



SEMAPHORE



Semaphore S20 SHDSL Modem

Now convert existing copper wire infrastructure into a high-speed Ethernet network when installing a new SCADA or telemetry system — even if it spans distances previously unattainable by conventional DSL technology.

The Semaphore S20 SHDSL Modem extends communication speed and reach without the additional investment of installing new communications media. An alternative to wireless technology, the S20 SHDSL Modem's unique repeater capability enables communications over existing copper wire networks spanning up to hundreds of kilometers. The modem is ideal for railway, pipeline, utility, and power transmission applications that presently employ a copper wire communications network.

Semaphore's S20 SHDSL Modem extends dual Ethernets at high speeds over copper wire pairs to allow for the connection of multiple devices using standard IP protocols. Unlike most products in this category, which inherently limit transmission distance, our S20 SHDSL Modem features a repeater mode that provides excellent reach capabilities.

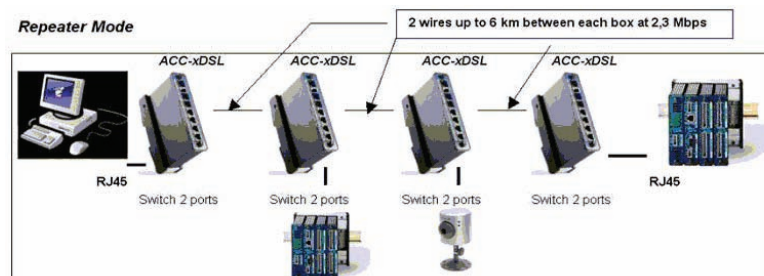
Configuration of the S20 is extremely simple, using a Web interface to display DSL and Ethernet port status and to configure line speeds, network address, and authentication permissions.

Semaphore's S20 uses G.SHDSL (Symmetric High-speed Digital Subscriber Line) technology for sending and receiving high-speed symmetrical data streams over a single pair of copper wires at rates between 192 kbps and 2.31 Mbps. Also known as G.991.2, G.SHDSL is an international standard for symmetric DSL developed by the ITU.

G.SHDSL was developed to incorporate the features of other DSL technologies, such as ADSL and SDSL, to transport T1, E1, ISDN, ATM, and IP signals. This is the first DSL technology to be developed from the ground up as an international standard.

Semaphore's S20 SHDSL Modem features:

- Two Ethernet connections, with an embedded switch, over a single copper wire pair
- Two G.SHDSL modems in one package
- Up to 2.31 Mbps speed with up to 17 km between nodes
- Repeater function that permits repetition over hundreds of kilometers
- Transparent Ethernet/IP connectivity
- Support of any standard IP communications, e.g., Modbus TCP
- Symmetric communication that also allows voice and video
- Simple configuration via Web interface
- DIN rail mounting
- Rugged design for industrial applications
- Operating temperature of -40° to +65°C



SEMAPHORE S20 SHDSL MODEM SPECIFICATIONS

Product description	Industrial-grade S20 Modem: converts copper wires into a high-speed IP network
SHDSL ports	2 x lines
Ethernet ports	2 x RJ-45 10-100Base-T Ethernet ports
Ethernet cable type	Cross cable or standard (autocrossing support)
IP router	Embedded switch
RS-232 port	Used for setup
Protocol support	All IP protocols
Maximum speed	2.3 Mbps
Maximum SHDSL length	Up to 6 km on a simple phone cable pair Up to 13 km on a 0.9 mm pair cable
Field-tested efficiency	5 km with cable of 0.5 mm at 2,048 Mbps
Accepted topologies	Point-to-point, multipoint (repeater mode)
Switch	For stop, reset, and run
Internal coding	TC-PAM
Power supply input	8 to 30 V dc
Housing	Anodized aluminum
Mounting	DIN rail mounting
Dimensions	152 mm x 85 mm x 29 mm
Weight	520 g
I/O protection	Protection of I/O according to IEC-61131 norm
Line protection	Electronic fuses in series; 0.24 A crowbar between lines and between each line and earth (surge protection); 170 V
Operating conditions	-40° to +65°C
Storage conditions	-40° to +70°C
Humidity	0-95% noncondensing
CE approvals	Yes
Product reference	ACC-XDSL

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