



Fast Ethernet Transceivers  
Model DFE-853, DFE-854  
**User's Guide**

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August, 1997

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6DFE853...01 Rev.01

Printed in Taiwan



RECYCLABLE

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### **Hardware:**

D-Link warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following lengths of time from the date of purchase from D-Link or its authorized reseller:

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<b>Product Type</b>	<b>Warranty Period</b>
Network adapters	Lifetime
Unmanaged and managed hubs	Lifetime *
Repeaters, MAUs, transceivers, Media converters	Three years
Concentrators	One year
Internetworking products	One year
* Power supply and fans in these devices	One year
Other hardware products	One year
Spare parts and spare kits	90 days

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If a product does not operate as warranted during the applicable warranty period, D-Link shall, at its option and expense, (1) repair the defective product or part, (2) deliver to Customer an equivalent product or part to replace the defective item. All products that are replaced will become the property of D-Link. Replacement products

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may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

D-Link shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to D-Link pursuant to any warranty.

All products with lifetime warranty have a standard five-year warranty. To qualify for lifetime warranty, the enclosed Product Registration Card must be completed and returned to D-Link within ninety (90) days of purchase.

Warranty service may be obtained by contacting a D-Link office for a Return Material Authorization (RMA) number. If a Product Registration Card has not been previously sent, proof of purchase, such as a copy of the dated purchase invoice, must be provided. Once an RMA number is issued, the defective product must be shipped back to D-Link prepaid, insured and wrapped in the original or similar shipping package to ensure that it will not be damaged during shipment. When returning the defective product to D-Link for service, the RMA number must be marked on the outside of the shipping package. Any product returned without an RMA number shall be rejected and sent back to the Customer, and D-Link reserves the right to have Customer bear the cost of sending back such products. A service charge may or may not be levied to Customer by D-Link. To find out if a

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Rev.01 (August, 1997)

6DFE853...01

Printed in Taiwan This guide provides basic information for installation and use of D-Link Fast Ethernet transceiver models DFE-853 and DFE-854.

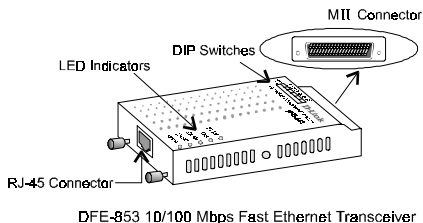
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## Introduction

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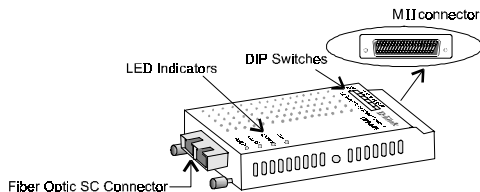
D-Link Fast Ethernet transceiver models DFE-853 and DFE-854 represent the best value on the market. These transceivers are IEEE 802.3u compliant and support both half- and full-duplex operation. Diagnostic LEDs are on the front, with the cabling connectors, for maximum visibility.

Transceivers provide additional media options for Fast Ethernet hubs, switches, bridges and routers equipped with MII ports. A DFE-853/DFE-854 transceiver is recommended for a network device with a built-in MII connector.



The DFE-853 MII to 10BASE-T or 100BASE-TX transceiver has the Auto-negotiation function, which means the transceiver automatically adjusts itself to the Ethernet speed (10 or 100) and duplex mode (half or full) of the attached segment. When two auto-negotiation devices with multiple capabilities are linked together, they find their optimum common mode of operation.





#### DFE-854 100 Mbps Fiber Optic Fast Ethernet Transceiver

The DFE-854 MII to 100BASE-FX multimode fiber transceiver supports transmission distances up to 2 kilometers (full-duplex) and 412 meters (half-duplex). The DFE-854 transceiver only operates at 100Mbps.

### Network Cables Supported

The connectors and network cables supported by these two transceivers are listed in the following table:

Model	Connectors	Type of Network	Network Cable Supported
DFE-853	MII RJ-45	10BASE-T 100BASE-TX	Cat 3, 4, 5 Twisted-Pair Cat 5 Twisted-Pair
DFE-854	MII Fiber SC	100BASE-FX	1300nm 62.5/125, 50/125-um Multimode fiber

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## Features

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### ***DFE-853 10/100 Mbps Fast Ethernet Transceiver***

- Conforms to the IEEE 802.3 10BASE-T and IEEE 802.3u 100BASE-TX standards.
- Supports Auto-negotiation.
- Data transfer rate: 10/100 Mbps.
- Supports transmission distances up to 100 meters.
- One MII connector and one RJ-45 connector.
- 32 selectable PHY addresses (00h-1Fh).
- LED indicators allow for visual verification of speed, power, data transmit, linkage, data receive, full/half-duplex and collision functions.
- Operating temperature: 0 – 55 degrees Celcius.
- Storage Temperature –20 to 55 degrees Celsius
- Humidity: 10- 90% (non-condensing)
- EMI certification: FCC, CE, VCCI and C-Tick.

### ***DFE-854 100BASE-FX Fast Ethernet Transceiver***

- Conforms to the IEEE 802.3u 100BASE-FX standard.
- 100 Mbps data transfer rate.
- Supports transmission distances up to 2 km (full-duplex) and 412 meters (half-duplex)<sup>1</sup>.
- Full or half-duplex mode: selected by dip switch.
- One MII connector and one fiber optic SC connector.

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<sup>1</sup> For full-duplex operation, the maximum distance between two network devices is 2 km. For half-duplex operation with CSMA/CD protocol, the maximum distance between two network devices is 412 meters.

- 32 selectable PHY addresses (00h-1Fh).
- LED indicators allow for visual verification of power, data transmit, linkage, data receive, full/half-duplex and collision functions.
- Operating temperature: 0 – 55 degrees Celcius.
- Storage Temperature –20 to 55 degrees Celsius
- Humidity: 10 - 90% (non-condensing)
- EMI Certification: FCC, CE, VCCI and C-Tick

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## DIP Switch

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The following figure shows the DIP switch on both DFE-853 and DFE-854 transceivers.



DIP Switch

### **Switches 1 through 5**

Switches 1 through 5 are used to set a PHY address. For both the DFE-853 and the DFE-854, the user can select a PHY address (see appendices) number from 0 through 31 if an application requires a unique PHY address.

### **Switch F<sup>2</sup>**

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<sup>2</sup> For both the DFE-853 and the DFE-854, if the attached device has management functionality to control the MII interface, the specific

For the DFE-853 transceiver, switch F is used to set the advertisement ability; for the DFE-854, switch F is used to set half- or full-duplex mode. The FDX/HDX Indicator shows the result.

For the DFE-8533: set the switch F to the OFF position if the attached device, such as a switch or a NIC card, has Auto-negotiation capability or can communicate in full-duplex mode; set switch F to the ON position if the attached device, such as a hub, can communicate in half-duplex mode only.

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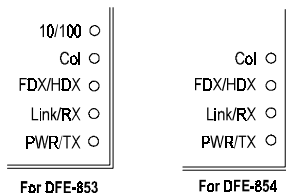
full/half-duplex mode can be set from the attached device.

<sup>3</sup>. The DFE-853 will advertise 100-Mbs/Full-duplex, 100-Mbps/Half-duplex, 10-Mbps/Full-duplex and 10-Mbps/Half-duplex to its link partner if switch F is set to the OFF position. The DFE-853 will advertise 10-Mbps/Full-duplex and 10-Mbps/Half-duplex to its link partner if switch F is set to the ON position.

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## LED Indicators

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The DFE-853 and DFE-854 transceivers feature the following LED indicators:

1. SPD Indicator (green) - for DFE-853 only  
Steady green when transmission is at 100Mbps. It is off when transmission is at 10Mbps.

**Below are indicators for both DFE-853 and DFE-854.**

2. Col Indicator (yellow)  
A light up to indicate a collision has occurred.
3. FDX/HDX Indicator (green)  
Steady green indicates full-duplex selected.  
Dark indicates half-duplex selected.
4. Link/Rx Indicator (green)  
Steady green indicates that a valid link exists.  
Flashing green indicates that the transceiver is receiving.
5. PWR/Tx Indicator (green)  
Lights when power is on.  
Blinks when device is transmitting.

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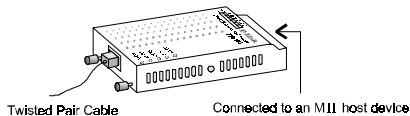
## Connections

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This section describes the general connection schemes for both transceivers.

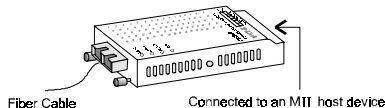
### DFE-853

The DFE-853 Fast Ethernet transceiver can be used for making MII to RJ-45 connections. The following figure shows in the foreground a 10BASE-T/100BASE-TX TP cable connected to the transceiver. The transceiver's MII connector is attached to an MII host device such as a hub or a switch.



### DFE-854

The DFE-854 Fiber Optic Fast Ethernet transceiver can be used for making connections between an MII port and fiber optic network cable. The figure below shows in the foreground a fiber cable connected to the transceiver. The transceiver's MII connector is attached to an MII host device such as a hub or a switch.



## **Appendices:**

### **Appendix A**

Select a PHY address(for DFE-853 and DFE-854)  
Switches 1 through 5 are used to set PHY addresses.

PHY Address	DIP Switch #				
	SW1	SW2	SW3	SW4	SW5
00h	OFF	OFF	OFF	OFF	OFF
01h	OFF	OFF	OFF	OFF	ON
02h	OFF	OFF	OFF	ON	OFF
03h	OFF	OFF	OFF	ON	ON
04h	OFF	OFF	ON	OFF	OFF
05h	OFF	OFF	ON	OFF	ON
06h	OFF	OFF	ON	ON	OFF
07h	OFF	OFF	ON	ON	ON
08h	OFF	ON	OFF	OFF	OFF
09h	OFF	ON	OFF	OFF	ON
0Ah	OFF	ON	OFF	ON	OFF
0Bh	OFF	ON	OFF	ON	ON
0Ch	OFF	ON	ON	OFF	OFF
0Dh	OFF	ON	ON	OFF	ON
0Eh	OFF	ON	ON	ON	OFF
0Fh	OFF	ON	ON	ON	ON
10h	ON	OFF	OFF	OFF	OFF
11h	ON	OFF	OFF	OFF	ON
12h	ON	OFF	OFF	ON	OFF
13h	ON	OFF	OFF	ON	ON
14h	ON	OFF	ON	OFF	OFF
15h	ON	OFF	ON	OFF	ON
16h	ON	OFF	ON	ON	OFF
17h	ON	OFF	ON	ON	ON
18h	ON	ON	OFF	OFF	OFF
19h	ON	ON	OFF	OFF	ON
1Ah	ON	ON	OFF	ON	OFF
1Bh	ON	ON	OFF	ON	ON
1Ch	ON	ON	ON	OFF	OFF
1Dh	ON	ON	ON	OFF	ON
1Eh	ON	ON	ON	ON	OFF
1Fh	ON	ON	ON	ON	ON

## **Appendix B**

### **Link Distance**

Maximum distance between devices connected through DFE-853 or DFE-854 transceivers are as follows. For further help, please contact the establishment from which you purchased your transceiver.

<b>Network Devices with DFE-853 Transceivers</b>	<b>Maximum Distance</b>
<b>Switch-Switch</b>	<b>100M(HDX/FDX)</b>
<b>Switch-Hub(Including Switch-Uplink Port)</b>	<b>100M(HDX/FDX)</b>
<b>Hub(Class II repeater)-Hub(Class II repeater)</b>	<b>5M</b>

<b>Network Devices with DFE-854 Transceivers</b>	<b>Maximum Distance</b>
<b>Switch-Switch</b>	<b>2Km(FDX), 412M(HDX)</b>
<b>Switch-Class I Hub</b>	<b>160.8M(HDX)</b>
<b>Switch-Class II Hub</b>	<b>208.8M(HDX)</b>
<b>Hub(Class II repeater)-Hub(Class II repeater)</b>	<b>16.2M</b>



## NOTE

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# D-Link® Offices

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U.S.A.	<b>D-LINK SYSTEMS, INC.</b> 5 Musick Irvine, CA 92618 USA TEL: 1-714-455-1688 FAX: 1-714-455-2521
CANADA	<b>D-LINK CANADA, INC.</b> 2180 Dunwin Drive, Unit # 6, Mississauga Ontario, L5L 5M8, Canada TEL: 1-905-828-0260 FAX: 1-905-828-5669
U.K.	<b>D-LINK (EUROPE) LTD.</b> D-Link House, 6 Garland Road, Stanmore, London HA7 1DP TEL: 44-181-235-5555 FAX: 44-181-235-5500
GERMANY	<b>D-LINK (DEUTSCHLAND) GMBH I.G.</b> Bachstrae 22, 65830 Krieffel Germany TEL: 49-6192-97110 FAX: 49-6192-971111
FRANCE	<b>D-LINK FRANCE</b> Le FLORILEGE #2, Allee de la Fresnerie 78330 Fontenay Le Fleury France TEL: 33-1-3023-8688 FAX: 33-1-3023-8689
SWEDEN	<b>D-LINK A/B</b> World Trade Center P. O. Box 70396, 107 24 Stockholm TEL: 46-8-700-6211 FAX: 46-8-219-640
DENMARK	<b>D-LINK DENMARK</b> Naverland 2 DK-2600 Glostrup Copenhagen, Denmark TEL: 45-43-969-040 FAX: 45-43-424-347
SINGAPORE	<b>D-LINK SINGAPORE PTE.LTD.</b> 77 Science Park Drive #03-03 CINTECH III, Singapore Science Park Singapore 118256 EL : 65-774-6233 FAX: 65-774-6322
AUSTRALIA	<b>D-LINK AUSTRALIA PTY.LTD.</b> Unit 16, 390 Eastern Valley Way Roseville, NSW 2069 TEL: 61-2-9417-7100 FAX: 61-2-9417-1077
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JAPAN	<b>D-LINK TOKYO</b> 10F, 8-8-15 Nishigotanda, Shinagawa-ku, Tokyo, 141 TEL: 81-3-5434-9678 FAX: 81-3-5434-9868
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TAIWAN	<b>D-LINK TAIWAN</b> 2F, No.233-2 Pao-Chiao Rd, Hsin-Tien, Taipei, Taiwan, R.O.C. TEL: 886-2-916-1600 FAX: 886-2-914-6299

### Registration Card

Your name: Mr./Ms. \_\_\_\_\_  
 Organization: \_\_\_\_\_ Dept. \_\_\_\_\_  
 Your title at organization: \_\_\_\_\_  
 Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Organization's full address: \_\_\_\_\_  
 \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Date of purchase (Month/Day/Year): \_\_\_\_\_

Product Model	Product Serial No.	* Product installed in type of computer (e.g., Compaq 486)	* Product installed in computer serial No.

(\* Applies to adapters only)

Product was purchased from:

Reseller's name: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Reseller's full address \_\_\_\_\_

**Answers to the following questions help us to support your product:**

**1. Where and how will the product primarily be used?**

☐ Home ☐ Office ☐ Travel ☐ Company Business ☐ Home Business ☐ Personal Use

**2. How many employees work at installation site?**

☐ 1 employee ☐ 2-9 ☐ 10-49 ☐ 50-99 ☐ 100-499 ☐ 500-999 ☐ 1000+

**3. What network medium/media does your organization use ?**

☐ Fiber-optics ☐ Thick coax Ethernet ☐ Thin coax Ethernet  
☐ 10BASE-T UTP/STP ☐ 100BASE-TX ☐ 100BASE-T4 ☐ 100VGAnyLAN  
☐ Others \_\_\_\_\_

**4. What category best describes your company?**

☐ Aerospace ☐ Engineering ☐ Education ☐ Finance ☐ Hospital ☐ Legal ☐ Insurance/Real Estate  
☐ Manufacturing ☐ Retail/Chainstore/Wholesale ☐ Government  
☐ Transportation/Utilities/Communication ☐ VAR  
☐ System house/company ☐ Other \_\_\_\_\_

**5. Would you recommend your D-Link product to a friend?**

☐ Yes ☐ No ☐ Don't know yet

**6. Your comments on this product?**

\_\_\_\_\_  
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**TO:**

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**D-Link®**