



EdgeMarc Hardware Installation Guide

Hardware Version: 6000 uCPE
Document Revision: 1.0
Published: September 09, 2019

Ribbon Communications, Inc.
5225 Hellyer Ave., Suite 100
San Jose, California 95138

Phone: 408.351.7200
Fax: 408.727.6430

ribboncommunications.com

Copyright

Copyright © 2019 Ribbon Communications Operating Company, Inc. ("Ribbon"). All rights reserved. This publication and the information contained herein is the property of Ribbon and may not be copied, reproduced or distributed in any form or by any means without the prior written permission of Ribbon.

Disclaimer and Restrictions

The publication is for information purposes only and is subject to change without notice. This publication does not constitute a commitment on the part of the Ribbon. While reasonable efforts have been made in the preparation of this publication to assure its accuracy, Ribbon assumes no liability resulting from technical or editorial errors or omissions, or for any damages whatsoever resulting from the furnishing, performance, or use of the information contained herein. Ribbon reserves the right to make changes to this publication and to Ribbon products without notice in its sole discretion. This publication is not meant to define any interfaces between Ribbon products and any third-party hardware or software products.

Warranties

THIS INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT SHALL THE RIBBON BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR PERFORMANCE OF THIS INFORMATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Compliance with Applicable Laws and Export Control Laws

The information in this publication is subject to all applicable U.S. federal, state, and local laws. The customer use, distribution, and transfer of any technical information shall be in compliance with all applicable export and import laws and regulations. All Ribbon products and publications are commercial in nature; and the use, duplication, or disclosure by the United States Government is subject to the restrictions set forth in DFARS 252.227-7013 and FAR 52.227-19.

Trademarks

Among other trademarks, Ribbon, Ribbon Communications, the Ribbon logo, Sonus Networks, Sonus, the Sonus logo, GENBAND, GENBAND with design, G9, G9 with design, KANDY, Open Services Architecture, Insignus, SMARRT, Sonus Networks Insight, IMX, GSX9000, GSX4000, GSX4010, SBC 5100, SBC 5200, SBC 1000, SBC 2000, SBC Edge, SBC 5110, SBC 5210, SBC 7000, SBC Core, SBC Portfolio, IMX, SBC 9000, Insight xAuthority, Monterey 8000, NexusWare, SEGway, WebRTC, SBC SWe, PSX SWe, Insight EMS SWe, DSC 8000, DSC SWe, LX, VX, VX SWe, Sonus IQ, Sonus Cloud Communications Made Smarter, EDGEMARC, EDGEPROTECT, EDGEWATER NETWORKS & Design, EDGEWATER, and EDGEVIEW are either registered trademarks or trademarks of Ribbon and its subsidiaries. RibbonCare is a service mark of Ribbon. The Ribbon trademarks may not be used in connection with any product or service that is not Ribbon and its subsidiaries in any manner that is likely to cause confusion among customers or in any manner that disparages or discredits Ribbon and its subsidiaries. All other product names mentioned herein are trademarks, service marks, registered trademarks, or registered service marks of their respective owners.

UNCONTROLLED COPY: The master of this content is stored in an electronic database and is "write protected"; it may be altered only by authorized persons. While copies may be printed, it is not recommended. Viewing of the master electronically ensures access to the current content. Any hardcopies taken must be regarded as uncontrolled copies.

For access to the technical documentation, log in through the Ribbon Support Services website at

<https://ribboncommunications.com/services/support-services/technical-documentation>

Contents

Contents

About This Guide

Typographic Conventions	5
Document Organization	6
Contact and Support Information.	6

1 EdgeMarc 6000 uCPE

Introduction	7
Supported Features	7

2 Product Overview

EdgeMarc 6000 uCPE Front Panel.	9
EdgeMarc 6000 uCPE Back Panel	11
Ethernet Port LEDs.	14

3 MicroSD Card Features and Specifications

EdgeMarc 6000 uCPE MicroSD Card Specifications	15
--	----

4 Physical Installation

Overview	17
EdgeMarc 6000 uCPE Appliance Shipping Contents	18
Required Tools and Materials.	18
Power Surge Protection	18
Installing EdgeMarc 6000 uCPE on a Desktop, Shelf, or Tray. . .	18
Installing EdgeMarc 6000 uCPE in a Rack	19
Connecting the Power and Cables	19
Powering On the EdgeMarc 6000 uCPE	19

5 Configuring Basic Network Settings

Connecting to the EdgeMarc for the First Time	20
Deploying the EdgeMarc 6000 uCPE Session Border Controller .	23

A Specifications, Safety, Compliance, and Certifications

Specifications and Certifications	24
FCC Notice	25
Class A Digital Device or Peripheral.	25
Part 15 FCC Rules	25

Part 68 FCC Rules	26
Industry Canada (IC)	26
Canadian Certification Requirements for Bilingual Safety, Warning and Caution Markings	27
Class A Statements	29
Japan	29
Korea	29
China.....	29
EEA Regulatory Notices	29
CE Mark R & TTE Directive.....	29
Declaration of Conformity.....	29
Restriction of Hazardous Substances Directive (RoHS)	31
End of Life Products	31
Important Safety Instructions	32
Importantes Instructions de Securite	32
B License and Warranty Information	
EdgeMarc Limited Hardware Warranty	34
EdgeMarc Standard Limited Software Warranty	35
Exclusions	35
Disclaimer	35
Limitation of Liability	35
Support and Services Agreements	36
Appendix A	
Console Cable Pinout Table	37

About This Guide

This guide provides an overview of the EdgeMarc™ 6000 uCPE hardware components, instructions for installing the device, and how to set up the EdgeMarc in your network for the first time. It also includes compliance and certification notices and hardware and software warranty information.

For instructions on using the EdgeMarc VoIP Operation System (VOS) web-based GUI to configure, deploy, and manage the EdgeMarc, refer to the *EdgeMarc VOS User Guide* in the Ribbon Communications Knowledgebase:

<https://sonusnetworks.secure.force.com/KB/>

Typographic Conventions

User input is displayed in **boldface** type and can represent keyboard input, mouse selections in a browser window, and buttons on the GUI, depending on the context. For example, the notation **File > Open...** means that you first click the **File** menu and then select **Open...** from the sub-menu in the GUI.

Command Line Interface (CLI) text is shown in `courier font`.



Note

Notes highlight information that is important or that has special interest.



Tip

Tips provide additional information that is helpful in performing a particular task but is not mandatory to perform the task.



Caution

Cautions alert you of actions or events that may cause system damage or loss of data.



Warning

Warnings alert you of actions or events that may cause bodily harm.

Document Organization

Item	Description
Chapter 1, EdgeMarc 6000 uCPE	An overview of the EdgeMarc 6000 uCPE devices.
Chapter 2, Product Overview	Describes EdgeMarc 6000 uCPE hardware components.
Chapter 3, MicroSD Card Features and Specifications	Describes EdgeMarc 6000 uCPE microSD card features and specifications.
Chapter 4, Physical Installation	Provides instructions for installing the 6000 uCPE hardware
Chapter 5, Configuring Basic Network Settings	Describes how to power on the EdgeMarc and access the graphical user interface (GUI) to configure basic network settings for the first time.
Specifications, Safety, Compliance, and Certifications	Describes EdgeMarc 6000 uCPE specifications and certifications.
License and Warranty Information	License information related to the operation of EdgeMarc hardware and software.

Contact and Support Information

Ribbon Communications, Inc.
5225 Hellyer Ave., Suite 100
San Jose, California 95138
Phone: 408.351.7200
Fax: 408.727.6430
ribboncommunications.com

Contact the Call Center by opening a case online at <https://ribboncommunications.com/services/ribbon-support-portal> or by sending an email to support@rbbn.com

EdgeMarc 6000 uCPE

Introduction

The newest addition to the Ribbon Intelligent Edge family is the EdgeMarc 6000 universal customer premises equipment (uCPE). It acts as a flexible demarcation/service insertion/control point device with physical telephony ports and power to run multiple virtual network functions (VNFs).

Specifically designed for unified communications offerings, this network device can connect to a variety of digital and analog legacy systems. The Arm®-based architecture reduces capital expense while automated “zero touch” provisioning, remote monitoring and management reduce operating expense.

Supported Features

The EdgeMarc 6000 uCPE device provides:

Session Capabilities

- 300 concurrent session capacity
- 60 TDM/FXx
- 1 Gbps packet throughput

LAN/WAN Connectivity

- 1 or 2 PRI ISDN links over T1/J1/E1
- 8 FXS ports
- 2 FXO ports
- 4 LAN ports
- 2 Gb Ethernet ports for WAN
- 2 SFP WAN ports
- 4G/LTE

Multi-tenant Management via Ribbon EdgeView Service Control Center

- Zero touch provisioning

- Remote Monitoring
- Remote firmware upgrades
- Fault monitoring

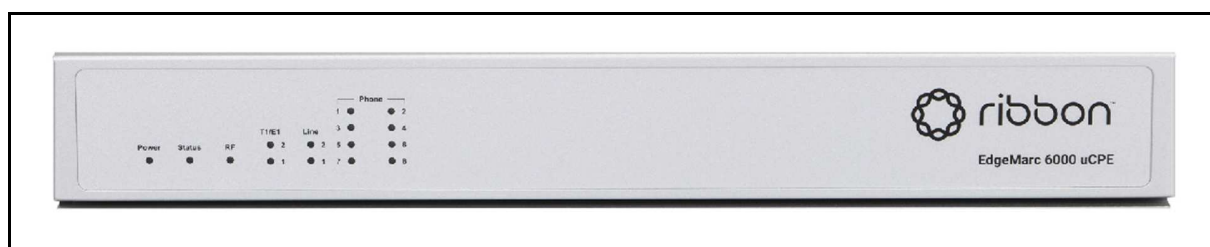
Troubleshooting

- Threshold alerts
- LAN/WAN MOS scores
- SIP ladder diagrams
- Ring buffers
-

Product Overview

EdgeMarc 6000 uCPE Front Panel

Figure 2-1 EdgeMarc 6000 uCPE Front Panel



When lit, the Power LED indicates power is supplied to the system. The Status LED changes to indicate the current state of the system (Figure 2-1).

Table 2-1 EdgeMarc 6000 uCPE LEDs

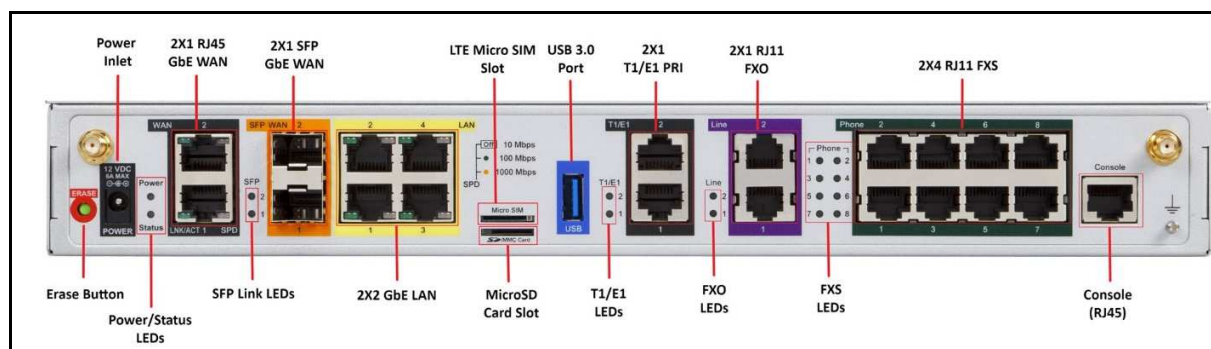
LED	Indicator	Description
Power	Off	Power is not supplied to the device. Troubleshoot by verifying that the power adapter is connected to the unit and that power is supplied to the AC wall outlet.
	Solid Green	Power is supplied to the unit.
Status	Off	Power is not supplied to the device, or the bootloader failed to load.
	Solid Amber	The device is running a self-test and is initializing.
	Flashing Amber	The device is upgrading its software.
	Flashing Green	The device is loading the EdgeMarc VoIP Operating System (VOS).
	Solid Green	VOS is ready.

Table 2-1 EdgeMarc 6000 uCPE LEDs (continued)

LED	Indicator	Description
	Red	The device is in the bootloader. The kernel will change the LED to solid amber once the kernel starts loading.
RF	Red	Out of service.
	Green	4G LTE is connected.
T1/E1 (1-2)	Off	T1/E1 port is not in use.
	Solid Green	T1/E1 port is in use.
Line (1-2)	Off	PSTN line is not in use.
	Solid green	PSTN line is in use.
Phone (1-8)	Off	Phone is in the on-hook state.
	Solid green	Phone is in the off-hook state.

EdgeMarc 6000 uCPE Back Panel

Figure 2-2 EdgeMarc 6000 uCPE Back Panel



When lit, the Power LED indicates power is applied to the system. The Status LED changes to indicate the current state of the system. (Figure 2-2).

Table 2-2 EdgeMarc 6000 uCPE Back Panel LEDs

LED	Indicator	Description
Power	Off	Power is not supplied to the device. Troubleshoot by verifying that the power adapter is connected to the unit and that power is supplied to the AC wall outlet.
	Solid Green	Power is supplied to the unit.
Status	Off	Power is not supplied to the device, or the bootloader failed to load.
	Solid Amber	The device is running a self-test and is initializing.
	Flashing Amber	The device is upgrading its software.
	Flashing Green	The device is loading the EdgeMarc VoIP Operating System (VOS).
	Solid Green	VOS is ready.
SFP Link (1-2)	Red	The device is in the bootloader. The kernel will change the LED to solid amber once the kernel starts loading.
	Solid Green	Peer link is powered.
	Flashing LED	Fiber traffic is active.

Table 2-2 EdgeMarc 6000 uCPE Back Panel LEDs (continued)

LED	Indicator	Description
T1/E1 (1-2)	Off	T1/E1 port is not in use.
	Solid Green	T1/E1 port is in use.
Line (1-2)	Off	PSTN line is not in use.
	Solid Green	PSTN line is in use.
Phone (1-8)	Off	Phone is in the on-hook state.
	Solid Green	Phone is in the off-hook state.

Table 2-3 EdgeMarc 6000 uCPE Back Panel Components

Physical Label/Type	Function	Description
Erase button	Erase	Press the Erase button in quick succession to control the following: ■ One click—No action. ■ Two clicks—Resets the CLI and GUI password with no service interruption. ■ Three clicks—Restores to factory default settings and reboots the system. Note: When restored to factory default settings, the current configuration is lost, disconnecting all VoIP devices, Internet connectivity, and network access for computers until the system is reconfigured.
Power Inlet	Accepts power input	This is a 12V 6A DC power socket.
Power/Status LEDs	System power and status	Refer to Table 2-2 for system and power status details.
Ethernet WAN Ports 1-2	WAN	2x1 10/100/1000 Mbps RJ45 Ethernet ports for WAN network connectivity (Copper).
SFP Link LEDs	Status	When lit, the SFP port is active and the copper RJ45 port is inactive. Refer to Table 2-2.

Table 2-3 EdgeMarc 6000 uCPE Back Panel Components

Physical Label/Type	Function	Description
Optical WAN SFP Ports 1-2	WAN	Small Form-Factor Pluggable (SFP) for fiber (RJ45) Gigabit Ethernet connectivity. Either the SFP port (operating at 100/1000 Mbps) or the RJ45 (operating at 10/100/1000 Mbps) port can be active at a time.
Ethernet LAN Ports 1-4	LAN	2x2 10/100/1000 Mbps RJ45 Ethernet ports for LAN network connectivity.
LTE Micro SIM Slot	4G LTE Support	Allows you to insert a 4G LTE micro SIM card thus allowing 4G network access.
Micro SD Card Interface	Storage	Allows the EdgeMarc to save configurations and other files to an SD High Capacity (SDHC) Version 2.0 card. Maximum storage capacity is 32 GB per SD card, 4 GB per file. The SD card capabilities are configured with the web-based configuration menu and with command-line interface (CLI). Refer to EdgeMarc 6000 uCPE MicroSD Card Specifications .
USB 3.0 Port	Data Transmission	Can be used to connect USB devices.
T1/E1 LEDs	Status	When lit, the T1/E1 port is active. Refer Table 2-2 .
T1/E1 PRI Ports 1-2	T1/E1	Allows the user to transmit voice and data through PRI. 2 x T1/E1 default system configuration. Two ports are available on the main board.
Line Ports 1-2	FXO	2 x RJ11 ports for 2 FXO channels.
Phone Ports 1-8	FXS	6 x RJ11 ports for 6 FXS channels.
FXO/FXS LEDs	Status	Refer to Table 2-2 for FXO/FXS LED status details.
Management Console Port	Management	RJ45 serial craft port for console management. This port is used for debug or diagnostic purposes only. Primary system configuration is performed from a web browser as described in the <i>EdgeMarc User Guide</i> .

Ethernet Port LEDs

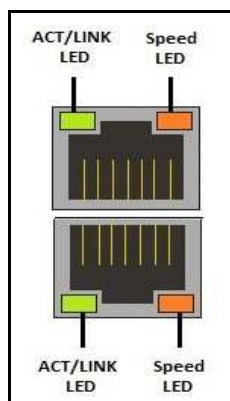


Table 2-4 Ethernet Port LEDs

Label	Indication	Status
Activity/Link		
Green	Off	There is no connection between the ends of the network cable. Check cable, replace cable.
	On—Flickering Green	The adapter is sending and receiving network data. The frequency of the flashing varies with the amount of data being transferred.
	On—Solid Green	The device is powered and there is a good link between the Ethernet port and the connected switch.
Speed		
Amber	Off	The device is not powered, no cable connected, or the port speed is set to 10 Mbps.
	On—Flickering Amber	A powered device is connected and the port speed is set to 1000 Mbps.
	On—Solid Amber	A powered device is connected and the port speed is set to 100 Mbps.

MicroSD Card Features and Specifications

EdgeMarc 6000 uCPE MicroSD Card Specifications

Table 3-1 describes supported EdgeMarc 6000 uCPE microSD card features.

For information about configuring microSD card settings, see the *EdgeMarc VOS User Guide* in the Ribbon Communications Knowledgebase:

www.sonusnetworks.secure.force.com/KB/



Disclaimer

Some older and slower speed microSD cards do not support the entire MMC specification. These cards can dramatically reduce the card write speeds and the overall performance of the system. Recommended microSD cards are class 10, UHS 1 or faster.

Table 3-1 MicroSD Card Features

Feature	Description
File format	MS-DOS File Allocation Table FAT32 (Limited Support), Ext3
MicroSD card classes	Class 10, and UHS-1 Recommended default is Class 10 or faster.
Capacity	Maximum storage capacity: 32 GB per microSD card, 4 GB per file.
CLI	File Commands ■ delete = rm ■ copy = cp ■ rename = mv ■ edit = vi or cat

Table 3-1 MicroSD Card Features (continued)

Feature	Description
	Directory Commands ■ create = mkdir ■ delete = rmdir ■ rename = mv
	MicroSD Card Commands ■ mount = sdcard mount In FAT32 format if the microSD card (or SD card) was not properly unmounted, this command will result in the following syslog message: "Volume was not properly unmounted. Some data may be corrupt. Please run fsck." Since EdgeMarc no longer supports dos fsck tool, this must be fixed either on an EdgeMarc with pre-15.3.0 VOS or on an appropriate Windows system. ■ unmount = sdcard umount ■ format* = sdcard format Please note that Quick Format is not available in EdgeMarc versions 15.3.0 and above. A microSD card of 32 GB can take up to 35 minutes to be formatted. ■ name/rename SD card* = sdcard volume <volume name> ■ status* = sdcard check *Supports only Ext3 file system
EdgeMarc files	You can copy the following types of files to and from the microSD card using the CLI: conf1, conf2, syslog, pcap, mand logs, sys_report output.
TFTP server	The TFTP file server is used for endpoint configuration file storage.
FTP server	The FTP file server is used for endpoint configuration file storage.
Remote access	SSH into the EdgeMarc 6000 uCPE via SCP for remote access to the microSD card and files within the microSD card.
System alerts for microSD card insert/removal	A system alert is issued when a microSD card is inserted or removed. The alert contains the timestamp of the event.

Physical Installation

The following sections describe how to install the EdgeMarc 6000 uCPE hardware:

- [Overview](#)
- [EdgeMarc 6000 uCPE Appliance Shipping Contents](#)
- [Required Tools and Materials](#)
- [Installing EdgeMarc 6000 uCPE on a Desktop, Shelf, or Tray](#)
- [Installing EdgeMarc 6000 uCPE in a Rack](#)
- [Connecting the Power and Cables](#)

Overview

The EdgeMarc 6000 uCPE appliances are designed for desktop, wall, shelf, tray, or rack installation. Observe the following guidelines when installing these systems:

- Always verify that the AC power cord is disconnected from a power source prior to installation.
- Do not stack multiple units on top of each other as this can cause overheating.
- Ensure that the installation site has adequate air circulation and meets the minimum operating conditions for the system as specified in [Specifications, Safety, Compliance, and Certifications](#).

EdgeMarc 6000 uCPE Appliance Shipping Contents

Table 4-1 describes the EdgeMarc 6000 uCPE Shipping Box Contents.

Table 4-1 EdgeMarc 6000 uCPE Shipping Box Contents

S/N	Description
1	EdgeMarc 6000 uCPE appliances (Figure 2-1)
2	DC-12V 6A, Power Cord (Type B for North America and Type F for EU), 72W
3	Rack Mount Ears
4	Safety Instructions

Required Tools and Materials

You will need the following tools and materials to install the EdgeMarc:

- Ethernet cables—To connect the LAN ports to LAN switches or to individual VoIP devices.

Power Surge Protection

EdgeMarc units are designed with a robust internal surge protection system. For more effective surge protection, it is recommended that the EdgeMarc be plugged into an external surge protector or UPS.

Installing EdgeMarc 6000 uCPE on a Desktop, Shelf, or Tray

1. Remove the EdgeMarc device and accessories from the shipping container.
2. Place the device on a flat, dry surface such as a desktop, shelf, or tray.

Installing EdgeMarc 6000 uCPE in a Rack

EdgeMarc 6000 uCPE are of rack mount width. It is not necessary to attach rack mount ears.

Connecting the Power and Cables

The EdgeMarc 6000 uCPE come with an AC power adapter for connecting to an AC outlet.



Warning

Always connect the AC power cord to an AC outlet suitable for the power supply that came with the unit to reduce the risk of damage.



Caution

Secure the AC power cord to a cable management system using a fastener or tie wrap to insure the EdgeMarc does not hang from the AC outlet.

1. If connecting to an Internet router or Internet DMZ switch, connect the Ethernet cable to the WAN Interface port (Port 2) on the EdgeMarc and the other end to the WAN device.
2. Power on the system.



Warning

The equipment has a separate protective earthing terminal on the chassis that must be permanently connected to earth ground to adequately ground the chassis and protect the operator from electrical hazards.

Powering On the EdgeMarc 6000 uCPE

1. Turn on the EdgeMarc power switch.
2. Make sure that the power and status LEDs on the front panel are solid green after the EdgeMarc powers on.
3. Proceed to [Chapter 5, Configuring Basic Network Settings](#).

Configuring Basic Network Settings

This chapter explains how to connect to the EdgeMarc and access the graphical user interface (GUI) to configure basic network settings for the first time. Refer to the *EdgeMarc VOS User Guide* for complete details on how to configure your EdgeMarc device for your network deployment.

- [Connecting to the EdgeMarc for the First Time](#)
- [Deploying the EdgeMarc 6000 uCPE Session Border Controller](#)

Connecting to the EdgeMarc for the First Time

The LAN interface ports are pre-configured with the IP address 192.168.1.1.

1. Connect a computer to the LAN interface port (LAN Port 1) using an Ethernet cable or connect to an Ethernet switch (using the IP address 192.168.1.2 and subnet mask 255.255.255.0).
2. Launch a web browser on your computer and enter the following URL:
<http://192.168.1.1>.
3. Press **Return**. The EdgeMarc login screen is displayed.

Figure 5-1 EdgeMarc login screen



4. Enter your initial username in the field provided: **root**

5. Enter your initial password in the field provided: **default**
6. Click **OK**.
7. After you have logged in to the system for the first time with the default credentials, you are directed to the Change Password page (Figure 5-2).

Figure 5-2 Change Password Page

 ribbon

System: 6000

**Your account is new or has been reset.
A password change is required before access can be granted.**

User Name: root

Current Password:

New Password:

Confirm New Password:

Enter the new password (minimum of 6, maximum of 8 characters)

New password must contain:

Lower Case Alpha (minimum of 1)

Numeric Characters (minimum of 1)

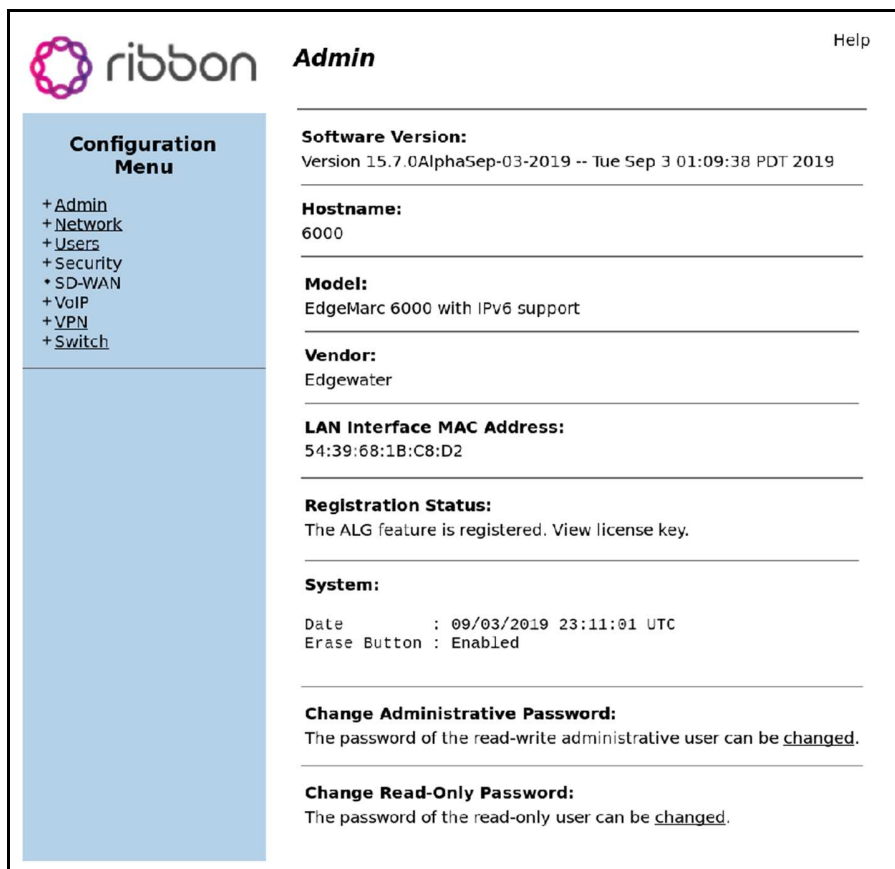
Special Characters (minimum of 1)

8. Enter your Current and New Passwords in the Change Password Page according to the new password instructions given in the page and then click **Change Password**. The Password Change Confirmation Page will be displayed.
9. Select **Click here to log on with your new password** from the Password Change Confirmation Page.
10. You will be navigated again to the EdgeMarc login screen (Figure 5-3). Log in to the EdgeMarc Admin landing page (Figure 5-4) with your User Name and New Password from the EdgeMarc login screen.

Figure 5-3 EdgeMarc login screen



Figure 5-4 EdgeMarc Admin Landing Page



Deploying the EdgeMarc 6000 uCPE Session Border Controller

The EdgeMarc is deployed as a Session Border Controller on the network. For details about how to configure and deploy the EdgeMarc device in your network, refer to the EdgeMarc online help and the [EdgeMarc VOS User Guide](#) available in the Ribbon Communications Knowledgebase.

Specifications, Safety, Compliance, and Certifications

Specifications and Certifications

Item	Description
Specifications	
Dimensions	Length: 201.5mm / 7.93" Width: 332mm / 13.07" Depth: 44.5mm / 1.75"
Weight	3.99 lbs/1.81 kg (system only)
Power	AC Input 100-240V, 2A, 50-60Hz, DC Output 12V 6A, Desktop Power Adapter, 72W
Warranty	5 Years
Environmental Requirements	Operating Temperature: 32°F to 104°F (0° to 40°C) Relative Humidity: 4% to 90%, non-condensing
Certifications	RoHS Compliant, WEEE Compliant
Safety	UL/cUL, LVD
Emissions	FCC part 15B, IC, CE, RCM, VCCI

USA and Canadian Notices



Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Notice

Class A Digital Device or Peripheral

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

In accordance with Part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by Ribbon Communications, Inc. could void the user's authority to operate this equipment.

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.

Part 15 FCC Rules

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Part 68 FCC Rules

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the Bottom of this equipment is a label that contains, among other information, a product identifier in the format

Certification jack Universal Service Order Code (USOC): RJ11, REN: 0.1 A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Industry Canada (IC)

This Class [A] digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe [A] est conforme à la norme NMB-003 du Canada.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s).

This product apparatus complies with Canadian IC CS-03

This product meets the applicable Innovation, Science and Economic Development Canada

The Ringer Equivalence Number (REN) is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject. only to the requirement that the sum of the RENs of all the devices not exceed five.

Ce produit est conforme à l'application de l'Innovation, de la Science et le développement économique de Canada. L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or

equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



Caution

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each relevant terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed 5.

The REN of this equipment is either marked on the unit or included in the new style USA FCC registration number. In the case that the REN is included in the FCC number, the user should use the following key to determine the value:

The FCC number is formatted as US:AAAEQ#TXXX.

is the Ringer Equivalence Number without a decimal point (e.g. REN of 1.0 will be shown as 10, REN of 0.3 will be shown as 03). In the case of a Z ringer, ZZ shall appear. In the case of approved equipment without a network interface or equipment not to be connected to circuits with analog ringing supplied, NA shall appear.

The REN is useful to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs of all devices that may be connected to a line, is determined by the total RENs, contact the local telephone company.

Canadian Certification Requirements for Bilingual Safety, Warning and Caution Markings

Canadian Federal and Provincial/Territorial statutes and regulations, such as the Consumer Packaging and Labeling Regulation, require the use of bilingual product markings for products sold in Canada and in the province of Quebec, additionally regulated under "The Charter of the French Language." The bilingual requirements include the safety, warning and caution markings as defined by the Standard or ORD.

The UL Procedure contains the English language markings. It is the sole responsibility of the Applicant and Manufacturer to comply with the applicable

Canadian Federal and Provincial/Territorial marking regulation(s) and law(s) in both official languages.

This document applies to all customers of ULs product certification services for the Canadian markets, for example, UL/C-UL/ULC Mark certifications.

View the [Canadian Certification Requirements for Bilingual Safety, Warning and Caution Markings](#) document.

Class A Statements

Japan

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

Korea

Class A ITE

기종별	사용자안내문
A급 기기 (업무용 방송통신기기)	이 기기는 업무용 (A급) 으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

China

声 明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

EEA Regulatory Notices

CE Mark R & TTE Directive

This Ribbon Communications EdgeMarc system has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC, 73/23/EEC 1999/5/EC.

Declaration of Conformity

English:	Hereby, Ribbon Communications, declares that this EdgeMarc 6000 uCPE is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Česky [Czech]:	Ribbon Communications tímto prohlašuje, že tento EdgeMarc 6000 uCPE je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.

Dansk [Danish]:	Undertegnede Ribbon Communications erklærer herved, at følgende udstyr EdgeMarc 6000 uCPE overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]:	Hiermit erklärt Ribbon Communications, dass sich das Gerät EdgeMarc 6000 uCPE in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]:	Käesolevaga kinnitab Ribbon Communications seadme EdgeMarc 6000 uCPE vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Español [Spanish]:	Por medio de la presente Ribbon Communications declara que el EdgeMarc 6000 uCPE cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]:	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Ribbon Communications ΔΗΛΩΝΕΙ ΟΤΙ EdgeMarc 6000 uCPE ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.
Français [French]:	Par la présente Ribbon Communications déclare que l'appareil EdgeMarc 6000 uCPE est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]:	Con la presente Ribbon Communications dichiara che questo EdgeMarc 6000 uCPE è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]:	Ar šo Ribbon Communications deklarē, ka EdgeMarc 6000 uCPE atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]:	Šiuo Ribbon Communications deklaruoja, kad šis EdgeMarc 6000 uCPE atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]:	Hierbij verklaart Ribbon Communications dat het toestel EdgeMarc 6000 uCPE in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]:	Hawnhekk, Ribbon Communications, jiddikjara li dan EdgeMarc 6000 uCPE jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]:	Alulírott, Ribbon Communications nyilatkozom, hogy a EdgeMarc 6000 uCPE megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Polski [Polish]:	Niniejszym Ribbon Communications oświadcza, że EdgeMarc 6000 uCPE jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC
Português [Portuguese]:	Ribbon Communications declara que este EdgeMarc 6000 uCPE está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Slovensko [Slovenian]:	Ribbon Communications izjavlja, da je ta EdgeMarc 6000 uCPE v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]:	Ribbon Communications týmto vyhlasuje, že EdgeMarc 6000 uCPE spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]:	Ribbon Communications vakuuttaa täten että EdgeMarc 6000 uCPE tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]:	Härmed intygar Ribbon Communications att denna EdgeMarc 6000 uCPE står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Íslenska (Icelandic):	Hér með lýsir Ribbon Communications yfir því að EdgeMarc 6000 uCPE er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC
Norsk [Norwegian]:	Ribbon Communications erklærer herved at utstyret EdgeMarc 6000 uCPE er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF

Restriction of Hazardous Substances Directive (RoHS)

Ribbon Communications products are RoHS compliant, which means we have eliminated or brought to within acceptable limits: Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls, and Polybrominated Diphenylethers. For more information please contact:

www.ribboncommunications.com/global-services

End of Life Products

Ribbon Communications encourages you to recycle your end-of-life Ribbon Communications products in an environmentally considerate way. In accordance with the requirements of the European Waste Electronic and Electrical Equipment (WEEE) Directive, all Ribbon Communications products are marked as recyclable and should not be disposed of in the household or general waste stream.

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Do not use this product near water for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS



Warning

For continued protection against risk of fire, replace only with same type and rating of fuse.



Warning

Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.



Warning

To reduce the risk of fire, use only No. 26 AWG or larger (for example, 24 AWG) UL Listed or CSA Certified Telecommunication Line Cord.

Disconnect all power supply cords before servicing.

Disconnect TNV circuit connector before removing cover.

Importantes Instructions de Securite

En utilisant votre équipement téléphonique, veuillez respecter les précautions de sécurité de base pour réduire les risques d'incendie, de choc électrique et de blessure aux personnes, dont les suivantes:

- N'utilisez pas ce produit proche de l'eau, par exemple près d'une baignoire, d'un évier, d'un lavabo ou d'une machine à laver, dans un sous-sol humide ou près d'une piscine.
- Evitez d'utiliser un téléphone (autre qu'un sans fil) durant un orage. Il y a un risque de choc électrique à distance depuis un éclair.
- N'utilisez pas votre téléphone pour appeler en cas de fuite de gaz près de la source de la fuite.

- N'utilisez que le cordon électrique et les piles indiquées dans ce mode d'emploi. Ne jetez pas les piles dans un feu. Elles risquent d'exploser. Vérifiez les réglementations locales pour de possibles instructions spéciales pour le recyclage.

GARDEZ CES INSTRUCTIONS

ATTENTION: Pour une protection continue contre le risque d'incendie, ne changez les piles qu'avec un type et des spécifications identiques du fusible.

ATTENTION: Risque d'explosion si la pile est changée avec un type incorrect. Veuillez recycler les piles usages selon les Instructions.

ATTENTION: Pour réduire le risque d'incendie, n'utilisez qu'un cordon électrique pour les télécommunications certifié UL ou CSA No. 26 AWG ou plus grand (par exemple, 24 AWG).

Déconnectez tous les cordons électriques avant d'effectuer une réparation.

Déconnectez le connecteur de circuit TNV avant d'enlever le couvercle.

License and Warranty Information

This section provides a link to the license information related to the operation of EdgeMarc hardware and software as well as the EdgeMarc hardware warranty.

EdgeMarc Limited Hardware Warranty

For a period of five (5) years from the date Ribbon Communications ships the Product to Purchaser ("Warranty Period"), Ribbon Communications warrants that such Hardware will be (i) free of defects in material and workmanship under normal authorized use consistent with the Hardware Installation Guide instructions and will (ii) substantially conform to Ribbon Communications' published specifications for such Hardware as of the date of Purchaser's order. Purchaser shall notify Ribbon Communications of any non-conformance during the Warranty Period. Purchaser's sole and exclusive remedy and Ribbon Communications' entire liability under this limited warranty shall be for Ribbon Communications, at its sole option, to either repair or advance replace such nonconforming Hardware as set forth in this limited warranty. In case of repair, Purchaser must obtain return authorization verification from Ribbon Communications and return the nonconforming Hardware to a designated repair facility, freight prepaid, with a statement describing the nonconformity. Nonconforming Products must be returned to Ribbon Communications within fourteen (14) business days. If Purchaser fails to return the Product within the specified time frame, Ribbon Communications will charge Purchaser for the cost of new Product purchase. Ribbon Communications may repair such nonconforming Hardware with either new or refurbished equipment. Ribbon Communications will use commercially reasonable efforts to ship replacement Hardware within fifteen (15) business days after receipt of the returned Product to a designated repair facility. In case of advance replacement, if Ribbon Communications in its sole determination and approval deems that advance replacement units are necessary, advance replacement units will be shipped on the same business day for next-day delivery (within the Continental US) if Ribbon Communications receives and acknowledges Purchaser's notification by 1:00 PST. If Ribbon Communications, in its sole and independent determination, deems the Hardware to be allegedly defective or malfunctioning, then Ribbon Communications may refund the purchase price paid by the Purchaser.

EdgeMarc Standard Limited Software Warranty

Contact your local sales representative for warranty details.

Exclusions

This limited warranty shall not apply if Purchaser (or someone acting under Purchaser's control) has (i) altered or modified the Product against the Hardware Installation Guide instructions, (ii) not followed Ribbon Communications instructions for installation, operation, maintenance or repair of the Hardware or Software, (iii) subjected the Hardware or Software to extreme temperatures, electrical stress, misuse, negligence, omissions, physical abuse or accident, (iv) engaged in unauthorized services using the Hardware or Software, and (v) been a victim of an act of God, third-party misconduct, accident, fire, lightning, power surges, outages, or other hazards.

Disclaimer

THE REMEDIES LISTED IN THIS SECTION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, TERMS OR CONDITIONS WHETHER EXPRESS OR IMPLIED. EXCEPT AS EXPRESSLY SET FORTH ABOVE, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, EDGEWAER NETWORKS DISCLAIMS ALL OTHER WARRANTIES AND REPRESENTATIONS TO PURCHASER OR TO ANY OTHER PARTY REGARDING ANY PRODUCTS OR SERVICES PROVIDED BY RIBBON COMMUNICATIONS WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT, AND ANY WARRANTIES ARISING OUT OF COURSE OF DEALING OR USAGE OF TRADE. RIBBON COMMUNICATIONS DOES NOT WARRANT THAT THE SOFTWARE IS ERROR FREE OR THAT THE SOFTWARE WILL BE WITHOUT INTERRUPTIONS, BUGS OR OTHER OPERATIONAL PROBLEMS. END USERS MAY HAVE OTHER STATUTORY RIGHTS. HOWEVER, TO THE FULLEST EXTENT PERMITTED BY LAW, THE DURATION OF STATUTORILY REQUIRED WARRANTIES, IF ANY, SHALL BE LIMITED TO THE LIMITED WARRANTY PERIOD SET FORTH ABOVE.

Limitation of Liability

IN NO EVENT SHALL RIBBON COMMUNICATIONS OR ITS THIRD-PARTY SUPPLIERS BE LIABLE FOR ANY LOSS OF USE, LOST DATA, FAILURE OF SECURITY MECHANISMS, INTERRUPTION OF BUSINESS, OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING LOST PROFITS), REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF RIBBON COMMUNICATIONS OR ITS THIRD-PARTY SUPPLIERS WERE INFORMED OF THE POSSIBILITY OF SUCH DAMAGES IN ADVANCE, AND WHETHER OR NOT ANY LIMITED REMEDY PROVIDED IS FOUND

TO HAVE FAILED ITS ESSENTIAL PURPOSE. RIBBON COMMUNICATIONS' ENTIRE LIABILITY UNDER THIS AGREEMENT SHALL NOT EXCEED THE AMOUNT ACUTALLY PAID BY PURCHASER TO RIBBON COMMUNICATIONS. FURTHERMORE, RIBBON COMMUNICATIONS SHALL NOT BE LIABLE FOR PURCHASER'S OR ANY THIRD PARTY'S SOFTWARE, FIRMWARE, INFORMATION, OR MEMORY DATA CONTAINED IN OR INTEGRATED WITH ANY RIBBON COMMUNICATIONS HARWARE PRODUCT, WHETHER UNDER WARRANTY OR NOT.

Support and Services Agreements

Product support and Services are covered under a separate services agreement. For more information about support and service agreements applicable to this Product, go to www.ribboncommunications.com/

Appendix A

Console Cable Pinout Table

The pinout of the Console cable RJ45-to-DB9 is given below. The Console cable is not included with the device.



PIN	RJ45 Signal	RJ45 to DB9	DB9 Signal	PIN
1	NC	—	—	—
2	NC	—	—	—
3	TXD	Pin 3 to Pin 2	RXD	2
4	GND	Pin 4 to Pin 5	GND	5
5	GND	Pin 5 to Pin 5	GND	5
6	RXD	Pin 6 to Pin 3	TXD	3
7	NC	—	—	—
8	NC	—	—	—

NC: Not Connected
TXD: Transmit Data
RXD: Receive Data
GND: Ground