

# PRYME<sup>®</sup> RADIO PRODUCTS

## PRYME<sup>™</sup> GPS

### PRYME - TROOPER II<sup>™</sup>

GPS Speaker Microphones for Icom and IDAS radios



Applicable Models: GPS-2200ILS, GPS-2210  
 Made in Taiwan  
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**Federal Communication Commission Interference Statement**

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. This equipment generates, uses and can radiate 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 interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with FCC RF exposure compliance requirements, please avoid direct contact to the transmitting antenna during transmitting.

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## Controls and Connection

**GPS Antenna (Internal)**  
 The Trooper II<sup>™</sup> GPS uses an internal high-gain "stealth" GPS antenna. Placing the antenna inside the microphone results in a more durable design and prevents the GPS antenna from drawing attention.

**Noise Cancelling Microphone**  
 The noise cancelling microphone reduces the amount of background noise transmitted over-the-air, making the user's voice clearer and easier to understand, even in high-noise environments.

**Push-to-Talk Button**  
 Pressing and holding this button causes the two-way radio to transmit. The large PTT button is easy to operate even when wearing gloves.

**Radio Connector**  
 This port allows the speaker microphone to connect to a compatible Kenwood 2-way radio.

**Rubberized Grips**  
 The grips on each side of the GPS-2200 Trooper II<sup>™</sup> make it easier to hold the microphone

**Speaker**  
 Received signals are heard over the loud, front-firing speaker.

**Polycarbonate Housing**  
 The weatherized housing is made of durable high-impact polycarbonate. It meets the requirements for MIL-STD-810 and has an IP56 rating against dust and moisture.

**Swivel Clip**  
 The metal-reinforced 360° rotating clip allows the user to secure the microphone to their clothing.

**Listen Only Earphone Jack**  
 The microphone uses a standard 3.5 mm mono earphone jack for connecting an optional listen-only accessory (sold separately).

**Microphone Cable**  
 The Trooper II GPS uses PRYME's military-grade RINO<sup>™</sup> microphone cable. The cable has a tough polymer jacket on the outside and Kevlar<sup>™</sup> reinforcement inside and is engineered to last longer and retain its shape better than other cables.

**Note:** GPS-2210 model shown. Other models may vary slightly in appearance.

## Using the TROOPER II<sup>™</sup> GPS Speaker Microphone

To connect the speaker microphone to the radio:

- For dual-pin models (GPS-2200ILS)**
- \* Insert the speaker/microphone plugs into the speaker/microphone jacks of the transceiver.
  - \* Push the connector toward the transceiver until you feel it "snap" into place.
  - \* Tighten the two screws on the connector to secure it to the radio. Do NOT over tighten.
- For multipin models (GPS-2210)**
- \* Insert the guide tab of the Trooper II GPS's radio connector into the slot just below the radio's universal connector.
  - \* Align the connector with the radio's universal connector.
  - \* Tighten the thumbscrew on the connector to secure it to the radio. Do NOT over tighten.

**NOTE:** You should ensure that the two-way radio is powered off whenever you connect/disconnect the PRYME Trooper II GPS speaker microphone from the two-way radio.

Operation of the Trooper II GPS is transparent to the user. The user may transmit voice messages by pressing and holding the Push-To-Talk button on the side of the Trooper II GPS and then speaking into the microphone. Received calls will be heard Trooper II's front-firing speaker or through the optional listen-only earphone, if one is used. As long as the Trooper II GPS is connected to the radio's accessory jack, the radio is powered on, and the GPS receiver inside the Trooper II GPS has a valid location fix, the user's GPS coordinates will be sent as data across the radio system at the pre-programmed intervals. The user can also manually send their GPS location by selecting the "Send the GPS Data" option from the radio's menu.



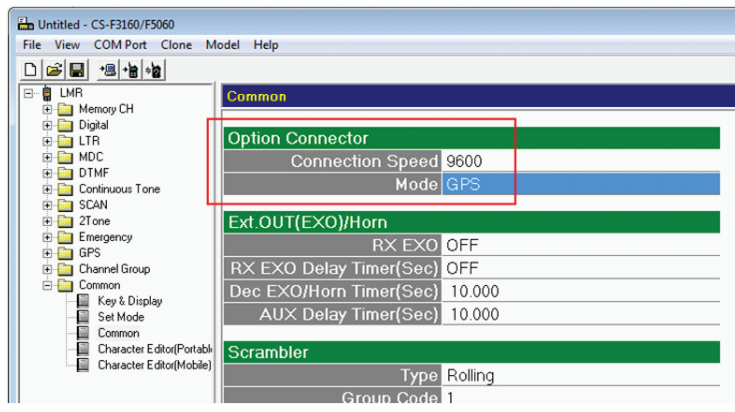
## Setup and Programming

In order for the GPS receiver in the Trooper II GPS to work properly, the two-way radio that the speaker microphone will be used with must be properly programmed using the appropriate Kenwood CPS (Computer Programming Software) and programming cable.

**NOTE:** The information in this section pertains to *Icom IDAS IC-F3160* and *IC-F4160* radios. Other radio models may require slightly different programming.

1. On the **Common > Common > Option Connector** screen set the following:

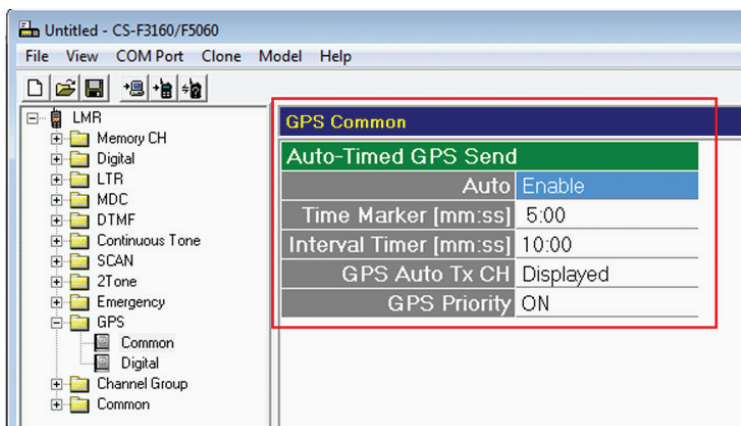
<b>Connection Speed:</b>	9600
<b>Mode</b>	GPS



This setting allows the radio to detect and communicate with the GPS receiver in the PRYME Trooper II GPS speaker microphone.

2. On the **GPS > Common** screen set the following:

<b>Auto:</b>	Enable
<b>Time Marker [mm:ss]:</b>	00:01 to 59:59
<b>Interval Timer [mm:ss]:</b>	00:01 to 59:59
<b>GPS Auto Tx CH</b>	Displayed or select a channel
<b>GPS Priority</b>	On or Off



Setting the Auto mode to Enable allows the radio to send out GPS messages at set intervals as determined by the Interval Timer. The Time Marker setting determines how soon radio will send its first location report after acquiring a GPS fix. The GPS Auto Tx CH function determines whether GPS location reports will be sent on the same channel that the radio is tuned to, or if a priority channel will be used instead. The GPS Priority setting determines whether or not the radio will interrupt a voice call or other function in progress to send a location report if the interval timer is reached.

5

## Specifications

<b>Receiver Type</b>	Channels:	50
	Frequency:	L1
	Signals:	GPS C/A Code
<b>Configuration</b>	Time Pulse:	0.25 Hz to 1 kHz
	Navigation Update Rate:	up to 5Hz (ROM)
<b>Time-To-First-Fix<sup>1</sup></b>	Cold Start (Autonomous):	28 s
	Warm Start (Autonomous):	28 s
	Hot Start (Autonomous):	1 s
	Aided Starts <sup>2</sup> :	1 s
<b>Sensitivity<sup>3</sup></b>	Tracking & Navigation:	-160 dBm
	Reacquisition:	-160 dBm
	Cold Start (Autonomous):	-143 dBm
<b>Accuracy</b>	Horizontal position <sup>4</sup> :	< 2.5 m Autonomous < 2.0 m SBAS
	RMS 99%:	30 ns <60 ns
	Velocity <sup>5</sup> :	0.1m/s
	Heading <sup>6</sup> :	0.5 degrees
	<b>Limits</b>	Acceleration:
Altitude <sup>6</sup> :		50000 m
Velocity <sup>6</sup> :		500 m/s

**Note:**

- <sup>1</sup> All satellites at -130 dBm
- <sup>2</sup> Dependent on aiding data connection speed and latency
- <sup>3</sup> Demonstrated with a good active antenna
- <sup>4</sup> CEP, 50%, 24 hours static, -130dBm, SEP: <3.5m
- <sup>5</sup> 50% @ 30 m/s
- <sup>6</sup> Assuming Airborne <4g platform

**DISCLAIMER:** GPS location data is acquired from government satellites. Accuracy of this data is subject to obstructions, reflections, interference, and government interventions, and is not under PRYME's control. Users should avoid placing absolute reliance on coordinates obtained from any GPS receiving device.

At best, GPS location reports are only accurate to:

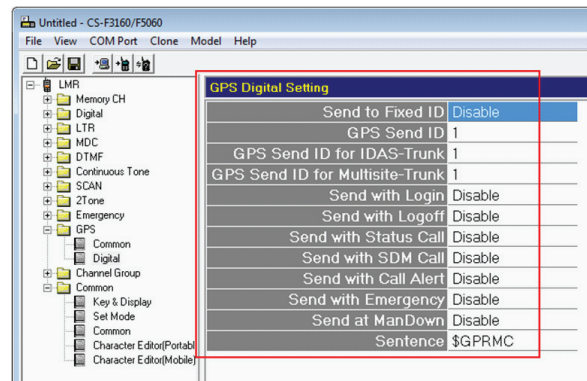
- within 10 meters for latitude and longitude
- within 50 meters for altitude

In practice, accuracy is variable and is affected by many environmental factors such as interference and obstruction. Altitude is especially subject to inaccuracies. Ultimately, the reliability of the data is under the control of the GPS source, not the GPS receive system

7

3. On the **GPS > Digital** screen set the following:

<b>Send to Fixed ID:</b>	Enable <i>or</i> Disable
<b>GPS Send ID:</b>	Enter the Unit ID of the base station radio
<b>GPS Send ID for IDAS-Trunk:</b>	Enter the Unit ID of the base station radio
<b>GPS Send ID for Multisite-Trunk</b>	Enter the Unit ID of the base station radio
<b>Send with Login</b>	Enable <i>or</i> Disable
<b>Send with Logoff</b>	Enable <i>or</i> Disable
<b>Send with Status Call</b>	Enable <i>or</i> Disable
<b>Send with SDM Call</b>	Enable <i>or</i> Disable
<b>Send with Call Alert</b>	Enable <i>or</i> Disable
<b>Send with Emergency</b>	Enable <i>or</i> Disable
<b>Send at ManDown</b>	Enable <i>or</i> Disable
<b>Sentence</b>	\$GPRMC



The settings determine how GPS messages are routed. To have GPS messages sent to a fixed base station, set **Send Fixed ID** to *Enable*. You will then have to enter the ID of the base station radio to use in normal, IDAS trunking, and multisite trunking operation. You can also set whether or not the radio will send location reports in conjunction with other types of data messages. For example, setting **Send with Emergency** to *Enable* will cause the radio to send a location report over-the-air whenever the radio's emergency alarm function is triggered.

The settings on this screen apply to the radio's *digital* modulation mode. If you wish to use the GPS in analog mode, you must have a radio with the EMDC or BILS feature enhancements and those systems must be enabled.

6

## Support and Warranty

PRYME Radio Products warrants this product against defects in materials or workmanship for a period of one year from the date of retail purchase. PRYME will repair or replace a defective unit, at our option, without charge for parts or labor. The limited warranty is extended only to the original purchaser and is valid only to consumers in the United States and Canada. It does not cover damage or failure caused by or attributable to Acts of God, abuse, misuse, improper or abnormal usage, faulty installation, improper maintenance, lightning, or other incidences of excessive voltage, or any tampering or repairs by other than a PRYME authorized repair facility. It does not cover replacement of consumable parts, transportation costs, or damage in transit.

Repair or replacement under the terms of this warranty does not extend the terms of this warranty. This warranty can only be modified by an officer of PRYME Radio Products, and then only in writing. Should this product prove defective in workmanship or material, the consumer's sole remedies shall be such repair or replacement as provided by the terms of this warranty. Under no circumstances shall PRYME Radio Products be liable for any loss or damage, direct, consequential, or incidental, arising out of the use of or inability to use this product. Some states do not allow limitations on how long an implied warranty lasts or the exclusions or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights, which may vary, from state to state.

For support or warranty service on your PRYME product, contact us at 1-800-666-2654 or visit us on the web at [www.PRYME.com](http://www.PRYME.com).

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8