METANOIA

Long Reach Ethernet
Single Port Module

AERO
Version 2.0
(power option)

User's Manual

Rev. 1.1

2007/5/30

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Contents

1. Introduction

AERO is a Long Reach Ethernet (LRE) module with one Ethernet port (on 1 RJ-45 connector) and one VDSL port (on 1 RJ-11 connector). The module is a bridge mode modem accommodating well proven Ethernet and VDSL technologies to extend Ethernet over single-pair phone line by using a VDSL signal. Up to 100/60 Mbps transition bandwidth within 300m and 40/10 Mbps for 1km long range connections provides ultra-high performance to the pervasive telephone line network. It has the advantage of minimum installation time (simply as plug-n-play) and minimum expense by allowing video streaming and data to share the same telephone pair without interference. Furthermore, power over telephone line module is an option for those who have no power supply in the far end.

2. Features

◆ **Selectable fast and interleaved mode:**
Fast mode guarantees a minimum end to end latency less than 1 ms. Interleaved mode provides impulse noises protection for any impulse noise with a duration less than 250 us. Interleaved mode has a maximum end to end latency of 10 m sec. Interleaved mode is the default mode.

◆ **Selectable target data rate and target SNR margin:**
User has the ability to select fixed SNR margin (9 dB) or fixed target data rate. When fixed SNR margin is selected, the systems will maintain the SNR margin at 9 dB across all usable loop length. When fixed target data rate is selected, the system will lock the data rate at 50Mbps/30Mbps whenever the calculated SNR margin is higher than 9 dB. This gives best system stability and is the default mode.

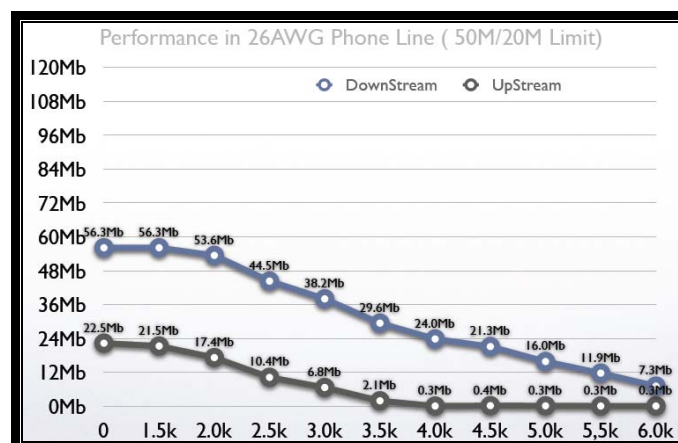◆ **(OPTION) 12W Power module :**
User has the option to eliminate the DC supply from the DC jack when choosing power module option. With power module in AERO Remote Terminal (RT) mode, a 12W power can be provided via RJ-11 line from Office Terminal (OT). For this reason, a single AERO with power module may also be a power supply for external devices which provides 7.5 W power.

3. Specifications

◆ Board dimension: 77mm x 110 mm.

◆ Power supply:

◆ DC single 12 Volt over 3.5mm DC jack or

◆ (OPTION) Power module provides 12V over RJ-11.

◆ Power consumption: 4.2 Watt maximum.

◆ Interface:

> RJ-11 female Phone Jack
>
> RJ-45 female Ethernet jack

◆ WAN: Full 10/100 Ethernet support with auto MDX.

◆ Phone: Industry standard phone jack with on board surge protection.

◆ (OPTION) Power module provides AERO a 12W power thru RJ-11 when AERO is used as in RT mode.

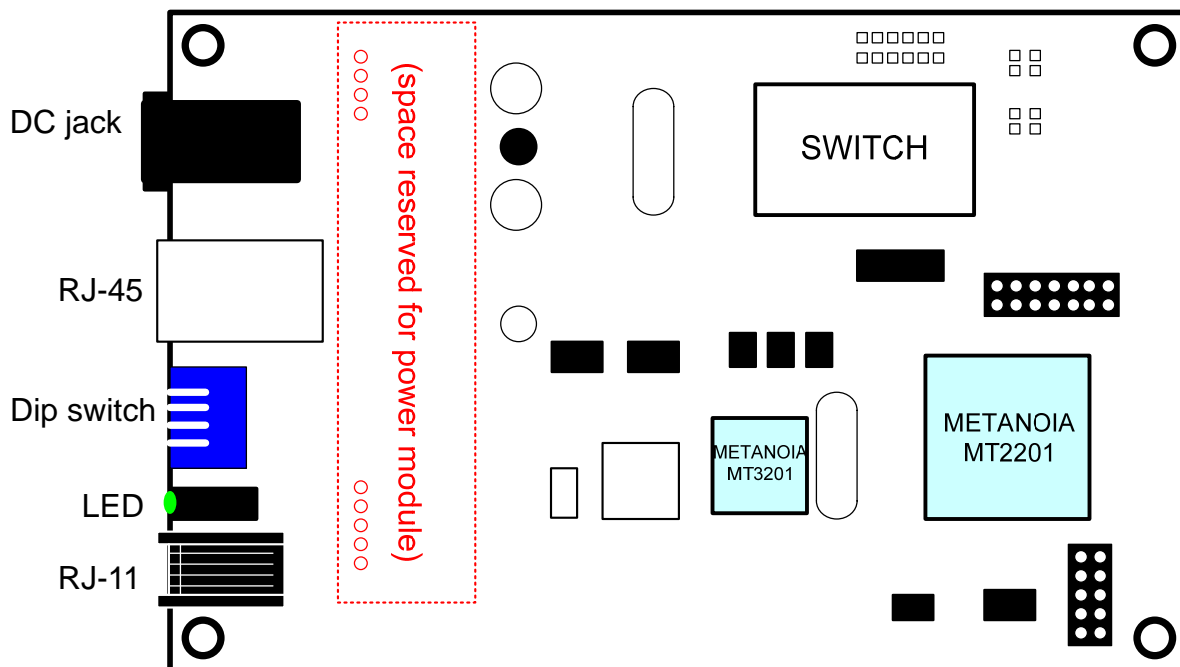◆ Typical performance over 26 AWG twisted pair line (no limit).
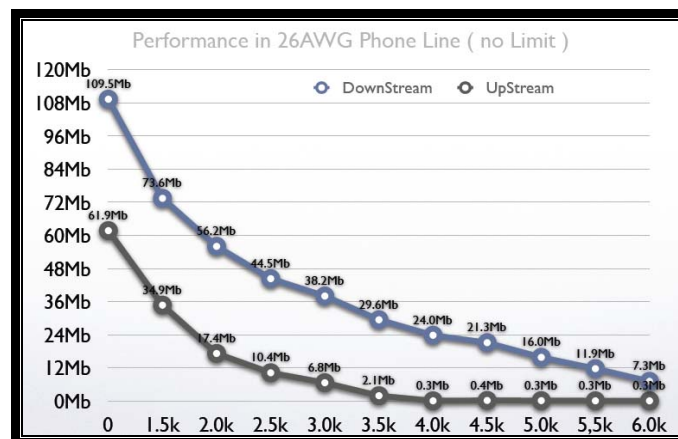
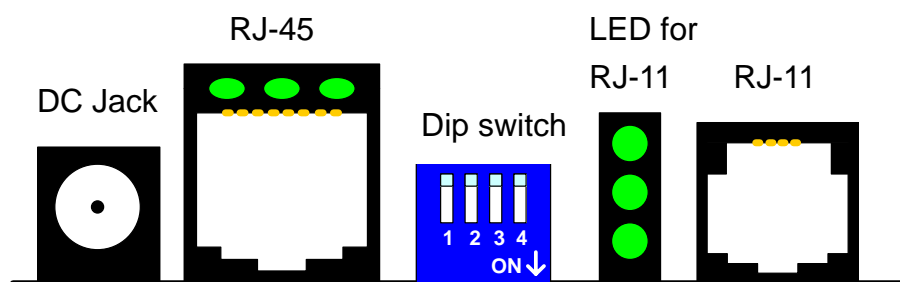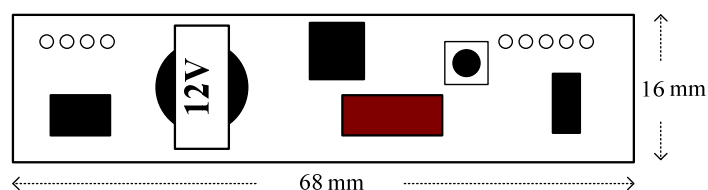◆ Typical performance over 26 AWG twisted pair line (50M/20M Limit)
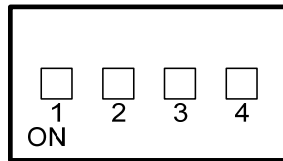
4. Installation

◆ **Top View**

◆ **Side view**

◆ **(OPTION) Power module**

◆ **Dip switch settings**

	Pin 1	**Pin 2**	**Pin 3**	**Pin 4**
	Side	Channel	Rate limit	SNR
OFF	CO	Interleave	50/20 Mbps	9dB
ON	CPE	Fast	No limit	6dB

Pin 1: CO, CPE switch

    CO: AERO module acts as Central Office (CO) side.
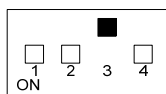
    CPE: AERO module acts as Customer Premise Equipment (APE) side.
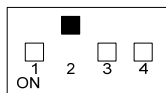
Pin 2: Impulse noise protection

    Interleave mode: Provides communication protection for up to 250ms impulse noise with latency less than 6 ms.
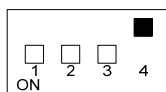
    Fast mode: Direct data transmission with latency less than 1ms.

Pin 3: Rate limit control

    50/20 Mbps: Line rate limited to 50/20 Mbps.

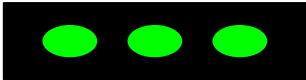   **No limit:** Provides up to 100Mbps/60Mbps line rate in short line.
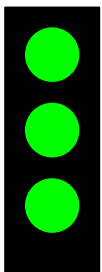
Pin 4: General protection

    9dB: Better channel noise protection with SNR up to 9 dB.

    6dB: Original channel noise protection with 6 dB SNR.

◆ LED Indicator

LED for RJ-45			
🟢	Fast : Transmitting Hold : Active	100Mbps	Full-Duplex
⚪	Off line	10MBps	Half-Duplex

LED for RJ-11	🟢	⚪
🟢🟢🟢	Power ON	Power OFF
	RT mode	OT mode
	Slow : Idle Fast : Training Hold : Show time	Off line