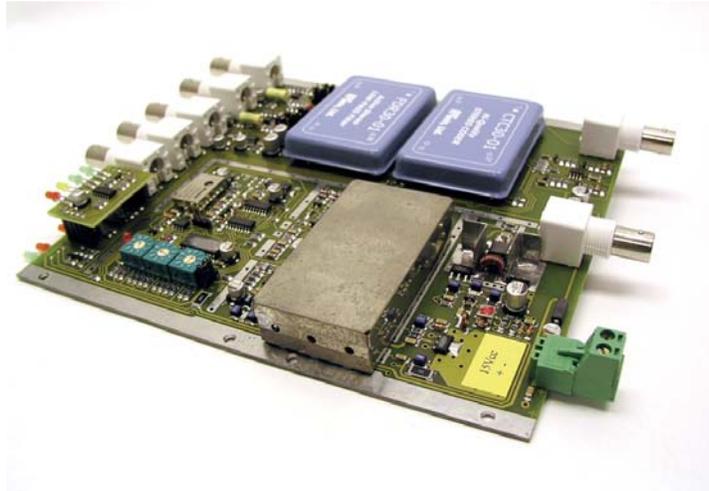


## 1 W - FM Stereo Transmitter Exciter Board

1W FM Broadcast Exciter for Mono / Stereo Operations  
(87.5 to 108 MHz Version)



<b>General</b>	
Power Output	<b>1.0W min., 1.5W typ.</b>
RF Output Impedance	<b>50 <math>\Omega</math></b> Unbalanced, VSWR less than 2:1 for full output.
RF Output Connector	<b>BNC</b> type (Rear panel).
Frequency Range	<b>87.5 to 108 MHz</b> in 50 kHz steps.
Frequency Control	Manually settable synthesizer (3 internal rotary switches).
Reference and Freq. Stability	TCXO; $\pm 300$ Hz, 0° to 50°C temperature increment.
Modulation Type	<b>F3E/F8E</b> Direct FM at the carrier frequency.
Modulation Sensitivity Variation ( REF= $\pm 75$ kHz )	$\pm 5\%$ from 87.5 to 108 MHz.
Modulation Capability	$\pm 150$ kHz.
Modulation Indication	Peak reading <b>LEDBAR</b> with overmodulation led indicator ( Red led ).
AF Limiter	Deviation increment (REF= $\pm 75$ kHz) less than <b>1dB</b> for 6dB of input audio level increasing. Internally jumper settable ( On / Off ).
Off Lock Attenuation	<b>&gt; 60 dBc.</b>
RF Spurious	Exceeds EBU/CCIR/FCC requirements: <b>-95 dBc @ <math>\pm 1</math> MHz</b> min. out of carrier.
AM Asynchronous S/N Ratio	<b>-58dB min. , -60dB typ,</b> Conditions: REF.=100% AM Mod. @400Hz, BW=30Hz to 20 kHz, no FM modulation present.
AM Synchronous S/N Ratio	<b>-55dB min., -58dB typ,</b> Conditions: REF.=100% AM Mod. @400Hz, BW=30Hz to 20 kHz, FM Mod. $\pm 75$ kHz @ 400Hz, 97.5 MHz.
Status Indication	LED Status Indicators: <b>MONO/MPX, STEREO, LIMIT</b> and <b>LOCK</b> (Front panel).
DC Input Power	<b>15 V<sub>DC</sub> <math>\pm 5\%</math>, 650 mA max.</b>
Ambient Temperature Range	<b>0°C to 50°C</b> (operational to -20°C).

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<b>Physical</b>	
Cabinet size	<b>6.65"</b> (169 mm) wide x <b>0.4"</b> (39.6 mm) high x <b>7.36"</b> (187 mm) deep – Front panel: <b>7.56"</b> (192 mm) x <b>1.72"</b> (43.6 mm) .
Net Weight	<b>2.98 lbs</b> , (1350 gr).
Finish	Front panel: Background RAL 1013 with blue serigraphy on treated aluminum; Internal parts and rear panel: Treated aluminum; Covers: Painted RAL 8017 galvanized iron.

### MONOAURAL OPERATION

#### “R+MONO” INPUT

Audio Input Impedance	<b>1 M<math>\Omega</math></b> resistive, unbalanced, source impedance < 10k $\Omega$	
Audio Input Connector	<b>BNC Type</b> (Front panel).	
Audio Input Level	Internally programmable by jumpers: <b>+0 to +3 dBm</b> ( Fine adjustment on front panel ) <b>+3 to +6 dBm</b> ( Fine adjustment on front panel ) <b>+6 to +9 dBm</b> ( Fine adjustment on front panel ).	
Audio Frequency Response	<b><math>\pm 0.15</math>dB, 20Hz to 15 kHz.</b>	
Pre-emphasis	<b>Flat, 50 or 75 <math>\mu</math>sec <math>\pm 3\%</math></b> selectable by internal jumper.	
Harmonic Distortion	<b>0.03%</b> or less, 30 Hz to 20 kHz.	
THD	<b>&lt; 0.1%</b> (typ. 0.05%), 30 Hz to 20 kHz.	
FM S/N Ratio (REF= $\pm 75$ kHz)	<b>Weighted</b>	<b>Unweighted</b>
	<b>CCIR 468-2</b>	<b>BW=30 Hz to 20 kHz</b>
	<b>FLAT: -70 dBc min., -75 dBc typ.</b>	<b>FLAT: -75 dBc min., -80 dBc typ</b>
	<b>50 <math>\mu</math>sec: -75 dBc min., -80 dBc typ.</b>	<b>50 <math>\mu</math>sec: -78 dBc min., -83 dBc typ.</b>

**WIDEBAND STEREO OPERATION**

***EXTERNAL MPX INPUT***

Audio Input Impedance	> <b>10 k<math>\Omega</math></b> resistive, unbalanced.
Audio Input Connector	<b>BNC</b> Type ( Front panel).
Audio Input Level	<b>3.1Vpp to 6.2 Vpp</b> ( Continuously adjustable from front panel ) for $\pm 75$ kHz deviation @ 97.5 MHz.
Composite Amplitude Response	$\pm$ <b>0.1dB, 20Hz to 100 kHz.</b>
Composite Phase Response	$\pm$ <b>0.5<math>^\circ</math></b> from linear phase, 20 Hz to 53 kHz.
Harmonic Distortion	<b>0.05%</b> or less (0.03% typ.) , 20 Hz to 100 kHz.
Composite FM S/N Ratio (REF= $\pm 75$ kHz)	<b>-78 dBc min.</b> , (-83 dBc typ), 30 Hz to 200 kHz, with 50 $\mu$ sec de-emphasis.

***BUILT IN STEREO ENCODER OPERATION***

“L” & “R” Input Impedance	<b>1 M<math>\Omega</math></b> resistive, unbalanced, source impedance < 10k $\Omega$
Audio Input Connectors	<b>BNC</b> Type ( Front panel).
“L” & “R” Input Level	Internally programmable by jumpers: + <b>0 to +3 dBm</b> ( Fine adjustment on front panel ) + <b>3 to +6 dBm</b> ( Fine adjustment on front panel ) + <b>6 to +9 dBm</b> ( Fine adjustment on front panel ).
Audio Filter Response	$\pm$ <b>0.15dB, 20Hz to 15 kHz.</b>
Audio Filters Attenuation	> <b>70 dB @ 19 kHz.</b>
Pre-emphasis (each Channel)	<b>Flat, 50 or 75 <math>\mu</math>sec</b> selectable by internal jumpers.
Stereo Separation (demodulated encoded channels)	<b>50 dB min. (55 dB typ)</b> , 20 Hz to 15 kHz.
Subcarrier Frequency	<b>38 kHz <math>\pm</math> 2Hz.</b>
Subcarrier Generation	Internal Crystal.
Pilot Frequency	<b>19 kHz <math>\pm</math> 1 Hz.</b>
Pilot Output Level	<b>1 Vpp</b> , Square Wave.
Pilot Output Connector	<b>BNC</b> Type ( Rear panel).
Phase Difference 19/38 kHz	<b>0<math>^\circ</math> <math>\pm</math> 2<math>^\circ</math>.</b>
38 kHz Suppression	> <b>50 dB.</b>
Harmonic Distortion on Encoded Channels	< <b>0.1%</b> (0.05% typ.) , 20 Hz to 15 kHz.

***SCA/RDS & AUX INPUTS***

Audio Input Impedances	> <b>5 k<math>\Omega</math></b> resistive, unbalanced.
Audio Input Connectors	<b>BNC</b> Type ( Front panel).
Audio Input Level	<b>2.2Vpp</b> for $\pm 7.5$ kHz deviation @ 97.5 MHz.
Amplitude Response	$\pm$ <b>0.15dB, 10 kHz to 100 kHz.</b>

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**Richardson Electronics**  
40W267 Keslinger Road  
P.O. Box 393  
LaFox, IL 60147  
Telephone: (800) 737- 6937  
(630) 208-3637  
Fax: (630) 208-2550  
Internet: [rfwireless.rell.com](http://rfwireless.rell.com)  
E-Mail: [rw@rell.com](mailto:rw@rell.com)

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