V384

WIRELESS MODEM UNIT

User's Guide

An Arcadian Networks Inc. Technical Document

Version: 1.02
P/N: **3BR0038**

Copyright and Trademark Information:

FCC Compliance Statement

NOTE: This equipment is authorized under FCC ID:**V72V384** to operate in the A Block of the Upper 700 MHz Band pursuant to Part 27 of the FCC's rules.

In addition, 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 antenna.

- Increase the distance 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/TV technician for help.

Warning!
Changes or modifications to this equipment not expressly approved by Arcadian Networks Inc. could void the user's authority to operate the equipment.

Warning!
This product was tested and shipped with shielded coaxial cable and Category 5 Ethernet cable equipped with a shielded RJ-45 connector. These cables must be used with the unit to ensure compliance.

CONTENTS

1 OVERVIEW AND PURPOSE

Welcome to the User's Guide for the **Arcadian Networks Inc. V384 Modem**.

Figure 1-1: The Arcadian V384 Wireless Modem Unit

1.1 Purpose of This User's Guide

This guide is designed to be used as a tool in the initial installation and periodic maintenance of the V384. It contains information on how to perform the following tasks:

- Installing the V384
- Configuring the V384
- Maintaining the V384
- Troubleshooting the V384

1.2 Target Audience

This guide is intended for service personnel required to install, configure or maintain the V384 modem.

1.3 Document Conventions

This guide is intended for service personnel required to install, configure or maintain the V384modem.

The following icons appear throughout this guide:

Note: This is a note. It provides additional information on the current topic.

Warning: This is a warning. It contains cautionary information on the current topic.

Tip: This is a tip. It provides time saving information to the reader.

1.4 Arcadian

Arcadian Networks Inc. provides fixed wireless broadband end-to-end telephony and high-speed data connections to business and residential subscribers. Arcadian Networks Inc. technology uses point-to-multipoint architecture to deliver circuit-switched telephony and data over IP to commercial and private customers throughout the world.

2 MODEM FEATURES AND COMPONENTS

The V384 modem offers the following features:

- Point-to-multipoint broadband wireless Internet access
- Superior operations over a wide range of modulation formats and IF bandwidths, including noisy channels
- Easy installation
- Robust RF performance
- Internal radio for UHF bands

2.1 Front Panel Indicators

Four **Light Emitting Diode (L.E.D.)** indicators are located at the front of the modem.

The L.E.D.s provides information about the type and status of modem operations, as described in Table 1.

Figure 2-1: V384 WMU Front Panel L.E.D. Indicators

Table 2-1: L.E.D. Status and Functions

L.E.D. Indicator	Function
POWER	• On = Power On • Off = Power Off • Flashing = Fatal Error
STATUS	• On = Modem is connected to the Internet • Off = Modem is not connected to the Internet
RF LINK	When **Status** L.E.D. is Off: • **RF** On = The downstream link is operational • **RF** Off = The modem has not yet begun downstream acquisition, the downstream link is idle, or there is a problem with data reception • **RF** Flashing = Downstream link is being acquired When **Status** L.E.D. is On: • **RF** Flashing = Data is transferring in either in the Upstream or Downstream direction
LAN& USB	• On = The LAN link is operational • Off = The LAN link is not operational • Flashing = Data is transferring to or from the LAN

2.2 Rear Panel Connectors

There are three connectors located on the rear panel of the V384 modem.

Power   **LAN**   **RF**
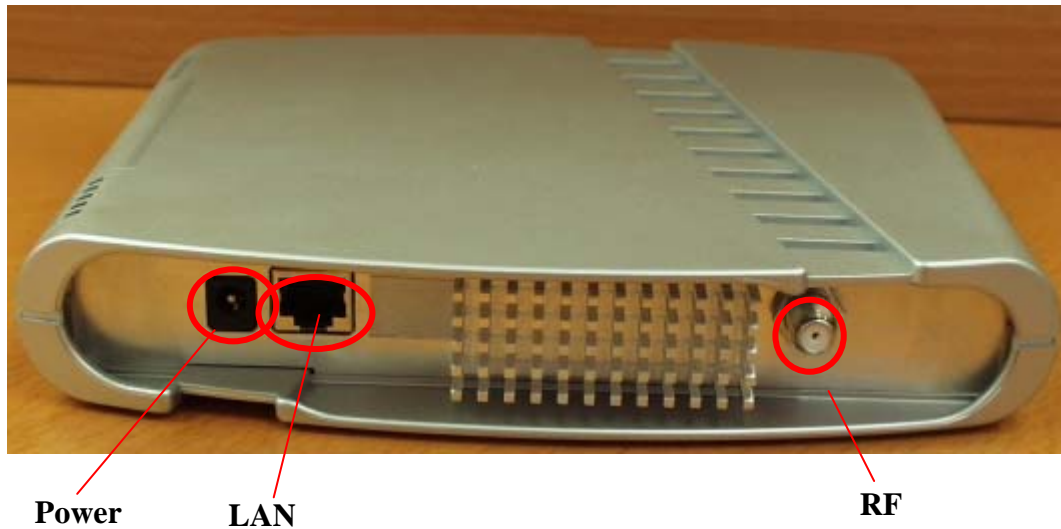
Figure 2-2: V384WMU Rear Panel Connectors

Connector or Button	Function
POWER	Connect the 9 volt external power source here.
LAN	Connect an RJ-45 Ethernet cable to this port. The other end of the cable can be connected to the subscriber's computer or an Ethernet hub or switch.
RF	Connect this F-type connector to the UHF antenna.

Table 2-2: V384 Rear Panel Connectors

3 USING THE MODEM

Follow the steps below to use the modem properly.

To use the modem:

1 Check that the computer with which you are using the V384 modem contains a working Ethernet network card, and has the following software installed and operational:

- Microsoft Windows 95 operating system or later
- Access to the Internet
- A standard Internet browser application
- The Telnet communications utility

2 Attach your computer to the modem's LAN port with the included RJ-45 Ethernet cable.

3 Connect the antenna cable to the **RF** connector on the rear of the modem.

4 Install the antenna. Connect the antenna cable to the antenna.

5 Plug the 9-Volt modem power supply jack into the **POWER** socket on the rear of the modem, and plug the power supply transformer unit into a standard electrical wall outlet.

*Note: As with any household electrical device, avoid the risk of accidental electrical shock. **Make sure that your hands are completely dry** and that there is no moisture on the floor or other surfaces in the immediate area of the electrical wall outlet.*

After connecting the power adapter to the modem, verify that the three green front panel LEDs light up for approximately 2 seconds before going out.

The orange **POWER** LED at the left of the front panel lights up and remains lit, indicating that the modem is powered up.

Note: Use 11.5 dBd gain antenna, Arcadian model 4RF0054-A, or equivalent

Hazard: As with any mobile transmitting equipment, avoid of getting the human body closer than 20 Cm to the modem or the antenna.

4 TECHNICAL SPECIFICATIONS

General	
Dimensions	5.25 x 4.25 x 1.00 in. (13 x 11 x 2.5 cm)
Operating Temperature	32 to 112° F (0 to 45° C)
Power	800 mA at 9V
Power Supply	110 - 220 VAC
LED Indicators (4)	Power, Status, RF/Link, LAN/USB

Interface	
Data Interface	RJ45 – 10/100 baseT Ethernet full/half duplex
	USB [Not currently supported]
RF Interface	75 ohm F-type Female Connector

RFCharacteristics	Downstream		
Frequency Range	757 – 758 MHz Downstream Receive		
Channel Bandwidth	330 KHz		
Modulation Format	QPSK, 16 QAM, & 64 QAM		
Data Rates	0.55 – 1.65 Mbps		
Rx Sensitivity (dBm)	BW (KHz)	64 QAM	16 QAM	QPSK
	330	-81	-87	-88
RF Characteristics	Upstream		
Frequency Range	787 – 788 MHz		
Channel Bandwidth	325 kHz		
Modulation Fomat	QPSK & 16QAM		
Data Rates (Raw)	0.52 – 1.04 Mbps		
RF Amplifier P1dB	32 dBm		
Linear Output Power	27 dBm		

Service		
Network Management	Protocol:	SNMP
	MIB:	RFC1213, RFC1493, RFC2233, RFC2669, RFC2670, DOCSIS Privacy MIB
	Provisioning:	As per DOCSIS
Security	Link Layer Encryption:	DES CBC, 40 and 56 Bits per user
	Key Distribution:	Two-layer key distribution protocol, which includes DES-ECB and RSA public key encryption and HMAC-SHA1 authorization
Upstream QoS	Committed Information Rate (CIR)	Supported
	Peak Information Rate (PIR)	Supported
Downstream QoS	Supports CIR and PIR	
IP Protocols	Network Protocols:	IP, ICMP, ARP, PPPoE, 802.1Q/p, IP Multicast
	VoIP:	G711, G729, G723
	Transport Protocols:	TCP, UDP, RTP
	Application Protocols:	SNMP, TFTP, DHCP
# IP Data Services	64 CPE MAC Addresses	

Ordering Info	Part Number
220 VAC Power Supply	3BR0013-A
110 VAC Power Supply	3BR0012-A

5 PROBLEM TROUBLESHOOTING

If you encounter problems with your modem, try the following steps.

1 Check for damage to the external modem casing during shipping or installation. If you see visible damage, the modem may need replacement.

2 Verify that the 9-Volt modem power supply jack is connected to the modem **POWER** connector on the rear of the modem, and that the modem power supply is connected to a known-good AC power outlet.

3 Verify that the RF coaxial cable is connected properly to the modem **CABLE** connector.

4 Verify that the modem **LAN** LED is illuminated and that the LAN cable is connected to a working Ethernet network port on the PC.

Following are further steps you can take to identify and correct modem problems.

#	Problem Description	Possible Cause	Potential Resolutions
1	The LEDs do not light up.	• The DC plug may not be installed correctly. • The power supply may not be connected to an active AC power outlet. • The power supply may be faulty.	1. Check the connection of the power supply. Check the wall outlet with a working lamp to see if there is current. 2. Test the power supply using another modem. 3. Replace the power supply if necessary.

#	Problem Description	Possible Cause	Potential Resolutions
2	The **LAN&USB** LED does not light up.	• The connection between the modem and the PC may be faulty.	1. Check the 10/100BaseT cable connection. 2. Check the network configuration: IP address, Gateway, DHCP, and DNS. 3. Reset the modem by disconnecting and reconnecting the power. 4. Replace the NIC Ethernet card. 5. Test the connection using another modem or network device.
3	The **RF LINK** LED is blinking or off, and the **STATUS** LED is off.	• There is no RF signal.	1. Check coaxial cables, power inserter, transformer, antenna direction and/or splitter.

6   WARRANTY INFORMATION

The Arcadian Networks Inc. Limited Warranty and related information can be found in the terms and conditions and/or other contracts under which this product was purchased.

7 FCC DECLARATION OF CONFORMITY

The Responsible Party for this equipment is:

Company: Arcadian Networks Inc.

Address: 400 Columbus Avenue - Suite 210E Valhalla NY 10595

Country: USA

Telephone number: 1-914-579-6300

Arcadian Networks Inc. hereby certifies and declares that the following equipment:

Brand	Type	Product description
ARCADIAN	V384	UHF WIRELESS MODEM

complies with Part 15 of the FCC Rules as an unintentional radiator. With respect to its status as a Part 15 Class B digital device, operation of this equipment is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Drawn up at: Arcadian Networks Inc. 400 Columbus Avenue Valhalla, NY 10595 USA	On April 28, 2008
Arcadian Networks Inc.	Arnon Afgin General Manager and VP RND

CONTACTING ARCADIAN

For further information about the V384WMU or other Arcadian Networks Inc products, visit the Arcadian Website at:

www.Arcadiannetworks.com .