V284

WIRELESS MODEM UNIT

User's Guide

A Vyyo Inc. Technical Document



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Yoel Halimi	Technical		√
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FCC Compliance Statement

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 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 Vyyo, 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 **Vyyo Inc. V284 Modem**.

Figure 1. The Vyyo V284 Wireless Modem Unit

1.1 Purpose of This User's Guide

The purpose of this User's Guide is to provide clear and concise instructions for operating the Vyyo Inc. V284 modem.

1.2 Target Audience

This User's Guide is intended for users of the V284 modem.

1.3 Vyyo

Vyyo Inc. provides fixed wireless broadband end-to-end telephony and high-speed data connections to business and residential subscribers. Vyyo 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 V284 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 provide information about the type and status of modem operations, as described in Table 1.

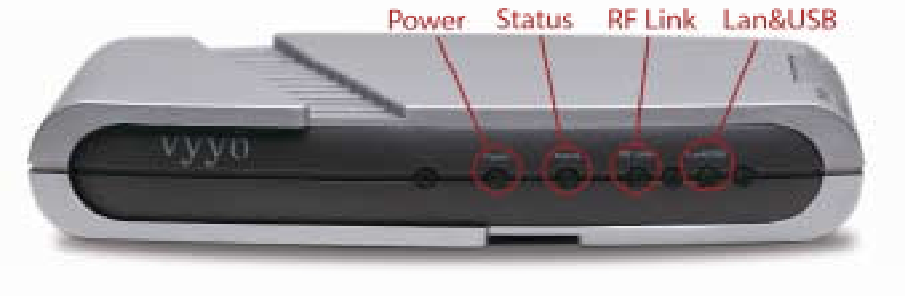

Figure 2 – V284 WMU Front Panel L.E.D. Indicators

Table 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 Back Panel Ports

There are four ports and one button located at the back panel of the V284 modem.

Figure 3 – V284 WMU rear Panel Ports

Port or Button	Function
POWER	Connect the 9 volt external power source to this port.
RESET	Press this button to reset the modem to its default settings. **Note:** Use a straightened paper clip or a straight pin to depress the Reset button.
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.
USB	Use a USB A-B cable to connect this Universal Serial Bus port to the customer's computer. Use this port when the customer's computer is not equipped with an Ethernet port. **Note:** The USB port is not currently supported.
Cable	Connect this F-type connector to the UHF antenna.

Table 2. V284 Rear Panel Ports

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 V284 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 **CABLE** port at the back of the modem.
4. Plug the 9-Volt modem power supply jack into the **POWER** port at the back 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.

WARNING: To comply with FCC RF exposure compliance requirements, the modem should be located in a distance of at least 20 cm from all persons during normal operation. The antennas used for this product must be outdoor or indoor, fixed mounted on permanent structures, providing a separation distance of at least 20 cm from all persons during normal operation.

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]
IF Interface	75 ohm Type F Female Connector

IF /RFCharacteristics	Downstream			
Frequency Range	740 – 746 MHz Downstream Receive			
Channel Bandwidth	6, 3.5, 2.75, 1.75 MHz			
Modulation Format	QPSK, 16QAM, & 64 QAM			
Data Rates	3-30 Mbps			
Rx Sensitivity (dBm)	BW (MHz)	64 QAM	16 QAM	QPSK
	6	-75	-81	-87
	3.5	-78	-84	-90
	1.75	-81	-87	-93
IF /RFCharacteristics	**Upstream**			
Frequency Range	710 – 716 MHz			
Channel Bandwidth	400, 800, 1600, & 3200 kHz			
Modulation Fomat	QPSK & 16QAM			
Data Rates	640 kbps – 10.24 Mbps			
RF Output P1dB	27 dBm			
Linear Output Power	22.3 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 include DES-ECB and RSA public key encryption and HMAC-SHA1 authorization
Upstream QoS	Committed Information Rate (CIR) per user:	32 Kbps - 2 Mbps (up to 4 Mbps best effort)
	Peak Information Rate (PIR) per user:	32 Kbps - 2 Mbps
Downstream QoS	Supported by an add-on packet-shaping device at the Base Station	
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	6290-060
110 VAC Power Supply	6290-061

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** port at the back 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** port.
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 Vyyo 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

We, the undersigned,

Company: VYYO INC

Address: 4015 Miranda Avenue Plato Alto CA

Country: USA

Telephone number: 001-650-3194037

Fax number: 001-650-3194066

Are the Responsible Party for this Declaration, certify and declare under our sole responsibility that the following equipment:

Brand	Type	Product description
VYYO	V284	UHF WIRELESS MODEM

complies with Part 15 of the FCC Rules. Operation 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 in: VYYO address in US…….....

on …September7...---...2005.....

(date)

…….....VYYO inc.....

(Company stamp)

…….....MR.....

(signature)

Dr. Mike Ritter VP Marketing

(name and function)

8 CONTACTING VYYO

For further information about the V284 WMU or other Vyyo products, visit the Vyyo Website at:

www.vyyo.com .