

## ETHERNET FAILSAFE RING OVER KILOMETRES WITH ONE TWISTED PAIR



The "XSRING" range of switches can be used to create an Ethernet network over a long distance using one voice-grade twisted pair.

Thanks to 2 built-in SHDSL modems and to its switch functions, a multi-drop network can be created covering several dozen kilometres.

If a high availability network is required, a failsafe ring network can be created. Failure in one section of the cable will not interrupt normal network operation. Failure of one switch will only affect operation of the devices directly connected to it, and in both cases an SNMP alarm is transmitted.

Quality of service (QoS) management and IP router functions avoid traffic being slowed down by low priority dataflow. E.g. priority can be given to control/command data rather than video.

### Key features

---

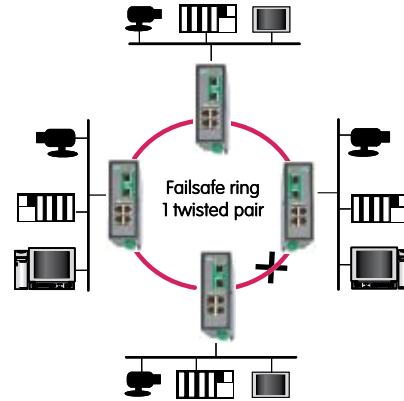
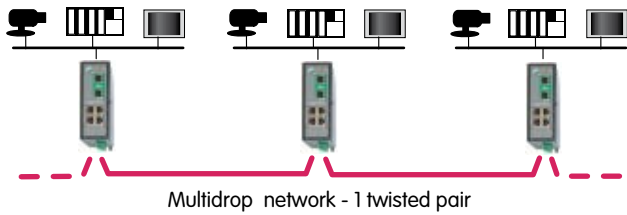
- Multidrop & failsafe ring
- 13 Km over a 0.9 mm line wire
- 7 Km over a 0.4 mm line wire
- 128 Kb/s to 2.3 Mb/s
- 4 X 10-100 ethernet ports
- DiffServ Quality of Service
- Serial gateway option

### Applications

---

Energy, water distribution, transportation, Building automation...





### General characteristics

<b>Dimensions</b>	135 x 47 x 115 mm (HxWxD)
<b>Installation</b>	DIN rail 35 mm
<b>Protection class</b>	IP20
<b>Power</b>	<ul style="list-style-type: none"> <li>■ 9 to 40 VDC / 200 mA at 24 VDC</li> <li>■ Reverse polarity protection</li> </ul>
<b>Output</b>	Relay 1 A @ 24VDC max.
<b>EMC immunity</b>	<ul style="list-style-type: none"> <li>■ ESD : EN61000-4-2 : 6 KV contact discharge</li> <li>■ RF field : EN61000-4-3 : 10V/m &lt; 2 GHz</li> <li>■ Fast transient : EN61000-4-4</li> <li>■ Surge V. : EN61000-4-5 : 4KV line / earth</li> </ul>
<b>Safety</b>	EN 60950 & UL1950
<b>Banned substances</b>	2002/95/CE ROHS european union directive
<b>Humidity</b>	5 to 95 % RH non condensing
<b>Operating T°</b>	-20°C/+60°C 95%

### Interfaces

<b>Ethernet</b>	<ul style="list-style-type: none"> <li>■ 10-100 Mb/s auto MDI / MDIX</li> <li>■ 2 or 4 RJ45</li> </ul>
<b>RS232-RS485</b>	1200 à 115 200 b/s 8 bits parity N/O/E
<b>Alarm</b>	Voltage free output
<b>Power</b>	Double power supply voltage input
<b>Shdsl</b>	2 RJ45 - cables provided

### Transmission

<b>Cable</b>	1 twisted pair (2 wires) or 2 twisted pairs
<b>Wire diam.</b>	0.4 mm to 1 mm
<b>Modulation</b>	UIT-T G.911.2
<b>Data transmission</b>	802.3ah : 2BaseTL
<b>Data rate 2 wires</b>	128 Kb/s up to 2.3 Mb/s
<b>Data rate adaption</b>	Automatic or manual
<b>Latency</b>	4ms at 2,3 Mb/s & 6ms at 512 kb/s

### Distance in Km

<b>Data rate (2 wires)</b>	128 Kb/s	1.15 Mb/s	2.3 Mb/s
<b>Data rate (4 wires)</b>	256 Kb/s	2.3 Mb/s	4.6 Mb/s
<b>Distance (Ø 0.9 mm)</b>	13 Km	8 Km	6 Km
<b>Distance (Ø 0.4 mm)</b>	7 Km	4 Km	3 Km

### Switching / Ring redundancy

<b>Bridging</b>	IEEE 8021d transparent bridging
<b>MAC @ learning</b>	2048
<b>VLAN</b>	<ul style="list-style-type: none"> <li>■ IEEE802.1Q - VLAN per port</li> </ul>
<b>Ring management</b>	<ul style="list-style-type: none"> <li>■ Spanning tree IEEE 802.1D</li> <li>■ ETIC mode (Only for ring topology)</li> </ul>
<b>Recovery delay in case of ring failure</b>	<ul style="list-style-type: none"> <li>■ 3 s (Typical-ETIC mode with 10 XSRING)</li> </ul>

### TCP/IP / management

<b>Management</b>	<ul style="list-style-type: none"> <li>■ SNMP V2 standard MIB</li> <li>■ Trap in case of ring failure and recovery</li> </ul>
<b>Quality of Service</b>	4 priority levels management <ul style="list-style-type: none"> <li>■ DiffServ compliant</li> </ul>
<b>IP Router</b>	<ul style="list-style-type: none"> <li>■ Static routes</li> <li>■ RIP</li> <li>■ Broadcast filtering</li> </ul>
<b>Configuration</b>	<ul style="list-style-type: none"> <li>■ DIP switches for basic functions</li> <li>■ Html server</li> </ul>

### RS232-RS485 gateway (option)

<b>RS232-RS485</b>	<ul style="list-style-type: none"> <li>■ Raw client &amp; server- Multicast - Telnet serv.</li> <li>■ Modbus master &amp; slave</li> <li>■ 2 serial ports (see ordering infos)</li> <li>■ 1200 to 115 200 b/s 8 bits parity N/O/E</li> </ul>
--------------------	--



	XSRING -2400	-2220	-2230
<b>SHDSL port</b>	2	2	2
<b>10-100 ethernet port</b>	4	2	2
<b>RS232 (modbus, raw, telnet)</b>	0	1	2
<b>RS485 (modbus, raw, telnet)</b>	0	1	0
<b>Ring management</b>	Y	Y	Y
<b>DiffServ QoS</b>	Y	Y	Y

13, Chemin du Vieux Chêne  
 38240 Meylan France  
 Tél : +33 4 76 04 20 00  
 Fax : +33 4 76 04 20 01

Web : [www.etictelcom.com](http://www.etictelcom.com)

