7-163PIN160

CHELTON

Logic Converter Unit

High performance military aircraft need to maintain continuity for broadband, frequency hopping V/UHF secure communications. Radios need to integrate seamlessly with antennas to maximize the reliability and resilience of such communications.

In conjunction with Chelton's range of tuneable antennas, the **7-163PIN160 Logic Converter Unit (LCU)** takes frequency information from the radio and matches the performance of the antenna to that frequency.

The **7-163PIN160** can be configured to operate with one of up to seven radio types (such as the **ARC210** and **ARC231**) and with one of up to four antenna types (such as the **12-190-160, 12-190-310** or **12-190-530LP**).

For the latest available radio and antenna support, please contact Chelton.

A selectively screened LCU, the **7-163PIN160HT**, is available for operation over an extended temperature range.

The **7-163PIN160** is powered from the 28 Volts dc aircraft supply.

The LCU terminates and validates the control signals from the radio, extracts the frequency information, translates it to a tuning command, and provides the required drive signals to tune the antenna via the parallel bus at the output connector.

ELECTRICAL

DC Power Input Interface	16 V to 32 V Normal Working Voltage: 22 to 29 Volts dc Emergency Working Voltage: 16 to 29 Volts dc Protection: Reverse polarity and transient protection Power interrupts: Protection in accordance with MIL-STD-704D Maximum current from aircraft supply: 1.4 A at 18 V dc
Serial Control Interface	Radio dependent: Differential Manchester Encoded serial bit stream Serial data and separate synchronous clock
Antenna Drive Interface	Each of the nine drive-lines gives either a high voltage reverse bias or a constant current source for the PIN diodes in the antenna.
High Level	Antenna segment, PIN diode reverse biased: +100 V ± 25 V
Low Level	Antenna segment, PIN diode forward biased: -180 mA ± 25 mA constant current source
Connectors	Type MS3112E 14-19P Type MS3112E 8-33P Type MS3112E 12-10S

MECHANICAL

Dimensions (deployed)	67.7 x 159.7 x 77.8 max
Weight	1.0 kg maximum
Mounting	Four holes fixed location

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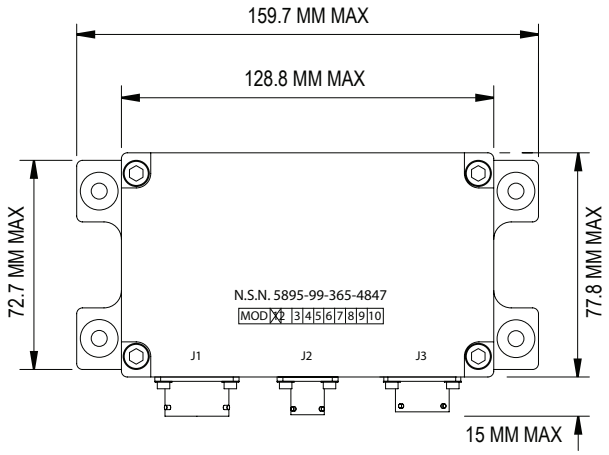
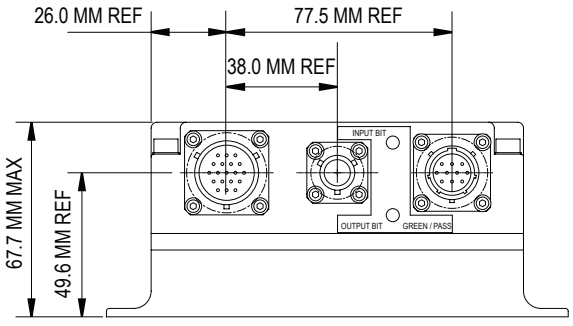
The **7-163PIN160** contains extensive built in diagnostic facilities (BIT) which monitor the input data, PSU status, internal health monitor, in addition to monitoring each of the output drive lines. The BIT status of the unit is fed back to the radio using an 'open-collector' switched ground output. In addition, two LED lamps on the front face of the unit will notify the maintenance crew of operational faults in the antenna system.

The LCU housing is constructed from aluminium alloy with internal filter plates to maximise EMC performance. The base of the unit is flanged with mounting holes for mounting to the airframe.





ENVIRONMENTAL

Temperature/ Altitude	MIL-STD-810C, Method 501.4, Procedure I, Category 6, modified (Step 5 omitted)	
	7-163PIN160	7-163PIN160HT
Normal Operational:	-40°C to +71°C	-54°C to +71°C
Occasional Operational:	-40°C to +85°C	-54°C to +85°C
Survival:	-55°C to +95°C	-55°C to +95°C
Altitude	70,000 feet	
Temperature/ Altitude/ Humidity	MIL-STD-810F, Method 520.2, Procedure I	
Temperature	Operational:	-54°C to +71°C
	Survival:	-55°C
Altitude	25,000 feet	
Humidity	MIL-STD-810D, Method 507.2, Procedure III	
Acceleration	MIL-STD-810E, Method 513.4, Procedure I 13.5 g	
Shock	MIL-STD-810C, Method 516.2, Procedures I, III and V 20 g 11 ms terminal sawtooth basic design 40 g 11 ms terminal sawtooth crash safety 40 g 11 ms terminal sawtooth crash hazard	
Sine on Random Vibration	MIL-STD-810F, Method 514.5 Procedure I, Category 14, Functional Endurance	
	Frequency (Hz)	**Displacement Amplitude (g peak)**
	4.3	0.11
	17.2	1.72
	34.4	2.50
	51.6	0.11
	Frequency (Hz)	**Acceleration Power Density (g^2/Hz)**
	10	@ 0.001
	100	@0.01
	300	@ 0.01
	500	@ 0.012
Explosive Atmosphere	MIL-STD-810F, Method 511.4, Procedure I	
Temperature Shock	MIL-STD-810D, Method 503.2, Procedure I	
Salt Fog	MIL-STD-810D, Method 509.2, Procedure I	
Fungus	BS 3G 100, Part 2, Section 3:3.3	
Rain	MIL-STD-810D, Method 506.2, Procedure II	
Sand and Dust	MIL-STD-810D, Method 510.2, Procedures I and II	
Fluid Susceptibility	EUROCAE ED-14C/RTCA DO-160C, Section 11, Category F	
Magnetic Effect	EUROCAE ED-14C / RTCA DO-160C, Section 15, Class Z	
EMI	MIL-STD-461D, CE101, CE102, RE102	

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