



ARCADIAN
Networks

V487i

WIRELESS MODEM UNIT

User's Guide

An Arcadian Networks Inc. Technical Document



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P/N: **3BR0035**

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FCC COMPLIANCE STATEMENT

NOTE: This equipment is authorized under FCC ID:V72V487I to operate in the A Block (re-banding) 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.

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1 OVERVIEW AND PURPOSE

Welcome to the User's Guide for the **Arcadian Networks Inc. V487i Modem**.



Figure 1-1: The Arcadian Networks V487i 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 V487i. It contains information on how to perform the following tasks:

- Installing the V487i
- Configuring the V487i
- Maintaining the V487i
- Troubleshooting the V487i

1.2 Target Audience

This guide is intended for service personnel required to install, configure or maintain the V487i modem.

1.3 Document Conventions

This guide is intended for service personnel required to install, configure or maintain the V487i modem.

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 Networks

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 V487i 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

There are two connectors located on the rear panel of the V487i modem.



LAN

Figure 2-1: V487i

RS232

Connector	Function
LAN	Connect an RJ-45 Ethernet cable to this port. The other end of the cable can be connected to the PC or RTU
RS232	Connect a RS232 cable to this port. The other end of the cable can be connected to the subscriber's SCADA devices

2.2 Rear Panel Connectors

There are two connectors located on the rear panel of the V487i modem.



Figure 2-2: V487i WMU Rear Panel Connectors

Connector	Function
POWER	Connect 9.5V to 29 V external power source here.
Antenna	Connect this N-type connector to the UHF antenna.

Table 2-1: V487i 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 V487i modem contains a working Ethernet network card, and has the following software installed and operational:
 - Microsoft Windows 95 operating system or later
 - 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 **CABLE** connector on the rear of the modem.
- 4 Plug the 9.5-29Volt modem power supply jack into the **POWER** socket on the rear of the modem.

*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.*

Hazard: Avoid of getting the human body closer than 84 Cm to the antenna.

4 TECHNICAL SPECIFICATIONS

General									
Dimensions	5.25 x 4.25 x 1.00 in. (26 x 20 x 212 cm)								
Operating Temperature	-30 to 60° C								
Power	9.5V-29V (Max 3A)								
Interface									
Data Interface	RS232 (SCADA service)RJ45 – 10/100 baseT Ethernet full/half duplex								
RF Interface	50 ohm N Type Female Connector								
RF Characteristics	Downstream								
RX Frequency	757 – 758 MHz Downstream Receive								
Channel Bandwidth	330 KHz								
Modulation Format	QPSK, 16QAM, & 64QAM								
Data Rates	0.55 – 1.65 Mbps								
Rx Sensitivity (dBm)	<table border="1"> <thead> <tr> <th>BW (KHz)</th> <th>64 QAM</th> <th>16 QAM</th> <th>QPSK</th> </tr> </thead> <tbody> <tr> <td>330</td> <td>-81</td> <td>-87</td> <td>-91</td> </tr> </tbody> </table>	BW (KHz)	64 QAM	16 QAM	QPSK	330	-81	-87	-91
BW (KHz)	64 QAM	16 QAM	QPSK						
330	-81	-87	-91						
RF Characteristics	Upstream								
Frequency Range	787 – 788 MHz								
Channel Bandwidth	325 kHz								
Modulation Format	QPSK & 16QAM								
Data Rates (Raw)	0.52 – 1.04 Mbps								
RF Amplifier P1dB	37 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 (Sara)
	Key Distribution:	Two-layer key distribution protocol, which includes DES-ECB and RSA public key encryption and HMAC-SHA1 authorization
IP Protocols	Network Protocols:	IP, ICMP, ARP, PPPoE, 802.1Q/p, IP Multicast
	Transport Protocols:	TCP, UDP, RTP
	Application Protocols:	SNMP, TFTP, DHCP
# IP Data Services	64 CPE MAC Addresses	

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 9.5Volt to 29V 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 **N-type** connector.
- 4 Verify that the PC **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 RS232 does not connected to the PC	<ul style="list-style-type: none"> • The DC plug may not be installed correctly. • The power supply may be faulty. • The serial port of the PC is not enabled 	<ol style="list-style-type: none"> 1. Check the connection of the power supply. 2. Test the power supply using another modem. 3. Replace the power supply if necessary. 4. check the serial port configuration on the PC

#	Problem Description	Possible Cause	Potential Resolutions
2	The LAN LED does not light up.	<ul style="list-style-type: none">The connection between the modem and the PC may be faulty.	<ol style="list-style-type: none">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.

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: 6625 The Corners Pkwy Suite 210 Norcross GA 30041

Country: USA

Telephone number: 001-650-3194037

Fax number: 001-650-3194066

ARCADIAN NETWORKS Inc. hereby certifies and declares that the following equipment:

Brand	Type	Product description
ARCADIAN NETWORKS	V487i	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 June 12, 2008
Arcadian Networks Inc.	Arnon Afgin General Manager and VP RND

CONTACTING ARCADIAN NETWORKS

For further information about the V487i WMU or other Arcadian Networks products, visit the Arcadian Networks Website at:

www.Arcadian Networks.com .



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