories before your first use of the radio. refer to each accessory manual for specifics on installation and operation.

---

**P-801 User's Manual**

## **Installing the Battery Pack**

---

**Preparation**

Your battery is not charged at the factory. Refer to the battery instructions and charge the battery before you install it.

---

**Procedure**

Follow the steps in the facing table to install your battery.

---

*Continued on next page*

**P-801 User's Manual**  
**Installing the Battery Pack (continued)**

<b>Step</b>	<b>Action</b>
1	Match the four grooves on the battery pack with the corresponding catches on the back of the radio.
2	Slide the battery back along the grooves until that battery drops onto the catches.
3	Push the battery until the release latch on the base of the radio locks.



## Installing the Antenna

**Procedure** Follow the steps below to install the radio antenna.

<b>Step</b>	<b>Action</b>
1	Mate the antenna screw post with the connector on the top of the radio.
2	Turn the antenna clockwise until the antenna base is flush with the top of the radio.

insert figure

**P-801 User's Manual**  
**Installing the Belt Hook**

**Procedure** Follow the steps below to install your radio's belt hook.

<b>Step</b>	<b>Action</b>
1	Align the holes on the belt hook with the mounting holes on the radio as shown.
2	Screw the belt hook in place using the two 3x6 mm screws.

## Installing Universal Connector Accessories

**Overview**      The universal connector is used to connect several types of accessories.

**Procedure**      Follow the steps in the table below to install accessories that use a universal connector

<b>Step</b>	<b>Action</b>
1	Insert the tab on the end of accessory's connector into the slot on radio's connector.
2	Tighten the connector screw to secure the microphone in place. The connector should be flush with the housing to keep the radio water resistant.

**P-801 User's Manual**

**Covering the Universal Connector**

---

**When to cover the connector** If no accessory is used with the radio, cover the universal connector with the cap to keep the radio water resistant

---

**Procedure** Follow the steps in the table below to cover the universal connector.

<b>Step</b>	<b>Action</b>
1	Insert the tab on the end of the cover connector into the slot on radio's connector
2	Insert and tighten the 4x6 mm screw. The cover should be flush with the housing to keep the radio water resistant.

## **OpenSky Explained**

### **Overview**

---

Overview

The P-801 Voice Terminal Radio is a key component of the OpenSky network. This section gives an overview of the OpenSky system and OpenSky features and benefits.

---

### **OpenSky network**

The P-801 Voice Terminal Radio is a part of the OpenSky network. The OpenSky network is an integrated voice and data communications system. The network provides a communication backbone that enables voice to be converted to digital information and then transmitted over a wireless network. Data applications can be used simultaneously with voice over the same network.

---

*Continued on next page*

**P-801 User's Manual**  
**OpenSky Explained (continued)**

---

**OpenSky  
features and  
benefits**

OpenSky connects seamlessly with existing applications and provides significant user benefits.

OpenSky:

- Provides one communication system to many users and agencies maximizing inter operability. One communication system eliminates the need for a user to carry more than one radio to communicate mission critical information.
- Allows radios to automatically roam between base stations, relieving radio users of the task of switching channels when moving to a new coverage area.
- Offers greater system availability by providing improved peak traffic for all voice and data information.
- Allows voice communication while data is being sent or received without having to switch radio modes.
- Locates users quickly and accurately in an emergency using radios equipped with the Global Positioning System (GPS) option.
- Prioritizes communications, eliminating non-essential information and preventing information overload.

## OpenSky Terms and Concepts

### Voice Features Explained

---

<b>Voice features overview</b>	Each time you power up and access the OpenSky Network, voice features are loaded into your radio. These features combined are known as your radio personality which establishes features such as: <ul style="list-style-type: none"><li>· Who you will communicate with over the network</li><li>· What calls have priority over others</li></ul>
<b>Radio Personality</b>	A radio personality is made up of up to 16 voice profiles. Voice profiles organize your radio personality into categories defined by your network administrators.
<b>Voice profile</b>	A collection of up to 16 voice groups. Of the 16 possible voice groups, only one is active at any given time.

---

**P-801 User's Manual**  
**Voice Features Explained (continued)**

---

**Voice Groups** Voice groups are used to further break down the voice profile. Voice groups are a subset of the users in a profile and are made up of a number of users who regularly need to communicate. There can be any amount of users in a voice group. Your OpenSky network administration personnel establish and organize voice groups. Voice groups are categorized as either talk groups or listen groups.

---

**Talk Group** The primary voice group in a profile. This is the group of users you will talk with and listen to the most. The first voice group in each profile is designated as your talk group.

---

**Listen group** You normally hear the voice calls from the users in this group, but your voice does not transmit to them.

---

*Continued on next page*



## Voice Features Explained (continued)

**Diagram**

---

The figure below summarizes OpenSky Voice features.

### Before You Start

### Controls and Indicators

Side Views of radio

**P-801 User's Manual**

insert top

**P-801 User's Manual**

**P-801 User's Manual**

## Getting Started

### Turning On the Radio

**Procedure** Follow the step below to turn your radio on.

<b>Step</b>	<b>Action</b>
1	Turn the Power/Volume switch clockwise until it clicks. <i>The startup sequence lasts approximately 10 seconds.</i> <i>The radio is ready to use after this sequence.</i>

---

**Ready state** Use the figure below to know how the radio will appear as it is ready for use.

**P-801 User's Manual**

## Shutting Off the Radio

**Procedure** Follow the step below to turn your radio off.

<b>Step</b>	<b>Action</b>
1	Turn the Power/Volume switch counter clockwise until it clicks.

---

**P-801 User's Manual**



## Adjusting the Volume

**Procedure:** Follow the steps below to adjust the radio's volume.

<b>Step</b>	<b>Action</b>						
1	Turn the Power/Volume knob to adjust the volume						
2	Use the table below to determine your next step. <table border="1" data-bbox="774 735 1346 878"><thead><tr><th data-bbox="774 735 1060 781"><b>To...</b></th><th data-bbox="1060 735 1346 781"><b>Turn...</b></th></tr></thead><tbody><tr><td data-bbox="774 781 1060 826">Increase the volume</td><td data-bbox="1060 781 1346 826">Clockwise</td></tr><tr><td data-bbox="774 826 1060 878">Decrease the volume</td><td data-bbox="1060 826 1346 878">Counter-clockwise</td></tr></tbody></table>	<b>To...</b>	<b>Turn...</b>	Increase the volume	Clockwise	Decrease the volume	Counter-clockwise
<b>To...</b>	<b>Turn...</b>						
Increase the volume	Clockwise						
Decrease the volume	Counter-clockwise						

## P-801 User's Manual

### Listening to Voice Calls

---

**Background** Once the radio is turned on and active on your OpenSky network, you may begin to hear voice calls.

---

**Process** The table below describes what happens when you receive a voice call.

<b>Stage</b>	<b>Description</b>
1	Your radio display changes briefly to show the name of the voice group that the call is coming from.
2	The LED indicator will turn green and blink while the call is being received.
3	At the end of the call, you will hear a single end tone. This lets you know that the person speaking is done with that portion of their transmission.

## Making a Voice Call

---

**Background** The steps for making a voice call are similar to those of a conventional radio.

---

Voice call procedure Follow the steps below to make a voice call.

<b>Step</b>	<b>Action</b>
1	If needed, turn the POWER knob to turn on the radio. <i>The radio will be ready to use following the startup sequence.</i> <i>When you see the primary voice profile displayed, you are ready to talk.</i>

---

*Continued on next page*

**P-801 User's Manual**  
**Making a Voice Call (continued)**

---

<b>Step</b>	<b>Action</b>						
2	Choose your next step from the table below. <table border="1" data-bbox="793 667 1362 899"><thead><tr><th data-bbox="915 675 957 699"><b>If...</b></th><th data-bbox="1178 675 1262 699"><b>Then...</b></th></tr></thead><tbody><tr><td data-bbox="800 721 984 745">No one is talking</td><td data-bbox="1087 721 1283 745">Continue to step 3</td></tr><tr><td data-bbox="800 769 1005 794">Someone is talking</td><td data-bbox="1087 769 1346 891">Wait to hear a single end tone indicating they are done talking and continue to step 3.</td></tr></tbody></table>	<b>If...</b>	<b>Then...</b>	No one is talking	Continue to step 3	Someone is talking	Wait to hear a single end tone indicating they are done talking and continue to step 3.
<b>If...</b>	<b>Then...</b>						
No one is talking	Continue to step 3						
Someone is talking	Wait to hear a single end tone indicating they are done talking and continue to step 3.						
3	Press the push-to-talk button and speak normally. <i>A blinking red LED tells you that you are transmitting.</i> <i>If you hear three low tones, the network is busy. Wait a few seconds and try you call again.</i>						
4	Release the push-to-talk button when you are tone talking.						

---

## Changing the Side Tone Setting

---

**Background** Side tones provide audio feedback when the MENU, or SEL buttons are pressed. The default setting is for side tones to be on.

---

**Procedure** Follow the steps below to change the side tone setting.

<b>Step</b>	<b>Action</b>
1	Press the MENU button until the side tone menu shows.

---

*Continued on next page*

**Changing the Side Tone Setting (continued)**

Step	Action						
2	<p data-bbox="749 621 1268 651">Use the table below to determine your next step.</p> <table border="1" data-bbox="795 662 1430 833"> <thead> <tr> <th data-bbox="800 667 1115 735">If you want to...</th> <th data-bbox="1115 667 1425 735">Press the SEL until the display shows...</th> </tr> </thead> <tbody> <tr> <td data-bbox="800 735 1115 782">Hear side tones</td> <td data-bbox="1115 735 1425 782">SIDE:ON</td> </tr> <tr> <td data-bbox="800 782 1115 829">Disable side tones</td> <td data-bbox="1115 782 1425 829">SIDE: OFF</td> </tr> </tbody> </table> <p data-bbox="749 841 1304 870">Result: You will have changed the side tone setting.</p>	If you want to...	Press the SEL until the display shows...	Hear side tones	SIDE:ON	Disable side tones	SIDE: OFF
If you want to...	Press the SEL until the display shows...						
Hear side tones	SIDE:ON						
Disable side tones	SIDE: OFF						
3	<p data-bbox="749 886 1415 915">To return to the menu display, choose from the following table</p> <table border="1" data-bbox="791 927 1430 1097"> <thead> <tr> <th data-bbox="795 932 1079 979">To return...</th> <th data-bbox="1079 932 1425 979">Then</th> </tr> </thead> <tbody> <tr> <td data-bbox="795 979 1079 1026">Immediately</td> <td data-bbox="1079 979 1425 1026">Push MENU</td> </tr> <tr> <td data-bbox="795 1026 1079 1089">After a brief wait</td> <td data-bbox="1079 1026 1425 1089">Wait approximately 10 seconds</td> </tr> </tbody> </table> <p data-bbox="749 1105 1241 1135">Result: The radio returns to the menu display.</p>	To return...	Then	Immediately	Push MENU	After a brief wait	Wait approximately 10 seconds
To return...	Then						
Immediately	Push MENU						
After a brief wait	Wait approximately 10 seconds						

## Adjusting the Display Brightness

---

**Background** You can adjust the brightness of the display to suit your needs.

---

**Procedure** Follow the steps below to change the brightness of the display.

---

<b>Step</b>	<b>Action</b>
1	Press the MENU button until the brightness menu shows.

---

*Continued on next page*

**P-801 User's Manual**  
**Changing the Display Brightness, continued**

---

Step	Action						
2	<p data-bbox="751 621 1268 651">Use the table below to determine your next step.</p> <table border="1" data-bbox="800 662 1430 808"><thead><tr><th data-bbox="800 662 1115 711">If you want to...</th><th data-bbox="1115 662 1430 711">Then press...</th></tr></thead><tbody><tr><td data-bbox="800 711 1115 760">Increase brightness</td><td data-bbox="1115 711 1430 760">SEL Up button</td></tr><tr><td data-bbox="800 760 1115 808">Disable side tones</td><td data-bbox="1115 760 1430 808">SEL Down button</td></tr></tbody></table> <p data-bbox="751 813 1314 842">Result: You will have changed the brightness setting.</p>	If you want to...	Then press...	Increase brightness	SEL Up button	Disable side tones	SEL Down button
If you want to...	Then press...						
Increase brightness	SEL Up button						
Disable side tones	SEL Down button						
3	<p data-bbox="751 862 1415 891">To return to the menu display, choose from the following table</p> <table border="1" data-bbox="800 902 1430 1073"><thead><tr><th data-bbox="800 902 1079 951">To return...</th><th data-bbox="1079 902 1430 951">Then</th></tr></thead><tbody><tr><td data-bbox="800 951 1079 1000">Immediately</td><td data-bbox="1079 951 1430 1000">Push MENU</td></tr><tr><td data-bbox="800 1000 1079 1073">After a brief wait</td><td data-bbox="1079 1000 1430 1073">Wait approximately 10 seconds</td></tr></tbody></table> <p data-bbox="751 1078 1241 1107">Result: The radio returns to the menu display.</p>	To return...	Then	Immediately	Push MENU	After a brief wait	Wait approximately 10 seconds
To return...	Then						
Immediately	Push MENU						
After a brief wait	Wait approximately 10 seconds						



## Adjusting the Display Contrast

**Background** You can adjust the contrast of the display to suit your needs.

---

**Procedure** Follow the steps below to change the contrast of the display.

---

<b>Step</b>	<b>Action</b>
1	Press the MENU button until the contrast menu shows.

---

*Continued on next page*

**P-801 User's Manual**  
**Changing the Display Contrast (continued)**

---

Step	Action						
2	<p data-bbox="751 621 1268 651">Use the table below to determine your next step.</p> <table border="1" data-bbox="800 662 1430 808"> <thead> <tr> <th data-bbox="800 662 1083 709">If you want to...</th> <th data-bbox="1083 662 1430 709">Then press...</th> </tr> </thead> <tbody> <tr> <td data-bbox="800 709 1083 756">Increase contrast</td> <td data-bbox="1083 709 1430 756">SEL Up button</td> </tr> <tr> <td data-bbox="800 756 1083 803">Decrease contrast</td> <td data-bbox="1083 756 1430 803">SEL Down button</td> </tr> </tbody> </table> <p data-bbox="751 813 1289 842">Result: You will have changed the contrast setting.</p>	If you want to...	Then press...	Increase contrast	SEL Up button	Decrease contrast	SEL Down button
If you want to...	Then press...						
Increase contrast	SEL Up button						
Decrease contrast	SEL Down button						
3	<p data-bbox="751 860 1415 889">To return to the menu display, choose from the following table</p> <table border="1" data-bbox="800 901 1430 1073"> <thead> <tr> <th data-bbox="800 901 1083 948">To return...</th> <th data-bbox="1083 901 1430 948">Then</th> </tr> </thead> <tbody> <tr> <td data-bbox="800 948 1083 995">Immediately</td> <td data-bbox="1083 948 1430 995">Push MENU</td> </tr> <tr> <td data-bbox="800 995 1083 1073">After a brief wait</td> <td data-bbox="1083 995 1430 1073">Wait approximately 10 seconds</td> </tr> </tbody> </table> <p data-bbox="751 1078 1236 1107">Result: The radio returns to the menu display.</p>	To return...	Then	Immediately	Push MENU	After a brief wait	Wait approximately 10 seconds
To return...	Then						
Immediately	Push MENU						
After a brief wait	Wait approximately 10 seconds						

## Changing the Active Voice Profile

**Background** You can change the active profile of your radio from the default profile to any of the other profiles in your radio personality.

*Making this change means that you are switching the list of talk groups and listen groups that you normally communicate with.*

**Procedure** Follow the steps below to change the active voice profile.

Step	Action
1	Press MENU until the primary menu shows.
2	Turn the Profile Selector to move to the desired profile.  <i><b>Result:</b> The displayed profile is now active. The radio display will change to show the new profile number and the alias name for the talk group in the selected profile.</i>

### Advanced Operation

## Increasing the Scanning Priority of a Voice Group

---

### Background

You can prioritize hearing transmissions from a specific voice group over others in an active voice profile. When the priority is increased, transmissions from other users in the priority voice group will take precedence over the other voice groups in the profile.

---

### Process

The table below describes the process for increasing a voice group's scanning priority.

Stage	Description
1	The voice profile with the voice group to be prioritized is activated.
2	The priority menu is accessed.
3	The desired voice group is prioritized.

---

*Continued on next page*

## Increasing the Scanning Priority of a Voice Group, Continued

**Procedure** Follow the steps below to increase the scanning priority of a voice group.

<b>Step</b>	<b>Action</b>
1	Press MENU until the primary menu shows.
2	Press SEL to move to the voice profile that contains the voice group you want to scan with a higher priority.
3	Press MENU to access the priority menu.
4	Press SEL until the voice group you want to prioritize is displayed.  <i>Result: The selected voice group's transmission priority is increased</i>

---

*Continued on next page*

**P-801 User's Manual**  
**Increasing the Scanning Priority of a Voice Group,**  
**Continued**

**Procedure**  
**(continued)**

<b>Step</b>	<b>Action</b>						
5	Use the table below to determine your next step. <table border="1"><thead><tr><th>To return...</th><th>Then...</th></tr></thead><tbody><tr><td>Immediately</td><td>Push the MENU button</td></tr><tr><td>After a brief wait</td><td>Wait approximately 10 seconds</td></tr></tbody></table> <p>Result: The radio will return to the menu display.</p>	To return...	Then...	Immediately	Push the MENU button	After a brief wait	Wait approximately 10 seconds
To return...	Then...						
Immediately	Push the MENU button						
After a brief wait	Wait approximately 10 seconds						

Notes:

- Changing the priority of a voice group does not impact which voice group in your profile is the talk group.
  - You can prioritize one voice group in each of the profiles in your radio personality.
  - The priority settings are reset to the default talk group when the radio is shut off.
-

## Changing the Scanning Mode

---

### Scanning Modes

Changing the scanning mode can broaden or narrow the span of your communications. There are three available scanning modes:

- Normal scanning
- Talkback Scanning, or
- No scanning

Choosing one of the three changes the way your radio scans all of the voice profiles for your radio personality.

---

### Normal scanning defined

The radio monitors calls and enables audio output when any voice group in its voice profile becomes active. If multiple voice groups in the radio's scan list are active, the radio listens to the one with the highest scan-priority. After a higher scan-priority call ends, the radio joins the next highest scan-priority in progress on a first-come, first-served basis.

---

*Continued on next page*

**P-801 User's Manual**

**Changing the Scanning Mode, continued**

---

**Talkback scanning defined**

Each voice group has an associated talkback timer that defines its talkback window. This window is the period of time from the end of a call to when you press your microphone key.

If the talkback timer has not expired and the radio is configured for talk back scanning, the radio calls the last voice group, instead of its default talkgroup. If the talkback timer expires, your call is placed on the default talk group

---

**No scanning defined**

The radio only listens to the selected talk group.

---

**Procedure**

The following table details the procedure for changing the scanning mode of the radio.

---

*Continued on next page*



### Changing the Scanning Mode, continued

Step	Action								
1	Press MENU until the scanning menu appears.								
2	<p data-bbox="730 701 1024 727">Choose the scanning mode:</p> <table border="1" data-bbox="772 740 1438 1049"> <thead> <tr> <th data-bbox="781 743 1058 787">To...</th> <th data-bbox="1058 743 1430 787">Press SEL until...</th> </tr> </thead> <tbody> <tr> <td data-bbox="781 787 1058 894">Broaden transmissions beyond the active talkgroup</td> <td data-bbox="1058 787 1430 894">Talkback SCN is displayed</td> </tr> <tr> <td data-bbox="781 894 1058 943">Use Normal Scanning</td> <td data-bbox="1058 894 1430 943">Normal Scan is displayed</td> </tr> <tr> <td data-bbox="781 943 1058 1044">Narrow your scanning list to the active talkgroup only</td> <td data-bbox="1058 943 1430 1044">No Scanning is displayed</td> </tr> </tbody> </table> <p data-bbox="730 1057 1486 1117">Result: The scanning mode you chose is active for all the voice profiles in your radio personality.</p>	To...	Press SEL until...	Broaden transmissions beyond the active talkgroup	Talkback SCN is displayed	Use Normal Scanning	Normal Scan is displayed	Narrow your scanning list to the active talkgroup only	No Scanning is displayed
To...	Press SEL until...								
Broaden transmissions beyond the active talkgroup	Talkback SCN is displayed								
Use Normal Scanning	Normal Scan is displayed								
Narrow your scanning list to the active talkgroup only	No Scanning is displayed								

## Changing the Operating Mode

---

**Background**

The radio normally operates using OTP to provide the full features of a digital voice and data network. To interoperate with radios using other protocols such as Conventional FM, you can manually change the mode of operation to a different protocol.

---

**Procedure**

The table below describes the steps to follow to change the operating mode of the radio.

<b>Step</b>	<b>Action</b>
1	Press MENU until the mode change menu appears.
2	Press SEL to access the Change Mode 2 menu.

---

*Continued on next page*

## Changing the Operating Mode, continued

<b>Step</b> 3	<b>Action</b>	
	Choose your next step from the table below.	
	<b>To...</b>	<b>Turn...</b>
	Abort the mode change	Menu Result: The radio will display Aborted! and the change will be aborted.
	Continue	SEL until the SEL2Sel Mode menu is displayed.

---

*Continued on next page*

**P-801 User's Manual**  
**Changing the Operating Mode, Continued**

---

**Procedure**  
**(continued)**

<b>Step</b>	<b>Action</b>						
4	Press SEL until the desired mode is displayed.						
5	Press MENU to change the mode.						
6	Choose your next step from the table below. <table border="1" data-bbox="772 789 1402 1114"><thead><tr><th><b>To...</b></th><th><b>Turn...</b></th></tr></thead><tbody><tr><td>Abort the mode change</td><td>Menu Result: The radio will return to the primary menu without executing the change.</td></tr><tr><td>Continue</td><td>SEL Result: The radio powers down and reboots in the selected mode.</td></tr></tbody></table>	<b>To...</b>	<b>Turn...</b>	Abort the mode change	Menu Result: The radio will return to the primary menu without executing the change.	Continue	SEL Result: The radio powers down and reboots in the selected mode.
<b>To...</b>	<b>Turn...</b>						
Abort the mode change	Menu Result: The radio will return to the primary menu without executing the change.						
Continue	SEL Result: The radio powers down and reboots in the selected mode.						