

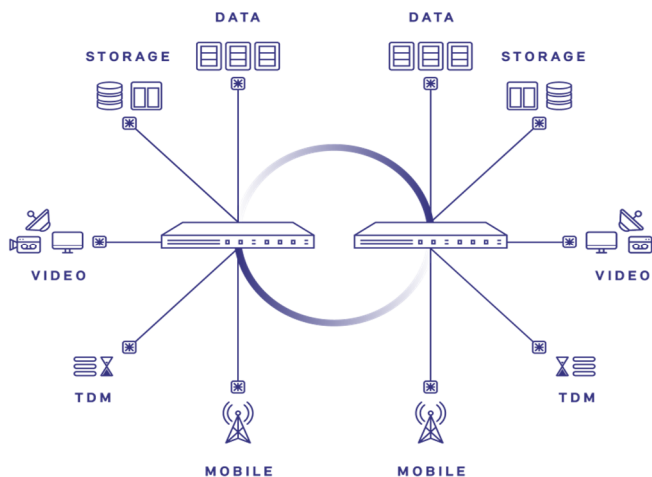
Optical Infrastructure Solutions

Overview

The Itectra Optical Infrastructure Solutions builds upon high-density WDM systems, optical transceivers and accessories designed to provide optical network support for high-speed data Ethernet and Fiber Channel communication.

These WDM systems and optical transceivers deliver capacity from 1 Gbps to 800 Gbps per wavelength suitable for datacenter, enterprises, and service provider networks.

In addition to WDM systems and optical transceivers the Itectra portfolio spans across long-haul active DWDM systems, MPO cassettes, inspection and cleaning equipment.



Product Features

- Active DWDM systems
- Passive CWDM and DWDM systems
- 1/10/25/40/50/100/200/400 GbE transceivers
- 8/16/32Gb FC transceivers
- Direct Attach Cables (DAC)
- Active Optical Cables (AOC)
- MPO cassettes
- Inspection and cleaning equipment

Applications

- Datacentre
- Enterprise
- Core/Metro/Access
- FTTX
- Mobile Fronthaul

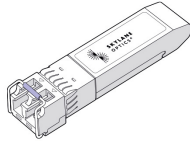
Supported by leading vendors

The Itectra Optical Infrastructure portfolio includes a variety of today's leading optical network vendors; Infinera, Skylane Optics, Viavi, Corning and Sticklers. Please consult Itectra for further information on specific products and solutions.

Compatibility

Itectra offers a wide range of compatible solutions allowing full network operational capabilities across the network. All equipment and modules are fully compliant with the relevant standards and recommendations and are manufactured utilizing the highest quality components available.

1Gb (SFP)



Standard: 1000Base
 MSA: INF-8074 / SFF-8472
 Size: 8.55 × 13.7 × 56.5 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

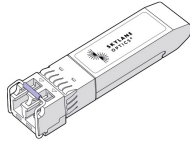
Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp, Storage: -40 – 85°C
 Humidity: 5 – 95%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power [dBm]	Rx Sensitivity [dBm]	Rx Overload [dBm]	Conn	Distance/ Power Budget	Effect [Watt]	Product Number
1000Base										
1000Base-TX	¹ -	C/E		-	-		RJ45	100m	1W	SGT00P10DR0A
1000Base-SX	¹ 850	C/I	VCSEL/PIN	-9,5 to 0,3	-17	0	LC	550m/7,5dB	1W	SFP85P55GE0B
1000Base-LXM	^{1 2} 1310	C/I	FP/PIN	-9 to -3	-21	0	LC	1km/12dB	1W	SFP13001GE0B
1000Base-LX	1310	C/I	FP/PIN	-10 to -3	-21	0	LC	10km/11dB	1W	SFP13010GE0B
1000Base-LX	1310	C/I	FP/PIN	-8 to -3	-22	0	LC	20km/14dB	1W	SFP13020GE0B
1000Base-EX	1310	C/E/I	DFB/PIN	-2 to 3	-24	0	LC	40km/22dB	1W	SFP13040GE0B
1000Base-EX	1550	C/E/I	DFB/PIN	-5 to 0	-24	0	LC	40km/19dB	1W	SFP15040GE0B
1000Base-ZX	1550	C/E/I	DFB/PIN	0 to +5	-23	0	LC	80km/23dB	1W	SFP15080GE0B
1000Base-ZX	1550	C/E/I	DFB/APD	0 to 5	-32	-10	LC	120km/32dB	1W	SFP15120GE0D
1000Base-ZX	1550	C/I	DFB/APD	3 to 7	-37	-10	LC	160km/40dB	1W	SFP15160GE0B
Bi-directional										
1000Base-BXD	1550/1310	C/I	DFB/PIN	-9 to -3	-21	-3	LC	10km/12dB	1W	SBD53010GE0B
1000Base-BXU	1310/1550	C/I	FP/PIN	-9 to -3	-21	-3	LC	10km/12dB	1W	SBU35010GE0B
1000Base-BXD	1550/1310	C/I	DFB/PIN	-8 to -3	-22	-3	LC	20km/14dB	1W	SBD53020GE0B
1000Base-BXU	1310/1550	C/I	FP/PIN	-8 to -3	-22	-3	LC	20km/14dB	1W	SBU35020GE0B
1000Base-BXD	1550/1310	C/I	DFB/PIN	-5 to 0	-23	-3	LC	40km/18dB	1W	SBD53040GE0B
1000Base-BXU	1310/1550	C/I	DFB/PIN	-3 to 2	-23	-3	LC	40km/20dB	1W	SBU35040GE0B
1000Base-BXD	1550/1310	C/I	DFB/PIN	-2 to 3	-24	-3	LC	60km/22dB	1W	SBD53060GE0B
1000Base-BXU	1310/1550	C/I	DFB/PIN	0 to 5	-26	-3	LC	60km/26dB	1W	SBU35060GE0B
1000Base-BXD	1490/1310	C/I	DFB/PIN	-9.5 to -3	-22	-3	LC	10km/12.5dB	1W	SBD43010GE0B
1000Base-BXU	1310/1490	C/I	FP/PIN	-9.5 to -3	-22	-3	LC	10km/12.5dB	1W	SBU34010GE0B
1000Base-BXD	1490/1310	C/I	DFB/PIN	-8 to -3	-22	-3	LC	20km/14dB	1W	SBD43020GE0B
1000Base-BXU	1310/1490	C/I	FP/PIN	-8 to -3	-22	-3	LC	20km/14dB	1W	SBU34020GE0B
1000Base-BXD	1490/1310	C/I	DFB/PIN	-5 to 0	-24	-3	LC	40km/19dB	1W	SBD43040GE0B
1000Base-BXU	1310/1490	C/I	DFB/PIN	-5 to 0	-24	-3	LC	40km/19dB	1W	SBU34040GE0B
1000Base-BXD	1490/1310	C/I	DFB/PIN	0 to 5	-27	-3	LC	60km/27dB	1W	SBD43060GE0B
1000Base-BXU	1310/1490	C/I	DFB/PIN	0 to 5	-27	-3	LC	60km/27dB	1W	SBU34060GE0B
1000Base-BXD	1550/1490	C/I	DFB/PIN	0 to 5	-26	-3	LC	80km/26dB	1W	SBD54080GE0D
1000Base-BXU	1490/1550	C/I	DFB/PIN	0 to 5	-26	-3	LC	80km/26dB	1W	SBU45080GE0D
CWDM										
1000Base-EX	³ 1270-1450	C/E	DFB/PIN	-5 to 0	-21	-3	LC	40km/16dB	1W	SFCxxB16GE0D
1000Base-EX	1470-1610	C/E	DFB/PIN	-5 to 0	-21	-3	LC	40km/16dB	1W	SFCxx040GE0D
1000Base-ZX	³ 1270-1450	C/E	DFB/PIN	0 to 5	-24	0	LC	80km/24dB	1W	SFCxxB24GE0D
1000Base-ZX	1470-1610	C/E	DFB/PIN	0 to 5	-24	0	LC	80km/24dB	1W	SFCxx080GE0D
1000Base-ZX	1470-1610	C/E	DFB/APD	0 to 5	-32	-8	LC	120km/32dB	1W	SFCxx120GE0D
1000Base-ZX	1470-1610	C/E	DFB/APD	4 to 7	-36	-10	LC	160km/40dB	1W	SFCxx160GE0D
DWDM										
1000Base-EX	19x.x00THz	C	DFB/PIN	0 to 4	-20	-1	LC	40km/20dB	1W	SFDxx040GE0D
1000Base-ZX	19x.x00THz	C	DFB/PIN	0 to 5	-24	-3	LC	80km/24dB	1W	SFDxx080GE0D
1000Base-ZX	19x.x00THz	C	DFB/APD	0 to 5	-32	-10	LC	120km/32dB	1W	SFDxx120GE0D
1000Base-ZX	19x.x00THz	C	DFB/APD	4 to 7	-36	-10	LC	160km/40dB	1W	SFDxx160GE0D

- ¹: 100Base/1000Base, SerDes. SGMII on request
- ²: Utilizing MMF (OM3/OM4: 1 km / OM1/OM2: 550 m)
- ³: Please contact Itectra for recommended distance per channel

Specifications are subject to change without notice.

10G (SFP+)



Standard: 10GBase
 MSA: SFF-8431 / SFF-8472
 Size: 8.55 × 13.7 × 56.5 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -40 – 85°C
 Humidity: 5 – 95%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power [dBm]	Rx Sensitivity [dBm]	Rx Overload [dBm]	Conn	Distance/ Power Budget	Effect [Watt]	Product Number	
10GBase/10GBase											
1/10GBase-TX	1	-	C	-	-	-	RJ45	30m	3W	SPT00M30MR00	
1/10GBase-SR	850	C	VCSEL/PIN	-6 to -1	-11.1	-1	LC	300m/5dB	1W	SPP85P301R0D	
1/10GBase-LR	1310	C/I	DFB/PIN	-8.2 to 0.5	-14.4	0	LC	10km/6.2dB	1W	SPP130101RxD	
10GBase											
10GBase-TX	1	-	C	-	-	-	RJ45	30m	3W	SPT00M301000	
10GBase-SR	2	850	C/E/I	VCSEL/PIN	-6 to 1	-11	LC	400m/5dB	1W	SPP85P30100B	
10GBase-LRM	3	1310	C/I	FP/PIN	-6 to -1	-14.4	0.5	LC	500m/8.4dB	1W	SPP13002100B
10GBase-LR	1310	C/E/I	DFB/PIN	-8.2 to 0.5	-14.4	0	LC	10km/6.2dB	1W	SPP13010100B	
10GBase-LR	1310	C/E/I	DFB/PIN	-3 to 1	-14.4	0	LC	20km/11.4dB	1W	SPP13020100B	
10GBase-ER	1310	C/E/I	DFB/PIN	-1 to 4	-15	0	LC	40km/14dB	1W	SPP13040100B	
10GBase-ER	1550	C/E/I	EML/PIN	-4.7 to 4	-15.8	0	LC	40km/11dB	1.5W	SPP15040100B	
10GBase-ZR	1550	C/E/I	EML/ADP	0 to 5	-23	-8	LC	80km/23dB	1W	SPP15080100D	
10GBase-ZR	1550	C	EML/APD	1 to 5	-25	-8	LC	100km/26dB	1.6W	SPP15100100D	
Bi-directional											
10GBase-BXD	1330/1270	C/E/I	DFB/PIN	-5 to 0	-14	0	LC	10km/9dB	1.5W	SPB32010100B	
10GBase-BXU	1270/1330	C/E/I	DFB/PIN	-5 to 0	-14	0	LC	10km/9dB	1.5W	SPB23010100B	
10GBase-BXD	1330/1270	C/E/I	DFB/PIN	-2 to 2	-14	0	LC	20km/14dB	1.5W	SPB32020100B	
10GBase-BXU	1270/1330	C/E/I	DFB/PIN	-2 to 2	-14	0	LC	20km/14dB	1.5W	SPB23020100B	
10GBase-BXD	1330/1270	C/E/I	DFB/PIN	1 to 5	-15	0	LC	40km/16dB	1.5W	SPB32040100B	
10GBase-BXU	1270/1330	C/E/I	DFB/PIN	1 to 5	-15	0	LC	40km/16dB	1.5W	SPB23040100B	
10GBase-BXD	1330/1270	C/E/I	DFB/ADP	1 to 6	-20	-8	LC	60km/21dB	1.5W	SPB32060100B	
10GBase-BXU	1270/1330	C/E/I	DFB/ADP	1 to 6	-20	-8	LC	60km/21dB	1.5W	SPB23060100B	
10GBase-BXD	1550/1490	C	EML/ADP	-1 to 3	-23	-6	LC	80km/22dB	1.5W	SPB54080100D	
10GBase-BXU	1490/1550	C	EML/ADP	-1 to 3	-23	-6	LC	80km/22dB	1.5W	SPB45080100D	
CWDM											
10GBase-LR	4	1270-1610	C/E/I	DFB/PIN	-4 to 1	-14	0.5	LC	10km/10dB	1.0W	SPCxxB10100D
10GBase-ER	4	1270-1450	C/E	DFB/PIN	-2 to 3	-16	0.5	LC	40km/14dB	1.5W	SPCxxB14100D
10GBase-ER	4	1470-1610	C/E/I	EML/PIN	-1 to 4	-15	0	LC	40Km/14dB	1.5W	SPCxx040100D
10GBase-ZR	4	1270-1450	C/E	DFB/ APD	+2 to 4	-21	-8	LC	70km/23dB	1.5W	SPCxxB23100D
10GBase-ZR	4	1470-1610	C/E	EML/APD	0 to 4	-23	-8	LC	70km/23dB	1.5W	SPCxx070100D
DWDM											
10GBase-ER	19x.x00THz	C/I	EML/PIN	-1 to 4	-15	-1	LC	40km/14dB	1.5W	SPDxx040100D	
10GBase-ZR	19x.x00THz	C/I	EML/ADP	0 to 4	-23	-7	LC	80km/23dB	1.5W	SPDxx080100D	
10GBase-ZR	5	Tuneable	C/I	ILMZ/ADP	-1 to 3	-24	-7	LC	80km/23dB	1.7W	SPDTU080100D
10GBase-ZR	6	Tuneable	C/I	ILMZ/ADP	-1 to 3	-24	-7	LC	80km/23dB	1.7W	SPATU080100D

1: Cat6a/Cat7 cable

2: Utilising MMF (OM4: 400 m / OM3: 300 m / OM2: 82 m / OM1: 33 m)

3: Utilising MMF (OM4: 500 m / OM3: 315 m / OM2: 220 m / OM1: 220 m), mode conditioning patch cord and electric dispersion compensation (EDC)

4: Please contact Itectra for recommended distance per channel

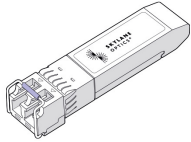
5: 191.100 THz – 196.150 THz (50 GHz spacing) Tuneable

6: 191.100 THz – 196.150 THz (50 GHz spacing) Auto tuneable

7: 191.300 THz – 196.050 THz (50 GHz spacing) Tuneable

Specifications are subject to change without notice.

8/16/32G Fiber Channel (SFP+)



Standard: 8G / 16G / 32G FC
 MSA: SFF-8431 / SFF-8472
 Size: 8.55 × 13.7 × 56.5 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

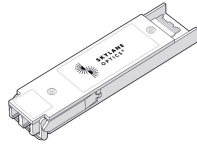
Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -40 – 85°C
 Humidity: 5 – 95%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power [dBm]	Rx Sensitivity [dBm]	Rx Overload [dBm]	Conn	Distance/ Power Budget	Effect [Watt]	Product Number
Fibre Channels										
8G FC	850	C/E/I	VCSEL/PIN	-6 to -1	-10	-1	LC	100m/4dB	1.0W	SPP85P30100B
8G FC	1310	C/E/I	DFB/PIN	-8.2 to 0.5	-14.4	0	LC	10km/6.2dB	1.0W	SPP13010100B
8G/16G FC	850	C	VCSEL/PIN	-6 to -1.2	-7.7	0	LC	100m/1.7dB	1.2W	SPP85P10160C
8G/16G FC	1310	C	DFB/PIN	-5 to 2	-12	2	LC	10km/7dB	1.2W	SPP13010160C
8G/16G/32G FC	850	C	VCSEL/PIN	-6.2 to 2	-5.8	2	LC	70m/1.6dB	1.2W	S2885P10320C
8G/16G/32G FC	1310	C	DFB/PIN	-5 to 2	-11.4	2	LC	10km/6.4dB	1.2W	S2813010320C
CWDM										
8G FC	¹ 1271-1611	C/E/I	DFB/PIN	-4 to 1	-14	0.5	LC	10km/10dB	1.0W	SPCxxB10100D
8G FC	¹ 1271-1451	C/E	DFB/PIN	-2 to 3	-16	0.5	LC	40km/14dB	1.5W	SPCxxB14100D
8G FC	1471-1611	C/E/I	EML/PIN	-1 to 4	-15	0	LC	40km/14dB	1.5W	SPCxx040100D
8G FC	¹ 1271-1451	C/E	DFB/ APD	+2 to 4	-21	-8	LC	70km/23dB	1.5W	SPCxxB23100D
8G FC	1471-1611	C/E	EML/APD	0 to 4	-23	-8	LC	70km/23dB	1.5W	SPCxx070100D
8G/16G FC	1471-1611	C	EML/PIN	-1 to 3	-14	-1	LC	40km/13dB	2.0W	SPCxx020160C
DWDM										
8G FC	19x.x00THz	C/I	EML/PIN	-1 to 4	-15	-1	LC	40km/14dB	1.5W	SPDxx040100D
8G FC	19x.x00THz	C/I	EML/ADP	0 to 4	-23	-7	LC	80km/23dB	1.5W	SPDxx080100D
8G FC	² Tuneable	C/I	ILMZ/ADP	-1 to 3	-24	-7	LC	80km/23dB	1.7W	SPDTU080100D
8G FC	³ Tuneable	C/I	ILMZ/ADP	-1 to 3	-24	-7	LC	80km/23dB	1.7W	SPATU080100D
8G/16G FC	19x.x00THz	C	EML/PIN	-1 to 3	-14	-1	LC	40km/13dB	2.0W	SPDxx020160C

¹: Please contact Itectra for recommended distance per channel
²: 191.100 THz – 196.150 THz (50 GHz spacing) Tuneable
³: 191.100 THz – 196.150 THz (50 GHz spacing) Auto tuneable

Specifications are subject to change without notice.

10G (XFP)



Standard: 10GBase
 MSA: INF-8077 / SFF-8472
 Size: 8.55 × 18.35 × 78.0 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -40 – 85°C
 Humidity: 5 – 95%

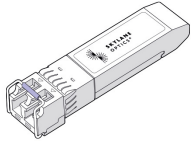
Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power [dBm]	Rx Sensitivity [dBm]	Rx Overload [dBm]	Conn	Distance/ Power Budget	Effect [Watt]	Product Number
10GBase										
10GBase-SR	850	C/E/I	VCSEL/PIN	-7.5 to -1	-11.1	-1	LC	300m/3.5dB	1.5W	XFP85P30100D
10GBase-LR	1310	C/I	DFB/PIN	-6 to -1	-14.4	0	LC	10km/8.4dB	2.5W	XFP13010100D
10GBase-LR	1310	C	DFB/PIN	-3 to 1	-15	0	LC	20km/12dB	2.5W	XFP13020100D
10GBase-ER	1310	C/I	DFB/PIN	0 to 4	-16	0.5	LC	40km/16dB	2.5W	XFP13040100D
10GBase-ER	1550	C/E/I	EML/PIN	-1 to 4	-15.8	0	LC	40km/14.8dB	3.5W	XFP15040100D
10GBase-ZR	1550	C/I	EML/ADP	0 to 4	-23	-7	LC	80km/23dB	3.5W	XFP15080100D
Bi-directional										
10GBase-BXD	1330/1270	C/E/I	DFB/PIN	-5 to 0	-14	0	LC	10km/9dB	2.0W	XFB32010100D
10GBase-BXU	1270/1330	C/E/I	DFB/PIN	-5 to 0	-14	0	LC	10km/9dB	2.0W	XFB23010100D
10GBase-BXD	1330/1270	C/E	DFB/PIN	-3.5 to 3.0	-14.5	0	LC	20km/11dB	2.0W	XFB32020100D
10GBase-BXU	1270/1330	C/E	DFB/PIN	-3.5 to 3.0	-14.5	0	LC	20km/11dB	2.0W	XFB23020100D
10GBase-BXD	1330/1270	C/I	DFB/PIN	1 to 5	-15	0	LC	40km/16dB	2.0W	XFB32040100D
10GBase-BXU	1270/1330	C/I	DFB/PIN	1 to 5	-15	0	LC	40km/16dB	2.0W	XFB23040100D
10GBase-BXD	1330/1270	C	DFB/ADP	1 to 7	-20	-7	LC	60km/21dB	2.0W	XFB13060100D
10GBase-BXU	1270/1330	C	DFB/ADP	1 to 7	-20	-7	LC	60km/21dB	2.0W	XFB23060100D
10GBase-BXD	1550/1490	C	EML/ADP	-1 to 3	-23	-6	LC	80km/22dB	1.5W	XFB54080100D
10GBase-BXU	1490/1550	C	EML/ADP	-1 to 3	-23	-6	LC	80km/22dB	1.5W	XFB45080100D
CWDM										
10GBase-LR	¹ 1270-1610	C	DFB/PIN	-5 to 0	-15	0	LC	10km/10dB	3.5W	XFCxxB10100D
10GBase-ER	¹ 1270-1450	C	DFB/PIN	-1.8 to 0	-15.8	-1	LC	40km/14dB	3.5W	XFCxxB14100D
10GBase-ER	1470-1610	C	EML/PIN	-3 to 4	-15	0	LC	40km/14dB	3.5W	XFCxx040100D
10GBase-ZR	¹ 1270-1450	C	DFB/ APD	2 to 4	-21	-10	LC	70km/23dB	3.5W	XFCxxB23100D
10GBase-ZR	1470-1610	C	EML/APD	0 to 4	-23	3.5	LC	70km/23dB	3.5W	XFCxx070100D
DWDM										
10GBase-ER	19x.x00THz	C	EML/PIN	-3 to 4	-15	0	LC	40km/12dB	3.5W	XFDxx040100D
10GBase-ZR	19x.x00THz	C	EML/ADP	0 to 4	-23	-10	LC	80km/23dB	3.5W	XFDxx080100D
10GBase-ZR	² Tuneable	C	ILMZ/ADP	-1 to 3	-24	-7	LC	80km/23dB	3.5W	XFDTU0800H0D

¹: Please contact Itectra for recommended distance per channel

²: 191.100 THz – 196.150 THz (50 GHz spacing) Tuneable

Specifications are subject to change without notice.

25G (SFP28)



Standard: 25GBase
 MSA: INF-8074 / SFF-8402
 Size: 8.55 × 13.7 × 56.5 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -40 – 85°C
 Humidity: 5 – 85%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power [dBm]	Rx Sensitivity [dBm]	Rx Overload [dBm]	Conn	Distance/ Power Budget	Effect [Watt]	Product Number
10GBase/25GBase										
10/25GBase-SR	^{1 2} 850	C/I	VCSEL/PIN	-8.4 to 2.4	-10.3	2.4	LC	100m/1.9dB	1.0W	S2885P102RxF
10/25GBase-LR	¹ 1310	C	DFB/PIN	-7 to 2	-13.3	2	LC	10km/6.3dB	1.5W	S28130102R0F
10/25GBase-LR	¹ 1310	C	DFB/PIN	1 to 4.5	-14.5	2.5	LC	20km/15.5dB	1.5W	S28130202R0F
Bi-directional										
10/25GBase-BXD	¹ 1330/1270	I	DFB/PIN	-2 to 4	-13	2.5	LC	10km/11dB	1.5W	S2B320102R2F
10/25GBase-BXU	¹ 1270/1330	I	DFB/PIN	-2 to 4	-13	2.5	LC	10km/11dB	1.5W	S2B230102R2F
10/25GBase-BXD	¹ 1310/1270	I	DFB/APD	-1 to 6	-17	-4	LC	40km/16dB	1.8W	S2B170402R2F
10/25GBase-BXU	¹ 1270/1310	I	DFB/APD	-1 to 6	-17	-4	LC	40km/16dB	1.8W	S2B710402R2F
CWDM										
10/25GBase-LR	¹⁴⁵⁷ CWDM	C/I	DFB/PIN	0 to 6	-13	2	LC	10km/13dB	1.5W	S2Cxx0102RxF
DWDM										
10/25GBase-LR	¹⁸ Tuneable	C/I	ILMZ/PIN	0 to 6	-16	0	LC	10km/16dB	2.5W	S2DTU0102RxF
25GBase										
25GBase-SR	^{1 2} 850	C/I	VCSEL/PIN	-8.4 to 2.4	-10.3	2.4	LC	100m/1.9dB	1.0W	S2885P1025xF
25GBase-LR	¹ 1310	C/I	DFB/PIN	-7 to 2	-13.3	2	LC	10km/8.4dB	1.5W	S2813010250F
25GBase-ER	¹ 1310	C/I	DFB/APD	-3 to 6	-21	-4	LC	40km/18dB	1.8W	S2813040250F
Bi-directional										
25GBase-BXD	¹ 1330/1270	C/I	DFB/PIN	-2 to 4	-13	2.5	LC	10km/11dB	1.5W	S2B3201025xF
25GBase-BXU	¹ 1270/1330	C/I	DFB/PIN	-2 to 4	-13	2.5	LC	10km/11dB	1.5W	S2B2301025xF
25GBase-BXD	¹ 1310/1270	I	DFB/APD	-1 to 6	-19	-4	LC	40km/18dB	1.8W	S2B17040252F
25GBase-BXU	¹ 1270/1310	I	DFB/APD	-1 to 6	-19	-4	LC	40km/18dB	1.8W	S2B71040252F
CWDM										
25GBase-LR	¹⁴⁶⁷ CWDM	C/E	DFB/PIN	0 to 6	-13	2	LC	10km/13dB	1.5W	S2Cxx01025xF
SFP28 to QSFP28 converter										
25G-converter	-	C	-	-	-	-	LC	-	-	Q2S000002500

¹: With Reed-Solomon Forward Error Correction (RS-FEC) for 25 Gbps

²: OM4: 100 m / OM3: 70 m

³: OM4: 400 m / OM3: 300 m

⁴: For break-out from 40G / 100G CWDM4

⁵: 1270 nm / 1290 nm / 1310 nm / 1330 nm

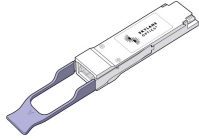
⁶: 1270 nm / 1290 nm / 1310 nm / 1330 nm / 1350 nm / 1370 nm

⁷: Please contact Itectra for recommended distance per channel

⁸: Tuneable within the 100 GHz ITU grid, 191.300 THz – 196.000 THz

Specifications are subject to change without notice.

40G (QSFP+)



Standard: 40GBase
 MSA: SFF-8661 / INF-8628 / SFF-8490
 Size: 8.55 × 18.35 × 72.4 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -20 – 85°C
 Humidity: 5 – 85%

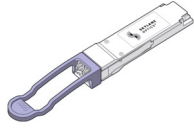
Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power ¹ [dBm]	Rx Sensibility ¹ [dBm]	Rx Overload ¹ [dBm]	Conn	Distance	Effect [Watt]	Product Number
40GBase										
40GBase-SR4	850	C	VCSEL/PIN	-6 to 3	-13	0	MPO-12	100m	1.5W	QFP85P1040PD
40GBase-SR4 BX	² 850/900	C	VCSEL/PIN	-1 to 5	-7	5	LC	150m	3.5W	QFB85P10400D
40GBase-eSR4	850	C	VCEL/PIN	-2.8 to 3	-11.1	2.4	MPO-12	300m	1.5W	QFP85P3040PD
40GBase-IR4	³ 1310	C	FP/PIN	-6 to 1.5	-12.5	2.3	MPO-12	1.4km	3.5W	QFP13C1440PD
40GBase-IR4	1271-1331	C	DFB/PIN	-2 to 3.5	-11.5	2.3	LC	2km	3.5W	QFPQL002400D
40GBase-LX4	⁴ 1271-1331	C	DFB/PIN	-5 to 3.5	-10.5	3.5	LC	150m	3.5W	QFPQL002400U
				-7 to 2.3	-11.3	2.3		2km		
40GBase-LR4	³ 1310	C	DFB/PIN	-8.2 to 0.5	-14.4	-0.5	MPO-12	10km	3.5W	QFP1301040PD
40GBase-LR4	1271-1331	C	DFB/PIN	-4 to 3.5	-11.5	2.3	LC	10km	3.5W	QFPQL010400D
40GBase-PSM4	1310	C	DFB/PIN	-4.2 to 0.5	-12.6	-0.5	MPO-12	20km	3.5W	QFP1302040PD
40GBase-ER4	1271-1331	C	DFB/APD	3.3 to 10.5	-13.2	-1	LC	40km	3.5W	QFPQL040400D

QSFP+ to SFP+ Converter										
40G converter	-	C	-	-	-	-	LC	-	-	QF040CON000C

- 1: Per line
- 2: OM4: 150 m / OM3: 100 m
- 3: Parallel SingleMode (PSM4)
- 4: OM3: 150 m / SMF: 2 km

Specifications are subject to change without notice.

50G (QSFP28)



Standard: 50GBase
 MSA: SFF-8636 / SFF-8665
 Size: 8.55 × 18.35 × 72.4 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -20 – 85°C
 Humidity: 5 – 85%

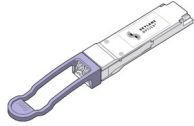
Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power ¹ [dBm]	Rx Sensitivity ^{1*} [dBm]	Rx Overload ¹ [dBm]	Conn	Distance	Effect [Watt]	Product Number
50GBase										
50GBase-LR	¹ 1310	C	WDM/PIN	-4.5 to 4.2	-6.6	4.2	LC	10km	3.5W	Q2C31010500F
50GBase-ER	¹ 1310	C	WDM/APD	0.4 to 6.6	-13.3	-3.4	LC	40km	4.5W	Q2C31040500F
50GBase-BXD	¹ 1271/1331	C	WDM/PIN	-4.5 to 4.2	-6.6	4.2	LC	10km	3.5W	Q2B23010500F
50GBase-BXU	¹ 1331/1271	C	WDM/PIN	-4.5 to 4.2	-6.6	4.2	LC	10km	3.5W	Q2B32010500F
50GBase-BXD	^{1 2} 1308-1294	C	WDM/APD	1.5 to 8	-13.5	-3	LC	40km	4.5W	Q2B91040500F
50GBase-BXU	^{1 2} 1308-1294	C	WDM/APD	1.5 to 8	-13.5	-3	LC	40km	4.5W	Q2B19040500F

¹: PAM4 generated by internal DSP

²: WDM laser is either DML, EML or DFB type. Please consult Itectra if special requirements

Specifications are subject to change without notice.

100G (QSFP28)



Standard: 100GBase
 MSA: SFF-8636 / SFF-8665
 Size: 8.55 × 18.35 × 72.4 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

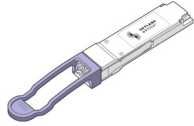
Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -20 – 85°C
 Humidity: 5 – 85%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power ¹ [dBm]	Rx Sensitivity ¹⁸ [dBm]	Rx Overload ¹ [dBm]	Conn	Distance	Effect [Watt]	Product Number
100GBase										
100GBase-SR4	² 850	C	VCSEL/PIN	-8.4 to 2.4	-10.3	2.4	MPO-12	100m	3.5W	Q2885P10C0PF
100GBase-SR BX	^{2 7} 850/900	C	VCSEL/PIN	-6 to 4	-7.9	4	LC	100m	3.5W	Q2B85M70C00D
100GBase-eSR4	³ 850	C	VCSEL/PIN	-8.4 to 2.4	-10.3	2.4	MPO-12	300m	3.5W	Q2885P30C0PF
100GBase-PSM4	⁴ 1310	C	DFB/PIN	-9.4 to 2	-12.66	2	MPO-12	500m	3.5W	Q2813P50C0PD
100G CWDM4	⁵ 1271-1331	C	DFB/PIN	-0.5 to 8.5	-11.5	2.5	LC	2km	3.5W	Q28QL002C00F
100GBase-IR4	⁴ 1310	C	DFB/PIN	-5.5 to 2	-11.4	2	MPO-12	2km	3.5W	Q2813002C0PD
100GBase-LR4	⁹ 1295-1309	C	WDM/PIN	-4.3 to 4.5	-10.6	4.5	LC	10km	4.5W	Q28QD010C00D
100GBase-eLR4	⁹ 1295-1309	C	WDM/PIN	-2.5 to 4.5	-10.6	4.5	LC	20km	4.5W	Q28QD020C00D
100GBase-ER4L	⁶ 1295-1309	C	EML/PIN+SOA	-2.5 to 2.9	-21.4	-3.5	LC	40km	5.0W	Q28QD040C05F
100GBase-ER4	⁹ 1295-1309	C	WDM/PIN+SOA	-2.9 to 2.9	-20.9	4.5	LC	40km	5.0W	Q28QD040C05D
100GBase-ZR4	^{5 11} 1295-1309	C	EML/PIN+SOA	2 to 6.5	-28	-7	LC	80km	5.0W	Q28QD080C05F
100GBase Single Lambda										
100GBase-DR	^{7 9} 1310	C	WDM/PIN	-2.9 to 4	-5.9	4	LC	500m	4.5W	Q2C31P50C00F
100GBase-FR	^{7 9} 1310	C	WDM/PIN	2.4 to 4	-6.4	4.5	LC	2km	4.5W	Q2C31002C00F
100GBase-LR	^{10 12} 27/29/31/33	C	WDM/PIN	2.4 to 4	-1.4	4.5	LC	10km	4.5W	Q2Cxx010C00F
QSFP28 to SFP28 converter										
100G converter	-	C	-	-	-	-	LC	-	-	Q2S000002500

- 1: Per line
- 2: OM4: 100 m / OM3: 70 m
- 3: OM4: 300 m / OM3: 200 m
- 4: Parallel SingleMode (PSM4)
- 5: With Forward Error Correction (FEC)
- 6: 40 km w/FEC / 30 km w/o FEC, values given w/FEC implemented
- 7: Utilizes PAM-4 in the optical signal
- 8: Average Rx Sensitivity, each lane (min) is informative and not the principal indicator of signal strength
- 9: WDM laser is either DML, EML or DFB type. Please consult Itectra if special requirements
- 10: Single fiber module with LC/APC connector, utilizing integrated circulator
- 11: Operating temperature range 0°C to 65°C
- 12: Wavelength 1271,1291,1311,1331

Specifications are subject to change without notice.

100G / 200G / 400G (QSFP-DD)



Standard: 100/200/400GBase
 MSA: SFF-8636 / SFF-8679
 Size: 8.55 × 18.35 × 93.3 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3bs-2017 fibres

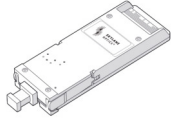
Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -20 – 85°C
 Humidity: 5 – 85%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power ¹ [dBm]	Rx Sensitivity ¹² [dBm]	Rx Overload ¹ [dBm]	Conn	Distance	Effect [Watt]	Product Number
4x100GBase										
4x100GBase-LR1	^{5 7} 1310	C	WDM/PIN	-2.7 to 5.1	-8.2	4.8	MPO-12	10km	12W	QBP13010E0PF
2x100GBase										
2x100GBase-FR4	1271–1331	C	DFB/PIN	-6.5 to 2.5	-11.5	2.5	CS	2km	8W	QAPQL002D03F
2x100GBase-LR4	1271–1331	C	DFB/PIN	-6.5 to 2.5	-13.0	2.5	CS	10km	8W	QAPQL010D03F
2x100GBase-LR4	⁷ 1295–1309	C	WDM/PIN	-4.3 to 4.5	-10.6	4.5	CS	10km	8W	QAPQD010D03D
200GBase										
200GBase-LR4	⁷ 1295–1309	C	WDM/PIN	-3.4 to 5.3	-9.7	5.3	LC	10km	10.8W	QBPOD010D00F
200GBase-ER4	^{5 7 8} 1295–1309	C	WDM/APD	6.4 to 12.6	-13.3	-3.4	LC	40km	10.8W	QBPOD040D00F
400GBase										
400GBase-SR8	^{3 5} 850	C	VCSEL/PIN	-6.5 to 4.0	-8.4	4.0	MPO-16	100m	12W	QBP85P10E0QF
400GBase-DR4	^{4 5 7} 1310	C	CWDM/PIN	-2.9 to 4.0	-5.9	4.0	MPO-12	500m	12W	QBP13P50E0PF
400GBase-DR4+	^{4 5 7} 1310	C	WDM/PIN	-2.4 to 4.0	-6.4	4.5	MPO-12	2km	12W	QBP13002E0PF
400GBase-FR4	^{5 7} 1271–1331	C	CWDM/PIN	-3.3 to 3.5	-7.3	3.5	LC	2km	13W	QBPQL002E00F
400GBase-FR8	^{5 7} 1273–1309	C	WDM/PIN	-3.5 to 5.3	-7.5	5.3	LC	2km	13W	QBPOD002E00F
400GBase-LR4	^{5 7} 1271–1331	C	CWDM/PIN	-2.8 to 4.0	-9.1	4.0	LC	10km	13W	QBPQL010E00F
400GBase-LR8	^{5 7} 1273–1309	C	WDM/PIN	-2.8 to 5.3	-9.1	5.3	LC	10km	14.5W	QBPOD010E00F
400GBase-ER4L	^{5 7} 1295–1309	C	WDM/PIN	-2.8 to 4.0	-9.1	4.0	LC	40km	13W	QBPOD040E00F
400GBase-ER8	^{5 7} 1273–1309	C	WDM/APD	-0.6 to 5.6	-18.6	-4.4	LC	40km	15.4W	QBPOD040E00F
DWDM										
400G ZR	^{10 12} Tuneable	C	MZM/APD	-10 to -6	-20	1	LC	120km	18.3W	QBTDUSES0801
400G OpenZR+	^{9 11} Tuneable	C	MZM/APD	-10 to -6	-23	1	LC	1300km	21.3W	QBTDUMES0902

- 1: Per line
- 2: Average Rx Sensitivity, each lane (min) is informative and not the principal indicator of signal strength
- 3: OM4: 100 m / OM3: 70 m
- 4: Parallel SingleMode (PSM4), APC
- 5: Utilizes PAM-4
- 6: QSFP56
- 7: WDM laser is either DML, EML or DFB type. Please consult Itectra if special requirements
- 8: Utilizes 4x26.5625 Gb with PAM4 Serial Electrical Interface (200GAUI-4) or 8x26.5625 Gb with NRZ Serial Electrical Interface (200GAUI-8)
- 9: Supports 400Gbps (OFEC-16QAM, Rx range: -23 – 1 [dBm], OSNR ≤ 22.7 [dB]), 300Gbps (OFEC-8QAM, Rx range: -23 – 1 [dBm], OSNR ≤ 19.3 [dB]), 200Gbps (OFEC-QPSK, Rx range: -30 – 1 [dBm], OSNR ≤ 15 [dB]), 100Gbps (OFEC-QPSK, Rx range: -32 – 1 [dBm], OSNR ≤ 11 [dB])
- 10: Utilizes 8x26.5625 Gb PAM4 Serial Electrical Interface (400GAUI-8, RS (544/514) FEC)
- 11: Optimal OSNR performance at less than 40 km
- 12: Optimal OSNR performance at less than 40 km

Specifications are subject to change without notice.

100G / 200G (CFP2)



Standard: 100/200GBase
 MSA: CFP MSA compliant
 Size: 41.5 × 12.4 × 107.5 mm
 All optical modules feature DOM
 Distances based on IEEE 802.3-2012 fibres

Temp., Operation: C: Commercial: 0 – 70°C
 E: Extended: -20 – 85°C
 I: Industrial: -40 – 85°C
 Temp., Storage: -40 – 85°C
 Humidity: 5 – 85%

Standard	Wavelength [nm]	Temp	Laser/ Receiver	Tx Power ¹ [dBm]	Rx Sensitivity ¹ [dBm]	Rx Overload ¹ [dBm]	Conn	Distance	Effect [Watt]	Product Number
100GBase/200GBase										
100GBase-LR4	1295-1309	C	EML/PIN	-4.3 to 4.5	-10.6	4.5	LC	10km	8.0W	CF2QD010C00D
100GBase-ER4	1295-1309	C	EML/PIN+SOA	-2.9 to 2.9	-20.9	4.5	LC	40km	9.0W	CF2QD040C00D
100G/200G ACO ^{2 3}	Tuneable	C	MZM/APD	-15 to 1	-25 to -13	0	LC	2000km	12W	C2DTUACOMR01
100G/200G DCO ^{2 3}	Tuneable	C	MZM/APD	-15 to 1	-25	0	LC	2000km	16W	C2DTUDCOMR02
CPF2 to QSFP28 converter										
100G converter	-	C	-	-	-	-	LC	-	-	C2Q00000C00D

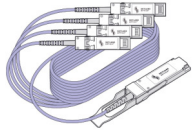
¹: Per line

²: 100 Gb DP-QPSK / 200Gb DP-8QAM/16QAM. Please contact Itectra for distances and further technical details

³: 191.100 THz – 196.150 THz (50 GHz spacing) Tuneable

Specifications are subject to change without notice.

DAC (Direct Attached Cable) / AOC (Active Optical Cable)



Standard: 10/40/100/200GBase
 MSA: SFF-8431/SFF-8436 (SFP+/SFP28)
 SFF-8661/SFF-8665 (QSFP+/QSFP28)
 Size: 8.55 × 13.70 × 56.5 mm (SFP)
 8.55 × 18.35 × 72.4 mm (QSFP)

Temp., Operation: C: Commercial: 0 – 70°C
 Temp., Storage: -40 – 85°C
 Humidity: 5 – 85%

Standard	Medium	Temp	Method	Type	Length [meter] ¹	Effect [Watt]	Product Number
10GBase (SFP+)							
10GBase	Copper	C	Passive DAC	SFP+ to SFP+	1/2/3/5	1.0W	DAPSSMxx1000
10GBase	Copper	C	Active DAC	SFP+ to SFP+	3/5/7/10/12	1.0W	DAASSMxx1000
10GBase	² 850nm	C	AOC	SFP+ to SFP+	1/2/3/5/7/10	0.7W	DOASSMxx100D
25GBase (SFP28)							
25GBase	Copper	C	Passive DAC	SFP28 to SFP28	1/2/3/5	1.0W	DAPSSMxx2500
25GBase	² 850nm	C	AOC	SFP28 to SFP28	1/2/3/5/7/10	0.7W	DOASSMxx250D
40G (QSFP+)							
40GBase	Copper	C	Passive DAC	QSFP+ to QSFP+	1/2/3/5	0.5W	DAPQQMxx4000
40GBase	Copper	C	Passive DAC	QSFP+ to 4xSFP+	1/2/3/5	0.5W	DAPQSMxx4000
40GBase	Copper	C	Active DAC	QSFP+ to QSFP+	5/7/10	0.5W	DAAQQMxx4000
40GBase	Copper	C	Active DAC	QSFP+ to 4xSFP+	5/7/10	0.5W	DAAQSMxx4000
40GBase	² 850nm	C	AOC	QSFP+ to QSFP+	1/2/3/5/7/10	1.5W	DAOQQMxx400D
40GBase	² 850nm	C	AOC	QSFP+ to 4xSFP+	1/2/3/5/7/10	1.5W	DAOQSMxx400D
100G (QSFP28)							
100GBase	Copper	C	Passive DAC	QSFP28 to QSFP28	1/2/3/5	0.5W	DAPQQMxxC000
100GBase	Copper	C	Passive DAC	QSFP28 to 4xSFP28	1/2/3/5	0.5W	DAPQSMxxC000
100GBase	² 850nm	C	AOC	QSFP28 to QSFP28	1/2/3/5/7/10	2.5W	DAOQQMxxC00D
100GBase	² 850nm	C	AOC	QSFP28 to 4xSFP28	1/2/3/5/7/10	2.5W	DAOQSMxxC00D

¹: Please contact Itectra if other lengths are required

²: Features DOM

³: 8 × 26.5625 Gb PAM4 Serial Electrical Interface (400GAUI-8, RS (544/514) FEC)

Specifications are subject to change without notice.

About Itectra

Since 2008 Itectra has designed, delivered, and serviced business-critical IT infrastructure for Danish datacentres, public companies, enterprises, and service provider networks. Itectra is specialized in the optical domain with focus on delivery of optical components, WDM systems and consultancy based on a solid knowledge of optical networks, physical optical behaviour, and future evolution of the optical market.

Itectra has gained the Danish Børsen Gazelle Award in three continuous years (2016 – 2018) and has successively been Bisnode Triple-A rated since 2014.

This success is founded in a close cooperation with our customers and a deep professional understanding of their infrastructure challenges and needs. We follow the technology closely and ensure that our customers can benefit from the latest technologies with the most suitable solution.

Quality in all aspects

Itectra aims for the highest quality in all aspects from optical network design to the selection of vendors and components to each specific project. All Itectras vendors are carefully selected among the leaders in the optical world and have all the same clear view on “Quality in all aspects” as Itectra.

Service and Support

Itectra offers a selection of service and support options to secure operational efficiency and resolve critical problems smoothly and with minimum impact on the operational infrastructure. To accommodate this Itectra offers different services from Advanced Hardware Replacement to four hours SLA and Professional Deployment Services from selected vendors.

Contacts

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