

FREQUENTLY ASKED QUESTIONS - OPERATION

Detailed information for operating the GI-100 is given in the Operator's Manual. For questions not addressed in either of these locations, or ones not addressed below, send an email using the Support link on the website.

Q. Do I need a license to operate the GI-100?

A. No. Part 15 of the FCC code permits transmitters certified under this regulation to be operated without a license. The FCC ID for the GI-100 is WLX-GI100A1000. You are permitted to operate this unit as long as you comply with the instructions in the Operator's Manual.

Q. The **audio response** specification is 300 Hz to 3 kHz. This is a standard response for voice communications, but inadequate for music transmission. What can I expect from the GI-100?

A. Specifying audio bandwidth is not straightforward, as other parameters are involved. The response listed in the specification is a guaranteed minimum over the specified 30 dB of dynamic range, and insures no noticeable variation in response or degradation in harmonic distortion. The lower end (300 Hz) is limited by the interaction of fast attack/slow decay feature of the automatic modulation control, which introduces harmonic distortion, typically -35 dBc at 300 HZ, or about 0.03%. The upper end of the specification is limited by possible interference with the adjacent AM channel frequencies, which start at 5 kHz.

In practice, the response bandwidth of the GI-100 is much wider than specified. To illustrate this, the following data was taken on a production GI-100 as typical of the unit, using a 200 millivolt P/P audio input, while monitoring the modulation sidebands and harmonics using a spectrum analyzer:

Lower 3 dB point	40 Hz	
Lower specified point	300 Hz	(-35 dBc harmonics)
Upper specified point	3 kHz	(-40 dBc harmonics up to 7 kHz)
Upper 3 dB point	12 kHz	(-25 dBc harmonics)

Q. The question of **audio input level** is not clear. How do I set the audio level for the GI-100, and how do I tell if it is correct?

A. First, let's set up a simple method to set the level: Use the line level output (or earphone output) from your audio source. Tune an AM radio to receive your signal. Adjust the volume control of your source while listening to the changing volume of the radio. You will notice that the volume of the radio is not very sensitive to changes in the volume setting of the source. That is because the GI-100 has built-in automatic volume control that operates over a very wide range of levels (dynamic range). You will notice that the sound from the radio starts to sound garbled at the high end of the volume control and gets weaker at the low end. You want to choose a setting between the two. This is not a critical adjustment; however, if you plan to play music with complex parts and wide volume changes in it, keep the audio volume low so that the transmitter's automatic volume control does not alter the dynamic range of the music. For certain kinds of music, a volume level that is too high can produce a result that is quite unpleasant. The best way to determine your optimum level is to use your radio as your guide. If your transmission sounds good through your radio, then the level is set appropriately. The setting is actually a trade-off between two attributes: A higher audio input level will insure a maximum transmitter output under varying conditions; whereas a lower audio input level will give better response to the dynamic range of the audio input. If you are using the

Studio Controller supplied by Grain Industries, the DET level indicator will also help. A flickering green DET indicator will indicate that the level is in its proper range. The brightness of the light correlates to the volume, which you can adjust to your application.

Q. Is more detailed information available on using the **switches to select the desired frequency?** The directions in the Operator's Manual do not give many examples.

A. This chart may help:

Switches that are ON (up) are marked with "@"; switches that are OFF are not marked.

For frequencies not listed, pick a frequency that is close and add or subtract switch values as needed.

DIPSWITCH POSITIONS	1	2	3	4	5	6	7	8
SWITCH VALUE (kHz)	1280	640	320	160	80	40	20	10
OUTPUT:								
(kHz)								
1050		@	@		@			@
1060		@	@		@		@	
1070		@	@		@		@	@
1080		@	@		@	@		
1090		@	@		@	@		@
1100		@	@		@	@	@	
1110		@	@		@	@	@	@
1120		@	@	@				
1130		@	@	@				@
1140		@	@	@			@	
1150		@	@	@			@	@
1160		@	@	@		@		
1170		@	@	@		@		@
1180		@	@	@		@	@	
1190		@	@	@		@	@	@
1200		@	@	@	@			
1210		@	@	@	@			@
1220		@	@	@	@		@	
1230		@	@	@	@		@	@
1240		@	@	@	@	@		
1250		@	@	@	@	@		@
1260		@	@	@	@	@	@	
1270		@	@	@	@	@	@	@
1280	@							
1290	@							@
1300	@						@	
1310	@						@	@
1320	@					@		
1330	@					@		@
1340	@					@	@	
1350	@					@	@	@

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(kHz)								
1360	@				@			
1370	@				@			@
1380	@				@		@	
1390	@				@		@	@
1400	@				@	@		
1410	@				@	@		@
1420	@				@	@	@	
1430	@				@	@	@	@
1440	@			@				
1450	@			@				@
1460	@			@			@	
1470	@			@			@	@
1480	@			@		@		
1490	@			@		@		@
1500	@			@		@	@	
1510	@			@		@	@	@
1520	@			@	@			
1530	@			@	@			@
1540	@			@	@		@	
1550	@			@	@		@	@
1560	@			@	@	@		
1570	@			@	@	@		@
1580	@			@	@	@	@	
1590	@			@	@	@	@	@
1600	@		@					
1610	@		@					@
1620	@		@				@	
1630	@		@				@	@
1640	@		@			@		
1650	@		@			@		@
1660	@		@			@	@	
1670	@		@			@	@	@
1680	@		@		@			
1690	@		@		@			@
1700	@		@		@		@	