DCE 2178HSEE

Data Connect 2178 High Speed Ethernet Extender

The Data Connect 2178HSEE is a high speed 100/100Mbps Downstream / Upstream, over Ethernet extension. The DCE 2178HSEE is designed based on two core networking technology, Ethernet and the latest Very-high-data-rate Digital Subscriber Line. Our technology offers absolutely fastest data transmission speed over existing copper telephone lines without the need of rewiring. The DCE 2178HSEE supports ultra-high performance to the pervasive telephone line network with up to 100/100Mbps symmetric data rate within 300m and 50/2Mbps for 1.4km long range connections.

The Data Connect 2178HSEE functions over existing telephone copper wires. In addition the DCE 2178HSEE is a Long Reach Ethernet (LRE) extender providing one RJ-45 Ethernet port and one RJ-11 phone jack for VDSL2 connection. By using the additional Splitter from the DCE 2178HSEE-2PK (two pack), the splitter can allow POTS and Ethernet to share the existing phone line; therefore, there is no need to replace existing copper wiring. Just plug the DCE 2178HSEE with an additional splitter into the existing RJ-11 telephone jack and a high-performance Ethernet extender network can be connected. The DCE 2178HSEE is ideal to be used as an Ethernet extender to an existing Ethernet network.

The Data Connect 2178HSEE can deliver High-Demand service connectivity for ISP Triple Play devices. The DCE2178HSEE provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of 100/100Mbps symmetric data transmission, the DCE 2178HSEE enables many Multi-Media services to work on local Internet services, such as VOD (Video on Demand), Voice over IP, Video phone, IPTV, Internet caching server, distance education, and many more.

The Data Connect 2178HSEE is a plug-and-play design and is fully compatible with all kinds of network protocols. Moreover, the operating status of each individual port and the whole system can be easily viewed via the diagnostic LEDs on the front panel. The DCE 2178HSEE offers two modes, CPE and CO, for application: CPE mode is used at client side and CO mode is at central side. The CPE or CO mode can be selected by using a built-in DIP switch. In a point-to-point configuration, there must be a CPE mode on one side and a CO mode on the other side to perform a seamless Ethernet connection.

The Data Connect 2178HSEE features a symmetric Band-Plan for the transmission of upstream and downstream signals. The band plan performs higher transmission quality in short range for central side (CO) in symmetric mode. When the DCE 2178HSEE is in profile 17a operation mode, it provides long distance Ethernet transmission with ultra high performance to the pervasive telephone line network. When the DCE 2178HSEE is in 30a operation mode, it provides short distance Ethernet transmission with higher speed performance in upstream and downstream traffic.
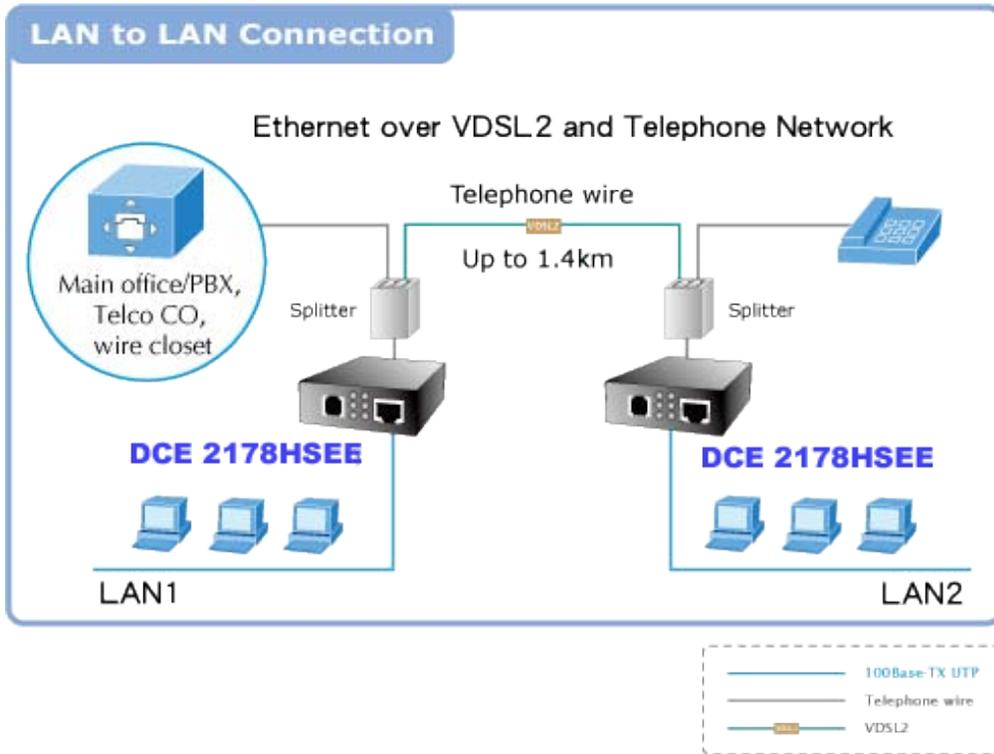
FEATURES

- Cost-Effective VDSL2 Profile 17a/30a CO / CPE Ethernet extension solution
- One box design, CO / CPE selectable via DIP Switch
- Defines symmetric band plan for the transmission of upstream and downstream signals
- Complies with IEEE 802.3, 10Base-T, IEEE 802.3u, 100Base-TX and IEEE 802.3x, Flow control E. standards
- DMT (Discrete Multi-Tone) line coding
- Half duplex Back pressure and IEEE 802.3x Full Duplex Pause frame flow control
- One RJ-11 connector for VDSL port with VDSL connection, additional Splitter for POTS connection
- Voice and data communication can be shared simultaneously based on the existing telephone wire
- One 10/100Mbps RJ-45 port, Auto-Negotiation and Auto-MDI/MDI-X
- Supports up to 1536 bytes packet size, IEEE 802.1Q VLAN tag transparent
- VDSL2 stand-alone transceiver for simple bridge modem application
- Advantage of minimum installation time (Simply as Plug-and-Play)
- Selectable target profile and target SNR margin
- Supports extensive LED indicators for network diagnosis
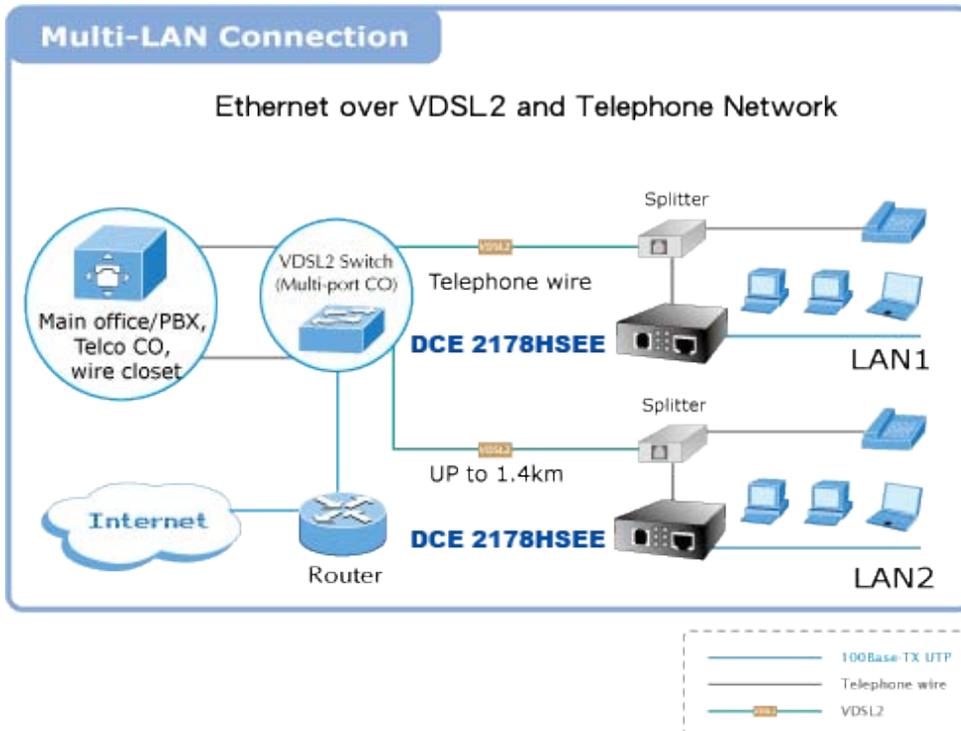- Compact in size, easy installation

APPLICATIONS

Point-to-Point Ethernet Extender

Two DCE 2178HSEE acting as a standalone pair is good for Ethernet distance extension over existing telephone wires. With just one pair of AWG-24 copper wire, you can easily connect two Ethernet networks together with the data rate of maximum 100/100Mbps. With the additional splitter, the telephone service can still be used while the DCE2178HSEE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 Converter.
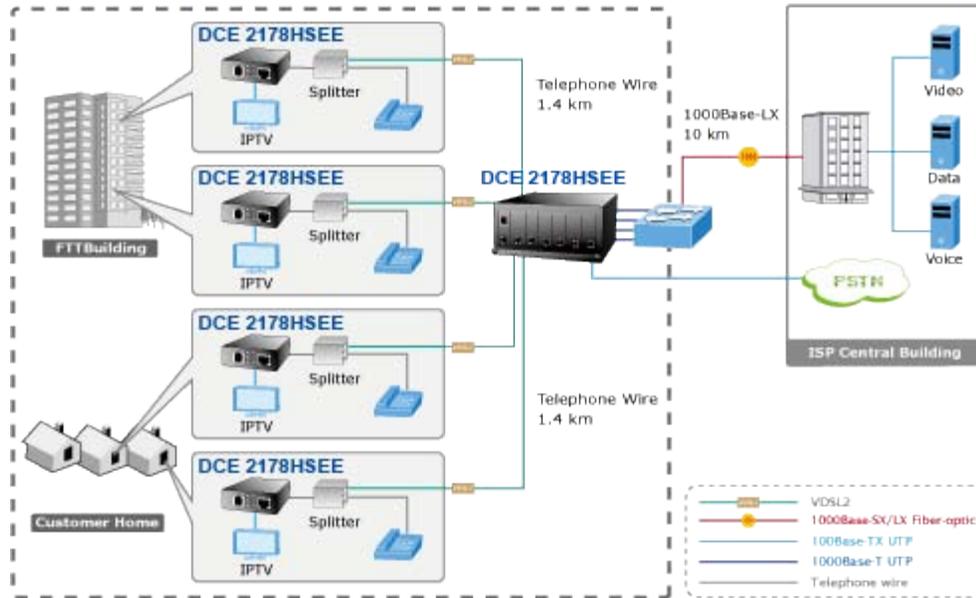

Multi-Dwelling Units / Multi-Tenant Units / Hospitality Solution

The DCE 2178HSEE is a perfect solution to quickly provide cost-effective yet high speed network services to multi-unit buildings such as residential buildings (multi-dwelling units), commercial (multi-tenant units) buildings, hotels or hospitals. By utilizing the existing telephony infrastructure, network installation is straightforward and requires no new wiring. With up to 100/100Mbps transmission, Video on Demand, IP telephony and various broadband services can be easily provided.

Last Mile of FTTx Deployment

The DCE2178HSEE is an ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Node) applications. It supports high bandwidth over existing telephone wires in the "last mile" from the ISP / Telecom / Service provider's fiber node to the buildings and customers' houses. The 10/100Mbps port of DCE 2178HSEE can be directly connected to a PC or to Ethernet devices such as Ethernet Switches or Broadband Routers. It is excellent for phone line network built under Internet because every room or house could use the existing phone line to transmit data through the Internet and the whole building can share Internet to the wide area network with minimum cost.

SPECIFICATIONS

Hardware Specification	
Ports	10/100Base-TX : 1 RJ-45, Auto-Negotiation and Auto-MDI/MDI-X VDSL : 1 RJ-11, female Phone Jack PHONE : Additional Splitter for POST connection
DIP Switch & Functionality	• 4 position DIP switch • CO / CPE mode select
	• Selectable fast and interleaved mode • Selectable target 17a / 30a profiles • Selectable target SNR mode

Encoding	• VDSL-DMT
	  - ITU-T G.993.1 VDSL
	  - ITU-T G.997.1
	  - ITU-T G.993.2 VDSL2 (Profile 17a/30a Support)

LED Indicators	• One Power • 3 for RJ-11/VDSL2 • 2 for per RJ-45 10/100Base-TX port

Cabling	• Ethernet
	    10Base-T: 2-pair UTP Cat.3,4,5 up to 100m (328ft)
	    100Base-TX: 2-pair UTP Cat.5, up to 100m (328ft)
	• VDSL
	    Twisted-pair telephone wires (AWG24 or better) up to 1.4km

Performance* (Downstream / Upstream)	• 17a profile
	    300m -> 86/65Mbps
	    400m -> 86/52Mbps
	    600m -> 81/36Mbps
	    800m -> 72/19Mbps
	    1000m -> 60/9Mbps
	    1200m -> 59/6Mbps
	    1400m -> 50/2Mbps
	
	• 30a profile
	    300m -> 100/100Mbps
	    400m -> 90/90Mbps
	    600m -> 61/40Mbps
	    800m -> 54/8Mbps

Power Requirement	5V DC, 2A
Power Consumption	6.6 Watts / 22 BTU
Dimension (W x D x H) (Inches)	3-13/16 x 2-3/4 x 1
Weight	.44 Pound

Environment	
Operating	Temperature: 0 ~ 50 Degree C Relative Humidity: 10 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 Degree C Relative Humidity: 10 ~ 90% (non-condensing)

Switch Specification	
Switch Processing Scheme	Store-and-Forward
Address Table	1K entries
Flow Control	Back pressure for half duplex, IEEE 802.3x Pause Frame for full duplex
Switch fabric	0.2Gbps
Throughput (packet per second)	0.14Mpps
Network cables	10/100Base-TX: 2-Pair UTP Cat. 3,4, 5 (100meters, max.) EIA / TIA-568 100-ohm STP (100meters, max.)

Standard Conformance	
Regulation Compliance	FCC Part 15 Class A, CE

Standards Compliance	IEEE 802.3 10Base-T
	IEEE 802.3u 100Base-TX
	ITU-T
	  - G.993.1 (VDSL)
	  - G.997.1
	  - G.993.2 VDSL2 (Profile 17a/30a)

* The actual data rate will vary on the quality of the copper wire and environment factors.

ORDERING INFORMATION

DCE/2178HSEE-2PK
DCE/2178HSEE