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TECHNICAL BULLETIN

TECHNICAL INFORMATION: D-LINK TRANSCEIVERS

This document refers to the following products:

DE-850 Piercing tap (also known as 'Vampire') transceiver, non-intrusive* type
DE-851 BNC/AUI transceiver
DE-852 N-series transceiver, intrusive type
DE-853 UTP/AUI transceiver
DE-854 FOIRL transceiver
* non-intrusive can be installed into a working network, intrusive cannot

General information

The above products are designed to connect to the general purpose AUI interface found on network cards or to the external port of some computers such as Sun SPARCstation. They are IEEE 802.3 CSMA/CD compliant and are interoperable with other vendor's products adopting that same standard. Below is the specification of the AUI interface.

Pinouts for Ethernet AUI (Female)

1 Protected ground
2 Transceiver status (Collision +)
3 TX Data +
4 Ground
5 RX Data +
6 Ground
7 N/C
8 N/C
9 Transceiver status (Collision -)
10 TX Data -
11 Ground
12 RX Data -
13 +12 Volts
14 Ground
15 N/C

Male connector: pin 1 top left, pin 15 bottom right
Female connector: pin 8 top left, pin 9 bottom right

Configuration

Attachment can be directly to the network interface or via a 'drop cable', secured by slide-on connectors.
Power down the computer before attaching since there is a small possibility that the internal transceiver fuse will be overloaded by current surge of over 500mA (fuse is soldered in component). On power up 12v DC will be supplied to power the transceiver-check that the power LED shows this as you turn on the host device (PC/workstation etc).

SQE (test) enable: a switch is present on the side of all the above transceivers marked *SQE test Enable*. As a general rule please set this switch to disable when attached to a repeater and enable when attached to a workstation. The older Ethernet standard referred to this as 'Heart-beat' and it had a similar function.

What is SQE test enable? This was part of the Ethernet specification to detect failure of the collision-detect electronics. After each frame is transmitted the collision mechanism is tested *within the electronics,* not on the network. Since there is enough time within the inter-frame gap to do this there is no performance effect. (Unfortunately this is now not used on every type of card and may be superfluous; also software is not generally used to detect SQE fail from the hardware and is rarely used). For a repeater there is a higher amount of traffic and therefore the opportunity to test SQE is reduced (depending on network activity). This is why enabling SQE test when attaching to a repeater may cause severe problems and is not recommended: SQE test may be interpreted as a *network* collision and start to degrade the network very rapidly as a result (the repeater will propagate 'jam' signals around the network to indicate a collision

state). It is important that the installer is aware of this to avoid disruption now or later-if in doubt consult the vendor for advice.

DE-850, DE-851, DE-852:
Ethernet coaxial cable: make sure you follow the standard configuration rules for cabling, when using the older 'thick' Ethernet. Normally cable will be from the same supplier and batch and transceivers attached at the marked rings only to avoid signal reflection. You will need a reaming tool for piercing tap installation.

Thinnet coaxial cable: use RG/58AU or RG/58CU cable or equivalent with 50Ohm termination of segments. You will need a crimping & wire stripping tools to complete a good quality installation.

DE-853:
New installations are using Category 5 cable tested to 100 or 155Mhz with all 8 wires connected. This will assure compatibility with newer technology. However the DE-853 is a 10BASE-T compliant product and requires only a minimum of Category 3 cable and 2 twisted pairs. A crimping tool for RJ45 connection will be required.

10BASE-T pinouts: straight through connection
[protruding plastic clip facing you]

Pin	RJ45 connector		Data Cable	
1		TX+	1	> to pin 1
2		TX-	2	> to pin 2
3		RD+	3	> to pin 3
4				
5				
6		RD-	6	> to pin 6
7				
8				

DE-854:
Fiber optic cable: using ST (bayonet) type connectors and multi-mode fiber cable with 62.5 micron core and 125 micron outer cladding (normally referred to as 62.5/125). Loss must be minimal and within specification (12.5 dB)-this can be affected by cable length, number of connectors or quality of installation.

The original FOIRL standard was replaced by 10BASE-F to include attachement to workstations. If you mix FOIRL components with 10BASE-F then connection is limited to 1000 meters instead of 2000 meters. Generally try to install fiber transceivers as pairs if possible.

DE-854 Specification

Electrical:

Power consumption	: < 300 mA for 10 Vdc .. 15 Vdc
Temination	: 78 Ohm +/- 1%
Signal level	: Tx : +/- 700 mV nominal
	: Rx : +/- 175 mV nominal
Power delay	: < 0.5 second

Optical :

Fiber size	: 62.5 / 125 um
Transmit power	: -12 dBm
Receiver sensitivity	: -43 dBm
Receiver dymanic range	: 23 dBm
LED center wavelength	: 820 nm nominal

Total delay time	: 1.5 BT (max) for Transmitter
	: 4 BT (max) for receiver