



**UNITY® XG-100M**  
Full-Spectrum Multiband Radio  
With CH-721 Control Head

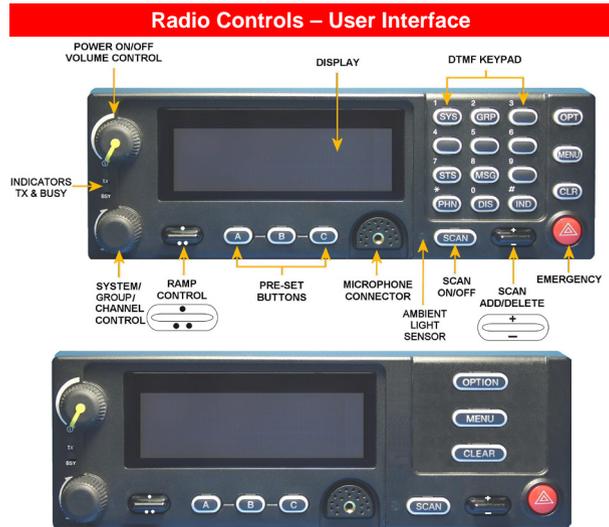


Figure 1: System (top) and Scan (bottom) Front Panels

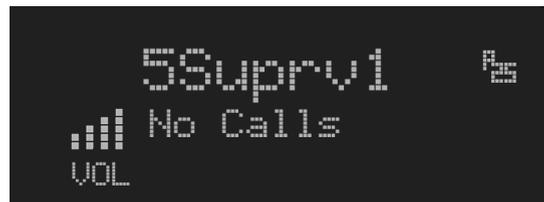


Figure 2: Radio Display

**Radio Controls (refer to Figure 1)**

<b>Power On-Off Volume Control</b>	Turn knob clockwise to power on the radio and increase volume. Turn counter-clockwise to decrease volume and power off the radio.
<b>System/Group/Channel Control Knob</b>	This rotary switch selects the systems or groups/channels, depending on programming.
<b>Ramp Control</b>	Scrolls through the System list or the Group/Channel list. The secondary function increments or decrements items within a list.
<b>Scan ON/OFF</b>	This button toggles scan operations ON and OFF. All groups or channels in the scan list of the currently selected systems are scanned.
<b>Scan Add/Delete</b>	Used to display the current SCAN status for a group/channel and then either add or delete the group/channel from the scan list.
<b>TX BSY Indicators</b>	Transmitter enabled - On when the radio is transmitting. BUSY - On indicates a carrier is being received (the channel is busy).

**Icons**

	Indicates selected group or channel is in scan list.
	Indicates selected group or channel is programmed as Priority 2 in scan list.
	Indicates selected group or channel is programmed as Priority 1 in scan list.
	Volume bars – indicates relative volume level.

**Icons (continued)**

	Spinning - Scan mode enabled.
	Indicates the current channel is set up as an analog channel.
	Receiving or transmitting Encrypted Calls.
	Indicates a conventional channel enabled with Channel Guard Function.
	Indicates the current channel is set up as a P25 channel.

**Radio Keypad Functions**

<b>CLR or CLEAR</b>	Exits the current operation and removes all displays associated with it.  In Conventional mode, pressing this button unmutes the receiver so activity on the selected channel can be monitored.
	Used to declare emergencies if enabled through programming.
<b>DIS</b>	Used to adjust the current display intensity and the keypad backlight level.
<b>SCAN</b>	Primary function - toggle scan operation ON and OFF.

**Radio Keypad Functions (continued)**

<b>A, B, &amp; C</b>	Used to store and recall user-selectable parameters.
<b>SYS</b>	Used to enter the System Select mode.
<b>OPT or OPTION</b>	Used to toggle a PC programmable feature ON and OFF.
<b>#</b>	DTMF keypad function.
<b>*</b>	DTMF keypad function.
<b>GRP</b>	Used to enter the Group Select mode.
<b>MENU</b>	Primary function - accesses the menu list. This is a list of additional features that are not available directly from the keypad. Secondary function - activates a selected item within a list. Once activated, MENU continues its secondary function for activating a selected parameter setting until the radio returns to its normal receive state.
<b>STS</b>	Permits transmission of a pre-programmed status message to a P25 site.
<b>MSG</b>	Permits transmission of a pre-programmed message to a P25 site.
<b>IND</b>	Used to call an individual or make an all-call by selecting the individual call function.
<b>0-9</b>	Keypad numbers.

Alert Tones	
NAME	DESCRIPTION
Call Originate	OK to talk after pressing PTT button. One short mid-pitched tone.
Autokey (T)	Queued call received channel assignment.
Call Queued (T)	Call queued for processing. One high-pitched tone.
System Busy (T)	System busy or unable to complete the call. Three low-pitched tones.
Call Denied (T)	Radio not authorized on the system or group. One low-pitched tone.
Carrier Control Timer	PTT pressed for too long. Five high-pitched tones and one long low-pitched tone.
Key Press Alert	One short tone sounds when a key has been pressed. A short low-pitched tone indicates no action was taken because the key is not active in the current mode.
Out of Range (T)	One low pitched tone. Indicates the radio is in Wide Area Scan. The radio periodically beeps when in Wide Area Scan.

(T) = *trunked only*

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Status Messages	
QUEUED	Call Queued - Trunked only. Call placed in request queue.
SYS BUSY	System Busy - Trunked only. System is busy, no channels available, queue is full.
DENIED	Call Denied - Trunked only. Radio or group not authorized on selected system or group.
CC SCAN	Control Channel Scan - Trunked only. Control channel lost (e.g., out of range).
WA SCAN	Wide Area Scan mode - Trunked only. Radio searching for a new system.
TALKARND	Talk-around mode - Conventional mode only. Radio operating on conventional channel (with no repeater).
SYSC ON	System Scan Features On – Trunked only. System Scan features enabled.
SYSC OFF	System Scan Features Off – Trunked only. System Scan features disabled.
RXEMER	Receive Emergency – (Flashing on line 2) P25 modes only. Emergency call being received.
*TXEMER*	Transmit Emergency – (Flashing on line 2) P25 modes only. Emergency call transmitted from this radio.
*VOL=31*	Volume Level – Current volume level [from OFF (silent) to 31, (loudest)]
UNKNOWN	Unknown ID – P25 modes only. Individual call being received from unknown ID.
TX DATA	Transmit Data – Trunked only. Indicates the radio is transmitting a data call.
RX DATA	Receive Data – Trunked only. Indicates the radio is receiving a data call.
DATA ON	Trunked only. Indicates the radio has been toggled to the data enabled state.
DATA OFF	Trunked only. Indicates the radio is in the data disabled state.
EM	Emergency. Indicates an emergency has been declared by the LID that follows the display, "EM".

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Status Messages (continued)	
PA ON	Public Address On - Indicates that the public address function of the radio is enabled.
PA OFF	Public Address Off - Momentarily (two (2) seconds) indicates that the public address function of the radio was disabled.
ALRM ON	External Alarm Enabled - Indicates that the external alarm function of the radio is enabled.
ALRM OFF	External Alarm Disabled - Momentarily (two (2) seconds) indicates that the external alarm function of the radio was disabled.
PVT DIS	Private Mode Disabled - Indicates that private mode is disabled or no encryption key has been programmed.
FRCD PVT	Forced Private Operation - Indicates that forced private operation has been pre-programmed.
MENU	Displayed when the menu key is pressed and remains until a menu item is selected.
*INDV*	Individual Call – Displayed on line 2 when a call is in progress.

#### Conventional Mode

##### Transmit a Call

- Turn the radio on and set the POWER ON-OFF/VOLUME knob to the desired volume level. Ensure that the channel is not busy.
- Press and hold the PTT button. The **TX** indicator will turn on and a short beep sounds (if programmed) indicating that communication can begin.
- Hold the microphone approximately two (2) inches from the mouth and speak in a normal voice.
- Release the PTT button when the transmission is complete and listen for a reply.

##### Receive a Call

- After turning the radio on, select the desired conventional system and channel. The display indicates the current conventional system and channel names.
- The radio is now ready to receive calls.
- When the radio receives a call (and correct encoding is decoded, if programmed and enabled), it unmutes on the channel and the **BSY** indicator comes on.

#### Trunked Mode

##### Transmit a Call

- Turn the radio on and set the POWER ON-OFF/VOLUME knob to the desired volume level. Select the desired system and group.
- Press and hold the PTT button. The radio will display the system and group names and perform the necessary signaling required to obtain a communication channel.
- When the working channel is assigned, **TX** and **BSY** indicators are turned ON and a short beep is sounded indicating communication can begin.

#### Trunked Mode (continued)

- Hold the microphone approximately two (2) inches from the mouth and speak in a normal voice.
- Release the PTT button when the transmission is complete and listen for a reply.

##### Receive a Call

- After turning the radio on, the display shows the last selected or the power up (depending on programming) system and group names. If the radio is unable to obtain a control channel, line 2 shows **CC SCAN**.
- Adjust the POWER ON-OFF/VOLUME knob to the desired volume level.
- Select the desired system and group. The display indicates the current system and group names.
- The radio is now ready to receive calls.
- When the radio receives a group call, it unmutes on the assigned working channel and the **BSY** indicator comes on. Line 1 shows **GR** followed by the logical ID number (if received) of the unit sending the message, or the associated name if the ID number is found in the individual call list.

#### Declare an Emergency

Check with System Administrator to ensure that the emergency function is enabled.

To send an emergency call to the selected system and group:

- Press and hold the emergency button for approximately one second.
- The radio sounds a single beep. \*TXEMER\* flashes on line 2 in the display until the emergency is cleared.
- Press PTT and speak into the microphone in a normal voice.
- Release PTT when the transmission is complete and listen for a reply.
- To clear, press and hold the **CLR** button. While holding the **CLR** button, press the emergency button and then release both buttons.