

HIGH-QUALITY TRANSCEIVERS TO SUIT ANY NETWORK, ANY APPLICATION, ANY DISTANCE, ANY SPEED, ANY PRODUCT

Source your transceivers from the company you trust for your networking solutions.

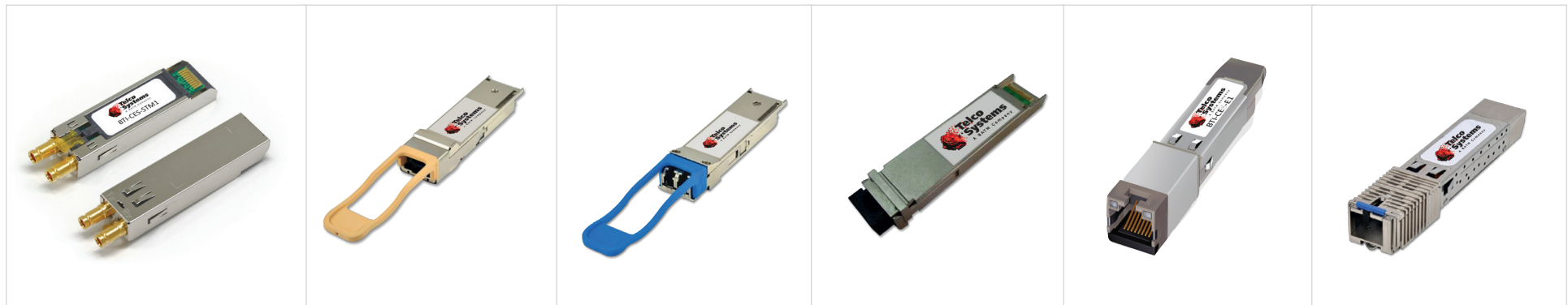
Telco Systems offers an impressive portfolio of pluggable transceivers to match all your network applications using:

- SFP (SM, MM, BiDi) and CSFP
- SFP+
- XFP
- QSFP and QSFP28
- CWDM and DWDM
- “Smart” transceiver, like Packet over TDM and TDM over Packet
- DWDM tunable C-band XFP/SFP+

Our certified 1Gb, 10Gb, 40Gb and 100Gb transceivers comply with stringent quality standards and demanding network reliability requirements. Available in both industrial and commercial temperature ranges, they range in speeds from 100Mbps to 100GE and distances from 100m up to 200km.

Telco Systems guarantees you that:

- Transceivers are hot-swappable and links will not be broken
- Signals will reach their destination with the required long-haul signal strength
- Transceivers will not cause packet loss
- Transceivers’ EEPROM and digital diagnostics are accessible by the host system
- You can fine-tune the quality deviation threshold of the digital diagnostics sensors
- Transceivers’ thermal behavior has been verified to ensure user safety



100 Mbps

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-SFP-FMM-LC	LC	1310 nm	Yes	-5°C to +70°C	100Mbps	NA	NA	NA	NA	2 km
BTI-SFP-FSM-LC	LC	1310 nm	Yes	-5°C to +70°C	100Mbps	-28	-8	-15	-8	15 km
BTI-SFP-FEX-DD-LC	LC	1310 nm	Yes	-5°C to +70°C	100Mbps	-34	-10	-5	0	40 km
BTI-SFP-FBD20L-31/55S	LC	1310/1550nm	Yes	-5°C to +70°C	100Mbps	-32	-8	-14	-8	20 km
BTI-SFP-FBD20L-55/31S	LC	1550/1310nm	Yes	-5°C to +70°C	100Mbps	-32	-8	-14	-8	20 km

1000 Mbps

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-MGBIC-M-TX	RJ-45 (Copper)	N/A	Yes	-5°C to +70°C	1000Mbps	N/A	N/A	N/A	N/A	100 m
BTI-MGBIC-GSX-DD-LC	LC	850 nm	Yes	-5°C to +70°C	1000Mbps	-17	0	-9.5	-3.5	550 m
BTI-MGBIC-GLX-DD-LC	LC	1310 nm	Yes	-5°C to +70°C	1000Mbps	-20	-3	-9	-3	10 km
BTI-MGBIC-GEX-DD-LC	LC	1310 nm	Yes	-5°C to +70°C	1000Mbps	-22	-3	-5	0	40 km
BTI-MGBIC-GZX-DD-LC	LC	1550 nm	Yes	-5°C to +70°C	1000Mbps	-23	-3	0	5	80 km
BTI-MGBIC-EZX-DD-LC	LC	1550 nm	Yes	0°C to +70°C	1000Mbps	-31	-9	0	5	120 km
BTI-MGBIC-ELH-DD-LC	LC	1550 nm	Yes	0°C to +70°C	1000Mbps	-33	-10	1	6	160 km
BTI-SFP-GBD10L-DD-31/49S	LC	1310/1490 nm	Yes	-5°C to +70°C	1000Mbps	-19.5	-3	-9	-3	10 km
BTI-SFP-GBD10L-DD-49/31S	LC	1490/1310 nm	Yes	-5°C to +70°C	1000Mbps	-3	-19.5	-9	-3	10 km
BTI-SFP-GBD10L-31/55S	LC	1310/1550 nm	Yes	-5°C to +70°C	1000Mbps	-20	-3	-9	-3	10 km
BTI-SFP-GBD10L-55/31S	LC	1550/1310 nm	Yes	-5°C to +70°C	1000Mbps	-20	-3	-9	-3	10 km
BTI-SFP-GBD40E-DD-31/49S	LC	1310/1490 nm	Yes	-5°C to +70°C	1000Mbps	-23	-3	-2	+3	40 km
BTI-SFP-GBD40E-DD-49/31S	LC	1490/1310 nm	Yes	-5°C to +70°C	1000Mbps	-23	-3	-2	+3	40 km
BTI-SFP-GBDC10L-DD-31/49S	Dual LC	1310/1490 nm	Yes	-5°C to +70°C	2 x 1000Mbps	-20	-3	-9	-3	10 km
BTI-SFP-GBDC10L-DD-49/31S	Dual LC	1490/1310 nm	Yes	-5°C to +70°C	2 x 1000Mbps	-19	0	-5	0	10 km

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-SFP-GBDC20L-DD-55/31S	Dual LC	1550/1310 nm	Yes	0°C to +70°C	2 x 1000Mbps	-19	0	-5	0	20 km
BTI-SFP-GBDC20L-DD-31/55S	Dual LC	1310/1550 nm	Yes	0°C to +70°C	2 x 1000Mbps	-19	0	-5	0	20 km
BTI-DW-ZR-YY-SFP	LC	DWDM (CH=17,18..39 or 62,63..89)	Yes	0°C to +70°C	1000Mbps	-24	-9	0	4	80 km
BTI-CW-ZR-YY-SFP	LC	CWDM (CH=45,47..61)	Yes	0°C to +70°C	1000Mbps	-23	-3	0	5	80 km
BTI-MGBIC-M-T-TX	RJ-45 (Copper)	N/A	Yes	-40°C to +85°C	1000Mbps	NA	NA	NA	NA	100 m
BTI-MGBIC-GSX-DD-T-LC	LC	850 nm	Yes	-40°C to +85°C	1000Mbps	-17	0	-9.5	-4	550 m
BTI-MGBIC-GLX-DD-T-LC	LC	1310 nm	Yes	-40°C to +85°C	1000Mbps	-20	-3	-9	-3	10 km
BTI-MGBIC-GEX-DD-T-LC	LC	1550 nm	Yes	-40°C to +85°C	1000Mbps	-20	-3	-9.5	-3	40 km
BTI-MGBIC-GZX-DD-T-LC	LC	1550 nm	Yes	-40°C to +85°C	1000Mbps	-23	-3	0	5	80 km
BTI-CW-ELX-YY-SFP	LC	CWDM (CH=27,29..61)	Yes	-5°C to +70°C	1000Mbps	-23	-3	-5	0	20 km
BTI-CW-EX-YY-SFP	LC	CWDM (CH=27,29..61)	Yes	-5°C to +70°C	1000Mbps	-23	-3	-5	0	40 km
BTI-CW-T-ZR-YY-SFP	LC	CWDM (CH= 47,49..61)	Yes	-40°C to +85°C	1000Mbps	-24	-3	0	5	80 km

10 Gigabit

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-10GSR-DD-XFP	LC	850 nm	Yes	-5°C to +70°C	10Gbps	-9.9	-1.0	-7.3	-1.0	300 m
BTI-10GLR-DD-XFP	LC	1310 nm	Yes	-5°C to +70°C	10Gbps	-14.4	0.5	-8.2	0.5	10 km
BTI-10GLR-T-DD-XFP	LC	1310 nm	Yes	-40°C to +85°C	10Gbps	-14.4	0.5	-8.2	0.5	10 km
BTI-10GER-DD-XFP	LC	1550 nm	Yes	-5°C to +70°C	10Gbps	-14.4	0.5	-8.2	0.5	40 km
BTI-10GER-T-DD-XFP	LC	1550 nm	Yes	-40°C to +85°C	10Gbps	-15.8	-1.0	-4.7	4.0	40 km
BTI-10GZW-DD-XFP	LC	1550 nm	Yes	-5°C to +70°C	10Gbps	-23	-7	0	4	120 km

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-CW-ER-YY-XFP	LC	CWDM (CH=47,49..61)	Yes	0°C to +70°C	10Gbps	-16	-1.0	1	5	40 km
BTI-10GLR-DD-XFP	LC	CWDM (CH=47,49..61)	Yes	0°C to +70°C	10Gbps	-23	-3	0	5	40 km
BTI-10GLR-T-DD-XFP	LC	CWDM (CH=47,49..61)	Yes	-5°C to +70°C	10Gbps	-23	-3	0	5	80 km
BTI-10GER-DD-XFP	LC	CWDM (CH=47,49..61)	Yes	-5°C to +70°C	10Gbps	-16	0	-1	2	40 km
BTI-10GER-T-DD-XFP	LC	CWDM (CH=47,49..61)	Yes	-5°C to +70°C	10Gbps	-24	-7	0	4	80 km
BTI-XFP-XBD10L-DD-27/33S	LC	1270/1330 nm	Yes	0°C to +70°C	10Gbps	-5	0	-14	0.5	10 km
BTI-XFP-XBD10L-DD-33/27S	LC	1330/1270 nm	Yes	0°C to +70°C	10Gbps	-5	0	-14	0.5	10 km
BTI-XFP-XBD40L-DD-27/33S	LC	1270/1330 nm	Yes	0°C to +70°C	10Gbps	0	4	-14	0.5	40 km
BTI-XFP-XBD40L-DD-33/27S	LC	1330/1270 nm	Yes	0°C to +70°C	10Gbps	0	4	-14	0.5	40 km
BTI-10GSR-DD-SFP+	LC	850 nm	Yes	-5°C to +70°C	10Gbps	-7.3	-1	-11.1	-1.0	300 m
BTI-10GLR-DD-SFP+	LC	1310 nm	Yes	-5°C to +70°C	10Gbps	-8.2	0.5	-14.4	0.5	10 km
BTI-10GER-DD-SFP+	LC	1550 nm	Yes	-5°C to +70°C	10Gbps	-14.40	0.5	-8.2	0.5	40 km
BTI-10GZR-DD-SFP+	LC	1550 nm	Yes	-5°C to +70°C	10Gbps	-24	-7	0	4	80 km
BTI-CW-ER-YY-SFP+	LC	CWDM (CH=47,49..61)	Yes	-5°C to +70°C	10Gbps	-23	-7.0	-1.0	-4	40 km
BTI-CW-ZR-YY-SFP+	LC	CWDM (CH=47,49..61)	Yes	-5°C to +70°C	10Gbps	-23	-3	0	5	80 km
BTI-DW-ER-YY-SFP+	LC	DWDM (CH=17,18..61)	Yes	-5°C to +70°C	10Gbps	-14.4	0.5	-8.2	0.5	40 km
BTI-DW-ZR-YY-SFP+	LC	DWDM (CH=17,18..61)	Yes	-5°C to +70°C	10Gbps	-24	-9	0	4	80 km
BTI-SFP+-XBD10L-DD-33/27S	LC	1330/1270 nm	Yes	0°C to +70°C	10Gbps	-24	-3	0	5	10 km
BTI-SFP+-XBD10L-DD-27/33S	LC	1270/1330 nm	Yes	0°C to +70°C	10Gbps	-14	0.5	-5	0	10 km
BTI-SFP+-XBD40L-DD-33/27S	LC	1330/1270 nm	Yes	0°C to +70°C	10Gbps	-14	0.5	0	4	40 km
BTI-SFP+-XBD40L-DD-27/33S	LC	1270/1330 nm	Yes	0°C to +70°C	10Gbps	-15	5	1	-5	40 km

40 Gigabit

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-40GSR-DD-QSFP	MPO	850 nm	Yes	0°C to +70°C	40Gbps	-5.4	3.4	-7.6	-1	150 m
BTI-40GLR-DD-QSFP	LC	1310 nm	Yes	0°C to +70°C	40Gbps	-11.5	3.3	-4	3.5	10 km

"Smart" Transceiver CES

Part Number	Connector	Wavelength	Digital Diagnostics	Temperature	Data Rate	RX Min	RX Max	TX Min	TX Max	Distance
BTI-CEST1E1-FE	RJ-45 (Copper)	NA	No	-40°C to +70°C	CES	NA	NA	NA	NA	NA
BTI-CEST1E1-GE	RJ-45 (Copper)	NA	No	-40°C to +70°C	CES	NA	NA	NA	NA	NA
BTI-CEST3E3-FE	miniBNC	NA	No	-40°C to +70°C	CES	NA	NA	NA	NA	NA
BTI-CEST3E3-GE	miniBNC	NA	No	-40°C to +70°C	CES	NA	NA	NA	NA	NA
BTI-CESSTM1-GE	LC	1310 nm	Yes	-40°C to +85°C	CES	NA	NA	NA	NA	NA
BTI-CESSTM4-GE	LC	1310 nm	Yes	-40°C to +85°C	CES	NA	NA	NA	NA	NA
BTI-EOSSTM1-GE	LC	1310 nm	Yes	-40°C to +85°C	Ethernet over SDH/SONET	NA	NA	NA	NA	NA



Please note!

All values and calculations are based on minimum requirements to achieve distance. In most cases higher power budgets and further distances can be achieved with specifically engineered topologies and network applications.

Typical fiber attenuation budget calculations use the following formula for single mode fiber at the 1550nm wavelength:
[# of Km x 0.25 dB] + [# of connectors x 0.75 dB] + [# of splices x 0.1 dB] = Total Link power attenuation

Port Power Budget Min = [Tx Max – Rx Max]

Port Power Budget Max = [Tx Min – Rx Min]

Link Optical Power Attenuation will be in balance with the Port Power budget if:

Port Power Budget Min > Link Optical Power Budget < Port Power Budget Max

Calculation Example for the BTI-10GLR-DD-XFP: The

Port Power Budget Min = [0.5 dBm – 0.5 dBm] = 0 dBm

Port Power Budget Max = [(-8.2) dBm – (-14.4) dBm] = 6.2 dBm

Thus:

This XFP Transceiver can transmit/receive properly, if the end to end fiber optics attenuation budget is greater than 0 dB but less than 6.2 dB

BTI – WW – XX – YY – ZZ

WW: Wavelength Method (CW= CWDM, DW=DWDM)

XX: Distance (ELX= 20km, ER=40km, ZR=80km)

YY: Wavelength (CW/DW wavelength channel #)

ZZ: Transceivers Type (SFP+, XFP, SFP)

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