

Speed-DSL 9.2

Ethernet connection over 8-wires
up to 9.2 Mbit/s

(9900-009-001-A, 9900-008-001-A)

Manual



Notes

Before installing and putting the device into operation, please read the security guidelines at the end of this documentation!

Pan Dacom would like to point out that the information and notes contained in these documents are subject to technical changes. In particular, changes resulting from the continuing development of the products may not have been taken into account. Pan Dacom does not assume liability for print errors contained in this manual or other inaccuracies.

Pan Dacom explicitly points out that this manual only contains a general description of technical processes and notes, and that their implementation as described is not necessarily sensible in every individual case. In case of doubt, it is essential to confer with Pan Dacom.

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1 INSTALLATION

1.1 Unpack and Inspect the Equipment

The following components should be included:

- 1 SPEED-DSL 9.2
- 1 power supply

1.2 Power Up the SPEED-DSL 9.2

Plug the power supply into the power adapter port on the back of the SPEED-DSL 9.2 and connect it to your power source. Verify that the Power LED on the front of the SPEED-DSL 9.2 is illuminated.

NOTE Upon start up, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet 100, Act, and Lnk LEDs) until at least one of the four G.SHDSL connections has been established.

1.3 Configure Bandwidth and Distance

Configuration switches for the G.SHDSL ports are on the back of the SPEED-DSL 9.2, numbered from left to right, #1-8. Switches #1-3 on the SPEED-DSL 2.3-P work in tandem with one another to provide eight bandwidth options for the four G.SHDSL ports as a group; bandwidth cannot be configured individually for the G.SHDSL ports.

NOTE Configuration switches #1-3 are used for G.SHDSL bandwidth configuration on the SPEED-DSL 9.2-P ONLY. The SPEED-DSL 9.2 determines bandwidth via communication with its partner G.SHDSL provider equipment. Switches #4-8 are not currently used on the SPEED-DSL 9.2 provider or subscriber models.

Position switches #1-3 on the SPEED-DSL 9.2-P according to the cable distance for your connection and your desired G.SHDSL bandwidth. Distance capabilities listed in the following table assume the use of 26 American Wire Gauge (AWG) cable. Connections made with cable of a lesser gauge (e.g., 24 AWG) will link up at greater distances. Your SPEED-DSL 9.2 may not link up if the cable is in poor condition or if the cable distance is greater than a particular bandwidth will support; if link IS achieved under such conditions, traffic quality may be affected (e.g., packets may be dropped).

Bandwidth and Distance Options					
SWITCH #1	SWITCH #2	SWITCH #3	BANDWIDTH (KBPS)	DISTANCE (FT)	DISTANCE (M)
down	down	down	2,320	11,300	3,444
down	down	up	2,064	12,200	3,719
down	up	down	1,552	12,800	3,901
down	up	up	1,040	16,000	4,877
up	down	down	784	16,800	5,121
up	down	up	528	18,400	5,608
up	up	down	400	19,400	5,913
up	up	up	adaptive	varies	varies

NOTE The SPEED-DSL 9.2-P will run in Adaptive mode when switches #1-3 are in the Up position: the four ports will train up to the best possible speed supported by the SPEED-DSL 9.2-P, the remote G.SHDSL equipment and the copper cable pair connecting the two.

1.4 Connect the G.SHDSL Line(s)

The primary feature of the SPEED-DSL 9.2 is loop bonding capability between all four ports, though both the provider and subscriber units can function with a single G.SHDSL connection as well.

1.4.1 Loop Bonded Connection

Using two, three or four G.SHDSL lines for one network connection (loop bonding) will net two, three or four times the speed and data passing capability as a single G.SHDSL connection. Multiple G.SHDSL lines used for one connection can also be considered as backup for each other should one or more of the lines become disabled.

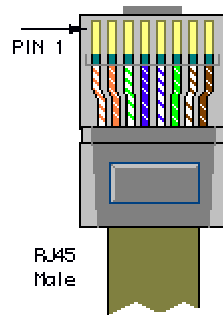
NOTE A SPEED-DSL 9.2 must be connected with equipment that is also loop bonding capable in order to utilize the loop bonding feature; see the G.SHDSL Loop Bonding Product to Product Feature Compatibility list.

Plug your G.SHDSL cables into the G.SHDSL RJ45 ports (G.SHDSL 1, 2, 3 and/or 4) on the rear of the SPEED-DSL 9.2; the order of connection is not important. Verify all connections: the G.SHDSL Link (Lnk) LED for each connected port will pulse green to indicate the connection is established and operational.

1.4.2 Single Line Connection

Plug your G.SHDSL cable into one of the four G.SHDSL RJ45 ports on the back of the SPEED-DSL 9.2; any of the four ports may be used. A single line connection can be established between an SPEED-DSL 9.2-S and any of G.SHDSL provider equipment. Likewise, a single line connection can also be established between an SPEED-DSL 9.2-P and G.SHDSL subscriber units. Verify your connection: the G.SHDSL LED corresponding to the connected port (G.SHDSL 1-4) will flash green to indicate the connection is established and operational.

G.SHDSL RJ45 Pinout



PIN	CONNECTION
1	not used
2	not used
3	not used
4	ring
5	tip
6	not used
7	not used
8	not used

Link up time between local and remote G.SHDSL network extenders can vary from one to five minutes depending on the quality, gauge and distance of the copper cable pair being used. If the cable distance is greater than a particular bandwidth will support, the units may not link up or, if they do achieve link, traffic quality may be affected (e.g., packets may be dropped).

1.5 Connect the Ethernet Line

NOTE If a G.SHDSL connection has not yet been made, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet 100, Act and Lnk LEDs) until at least one of the four G.SHDSL links has been established.

1.5.1 Duplex Mode

The 10/100 Ethernet port auto-negotiates speed and duplex mode in accordance with the remote equipment to which it's connected; Ethernet speed and duplex mode configurations cannot be hard set on the SPEED-DSL 9.2. For the best connection results, the remote device (PC, hub, switch, etc.) should be set to auto-negotiate speed and duplex mode as well. If the remote device cannot be configured to auto-negotiate, speed may be hard set at either 10 Mbps or 100 Mbps but duplex mode must be hard set to Half Duplex; a 10/100 Ethernet connection will not operate properly if the remote device is hard set to Full Duplex.

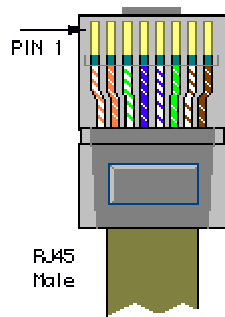
1.5.1.1 Half Duplex

Receive and transmit functions are mutually exclusive; data transmission occurs in only one direction at a time. Packet collisions are not unusual.

1.5.1.2 Full Duplex

Receive and transmit functions occur simultaneously, effectively doubling aggregate bandwidth and preventing packet collisions.

10/100 Ethernet RJ45 Pinout



PIN	CONNECTION
1	Rx+
2	Rx-
3	Tx+
4	not used
5	not used
6	Tx-
7	not used
8	not used

2 ADDITIONAL INFORMATION

2.1 LED Indications

LED	State	Indication	Additional Information
Power	solid green	unit is operational	If the Power LED is not illuminated, it is unlikely that the SPEED-DSL 9.2 is receiving power and therefore none of the LEDs will be illuminated.
SDSL Link (Lnk) Ports 1 - 4	pulsing green	G.SHDSL connection is established and active	Traffic is flowing.
	solid green	problematic G.SHDSL connection	A connection exists but there is indication of a problem with the G.SHDSL line.
	no illumination	no G.SHDSL connection	See NOTE on following page.
SDSL Data Reception (Rx) Ports 1 - 4	flashing amber	G.SHDSL activity	The SPEED-DSL 9.2 is receiving data.
	solid amber	heavy Rx traffic	The SPEED-DSL 9.2 is receiving large amounts of data.
	no illumination	no activity	A G.SHDSL link may exist but the SPEED-DSL 9.2 is not receiving any data.
SDSL Data Transmission (Tx) Ports 1 - 4	flashing amber	G.SHDSL activity	The SPEED-DSL 9.2 is transmitting data.
	solid amber	heavy Tx traffic	The SPEED-DSL 9.2 is transmitting large amounts of data.
	no illumination	no activity	A G.SHDSL link may exist but the SPEED-DSL 9.2 is not transmitting any data.
100 Mbps Ethernet Link (100)	solid green	100 Mbps Ethernet connection is established	If the Ethernet 100 LED is illuminated, the Ethernet Lnk LED will also be illuminated. See NOTE below.
	no illumination	no 100 Mbps Ethernet connection	If the Ethernet 100 LED remains unlit but the Ethernet Lnk LED is illuminated then a connection has been established at 10 Mbps rather than 100 Mbps.
10/100 Ethernet Activity (Act)	pulsing amber	standard operation	Traffic is flowing without any problems
	solid amber	heavy traffic	A solid amber Ethernet Act LED can also signify a lost G.SHDSL connection; see NOTE below.
	no illumination	no activity	Either there is no Ethernet link or a link exists but there is no activity.

10/100 Ethernet Link (Lnk)	solid green	Ethernet connection is established	If the Ethernet Lnk LED is illuminated but not the Ethernet 100 LED then a 10 Mbps connection has been established. If the Ethernet 100 and Lnk LEDs are BOTH illuminated then a 100 Mbps connection has been established. A solid green Ethernet Lnk LED can also signify a lost G.SHDSL connection; see NOTE below.
	no illumination	no Ethernet connection	The Ethernet 100 and Act LEDs will remain unlit by default.

(A pulsing LED blinks steadily at a rate of once per second. A flashing LED blinks at a more rapid, less constant rate.)

NOTE Upon start up, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet 100, Act, and Lnk LEDs) until at least one of the four G.SHDSL connections has been established. Likewise, if one or more of the G.SHDSL connections had previously been established but have since been lost, the Ethernet link will automatically be disabled (as indicated by solid illumination of the Ethernet 100, Act and Lnk LEDs) until at least one of the connections has been reestablished.

2.2 Regulatory Compliance for Class B Equipment

2.2.1 FCC Regulatory Compliance Information for Class B Equipment

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses, generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between the equipment and the receiver.
- Connect equipment to an outlet on a circuit different from the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

2.2.2 Industry Canada Regulatory Compliance Information for Class B Equipment

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

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GS Nord

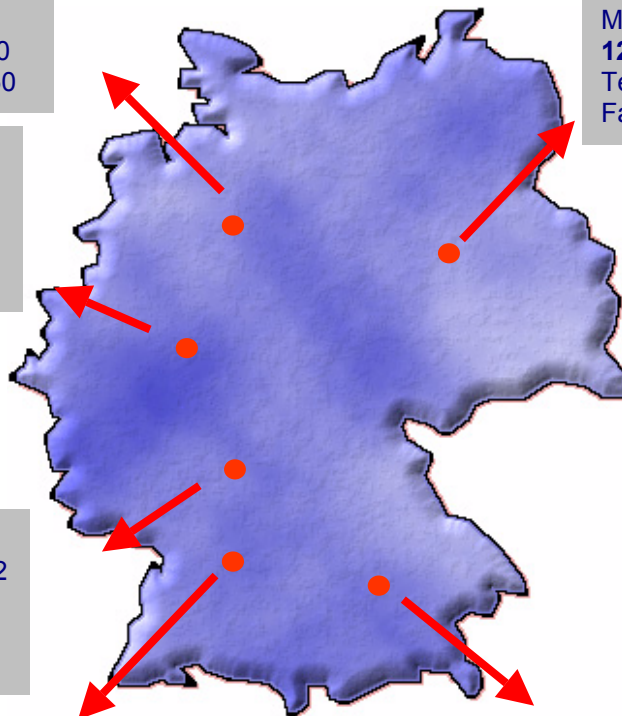
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