TERRASAT Communications, Inc.
Engineered to Endure

IBUC

The Intelligent Block UpConverter

Superior RF Performance | Ultimate Reliability | Complete Feature Set | Multiprotocol Management & Diagnostics

www.terrasatinc.com

C-Band | X-Band | Ku-Band | Ka-Band

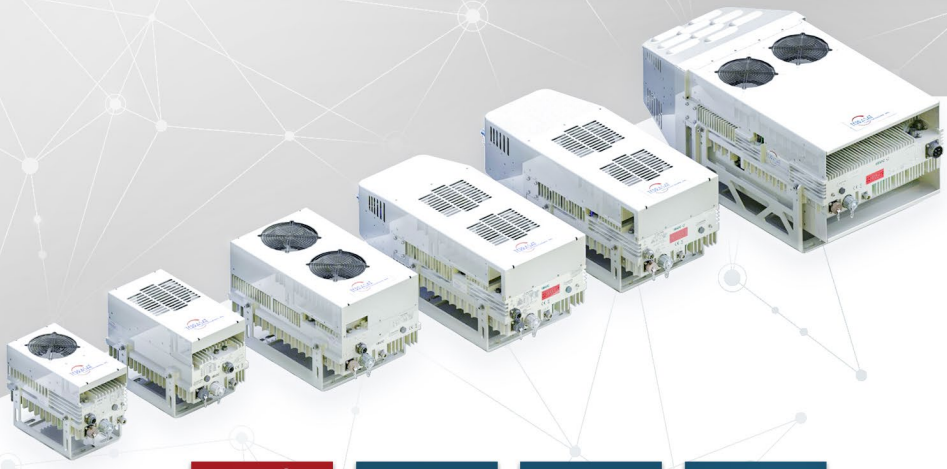
Cyber Hardened IBUCs

The new high-end **Cyber Security** feature for your IBUCs

The Cyber Hardened Advantage For The IBUC

The **Cyber Hardened IBUC** version takes the Block Upconverters to the next level:

- Prevents Cyber Attacks and malicious activity.
- End to End Embedded Encryption, Authentication, and Privacy.
- User Interface Enforcing Cyber Safety measures and best practices.
- Strong passwords are supported and required. No user is allowed to have a weak password.



New Cyber Hardened IBUC versions

Multicarrier Application

GaN or GaAs Tech

3 Year Warranty

Cyber Hardened Features

» **SSHv2 (Secure Shell):** A cryptographic network protocol offering command line management interface by securing and encrypting the connection.

» **SNMPv3 Interface:** An interface providing privacy, authentication, & access control. This enables flexible multi-level security management control & secret-key authentication that assures end to end message transmission delivery will not be altered or replayed.

» **HTTPS:** Safe access to webpages using HTTPS (Secured HTTP) with encrypted connections.

» **XSS Protection:** Protecting your system from Cross-Site Scripting Attacks.

» **Secure Firmware Upgrades.**

The Ultimate Management & Control

» 70+ User Configurable Thresholds & Alarms «

» Local Web Interface & NMS-Friendly SNMPv3 «

» Embedded Web Pages for Universal Web Browser Access «

» Performance Trend Analysis Tools Entries & Statistical logs «

» Upgraded Statistics and Event Log with 1,000 Sensor Readings «

Applications

The **Cyber Hardened IBUC**s are full-featured Intelligent Block Upconverters embedded with the highest Cyber Security Standards in the SATCOM industry. Their layers of encryption and authentication protocols solve the security issues related to any typical Ethernet device.

Our units are designed for long lifetime performance in demanding environments and remote terminal performance optimization. As a result, the Cyber Hardened IBUCs are perfect solutions for mobile defense terminals operating in demanding environments, ground stations, commercial use, and any other applications with safe transmissions requirements.

Cyber Hardened **IBUCs** - Cyber Security Datasheet

The **Cyber Hardened IBUC** versions have embedded new high-end Cyber Security features, from hardware to software, including a new controller board and the new firmware.

Frequency Ranges Available

C-Band, X-Band, Ku-Band, and Ka-Band	The Cyber Hardened IBUCs are available in all our frequency Bands.

Management Interface / Monitor & Control

Ethernet via RJ45 Connector

» Command Line Interface	SSH v2 and Serial Port (Baud rate: 115200 bits/s)
» Web	HTTPS (Secured HTTP with encrypted connections)
» SNMP	v3 with USM and VACM

Accounts

Users	20 users by default
Lock out	3 consecutive failed attempts
Unlock period	15 minutes
Levels	Two Account Levels / Functionality - Administrator: Full reading & editing - Operator: Read-only

Passwords

Customizable for each user	The default password works for the first login only. After that, the system forces the password change.
Strength	Minimum Requirements: • 15 Characters • 1 Upper Case Character • 1 Lower Case Character • 1 Special Character (Examples: *%&@_-^”$=+) • 1 Number
Change History	10 Level
Password Change	At account Setup Customizable minimum number of days for password change.

Encryption Algorithm

AES	Key size of 192+ bits
RSA	Key Size of 2048

Hashing Algorithm

SHA2	Hash size of 256

Security Protocols

TLS	v1.2
SSH	v2
SNMP	v3 with USM and VACM

Restoration

Configuration	Text File

Web Server

Protocol	HTTPS
Security	TLS v1.2
Port	443
HTTP security header	Enabled
XSS Protection (Cross Site Scripting)	Enabled

Login Sessions

Max Limit of Concurrent Sessions (SSH and Web)	5
Number of failed attempts to disconnect	3
Idle Timeout (SSH and Serial)	15 minutes
Incomplete or Abandoned Timeout	60 seconds
Login Banner (SSH, Web and Serial)	Enabled
Last Login Message	Date, time and port/IP Address of access.
Failed Login message	Number of failed attempts.

Firewall

Type	Linux based nftables
Blocks	All ports except: SSH (22), SNMP (161, 162), HTTPS (443) and Firmware Upgrade (8080).

Time

Configuration	Two **NTP Servers** Providing Redundancy or Manual
Timezone	Configurable

Customizable Specifications

For additional and customized specs, contact us using the contact info below.

Monitor & Control - For *Standard units* and Cyber Hardened IBUCs

Item / Feature	*Standard* IBUC Versions	Cyber Hardened IBUC Versions	Via
Ethernet	HTTP (No Data Encryption Implemented)	HTTPS (Encrypted Connections Implemented)	RJ45 Connector
	Telnet	SSHv2	
	SNMPv2c	SNMPv3 with USM and VACM	
RS232	✓	✓	MS-Type Connector
RS485	✓	×*	
Handheld Terminal	✓	×*	
FSK	✓	×*	Multiplexed on TX IFL
XSS Protection (Cross Site Scripting)	×	✓	RJ45 Connector
Two **NTP Servers** Providing Redundancy	×	✓	
FIPS 140-2 NIST compatible	×	✓	NIST Standard

* Cyber Hardened IBUC units do not support **HTTP**, **RS485**, **Handheld Terminal**, and **FSK** to enhance Cyber Security.

Note: This Datasheet refers exclusively to the cyber security features involved in the Cyber Hardened IBUC units. Please refer to the other IBUCs` datasheets for further technical information regarding RF specs, including their particular Frequency Ranges, Input signals, Connectors, Gain, RF Output, Output Power (both Linear and Saturated), Power Supply, SSB Phase Noise, Operational temperature, and further details. Use the link: https://terrasatinc.com/products/

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