USER MANUAL

MODEL 1069
OnSite™ VDSL2 CPE

REGULATORY MODEL NUMBER:
03342D4-001

CE This is a Class A device and is not intended for use in a residential environment.

PATTON Electronics Co.

Part# 07M1069-UM
Rev. A
Revised 12/21/11

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(301) 975-1007

ISO 9001 CERTIFIED

An ISO-9001Certified Company

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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 1069 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of the shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not performs as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

Note Conformity documents of all Patton products can be viewed online at www.patton.com under the appropriate product page.

1.1 REGULATORY INFORMATION

EMC Directive:

- FCC Part 15, Class A
- EN55022, Class A
- EN55024

Low-Voltage Direcive (Safety):

- IEC/EN60950-1, 2nd Edition
- AS/NZS 60950-1

PSTN:

- This device is not intended nor approved for connection to the PSTN

1.2 RADIO AND TV INTERFERENCE (FCC PART 15)

This device generates and uses radio frequency energy, and if not installed and used properly-that is, in strict accordance with the manufacturer's instructions-may cause interference to radio and television reception. The device has been tested and found to comply with the limits for a Class A computing device in accordance with specifications in Subpart B

of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the device does cause interference to radio or television reception, which can be determined by disconnecting the unit, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

1.3 CE DECLARATION OF CONFORMITY

Patton Electronics, Inc declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC relating to electromagnetic compatibility and Directive 2006/95/EC relating to electrical equipment designed for use within certain voltage limits. The Declaration of Conformity may be obtained from Patton Electronics, Inc at www.patton.com/certifications.

The safety advice in the documentation accompanying this device shall be obeyed. The conformity to the above directive is indicated by CE mark on the device.

1.4 AUTHORIZED EUROPEAN REPRESENTATIVE

D R M Green
European Compliance Services Limited.
Avalon House, Marcham Road
Abingdon, Oxon OX14 1UD, UK

1.5 SERVICE

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Services at:

- Tel: **+1 (301) 975-1007**
- Email: **support@patton.com**
- URL: **http://www.patton.com**

Note Packages received without an RMA number will not be accepted.

1.6 SAFETY WHEN WORKING WITH ELECTRICITY

• This device contains no user serviceable parts. This device can only be repaired by qualified service personnel.

• Do not open the device when the power cord is connected. For systems without a power switch and without an external power adapter, line voltages are present within the device when the power cord is connected.

• For devices with an external power adapter, the power adapter shall be a listed Limited Power Source. The mains outlet that is utilized to power the device shall be within 10 feet (3 meters) of the device, shall be easily accessible, and protected by a circuit breaker in compliance with local regulatory requirements.

• For AC powered devices, ensure that the power cable used meets all applicable standards for the country in which it is to be installed.

WARNING

• For AC powered devices which have 3 conductor power plugs (L1, L2 & GND or Hot, Neutral & Safety/Protective Ground), the wall outlet (or socket) must have an earth ground.

• For DC powered devices, ensure that the interconnecting cables are rated for proper voltage, current, anticipated temperature, flammability, and mechanical serviceability.

• WAN, LAN & PSTN ports (connections) may have hazardous voltages present regardless of whether the device is powered ON or OFF. PSTN relates to interfaces such as telephone lines, FXS, FXO, DSL, xDSL, T1, E1, ISDN, Voice, etc. These are known as "hazardous network voltages" and to avoid electric shock use caution when working near these ports. When disconnecting cables for these ports, detach the far end connection first.

• Do not work on the device or connect or disconnect cables during periods of lightning activity.

In accordance with the requirements of council directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE), ensure that at end-of-life you separate this product from other waste and scrap and deliver to the WEEE collection system in your country for recycling.

This device contains no user serviceable parts. This device can only be repaired by qualified service personnel.

This device is NOT intended nor approved for connection to the PSTN. It is intended only for connection to customer premise equipment.

Electrostatic Discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic printed circuit cards are improperly handled and can result in complete or intermittent failures. Do the following to prevent ESD:

• Always follow ESD prevention procedures when removing and replacing cards.

• Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground.

• To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for one year for parts and labor. If any questions or problems arise during installation or use of this product, contact Patton Electronics Technical Support at +1 (301) 975-1007.

2.1 FEATURES

- VDSL2 - Easy to configure
- Auto-MDIX Ethernet
- Configurable 10/100, Full/Half, and Auto-Negotiating Ethernet
- Extends up to 4x 10/100Base-TX Ethernet beyond 328-foot (100-meter) limitation over a single twisted-pair or Cat5+
- Symmetric or asymmetric settings
- POTS/ISDN splitter on board
- Transparent operation
- LED indicators for Power, DSL Link, Ethernet Link/Activity, Remote and Local

2.2 DESCRIPTION

The Patton Electronics Model 1069 OnSite CPE provides high-speed VDSL2 connections to any standards-based VDSL2 DSLAM.

The Model 1069 can automatically forward LAN broadcasts, multicasts, and frames across a 2-wire voice-grade twisted-pair link. The data is passed transparently (unmodified) through the 1069. The 1069 automatically adds and deletes MAC addresses, only passing packets across the VDSL2 link.

Figure 1 on page 8 describes the rear panel ports on the Model 1069 VDSL CPE.

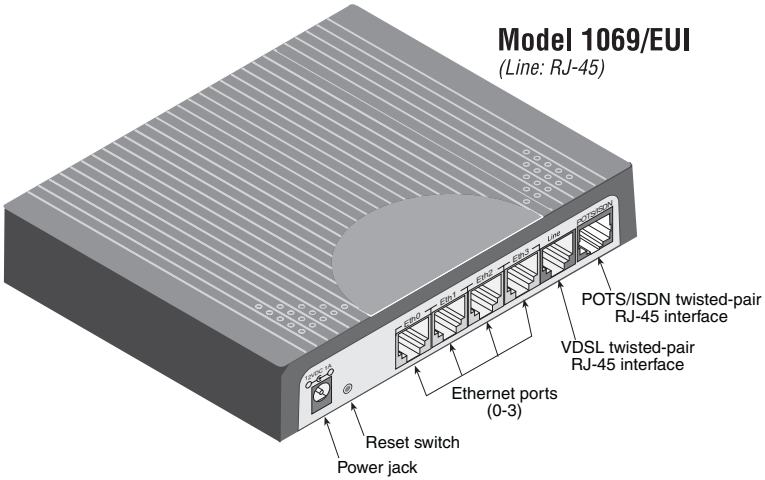

Figure 1. Model 1069 rear panel

2.3 APPLICATION

In an example application, the VDSL2 CPE modem is placed in either MxU environments or individual residents for delivering triple play services including “fiber like” high-speed broadband service. Built-in POTS/ISDN splitters allow for both data and voice to be broken out at the CPE.

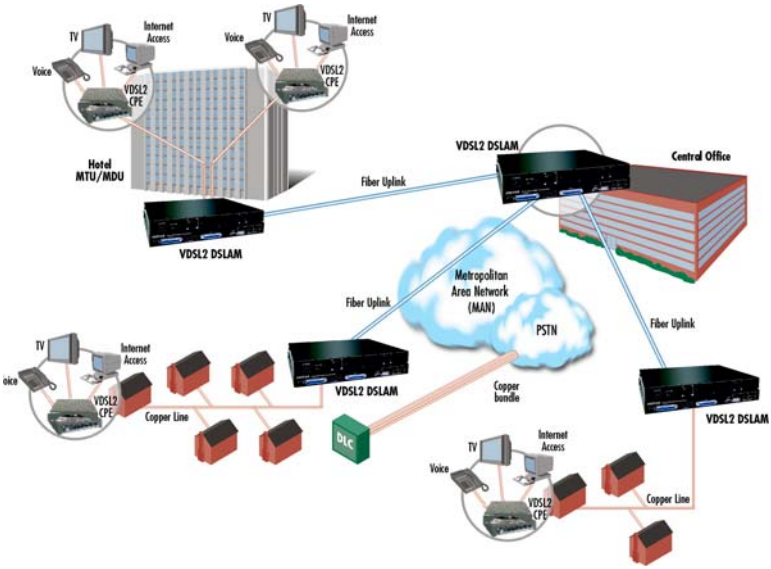

Figure 2. Model 1069 and VDSL DSLAM application

3.0 INSTALLATION

CAUTION

The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

To connect the Model 1069, do the following:

1. Connect the **Line** port of the Model 1069 with a telephone cable (refer to section 3.1, “Connecting the Line Interface” on page 10).

2. Connect an **Ethernet** port to the network card of a PC via an Ethernet cable (refer to section 3.2, “Connecting the 10/100Base-T Ethernet Interface” on page 11).

3. Connect the **Power** plug to the wall outlet (refer to section 3.4, “Connecting Power” on page 12).

Figure 3 displays the connections of the unit to a PC, telephones, DSL outlet, and power outlet.

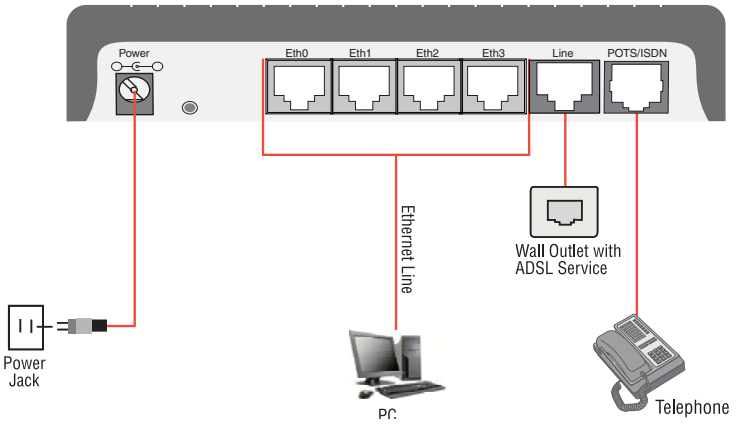

Figure 3. Model 1069 connection diagram

3.1 CONNECTING THE LINE INTERFACE

CAUTION

The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

The Model 1069 supports communication over a distance of up to 10,000 ft (3 km) over 24 AWG (0.5 mm) twisted-pair wire or Cat5+.

Note Actual distance and link performance may vary depending on the environment and type/gauge of wire used.

Follow the steps below to connect the Model 1069 interfaces.

1. To function properly, the Model 1069 must be connected with the VDSL2 DSLAM using twisted-pair, unconditioned, dry, metal wire, between 19 (0.9mm) and 26 AWG (0.4mm). Leased circuits that run through signal equalization equipment are not acceptable.

2. The Model 1069 is equipped with an RJ-45 interface jack that can be used on the VDSL2 link interface. The VDSL2 link interface is a two-wire interface. Observe the signal/pin relationships on the Model 1069's VDSL2 interface jack.

The RJ-45 connector on the Model 1069's twisted pair interface is polarity insensitive and is wired for a two-wire interface. The signal/pin relationship is shown in Figure 4.

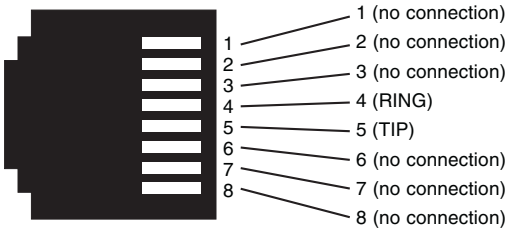

Figure 4. Model 1069 (RJ-45) twisted pair line interface.

3.2 CONNECTING THE 10/100BASE-T ETHERNET INTERFACE

CAUTION

The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

The RJ-45 ports labeled *Ethernet* are the Auto-MDIX10/100Base-T interface. These ports are designed to connect directly to a 10/100Base-T device or network. Figure 5 shows the signal/pin relationships on this interface. You may connect this port to a hub or PC using a straight through or crossover cable that is up to 328 ft long.

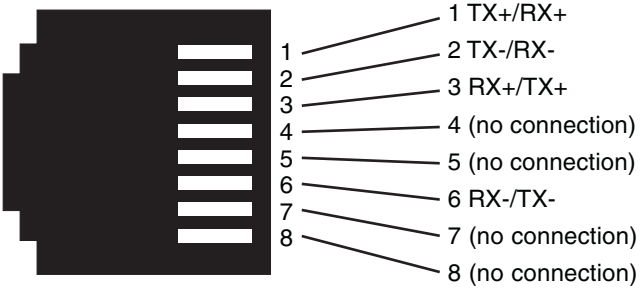

Figure 5. Model 1069 10/100Base-T RJ-45 Connector Pinout.

3.3 CONNECTING THE POTS/ISDN LINE

The RJ-45 port labeled “POTS/ISDN” is the POTS/ISDN interface. A telephone or an ISDN device may be connected to this port and carried over the VDSL2 line. The units do not need power for the POTS interface to work. The RJ-45 connector in the Model 1069’s POTS/ISDN interface is wired as shown in Figure 7.

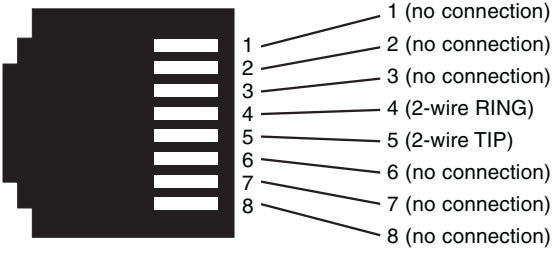

Figure 6. Model 1069 (RJ-45) POTS/ISDN interface.

3.4 CONNECTING POWER

The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

The Model 1069 does not have a power switch, so it powers up as soon as it is plugged in.

An external AC or DC power supply is available separately. This connection is made via the barrel jack on the rear panel of the Model 1069. No configuration is necessary for the power supply (See Appendix B for domestic and international power supply and cord options).

DC power (supplied via the power supply jack to the 1069) must meet the following requirements; DC power supplied must be regulated 12VDC ±5%, 1.0A minimum. Center pin is +12V. The barrel type plug has a 2.5/5.5/10mm I.D./O.D./Shaft Length dimensions.

4.0 CONFIGURATION

All configurations for the Model 1069 VDSL2 CPE should be made through the VDSL2+ DSLAM. The dipswitch included in the Model 1069 is for factory use only.

5.0 OPERATION

Once the Model 1069 is properly installed, it should operate transparently. No user settings required. This section describes reading the LED status monitors.

Before applying power to the Model 1069, please review section 3.4, “Connecting Power” on page 12 to verify that the unit is connected to the appropriate power source.

5.1 FRONT PANEL LED STATUS MONITORS

The Model 1069 features six front panel LEDs that monitor power, the Ethernet signals, the VDSL2 connection, and the remote/local setting. Figure 7 shows the front panel location of each LED. Table 1 on page 13 describes the LED functions.

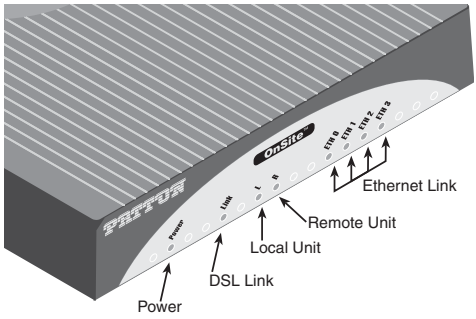

Figure 7. Model 1069 front panel

Table 1: Front panel LED description

LED	Status	Description
Power	Green	The device is powered on.
	Off	The device is powered off.
OnSite	Green	The port is connected.
	Blinking Green	Data transceiving.
	Off	No valid link on this port.
Ethernet	Green	The port is connected.
	*Blinking Green	Data transceiving.
Local	Green	The device acts in Local mode.
	Off	Local mode is off.
Remote	Green	The device acts in Remote mode.
	Off	Remote mode is off.

*. Once the unit connects to a power source, the Link LED will blink as the 1069 automatically looks for the other unit.

APPENDIX A
SPECIFICATIONS

A.1 VDSL2

- Full compliance up to 30Mhz profile

A.2 LAN CONNECTION

- Four RJ-45, 10/100Base-T, IEEE 802.3 Ethernet

A.3 TRANSMISSION LINE

- Two-wire unconditioned twisted pair
- VDSL2 Connector: RJ-45

A.4 LED STATUS INDICATORS

- Power (Green)
- VDSL2: Link (Green)
- Local (Green)
- Remote (Green)
- Ethernet: Link (Green) & Activity (Flashing Green)

A.5 POWER SUPPLY

External AC and DC options:

- AC: 120 VAC, 220 VAC, and UI (120–240 VAC)
- DC: 12 VDC, 24 VDC and 48 VDC
- Power consumption: 400mA at 12VDC

A.6 TEMPERATURE RANGE

0–50°C

A.7 HUMIDITY

Up to 90% non-condensing.

A.8 DIMENSIONS

6.22 W x 1.25 H x 4.75 D in. (157 W x 318 H x 120 D mm)

APPENDIX B

MODEL 1069 SERIES FACTORY
REPLACEMENT PARTS AND ACCESSORIES

Patton Model #	Description
Base Models	
1069/EUI	OnSite VDSL2 CPE RJ45 Line, 100-240VAC
07M1069-UM	User Manual
Power Supplies	
PS-03671H1-002	100-240VAC (12V, DC/2A) Wall mount power adapter
Power Adapters	
12-130	European replacement plug
12-129	American replacement plug
12-131	United Kingdom plug
12-132	Australian/Chinese plug

APPENDIX C
MODEL 1069 SERIES INTERFACE PIN ASSIGNMENT

C.1 10/100BASE-T INTERFACE

RJ-45

- Pin 1: TX+
- Pin 2: TX-
- Pin 3: RX+
- Pin 6: RX-
- Pins 4, 5, 7, 8: no connection

C.2 VDSL2 INTERFACE

RJ-45

- Pin 4: RING
- Pin 5: TIP
- Pins 1, 2, 3, 6, 7, 8: no connection

C.3 POTS/ISDN INTERFACE

RJ-45

- Pin 4: 2-wire RING
- Pin 5: 2-wire TIP
- Pins 1, 2, 3, 6, 7, 8: no connection