

# 7-554 SERIES

# CHELTON

## Dual Frequency GPS Antenna Electronic Unit (5V) L1 / L2 Bands

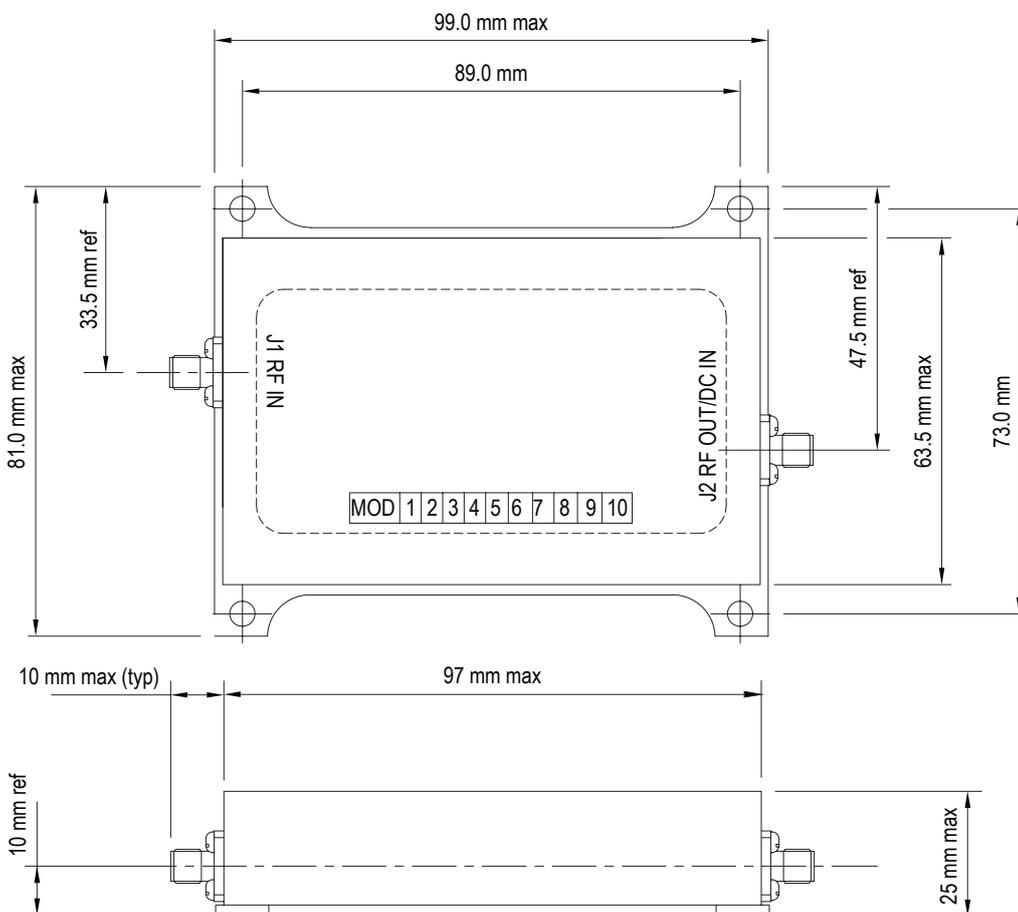
The 7-554 Series of Antenna Electronic Units (AEU) are dual frequency GPS (Global Positioning Satellite System) pre-amplifiers designed to meet both electrical and environmental military aircraft application requirements.

The 7-554 amplifies signals in the two GPS bands (L1 and L2) while rejecting spurious signals outside 60 MHz of centre-bands (60 dB filtering incorporated). The pre-amplifier also incorporates a limiter circuit for high power protection.



The pre-amplifiers are supplied configured to provide factory set gain that ranges from 12 dB to 24 dB.

The 7-554 is powered from 5 V dc supplied on the RF output connector



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### ELECTRICAL

<b>Frequency Ranges</b>	L1: 1575.42 MHz $\pm$ 10.23 MHz (M-code) L2: 1227.60 MHz $\pm$ 10.23 MHz (M-code)								
<b>Impedance</b>	50 ohm (nominal)								
<b>VSWR</b>	< 2.0:1								
<b>Gain</b>	The gain is defined by the part number suffix. <table><tr><td>Part Number</td><td>Gain (dB)</td></tr><tr><td>7-554-12</td><td>11.5 <math>\pm</math> 2.0</td></tr><tr><td>7-554-14</td><td>13.5 <math>\pm</math> 2.5</td></tr><tr><td>7-554-22</td><td>21.5 <math>\pm</math> 2.5</td></tr></table>	Part Number	Gain (dB)	7-554-12	11.5 $\pm$ 2.0	7-554-14	13.5 $\pm$ 2.5	7-554-22	21.5 $\pm$ 2.5
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7-554-14	13.5 $\pm$ 2.5								
7-554-22	21.5 $\pm$ 2.5								
<b>Noise Figure</b>	The maximum noise figure is defined by the part number suffix. <table><tr><td>Part Number</td><td>NoiseFigure</td></tr><tr><td>7-554-12</td><td>4.2</td></tr><tr><td>7-554-14</td><td>4.2</td></tr><tr><td>7-554-22</td><td>3.9</td></tr></table>	Part Number	NoiseFigure	7-554-12	4.2	7-554-14	4.2	7-554-22	3.9
Part Number	NoiseFigure								
7-554-12	4.2								
7-554-14	4.2								
7-554-22	3.9								
<b>In-Band Amplitude Ripple</b>	$\leq$ 2 dB								
<b>Input 1 dB Gain Compression Point</b>	$\geq$ -30 dBm								
<b>In-Band Group Phase Delay Variation</b>	$\leq$ 16 ns over L1 and over L2 bands								
<b>Out of Band Rejection</b>	<table><tr><td>Rejection (dB)</td><td>Frequency (MHz) Off-Centre Band L1/L2</td></tr><tr><td>&gt; 6</td><td><math>\pm</math> 20</td></tr><tr><td>&gt; 40</td><td><math>\pm</math> 40</td></tr><tr><td>&gt; 60</td><td><math>\pm</math> 60</td></tr></table>	Rejection (dB)	Frequency (MHz) Off-Centre Band L1/L2	> 6	$\pm$ 20	> 40	$\pm$ 40	> 60	$\pm$ 60
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> 6	$\pm$ 20								
> 40	$\pm$ 40								
> 60	$\pm$ 60								
<b>Input Power Handling</b>	3 W cw (maximum) 450 W peak (maximum) with a pulse width < 50 $\mu$ s and a duty cycle < 1% at frequencies < 40 GHz								
<b>DC Current Consumption</b>	+4.5 V to +5.5 V, 60 mA (maximum)								
<b>Connectors</b>	J1 RF IN: SMA Female J2 RF OUT/DC IN: SMA Female								

### MECHANICAL

<b>Dimensions (mm)</b>	25 x 99 x 81 (maximum)
<b>Weight</b>	0.24 (maximum)
<b>Mounting</b>	4 holes fixed location

### ENVIRONMENTAL

<b>Temperature and Altitude</b>	RTCA DO-160F, Section 4, Paragraphs 4.5 and 4.6, Category A2 modified Operational: -40°C to +70°C Storage: -55°C to +85°C Altitude: 7620 m
<b>Temperature Variation</b>	RTCA DO-160F, Section 5, Category B Rate of change 5° per minute
<b>Vibration</b>	MIL-STD-810D, Method 514.3, Category 5
<b>Acceleration</b>	BS 3G100, Part 2, Section 3.3.6 Normal: Grade C, Class 1A (ii), 3 g Crash: Grade G, Class 12, 11 g
<b>Mould Growth</b>	BS 3G100, Part 2, Section 3.3.3
<b>Tropical Exposure</b>	BS 3G100, Part 2, Section 3.3.7
<b>Salt Mist</b>	BS 3G100, Part 2, Section 3.3.8, Severity 2
<b>Waterproofness</b>	BS 3G100, Part 2, Section 3:3.11, Grade B (Drip proof)
<b>Fluid Contamination</b>	BS 3G100, Part 2, Section 3:3.12, Class A
<b>Fire Resistance</b>	BS 3G100, Part 2, Section 3.3.13
<b>Sand and Dust</b>	DEF-STAN 07-55, Sect 4/1, Test D1 (BKRX)
<b>Fungus</b>	MIL-STD-810D, Method 508.3
<b>Electro-magnetic Compatibility</b>	MIL-STD-461A Notice 3 CE01, CE03, RE02, RS02, RS03 (modified: 14 kHz to 40 GHz @ 200 V/m)

