

WorldDSL™ G.S

Double Pair/Line Power G.SHDSL for CO and Customer Premises



ADC's WorldDSL G.S is a family of high-speed SHDSL access devices complying with the ITU-T G.991.2 G.SHDSL standard. These modems are specifically designed for the diverse telecommunication needs of global markets. Ideal for telco and enterprise networks, WorldDSL G.S products conform to international standards to ensure compatibility, performance and safety within your network environment.

The new G.SHDSL modems are part of the broad family of WorldDSL HDSL modems and share common chassis', enclosures, management software and accessories. They are fully G.SHDSL compliant including 36/72 timeslot operation and all required performance monitoring statistics. Both G.821 and G.826 statistics are provided for E1 ports giving users maximum flexibility. Each WorldDSL G.S modem is software-selectable as a communication master or communication slave, so any two units can be used for a point-to-point circuit. The modems are part of a fully managed system, interfacing with a VT100 compatible terminal or a PC. The units can be managed via their local craft port or a central management card installed in a CO shelf. ADC's Stargazer, Windows or UNIX-based SNMP management software can be used to provision the system, collect alarm and performance data, and conduct diagnostic tests locally or from a remote management station. In any of these modes, the NTU can be programmed and managed through the CO, minimizing travel to the outdoor site.

Features:

- Fiber optic quality (BER 10^{-10})
- Single pair operation or double pair operation to double the bandwidth or extend the reach
 - Single Pair – 2.304 Mbps
 - Double Pair – 4.608 Mbps
- Nx64K rate selectable from 192 kbps to 2.304 Mbps single pair or 384 kbps to 4.608 Mbps double pair
- E1 and FE1 (Fractional E1)
- 10/100 Ethernet bridge
- Automatic protection of TS0 and TS16 for fractional E1 use
- Software programmable data port—V.35/V.36/RS-530/X.21
- E1/FE1 and dataport or E1/FE1 and Ethernet port simultaneous operation sharing the bandwidth
- Intelligent multi-range line power management for 120, 150, and 200 VDC per EN60950
- Complete G.SHDSL reach/range coverage including line power
- Support wetting current
- One pair can be set up as 1+1 protection for the other pair
- Two pairs can also be configured as point to multi-point
- Auto loop crossover management
- 10/100 IEEE 802.3u, layer 2 MAC bridge, wire-speed, auto negotiation or programmable for 10/100, full/half modes
- Centralized software download for easy upgrade
- Jitter meets G.823 requirements



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SHDSL Interface	Line Code: 16 Level Trellis coded PAM Line Data Rate: user selectable from 1-pair 192 kbps to 2.304 Mbps 2-pair 382 kbps to 4.608 Mbps Range: (see chart on next page) Connector: DB9F (adapters available) Protection: ITU-T K.20 and K.21 compliant Compliance: ITU-T G.991.2
E1 Interface	Line Code: HDB3 Data Rate: 64 kbps to 2048 kbps Operation: full or fractional Blocking: per 64 kbps channel Idle Code Insertion: user selectable word Impedance: 120 Ω balanced or 75 Ω unbalanced Framing: structured with or without CRC-4 or unstructured Connectors: both D15F (balanced) and BNC (unbalanced) Timing: internal, external, G.703 Compliance: ITU-T G.703, G.704, G.706, G.821, G.823, G.826, CTR12
10/100 Ethernet Interface	802.3U Mac bridge Auto sensing 10/100 Half or full duplex VLAN pass through
Data Interface	User software selectable as: V.35, V.36, RS-530, X.21 Data Rate: 64 kbps to 2304 kbps or 128 to 4608 kbps (2 pair) Connector: D25F (adapters available) Timing: internal, external, loop, Nx64 Compliance: Net 2
Performance Monitoring	DSL PM: ES, SES, UAS, CV, LOSW seconds DSL Alarms: noise margin, loop attenuation, errored seconds, loss of synch word DSL Alarms Thresholds (user settable): noise margin, loop attenuation, errored seconds E1: G.821 and G.826 Performance Measurements: ES, SES, UAS, BBES, ESR, SESR, BBER E1 Alarms: LOS, LFA, RAI, RAIS PM History: 96x15 minute increments, 7x24 hour increments for both HDSL and E1 performance. Indefinite resettable alarm log showing first and last occurrence date and time, and number of occurrences for each alarm type Alarm Relay: Form C relay contacts NO, NC and COM Loopbacks: local or remote towards customer or central office Test pattern: PRBS generator and BER meter from the customer premise or CO ends
Power	Input Power: DC -36 to -72 VDC or AC 90 to 264VAC 47 to 63 Hz.
Line Power	Cover full reach for G.SHDSL standard span. One pair, two pair, 120 VDC, 150 VDC, 200 VDC
Chassis/Enclosure	Chassis: EMS-830 or EMS-832; Enclosure: ERE-811 L5, L6 or L7 single-slot enclosure
Environmental	Operating Temperature: -5°C to +50°C; Storage Temperature: -40°C to +85°C Humidity: up to 95% RH non-condensing
Safety/Emissions Compliance	CE Marked Safety: EN60950; Emissions, Susceptibility and Immunity: EN 300386-2. CO IN EMS-83x, Other Locations in ERE-811 or ETU versions



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Single Pair WorldDSL G.S Reach Chart

DSL Rate	0.4mm		0.6mm		0.8mm	
	With Noise ¹	No Noise ²	With Noise ¹	No Noise ²	With Noise ¹	No Noise ²
2304	2.2	3.8	4.4	7.6	6.3	9.3
2048	2.4	3.9	4.8	7.8	6.8	11.1
1792	2.5	4	5	8	7.2	11.8
1536	2.7	4.1	5.4	8.4	8.2	12.3
1280	2.9	4.3	5.8	8.6	9	12.8
1152	3	4.4	6	8.8	9.5	13.2
1024	3.2	4.5	6.4	9	10.2	13.6
768	3.7	4.8	7.4	9.6	11.7	14.1
640	4	4.9	8	9.8	12.7	14.7
512	4.2	5	8.4	10	13.5	15.3
384	4.8	5.5	9.6	11	14.7	15.7
256	5.5	5.8	11	11.6	16.8	16.8
192	6	6.3	12	12.6	17.1	17.1

Wire size measured in millimeters
Reach measured in kilometers

1 with worst case ITU-T G.991.2 noise
2 noiseless with 6dB margin

For two pair

- At any reach above, two pair can double the bandwidth
- For any rate desired, use the reach at 1/2 the desired rate

Ordering Information

Catalog number	Description	Type
WD921GN-XX-01	GS-2P-E1	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD922GN-XX-01	GS-2P Serial Nx64	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD924GN-XX-01	GS-2P E1 & Serial Nx64	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD920GN-1B-01	GS-2P + eBridge	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD921GN-1B-01	GS-2P E1 + eBridge	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD924GN-1B-01	GS-2P E1 & Serial + eBridge	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD921GL-XX-01	GS-2P LP E1	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD922GL-XX-01	GS-2P LP Serial Nx64	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD924GL-XX-01	GS-2P LP E1 Serial Nx64	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD920GL-1B-01	GS-2P LP + eBridge	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD921GL-1B-01	GS-2P LP E1 + eBridge	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD924GL-1B-01	GS-2P LP E1 & Serial + eBridge	Plug in card for EMS-830 CO chassis or ERE-811 remote enclosure
WD9XXXX-1B-01	eBridge upgrade kit	10/100 eBridge upgrade module can be added to the models with XX.

*Available Q1-2004

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