

7-450-15

CHELTON

TETRA Airborne Transceiver with SIM Card Facility

Chelton 7-450-15 TETRA Airborne Transceiver with SIM Card Facility provides airborne users with access to TETRA (TERrestrial TRunk RAdio) communications networks.

The transceiver uses the feature-rich Sepura® SRG3900TM core radio, and operates in one of the standard TETRA frequency bands, from 380 MHz to 430 MHz.

The 7-450-15 includes a mechanically sealed access port for the insertion and removal of a SIM card. The SIM card facilitates storage of radio “personality” and end-to-end cryptographic information.

The 7-450-15 interfaces directly to standard aircraft audio systems and is compatible with Chelton CH150 and CH250 Control and Display Units (CDU) and the optional RH150 remote CDU.

The transceiver operates with a UHF antenna; recommended types are Chelton 21-68 or 21-174.

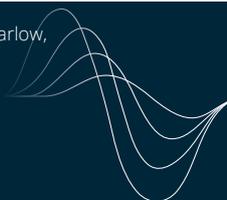
All 7-450-15 transceivers feature integrated Global Positioning System (GPS) receivers, which provide own-platform position information onto the TETRA network and to the CDU. Recommended GPS antennas are the Chelton Type 20-41 or Chelton SATCOM's CI 408-20.

The unit is housed in a ¼ ATR size black aluminium alloy enclosure with a hold down point and a carrying handle on the front face. The connector interfaces are accessible from the front faceplate of the unit. The unit is designed to be rack mounted in a short tray.



Operational Features

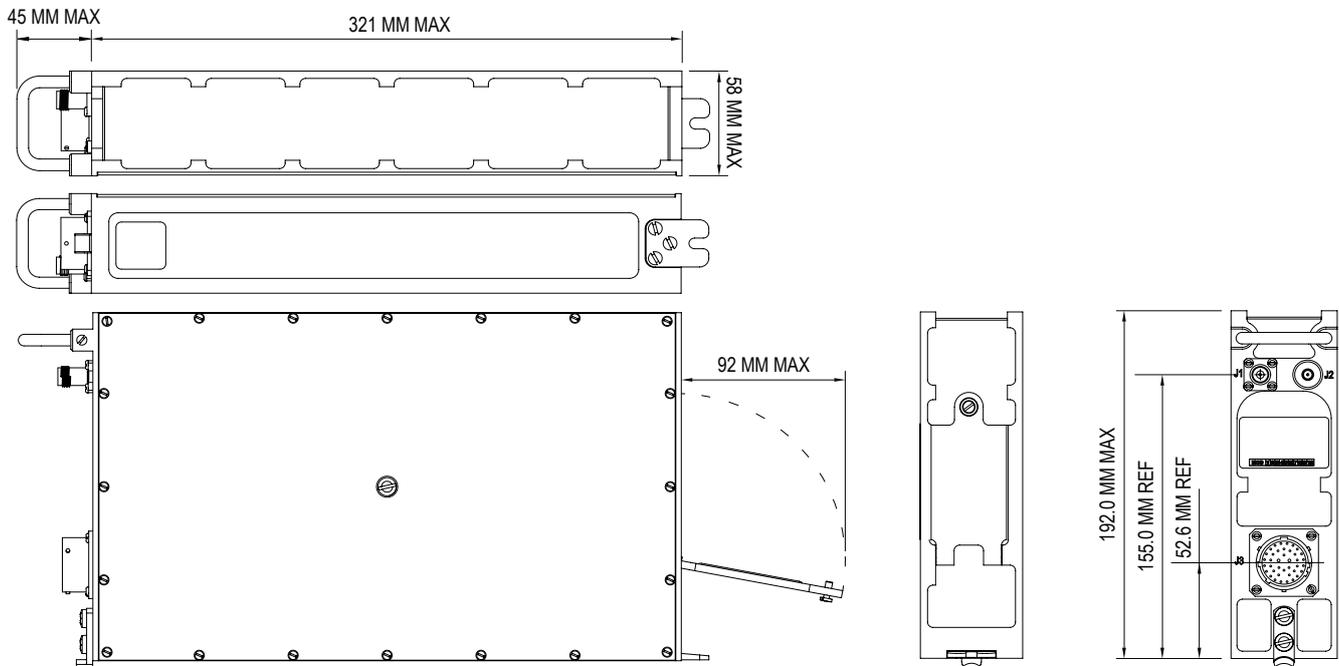
- Designed specifically for airborne use
 - Compatible with common aircraft audio distribution system signal levels and impedances
 - In-circuit RF bandpass filter provides immunity from on board transmitters in the VHF and IFF bands and protection to existing aircraft systems, particularly the VHF communications and navigation receivers
 - Differential transmission of CDU transceiver control signals ensures noise immunity
 - Transient suppression and regulation of aircraft 28 V power supply provides a stabilised supply to the core radio module even during momentary supply interruptions
 - Provides 5 V on the RF coax to power a GPS antenna
- Radio “personality” and end-to-end cryptographic information delivered through the SIM card.



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TETRA Features Supported

- Air Interface Encryption
 - TETRA Encryption Algorithms (TEA) 1, 2, 3 and 4
 - TETRA Security Class 1, 2 and 3
 - Trunked and Direct Modes of Operation (TMO and DMO)
- End to End encryption
- Highly Preferred Subscriber Class (HPSC) operation for airborne use
- DMO Repeater (enabled by feature licence code)
- DMO Gateway (enabled by feature licence code)
- Voice services - point to point, multi-point and telephone calls
- Emergency and Priority calls
- Data Services - Status and Short Data Service (SDS) messaging, SDS Store and Forward, multi-slot packet data
- Stun and Kill
- Integrated GPS Receiver
- Configurable to specific national TETRA networks using the Sepura® software management suite
- Serial data port (PEI) facilitates data transfer

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ELECTRICAL

Power Consumption	
Receive:	6 W typical
Transmit:	20 W typical (70 W absolute max. for max.)
Standby (OFF):	Tx power) 0.5 W typical
Receive Characteristics	
Frequency Range	380 MHz to 430 MHz
Channel Spacing	25 kHz
Sensitivity: Typical	Dynamic - 103 dBm, Static - 112 dBm
Frequency Accuracy	EN 303 035-1 (TMO) and EN 303 035-2 (DMO)
Audio Output Level	6.0 Vrms nom. into 600 Ohm (adjustable)
Sidetone Level	-2 dB with respect to nom. Audio Output Level, (adjustable)
Control Interface to CDU	Split Rx/Tx RS422 serial, proprietary
Transmitter Characteristics	
Frequency Range	380 MHz to 430 MHz
Channel Spacing	25 kHz
Modulation	Pi/4 DQPSK
RF Power Output	Pre-settable to a maximum of 39 dBm Peak max, adjustable in steps of 5 dB. Adaptive power control. (DMO max power settable independently to TMO max power)
Adjacent Channel Power	In accordance with: ETSI EN 303 035-1 (TMO) and EN 303 035-2 (DMO)
Microphone AF Input Level	800 mV rms input should not cause limiting
Connectors	
RF (Main Tx/Rx RF)	TNC Female
RF (GPS)	SMA Female
Multipin	MS3112E20-39P

MECHANICAL

Dimensions	192 x 58 x 366 * (maximum) * including carrying handle
Weight	3.63 kg (maximum)
Aerodynamic Load	6300 kgf/m ² proof (9 psi) 9500 kgf/m ² minimum ultimate (13.5 psi)

ENVIRONMENTAL

Temperature	EUROCAE ED-14C / DO-160C, Section 4, Cat B1 modified Operational: -30°C to +70°C Short Time (Powered up): +85°C Ground Survival: -40°C to +85°C (Powered down)
Altitude	25,000 feet
Temperature Variation	EUROCAE ED-14C / RTCA DO-160C Section 5, Cat B
Humidity	EUROCAE ED-14C / RTCA DO-160C Section 6, Cat B
Shock	EUROCAE ED-14C / RTCA DO-160C Section 7 Operational shock: 6 g, 11 ms Crash Safety (Impulse): 15 g, 11 ms Crash Safety (Sustained): 12 g, 3 secs
Vibration	EUROCAE ED-14C / RTCA DO-160C Section 8 Cat B Fixed Wing Cat M Fixed Wing Cat N Helicopter
Explosion Proofness	EUROCAE ED-14C / DO-160C, Section 9, Cat X
Waterproofness	EUROCAE ED-14C / DO-160C, Section 10, Cat W
Fluids Susceptibility	EUROCAE ED-14C / DO-160C, Section 11, Cat F
Sand and Dust	EUROCAE ED-14C / DO-160C, Section 12, Cat D
Fungus	EUROCAE ED-14C / DO-160C, Section 13, Cat F
Salt Spray	EUROCAE ED-14C / DO-160C, Section 14, Cat S
Magnetic Effect	EUROCAE ED-14C / DO-160C, Section 15, Cat Z
Power Input	EUROCAE ED-14C / DO-160C, Section 16, Cat B
Voltage Spike	EUROCAE ED-14C / RTCA DO-160C, Section 17, Cat B
Audio Frequency Susceptibility	EUROCAE ED-14C / RTCA DO-160C, Section 18, Cat Z
Emission Of Radio Frequency Energy	EUROCAE ED-14C / RTCA DO-160C, Section 21, Cat B
Noise Radiation	Transceiver will not radiate noises in excess of 60 dB(A)
Fire Protection	Transceiver contains flame retardant components