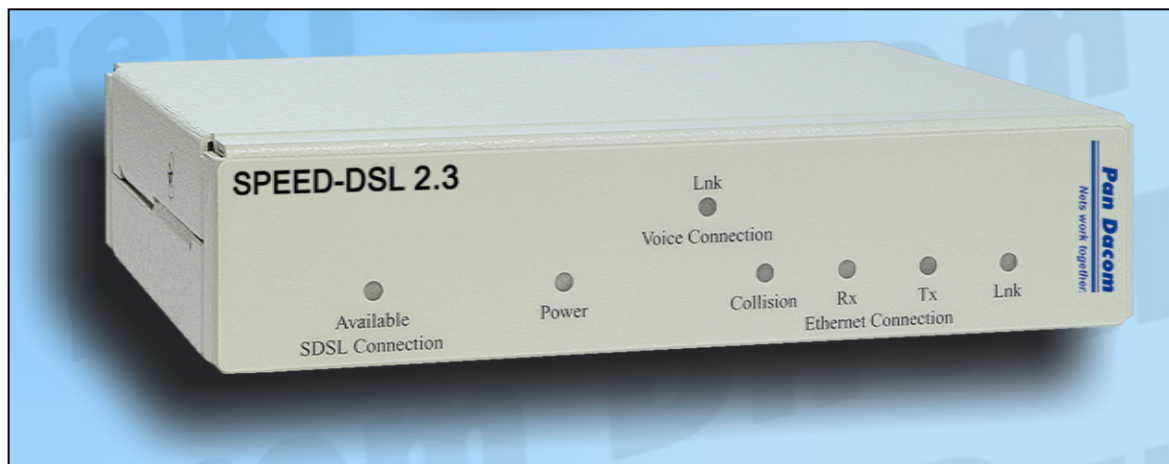


SPEED-DSL 2.3

Ethernet connection over 2-wires
up to 2.3 Mbit/s

Manual



SPEED-DSL 2.3

Notes

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

Pan Dacom Direkt 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 Direkt does not assume liability for print errors contained in this manual or other inaccuracies.

Pan Dacom Direkt 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 Direkt.

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SPEED-DSL 2.3

CAUTION Pan Dacom Direkt GmbH strongly recommends the use of proper electrostatic discharge (ESD) precautions when handling this equipment.

1. Installation

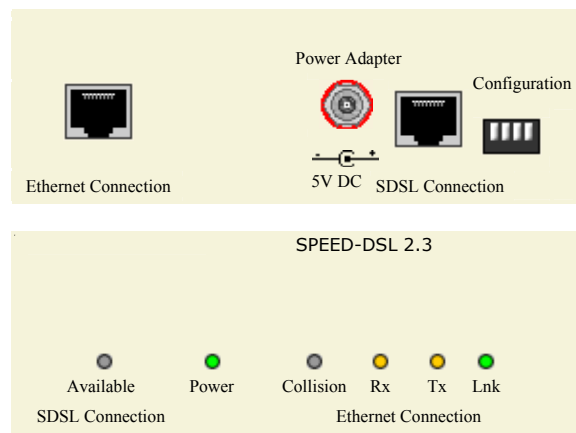
1.1. Unpack and inspect the equipment.

The following components should be included

- 1 SPEED-DSL 2.3, SPEED-DSL 2.3-Q or SPEED-DSL 2.3-G
- 1 power supply

1.2. Power up the SPEED-DSL 2.3

Plug the power supply into the back of the SPEED-DSL 2.3 and connect it to the power source. Verify that the Power LED on the front of the SPEED-DSL 2.3 is illuminated.

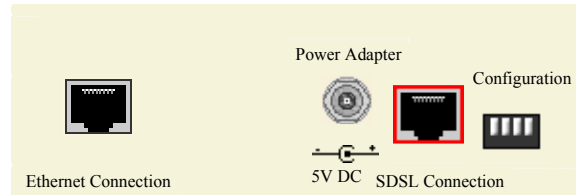


NOTE Upon start up, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet Rx, Tx, and Lnk LEDs) until the SDSL connection has been established.

SPEED-DSL 2.3

1.3. Configure the SPEED-DSL 2.3

Configuration switches for the SDSL port are on the back of the SPEED-DSL 2.3, numbered from left to right, 1-4.



1.3.1 Bandwidth

Switches 1-3: SPEED-DSL 2.3-P and SPEED-DSL 2.3-Q ONLY

Switches 1-3 on the SPEED-DSL 2.3-P and SPEED-DSL 2.3-Q work in tandem with one another to provide eight bandwidth options for the SDSL port. Distance capabilities listed in the following tables 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 2.3 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)

SPEED-DSL 2.3-P BANDWIDTH AND DISTANCE OPTIONS						SPEED-DSL 2.3-Q BANDWIDTH AND DISTANCE OPTIONS					
Switch Position			Bandwidth (kbps)	Distance		Switch Position			Bandwidth (kbps)	Distance	
1	2	3		Feet	Meters	1	2	3		Feet	Meters
down	down	down	2,320	11,000	3,353	down	down	down	2,320	10,400	3,170
down	down	up	2,064	11,900	3,627	down	down	up	2,064	10,800	3,292
down	up	down	1,552	12,600	3,840	down	up	down	1,552	13,400	4,084
down	up	up	1,040	15,500	4,724	down	up	up	1,040	14,800	4,511
up	down	down	784	16,000	4,877	up	down	down	784	15,800	4,816
up	down	up	528	17,900	5,456	up	down	up	528	17,400	5,304
up	up	down	400	18,900	5,761	up	up	down	400	18,200	5,547
up	up	up	Adaptive*	varies	varies	up	up	up	272	19,200	5,852

*Adaptive mode allows the SPEED-DSL 2.3-P to train up to the best possible speed supported by the SPEED-DSL 2.3-P, the remote modem to which it's connected, and the copper cable pair connecting the two. The maximum reachable distance for an SPEED-DSL 2.3-P in Adaptive mode is 24,700 feet (at 144 kbps). **The SPEED-DSL 2.3-Q does not have Adaptive capability.**

NOTE Bandwidth cannot be configured on the SPEED-DSL 2.3-S or SPEED-DSL 2.3-Q; subscriber units determine bandwidth via communication with their partner SDSL provider unit.

SPEED-DSL 2.3

1.3.2 Ethernet Duplex Mode

Switch 4: SPEED-DSL 2.3-P, SPEED-DSL 2.3-S, SPEED-DSL 2.3-Q

The Ethernet link can be configured at either Full Duplex or Half Duplex mode. Although both ends of the ETHERNET connection must have the same duplex mode configuration, it is not necessary for partner providers and subscribers to be configured the same; duplex mode does not apply to the SDSL link.

SWITCH 4	CONFIGURATION
down	Half Duplex
up	Full Duplex

1.3.2.1 Half Duplex Ethernet

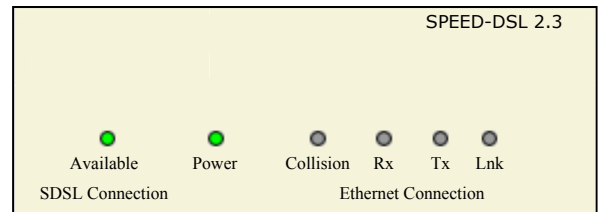
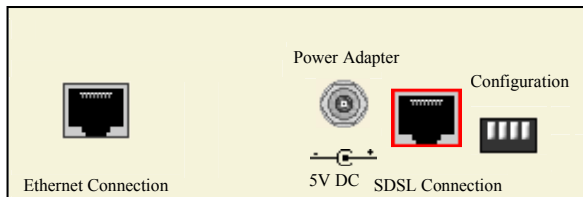
Receive and transmit functions are mutually exclusive; data transmission occurs in only one direction at a time. Packet collisions are not unusual.

1.3.2.2 Full Duplex Ethernet

The Ethernet line can receive and transmit simultaneously, effectively upping aggregate bandwidth from 10 mbps to 20 mbps and preventing packet collisions.

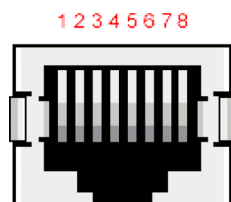
1.4. Connect the SDSL Line.

Plug your SDSL cable into the SDSL RJ45 port on the back of the SPEED-DSL 2.3. Verify the connection: the SDSL Connection LED on the front of the SPEED-DSL 2.3 will pulse green to indicate the connection is established and operational.



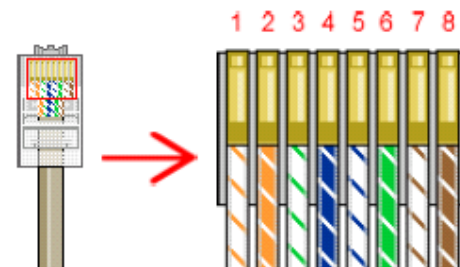
Link up time between local and remote SDSL network extenders can vary from one to five minutes depending on the quality, gauge and distance of the copper cable. If cable distance is greater than a particular bandwidth will support, the units may not link up or, if they do achieve link, traffic quality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

SDSL RJ45 PORT



PIN	CONNECTION
1	not used
2	not used
3	not used
4	Ring
5	Tip
6	not used
7	not used
8	not used

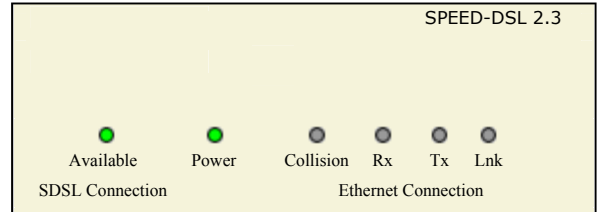
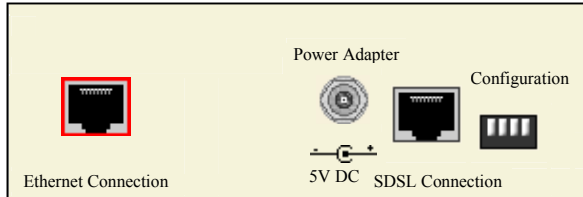
SDSL CABLE: RJ45 CONNECTOR



SPEED-DSL 2.3

1.5. Connect the Ethernet Line

Plug the Ethernet cable into the Ethernet Connection RJ45 port on the back of the SPEED-DSL 2.3. Verify the connection: solid illumination of the Ethernet Connection Lnk LED on the front of the SPEED-DSL 2.3 indicates a link has been established, IF an SDSL connection has already been made. If an SDSL connection has NOT yet been made, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet Rx, Tx and Lnk LEDs) until the SDSL link has been established.



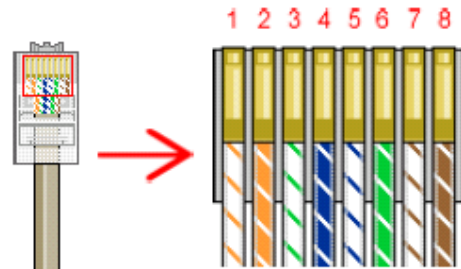
ETHERNET RJ45 PORT

1 2 3 4 5 6 7 8



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

ETHERNET CABLE: RJ45 CONNECTOR


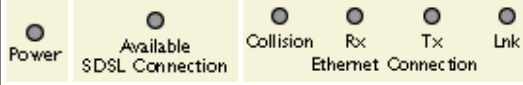









NOTE For most applications, the SPEED-DSL 2.3 connects to a PC using a **straight-through Ethernet cable** and to a hub or a switch using a **crossover Ethernet cable**. For any other connection combinations you must verify the pinout of the Ethernet device into which you are connecting the SPEED-DSL 2.3 in order to determine which type of cable is required.


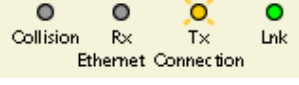

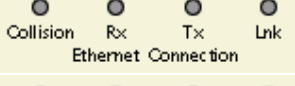
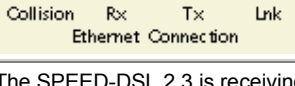
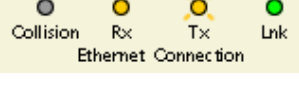



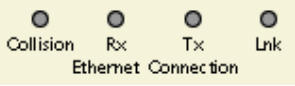

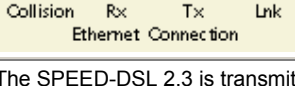
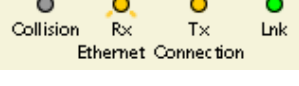
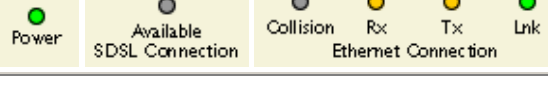
SPEED-DSL 2.3

2. Additional Information


2.1. LED Indicators

LED	State	Indication	Additional Information
Power	solid green 	unit is operational	If the Power LED is not illuminated, it is unlikely the SPEED-DSL 2.3 is receiving power and therefore none of the LEDs will be illuminated: 
	pulsing green 	SDSL connection is established and active	Traffic is flowing
	solid green 	problematic SDSL connection	A connection exists but there is indication of a problem with the SDSL line.
	no illumination 	no SDSL connection	When the SDSL connection is lost, the Ethernet LEDs will present as follows (see NOTE on following page): 
Ethernet Collision	no illumination 	standard	Either there is no traffic or traffic is flowing without any collisions. When there is no Ethernet connection, the Ethernet Collision LED will remain unlit by default.
	flashing red 	packet collision	The Ethernet packet(s) will automatically be retransmitted. NOTE: An SPEED-DSL 2.3 in Full Duplex mode does not have collisions; the Ethernet Collision LED is only applicable in Half Duplex mode.
	solid red 	warning	There is a potential traffic problem over the Ethernet segment.

SPEED-DSL 2.3

LED	State	Indication	Additional Information
Ethernet Rx	flashing amber 	Ethernet activity	The SPEED-DSL 2.3 is receiving data from the Ethernet network.
	no illumination 	no activity	Either there is no Ethernet link or a link exists but there is no activity.  OR  
	solid amber 	heavy Rx traffic	The SPEED-DSL 2.3 is receiving large amounts of data from the Ethernet network. A solid amber Ethernet Rx LED can also signify a lost SDSL connection when presented as follows (see NOTE on following page) 
Ethernet Tx	flashing amber 	Ethernet activity	The SPEED-DSL 2.3 is transmitting data to the Ethernet network.
	no illumination 	no activity	Either there is no Ethernet link or a link exists but there is no activity:  OR  
	solid amber 	heavy Tx traffic	The SPEED-DSL 2.3 is transmitting large amounts of data across the Ethernet network. A solid amber Ethernet Tx LED can also signify a lost SDSL connection when presented as follows (see NOTE on following page): 

SPEED-DSL 2.3

LED	State	Indication	Additional Information
Ethernet Lnk	solid green	Ethernet connection is established	<p>A solid green Ethernet Lnk LED can also signify a lost SDSL connection when presented as follows (see NOTE on following page):</p> 
	no illumination	no Ethernet connection	The Ethernet Rx and Tx 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 If the SDSL connection loses link, the Ethernet connection will automatically be disabled (as indicated by solid illumination of the Ethernet Rx, Tx and Lnk LEDs). Upon reestablishment of at the SDSL link, the Ethernet connection will be reinstated and the Ethernet LEDs will reflect current Ethernet status.

SPEED-DSL 2.3

2.2. Regulatory Compliance

2.2.1 FCC Regulatory Compliance Information for Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The authority to operate this equipment is conditioned by the requirements that no modifications will be made to the equipment unless the changes or modifications are expressly approved by the manufacturer.

If the equipment includes a ferrite choke or chokes, they must be installed per the installation instructions.

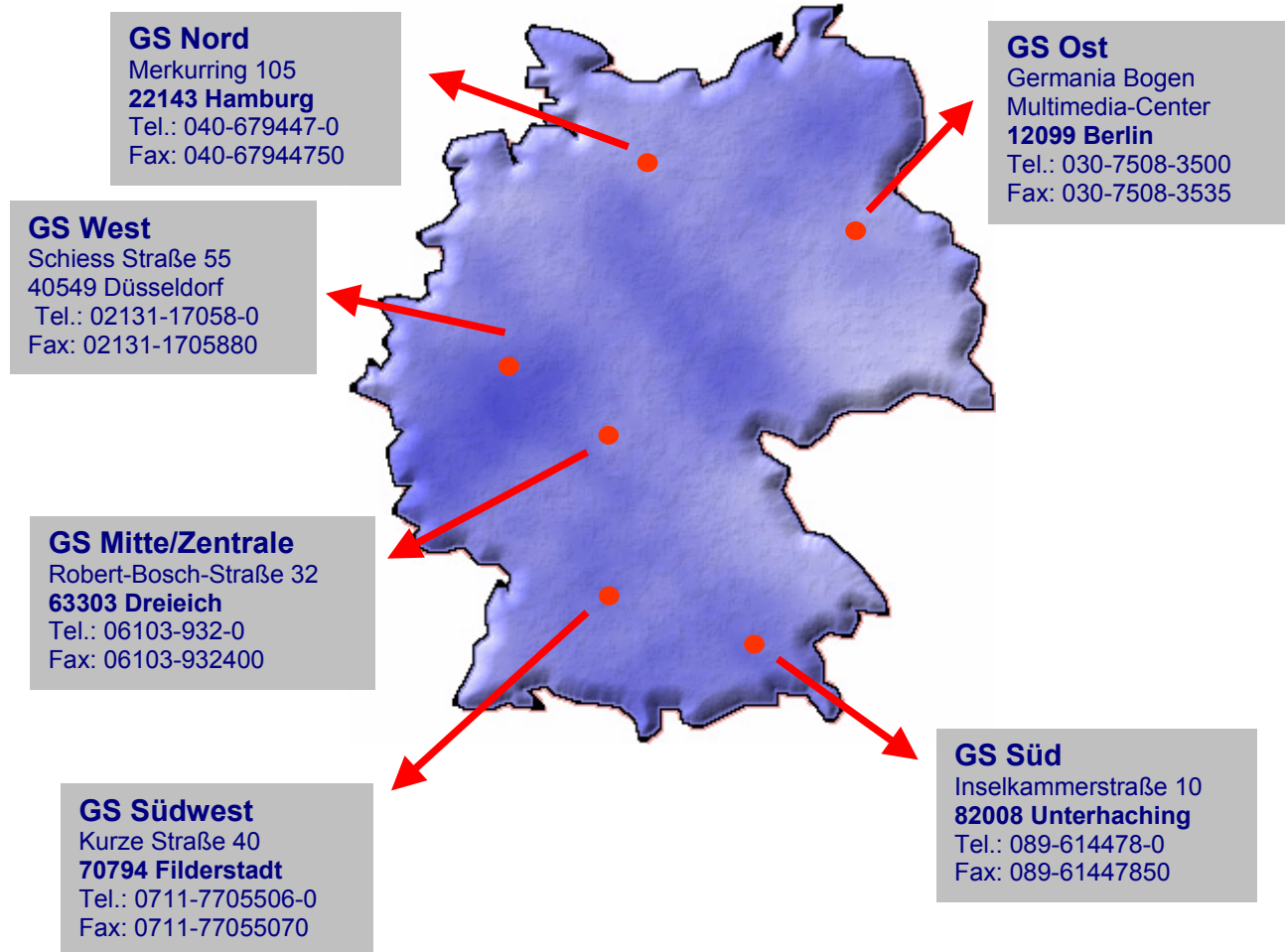
2.2.2 Industry Canada Regulatory Compliance Information for Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du règlement sur le matériel brouilleur du Canada.

SPEED-DSL 2.3

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SPEED-DSL 2.3



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