

**HALF SIZE SFP/SFP FOR COMMERCIAL,
INDUSTRIAL AND MILITARY APPLICATIONS.**

RUGGED AND COMPACT 125 MB/S TO 10 GB/S OPTICAL TRANSCEIVERS



Traditional size SFP/SFP



Endurance

OVERVIEW

Endurance® is a family of compact transceiver modules designed to be rugged and robust so they are optimal for industrial and military applications. They have a wide operating temperature range, a metal housing to minimize effects of electro-magnetic interference, two through-hole mounting posts to stabilize under shock and vibration conditions, and the pins are soldered directly to the Printed Circuit Board (PCB) to ensure constant connectivity. Endurance modules are available with conformal coating for additional reliability in harsh environments. They have been qualified to Telcordia and military standards.

The simple serial interface is independent of protocol and can thus be used in a wide range of applications. Digital diagnostic functions for monitoring and control of the module are provided via a 2-wire serial interface.

Key Advantages

- Robust for environments with extreme temperatures, shock and vibration, electromagnetic interference, and corrosion
- Saves valuable board space with its compact size
- Light weight fiber optic solution for data links compared to coaxial cable
- Low power consumption
- Utilizes Finisar's vertically integrated and highly reliable laser technology and integrated circuit capabilities

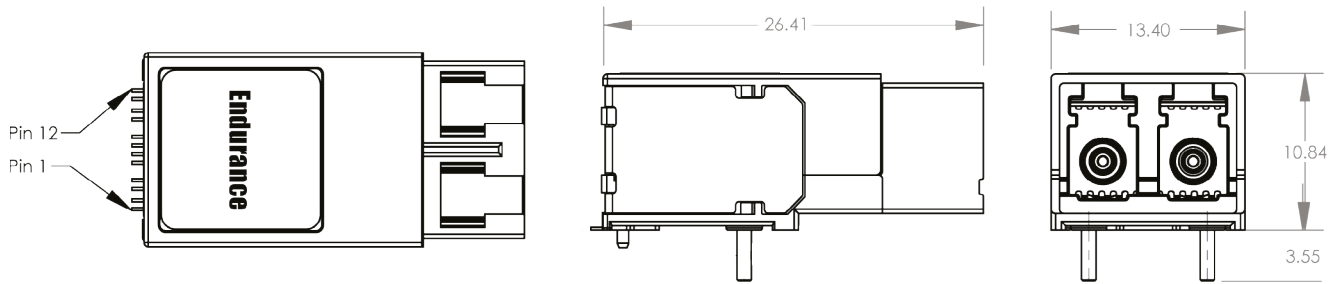
Key Features

- Full-duplex transceivers for optical data links over two glass optical fibers
- Short-Reach 850nm VCSEL multi-mode or Long-Reach
- 1310 nm DFB Single-Mode available
- Multi-rate and Rate-select versions available
- Compact form-factor: Half the size of SFP transceivers
- Board-mounted
- Built-in digital diagnostic functions
- Duplex LC optical connection
- Single 3.3 V power supply
- Interoperable with standard SFP and SFP+ optical transceivers
- Extended operating temperature range of -40°C to 85°C
- Extreme storage temperature range from -57°C to 100°C
- Option for conformal coating for high reliability in corrosive environments
- Qualified to applicable tests in MIL-STD-810G, MIL-STD-883 and GR-486-CORE
- Meets applicable requirements for Gigabit Ethernet, 10 Gigabit Ethernet, and Fibre Channel

Applications

- Fast Ethernet
- 10 Gigabit Ethernet
- 1 Gigabit Ethernet
- 8 G Fibre Channel
- 4 G Fibre Channel
- 2 G Fibre Channel
- Proprietary high-speed data links
- For industrial and military applications
- Rugged and compact 125 Mb/s to 10 Gb/s optical transceivers

FINISAR ENDURANCE®

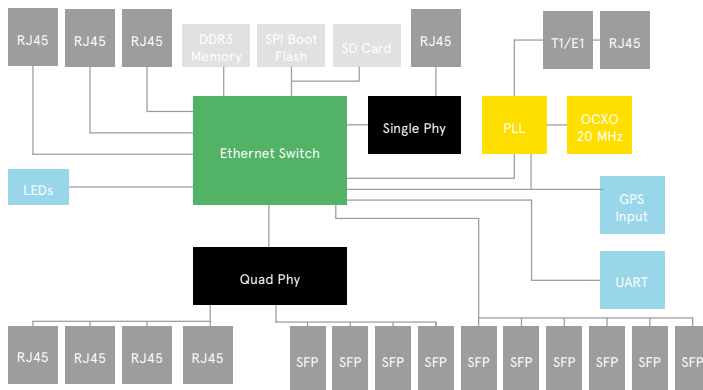


Measurements are in mm

Endurance Part Number Selection

FTE8510K1LTN	Endurance, Short-Reach, 10 GbE, -40°C to 85°C, no conformal coating
FTE8510K1LTY	Endurance, Short-Reach, 10 GbE, -40°C to 85°C, conformal coating
FTE8511K1LTN	Endurance, Short-Reach, 10 GbE/1 GbE Rate-select, -40°C to 85°C, no conformal coating
FTE8511K1LTY	Endurance, Short-Reach, 10 GbE/1 GbE Rate-select, -40°C to 85°C, conformal coating
FTE8504K1LTN	Endurance, Short-Reach, 125 Mb/s to 4 Gb/s Rate-select, -40°C to 85°C, no conformal coating
FTE8504K1LTY	Endurance, Short-Reach, 125 Mb/s to 4 Gb/s Rate-select, -40°C to 85°C, conformal coating
FTE1411K1LTN	Endurance, Long-Reach, 10 GbE/1 GbE Rate Select, -40°C to 85°C, no conformal coating

A Typical Application for Endurance



Benefits of Endurance

Performance and functionality of SFP+ transceiver in compact, solder-down form-factor

- Digital diagnostics for early warning of problems
- Data rate agnostic from 125 Mb/s to 14 Gb/s
- Ruggedized features for military customers
- Availability: Short-Wave/Short-Reach (850 nm)
- 10 G/1G Long-Wave/Long-Reach (1310 nm)

The standard size SFP or SFF can now be replaced by the half size Endurance

Finisar also offers an extensive range of standard SFP+ modules

10G SFP+ Transceivers						
Product Part Number	Short Description	Reach (km)	Band (nm)	Bit Rate (Gb/s)	Temp. Range (°C)	Product Status
Ethernet: Data Centers and LAN						
FTLX1371D3BCL	10GBASE-LRM	0,2	1310	9.95-10.5	-5/70	Production
FTLX8574D3BxL	10GBASE-SR	0,3	850	9.95-10.5	-5/85	Production
FTLX1471D3BxL	10GBASE-LR	10	1310	9.95-10.5	-5/85	Production
FTLX1672D3BxL	10GBASE-ER	40	1550	9.95-10.5	-5/85	Production
FTLX1871D3BxL	10GbE-ZR	80	1550	9.95-10.5	-5/85	Production
FTLX2471DC0xx	10GbE-LR	10	CWDM	9.95-10.5	-5/70	Production
FTLX3971DTCxx	10GbE-ER	40	DWDM	9.95-10.5	-5/85	Beta
FTLX3871DCCxx	10GbE-ZR	80	DWDM	9.95-10.5	-5/70	Production
Wireless: I-temp Solutions for Industrial and Wireless Backhaul						
FTLX8573D3BTL	10GBASE-SR	0,3	850	9.83-10.5	-40/85	Production
FTLX1370W4BTL	10GBASE-LR	1,4	1310	9.83-10.5	-40/85	Beta
FTLX1471D3BTL	10GBASE-LR	10	1310	9.83-10.5	-40/85	Production
FTLX1672D3BTL	10GBASE-ER	40	1550	1.2-11.3	-40/85	Production
FTLX3971DTCxx	10GbE-ER	40	DWDM	1.2-11.3	-40/85	Beta
LAN-Metro: Client and Line Side						
FTLX1472M3BxL	OC-192 SR-1	10	1310	9.95-11.3	-5/85	Production
FTLX1672M3BxL	OC-192 IR-2	40	1550	9.95-11.3	-5/85	Production
FTLX1871M3BxL	OC-192 LR-2	80	1550	9.95-11.3	-5/85	Production
FTLX3971MTCxx	OC-192 IR-2	40	DWDM	9.95-11.3	-5/85	Beta
FTLX3871MCCxx	OC-192 LR-2	80	DWDM	9.95-11.3	-5/70	Production

SONET/SDH SFP				
Product Part Number	Short Description	Temp Range °C	Reach	Status
FTLF1323P1BTR	OC-3 IR-1 / S-1.1 SFP	-40/85	15 km	Production
FTLF1323P1BTL	OC-3 LR-1 / L-1.1 SFP	-40/85	40 km	Production
FTLF1523P1BTL	OC-3 LR-12 / L-1.2 SFP	-40/85	80 km	Production
FTLF1322P1BTR	OC-12 IR-1 / S-4.1 SFP	-40/85	15 km	Production
FTLF1422P1BTL	OC-12 LR-1 / L-4.1 SFP	-40/85	40 km	Production
FTLF1522P1BTL	OC-12 LR-2 / L-4.2 SFP	-40/85	80 km	Production
FTLF1321P1BTL	OC-48 SR / I-16 SFP	-40/85	2 km	Production
FTLF1421P1BCL FTLF1421P1BTL	OC-48 IR-1 / S-16.1 SFP	-10/70 -40/85	15 km	Production
FTLF1521P1BCL	OC-48 IR-2 / S-16.2 SFP	0/70	15 km	Production
FTLF1721P1BCL FTLF1721P2BTL	OC-48 LR-1 / L-16.1 SFP	-10/70 -40/85	40 km	Production
FTLF1621P1BCL	OC-48 LR-2 / L-16.2 SFP	-10/70	80 km	Production

SONET/SDH SFF				
Product Part Number	Short Description	Temp Range °C	Reach	Status
FTLF1323F2BTR	OC-3 IR-1 / S-1.1 SFF	-40/85	15 km	Production
FTLF1322F2BTR	OC-12 IR-1 / S-4.1 SFF	-40/85	15 km	Production
FTLF1321S1BTL	OC-48 SR / I-16 SFF	-40/85	2 km	Production
FTLF1421S1BCL	OC-48 IR-1 / S-16.1 SFF	-10/70	15 km	Production
FTLF1721S1BCL	OC-48 LR-1 / L-16.1 SFF	-10/70	40 km	Production
FTLF1621S1BCL	OC-48 LR-2 / L-16.2 SFF	-10/70	80 km	Production

Offices

AUSTRIA

Vienna
Phone: +43 186 642 300
Fax: +43 186 642 350
wien@avnet.eu

BELGIUM

Merelbeke
Phone: +32 9 210 24 70
Fax: +32 9 210 24 87
gent@avnet.eu

CZECH REPUBLIC (SLOVAKIA)

Prague
Phone: +420 234 091 031
Fax: +420 234 091 030
praha@avnet.eu

DENMARK

Herlev
Phone: +45 432 280 10
Fax: +45 432 280 11
herlev@avnet.eu

ESTONIA

(LATVIA, LITHUANIA)

Pärnu
Phone: +372 56 637737
paernu@avnet.eu

FINLAND

Espoo
Phone: +358 207 499 200
Fax: +358 207 499 280
helsinki@avnet.eu

FRANCE (TUNISIA)

Cesson Sévigné
Phone: +33 299 838 485
Fax: +33 299 838 083
rennes@avnet.eu

Illkirch

Phone: +33 390 402 020
Fax: +33 164 479 099
strasbourg@avnet.eu

Massy Cedex

Phone: +33 164 472 929
Fax: +33 164 470 084
paris@avnet.eu

Toulouse

Phone: +33 05 62 47 47
toulouse@avnet.eu

Vénissieux Cedex

Phone: +33 478 771 360
Fax: +33 478 771 399
lyon@avnet.eu

GERMANY

Berlin

Phone: +49 30 214 882 0
Fax: +49 30 214 882 33
berlin@avnet.eu

Braunschweig

Phone: +49 531 220 730
Fax: +49 531 220 7335
braunschweig@avnet.eu

Freiburg

Phone: +49 761 881 941 0
Fax: +49 761 881 944 0
freiburg@avnet.eu

Hamburg

Phone: +49 40 608 235 922
Fax: +49 40 608 235 920
hamburg@avnet.eu

Herne

Phone: +49 2323 964 660
Fax: +49 2323 964 666 0
herne@avnet.eu

Holzwickede

Phone: +49 2301 919 0
Fax: +49 2301 919 222
holzwickede@avnet.eu

Leinfelden-Echterdingen

Phone: +49 711 782 600 1
Fax: +49 711 782 602 00
stuttgart@avnet.eu

Leipzig

Phone: +49 34204 7056 00
Fax: +49 34204 7056 11
leipzig@avnet.eu

Nürnberg

Phone: +49 911 24425 80
Fax: +49 911 24425 85
nuernberg@avnet.eu

Poing

Phone: +49 8121 777 02
Fax: +49 8121 777 531
muenchen@avnet.eu

Wiesbaden

Phone: +49 612 258 710
Fax: +49 612 258 713 33
wiesbaden@avnet.eu

HUNGARY

Budapest

Phone: +36 1 43 67215
Fax: +36 1 43 67213
budapest@avnet.eu

ITALY

Cusano Milanino

Phone: +39 02 660 921
Fax: +39 02 660 923 33
milano@avnet.eu

Firenze

Phone: +39 055 436 039 2
Fax: +39 055 431 035
firenze@avnet.eu

Modena

Phone: +39 059 348 933
Fax: +39 059 344 993
modena@avnet.eu

Padova

Phone: +39 049 807 368 9
Fax: +39 049 773 464
padova@avnet.eu

Rivoli

Phone: +39 011 204 437
Fax: +39 011 242 869 9
torino@avnet.eu

Roma Tecnocittà

Phone: +39 06 413 115 1
Fax: +39 06 413 116 1
roma@avnet.eu

NETHERLANDS

Breda

Phone: +31 765 722 700
Fax: +31 765 722 707
breda@avnet.eu

NORWAY

Asker

Phone: +47 667 736 00
Fax: +47 667 736 77
asker@avnet.eu

POLAND

Gdansk

Phone: +48 58 307 81 51
Fax: +48 58 307 81 50
gdansk@avnet.eu

Katowice

Phone: +48 32 259 50 10
Fax: +48 32 259 50 11
katowice@avnet.eu

Warszawa

Phone: +48 222 565 760
Fax: +48 222 565 766
warszawa@avnet.eu

PORTUGAL

Vila Nova de Gaia

Phone: +35 1 223 779 502
Fax: +35 1 223 779 503
porto@avnet.eu

ROMANIA (BULGARIA)

Bucharest

Phone: +40 21 528 16 32
Fax: +40 21 529 68 30
bucuresti@avnet.eu

RUSSIA (BELARUS, UKRAINE)

Moscow

Phone: +7 495 737 36 70
Fax: +7 495 737 36 71
moscow@avnet.eu

Saint Petersburg

Phone: +7 812 635 81 11
Fax: +7 812 635 81 12
stpetersburg@avnet.eu

SLOVENIA

(BOSNIA AND HERZEGOVINA, CROATIA, MACEDONIA, MONTENEGRO, SERBIA)

Ljubljana

Phone: +386 156 097 50
Fax: +386 156 098 78
ljubljana@avnet.eu

SPAIN

Barcelona

Phone: +34 933 278 530
Fax: +34 934 250 544
barcelona@avnet.eu

Galdàcano. Vizcaya

Phone: +34 944 572 777
Fax: +34 944 568 855
bilbao@avnet.eu

Las Matas

Phone: +34 913 727 100
Fax: +34 916 369 788
madrid@avnet.eu

SWEDEN

Sundbyberg

Phone: +46 8 587 461 00
Fax: +46 8 587 461 01
stockholm@avnet.eu

SWITZERLAND

Rothrist

Phone: +41 62 919 555 5
Fax: +41 62 919 550 0
rothrist@avnet.eu

TURKEY (GREECE, EGYPT)

Kadikoy Istanbul

Phone: +90 216 528 834 0
Fax: +90 216 528 834 4
istanbul@avnet.eu

UNITED KINGDOM (IRELAND)

Berkshire

Phone: +44 1628 512 900
Fax: +44 1628 512 999
maidenhead@avnet.eu

Bolton

Phone: +44 1204 547 170
Fax: +44 1204 547 171
bolton@avnet.eu

Bucks. Aylesbury

Phone: +44 1296 678 920
Fax: +44 1296 678 939
aylesbury@avnet.eu

Stevenage, Herts, Meadway

Phone: +44 1438 788 310
Fax: +44 1438 788 250
stevenage@avnet.eu

ISRAEL

Tel-Mond

Phone: +972 (0)9 7780280
Fax: +972 (0)3 760 1115
avnet.israel@avnet.com

SOUTH AFRICA

Cape Town

Phone: +27 (0)21 689 4141
Fax: +27 (0)21 686 4709
sales@avnet.co.za

Durban

Phone: +27 (0)31 266 8104
Fax: +27 (0)31 266 1891
sales@avnet.co.za

Johannesburg

Phone: +27 (0)11 319 8600
Fax: +27 (0)11 319 8650
sales@avnet.co.za



Mixed Sources
Product group from well-managed
forests and other controlled sources
www.fsc.org Cert no. IC-COC-10005
© 1996 Forest Stewardship Council

All trademarks and logos are the property of their respective owners. This document provides a brief overview only, no binding offers are intended. Avnet disclaims all representations, warranties and liabilities under any theory with respect to the product information, including any implied warranties of merchantability, fitness for a particular purpose, title and/or non-infringement, specifications, use, legal compliance or other requirements. Product information is obtained by Avnet from its suppliers or other sources deemed reliable and is provided by Avnet on an "AS IS" basis. No guarantee as to the accuracy or completeness of any information. All information is subject to change, modifications and amendments without notice.