

## COPPERWAY BIS

### OPTICAL & ETH FIRST MILE ACCESS SERVER

#### ETHERNET AND RS232 ACCESS SERVER OVER SHDSL-BIS AND OPTICAL LINKS

##### Benefits

- Ethernet and RS232 interface distribution over mixed copper and fiber, multipoint links
- Two SHDSL Bis copper interfaces, 2 and 4 wires
- Two fiber interfaces, 100FX
- Four 10/100BT Ethernet interfaces
- POE on one Ethernet port
- Four serial V24/RS232/RS485 interfaces
- SHDSL Bis : TC-PAM16/32, 5.7 Mbps per pair, 11.4 Mbps per access, Throughput from 192 kbps to 11.4 Mbps
- Ethernet switch and bridge
- QoS control : on VLAN and IP/DSCP, 4 priority queues per port
- Per port rate limiting
- 802.1Q and per port VLAN
- Secured Ring topologies : STP and RSTP
- Ethernet frame buffer : 1MB
- Ethernet address memory : 8 K addresses
- Four serial port server : UDP and TCP, adaptation as raw ip, message, bloc, HNz
- Master – Slave mode for emulating multipoint modems
- Six digital inputs and two dry relay outputs : monitoring and deport over IP
- By-pass relay between DSL accesses
- Management : ssh, http, https, snmp, ftp
- Clear and intuitive menus, html interface
- Graphical MIB for SNMP-C
- DIN rail mounting compact and robust enclosure
- Operating temperature : -20 to +65 °C
- Dual power input : 12-60 Vdc

The **CopperWay-Bis** delivers Ethernet ports and four V24/RS232/RS485 asynchronous serial interfaces along an industrial infrastructure made of copper pairs and / or optic fiber.

The **CopperWay-Bis** provides four transmission accesses : two 2/4 wires SHDSL interfaces with a 11.4 Mbps max throughput, and two 100FX fiber interfaces. These interfaces support any multipoint topologies : star, bus or secured ring.

The **CopperWay-Bis** embeds a high performance Ethernet switch that performs a very fast transfer delay in the equipment and reduces the end-to-end delay over the transmission network. Ethernet interfaces are served by a bridge or an IP router engine. Automatic 10/100 speed detection and MDI/MDIX polarity configuration are both supported. The first Ethernet port delivers a 15W POE supply.

The **CopperWay-Bis** is also a four asynchronous serial port server over ip/tcp/udp protocols and telnet, raw-ip, bloc / message, HNz modes of operation, as well as rfc-2217 for emulating a PC COM port (\*). The first interface can be set as RS232 or RS485.

The **CopperWay-Bis** provides two SHDSL interfaces, East and West, that can operate in either 2 or 4 wires mode. It complies with the G.SHDSL-Bis / TCP-PAM 16/32 standard, with 192 kbps to 5.7 Mbps throughput per pair, ie 11.4 Mbps per access. This

high data rate associated with the QoS control is well suited for video and multiple services transport, while SHDSL ensures long distance, symmetrical and robust communications. The **CopperWay-Bis** also provides two fiber optic interfaces on SFP sockets that can connect either to an Ethernet / IP terminal, or even to a bus or ring fiber infrastructure. Mixed networks can be built to satisfy any distance and throughput requirement thanks to this DSL and fiber extended connectivity.

The **CopperWay-Bis** offers many network control features to optimize the various application data flows. Application traffics can be inserted into VLAN throughout the network when entering the equipment. QoS strategies, priority queuing, rate limiting can be applied to various classes of Ethernet / IP traffics.

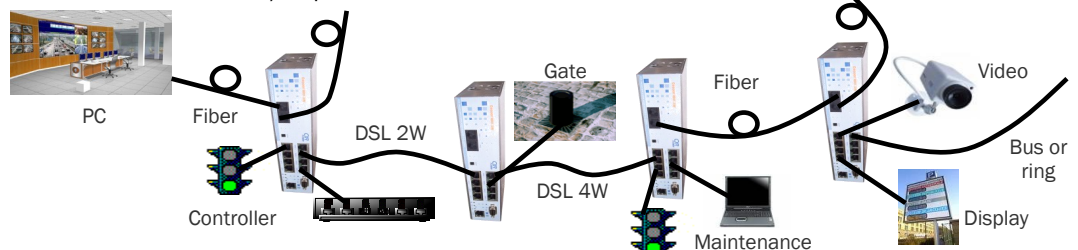
The **CopperWay-Bis** is presented in a compact robust metallic enclosure with DIN rail mounting and a dual input 12-60 Vdc supply. It can be installed in a 19" bay as well. The **CopperWay-Bis** is managed through an intuitive and user friendly interface that is also highly performing and secured with ssh and https protocols. Many other protocols are supported, such as ftp and snmp for the integration into a global management system.



CopperWay-Bis-2W

#### APPLICATIONS

Network of telemetry, equipment control, signalling, over a mixed fiber and/or copper infrastructure with Ethernet / IP protocols.



The **CopperWay-Bis** interconnects RS22/RS485 asynchronous and Ethernet equipments throughout a multipoint copper pair and / or fiber optic infrastructure.

There is practically no limitation in the number of access points on the network. The equipment transfer delay is optimized thanks to high performance Ethernet switching techniques. Ethernet / IP devices are addressed exactly as on a classical Ethernet LAN. Asynchronous serial equipments are addressed through an IP address and / or a TCP/UDP port with an adaptation protocol such as raw-ip, bloc / message, or as a multipoint modem replacement.



# TECHNICAL SPECIFICATIONS

**Ethernet & RS232  
Access Server  
Over optical and  
copper lines -  
SHDSL Bis**



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subject to change without notice

### G.SHDSL.Bis line interface

- 2 interfaces, East and West
- G.SH-DSL.Bis : TC-PAM 16/32coding, 192 Kbps to 5.7 Mbps per pair data rate
- Ethernet EFM / 802.3ah transmission
- Base model, 2x1 pairs : 5.7 Mbps per interface (2W)
- 2x2 pairs model : 11.4 Mbps per interface (4W)
- 2x RJ45 sockets
- 125 Ohms impedance
- By-pass relay (DSL1/DSL2)

### Fiber optic interface

- 2x fiber optic interfaces with SFP socket
- LC connectors
- Choice of SFP modules : multimode 2 km, or single mode for 20, 40, 80 and 100 km
- Ethernet 100FX transmission

### Ethernet interface

- 4x Ethernet ports
- Speed : 10 / 100 Mbps with automatic detection
- Automatic polarity detection, MDI/MDIX
- 10/100 BaseTX, IEEE 802.3
- RJ45 sockets
- PoE : 15W, port 1, requires 48 Vdc supply
- Ethernet address memory : 8 K
- Ethernet frame buffer : 1 MB
- Interface diagnostics and traffic statistics

### Switching and traffic control

- Ethernet switch and 802.3D bridge
- Per port VLAN : Ethernet, fiber, DSL
- 802.1Q VLAN
- QoS : priority queuing on VLAN and DSCP, 4 transmission queues per Ethernet / DSL / fiber interface
- Rate limiting per Ethernet / Fiber / DSL port
- Secured Ring topology : STP, RSTP

### V24/RS232/RS485 serial interface

- 4x asynchronous V24 serial interfaces
- RJ45 socket
- RS232 (V24/V28) or RS485 mode, user selectable : port 1
- Data rate : 1,200 to 115,200 bps
- Conversion :IP/ TCP/ UDP, Raw-ip (transparent), HNZ, Bloc / message, COM-Port / RFC 2217 to emulate a PC COM port, multipoint modem emulation

### Digital input / output

- 6 digital inputs
- 2 dry contact relay outputs
- Removable screw bloc connectors
- Command and monitoring transmitted over tcp or udp : snmp trap and get, relay deport

### Light indicators

- Power / management in progress
- DSL : synchronization, (2 or 4)
- FO-Link-Act : synchronization and data activity of the fiber interface (2)
- Link/Act : connection and activity of the Ethernet interfaces (4)
- 100 Mbps : Ethernet interface speed (4)
- TD/RD : serial interface activity (4)

### Management

- TCP-IP protocols: http, ssh, https, snmp, ftp
- Clear and intuitive html menus
- CLI commands : ssh and local console port
- Snmp : v1/v2
- Graphical MIB for SNMP-C
- Diagnostics : ping, traceroute
- DSL Diagnostic : speed, receive signal quality
- Interface transmission statistics
- Interface operating diagnostics

### Power supply

- 9-55 Vdc : MC model
- 110 - 230 Vac / 50-60 Hz : MVE model with external mains adapter
- Max power consumption : 12 W

### General characteristics

- Compact metallic stainless enclosure, DIN rail mounting
- Size : 154 x 144 x 44 mm / 6 x 5.6 x 1.7 "
- Weight : 0.7 kg / 1.5 lb
- Operating temperature: -20 to +65 °C / -4 to 150 F
- Safety : EN60950
- EMC : EN55022, EN55024
- MTBF : 180.000 hours

**DSL range:** Ideals conditions, AWG26

1 pair	2 pairs	AW26 (*)
192 kbps	384 kbps	4.5 mi
512 kbps	1,024kbps	3.6 mi
1,280 kbps	2,560 kbps	3.1 mi
2,048 kbps	4,092 kbps	2.7 mi
3,072 kbps	6,144 kbps	2.4 mi
4,608 kbps	9,216 kbps	1.8 mi
5,696 kbps	11,392 kbps	1.6 mi

# PRODUCT REFERENCES

Product reference	DSL pairs	RS232 ports	RS232/RS485	Digital I/O	Eth Ports	Fiber ports	Power supply
CopperWay-Bis-2W	2x1 pairs	-	-	-	4	2	-MC : 9-55 Vdc
CopperWay-Bis-2W-1RS	2x1 pairs	-	1	-	4	2	
CopperWay-Bis-2W-4RS	2x1 pairs	3	1	6i+2o	4	2	
CopperWay-Bis-4W	2x2 pairs	-	-	-	4	2	
CopperWay-Bis-4W-1RS	2x2 pairs	-	1	-	4	2	
CopperWay-Bis-4W-4RS	2x2 pairs	3	1	6i+2o	4	2	

### Options :

- PS-DIN-12V-40/75/120W : DIN mains converter, -20 to +70 °C operating temperature
- SFP-100FX-MM-LC : SFP module for multimode fiber, 2 km distance
- SFP-100FX-SM[20/40/80/100]-LC : SFP module for single mode fiber, 20/40/80 or 100 km distance