Precision OPTICAL TRANSCEIVERS

PRODUCT OVERVIEW

Optical Transceivers
Active/Passive Components

PrecisionOT.com **info@precisionot.com** **Version 6.1**

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CUSTOM SOLUTIONS. RELIABLE NETWORKS.

WE ARE THE TRANSCEIVER EXPERTS.

Precision Optical Transceivers is a system engineering company focused on optical transceivers and related active/passive optical components. For over a decade, we have helped build networks around the globe by providing high quality, custom-engineered optical solutions.

WHY PRECISION OPTICS?

- Tier 1 Products
- Guaranteed Compatibility
- Up to 400G Product Availability
- Certified OEM Compatibility
- Extensive Inventory
- Lifetime Warranty

PERSONALIZED EXPERTISE

Our technical experts know and understand the critical need to maintain a functional, reliable network. Our staff will work personally with our customers to ensure that we understand their system through network replication, system testing and much more.

COMPLETE SYSTEM ENGINEERING

Our extensive testing and programming process ensures compatibility without variance. Every aspect of OEM compatibility from proper firmware to accurate temperature and laser thresholds are tested in-house by our experts. Our proprietary EEPROM programming software package ensures that coding is overlaid exactly the same, every time.

TRUE RELIABILITY

From the first point of contact through network replication and system testing, our experts work closely with our customers to identify any potential problems, and ultimately, solutions.

100G CFP 10km Details

PRE-CFP100G-LR4
- Up to 10km transmission on SMF
- Supports multi-rate from 103.1Gb/s to 111.8Gb/s
- 100GBASE-LR4, OTU4
- EML laser and PIN Receiver
- MDIO interface with Integrated Digital Diagnostics Monitoring
- Duplex LC Connector

100G QSFP28 10km Details

PRE-QSFP28-LR4
- Up to 10km transmission on SMF
- 100GBASE: 103.1~111.8Gbps
- Integrated Digital Diagnostics Monitoring
- Duplex LC Connector
- EML laser and PIN receiver
- Typical power consumption of 3W

400G QSFP56DD

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr / lane (dBm) Max	RX Sens/ lane (dBm)	RX Overload/ lane (dBm)	Link Budget/ lane (dB)	Temp
PRE-QSFP56DD-DR4	400	1310	SMF	500m	-2.9	4	-5.9	5	3	C
PRE-QSFP56DD-DR4+	400	1310	SMF	2km	-2.4	4	-6.4	5.5	4	C
PRE-QSFP56DD-FR4	400	1270-1330	SMF	2km	-3.3	3.5	-7.3	4.5	4	C

400G QSFP56DD Cables

Part Number	Form Factor	Cable Type	Distances Available (m)
PRE-QSFP56DD-CUxxyyM	QSFP56DD to QSFP56DD	DAC	1 - 3m

100G QSFP28

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr / lane (dBm) Max	RX Sens/ lane (dBm)	RX Overload/ lane (dBm)	Link Budget/ lane (dB)	Temp
PRE-QSFP28-SRBD	103.1	850-900	MMF	100m	-6	4	-3	7.5	1.9	C
PRE-QSFP28-SR4	103.1	850	MMF	100m	-8.4	2.4	-10.3	3.4	1.9	C
PRE-QSFP28-DR	103.1	1310	SMF	500m	-2.9	4	-5.9	5	3	C
PRE-QSFP28-FR	103.1	1310	SMF	2km	-2.4	4	-6.4	5.5	4	C
PRE-QSFP28-CWDM4	103.1	1270-1330	SMF	2km	-6.5	2.5	-11.5	2.5	5.0	C
PRE-QSFP28-PLR4L	103.1	1260-1355	SMF	2km	1.0	3.5	-9.0	3.5	10	C
PRE-QSFP28-LR4*	103.1	1290~1310	SMF	10km	-4.3	4.5	-10.6	4.5	6.3	C,I
PRE-QSFP28-ER4	103.1	1290~1310	SMF	40km	2.5	6.5	-18.5	-3.5	21	C
PRE-QSFP28-ER4L*	103.1	1290~1310	SMF	25-32km	-1.9	4.5	-14.7	-3.0	12.8	C,I
PRE-QSFP28-ZR4	103.1	1290~1310	SMF	80km	2	6.5	-28	-7	30	C

*OTU4 support available upon request

100G QSFP28 Cables

Part Number	Form Factor	Cable Type	Distances Available (m)
PRE-QSFP28-4SFP25G-AOCxxM	QSFP28 to 4xSFP25G	AOC Breakout	3 - 50m
PRE-QSFP28-QSFP28-AOCxxM	QSFP28 to QSFP28	AOC	3 - 50m
PRE-QSFP28-CUxxyyM	QSFP28 to QSFP28	DAC	1 - 5m

Note: QSFP28 to 4xSFP25G or QSFP28 to 2 QSFP 50G available upon custom request for both AOC and DAC.

100G CFP

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr / lane (dBm) Max	RX Sens/ lane (dBm)	RX Overload/ lane (dBm)	Link Budget/ lane (dB)	Temp
PRE-CFP-LR4*	103.1	1295~1310	SMF	10km	-4.3	4.5	-10.6	4.5	6.3	C
PRE-CFP-ER4*	103.1	1295~1310	SMF	40km	-2.9	2.9	-23.2	4.5	20.3	C

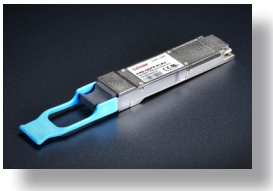
*OTU4 support available upon request

40G QSFP 10km Details

PRE-QSFP-LR4
- 4 CWDM lanes Mux/Demux design
- Up to 11.1 Gbps per wavelength

- Up to 10km transmission on SMF
- Integrated Digital Diagnostics Monitoring
- Duplex LC Connector
- Power consumption less than 3.5W
- Compliant with:
  – SFF-8436 QSFP+ Rev. 4.7
  – IEEE 802.3ba 40GBASE-LR4
  – RoHS
- Applications:
  – 40G Ethernet
  – Data Center and LAN

40G QSFP PLR4



PRE-QSFP-PLR4
- 4 parallel lanes design
- Up to 11.2Gb/s data rate per channel

- Up to 10km transmission on SMF
- Integrated Digital Diagnostics Monitoring
- Max power consumption 3.5W
- MPO/MTP Connector
- Compliant with:
  – QSFP MSA Compliant
  – IEEE Compliant
  – RoHS
- Applications:
  – 40G Ethernet
  – Data Center Networking
  – Infiniband QDR, DDR, SDR

100G CFP2

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr / lane (dBm) Max	RX Sens/ lane (dBm)	RX Overload/ lane (dBm)	Link Budget/ lane (dB)	Temp
PRE-CFP2-LR4*	103.1	1295~1310	SMF	10km	-4.3	4.5	-10.3	4.5	6.3	C
PRE-CFP2-ER4*	103.1	1295~1310	SMF	40km	-2.9	2.9	-23.2	4.5	20.3	C

*OTU4 support available upon request

100G CFP2 DCO

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	Tx Pwr (dBm) Min	Tx Pwr (dBm) Max	Rx Sens (dBm)	Link Budget (dB)	Temp
PRE-CFP2D-2EFA*	100/200G	C-Band	SMF	2000km w/EDFA	-15.0**	1	-22.0***	23.0	C

* 50GHz channel spacing standard, ITU channels 12.5 – 61 (1528.77 - 1567.54)nm
** Configurable
*** Based on 16-QAM and Max transmit power

100G CFP4

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr / lane (dBm) Max	RX Sens/ lane (dBm)	RX Overload/ lane (dBm)	Link Budget/ lane (dB)	Temp
PRE-CFP4-LR4*	103.1	1310	SMF	10km	-4.3	4.5	-10.6	4.0	6.3	C

*OTU4 support available upon request

40G QSFP

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr / lane (dBm) Max	RX Sens/ lane (dBm)	RX Overload/ lane (dBm)	Link Budget/ lane (dB)	Temp
PRE-QSFP-SR4	41.25	850	MMF	100m	-7.3	1.0	-9.9	3.4	2.6	C,I
PRE-QSFP-eSR4	41.25	850	MMF	300m	-7.5	1.0	-11.1	3.4	3.6	C,I
PRE-QSFP-PLR4L	41.25	1310	SMF	1.4km	-5.5	1.5	-11.5	3.3	6.0	C,I
PRE-QSFP-LR4L	41.25	1270~1330	SMF	2km	-7.0	2.3	-11.5	8.3	4.5	C,I
PRE-QSFP-PLR4	41.25	1310	SMF	10km	-8.2	2.0	-12.6	0.5	4.4	C,I
PRE-QSFP-LR4	41.25	1270~1330	SMF	10km	-7.0	2.3	-11.5	2.3	4.5	C,I
PRE-QSFP-ER4	41.25	1270~1330	SMF	40km	-3.7	4.5	-20.2	3.8	16.5	C,I
PRE-QSFP-LX4	41.25	1270~1330	SMF	2km	-7.0	2.3	-11.5	3.5	4.5	C,I
PRE-QSFP-SRBD	40	850~900	MMF	150m	-4.0	5.0	-6.0	5.0	2.0	C

40G QSFP Cables

Part Number	Form Factor	Cable Type	Distances Available (m)
PRE-QSFP-4SFP10G-AOCxxM	QSFP to SFP+	AOC Breakout	1 - 10
PRE-QSFP-QSFP-AOCxxM	QSFP to QSFP	AOC	1 - 30
PRE-QSFP-CUxxyyM	QSFP to QSFP	DAC	1 - 5

25G SFP28

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP25G-SR	25.0	850	MMF	100m	-8.4	2.4	-10.3	2.4	1.9	C,I
PRE-SFP25G-LRL	25.0	1310	SMF	300m	-7.0	2.0	-10.0	0.5	3.0	C,I
PRE-SFP25G-LR	25.0	1310	SMF	10km	-5.0	2.0	-11.4	2.0	6.4	C,I
PRE-SFP25G-ER	25.0	1310	SMF	40km	-1.6	6.0	-19.6	-5.0	18.0	C,I
PRE-SFP32G-LR	28.0	1310	SMF	10km	-5	2.0	-11.4	2.0	6.4	C,I

25G SFP28 BIDI

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP25G-B23-10	25.0	1270 / 1330	SMF	10km	-5.0	2.0	-13.3	0.5	8.3	C,I
PRE-SFP25G-B32-10	25.0	1330 / 1270	SMF	10km	-5.0	2.0	-13.3	0.5	8.3	C,I
PRE-SFP25G-B23-20	25.0	1270 / 1330	SMF	20km	0.0	5.0	-13.3	0.5	13.3	C,I
PRE-SFP25G-B32-20	25.0	1330 / 1270	SMF	20km	0.0	5.0	-13.3	0.5	13.3	C,I
PRE-SFP25G-B23-30	25.0	1270 / 1310	SMF	30km	0.0	5.0	-18.0	-5.0	18.0	C,I
PRE-SFP25G-B32-30	25.0	1310 / 1270	SMF	30km	0.0	5.0	-18.0	-5.0	18.0	C,I
PRE-SFP25G-B23-40	25.0	1270 / 1310	SMF	40km	0.0	6.0	-19.0	-5.0	19.0	C,I
PRE-SFP25G-B32-40	25.0	1310 / 1270	SMF	40km	0.0	6.0	-19.0	-5.0	19.0	C,I

25G SFP28 Cables

Part Number	Form Factor	Cable Type	Distances Available (m)
PRE-SFP25GAOCxxM	SFP28	AOC	3 - 50
PRE-SFP25G-CU30xxM	SFP28	DAC	1 - 2

10G SFP+

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP10G-SR	10.3125	850	MMF	300m	-6.0	-1.0	-10.0	0.5	6.1	C,I
PRE-SFP10G-10	9.9~11.3	1310	SMF	10km	-6.0	0.5	-15.0	0.5	9.0	C,I
PRE-SFP10G-40	9.9~11.3	1550	SMF	40km	-1.0	3.0	-16.0	0.0	15.0	C,I
PRE-SFP10G-80	9.9~11.3	1550	SMF	80km	-1.0	4.0	-23.0	-6.0	22.0	C,I

10G SFP+ BIDI

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP10G-B23-10	9.9~11.3	1270 / 1330	SMF	10km	-5.0	0.0	-14.0	0.5	9.0	C,I
PRE-SFP10G-B32-10	9.9~11.3	1330 / 1270	SMF	10km	-5.0	0.0	-14.0	0.5	9.0	C,I
PRE-SFP10G-B23-40	9.9~11.3	1270 / 1330	SMF	40km	1.0	5.0	-15.0	0.5	16.0	C,I
PRE-SFP10G-B32-40	9.9~11.3	1330 / 1270	SMF	40km	1.0	5.0	-15.0	0.5	16.0	C,I
PRE-SFP10G-B23-60	9.9~11.3	1270 / 1330	SMF	60km	0.0	5.0	-20.0	-7.0	20.0	C,I
PRE-SFP10G-B32-60	9.9~11.3	1330 / 1270	SMF	60km	0.0	5.0	-20.0	-7.0	20.0	C,I
PRE-SFP10G-B45-80	9.9~11.3	1490/1550	SMF	80km	-1.0	3.0	-23.0	-6.0	22.0	C,I
PRE-SFP10G-B54-80	9.9~11.3	1550/1490	SMF	80km	-1.0	3.0	-23.0	-6.0	22.0	C,I

10G XFP DWDM 80km Details

PRE-XFP-Dxx-80

- Transmission distance up to 80km on SMF
- 1550nm DWDM EML laser and APD receiver, Duplex LC
- Power consumption less than 3.5W
- Commercial & Industrial operating case temperatures
- Compliant with:
  - XFP MSA Rev 4.5
  - IEEE Std. 802.3ae 10GBase ZR
  - RoHS

10G XFP 10km Details

PRE-XFPM-LR

- Transmission distance up to 10km on SM fiber
- 1310nm DFB laser and PIN receiver, Duplex LC
- Low Power Consumption (less than 1.5W)
- Commercial & Industrial operating case temperatures
- Compliant with:
  - XFP MSA Compliant
  - IEEE Std. 802.3ae Compliant
  - RoHS

10G Copper SFP+

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP10G-T	10	-	CAT6a / CAT7	50m	-	-	-	-	-	C

10G SFP+ CWDM/DWDM

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP10G-Cxx-10	9.9~11.3	1270-1610	SMF	10km	-6.0	-0.5	-14.4	0.5	6.5	C,I
PRE-SFP10G-Cxx-40**	9.9~11.3	1270-1610	SMF	40km	-1.0	4.0	-16.0	-1.0	15.0	C,I
PRE-SFP10G-Cxx-80	9.9~11.3	1470-1610	SMF	80km	0.0	4.0	-21.0	-8.0	21.0	C,I
PRE-SFP10G-Dxx-40*	9.9~11.3	C-Band	SMF	40km	-1.0	4.0	-16.0	-1.0	15.0	C,I
PRE-SFP10G-Dxx-80*	9.9~11.3	C-Band	SMF	80km	-1.0	5.0	-23.0	-8.0	22.0	C,I

*100GHz Channel Spacing standard, 50Ghz spacing available upon custom request
**1370-1450nm optics are 10.3Gbps capable only and optical parameters are different to account for water peak

10G SFP+ TUNABLE

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP10G-MFCT-40*	9.9~11.3	C-Band	SMF	40km	-2.0	4.0	-14.0	0.0	12	C,E
PRE-SFP10G-MFCT-80*	9.9~11.3	C-Band	SMF	80km	-1.0	3.0	-24.0	-7.0	23.0	C,E,I
PRE-TSFP10G-90	10	C-Band	SMF	90km	2.0	6.0	-24.0	-7.0	26.0	C,E,I

*50GHz channel spacing standard. ITU channels 13.5 - 61.5 standard (191350Ghz - 196150GHz standard)

10G SFP+ Cables

Part Number	Description
PRE-SFP10GAOCxxM	10G high speed, short distance active optical cable assembly - 1,2,3,5,7,10, etc. meter options
PRE-SFP10G-CUxxyyM	10G high speed, short distance DAC, Passive Copper, 26-30 AWG - 1,2,3,4,5 meter options

10G XFP

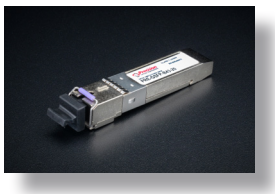
Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-XFP-SR	10.3125	850	MMF	300m	-6.0	-1.0	-10.0	0.5	4.0	C,I
PRE-XFPM-LR	9.9~11.3	1310	SMF	10km	-6.0	-1.0	-15.0	0.5	9.0	C,I
PRE-XFPM-ER	9.9~11.3	1550	SMF	40km	-1.0	3.0	-16.5	-1.0	15.5	C,I
PRE-XFPM-ZR	9.9~11.3	1550	SMF	80km	-1.0	4.0	-24.0	-7.0	23.0	C,I

CSFP Dual Bidi Details

PRE-CSFP2-B43-10
- Compact SFP Module, 10km
- LC/UPC Pluggable Optical Interface
- 1310nm FP laser transmitter

- 1490nm continuous-mode transmitter withDFB laser
- 1250 Mbps typical data rate
- Commercial & Industrial operating case temperatures
- Compliant with:
  - IEEE Compliant
  - RoHS Compliant, DDM
- Applications:
  - Gigabit Ethernet
  - Router/Server Interface
  - Switch to Switch
  - Point to Point FTTH
  - Switched Backplane Application

GPON SFP (OLT) Details



PRE-GSFP-B43-20
- SMF Bi-Directional Transceiver
- 2.488Gb/s 1490nm Transmitter
- 1.244Gb/s 1310nm BM APD Receiver

- 2.488Gb/s downstream and 1.244Gb/s Upstream
- Fast Signal Detect feature to reduce ranging overhead
- Up to 20km distance at 9/125 µm G.652 SMF
- Commercial & Industrial operating case temperatures
- Compliant with:
  - OLT for ITU-T G984.2 Class B+
  - RoHS
- Applications:
  - GPON 20km OLT Side
  - Access Networks
  - Fiber to the Home, Curb, Office

10G XFP BIDI

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-XFP-B23-10	9.9~11.3	1270/ 1330	SMF	10km	-5.0	0.0	-14.0	0.5	9.0	C,I
PRE-XFP-B32-10	9.9~11.3	1330 / 1270	SMF	10km	-5.0	0.0	-14.0	0.5	9.0	C,I
PRE-XFP-B23-20	9.9~11.3	1270/ 1330	SMF	20km	-2.0	3.0	-14.0	0.5	12.0	C,I
PRE-XFP-B32-20	9.9~11.3	1330 / 1270	SMF	20km	-2.0	3.0	-14.0	0.5	12.0	C,I
PRE-XFP-B23-40	9.9~11.3	1270/ 1330	SMF	40km	1.0	5.0	-14.0	0.5	15.0	C,I
PRE-XFP-B32-40	9.9~11.3	1330 / 1270	SMF	40km	1.0	5.0	-14.0	0.5	15.0	C,I
PRE-XFP-B23-60	9.9~11.3	1270/ 1330	SMF	60km	0.0	5.0	-20.0	-7.0	20.0	C,I
PRE-XFP-B32-60	9.9~11.3	1330 / 1270	SMF	60km	0.0	5.0	-21.0	-7.0	21.0	C,I
PRE-XFP-B45-80	9.9~11.3	1490/1550	SMF	80km	0.0	3.0	-24.0	-6.0	24.0	C,I
PRE-XFP-B54-80	9.9~11.3	1550/1490	SMF	80km	0.0	3.0	-24.0	-6.0	24.0	C,I

10G XFP CWDM

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-XFP-Cxx-40	9.9~11.3	1470-1610	SMF	40km	-1.0	3.0	-16.5	0.5	15.5	C,I
PRE-XFP-Cxx-80	9.9~11.3	1470-1610	SMF	80km	0.0	4.0	-25.0	0.5	25.0	C,I

10G XFP DWDM

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-XFP-Dxx-40*	9.9~11.3	C-Band	SMF	40km	-1.0	3.0	-16.5	0.5	15.5	C,I
PRE-XFP-Dxx-80*	9.9~11.3	C-Band	SMF	80km	0.0	4.0	-24.0	-7.0	24.0	C,I

*100GHz Channel Spacing standard, 50Ghz spacing available upon custom request

10G XFP TUNABLE

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-XFP-MFCT-80*	9.9~11.3	C-Band	SMF	80km	-1.0	3.0	-26.0	-5.0	25.0	C,E

*50GHz channel spacing standard. ITU channels 13.5 - 61.5 standard (191350Ghz - 196150GHz standard)

CSFP DUAL BIDI

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-CSFP2-B34-20	1.25	1310 / 1490	SMF	20km	-9.0	-3.0	-19.5	-3.0	10.5	C,I
PRE-CSFP2-B43-20	1.25	1490 / 1310	SMF	20km	-9.0	-3.0	-19.5	-3.0	10.5	C,I
PRE-CSFP2-B34-40	1.25	1310 / 1490	SMF	40km	-2.0	-3.0	-21.0	-3.0	19.0	C,I
PRE-CSFP2-B43-40	1.25	1490 / 1310	SMF	40km	-5.0	0.0	-21.0	-3.0	16.0	C,I

GPON OLT SFP

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-GSFP-B43-20	2.5 / 1.25	1490 / 1310	SMF OLT	20km	1.5	5.0	-28.0	-8.0	29.5	C,I
PRE-GSFP-B43-40	2.5 / 1.25	1490 / 1310	SMF OLT	40km	3.0	7.0	-32.0	-8.0	35	C,I

Digital Return and Remote PHY

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFPDR21Dxx-120I	2.125	C-Band	SMF	120km	3.0	6.0	NA	NA	NA	I
PRE-SFPDR21-Cxx-40I*	10	1470-1610	SMF	40km	-1	3	-16	0	15	I
PRE-TSFP10G-80I	9.9~11.3	Tunable C-Band	SMF	80km	2.0	6.0	-24	-7	26	I

*1270-1450nm available under different optical specifications

GE SFP

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP-SX	1.25	850	MMF	220 / 500m	-9.0	-2.0	-17.0	-3.0	8.0	C,I
PRE-SFP-10	1.25	1310	SMF	10km	-9.0	-3.0	-19.0	-3.0	10.0	C,I
PRE-SFP-40	1.25	1310	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-80	1.25	1550	SMF	80km	0.0	5.0	-26.0	-3.0	26.0	C,I
PRE-SFP-120	1.25	1550	SMF	120km	0.0	5.0	-32.0	-10.0	32.0	C,I
PRE-SFP-160	1.25	1550	SMF	160km	2.0	6.0	-34.0	-10.0	36.0	C,I

GE SFP BIDI

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP-B34-10	1.25	1310 / 1490	SMF	10km	-9.0	-3.0	-20.0	-3.0	11.0	C,I
PRE-SFP-B43-10	1.25	1490 / 1310	SMF	10km	-9.0	-3.0	-20.0	-3.0	11.0	C,I
PRE-SFP-B35-10	1.25	1310 / 1550	SMF	10km	-9.0	-3.0	-20.0	-3.0	11.0	C,I
PRE-SFP-B53-10	1.25	1550 / 1310	SMF	10km	-9.0	-3.0	-20.0	-3.0	11.0	C,I
PRE-SFP-B43-20	1.25	1490 / 1310	SMF	20km	-9.0	-3.0	-20.0	-3.0	11.0	C,I
PRE-SFP-B34-20	1.25	1310 / 1490	SMF	20km	-9.0	-3.0	-20.0	-3.0	11.0	C,I
PRE-SFP-B34-40	1.25	1310 / 1490	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-B43-40	1.25	1490 / 1310	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-B35-40	1.25	1310 / 1550	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-B53-40	1.25	1550 / 1310	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-B45-40	1.25	1490 / 1550	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-B54-40	1.25	1550 / 1490	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-B45-80	1.25	1490 / 1550	SMF	80km	0.0	5.0	-26.0	-3.0	26.0	C,I
PRE-SFP-B54-80	1.25	1550 / 1490	SMF	80km	0.0	5.0	-26.0	-3.0	26.0	C,I

GE SFP CWDM/DWDM

Part Number	Data Rate (Gb/s)	λ (nm)	Media Type	Range	TX Pwr (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP-Cxx-40	1.25	1270-1610	SMF	40km	-5.0	0.0	-24.0	-3.0	19.0	C,I
PRE-SFP-Cxx-80	1.25	1270-1610	SMF	80km	0.0	5.0	-26.0	-3.0	26.0	C,I
PRE-SFP-Cxx-120	1.25	1470-1610	SMF	120km	0.0	5.0	-32.0	-10.0	32.0	C,I
PRE-SFP-Dxx-80	1.25	C-Band	SMF	80km	0.0	4.0	-26.0	-3.0	26.0	C,I
PRE-SFP-Dxx-120	1.25	C-Band	SMF	120km	0.0	4.0	-30.0	-6.0	30.0	C,I
PRE-SFP-Dxx-160	1.25	C-Band	SMF	160km	2.0	6.0	-33.0	-6.0	31.0	C,I

Copper SFP

Part Number	Data Rate (Mb/s)	λ (nm)	Media Type	Range	TX Pwr / lane (dBm) Min	TX Pwr (dBm) Max	RX Sens (dBm)	RX Overload (dBm)	Link Budget (dB)	Temp
PRE-SFP-T	1000	-	CAT5	300m	-	-	-	-	-	C,I
PRE-SFP-TM	10/100/1000	-	CAT5	300m	-	-	-	-	-	C,I

TN100-S-BT Details

- Bluetooth enabled tuning box works with mobile devices
- 1 port transceiver management module hosts SFP and SFP+
- Powered over single USB connection (power bank included)
- Tuning flexibility to any of the standard ITU C-Band 50GHz or 100GHz spaced channels
- Enable/disable transmit laser for SFP+ devices
- Diagnostic information for SFP+ devices
- Eliminates sparing of hundreds of fixed channel DWDM transceivers with one tunable optic
- Compatible tuning software included

TN100-XS Series Tuning Application

TN100 Series

Precision's custom designed transceiver management modules support the rapid configuration and deployment of transceivers in the network from 1G up to 100G providing network operators overall network flexibility.

The TN100 series helps customers to reduce sparing, manage inventory, perform simple site surveys and even evaluate transceivers as well as (re)-configure EEPROM compatibility remotely.

The TN100 series operate on Precision's completely web driven applications, which allow for seamless feature enhancements and software maintainability without the need for a physical media based deployment. This means that Precision manages the application software and transceiver management module firmware for you. Deploying feature upgrades or custom solutions is as simple as starting the Precision application.

Users of the TN100 series management modules will have the latest and greatest certified released software regardless of their geographic location—meaning that there is no need to manually install new version as they become available.

*TN100 Series Transceiver Management Modules**

Part Number	Description
TN100-XS	Supports SFP, SFP+, and XFP; is compatible with Precision's Transceiver Tuning, Remote Assistant, and ProTool applications.
TN100-S	Pocket sized. Supports SFP and SFP+; is compatible with Precision's Transceiver Tuning, Remote Assistant, and ProTool applications.
TN100-S-BT	TN100-S with Bluetooth capabalities for mobile devices.

*Remote Assistant Application**

Precision's Remote Assistant is a secure application that allows for a Precision Optical Transceiver Engineer to remotely assist customers with their technical needs.

System requirements include a registered TN100 series tuning box, Java™ 7 or greater and active internet connection.

TN100 Series Remote Assistant Application

ProTool Application

Transceiver Programming Module

Features include smart search transceiver compatibility programming, programming history database, transceiver evaluation DDM tools and more.

*Applications can be found on apps.precisionot.com

Mux/Demux Modules

Precision OT is proud to offer premium WDM modules for multiplexing and de-multiplexing of CWDM and DWDM wavelengths. Modules are available in various channel configurations.

- Seamless integration with Precision OT's CWDM and DWDM transceivers
- Guaranteed performance that meets industry standards

Configurations

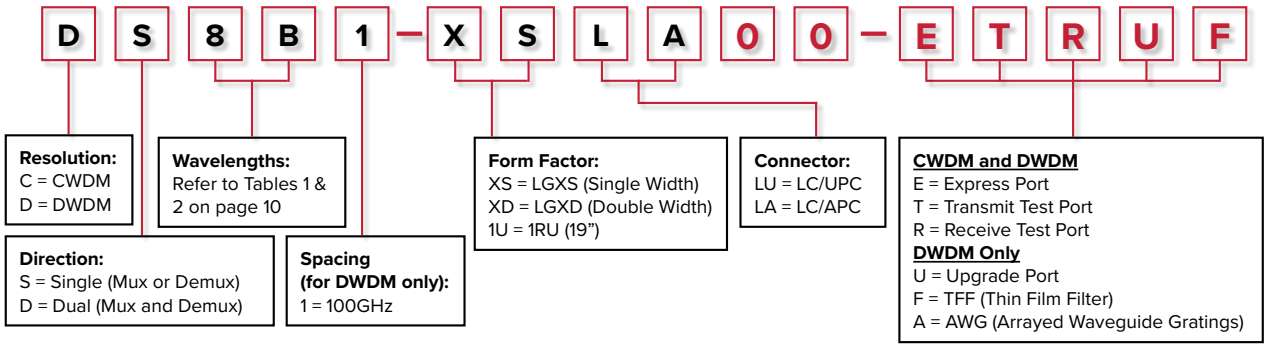
	CWDM	DWDM
Express Port	✓	✓
Upgrade Port		✓
Transmit Test Port (TAP 1%)	✓	✓
Receive Test Port (TAP 1%)	✓	✓
Spacing	20nm	100GHz

Options

		CWDM	DWDM
Channel Count	8 Ch	✓	✓
	16 Ch		✓
	20 Ch		✓
	40 Ch		✓
Connector*	LC/UPC	✓	✓
	LC/APC	✓	✓
Form Factor	Single-LGX®	✓	✓
	Double-LGX®		✓
	1RU		✓

LGX is a registered trademark of Furukawa Electric North America, Inc.
*Additional connectors are possible

Ordering Information**:
WDM Modules - Inside Plant (ISP)



** The example part number above describes a single-direction DWDM module for Group 8B wavelengths (ITU channels 28 to 35) at 100GHz spacing in a single-width LGX enclosure with LC/APC connectors.

Rack Mounts

1RU1-08-3SL-00-PRE	19" 1U rackmount 8 inches in depth with 3 Single-width LGX slots
3RU1-08-7DL-00-PRE	19" 3U rackmount 8 inches in depth that can fit 7 Double-width LGX or 14 Single-width LGX

Table 1: C-Band 100GHz DWDM Grid with Precision's Channel Allocation

#	Group	ITU	Wavelength (nm)	Frequency (THz)
		12	1567.95	191.2
		13	1567.13	191.3
		14	1566.31	191.4
		15	1565.50	191.5
		16	1564.68	191.6
		17	1563.86	191.7
		18	1563.05	191.8
		19	1562.23	191.9
1	8A	20	1561.42	192.0
2		21	1560.61	192.1
3		22	1559.79	192.2
4		23	1558.98	192.3
5		24	1558.17	192.4
6		25	1557.36	192.5
7		26	1556.55	192.6
8		27	1555.75	192.7
9	8B	28	1554.94	192.8
10		29	1554.13	192.9
11		30	1553.33	193.0
12		31	1552.52	193.1
13		32	1551.72	193.2
14		33	1550.92	193.3
15		34	1550.12	193.4
16		35	1549.32	193.5
17	8C	36	1548.51	193.6
18		37	1547.72	193.7
19		38	1546.92	193.8
20		39	1546.12	193.9
21		40	1545.32	194.0
22		41	1544.53	194.1
23		42	1543.73	194.2
24		43	1542.94	194.3
25	8D	44	1542.14	194.4
26		45	1541.35	194.5
27		46	1540.56	194.6
28		47	1539.77	194.7
29		48	1538.98	194.8
30		49	1538.19	194.9
31		50	1537.40	195.0
32		51	1536.61	195.1
33	8E	52	1535.82	195.2
34		53	1535.04	195.3
35		54	1534.25	195.4
36		55	1533.47	195.5
37		56	1532.68	195.6
38		57	1531.90	195.7
39		58	1531.12	195.8
40		59	1530.33	195.9
		60	1529.55	196.0
		61	1528.77	196.1
		62	1527.99	196.2

Table 2: CWDM Grid with Precision's Channel Allocation

#	Group	Wavelength (nm)
1		1271
2		1291
3		1311
4		1331
5		1351
6		1371
7		1391
8		1411
9		1431
10		1451
11	8B	1471
12		1491
13		1511
14		1531
15		1551
16		1571
17		1591
18		1611

Table 1 (cont.)

8A = ITU 20-27	12 = ITU 50-61	16 = ITU 25-40	21 = ITU 20-39	40 = ITU 20-59
8B = ITU 28-35			22 = ITU 40-59	
8C = ITU 36-43				
8D = ITU 44-51				
8E = ITU 52-59				

Table 2 (cont.)

8B = 1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611nm

Fiber Jumpers

Precision OT offers a wide selection of fiber jumpers to further support your optical networking needs and to simplify your procurement experience. Best of all, we guarantee compatibility and offer a 10-year warranty for our customers.

HERE'S WHAT THIS MEANS FOR YOU:

Expanded Inventory: By adding fiber jumpers into our already-comprehensive portfolio, we're proud to become more of a complete fiber optic system provider.

Same Proven Standards: With a reputation for high-quality products, rest assured our jumpers will operate to the same high standards you've come to expect from Precision OT.

Perfect Match: Our Fiber Jumper Configurator combined with in-house expertise ensures you will purchase the right type of jumpers to support your needs.

100% Compatibility: We guarantee compatibility for all our products, all the time.

KEY FEATURES AND AVAILABILITY:

- **Color coded Multi-mode fiber (MMF) and Single-mode fiber (SMF) patch cords/fiber jumpers**
- **Simplex, Duplex, MPO and Breakout Cable arrangements**
- **Multiple connector combinations and polish types available**
- **Connectors fabricated with specific connector-face polish types**
  - **Ultra PC (UPC), Angled PC (APC)**
- **All common connector types supported**
  - **LC, SC, FC, MTP/MPO**

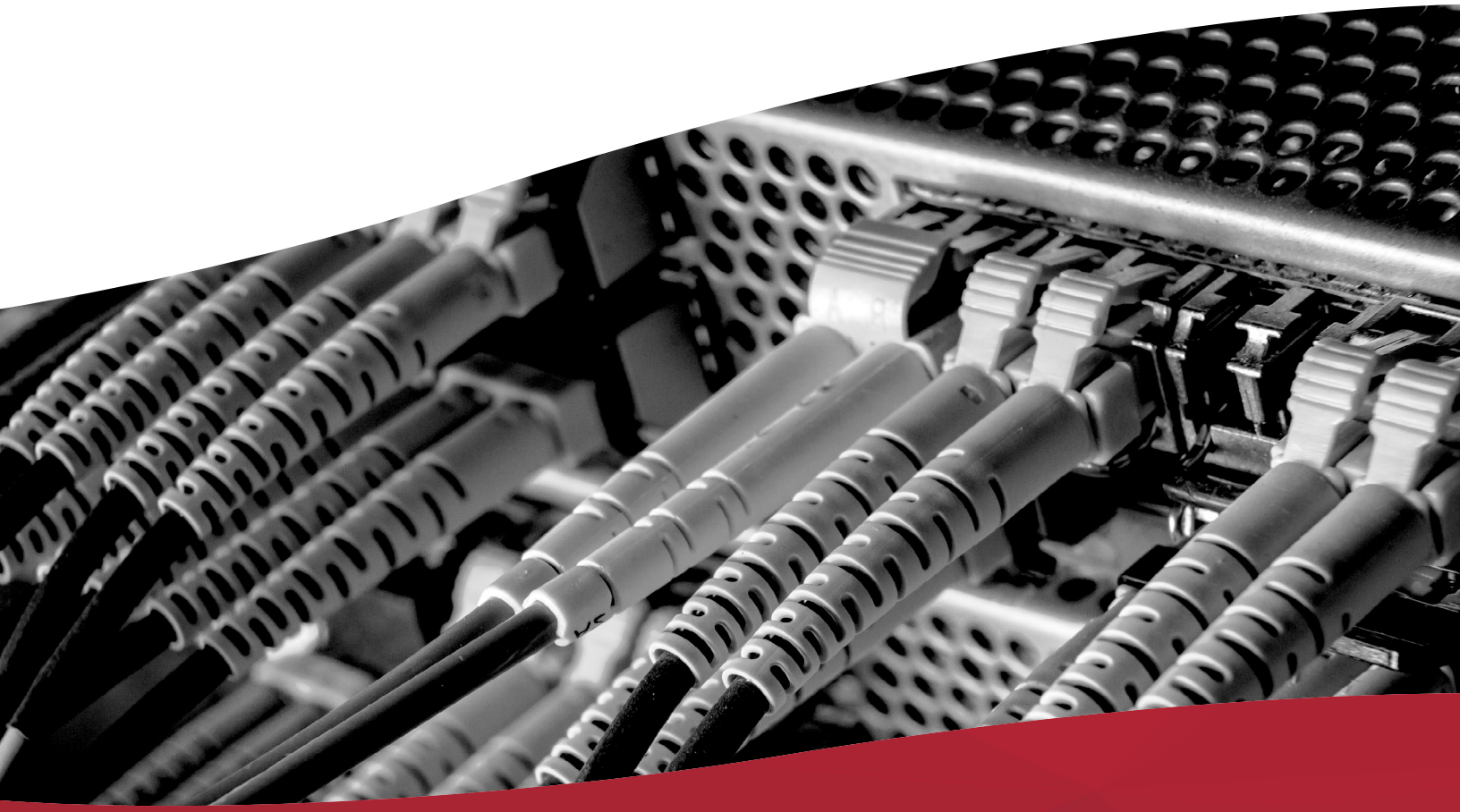
VIEW THE CONFIGURATOR

Click Cleaners

In addition to offering fiber jumpers, Precision OT offers 3 click cleaner varieties that make it easy to clean and maintain your fiber jumpers and optical accessories. The modules have a handheld design to make for easy-to-use cleaning and each contain 500-800+ cleans.

TO LEARN MORE ABOUT OUR FIBER JUMPERS AND CLICK-CLEANERS, VISIT WWW.PRECISIONOT.COM

Custom solutions. Reliable networks.



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