LevelOne

User Manual

VDS-0202

VDSL2 Ethernet Converter(BNC)

FCC Certifications

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
This device 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.

CE Mark Warning

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 Class A for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information. No part of this document can be copied or reproduced in any form without written consent from the company.
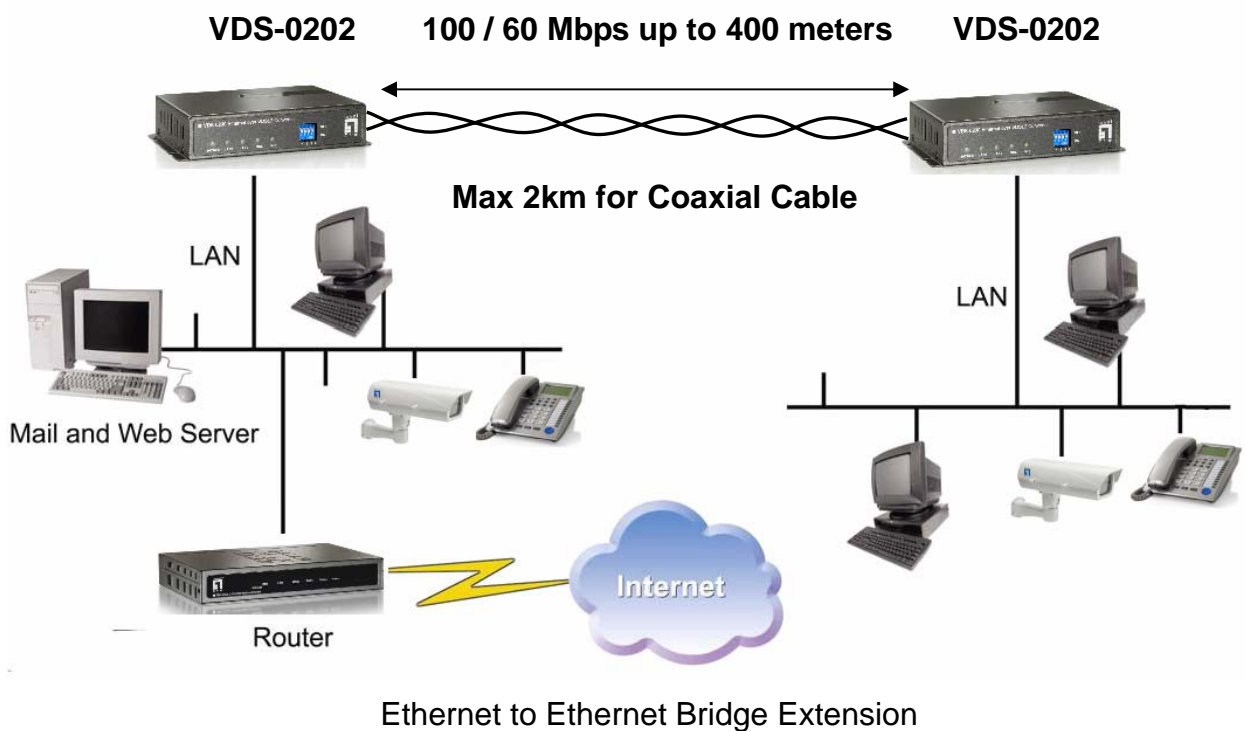
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1. Introductions

The VDS-0202, a VDSL2 (Very high-bit-rate Digital Subscriber Line) Cable Converter, provides a broadband transmission up to 100/60Mbps of downstream/upstream data rate over single pair coaxial cable for point-to-point Ethernet connectivity. With 100/60Mbps data rate, VDS-0202 supports transmission distance up to 400 meters, and 63/27 Mbps for 1.3km long range connection. Users may also select a fixed data rate or a fixed SNR margin for different coaxial cable ranging.

With plug and play features and minimum installation time, each VDS-0202 can be configured into either CO for central side or RT for remote side by dip switch setting. The VDS-0202 conforms to the ITU-T G.993.1 and G.993.2 to meet VDSL/VDSL2 and SG15Q4 DMT for network requirements. A pair of VDS-0202 offers a cost effective solution for bandwidth-hungry applications such as Cable LAN-to-LAN connectivity, Video Streaming, FTTB, and MDU/MTU over single twisted pair telephone line.

2. Application Notes

Ethernet to Ethernet Bridge Extension

3. Features

- ITU-T G.993.1, G.993.2 VDSL/VDSL2 and SG15Q4 DMT Compliance
- 100/60Mbps DownSream/UpStream for distance up to 400 meters
- Supports VDSL2 connection up to 2000 meters
- Line Surge Protection
- BNC Connector for Cable interfaces + RJ45 x 2 for Ethernet LAN port
- Five LED Indicators
- 4 Dip Switches for Configuration Settings
- Trellis Coding support up to 1024 Discrete Multi-Tone (DMT) bins
- Auto MDIX for 10/100 BaseT Ethernet LAN Ports
- Low-Latency for Video/Voice/Data applications
- Selectable Fast and Interleaved modes
  - 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 ms. Interleaved mode is the default mode.
- Selectable fixed data rate and fixed SNR margin
  - User may 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 available loop length.
  - When fixed target data rate is selected, the system will lock the data rate at 50/20Mbps whenever the calculated SNR margin is higher than 9 dB. This will result in the best system stability and is the default mode.

4. Packing Contents
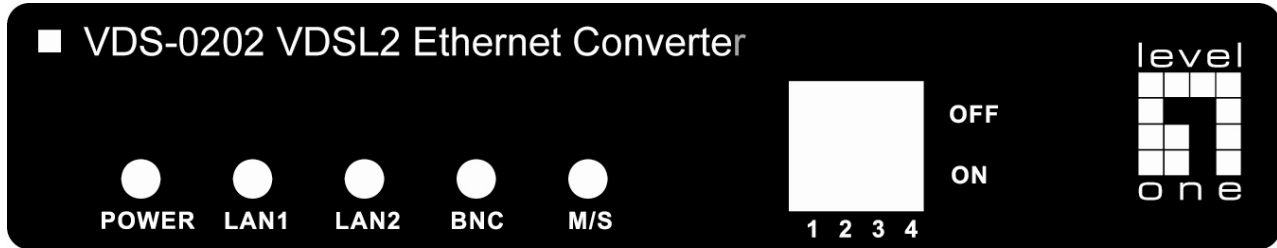
Inside the package you should find:

- VDSL2 Converter
- Power Adaptor (5VDC/1A)
- User's Manual

Please check if the packing is damaged or any component is missing. If so, please contact your distributor.

5. LED Indicators

On the front panel of VDS-0202, there are 5 LED indicators as the following
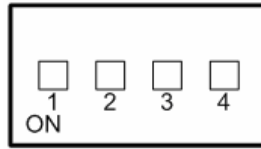
■ VDS-0202 Front Panel
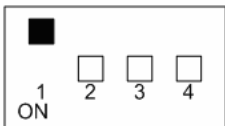

■ VDS-0202 Rear Panel

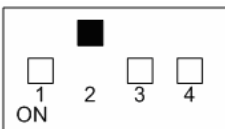| POWER	Green On	Indicates power is on and normal
LAN1	Green On	Indicates Ethernet LAN1 port is in connection
	Flashing	Indicates Ethernet LAN1 data activities
LAN2	Green On	Indicates Ethernet LAN1 port is in connection
	Flashing	Indicates Ethernet LAN1 data activities
BNC	Green On	Indicates VDSL2 is in connection
	Flashing	Indicates VDSL2 is in line handshaking
M/S	Green On	Indicates converter is set as Slave (VTU-R) mode
	OFF	Indicates converter is set as Master (VTU-C) mode

6. Dip Switches Settings

	Pin 1	Pin 2	Pin 3	Pin 4
	VTU-C/R	Mode	Rate Limit	SNR
OFF	VTU-C	Interleaved	50/20 Mbps	9dB
ON	VTU-R	Fast	Full Rate	6dB

Pin 1:   VTU-C/R Switch

VTU-C: The converter will act as at the Central Office (CO) side.

VTU-R: The converter will act as at the Customer Premise Equipment (CPE) or Remote side.

Pin 2:   **Mode for impulse noise protection**

Interleave mode: Protection for up to 250ms impulse noises with latency less than 6 ms.
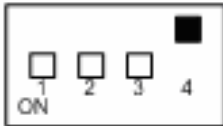
Fast mode: Direct data transmission with latency less than 1ms.

Pin 3:   Rate limit control

50/20 Mbps: Line rate limited to 50/20 Mbps.
Full Rate: Provides up to 100Mbps/60Mbps line rate in short line.

Pin 4:   Signal to Noise Ratio (SNR)

9dB: Higher SNR margin (9dB) will result in less error with more stable VDSL2 link.
6dB: Original and Normal channel noise protection with 6 dB SNR.

7. Data Rates & Distances

Performance in 5C2V Cable at 6dB with full rate

Down Stream Data Rate (Mbps)	Up Stream Data Rate (Mbps)	Distance (feet)
107	60	500
103	58	1000
100	56	1250
98	53	1500
96	51	1750
88	48	2000
81	45	2500
77	37	3000
70	32	3500
63	27	4500

8. Technical Support

Thank you for selecting LevelOne products. LeveOne's website contains the latest user documentation and soft-ware updates for LevelOne products.
Please contact LevelOne Technical Support through our website.

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World Wide Web

http://www.level1.com

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