# XLR560 – 60Mbps Ethernet First Mile

## 2Base-TL EFM Environmentally Hardened Bridge

**The Case XLR 560 Series extends the reach of Ethernet Services to remote sites by using bonded copper pairs. Designed with standards-based EFM technology (2Base-TL), the XLR560 series allows service providers & enterprises to deliver Ethernet with symmetrical bandwidth at rates up to 60Mbps using TCPAM 128.**


FACT SHEET

### Key Features

- Extended Operating Temperature (+65$^0$C) (NB2)
- 2 x SFP Fibre ports
- EFM Bonding (PAF) up to 45Mbps 11Mbps per pair
- IEEE 802.3ah Compliant
- Add Drop configuration supporting linear hop configuration
- Ethernet Demarcation
- Flexible configuration – CPE or CO
- Low Delay, Jitter and packet loss for sensitive applications
- EFM OAM Support
- QoS Features for guaranteed Ethernet Service

### Applications

- Metro-Ethernet Extension (E-Line, E-LAN Services)
- Ethernet Demarcation Device.
- Transparent LAN Services
- Fast Internet Access
- MDU / MTU Backhaul.
- Remote DSLAM Backhaul
- Wireless (Mobile / Wi-Fi) Backhaul.
- Cost effective replacement for E1/T1

### Extended Ethernet Services to Site using existing copper infrastructure or Fibre.

Service providers and Enterprises can offer Symmetrical broadband connectivity for transparent Ethernet services, DSLAM backhaul, Wireless backhaul and other applications. By leveraging, an existing copper infrastructure and EFM Bonding technology, the XLR 560 can bond up to 4 pairs and deliver up to 60Mbps of Ethernet to users within the service area.

### Increased Flexibility in deployment.

The XLR 560 operates mainly over a point-to-point configuration. It can be configured as either a COE or CPE device allowing one unit to operate in two modes.

### Lower CAPEX and a Quick Return On Investment

With a compact form fact and optimised for use over an existing copper network, the XLR 560 reduces the initial investment and deployment time in delivering higher speed Ethernet service. It provides low risk and a quick return on investment.

### Comprehensive and easy OAM & P functions in provision and management.

The XLR 560 implements the IEEE 802.3ah standard and a vendor extended management features. It enables users to significantly reduce operating expenses as its based on standard Ethernet technology and it eliminates major technology upgrades. The XLR 560 is compatible with any standard Fast Ethernet interface from switches, routers, and SONET / SDH equipment.

The Fast Ethernet Interface enables the XLR 560 to work as a smart Ethernet Demarcation Device as well, which is required between the customer interface (UNI) and provide separation between the carrier WAN and Enterprise LAN by monitoring network status and operation at the customers site.

### Management

The XLR 560's management includes a comprehensive Command Line Interface (CLI), user-friendly GUI-based Web Browser Interface and SNMP and Telnet.

### Future-Proof Ethernet traffic management and QoS Features.

The XLR 560 provides future-proof features meeting Ethernet Quality of Service (QOS) and Class of Service (CoS) requirements by utilising 802.1q VLAN and DSCP capabilities, stacked VLAN (Q-in-Q), four levels of priority, traffic flow control and rate control. The traffic management and QOS features enable services providers to offer value added services for minimal cost.

### Add Drop Configuration Supporting linear hop configuration

Easily extend Ethernet over Copper connectivity with up to 30 hops without transmission delays.

Web: www.casecomms.com
Telephone: +44 (0) 0845 643 0800
Email: sales@casecomms.com
Fax: +44 (0) 1494 880 241

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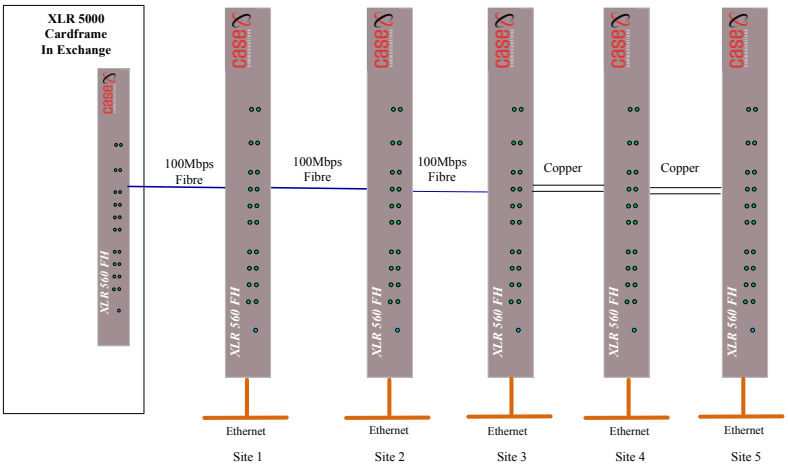
### Case XLR 560
### Rate vs Distance km – Per Pair

| Distance | | Kbps | Loss | SNR |
|---|---|---|---|---|
| 0.0km | PAM | 15296 | 1 dB | 11/11 |
| 0.3km | 128 | 14464 | 5 dB | 5/7 |
| 0.61km | 128 | 13376 | 9dB | 7/6 |
| 0.91km | 128 | 12032 | 13dB | 4/6 |
| 1.22km | 64 | 10176 | 16dB | 5/7 |
| 1.52km | 32 | 8640 | 21dB | 4/5 |
| 1.83km | 64 | 7488 | 22dB | 4/4 |
| 2.13km | 32 | 6208 | 25dB | 5/5 |
| 2.44km | 32 | 5184 | 27dB | 5/5 |
| 2.74km | 32 | 4545 | 29dB | 4/4 |
| 3.05km | 16 | 3776 | 33dB | 4/5 |
| 3.66km | 16 | 2560 | 35dB | 5/4 |
| 3.96km | 16 | 2048 | 36dB | 6/4 |
| 4.27km | 16 | 1856 | 37dB | 4/4 |
| 4.57km | 16 | 1408 | 38dB | 4/4 |
| 4.88Km | 8 | 1152 | 38dB | 4/4 |
| 5.18km | 8 | 960 | 42dB | 4/4 |
| 5.49km | 8 | 704 | 43dB | 6/6 |
| 5.79km | 8 | 576 | 42dB | 4/5 |
| 6.10km | 8 | 448 | 41dB | 5/4 |
| 6.40km | 8 | 320 | 41dB | 5/5 |
| 6.71km | 8 | 256 | 41dB | 5/5 |
| 7.01km | 8 | 192 | 40dB | 4/5 |

### XLR 560 Daisy Chaining




### Management Interface

- Console (RJ45)
- Web Browser (HTTP), SNMPv1, Telnet
- EFM OAM
- RCMP (Remote Control & Management Protocol)

### Production & Regulatory

- ISO 9001 Quality Management
- ISO 14001 Environmental management
- TL 9000 Quality Management
- CE Approval
- VCCI Approval
- RoHS Compliant

### XLR 560FH - Environmental

- Operating temperature: -40C ~ +65C
- Storage Temperature: -40C ~ +85C
- Relative Humidity: 95%, non-condensing

### XLR 560 - Mechanical & Power Requirement

- Dimension (mm): 256(W) x 170 (D) x 43 (H)
- Weight: 1.3Kg
- Power: DC Power 5V 3.0A
- AC 85 ~ 264V, 45 ~ 65 Hz

### Ordering Information

| Base Model | PSU | USE | PME's | 100FX Fibre |
|---|---|---|---|---|
| XLR 562 / XLR 564 | AC | RT / Co | 2 / 4 | 0 |
| XLR 564 FH | AC | RT / Co | 4 | 4 |
| XLR 564 FH-DC | DC | RT / Co | 4 | 4 |

### VLAN Support

- Port-based & Tag-based (802.1Q)
- Up to 4096 VLANS
- Double Tagging (Q-in-Q)
- VLAN Trunk Mode

### QoS Support

- Ingress rate control
- Egress traffic shaping
- Classification based on port / 802.1p / DSCP
- 4 Priority Queues
- Strict Priority
- Simple WFQ

### Network Interface

- **WAN**
  - ITU-T G.991.2 (G.SHDSL.bis 2004)
  - 2Base-TL, 64/56$_0$ encoding
  - EFM Bonding (IEEE 802.3ah PAF)
  - Dual Interface over DSL (Except 560F)
  - RJ45 Connector
  - Max 45.6Mbps (11.4Mbps / port)

- **LAN**
  - 4 x 10/100BaseT ports (RJ45)
  - Auto MDI / MIDX

### LAN Protocols

- 802.1d Transparent Bridging
- Up to 8K MAC Addresses

- **Fibre Optic**
  - 100Base-FX (IEEE802.3u)
  - 2 x SFP LC type connectors
  - SFP <SA & SFP-8472 specification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