



IBUC Management & Control Highlights

The Advance Technology of the IBUC M&C.

Terrasat Communications Inc

Our Ground-breaking IBUCs bring advanced features & performance to C-Band, X-Band, Ka-Band, Ku-Band earth terminals & VSATs worldwide.

December 2019

The Next Generation of Critical Satellite Application & Management

Terrasat Communications developed the latest IBUC/**2G/R/G** product family as a new generation RF solution for satellite communications terminals. It is a fourth generation product that presents distinct & valuable advantages in performance & manageability for the network operator. The IBUC was designed as a full-featured product to replace the function of older technology RF Transceivers & HPAs in critical satellite applications.

IBUC Management & Control

The industry had left the customer in the position of being blindfolded to the operation of his remote RF system. Without this information the operator has no ability to troubleshoot the RF unit and is blind to the condition of his remote terminal. Terrasat Service has encountered many instances of misdiagnosed BUC failures where the operator, because he was without the tools to determine the source of the problem, incorrectly assumed the BUC must have failed. This in turn led to extended downtime while the technician got to the real cause of the problem.

In the event of a failure, without remote diagnostic capability, the only course of action for a customer is to send a technician to the remote site with test equipment and spares. The associated costs of transportation, travel time, and lost revenue are the hidden penalties of so-called "low cost solutions." You might want to take a few moments to consider your costs to send a technician to a remote site. And what is the impact on your ability to support your Service Level Agreement?

In the development of the IBUC Terrasat designed an entirely new M&C toolkit. Terrasat Engineering rethought the entire M&C function & brought in new technologies to develop an advanced set of tools for local and remote Management & Control. Integration with a Network Management System is easily accomplished through SNMPv2c, TCP/IP, RS232, or RS485 interfaces. The operator can view a full range of IBUC diagnostics from the network operations center.

Latest Updates

Coinciding with the release of a new, more powerful microprocessor, Terrasat has upgraded the web interface, taking advantage of the faster speed & greater memory. The web pages for single units appear on the following pages.

One of the major changes is the addition of trend reporting. On the "Sensor" page we now have a button labeled "View". When the user clicks on that, he is presented with a plot of the preceding period using the selected intervals. This gives a view into trends that may impact performance.

The Event Log has been updated and now stores 1000 sensor readings. Each time-stamped entry contains status readings for power input, power output, 10 MHz reference, power supply conditions & more. Using this information, the operator can analyze events to quickly isolate the cause of the issue – whether internal to the IBUC or from an external source. Fast trouble-shooting equates to fast service restoration.

The implementation of advanced Management & Control assists in three phases of operation:

1. INSTALLATION

The ability to set up a link rapidly and with as few pieces of test equipment as possible has called for the incorporation of self-diagnostics into an intelligent BUC. A complete set of diagnostic tools are built into the Block Upconverter.

Diagnostics are available on a standard TCP/IP interface, displayed as web pages that are embedded in the IBUC. There is no proprietary software. Using a web browser, the installer establishes a connection to the BUC and is presented with web pages, some of which are shown in the appendix to this document.

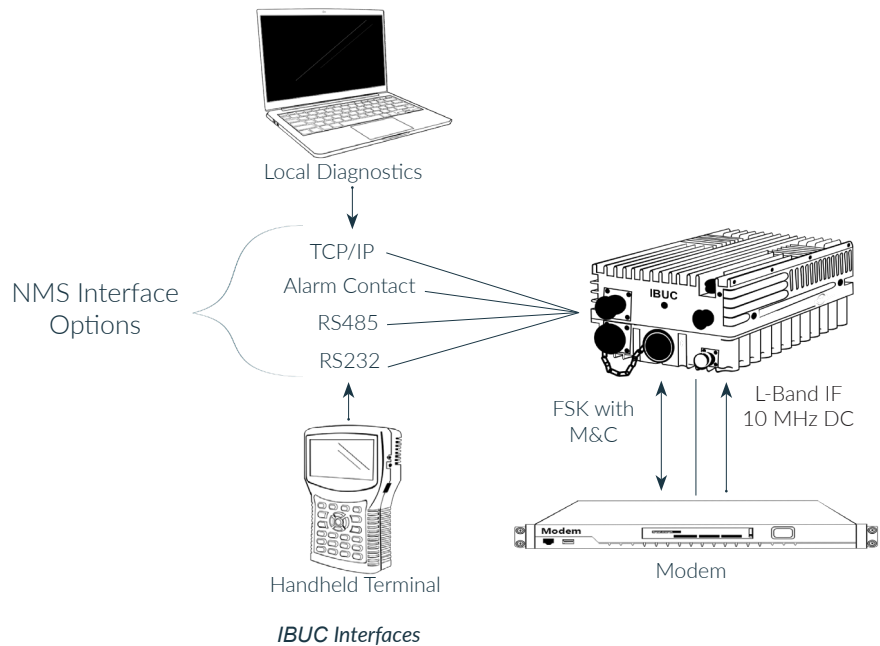
An alternate RS232 port provides handheld terminal access using a command line interface. The handheld terminal is optional, while the web pages are included in the IBUC.

2. MONITORING

Monitoring of terminal performance enables local & remote operators to verify performance and may enable them to spot deteriorating links prior to an outage. In networks with performance/availability guarantees & service fee rebates, this can provide vital data about link status. For smaller networks the web page display may provide adequate information without the expense of a Network Management Software (NMS) package. For larger networks the IBUC supports TCP/IP, RS232 and RS485 protocols, delivering the same M&C command set. All IBUC products are SNMP-compatible. MIBs are provided with full documentation.

3. TROUBLESHOOTING

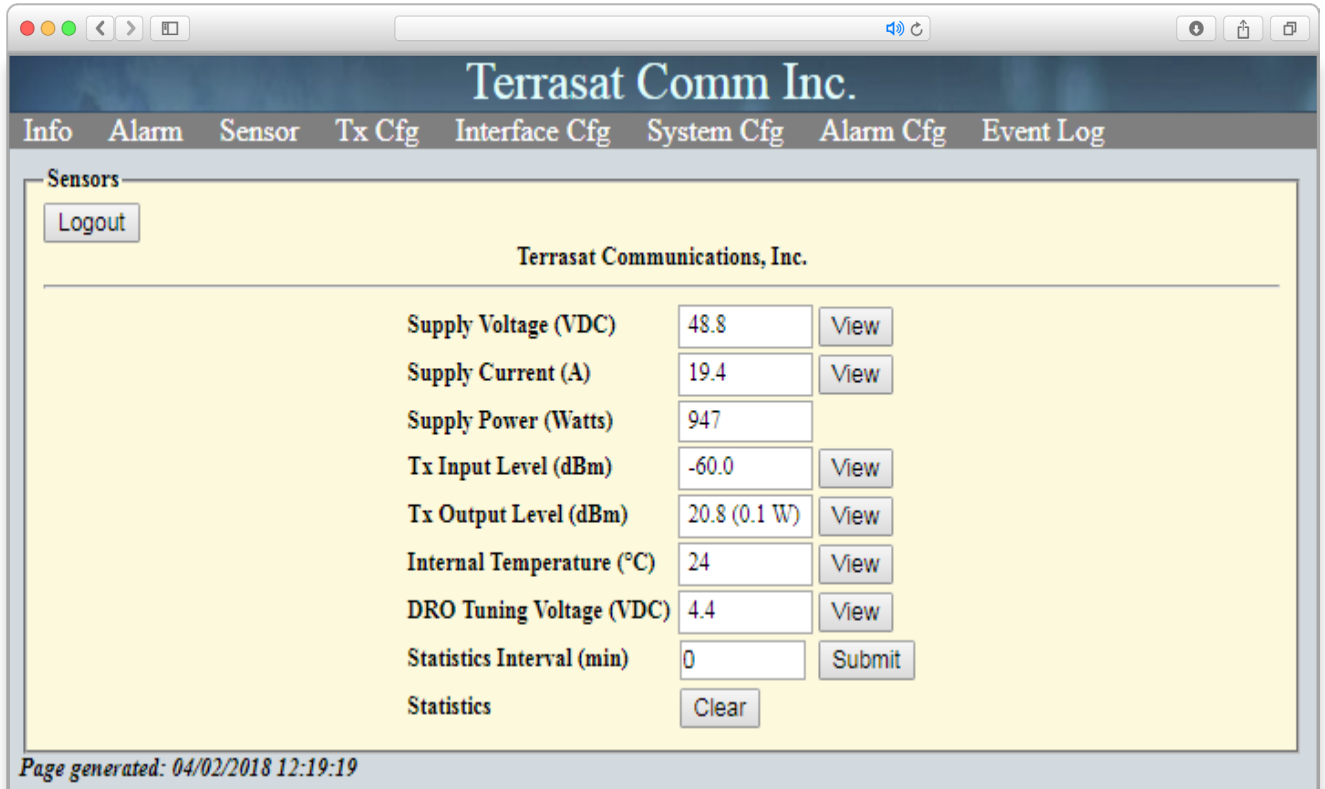
In the event of a failure at a site, it is possible to monitor the satellite modem and virtually all premise equipment – except for a VSAT BUC. After the technician has eliminated every other potential cause, he must take the BUC offline & either replace it & take the suspect unit back to the lab, or set up a test bed to confirm that the BUC has indeed failed. Through the IBUC's onboard diagnostics the technician on site can easily confirm or eliminate the BUC as the source of the failure.



Appendix-Web Pages



From the Alarm Status page, the technician has an immediate view of potential causes of alarm conditions. He can check for unusual conditions from both internal and external sources. Common errors such as loss of 10 MHz reference or low input level are readily viewed without the need for test equipment. It is not necessary to take the unit out of service for troubleshooting & the source of the problem can be isolated very quickly.



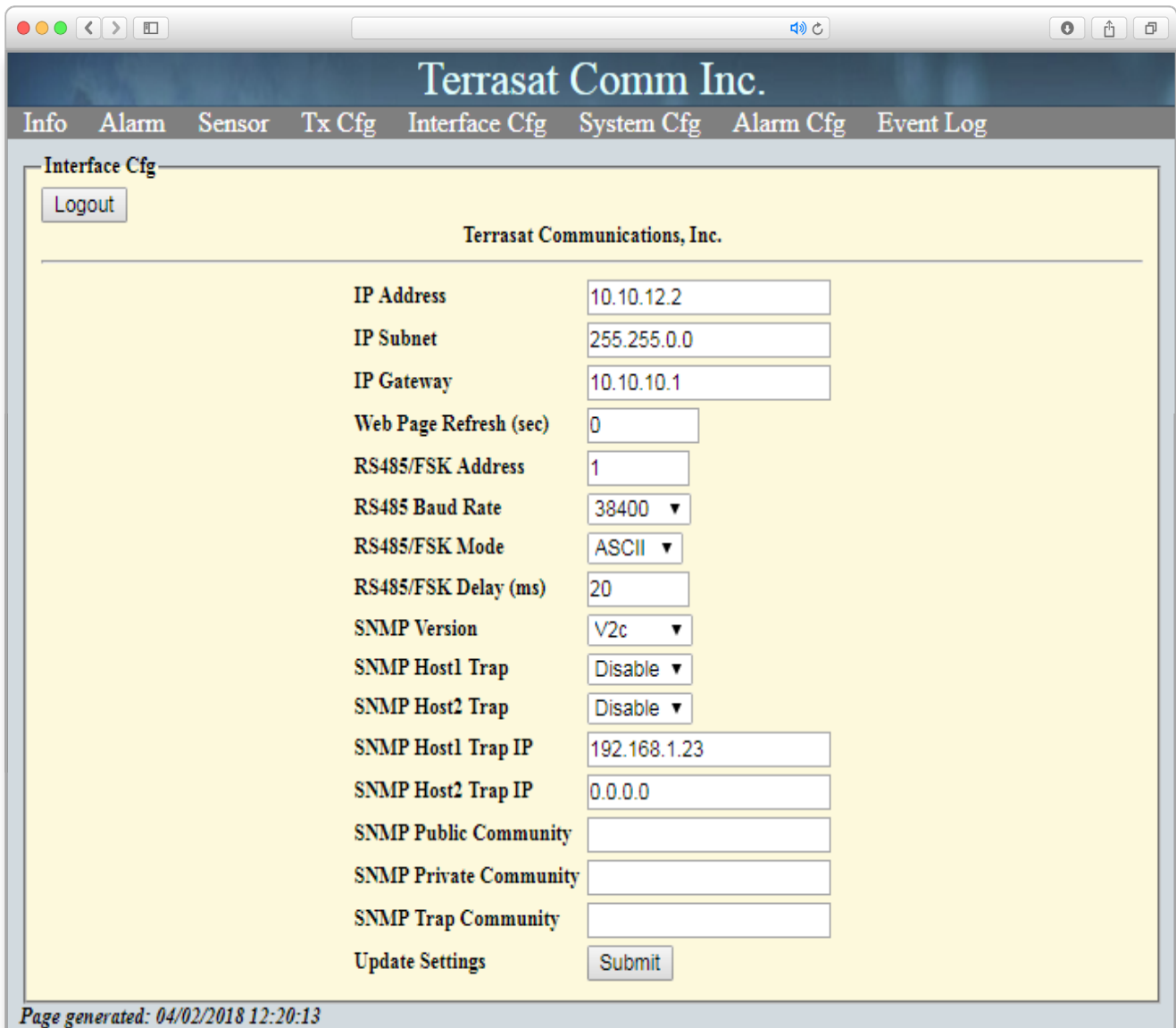
The Sensor page enables the technician to drill down for additional information about the condition of the IBUC. This page helps track down clues during troubleshooting. By selecting one of the “view” buttons, the technician can pull up a trend graph plotting the function over time.

An event log shows time & date-stamped events for analysis.



The screenshot shows a web browser window displaying the 'Event Log' page of the Terrasat Comm Inc. management interface. The page has a dark blue header with the company name and a navigation menu with tabs for 'Info', 'Alarm', 'Sensor', 'Tx Cfg', 'Interface Cfg', 'System Cfg', 'Alarm Cfg', and 'Event Log'. The 'Event Log' tab is selected. Below the navigation, there is a 'Logout' button and the text 'Terrasat Communications, Inc.'. A list of events is displayed, each with a date, time, and description. At the bottom of the event list, there are 'Clear', 'Prev', and 'Next' buttons. The page footer indicates 'Page generated: 04/02/2018 12:21:23'.

Date	Time	Event
01/06/2012	23:24:58	EHZ
01/06/2012	23:39:36	Reboot
01/06/2012	23:39:36	Temperature Alrm ALARM
01/06/2012	23:39:38	Temperature Alrm CLEAR
01/06/2012	23:39:40	CPE=TELNET
01/06/2012	23:39:46	Switch Fault ALARM
01/06/2012	23:40:16	Clone Comm Fault ALARM
01/06/2012	23:43:34	CPE=HHT
01/06/2012	23:45:08	CPT=1
01/06/2012	23:48:06	CPE=HHT
01/06/2012	23:48:14	CPT=0
01/06/2012	23:49:38	CPE=TELNET
01/06/2012	23:49:46	Switch Fault CLEAR
01/06/2012	23:49:46	Clone Comm Fault CLEAR
01/06/2012	23:52:02	CPE=RS232
01/06/2012	23:59:52	Reboot
01/06/2012	23:59:52	Temperature Alrm ALARM
01/06/2012	23:59:56	Temperature Alrm CLEAR
01/07/2012	00:00:04	CPE=WEB
01/07/2012	00:14:08	Reboot
01/07/2012	00:14:08	Temperature Alrm ALARM
01/07/2012	00:14:12	Temperature Alrm CLEAR
01/07/2012	00:14:18	CPE=WEB
01/07/2012	00:16:10	Reboot
01/07/2012	00:16:10	Temperature Alrm ALARM

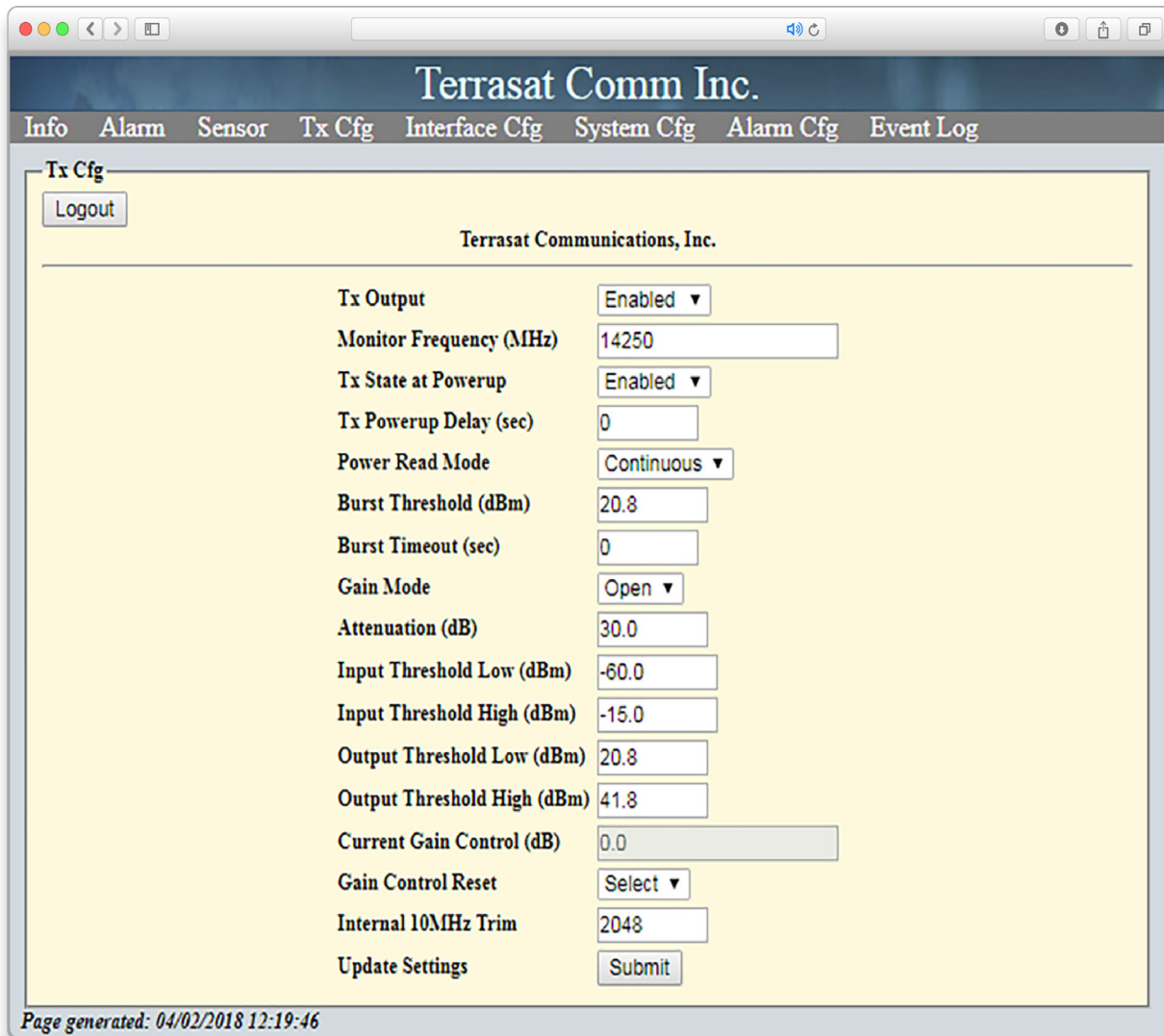


The screenshot shows a web browser window displaying the "Interface Cfg" page of the Terrasat Comm Inc. web interface. The page has a dark blue header with the company name and a navigation menu with tabs: Info, Alarm, Sensor, Tx Cfg, Interface Cfg, System Cfg, Alarm Cfg, and Event Log. The "Interface Cfg" tab is selected. Below the navigation is a "Logout" button. The main content area is titled "Terrasat Communications, Inc." and contains a list of configuration parameters, each with a corresponding input field or dropdown menu. At the bottom of the form is a "Submit" button. The footer of the page indicates the page was generated on 04/02/2018 at 12:20:13.

Terrasat Communications, Inc.	
IP Address	<input type="text" value="10.10.12.2"/>
IP Subnet	<input type="text" value="255.255.0.0"/>
IP Gateway	<input type="text" value="10.10.10.1"/>
Web Page Refresh (sec)	<input type="text" value="0"/>
RS485/FSK Address	<input type="text" value="1"/>
RS485 Baud Rate	<input type="text" value="38400"/>
RS485/FSK Mode	<input type="text" value="ASCII"/>
RS485/FSK Delay (ms)	<input type="text" value="20"/>
SNMP Version	<input type="text" value="V2c"/>
SNMP Host1 Trap	<input type="text" value="Disable"/>
SNMP Host2 Trap	<input type="text" value="Disable"/>
SNMP Host1 Trap IP	<input type="text" value="192.168.1.23"/>
SNMP Host2 Trap IP	<input type="text" value="0.0.0.0"/>
SNMP Public Community	<input type="text"/>
SNMP Private Community	<input type="text"/>
SNMP Trap Community	<input type="text"/>
Update Settings	<input type="button" value="Submit"/>

Page generated: 04/02/2018 12:20:13

The IBUC is delivered with factory defaults for installation without further setup. However, several configuration pages enable fine tweaking of the unit to customer-specific requirements. Here on the "Interface Configuration" tab it is possible to change the unit's IP address & enable SNMP for centralized network management.



The screenshot shows a web browser window displaying the 'Tx Cfg' page of the Terrasat Comm Inc. interface. The page has a navigation bar with links for 'Info', 'Alarm', 'Sensor', 'Tx Cfg', 'Interface Cfg', 'System Cfg', 'Alarm Cfg', and 'Event Log'. The 'Tx Cfg' page includes a 'Logout' button and a 'Terrasat Communications, Inc.' header. The main content area contains a list of configuration parameters, each with a corresponding input field or dropdown menu. At the bottom of the page, there is a 'Submit' button and a timestamp: 'Page generated: 04/02/2018 12:19:46'.

Parameter	Value
Tx Output	Enabled
Monitor Frequency (MHz)	14250
Tx State at Powerup	Enabled
Tx Powerup Delay (sec)	0
Power Read Mode	Continuous
Burst Threshold (dBm)	20.8
Burst Timeout (sec)	0
Gain Mode	Open
Attenuation (dB)	30.0
Input Threshold Low (dBm)	-60.0
Input Threshold High (dBm)	-15.0
Output Threshold Low (dBm)	20.8
Output Threshold High (dBm)	41.8
Current Gain Control (dB)	0.0
Gain Control Reset	Select
Internal 10MHz Trim	2048
Update Settings	Submit

The "Transmit Configuration" page provides the capability to adjust the gain of the unit, adjust alarm thresholds and set AGC or ALC to hold gain or power solid.

This update implements a new statistics log. The log contains up to 1,000 entries. Each entry contains sensor readings for all sensors.



In redundant transmit & receive systems, the companion unit web pages are displayed side-by-side for convenience.

Updated 12/5/2019