

GD2100

CHELTON

UFO and MUOS SATCOM Antenna

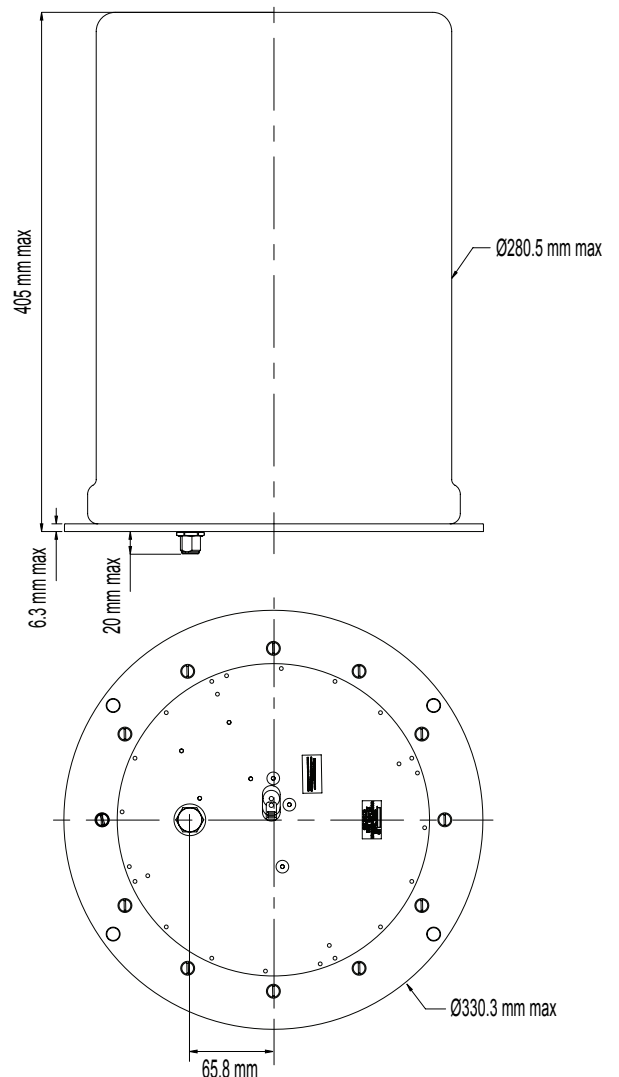
Maintaining consistent UHF SATCOM communications on complex vehicle platforms can be challenging, particularly in hostile environments.

The GD2100 has been designed to provide effective and robust communications in such arenas, even in circumstances where a vehicle groundplane is damaged, incomplete or missing.

The GD2100 ground antenna is a passive UHF Quadrifilar Helix Antenna (QHA) designed to provide communications with the legacy UHF Follow-On (UFO) and Mobile User Objective System (MUOS) Satellite Communications (SATCOM) systems.

The GD2100 antenna consists of a quadrifilar helix radiating element design of a cylindrical geometry to provide the UHF SATCOM link. The antenna design configuration is optimised to provide omnidirectional radiation coverage at very low elevation angles above the horizon.

The radiating element and feed network are built on a thick aluminium baseplate. The structure is environmentally sealed using a radome enclosure made from medium density polyethylene (MDPE) material.



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ELECTRICAL

Frequency Ranges	292 MHz - 318 MHz	UFO Uplink
	244 MHz - 270 MHz	UFO Downlink
	300 MHz - 320 MHz	MUOS Uplink
	360 MHz - 380 MHz	MUOS Downlink
Impedance	50 ohm (nominal)	
VSWR	≤ 2:1 over the entire operational frequency bandwidth	
Radiation Pattern	Omni-directional radiation coverage in azimuth	
Polarisation	Right Hand Circular Polarisation (RHCP)	
Field of View	+90° zenith to +10° elevation above horizon	
Gain		
90° Zenith:	-3 dBic (minimum) over the entire operating frequency bandwidth	
10° Elevation:	0 dBic (minimum) over the entire operating frequency bandwidth	
Axial Ratio	< 2.5 dB from +10° above horizon to zenith over the operating bandwidth	
Antenna Radiation Pattern Measurement Conditions	1.8 m diameter ground plane Antenna mounted on 0.152 m metallic standoff above ground plane	
Power Rating	200 W CW	
Connectors	N Type Bulkhead Female	

MECHANICAL

Height	404 mm
Diameter	330 mm
Weight	5 kg
Mounting	4 holes fixed location

ENVIRONMENTAL SPECIFICATION

High Temperature	MIL-STD-810G, Method 500.5, Procedures I and II Operational: +70°C Storage: +70°C
Low Temperature	MIL-STD-810G, Method 502.5, Procedures I and II Operational: -51°C Storage: -51°C
Low Pressure (Altitude)	MIL-STD-810810G, Method 500.5, Procedures I and II Operational: -457.2 m to 4572 m Storage: 15,240 m
Vibration	
Composite wheeled vehicle vibration exposure	MIL-STD-810G, Method 514.6, Procedure I Table 514.6C-VI, Category 4 Duration 120 minutes test (corresponds to 500 miles worst case)
Cargo Vibration environment on jet aircraft	Table 514.6C-VII, Category 7 Takeoff and landing vibration exposure
Shock	MIL-STD-810G, Method 516.6, Procedure IV (Transit Drop)
Contamination by Fluids	MIL-STD-810G, Method 504.1, Procedure I Contaminant fluids listed without igniting the environment
Solar Radiation (Sunshine)	MIL-STD-810G, Method 505.5, Procedure II (Steady State) Radiant Energy: 1120 W/m ² Temperature: 50°C f Duration: 56 x 24 hr cycles
Rain	MIL-STD-810G, Method 506.5, Procedure I
Humidity	MIL-STD-810G, Method 507.5, Procedures I and II Induced cyclic high humidity (Cycle B2) and aggravated
Fungus Resistance	MIL-STD-810G, Method 508.6
Salt Fog	MIL-STD-810G, Method 509.5
Sand and Dust	MIL-STD-810G, Method 510.5, Procedures I and II
Immersion	MIL-STD-810G, Method 512.5, Procedure I
Icing/Freezing Rain	MIL-STD-810G, Method 521.3 Operational ice glaze thickness: 6 mm Survival ice glaze thickness: 13 mm

