

ROUTER-2SHDSL-RAIL-001/01**Application**

The ROUTER-2SHDSL-RAIL-001/01 contains two SHDSL drivers and a four-port switch. It connects two remote Ethernet networks using one or two twisted-pair copper wires.

**NOTE**

The ROUTER-2SHDSL-RAIL-001/01 is purchased from the manufacturer Etic Telecom. Manufacturer product name: XSLAN+ BP2400

For more information, see the manufacturer document below or the web page http://etictelecom.com/documentation_2.htm, see "Ethernet Extenders (XS+ Family)" > "XSLAN+ Data Sheet".

**NOTE**

For more information about installation and configuration, see the "ROUTER-2SHDSL-RAIL-001/01" commissioning instructions, data sheet 4.30-50.027-11.

Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Zmeny vyhradené - Změny vyhrzeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

EXTENDING ETHERNET UP TO 13 KM ON TWISTED PAIR

The XSLAN+ family of SHDSL switches enables the connection of remote Ethernet networks with one, two or four twisted pairs (depending on model).

✦ HIGH PERFORMANCE

On a twisted pair of 0.9 mm diameter, the data rate reaches 5.7 Mb / s up to 3.7 km or even 15 Mb / s up to 700 m.

✦ A WIDE RANGE

From the “plug & play” Ethernet Expander configured by some DIP-switches up to the hub to 4 SHDSL ports.

Models with two or four SHDSL ports enable an increased speed connection and also provide a backup against the failure of a link SHDSL.

These models also carry the hub function (line concentrator) for connecting up to 4 remote Ethernet networks.

✦ ROBUSTNESS AND RELIABILITY

- Extended T° range.
- Low consumption.
- Two power inputs.
- Protection against overvoltage.
- Total galvanic isolation.
- Network redundancy

KEY FEATURES

- 5,7 Mb/s over 3,7 Km (1 pair diam. 0,9 mm)
- 15 Mb/s over 700 m
- 1 simple plug & play model
- Concentrator with 4 SHDSL ports
- VLAN & SNMP, DiffServ QoS
- Network redundancy (RSTP or proprietary protocol)
- 2 or 4 ports Ethernet 10/100 BT
- 2 serial ports (option)
- T° : -20°C / +70°C
- Bypass feature (option)
- Configuration & diagnostic via html server
- DINRail casing

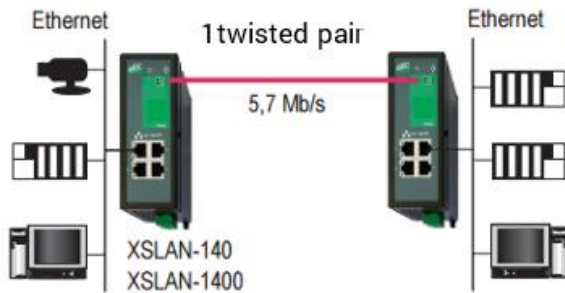
APPLICATIONS

- Industrial Ethernet network
- Video, VoIP...



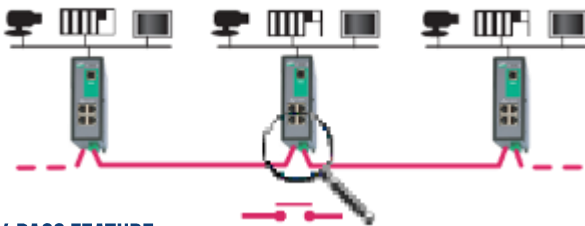
A «PLUG & PLAY» MODEL FOR THE SIMPLE CASE

8 micro switches are sufficient to activate the XSLAN+140. The embedded Html server for diagnostics enables to solve any possible critical cases.



XSLAN+2XXX : «DAISY CHAIN NETWORKS»

XSLAN+2400 comes with 2 SHDSL ports and can be used to build a « daisy chain topology » via a twisted copper pair.

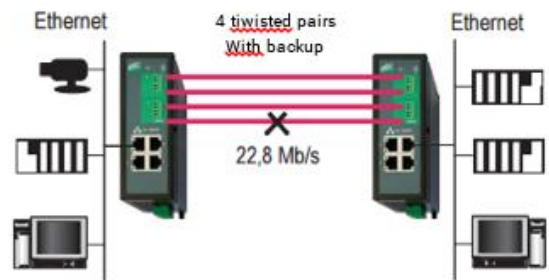


BY-PASS FEATURE

XSLAN+ can be equipped with the « Bypass » feature. The electro-mechanical relay between both SHDSL lines is automatically closed to connect the 2 lines when for any reason the XSLAN is switched off.

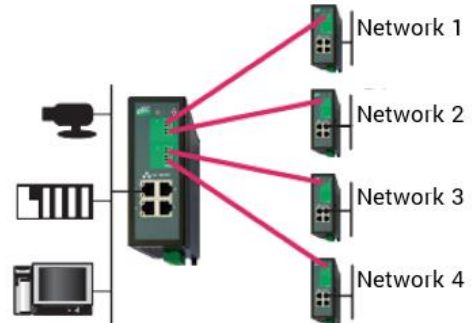
FOUR TWISTED PAIRS TO INCREASE THE DATA RATE UP TO 60 MB/S AND IMPROVE THE AVAILABILITY

XSLAN+2400 is used to settle a link up to 30M/s (2 copper pairs) or 60Mp/s (4 copper pairs). Transmission is not cut when one copper pair is cut.



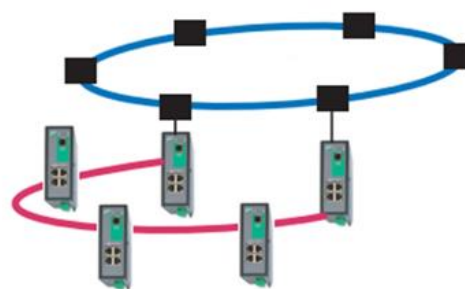
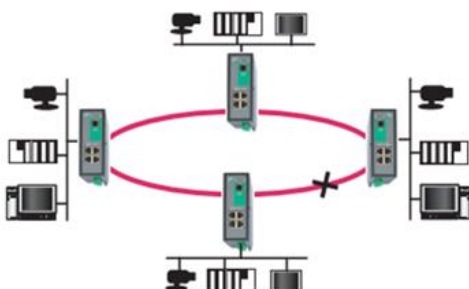
XSLAN+4400: A FOUR LINES CONCENTRATOR

The XSLAN+4400 with four SHDSL interfaces is the ideal solution to connect up to four remote Ethernet networks through copper pairs.



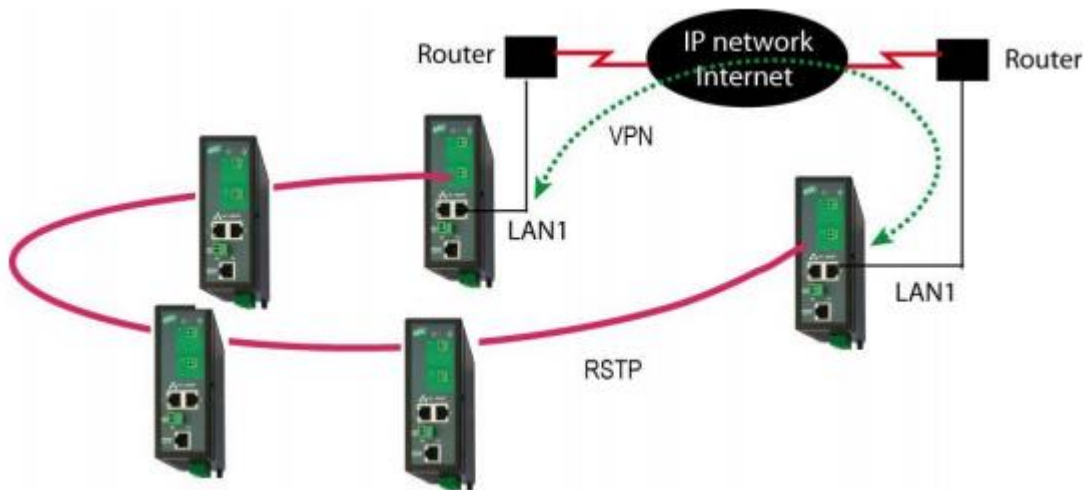
RSTP AND FAILSAFE RING REDUNDANCY PROTOCOLS

XSLAN+ handles the RSTP protocol (Rapid Spanning Tree) or the proprietary failsafe ring protocol. The failure detection and recovery is made in only few seconds.



LOOP VPN FOR SECURED RING

When the SHDSL network forms a daisy chain and when it is not possible to form a secured ring, the “loop VPN” function allows a network redundancy if a public connection (Internet) or private (MPLS) is available at each end of the SHDSL network.



UP TO 5,7 MB/S THROUGH ONE PAIR AND EVEN 15 MB/S ON SHORT DISTANCE

The data rate reaches 5.7 Mb/s over 3.7 Km (wire diam. 0.9 mm).

But it reaches 15 Mb/s if the distance is shorter than 0.7 Km (wire diam. 0.9 mm).

VLAN

Each port including the Ethernet 10/100 ports, the SHDSL ports and also the serial gateways and the Html server) can be assigned to a particular VLAN.

OPTIONAL RS232-RS485 SERIAL GATEWAYS

Optionally, two built-in serial gateways can be provided.

Data can be encapsulated either into TCP or UDP (towards one or several destinations).

DIFSERV QUALITY OF SERVICE TO MAKE VIDEO, VOIP AND INDUSTRIAL PROTOCOL TRANSMISSION EASY OVER THE SAME PAIR

The bandwidth can be divided in 5 priority classes. The services (protocol + port number) which have to be transmitted can be distributed between that classes according to their priority level.

It is possible for instance to reserve a narrow bandwidth with a high priority level to industrial protocols or to VoIP and a large one with lower priority to video transmission.

General characteristics

Dimensions	136 x 48 x 142 mm (h, l, p)
Installation	35 mm DIN rail
Protection	IP20
EMC	• ESD : EN61000-4-2 : 6 KV contact discharge • RF field : EN61000-4-3 : 10V/m < 2 GHz • RF conducted : EN61000-4-6 • Fast transient : EN61000-4-4 • Surge V. : EN61000-4-5 : 4KV line / earth
Safety	EN 60950,
Banned Substances	2002/95/CE ROHS european union directive
T°	-20°C /+ 70°C 5 to 95 % non-condensing

Digital I/O

Digital Input	• 1 input • Value : 0 < 1 V • Value : 1 > 3 V • Removable connector
Digital Output	• 1 Output • Voltage / current max : 54 VDC / 0,5A • Removable connector

Serial gateway (Option)

Serial Link	2 serial links (RS232 or RS485)
RS232 connector	RJ45
RS485 connector	Removable connector 2 pts
Data rate	• 1200 up to 115 200 b/s • Parity N/O/E • 7 or 8 bits, 1 or 2 Stop
Gateway	• Raw TCP client & server • UDP (unicast or towards broadcast list) • Multicast • Telnet • Modbus Master & Slave. • Unitelway Slave.

Power

Connector	Removable connector
Voltage	10 up to 60 VDC
Consumption	• XSLAN+1XXX 5W • XSLAN+2XXX 6W • XSLAN+4XXX 9W
Safety	• 2 power inputs (except for XSLAN+140) • Protection against reverse polarity
Isolation	Total galvanic isolation (except for model with serial gateway)

SHDSL transmission

Cable	1 twisted copper pair
Cable diameter	• 0.4 mm up to 1 mm • Cable of 1,5 mm² or 2,5 mm² can be used with limited performances
Connector	Removable connector
Isolation	With transformer
Modulation	SHDSL bis UIT-T G.991.2 (2005)
Data rate one pair	• 192 Kb/s up to 15,2 Mb/s
Data rate adaptation	Automatic or configurable
Latency	3 ms between the Ethernet ports of 2 switches via the SHDSL link
STU-C / STU-R	Auto négociation

Ethernet features (Level 2)

Ethernet 10/100 BT	• 10-100 Mb/s auto MDI / MDIX • 2 or 4 connectors RJ45
Ethernet SHDSL	802.3ah : 2BaseTL
VLAN	VLAN via port IEEE 802.1Q
Filtering @MAC	Filtering of @ MAC (destination)
Redundant network	RSTP or failsafe ring protocols

IP features (Level 3)

IP address	IP V4 & IPV6
SNMP	• SNMP V2 RFC1213 MIB II • HDLSL2-SHDSL-LINE-MIB • HOST-RESOURCES-MIB • IF-MIB IP-MIB • BRIDGE-MIB
QoS	DiffServ – 5 priority levels managed upon traffic
IP routing	• IP routing between LAN interface and SHDSL interfaces considered as being a unique interface • 25 static routes RIP V1 et V2, OSPF

Distance versus Data rate over a twisted pair

Indicative values without noises

Data rate	15Mb/s	12Mb/s	10Mb/s	6,7Mb/s	5,7Mb/s	2,3Mb/s	1,15Mb/s	192Kb/s
Cable Ø 0.9mm	0,7Km	1Km	1,5Km	2,5Km	3,7Km	6Km	8Km	13Km
Cable Ø 0.4mm	0,4Km	0,6Km	0,9Km	1,3Km	2Km	3Km	4Km	7Km



	XSLAN+	140	1400	1220	1230	2400	2220	2230	4400
Number of SHDSL ports		1	1	1	1	2	2	2	4
Aggregated data rate - diam. 0,9 mm 3,7 km Mb/s		5,7	5,7	5,7	5,7	11,4	11,4	11,4	22,8
Aggregated data rate - diam. 0,9 mm 0,7 km Mb/s		15	15	15	15	30	30	30	60
Concentrator 2 or 4 SHDSL ports						•	•	•	•
SHDSL backup						•	•	•	•
Number of Ethernet ports 10 / 100BT		4	4	2	2	4	2	2	4
Number of serial ports		0	0	2	2	0	2	2	0
RS232				1	2		1	2	
RS485				1	0	0	1	0	
Power input backup			•	•	•	•	•	•	•
Total galvanic isolation		•	•			•			•
Installation «plug & play» via DIP switches		•							
Configuration via HTML server			•	•	•	•	•	•	•
Diagnostic via HTML server		•	•	•	•	•	•	•	•
SNMP administration			•	•	•	•	•	•	•
IP router, DiffServ (QoS)			•	•	•	•	•	•	•
VLAN			•	•	•	•	•	•	•
By-Pass Option (BP)						•	•	•	
RSTP or failsafe ring protocol			•	•	•	•	•	•	•
Auto negotiation STU-C /STU-R		•	•	•	•	•	•	•	•