

SCADA SYSTEM

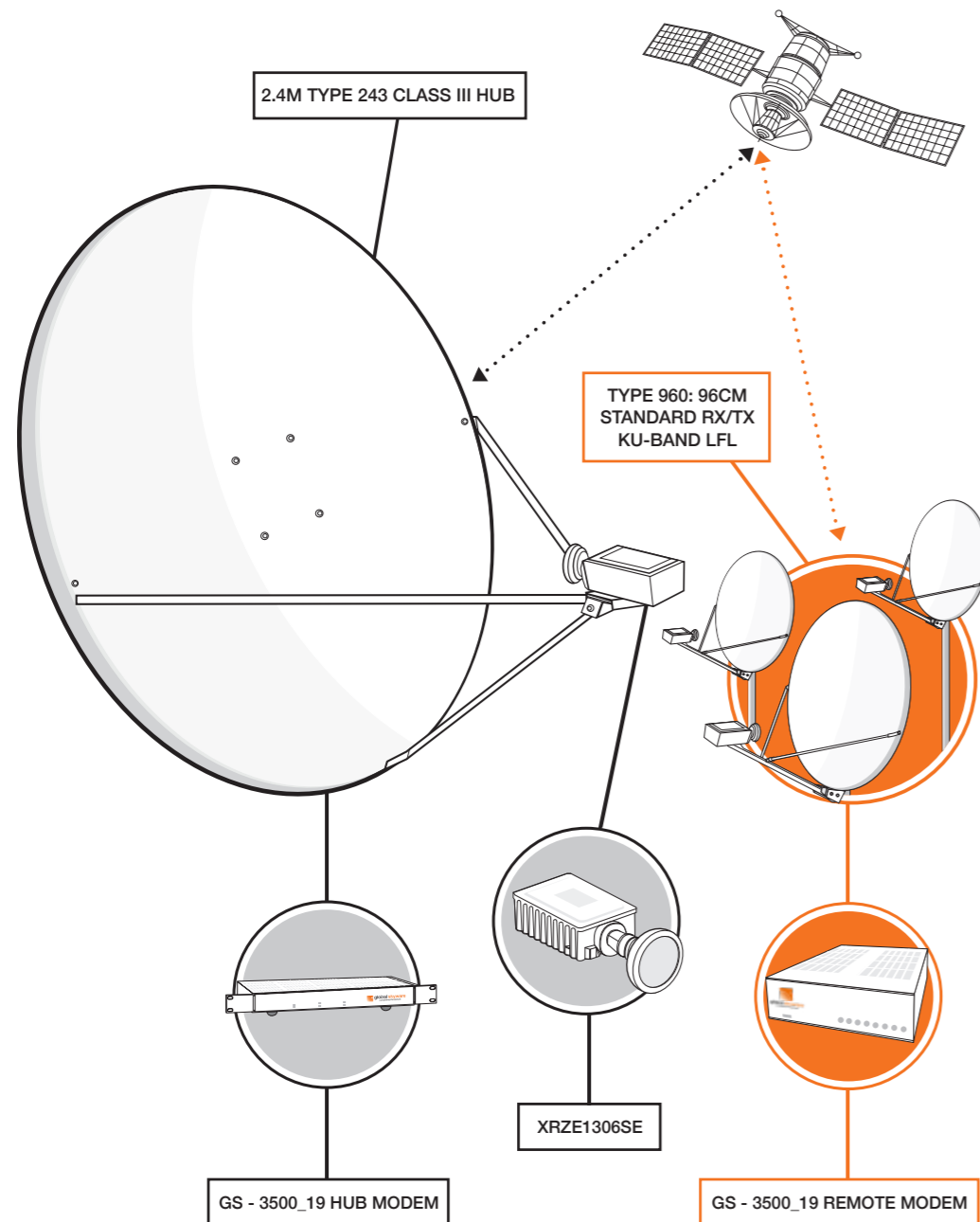
The Global Skyware platform is a complete and private satellite networking solution capable of reaching any SCADA and M2M Telemetry site.



SCADA

Overview

Delivery and connectivity system architecture consisting of satellite based, SCADA network communication and graphical user interfaces.



96cm Rx/Tx Ku-Band LFL Class I Antenna

Remote terminal

Overview

The Global Skyware 96cm Standard Rx/Tx Ku-Band LFL Class I Antenna is a rugged, commercial quality product suitable for the most demanding applications.

- The reflector is constructed from glass fiber reinforced polyester [SMC] for strength and accuracy. A proprietary process developed by Global Skyware ensures high RF reflectivity as needed for Ku Band operation.
- The precision Az/EI mount is made of galvanized steel for excellent corrosion resistance. This mount includes special features to increase pointing accuracy with low backlash and lockdown error.
- This Az/EI allows the antenna to be installed on standard 73-76mm [27/8" - 3"] OD installation mounts.
- All hardware is plated to 720-hour salt spray standards tested in accordance with ASTM B-117.
- TX Cross-Polarisation of greater than 30db within 1dB contour.
- Excellent Port-to-Port Isolation of 90dB or better.
- Meets or exceeds regulator agency requirements.
- Class I system designed for typical 1 W and 2 W Ku-band RF Electronics.*



* 1.7 kg or 3.7 lb max. weight (For BUC and LNB) 1.9 kg or 4.2 lb max. weight (for Transceiver)

Product Features

- ISO 9001:2008 Certificate of Registration
- Eutelsat Cert. No. EA-V061
- One-piece precision SMC Reflector
- Precision Az/EI Mount
- Fine Azimuth and Elevation Adjustment Features
- All Materials Comply with EU Directive No. 2011/65/EC (RoHS)
- 720 Hour Salt Spray Hardware
- Standard Waveguide Flange Interface

2.4m Rx/Tx Ku-Band Class III Antenna

Hub terminal

Overview

The Global Skyware Type 243 2.4 m Class III RxTx Antenna is a rugged commercial grade product suitable for the most demanding applications. The reflector is thermoset-molded for strength and surface accuracy. Molded into the rear of the reflector is a network of support ribs which not only strengthens the antenna, but also helps to maintain its critical parabolic shape necessary for transmit performance.

The Az/EI mount is constructed from heavy-gauge steel to provide a rigid support to the reflector and feed support arm. Heavy-duty lockdown bolts secure the mount to any 168 mm (6.63") O.D. mast and prevent slippage in high winds. Hot-dip galvanizing is standard on this model for maximum environmental protection.

A marinated version of the antenna is also available making it suitable for on-shore and offshore marine environments.



Product Features

- All materials comply with the EU directive. No. 2011/65/EC (RoHS).
- Two-piece precision offset thermoset-molded reflector.
- Heavy-duty galvanized Az/EI mount marinated version includes 2 part epoxy paint finish.
- Fine Azimuth and elevation adjustments.
- HD Galvanised support arm and alignment struts. Marinated version has all galvanized steel components finished with 2 part epoxy paint.
- Factory pre-assembled mount.
- Plated hardware for maximum corrosion resistance. The optional marinated version uses marine-grade AISI 316 stainless steel hardware throughout.
- Includes Ku-band linear cross-polarized RxTx feed assembly.
- Heavy-duty Class III mount for 11 kg (25 lb) RF electronics (LNB & BUC).

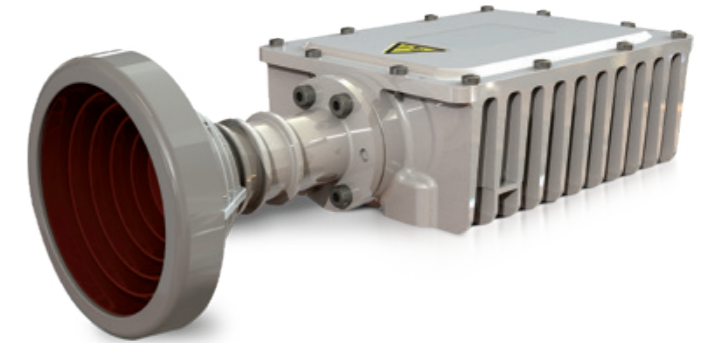
XRZe 3W TX

Ku-band VSAT Transceivers

Overview

This transceiver is a complete Very Small Aperture terminal (VSAT) Outdoor Unit solution in a single box. It has an integrated BUC, LNB & OMT with a fixed cross-polar Transmitter and receiver, a high performance feed horn.

- BUC: Standard band (14.00 - 14.50 GHz) and Extended (13.75 - 14.5 GHz)
- BUC: Constant Gain type with Low Phase Noise Local Oscillator and External Reference
- EN 301428 & FCC 47 CFR15/25 compliant with up to 2.4 m Antenna
- LNB: Full range (10.70 - 12.75 GHz) Dual-band PLL type
- Compact, Durable Housing with High Thermal Margin
- High Performance Feed Horn pre-fitted
- CE & RED Compliant
- RoHS-2 Compliant



Product Features

- Integrated BUC, LNB & OMT
- Fixed cross-polar TX/RX
- Compact Outline
- High-Performance Feed Horn
- LNB: Full range (10.70 - 12.75 GHz) Dual-band PLL type
- Bi-colour status LED
- IP67 Water Protection

XRZe 3W TX

Ku-band VSAT Transceivers

Technical Specifications

Feed Horn

Type	Long Focal Length (LFL) type
Design f/D	Typical: 0.8
Polarization	Linear, Fixed X-polar skewable
Cross Polarization Discrimination (XPD)	Minimum: 25 Unit: db

LNB

RF Input Frequency Range	Low band: Minimum - 10.70, Maxium - 11.70, Unit - GHz High band: Minimum -1.70, Maxium - 12.75, Unit - GHz
Local Oscillator Frequency	Low band: Typical - 9.75, Unit - GHz High band: Typical - 10.60, Unit - GHz
LO Oscillator Frequency Stability	Maxium: +/- 25 Unit: ppm
IF Output Frequency Range	Low band: Minimum - 950, Maxium - 1950, Unit - MHz High band: Minimum -1100, Maxium - 2150, Unit - MHz
Noise Figure	at 25 oC: Maxium - 1.3, Unit - db - at LNB Input WG Maxium - 1.6, Unit - db - at Feed WG Port
Conversion Gain	Minimum - 50, Typical - 56, Maxium - 62, Unit - db
Band Switch Command	22 kHz tone
Supply Voltage	Minimum - 11.5, Maxium - 26, Unit - V
Supply Current	Maxium - 100, Unit - mA

XRZe 3W TX

Ku-band VSAT Transceivers

Technical Specifications

BUC

IF Input Frequency Range	Minimum - 950, Maxium - 1700 MHz
Local Oscillator Frequency	Typical - 12.80 GHz
RF Output Frequency	Minimum - 13.75, Maxium - 14.50 GHz
LO Oscillator Phase Noise, integrated	Typical - 1.0, Maxium - 2.0 - 100 Hz - 1 MHz
LO Oscillator Reference Frequency	Typical - 1.0 MHz
Operational Output Power	Typical - 3.0 W
Conversion Gain	Minimum - 52, Typical - 55, Maxium - 58 DB
Supply Voltage	Minimum - 13, Maximum - 28 V
Supply Current at P1dB	Maxium - 1.0 A

General

Operational Temperature	Minimum: -25, Maximum: +55, Unit - oC
Moisture/Water Protection	IP67 - 100% tested
Connectors	N-type -50 Ohm
Dimensions without Feed Horn	159 x 96.20 x 52 mm
Weight with Feed Horn	1.6kg

GS 3500

HUB Main Unit

Overview

The 3500 hub main unit is designed to support small to medium-sized private star and mesh network deployments. The unit can operate with very low forward and return link data rates (9.6kbps) to minimise OPEX when deployed for narrowband SCADA, M2M and IoT applications with highly asymmetrical traffic and where the inbound throughput is dominant. The unit is fully backwards compatible with existing 3000 hubs.



Technical Specifications

Feed Horn

Network topology	Star and Mesh (TDD)
Forward link	TDM
Modulation	QPSK
Data rate	8 to 833ksps
FEC	Turbo coding 0.250 to 0.969
Return channel	TDMA
Modulation	QPSK

GS 3500

HUB Main Unit

Technical Specifications

Interface

RF	N-type female, 950-2100MHz 10MHz IFL BUC and LNB reference
BUC	3W
LNB	Ext. Ref
Data	RJ45 for IP/ETH and 9 pin D-sub for RS232/422/485
Protocols	Pv4 and IPv6 – TCP and UDP protocols and legacy asynchronous serial
Security	AES link encryption (optional)
Link access	Static, Random and Dynamic (BoD)
Optimization	RoHC, IP Payload compression and serial protocol acceleration
Others	Automatic uplink power control, frequency and timing control, authentication

Environmental

Temperature	0° to 50° C
Protection	IP30
Size	1U – 44mm (H) - 19" Rack x 178mm (D)
Input voltage	24 to 48VDC
Power consumption	13W + ODU

GS 3500

Remote

Overview

The Global Skyware 3500 platform is a complete and private networking solution capable of reaching any SCADA and M2M Telemetry site. It is compatible with both IP and legacy serial devices and operates independently from terrestrial communications systems. With the Global Skyware HUB placed on your premise, you control the network fully.

The Global Skyware 3500 platform is highly scalable and suits both small and medium-sized networks. Global Skyware 3500 builds on the legacy of the Global Skyware 3000. The future-proof operating system and the updated hardware ensure best in class cyber security and access controls that support mission-critical applications in any remote environment onshore or offshore.



Technical Specifications

Network configuration

Topology	Star (FDD) and Mesh (TDD) Tx: Proprietary TDM, Rx: Proprietary TDMA – Static, Random and Dynamic
Modulation	QPSK
Polarization	Circular; Tx LH, Rx RH; or Tx RH, Rx LH
FEC	0,250 to 0.969
Symbol Rates	8ksps to 833ksps

Data Interface

LAN	Two (2) RJ 45 10/100Mbps Ethernet
Serial	RS232, 422 or 485 Two (2) DB9 for hub and 19" remote and One (1) RJ45 for desktop remote with 2 serial ports

GS 3500

Remote

Technical Specifications

Modem Interfaces

Tx Interface	N-type 50 Ohm
Frequency range L-band	950 – 2150MHz
Tx level	-33 – 0dBm
FEC	0,250 to 0.969
BUC power supply	+24V, 3A max
Rx Interface	N-type 50 Ohm
Frequency	950 – 2150MHz
LNB power supply	18V, 0.5A max
LNB LO selection	22kHz on/off

Management Interface

Serial	One (1) USB-C
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Management

Protocols Supported	TCP, UDP, RIP, ICMP, ROHC, GRE, Static Routes, ACL, IPv4 Circuit switched Leased line, dial-up and multidrop (grouping) SCADA RP570, ADPL 180, Comli, Sinaut S1, Modbus RTU/IP/ASCII, DNP-3.0, WITS, Serck Proteus IEC-60870-101 and 104, IEC-61850 etc. Optimization RoHC, payload compression and serial protocol acceleration
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Security

Security	256 bit AES Link Encryption
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Mechanical and Environmental

Size	Hub and 19" remote: 1U 44mm (H) x 19" (W) x 177mm (D) Desktop remote: 1U 44mm (H) x 133mm (W) x 177mm (D)
Weight	Hub – 2.5Kg 19" remote – 2.3Kg Desktop remote – 1Kg
Temperature	0° to +50°C
Humidity	5 – 95% non-condensing
Power Supply	Hub and 19" remote – 24 to 48VDC Desktop remote – 24VDC from 100-240VAC/50-60Hz power adapter

