SFP-10GB-BXU23-40-C-V-C

Cisco® Compatible TAA 10GBase-BX SFP+ Transceiver (SMF, 1270nmTx/1330nmRx, 40km, LC, DOM, -40 to 95C)

Features:

- Low Power Dissipation
- Compliant with IEEE 802.3ae 10GBASE-E
- Compliant with SFP MSA, SFF 8431 Rev. 4.1
- LC Connector
- Metal Package for Lower EMI
- Up to 11.3Gbps 10km Data Links
- Single 3.3V Power Supply Voltage
- Operating Temperature: -40 to 95 Celsius
- RoHS Compliant and Lead-Free

Applications:

- 10GBase-BX Ethernet
- 8x/10x Fibre Channel
- Access, Metro and Enterprise

Product Description

This Cisco® SFP+ transceiver provides 10GBase-BX throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1270nmTx/1330nmRx via an LC connector. It is guaranteed to be 100% compatible with the equivalent Cisco® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

Rev. 051325

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	0		4	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40		95	°C	
Data Rate	DR	9.9	10.3	11.3	Gbps	

Notes:

1. Measured on the top side front center of the SFP module.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Supply Current	Icc			450	mA	
Transmitter						
Differential Input Impedance	RIN	80	100	120	Ω	
Differential Data Input Swing	VIN,pp	180		800	mVp-p	
Data Input Rise/Fall Time	Tr/Tf	15		40	ps	
Tx_Disable Voltage	VD	2.0		Vcc+0.3	V	1
Tx_Enable Voltage	VEN	-0.3		0.8	V	
Tx_Disable Assert Time	t_off			100	µs	
Tx_Enable Assert Time	t_on			2	ms	
Tx_Fault Assert Time for Cooled Module	tx_f_on			50	ms	
Tx_Fault Reset Time	t_reset	10			µs	2
Initialization Time for Cooled Module	t_start_up			90	s	
Receiver						
Differential Output Impedance	ROUT	80	100	120	Ω	
Differential Data Output Swing	VOUT	300		800	mVp-p	
Data Output Rise/Fall Time (20-80%)	Tr/Tf			45	ps	
LOS Output High Voltage	Vlosh	Vcc-0.5		Vcc+0.3	V	1
LOS Output Low Voltage	Vlosl	0		0.4	V	
LOS Assert/De-Assert Time Delay	T_los on/off			100/100	µs/µs	

Notes:

1. Vcc is the voltage of the host board.
2. Time Tx_Disable must be held “high” to reset the Tx_Fault.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Center Wavelength	λC	1260	1270	1280	nm	
Average Optical Power	P_{avg}	0		5	dBm	1
Extinction Ratio	ER	3.5			dB	
Spectral Width @-20dB	Δλ-20dB			1.0	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Optical Power of Off Transmitter	Poff			-30	dBm	
Relative Intensity Noise	$RIN_{12}OMA$			-128	dB/Hz	
Optical Return Loss Tolerance				12	dB	
Transmitter Reflectance				-12	dB	
Transmitter and Dispersion Penalty	TDP			3.2	dB	
Transmitter Eye Mask Definition	{X1, X2, X3, Y1, Y2, Y3} = {0.25, 0.40, 0.45, 0.25, 0.28, 0.40}					
Receiver						
Optical Center Wavelength	λC	1320	1330	1340	nm	
Average Rx Sensitivity @10Gbps	RSENS			-18	dBm	2
Maximum Input Power	Pol	-7			dBm	
Receiver Reflectance				-12	dB	
LOS Assert	LOSA	-35			dBm	
LOS De-Assert	LOSD			-18	dBm	
LOS Hysteresis		0.5	2.5	5	dB	

Notes:

1. The maximum Tx POUT is the lesser of the Class 1 eye safety limit and a maximum receiver input power level of 0dBm.
2. Measured with a PRBS of 2^{31}-1 at $1x10^{-12}$ BER and 3.5dB extinction ratio @10.3Gbps 12dB reflection.

Pin Descriptions

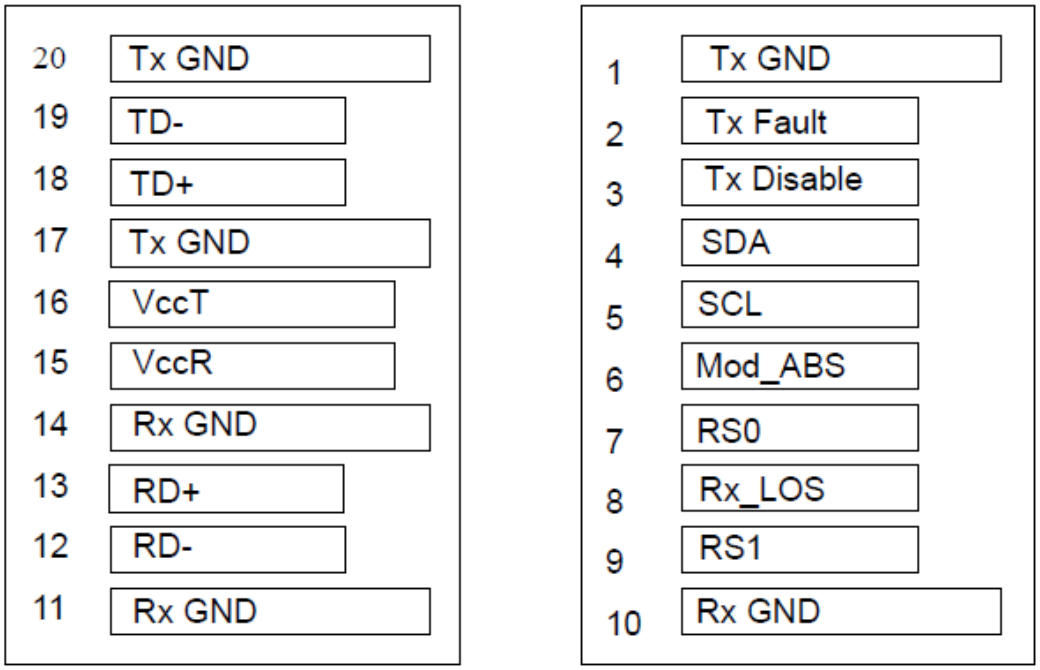
Pin	Logic	Symbol	Name/Description	Plug Sequence	Notes
1		GND	Transmitter Ground.	1	1
2	LVTTL-O	Tx_Fault	Transmitter Fault Indication.	3	2
3	LVTTL-I	Tx_Disable	Transmitter Disable.	3	3
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data.	3	4
5	LVTTL-I/O	SCL	2-Wire Serial Interface Clock.	3	4
6		MOD_ABS	Module Absent. Connected to the module GND.	3	5
7	LVTTL-I	RS0	Rate Select 0. Not Implemented.	3	6
8	LVTTL-O	Rx_LOS	Receiver Loss of Signal Indication. In FC, designated as Rx_LOS. In Ethernet, designated as Signal Detect Bar.	3	7
9	LVTTL-I	RS1	Rate Select 1. Not Implemented.	3	6
10		GND	Receiver Ground.	1	1
11		GND	Receiver Ground.	1	1
12	CML-O	RD-	Receiver Negative Data Out.	3	
13	CML-O	RD+	Receiver Positive Data Out.	3	
14		GND	Receiver Ground.	1	1
15		VccRx	3.3V±5% Receiver Power.	2	
16		VccTx	3.3V±5% Transmitter Power.	2	
17		GND	Transmitter Ground.	1	1
18	CML-I	TD+	Transmitter Positive Data In.	3	
19	CML-I	TD-	Transmitter Negative Data In.	3	
20		GND	Transmitter Ground.	1	1

Notes:

1. The module ground contacts shall be isolated from the module case.
2. Tx_Fault is an open collector/drain output that shall be pulled up with a 4.7kΩ to 10kΩ on the host board. Pull-up voltage between 2.0V and VccT+0.5V. When “high,” output indicates a laser fault of some kind. When “low,” output indicates normal operation. The LD output is not turned off in case of Tx_Fault.
3. Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the TRx with 4.7kΩ to 10kΩ to the VccT.
4. SDA and SCL should be pulled up with a 4.7kΩ to 10kΩ on the host board. The pull-up voltage shall be VccT. SCL is the clock line of the 2-wire serial interface for serial ID. SDA is the data line of the 2-wire serial interface for serial ID.
5. MOD_ABS is connected to the module ground. The host may pull the contact up to the Vcc on the host board with a resistor in the range 4.7kΩ to 10kΩ. MOD_ABS is asserted “high” when the SFP+ module is physically absent from a host slot. In the SFP MSA (INF-8074i), this contact has the same function but is called MOD_DEF0.

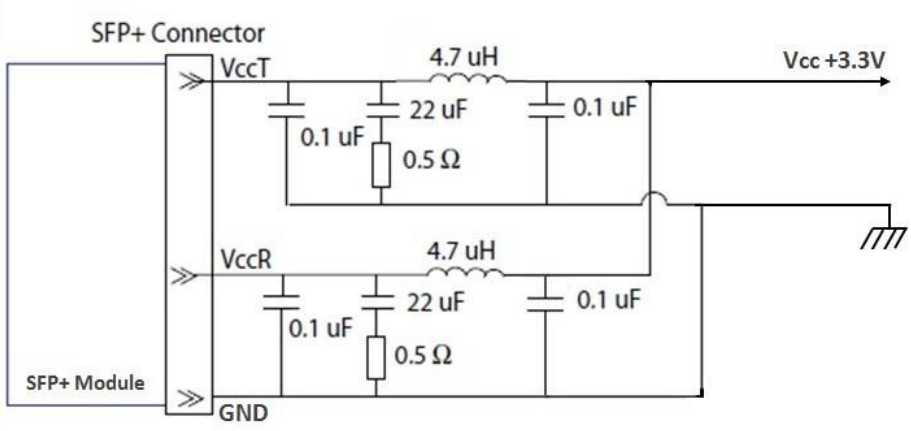
6. RS0 and RS1 are module input rate select contacts but are not used. Both are pulled “low” to the module ground with a >30kΩ resistor in the module.
7. LOS is an open collector output and shall be pulled up with a 4.7kΩ to 10kΩ on the host board. Pull-up voltage between 2.0 and VccR+0.3. “Logic 0” indicates normal operation.

Pin Assignments

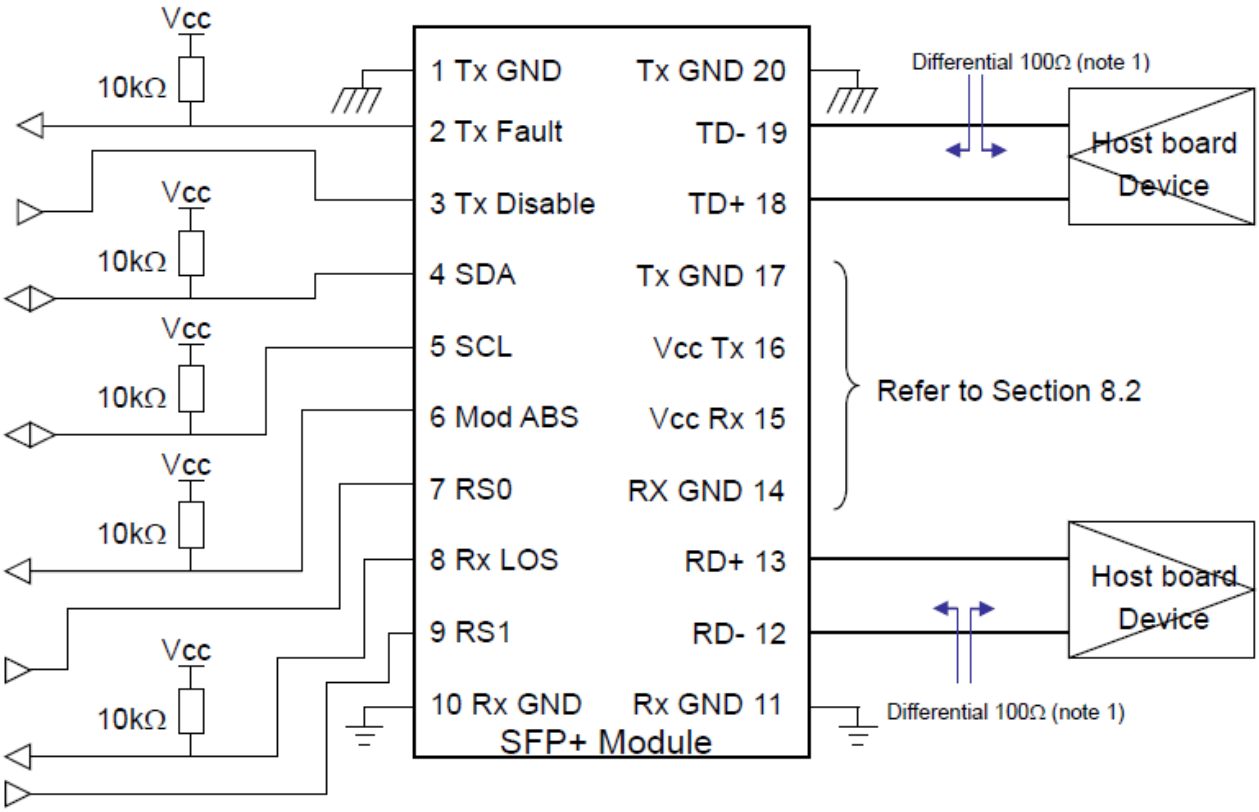


Top of Board **Bottom of Board**

Recommended Host Board Supply Filtering Network



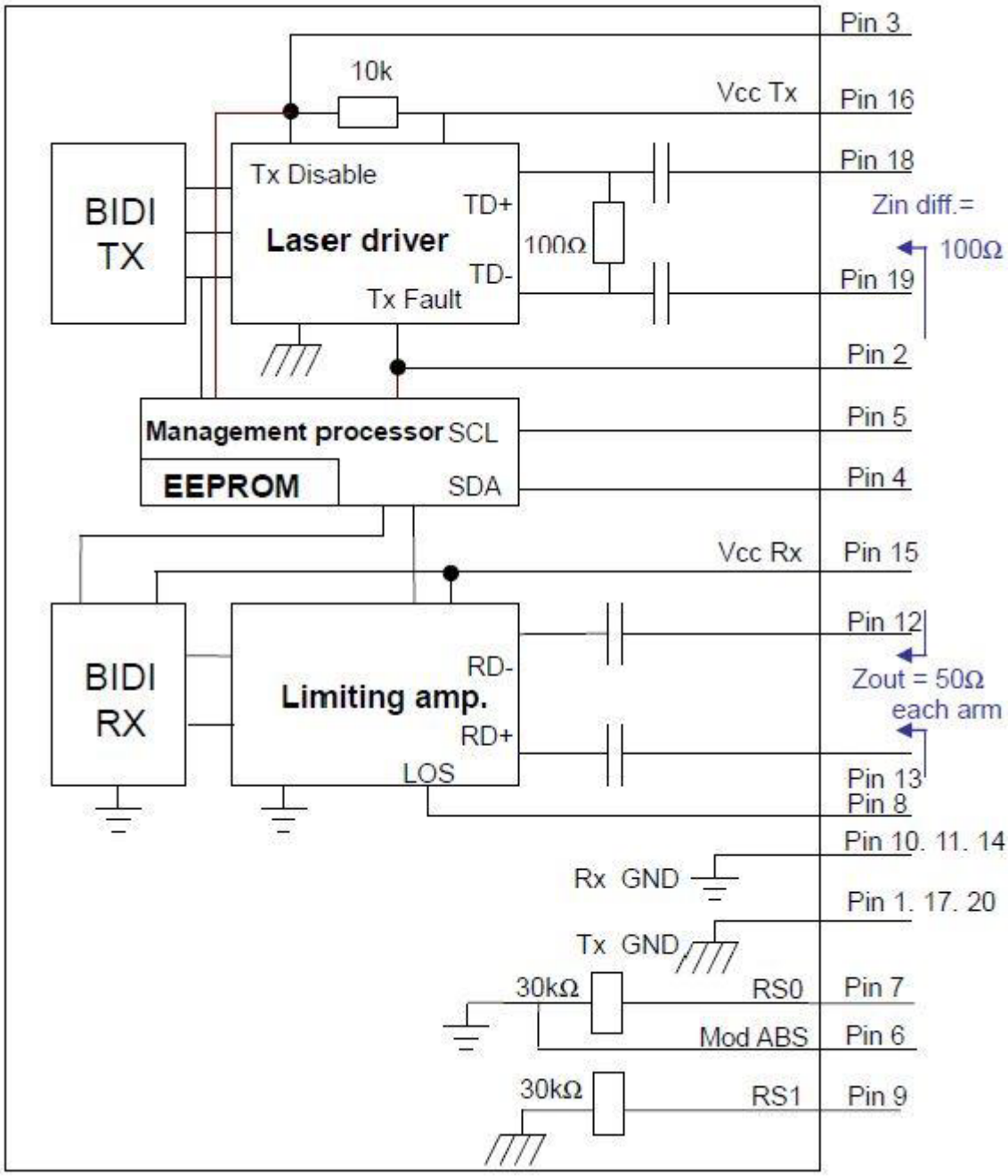
Recommended Host Board Interface



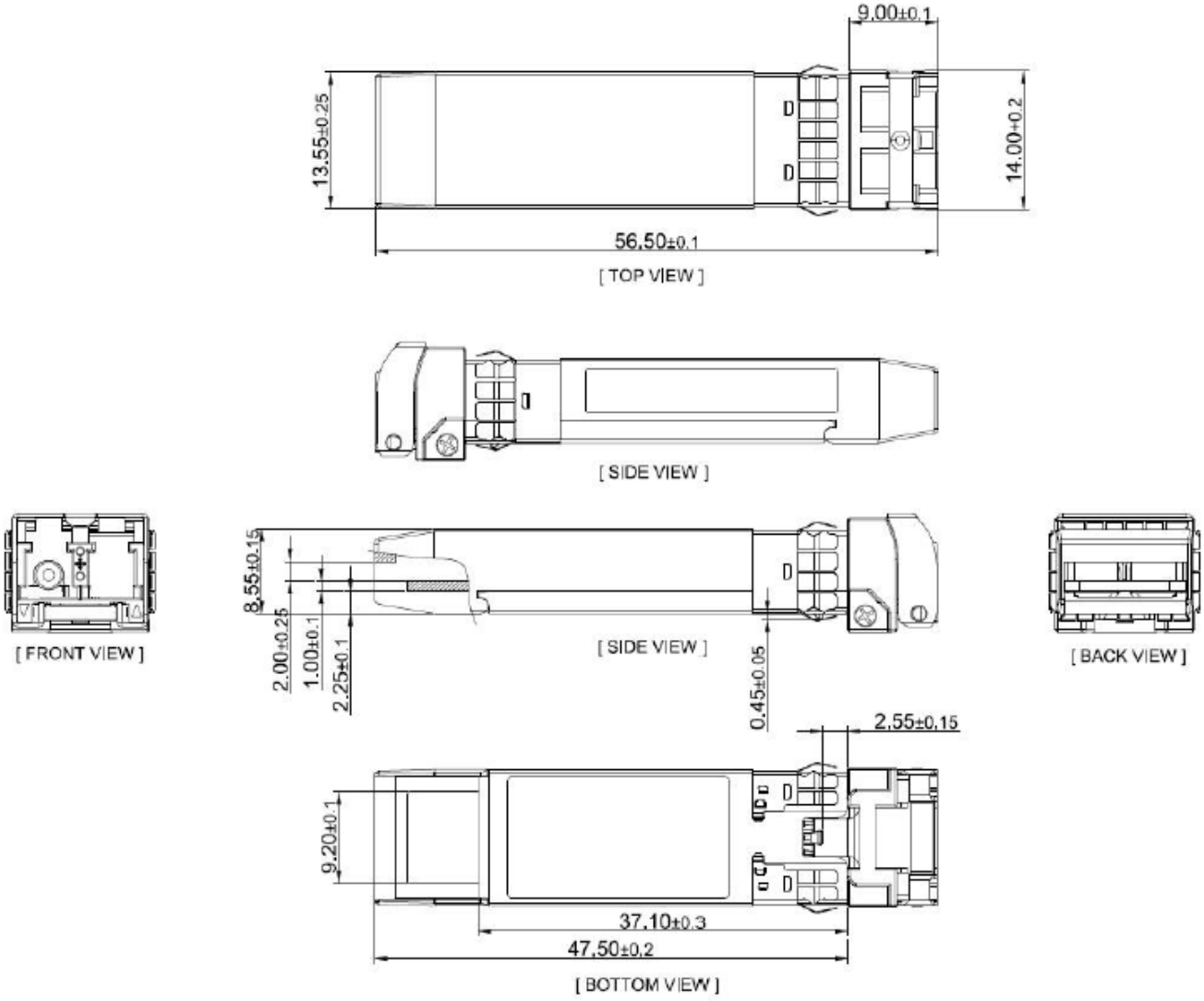
Notes:

1. Host board output device circuit in the transmitter side and host board input device circuit in the receiver should be carefully designed to meet 100Ω differential impedance matching. Also necessary is the DC bias circuit of each input and output by taking into account the AC coupling of data input and output of the SFP+ module.

Block Diagram



Mechanical Specifications



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

Contact Information

ProLabs US

Email: sales@prolabs.com
Telephone: 952-852-0252

ProLabs UK

Email: salessupport@prolabs.com
Telephone: +44 1285 719 600