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Certification Exhibit

FCC ID: VEYCN3200R1

FCC Rule Part: 15.247

ACS Project: 14-2096

Manufacturer: xG Technology, Inc.
Model: CN3200

Manual

TECHNOLOGY, INC.

CN3200
Dual Band Routing Modem

Model Number: CN3200-PS-2500-900-1-EXT

Quick Start Guide

September 2014

XMax

Product features and specifications are subject to change without prior notice.

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For the latest product documentation and software updates, please refer to our Web site at

www.xGTechnology.com/support

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Table of Contents

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Introduction

About this Product

The CN3200 Dual Band Routing Modem is a ruggedized subscriber device. It is waterproof and made to handle wide temperature ranges. While primarily designed for use in fixed locations, it may also be used in vehicular applications. It enables any Internet-ready device to connect to the xMax network, when paired with a WiFi access point either wirelessly or through a wired Ethernet connection.

About this Book

This manual provides basic instructions for installation and configuration of the CN3200 Modem. It also describes how to connect to the xMax Network and then connect Internet-enabled wireless devices to the xMax Network.

Hardware Overview

The CN3200 Dual Band Routing Modem is a self-contained IEEE 802.11b/g access point which provides any device connected to its Ethernet port access to the xMAX network. When paired with a WiFi hotspot it provides access to the xMAX network to WiFi enabled devices. The CN3200 Modem is totally protected against dust and moisture.

IMPORTANT: The CN3200 is professionally installed.

xMax Panel Antenna and Cables (4)

2.4 GHz Panel Antenna with Mounting Bracket and Cable

PoE++ Power Supply and AC Power Cord

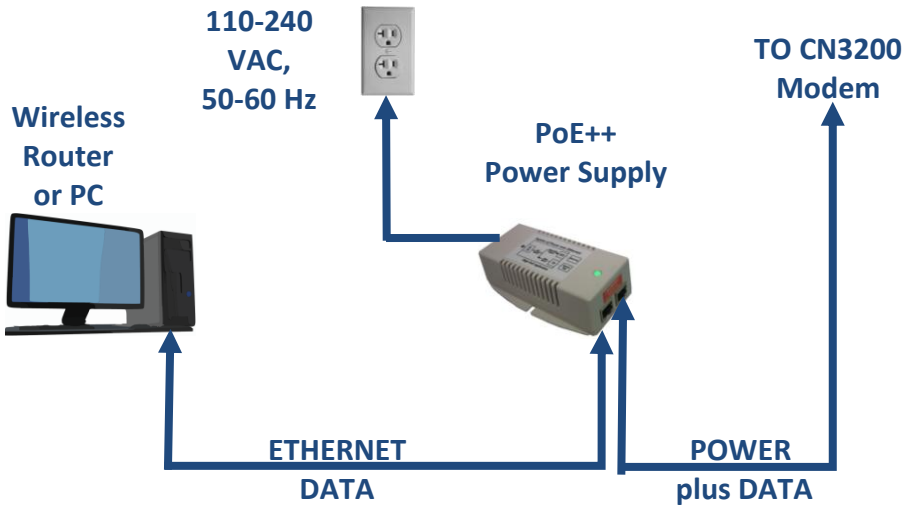
Weatherproof Ethernet Kit

Ferrite Beads (6)

Installation Bracket and Hardware

Powering the CN3200 Modem

- The CN3200 Modem is a Power-over-Ethernet (PoE+) device.
  The IEEE 802.3at PoE+ standard enables transmission of both data and the power to operate a device over a single Cat5/5e/6 cable connection.
- The CN3200 Modem **REQUIRES** a PoE++ adaptor, as supplied.
  The device will **NOT** operate with a low-power PoE switch or adaptor.



Important Safety and Installation Notices

These notices apply to the CN3200 Dual Band Routing Modem.

- Be sure to read, understand and follow these instructions.
- Heed all warnings.
- Only use accessories and attachments specified by xG Technology.
- Keep a copy of these instructions for future reference.

NOTICE

FCC Part 15 Requirement

The CN1300 xMax 2.4 GHz Access Point **MUST** only be installed by a professional installer. It is the responsibility of the installer to adjust the transmit power level to ensure that the output power plus antenna gain does not cause the device to exceed FCC Part 15 output power regulations.

⚠ WARNING

Hazardous situation, which if not avoided, could result in death or serious injury.

- All antennas **MUST** either be located on the exterior of a vehicle or mounted on a pole.
- Every antenna **MUST** be separated from users by more than 25 cm (0.82 ft) at all times.

FCC Compliance

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio technician for help.

RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 25 cm (0.82 ft) between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

⚠ WARNING

Changes or modifications to this device not expressly approved by xG Technology could void the user's authority to operate the equipment and void the product warranty.

Connecting the CN3200 Dual Band Routing Modem to the xMax Network

IMPORTANT

Before you begin this step, it is assumed that the CN3200 Dual Band Routing Modem has been configured as described in the *CN3200 Dual Band Routing Modem Installation Guide*. This was completed by the device installer.

These steps connect the CN3200 Modem to an xMax network.

1. Connect the PoE++ Power Supply power cable to a 110 to 240 VAC power source.
2. If the CN3200 Modem is within range of an xMax Network, it connects within 2 minutes.
3. The CN3200 Dual Band Routing Modem is now fully functional.

NOTES

- If the CN3200 Modem fails to connect to an xMax network after two minutes have elapsed, ensure that the power indicator on the Power Supply is glowing **GREEN**.
- If the CN3200 Modem is within range of an operating xMax Network, but not connecting, follow these steps to restart the CN3200 Modem:
    - Power off the CN3200 Modem by disconnecting the AC cord from the Power Supply.
    - Wait 60 seconds.
    - Reconnect the AC cord to power on the CN3200 Modem.

Connecting Wireless Devices to the xMax Network

When within range of a WiFi router connected to the CN3200 Dual Band Routing Modem, any Internet-ready device has the ability to securely connect to the Internet through the xMax Network.

These steps connect WiFi devices to the xMax Network.

1. Configure a WiFi-enabled device for Internet Protocol Version 4 (TCP/IPv4) and DHCP operation.
2. Enter the SSID and password to match that of the user-supplied WiFi router that is connected to the CN3200. This information should have been provided by the installer.

When connected, the device can be used for any common Internet function.

Wired Internet Connectivity and Setting Up a WiFi Hotspot

Wired Internet Connectivity

A properly configured device, such as a PC or laptop computer, can be wired directly to the CN3200 Dual Band Routing Modem for Internet access.

1. Configure the device network interface for DHCP operation.
2. Using an Ethernet cable, connect the device to the CN3200 Dual Band Routing Modem.

Setting Up a WiFi Hotspot

The CN3200 Modem can be used to create a WiFi hotspot.

1. Using an Ethernet cable, connect a WiFi router to the CN3200 Modem.
2. Configure the WiFi router according to the manufacturer instructions.

Technical Specifications

xMax RADIO	
Tx Power Output AVG:	RANGE: 5 to 24 dBm in 1 dB steps
Receiver Sensitivity	-100 dBm BPSK / -90 dBm QAM64
2.4 GHz RADIO	
Tx Power Output AVG:	8.5 to 21 dBm in 1 dB steps
Receiver Sensitivity	-93 dBm BPSK / -74 dBm QAM64
SYSTEM OVERVIEW	
Frequency Band 1:	904.2 to 925.8 MHz
Channel size:	1.44 MHz
Modulation:	Adaptive BPSK / QPSK / QAM16 / QAM64
Spectral Efficiency:	Up to 4.25 Bits/Hz
PHY Protocol:	Proprietary OFDM, 2x4 MIMO
Mobility:	Up to 100 MPH
Raw Data Rate :	Up to 6 Mbps
Frequency Band 2:	2412-2462 MHz
Channel size:	20 MHz
Modulation:	Adaptive BPSK / QPSK / QAM16 / QAM64
Spectral Efficiency:	Up to 3.61 Bits/Hz
PHY Protocol:	OFDM
Mobility:	Fixed
Raw Data Rate :	Up to 72.2 Mbps
ANTENNA	
	Four N-type female connectors (xMax), one TNC female (2.4 GHz)
POWER	
	PoE++ (Power over Ethernet Plus)
PHYSICAL DESCRIPTION	
Size:	8.5” x 7.5” x 3.5” (21.59 cm x 19.05 cm x 8.89 cm)
Weight:	5 lbs (2.27 kg)
ENVIRONMENTAL	
Operating Temp:	-40° F to 122° F (-40° to 50° C)
Water/Dust:	IP67
Humidity:	0-100% condensing
ESD:	ESD ±30 kV
REGULATORY	
EMC:	FCC CFR 47 Part 15 Class B
Vibration and Shock:	MIL-STD 810F Method 514.5 Vibration (constant acceleration), MIL-STD 810F Method 516.5 Shock

Warranty

Limited Warranty

CN3200 Dual Band Routing Modem

xG Technology, Inc. (“xG”)
240 South Pineapple Avenue, Suite 701
Sarasota, FL 34236

SCOPE OF THE WARRANTY

Unless a different period is specified for a particular hardware Product, or in a sales agreement between xG and customer, or in the published specification sheet for the hardware Product, xG's hardware Products are generally warranted against defects in workmanship and materials for a period of twelve (12) months from the date of original purchase, provided the Product remains unmodified and is operated under normal and proper conditions. Unless otherwise so provided the warranty period for computer programs in machine-readable form included in a hardware Product, which are essential for the functionality will be coincident with the warranty period of the hardware Product. Software patches, bug fixes or workarounds do not extend the original warranty period. For Software sold by xG and run outside the hardware Product (e.g. xMSC), the warranty term is 90 days from date of original purchase. All accessories (e.g. antennas, cables, power supply, POE) carry a warranty term of 90 days from date of original purchase.

The Limited Warranty extends only to the original purchaser of the Product from xG, or its authorized Resellers, and is not assignable or transferable to any subsequent purchaser or end-user.

xG’s warranty applies only to a Product that is manufactured by or for xG Technology and is identified within xG’s price book at time of purchase . Any products not covered by xG’s warranty, but supplied under the customer's Purchase Order with xG as part of the delivered equipment, are covered under that manufacturer's standard warranty and any warranty claims should be handled directly with that manufacturer.

xG’s warranty shall not apply: (i) to any Product subjected to accident, misuse, neglect, alteration, acts of God, improper handling, improper transport, improper storage, improper use or application, improper installation, improper testing or unauthorized repair; (ii) use of parts or accessories not approved or supplied by xG, or failure to perform operator handling and scheduled maintenance instructions supplied by xG or (iii) to cosmetic problems or defects that result from normal wear and tear under ordinary use, and do not affect the performance or use of the Product.

If the Product develops a covered defect within the warranty period, xG will, at its option, either repair or replace the Product found by xG to be defective or not in conformity with material specifications, provided that the Product is returned during the warranty period.

Customer is responsible for shipment to xG (or authorized service provider) and assumes all costs and risks associated with this transportation; return shipment to the Customer will be at xG's expense. Customer shall be responsible for return shipment charges for Product returned where xG determines there is no defect ("No Defect Found"), or for Product returned that xG determines is not eligible for warranty repair. No charge will be made to customer for replacement parts for warranty repairs.

Product that has been repaired or replaced may consist of refurbished equipment that contains used components, some of which have been reprocessed. The used components comply with xG Product performance and reliability specifications. The repair services provided are warranted against defects in workmanship and materials on the repaired component of the product for a period of 30 days from the shipment date of the repaired product, or until the end of the original warranty period, whichever is longer.

xG is not responsible for any damage to or loss of any software programs, data or removable data storage media, or the restoration or reinstallation of any software programs or data other than the software, if any, installed by xG during manufacture of the Product or shipped with Product. xG's sole obligation for software that when properly installed and used does not substantially conform to the published specifications in effect when the software is first shipped by xG, is to use commercially reasonable efforts to correct any reproducible material non conformity (as determined by xG at its sole discretion) by providing Customer with: (a) telephone or e-mail access to report non conformance so that xG can verify reproducibility; (b) a software patch or bug-fix, if available, or a workaround to bypass the issue, if available; and (c) where applicable, replacement of damaged or defective external media, such as a CD-ROM disk, on which the software was originally delivered. xG does not warrant that the use of the software will be uninterrupted, error-free, free of security vulnerabilities, or that the software will meet Customer's particular requirements. Customer's sole and exclusive remedy for breach of this warranty is, at Seller's option, to receive (i) suitably modified software, or part thereof, or (ii) comparable replacement software or part thereof.

ADDITIONAL PROVISIONS OF THE WARRANTY

Because it is impossible for xG to know the purposes for which the purchaser acquired this Product or the uses to which this Product will be put, the purchaser assumes full responsibility for the selection of the Product for its installation and use. While every reasonable effort has been made to insure that the purchaser will receive a Product that can be used and enjoyed, xG does not warrant that the functions of the Product will meet the purchaser's requirements or that the operation of the Product will be uninterrupted or error-free. xG is not responsible for problems caused by the interaction of the Product with any other software or hardware.

OBTAINING SERVICE AND SUPPORT UNDER WARRANTY

To obtain warranty service or technical support, please contact the party from whom you purchased the product. If you purchased the product directly from xG, contact your xG Sales Representative or call 754-206-4800. To take advantage of this Limited Warranty Purchasers are required to supply an original point of purchase receipt. Returned Product must be accompanied by the purchaser's sales receipt or comparable substitute proof of sale showing the date of purchase, the serial number of Product, and the sellers' name and address (if purchased through a authorized xG reseller).

EXCLUSIVITY OF THE WARRANTY

This Limited Warranty Policy shall be the sole and exclusive remedy of the purchaser with respect to xG's Products. xG's sole liability on any claim arising out of the sale of the Product or xG's replacement of defective product, whether in contract, warranty, tort, or otherwise shall be limited to the purchase price of the goods that prove defective or nonconforming. In no event shall xG be liable for, and purchaser shall hold xG harmless from, any damages, direct, indirect, or consequential, whether resulting from xG's negligence or otherwise, arising out of, in connection with, or resulting from the goods sold to the Purchaser (including, without limitation, damages, for loss of business profits, business interruption, loss of information, or any other pecuniary loss), and any and all claims, actions, suits, and proceedings which may be instituted in respect to the foregoing, including those made by subsequent owners and users of the goods. In no event shall xG be liable for damages from alleged negligence, breach of warranty, strict liability, incidental or consequential damages, or any other theory, other than the Limited Warranty set forth herein.

xG neither assumes nor authorizes any of its dealers, representatives, or any other person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this Limited Warranty.

xG MAKES NO WARRANTY OTHER THAN THE LIMITED WARRANTY REFERRED TO HEREIN. THIS LIMITED WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND IT CONSTITUTES THE ONLY WARRANTY MADE WITH RESPECT TO THE GOODS COVERED BY THESE TERMS AND CONDITIONS. xG SHALL UNDER NO CIRCUMSTANCES BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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CN3200
Dual Band Routing Modem

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TECHNOLOGY, INC.

CN3200
Dual Band Routing Modem

Model Number: CN3200-PS-2500-900-1-EXT

Installation Guide

September 2014

G7604 - Release 1.0

XMax

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The CN3200 Dual Band Routing Modem is a ruggedized subscriber device. It is waterproof and made to handle wide temperature ranges. While primarily designed for use in fixed locations, it may also be used in vehicular applications. It enables any Internet-ready device to connect to the xMax network, when paired with a WiFi access point either wirelessly or through a wired Ethernet connection.

About this Book

This manual provides basic instructions for installation and configuration of the CN3200 Modem. It also describes how to connect to the xMax Network and then connect Internet-enabled wireless devices to the xMax Network.

Before You Begin

IMPORTANT

The CN3200 Modem is shipped with the parts needed for basic installation and operation. These items are shown below. Be sure each of these items is included in your product package. If any item is missing, please contact the place of purchase.

Depending upon the requirements of your installation, you will also need to purchase additional components such as cables and surge protectors. A checklist of typically required parts is shown in the Assemble Your Parts and Tools section on page 15.

xMax Panel Antenna and Cables

2.4 GHz Panel Antenna with Mounting Bracket and Cable

PoE++ Power Supply and AC Power Cord

Ethernet Kit

Ferrite Beads (6)

Installation Bracket and Hardware

Hardware Overview

The CN3200 Dual Band Routing Modem provides any device connected to its Ethernet port access to the xMAX network and xMax modem. When paired with a WiFi hotspot it provides access to the xMAX network to WiFi enabled devices. Alternately, any Ethernet capable device can access the network via the Ethernet port. The CN3200 Modem is totally protected against dust and moisture.

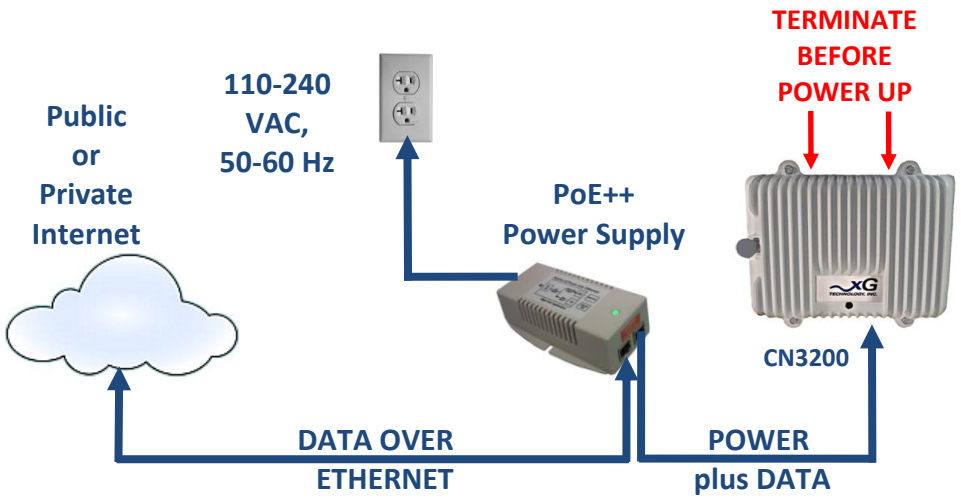
Powering the CN3200 Modem

- The CN3200 Modem is a Power-over-Ethernet (PoE+) device.
  The IEEE 802.3at PoE+ standard enables transmission of both data and the power to operate a device over a single Cat5/5e/6 cable connection.
- The CN3200 Modem **REQUIRES** a PoE++ adaptor, as supplied.
  The device will **NOT** operate with a low-power PoE switch or adaptor.

WARNING

Both top Tx RF ports MUST be properly terminated before power (PoE) is applied to the unit.

Applying power without proper RF port termination might damage the unit and void the product warranty.



Connectors

The CN3200 Modem features seven connectors (one is unused):

- Four external xMax antenna connectors (N-type / female) on the base
- A connector for an external 2.4 GHz antenna (TNC-type / female) on the top cover
- A weatherproof Ethernet connector for data and PoE (Power-over-Ethernet) on the base
- An unused connector

TOP CONNECTORS

Tx2/Rx3 **Tx1/Rx1**

BOTTOM CONNECTORS

Rx4 **Unused Port** **Ethernet** **Rx2**

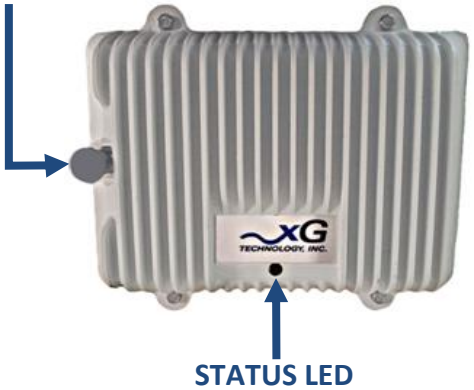
Status LED

The Status LED on the CN3200 Dual Band Routing Modem indicates power, xMax Network status and hardware fault conditions.

Under normal operating conditions, the LED glows **GREEN**.

		xMax Network
GREEN	SOLID	CONNECTED
RED	SOLID	NOT CONNECTED

2.4 GHz ANTENNA CONNECTOR



Antenna Considerations

- The CN3200 Modem is a 2x4 MIMO device with four antenna connectors — two Tx/Rx and two Rx-only.
- All connectors are always used.
- The CN3200 Modem is mounted directly to the back of the xMax 900 MHz panel antenna using the supplied bracket.
- If the recommended configuration is not used, CN3200 Modem should be placed as close as possible to the antennas for optimum performance.
- The antenna cable lengths should be as short as possible.
- The installed 2.4 GHz antenna is separated from the main xMax antenna. It is mounted within 3 feet of the main unit and oriented in the same direction as the main 900 MHz antenna.

FOR OPTIMUM PERFORMANCE

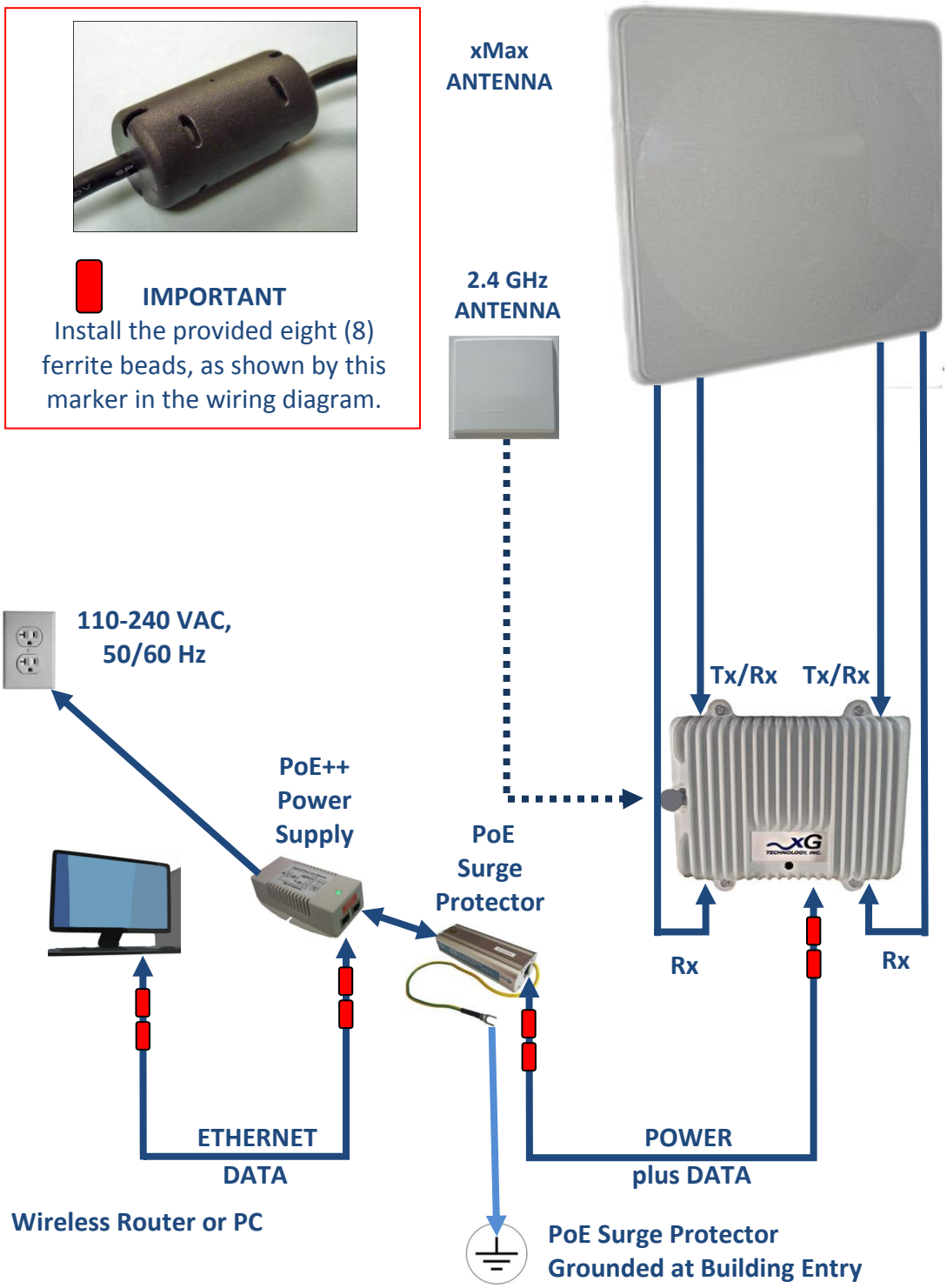
Low-loss cables (LMR® 195/240 or equivalent) are highly recommended.

For additional information, please refer to the Antenna Configuration illustration on page 9.

Antenna Configuration

This is a typical tower-mounted CN3200 Modem installation with a 2x4 MIMO Panel Antenna.

IMPORTANT
Install the provided eight (8) ferrite beads, as shown by this marker in the wiring diagram.



Important Safety and Installation Requirements

These notices apply to the CN3200 Dual Band Routing Modem.

- Be sure to read, understand and follow these instructions.
- Heed all warnings.
- Only use accessories and attachments specified by xG Technology.
- Keep a copy of these instructions for future reference.

NOTICE

FCC Part 15 Requirement

The CN3200 Dual Band Routing Modem MUST only be installed by a professional installer. It is the responsibility of the installer to adjust the transmit power level to ensure that the output power plus antenna gain does not cause the device to exceed FCC Part 15 output power regulations.

⚠ WARNING

Hazardous situation, which if not avoided, could result in death or serious injury.

- All antennas **MUST** either be located on the exterior of a vehicle or mounted on a pole.
- Every antenna **MUST** be separated from users by more than 25 cm (0.82 ft) at all times.
- Shielded and grounded Ethernet cable MUST be used to avoid damage to the CN3200 Modem unit and ensure proper operation.
- Lightning Protection MUST be used on all antenna connections and Ethernet tower runs.

FCC Compliance

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio technician for help.

RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 25 cm (0.82 ft) between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

⚠ WARNING

Changes or modifications to this device not expressly approved by xG Technology could void the user's authority to operate the equipment and void the product warranty.

Configuring the CN3200 Dual Band Routing Modem for the First Time

These steps set up the CN3200 Dual Band Routing Modem for use.

After completing these configuration steps, the CN3200 Modem will be fully functional and ready for operation. It will broadcast on the configured channel. The CN3200 Modem will provide any Internet-ready device the ability to connect wirelessly to the xMax network, using a secure connection on a connected WiFi router.

Devices may also be connected to the xMax network through a wired Ethernet connection to the CN3200 Modem.

For more information, see Wired Internet Connectivity and Setting Up a WiFi Hotspot on page 21.

NOTES

- This procedure should be completed before installing the CN3200 Modem in a service location.
- The setup sequence assumes that the CN3200 Modem device is in factory-default configuration and has not been previously configured.

IMPORTANT: BEFORE YOU CONTINUE

Antennas or dummy loads **MUST** be connected to the two top **Tx RF** ports.

WARNING

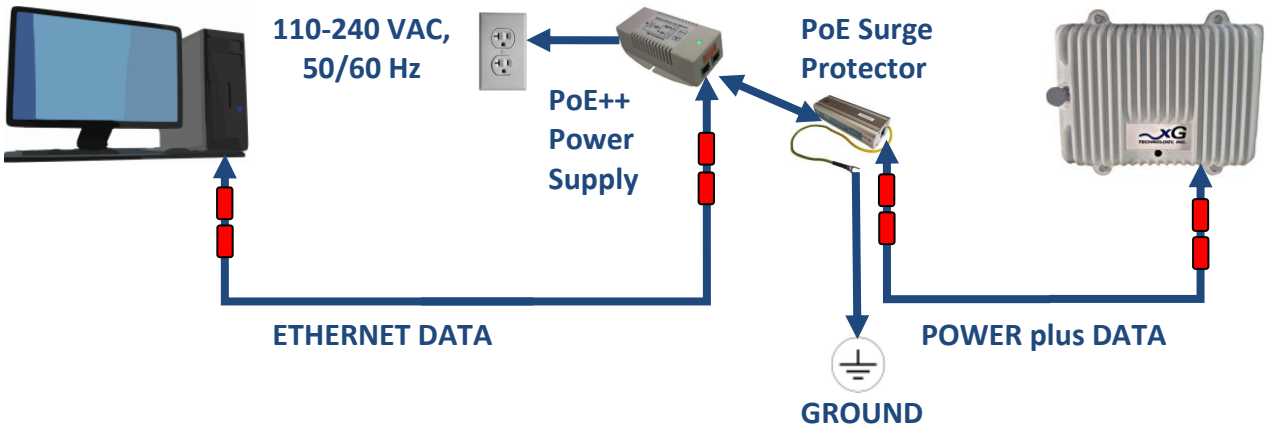
Both top Tx RF ports MUST be properly terminated before power is applied to the unit.

Applying power without proper RF port termination might damage the unit and void the product warranty.

The CN3200 Dual Band Routing Modem is powered through the Ethernet cable. PoE (Power-over-Ethernet) is a standardized system which passes electrical power along with data on Ethernet cabling.

After terminating the Tx RF ports, connect the provided PoE++ Power Supply as shown:

DO NOT plug the power cord into the AC outlet until directed.



1. Use a laptop or desktop computer to configure the CN3200 Modem.
   Configure the computer network adapter to Internet Protocol Version 4 (TCP/IPv4) for a static IP address and subnet mask.

   BEFORE YOU CONTINUE
   Be sure to take note of the current settings to restore them after configuration.

Computer Network Adapter Settings	
IP Address:	169.254.90.100
Subnet Mask:	255. 255. 255.0

2. Using an Ethernet cable, connect the computer to the Ethernet connector on the CN3200 Modem.
3. Connect the power cable on the PoE++ Power Supply to a 110 to 240 VAC power source.
   The Status LED glows **RED** within fifteen seconds after the power source is switched on.

   NOTE
   The CN3200 Modem startup process takes approximately two minutes.
   Before continuing, wait until this process completes and the LED glows **GREEN**.
4. On the computer, open a Web browser.
5. In the browser address line, enter the IP address to open the **CN3200 Modem management** window:

CN3200 Modem Management	
IP Address:	**http:// 169.254.90.101**

6. In the **User name** and **Password** fields enter:

User name:	**admin**	
Password:	**admin**	**The password is case sensitive.**

   The CN3200 Modem management window opens to the **Status** page.
7. The menu bar is at the top of the window. On the left side of the menu bar, click **WiFi** and then, in the **Wireless Settings** section, update the security settings.

xG Technology strongly recommends that you change the SSID and WPA security key.

NOTE

Before clicking **Save Changes**, be sure to write down the new settings, and then keep them in a safe place for future reference:

SSID:	
Security Key:	

8. In the **Wireless Settings** area, enter a unique SSID for the device.
9. **Select a security protocol**:
   1. Click the down arrow next to **Security** to display a drop down menu.
   2. Click the desired security protocol. The best and most secure level of security is WPA2.
   3. Enter the desired security key/passphrase in the **Shared Key** field.
   4. After confirming that the settings are written down, click **Save Changes**.

xG Technology strongly recommends that you change the User Password.

10. To change the **User Password**, on the right side of the menu bar, click **Admin**.

NOTES

- The Password is case sensitive.
- Before pressing **Enter**, be sure to write down the new password for future reference:

New Password:	

Enter the **User Password**, and then click **Enter**.
The message ***User password was successfully updated*** is displayed.

11. At the bottom of the page, click **Save Changes**, and then on the right side of the menu bar, click **Logout** to complete the configuration process.
12. Restore the network adapter to its previous settings.

Installation

Assemble Your Parts and Tools

This checklist may assist you in assembling the parts needed to complete the installation.

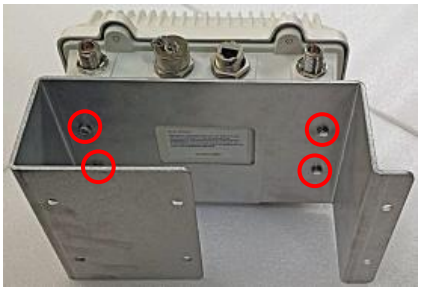
CN3200 Dual Band Routing Modem	
SUPPLIED BY xG Technology	**OBTAIN FROM YOUR PART SUPPLIER**
☐ 1 CN3200 Modem with Wall Mount Bracket	☐ 1 Ethernet Cable (Length as required)
☐ 1 Weatherproof Ethernet Kit	☐ 1 Grounded PoE Surge Protector (CTC Union SP-POE-01 or equivalent)
☐ 1 PoE++ Power Supply	
☐ 1 900 MHz Panel Antenna with mounting bracket and 4 Cables (N-Female)	
☐ 1 2.4 GHz Panel Antenna and Cable (TNC-Male)	
☐ 8 Ferrite Beads	
☐ Alternative mounting solution (as ordered)	

Installation Preparation

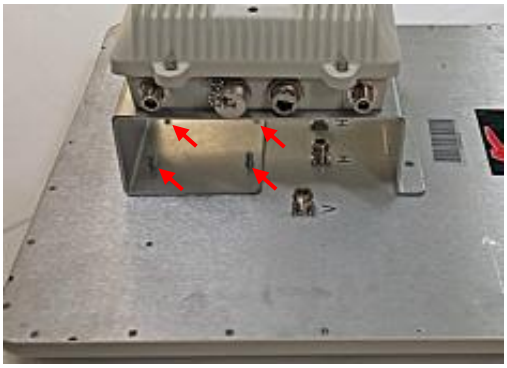
These steps outline the basic tasks required to complete a successful installation.
Your specific steps will depend upon the requirements of your system design.

These initial steps prepare the CN3200 Dual Band Routing Modem for placement in a service location.

Locate the supplied CN3200 Modem mounting bracket and secure the CN3200 Modem to the bracket with 4 hex-head screws, as shown.

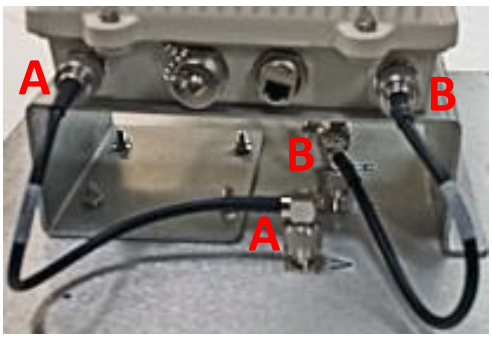


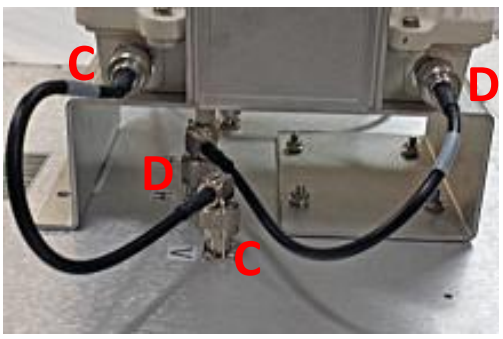
Align the bracket onto the threaded posts on the back of the xMax Panel Antenna and then secure it with 4 hex-nuts, as shown.



Using the wiring diagram in the Antenna Configuration section on page 9, secure the four supplied Ethernet cables to the antenna connectors and the CN3200 Modem connectors.

IMPORTANT:
Ensure that the correct CN3200 connector is attached to the correct antenna connector.





Installation Procedure

1. Select an appropriate location and, using the supplied U-bolt mounting bracket, lightly secure the CN3200 Modem/xMax Antenna assembly to the antenna mast.
2. Orient the antenna towards the xMax Network station and then securely tighten the nuts on the U-bolt.
3. Using the supplied bracket and hardware, lightly secure the 2.4 GHz Panel Antenna to the antenna mast.
4. Orient the antenna towards the xMax Network station and then securely tighten the nuts on the U-bolt.
5. Secure the supplied coaxial cable to the connectors on the 2.4 GHz antenna and the CN3200 Modem.
6. Run Ethernet cable from the indoor CN3200 Modem PoE power supply location to the CN3200 Modem/Antennas location.

IMPORTANT
To ensure proper operation:
The maximum length of this cable run MUST be less than 100 M (109 yds.)
Outdoor-rated foil-shielded Ethernet cable MUST be used.

7. Attach two supplied ferrite cores to the CN3200 Modem end of the Ethernet cable, as shown in the wiring diagram.
8. Attach the supplied weatherproof Ethernet connector to the Ethernet cable.
9. Secure the Ethernet cable to the connector on the mounted CN3200 Modem.

Complete the remainder of the installation at the indoor xMax Mobile Control Center location.

10. At the customer end of the Ethernet cable run, install a PoE Surge Protector at the location where the cable enters the building.

IMPORTANT
The PoE Surge Protector **MUST** be properly grounded.

11. Attach two ferrite cores to the PoE Surge Protector end of the Ethernet cable, as shown in the wiring diagram.
12. Secure the Ethernet cable to the grounded PoE Surge Protector.

13. Install the supplied PoE++ Power Supply near the PoE Surge Protector.
14. Using a short Ethernet cable, connect the PoE Surge Protector to the Power plus Data (OUT) port on the PoE++ Power Supply.
15. Connect the Ethernet cable from the customer premises to the Data (IN) port on the PoE++ Power Supply.
16. Attach two ferrite cores to the PoE Surge Protector end of the Ethernet cable, as shown in the wiring diagram.
17. Attach two ferrite cores to the device end of the Ethernet cable.
18. Connect the Ethernet cable to the end user device (Wireless Access Point, Ethernet Switch, or PC).
19. Connect the supplied AC Power Cord to the PoE++ Power Supply and plug it into a 110 VAC power source.
20. If the CN3200 Modem is within range of an xMax Network, it connects within 2 minutes.

The CN3200 Dual Band Routing Modem is now fully functional.

Connecting the CN3200 Dual Band Routing Modem to the xMax Network

IMPORTANT

Before you begin this step, it is assumed that the CN3200 Dual Band Routing Modem has been configured as described in the steps shown in the topic:
Configuring the CN3200 Dual Band Routing Modem for the First Time on page 12.

These steps connect the CN3200 Modem to an xMax network.

1. Connect the PoE++ Power Supply power cable to a 110 to 240 VAC power source.
2. If the CN3200 Modem is within range of an xMax Network, it connects within 2 minutes.
3. The CN3200 Dual Band Routing Modem is now fully functional.

NOTES

- If the CN3200 Modem fails to connect to an xMax network after two minutes have elapsed, ensure that the power indicator on the Power Supply is glowing **GREEN**.
- If the CN3200 Modem is within range of an operating xMax Network, but not connecting, follow these steps to restart the CN3200 Modem:
    - Power off the CN3200 Modem by disconnecting the AC cord from the Power Supply.
    - Wait 60 seconds.
    - Reconnect the AC cord to power on the CN3200 Modem.

Connecting Wireless Devices to the xMax Network

When within range of a WiFi router connected to the CN3200 Dual Band Routing Modem, any Internet-ready device has the ability to securely connect to the Internet through the xMax Network.

These steps connect WiFi devices to the xMax Network.

1. Configure a WiFi-enabled device for Internet Protocol Version 4 (TCP/IPv4) and DHCP operation.
2. Enter the SSID and password to match that of the user-supplied WiFi router that is connected to the CN3200.

When connected, the device can be used for any common Internet function.

Wired Internet Connectivity and Setting Up a WiFi Hotspot

Wired Internet Connectivity

A properly configured device, such as a PC or laptop computer, can be wired directly to the CN3200 Dual Band Routing Modem for Internet access.

1. Configure the device network interface for DHCP operation.
2. Using an Ethernet cable, connect the device to the CN3200 Dual Band Routing Modem.

Setting Up a WiFi Hotspot

The CN3200 Modem can be used to create a WiFi hotspot.

1. Using an Ethernet cable, connect a WiFi router to the CN3200 Modem.
2. Configure the WiFi router according to the manufacturer instructions.

Technical Specifications

xMax RADIO	
Tx Power Output AVG:	RANGE: 5 to 24 dBm in 1 dB steps
Receiver Sensitivity	-100 dBm BPSK / -90 dBm QAM64
2.4 GHz RADIO	
Tx Power Output AVG:	8.5 to 21 dBm in 1 dB steps
Receiver Sensitivity	-93 dBm BPSK / -74 dBm QAM64
SYSTEM OVERVIEW	
Frequency Band 1:	904.2 to 925.8 MHz
Channel size:	1.44 MHz
Modulation:	Adaptive BPSK / QPSK / QAM16 / QAM64
Spectral Efficiency:	Up to 4.25 Bits/Hz
PHY Protocol:	Proprietary OFDM, 2x4 MIMO
Mobility:	Up to 100 MPH
Raw Data Rate :	Up to 6 Mbps
Frequency Band 2:	2412-2462 MHz
Channel size:	20 MHz
Modulation:	Adaptive BPSK / QPSK / QAM16 / QAM64
Spectral Efficiency:	Up to 3.61 Bits/Hz
PHY Protocol:	OFDM
Mobility:	Fixed
Raw Data Rate :	Up to 72.2 Mbps
ANTENNA	
	Four N-type female connectors (xMax), one TNC female (2.4 GHz)
POWER	
	PoE++ (Power over Ethernet Plus)
PHYSICAL DESCRIPTION	
Size:	8.5” x 7.5” x 3.5” (21.59 cm x 19.05 cm x 8.89 cm)
Weight:	5 lbs (2.27 kg)
ENVIRONMENTAL	
Operating Temp:	-40° F to 122° F (-40° to 50° C)
Water/Dust:	IP67
Humidity:	0-100% condensing
ESD:	ESD ±30 kV
REGULATORY	
EMC:	FCC CFR 47 Part 15 Class B
Vibration and Shock:	MIL-STD 810F Method 514.5 Vibration (constant acceleration), MIL-STD 810F Method 516.5 Shock

Warranty

Limited Warranty

CN3200 Dual Band Routing Modem

xG Technology, Inc. (“xG”)
240 South Pineapple Avenue, Suite 701
Sarasota, FL 34236

SCOPE OF THE WARRANTY

Unless a different period is specified for a particular hardware Product, or in a sales agreement between xG and customer, or in the published specification sheet for the hardware Product, xG's hardware Products are generally warranted against defects in workmanship and materials for a period of twelve (12) months from the date of original purchase, provided the Product remains unmodified and is operated under normal and proper conditions. Unless otherwise so provided the warranty period for computer programs in machine-readable form included in a hardware Product, which are essential for the functionality will be coincident with the warranty period of the hardware Product. Software patches, bug fixes or workarounds do not extend the original warranty period. For Software sold by xG and run outside the hardware Product (e.g. xMSC), the warranty term is 90 days from date of original purchase. All accessories (e.g. antennas, cables, power supply, POE) carry a warranty term of 90 days from date of original purchase.

The Limited Warranty extends only to the original purchaser of the Product from xG, or its authorized Resellers, and is not assignable or transferable to any subsequent purchaser or end-user.

xG’s warranty applies only to a Product that is manufactured by or for xG Technology and is identified within xG’s price book at time of purchase . Any products not covered by xG’s warranty, but supplied under the customer's Purchase Order with xG as part of the delivered equipment, are covered under that manufacturer's standard warranty and any warranty claims should be handled directly with that manufacturer.

xG’s warranty shall not apply: (i) to any Product subjected to accident, misuse, neglect, alteration, acts of God, improper handling, improper transport, improper storage, improper use or application, improper installation, improper testing or unauthorized repair; (ii) use of parts or accessories not approved or supplied by xG, or failure to perform operator handling and scheduled maintenance instructions supplied by xG or (iii) to cosmetic problems or defects that result from normal wear and tear under ordinary use, and do not affect the performance or use of the Product.

If the Product develops a covered defect within the warranty period, xG will, at its option, either repair or replace the Product found by xG to be defective or not in conformity with material specifications, provided that the Product is returned during the warranty period.

Customer is responsible for shipment to xG (or authorized service provider) and assumes all costs and risks associated with this transportation; return shipment to the Customer will be at xG's expense. Customer shall be responsible for return shipment charges for Product returned where xG determines there is no defect ("No Defect Found"), or for Product returned that xG determines is not eligible for warranty repair. No charge will be made to customer for replacement parts for warranty repairs.

Product that has been repaired or replaced may consist of refurbished equipment that contains used components, some of which have been reprocessed. The used components comply with xG Product performance and reliability specifications. The repair services provided are warranted against defects in workmanship and materials on the repaired component of the product for a period of 30 days from the shipment date of the repaired product, or until the end of the original warranty period, whichever is longer.

xG is not responsible for any damage to or loss of any software programs, data or removable data storage media, or the restoration or reinstallation of any software programs or data other than the software, if any, installed by xG during manufacture of the Product or shipped with Product. xG's sole obligation for software that when properly installed and used does not substantially conform to the published specifications in effect when the software is first shipped by xG, is to use commercially reasonable efforts to correct any reproducible material non conformity (as determined by xG at its sole discretion) by providing Customer with: (a) telephone or e-mail access to report non conformance so that xG can verify reproducibility; (b) a software patch or bug-fix, if available, or a workaround to bypass the issue, if available; and (c) where applicable, replacement of damaged or defective external media, such as a CD-ROM disk, on which the software was originally delivered. xG does not warrant that the use of the software will be uninterrupted, error-free, free of security vulnerabilities, or that the software will meet Customer's particular requirements. Customer's sole and exclusive remedy for breach of this warranty is, at Seller's option, to receive (i) suitably modified software, or part thereof, or (ii) comparable replacement software or part thereof.

ADDITIONAL PROVISIONS OF THE WARRANTY

Because it is impossible for xG to know the purposes for which the purchaser acquired this Product or the uses to which this Product will be put, the purchaser assumes full responsibility for the selection of the Product for its installation and use. While every reasonable effort has been made to insure that the purchaser will receive a Product that can be used and enjoyed, xG does not warrant that the functions of the Product will meet the purchaser's requirements or that the operation of the Product will be uninterrupted or error-free. xG is not responsible for problems caused by the interaction of the Product with any other software or hardware.

OBTAINING SERVICE AND SUPPORT UNDER WARRANTY

To obtain warranty service or technical support, please contact the party from whom you purchased the product. If you purchased the product directly from xG, contact your xG Sales Representative or call 754-206-4800. To take advantage of this Limited Warranty Purchasers are required to supply an original point of purchase receipt. Returned Product must be accompanied by the purchaser's sales receipt or comparable substitute proof of sale showing the date of purchase, the serial number of Product, and the sellers' name and address (if purchased through a authorized xG reseller).

EXCLUSIVITY OF THE WARRANTY

This Limited Warranty Policy shall be the sole and exclusive remedy of the purchaser with respect to xG's Products. xG's sole liability on any claim arising out of the sale of the Product or xG's replacement of defective product, whether in contract, warranty, tort, or otherwise shall be limited to the purchase price of the goods that prove defective or nonconforming. In no event shall xG be liable for, and purchaser shall hold xG harmless from, any damages, direct, indirect, or consequential, whether resulting from xG's negligence or otherwise, arising out of, in connection with, or resulting from the goods sold to the Purchaser (including, without limitation, damages, for loss of business profits, business interruption, loss of information, or any other pecuniary loss), and any and all claims, actions, suits, and proceedings which may be instituted in respect to the foregoing, including those made by subsequent owners and users of the goods. In no event shall xG be liable for damages from alleged negligence, breach of warranty, strict liability, incidental or consequential damages, or any other theory, other than the Limited Warranty set forth herein.

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CN3200
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Installation Guide

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