



**FES-DSL-4P**

## **LAN EXTENDER**

### **Overview:**

**FES-DSL-4P** is a 4 Port LAN Extender which can connect to Single-pair digital subscriber line (DSL) to transmit and receive data rate over copper telephone lines, faster than a simple ADSL modem. The two pair feature may alternatively be used for increased reach applications by keeping the data rate low. Halving the data rate per pair will provide similar speeds to single pair lines while increasing the error/noise tolerance.

**FES-DSL-4P** is comply with the latest G.SHDSL.bis technology standards and supports symmetric data rate up to 15.3Mbps/Pair under TC-PAM 128. Up to four pairs can be bonded together for aggregated bandwidth over 61 Mbps. It provides a secure and symmetrical high-speed connectivity over existing copper-line infrastructure that is ideal for service providers as well as SOHO and SME users.

**FES-DSL-4P** SHDSL.bis EFM Modems help customers to meet their growing data communication needs by the latest broadband technologies. Through the power of SHDSL.bis products, you can access superior manageability and reliability.

### **Technical Specifications:**

#### **Header :**

**Brand : FES**

**Product Line : Forever Engineering Systems Pvt. Ltd.**

#### **Features:**

- Symmetrical high-speed Ethernet service with SHDSL.bis, backward compatible with SHDSL
- EFM bonding up to 61 Mbps (8-Wires, TC-PAM 128)
- Support both EFM mode and ATM mode(1 PVC)
- Support point to point connectivity
- Support dying gasp
- Support TR-069
- Support IPv6

#### **WAN Interface:**

- SHDSL.bis: ITU-T G.991.2 (2004) Annex A/B/F/G supported
- Support EFM Bonding and SHDSL M-Pair mode
- Encoding scheme: TC-PAM 16/32/64/128

#### **CORPORATE OFFICE**

B-817, 8TH FLOOR, ADVANT NAVIS BUSINESS PARK, SECTOR-142, NOIDA-201301, UTTAR PRADESH, INDIA

MOB: 9643979291, PHONE: 0120-4277142

EMAIL: [forever.noida@gmail.com](mailto:forever.noida@gmail.com)



- **Data Rate:**
- **N x 64 Kpbs (N=3~89) using TC-PAM 16/32**
- **Data Rate:**
  - **N x 64 Kpbs (N=3~89) using TC-PAM 16/32**
    - Max. 5.696Mbps (1-Pair)
    - Max. 11.392Mbps (2-Pair)
    - Max. 22.784Mbps (4-Pair)
  - **N x 64 Kpbs (N=3~239) using TC-PAM 64/128**
    - Max. 15.296 Mbps (1-Pair)
    - Max. 30.592 Mbps (2-Pair)
    - Max. 61.184 Mbps(4-Pair)
- **Impedance: 135 ohms.**
- **Compliant with IEEE 802.3ah**

#### LAN Interface:

- **4-Ports 10/100M Switch, Auto-negotiation for 10/100Base-TX and Half/Full Duplex, Auto-MDIX Supported.**

#### Bridging:

- **Up to 1024 MAC address learning bridge**
- **IEEE 802.1D transparent learning bridge**
- **IEEE 802.1Q/1P VLAN Port-based/Tagging**
- **QoS Class-based (Prioritization/Traffic/DSCP Mark), Rate limiting, Up to 8 priority queues**

#### ATM:

- **Multiple Protocols over AAL5**
- **Ethernet over ATM (RFC 2684/1483)**
- **1 PVC**

#### EFM:

- **EFM mode compliant to IEEE 802.3,**
- **PPP over Ethernet (RFC2516)**
- **Support of OAMPDU information and functionality ( ITU-T Y.1731)**
- **OAMPDU Event Notification, Variable Request, Variable Response, Loopback Control**
- **VLAN base QOS (802.1P/Q), Priority Queue**

#### Network Protocol:

- **IPv4 (ARP/RARP, TCP/UDCP, ICMP)**

#### Management:

- **Web-based GUI for quick setup, configuration and management**
- **Menu-driven interface/Command-line interface (CLI) for local console and Telnet/SSH access**
- **Password protected management and access control list for administration**
- **Remote management via WWW/SSH/Telnet local/remote**
- **Real-time system log logging**
- **SNMPv1/SNMPv2 (RFC 1157/1901/1905) and MIB-II (RFC 1213/1493)**
- **TR-069(CWMP)**
- **Software upgrade via Web-browser/CLI, supported TFTP/FTP**
- **Dying Gasp**

#### Diagnostics/Monitoring

- **SHDSL.bis Circuit Healthy**
- **Packet Statistics**

#### Hardware Interface

- **WAN: RJ-45 x 1 / LAN: RJ-45 x 4**
- **Console Port: RS232 female**
- **Reset Button: Load factory default**
- **Power Jack**

#### Indicators

- **System: PWR, ALM**
- **WAN 1~4: LNK/ACT**
- **LAN 1~4: LINK/AC**

#### Physical / Electrical

- **Dimensions: 18.7 x 3.3 x 14.5cm (WxHxD)**
- **Power: 100~240VAC (via power adapter)**
- **Power Consumption: 9 watts Max**
- **Operating Temperature: 0~45°C**
- **Storage Temperature: -20°C~70°C**
- **Humidity: 0%~95%RH (non-condensing)**

#### Memory

- **128MB Flash Memory, 64MB DDR2 DRAM**

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