

INSTRUCTION MANUAL

MODEL 2455R SUBCARRIER DEMODULATOR

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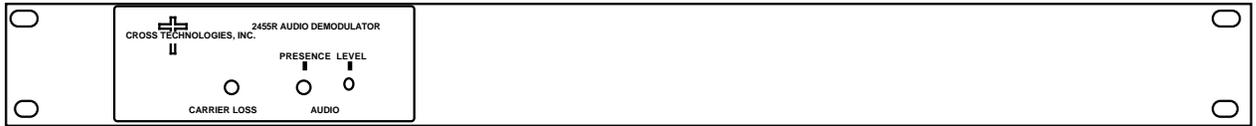
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MODEL 2455R SUBCARRIER DEMODULATOR

SECTION 1 GENERAL

1.1 Equipment Description- The Model 2455R demodulates an FM modulated signal in the 5.4 to 8.5 MHz subcarrier band at a frequency set at the factory and specified by the customer. The 2455R provides non-de-emphasized audio at a 1.0 Vrms wideband audio out into a balanced 600 ohm output impedance for 150 kHz peak deviation. Audio connectors are barrier strip and the subcarrier input connector is BNC female. The unit is mounted on a standard 19", 1 3/4 " high rack mount panel and DC power is supplied by a wall mount power supply.



Model 2455R Receiver

FIGURE 1.0 Model 2455R Subcarrier Demodulator

1.2 Technical Characteristics

TABLE 1.0 2455R DEMODULATOR SPECIFICATIONS

<u>Characteristics</u>	<u>Specifications*</u>
Audio Output Characteristics	
Impedance	600 ohms, balanced
Frequency	50 Hz to 120 kHz
Output Level	Factory set for 1 Vrms into 600 for 150 kHz Peak deviation; Adjustable
SC Input Characteristics	
Impedance	> 1.5K ohms (bridging)
Frequency range	5.4 - 8.5 MHz, factory set
Level	50 - 250 mVp-p into 75
Channel Characteristics	
Deviation	150 kHz Peak
De-emphasis	None
Frequency Response	±1.0 dB, 50 Hz - 120 kHz
Distortion	1 %, 1 kHz
Controls	
Output level adjust	10 turn pot adjusts the audio output; factory set for 1 Vrms
Indicators	
No Carrier Alarm	Red LED (with open collector out)
Audio Presence	Green Led, lights at > -20 dB below PPL audio level
Other	
DC Power, max.	+15VDC, 75 ma; -15VDC, 50ma; via wall power supply
RF, IF Connectors	BNC, female

*+10 to +40 degrees C; Specifications subject to change without notice

2.0 Installation

2.1 Mechanical - The 2455R Demodulator PCB is packaged in an aluminum extrusion. The 2455R is mounted on a 1 3/4" X 19" panel that can be mounted to a rack using the 4 holes at the ends. The unit derives $\pm 15V$ from the wall power supply. See Figure 2.1.

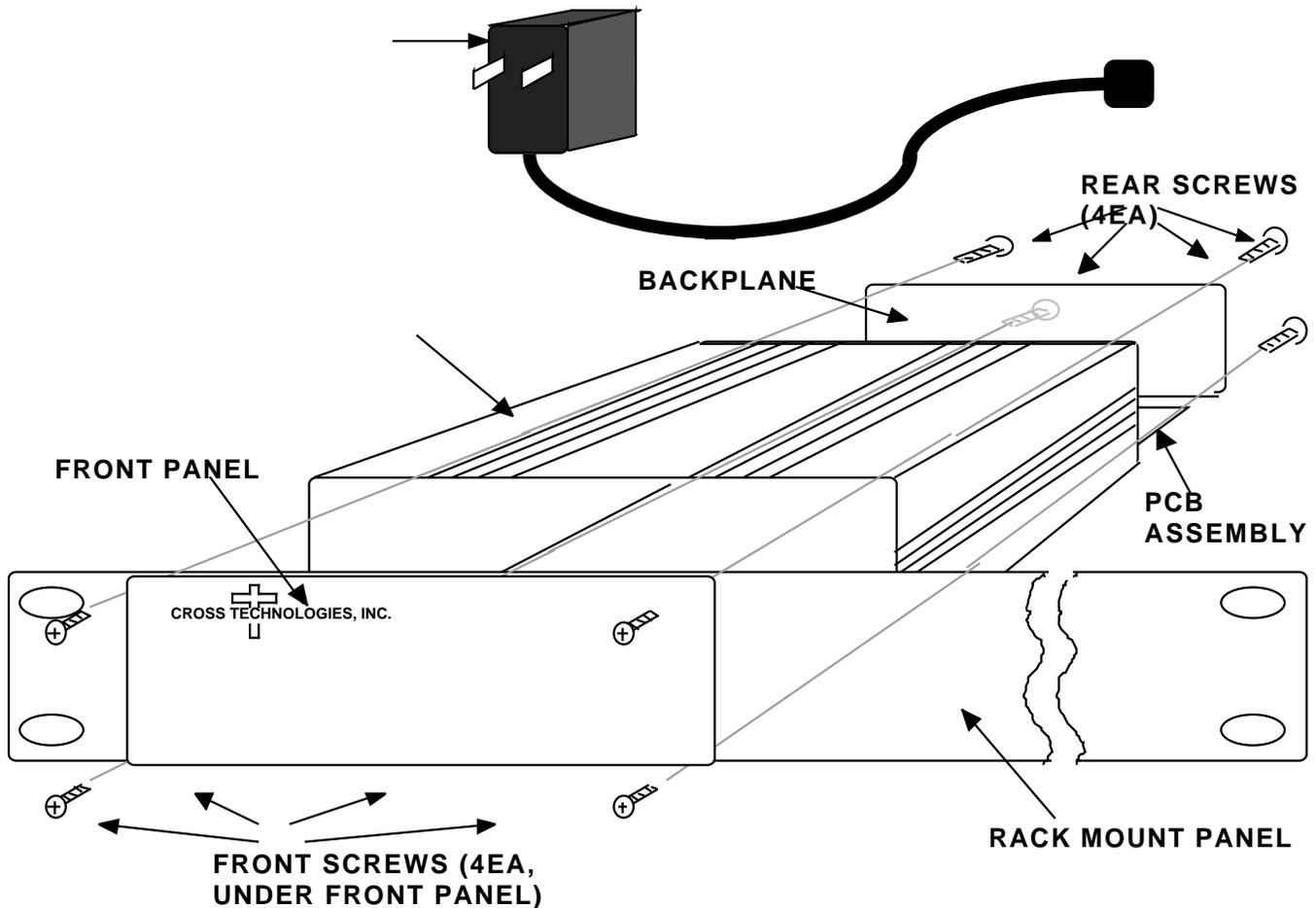


FIGURE 2.1 SERIES 2455 ASSEMBLY DRAWING

2.2 Controls and Indicators - Figure 2.2 shows front panel controls and indicators.

2.3 Input / Output Signals - Figure 2.3 shows the input and output signals to the 2455R.

2.4 Removing the Printed Circuit Board (PCB) From the Extrusion - There are no on-card jumpers or other on-card controls. To remove the printed circuit board (PCB) from the extrusion:

- 1.) Remove four (4) **rear panel screws** (see Figure 2.1).
- 2.) **Gently** pull the backplane and PCB assembly completely out of the extrusion.
- 3.) **Always remove power** when removing or installing the PCB in to the extrusion. Make sure the shield goes in the lower channel and the PCB in the next channel above that in the extrusion.
- 4.) **Gently** push the backplane and PCB assembly completely in to the extrusion.
- 5.) Install four (4) **rear panel screws**.

2.5 Installation / Operation -

2.5.1 Operation -

- 1.) Connect the wall power supply to the 2455R first and then the wall power supply to 115 VAC, 60 Hz (Figure 2.1)
- 2) **AUDIO OUTPUT** - Pins 16 and 17 of J4 (terminal strip on the back panel, see Figure 2.3 and Table 2.1) are the balanced audio outputs. Pin 13 is an unbalanced audio output. Pin 18 is ground.
- 3) **SUBCARRIER INPUT** - The subcarrier input goes to J1, the BNC connector on the back panel (Figure 2.3). JP1 may be placed in the "TERM" position for a 75 ohm termination. If baseband is being looped through, this jumper it should be placed in "non-term" (JP1 pins 2 -3) position. Use a BNC "T" to loop the subcarrier input to other demodulators if using the high impedance loop through. Be sure a 75 ohm termination is provided at some point in the loop, preferably at the end.
- 4.) The audio output level is adjustable and preset for 1 Vrms into a balanced 600 ohm output impedance for a 150 kHz peak deviation input with R74 (Figure 2.2).
- 5.) The alarm indicator DS1 (Figure 2.2) will illuminate when there is no carrier present.
- 6.) The audio presence indicator, DS2 (Figure 2.2) flashes on audio peaks greater than -20 dB below PPL.

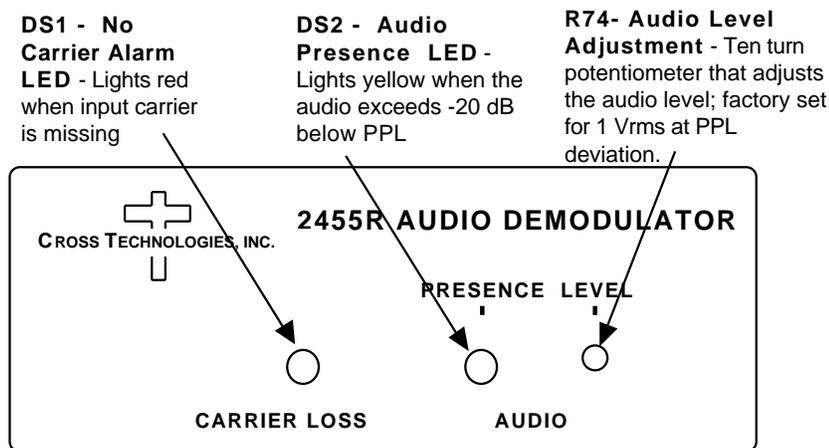
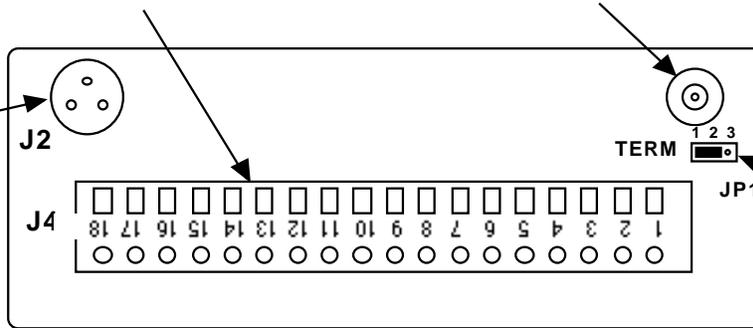
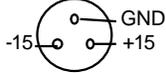


FIGURE 2.2 2455R Front Panel Controls and Indicators

J4 - I/O BARRIER STRIP - Provides connections for audio, data, alarm signals, etc. Pin numbers are as shown upside down on the connector. See Table 2.1

J1 - BNC IN/OUT - Signal from pin 2 or 3 (as set by strap beside J1) of PCB which is for subcarrier, video, IF and RF signals.

J2 - DC IN - The +15 VDC AND -15 VDC regulated DC voltage from the wall power supply



JP1 - J1 OUTPUT TERMINATION

TERM = 75 TERMINATION
2-3 = NO 75 TERMINATION

FIGURE 2.3 2455R Inputs and Outputs

TABLE 2.1 INPUT AND OUTPUT SIGNALS			
CONNECTOR	GENERAL FUNCTION	2455R FUNCTION	COMMENTS
J1	BNC IN/OUT	SUBCARRIER INPUT	50 TO 250 MV P-P
J2	DC IN	DC IN	± 15 VDC, 3PIN MINI-DIN
J3	PCB EDGE CONNECTOR	PCB EDGE CONNECTOR	INTERNAL USE
J4 - PIN			
1	GROUND	GROUND	
2	BB IN/OUT	NOT USED	
3	RF/IF OUT/IN.	NOT USED	
4	+AUDIO - L; +CLK	NOT USED	
5	-AUDIO - L; -CLK; RS232	NOT USED	
6	MISC; AGC; CC; BCD-0	NOT USED	
7	UNBAL AUDIO - L.	NOT USED	
8	MISC; CC; BCD-1	NOT USED	
9	+15 VOLTS.	+15 VOLTS.	
10	MISC; CC; BCD-2	NOT USED	
11	-15 VOLTS	-15 VOLTS	
12	MISC; CC; BCD-3	NOT USED	
13	UNBAL AUDIO - R.	UNBALANCED AUDIO	1 Vrms at PPL, 1K unbalanced
14	MISC; CC;	NOT USED	
15	ALARM; CC.	ALARM OPEN COLLECTOR	(+30 VDC, 30ma MAX).
16	+AUDIO - R ; +DATA.	+AUDIO IN	1 Vrms at PPL, 600 balanced
17	-AUDIO - R ; -DATA; RS232.	-AUDIO	1 Vrms at PPL, 600 balanced
18	GROUND	GROUND	