

# Small Form-factor Pluggable (SFP) Devices

High performance, Small Form-factor Pluggable (SFP) devices for Local Area Networks, Wide Area Networks, Metropolitan Area Networks and Access Networks.

Avara's SFP-to-SFP Media Module establishes a new generation of deployment flexibility and inventory management with a comprehensive range of optical products.

Single-fibre working (SFW) bi-directional SFPs use different wavelengths for sending and receiving data on a single optical fibre cable. In order to establish a link, a pair of bi-directional SFPs that have matching Tx and Rx Wavelengths must be used to create a link.

Dual-fiber working (DFW) SFPs uses the same wavelength for sending and receiving data, but uses two optical fibre strands to establish the link (one for each direction).

## Technical Highlights

- RoHS compliant
- Compliant with SONET/SDH standard
- Compliant with GE & Fast Ethernet standards
- Industry standard Small Form-factor Pluggable (SFP) package
- Simplex & Duplex LC connector types
- Single Mode Fibre (SMF), Multi-mode Fibre (MMF) or Copper media options
- Differential LVPECL inputs and outputs
- Single power supply 3.3V
- TTL signal detect indicator
- Hot Pluggable
- Class 1 laser product complies with EN 60825-1



## Technical Specifications

	Part Number	Long Ordering Code	Media & Connector Type	Wavelength (nm)		Output Power (dBm)		Receiver Sensitivity (dBm)	Link Budget (dB)	Saturation Power (dBm)	Supply Voltage (V)	Temp Range (°C)	Digital Diagnostics	Range (km)
				Tx	Rx	Min	Max	Min	Min	Max	Min			
<b>Single Fibre Bidirectional Gigabit Ethernet</b>	P21023.01	SFP-SFW-LX-T3R5-10	SMF/1xLC	1310	1550	-9	-3	-21	12	-1	3.3	0 - 70	Yes	10
	P21023.02	SFP-SFW-LX-T5R3-10	SMF/1xLC	1550	1310	-9	-3	-21	12	-1	3.3	0 - 70	Yes	10
	P21023.03	SFP-SFW-LX-T3R5-20	SMF/1xLC	1310	1550	-8	-2	-23	15	-1	3.3	0 - 70	Yes	20
	P21023.04	SFP-SFW-LX-T5R3-20	SMF/1xLC	1550	1310	-8	-2	-23	15	-1	3.3	0 - 70	Yes	20
	P21023.05	SFP-SFW-LX-T3R5-40	SMF/1xLC	1310	1550	-3	2	-23	20	-1	3.3	0 - 70	Yes	40
	P21023.06	SFP-SFW-LX-T5R3-40	SMF/1xLC	1550	1310	-3	2	-23	20	-1	3.3	0 - 70	Yes	40
	P21023.07	SFP-SFW-LX-T3R5-60	SMF/1xLC	1310	1550	0	5	-24	24	-1	3.3	0 - 70	Yes	60
	P21023.08	SFP-SFW-LX-T5R3-60	SMF/1xLC	1550	1310	-2	4	-25	23	-1	3.3	0 - 70	Yes	60
<b>Single Fibre Bidirectional Fast Ethernet 155 Mbps SONET OC-3 155 Mbps SDH STM-1</b>	P21036.01	SFP-SFW-FX-T3R5-20	SMF/1xLC	1310	1550	-14	-8	-32	18	0	3.3	0 - 70	Yes	20
	P21036.02	SFP-SFW-FX-T5R3-20	SMF/1xLC	1550	1310	-14	-8	-32	18	0	3.3	0 - 70	Yes	20
	P21036.07	SFP-SFW-FX-T3R5-60	SMF/1xLC	1310	1550	-5	0	-34	29	0	3.3	0 - 70	Yes	60
	P21036.08	SFP-SFW-FX-T5R3-60	SMF/1xLC	1550	1310	-5	0	-34	29	0	3.3	0 - 70	Yes	60

	Part Number	Long Ordering Code	Media & Connector Type	Wavelength (nm)		Output Power (dBm)		Receiver Sensitivity (dBm)	Link Budget (dB)	Saturation Power (dBm)	Supply Voltage (V)	Temp Range (°C)	Digital Diagnostics	Range (km)
				Tx	Rx	Min	Max	Min	Min	Max	Min			
<b>Dual Fibre Gigabit Ethernet</b>	P21022.01	SFP-DFW-SX-T85-550	MMF/2xLC	850	850	-10	-4	-18	8.5	0	3.3	0 - 70	Yes	0.6
	P21022.02	SFP-DFW-SXP-T85-2	MMF/2xLC	1310	1310	-9	-1	-19	10	-1	3.3	0 - 70	Yes	2
	P21022.03	SFP-DFW-LX-T13-10	SMF/2xLC	1310	1310	-10	-3	-20	10	-3	3.3	0 - 70	Yes	10
	P21022.04	SFP-DFW-LX-T15-30	SMF/2xLC	1550	1550	-9	-3	-21	12	-3	3.3	0 - 70	Yes	30
	P21022.05	SFP-DFW-LHX-T13-30	SMF/2xLC	1310	1310	-4	1	-24	20	-3	3.3	0 - 70	Yes	30
	P21022.06	SFP-DFW-XD-T15-50	SMF/2xLC	1550	1550	-4	1	-24	20	-3	3.3	0 - 70	Yes	50
	P21022.07	SFP-DFW-ZX-T15-70	SMF/2xLC	1550	1550	0	5	-24	24	-3	3.3	0 - 70	Yes	70
	P21022.08	SFP-DFW-EZX-T15-110	SMF/2xLC	1550	1550	0	5	-30	30	-8	3.3	0 - 70	Yes	110
	P21022.09	SFP-DFW-EZZ-T15-120	SMF/2xLC	1550	1550	0	5	-32	32	-9	3.3	0 - 70	Yes	120
	P21022.10	SFP-DFW-EF-T15-150	SMF/2xLC	1550	1550	2.5	7	-35	37.5	-9	3.3	0 - 70	Yes	150
	P21022.11	SFP-DFW-LX-T13-70	SMF/2xLC	1310	1310	0	5	-30	30	-8	3.3	0 - 70	Yes	70
	P21022.12	SFP-DFW-LX-T13-60	SMF/2xLC	1310	1310	0	5	-26	26	-1	3.3	0 - 70	Yes	60
<b>Dual Fibre Fast Ethernet 155 Mbps SONET OC-3 155 Mbps SDH STM-1</b>	P21027.01	SFP-DFW-FE-T13R13-30	SMF/2xLC	1310	1310	-15	-8	-34	19	0	3.3	0 - 70	Yes	30
	P21027.02	SFP-DFW-FE-T13R13-60	SMF/2xLC	1310	1310	-5	0	-35	30	0	3.3	0 - 70	Yes	60
	P21027.03	SFP-DFW-FE-T15R15-20	SMF/2xLC	1550	1550	-15	-8	-34	19	0	3.3	0 - 70	Yes	20
	P21027.04	SFP-DFW-FE-T15R15-100	SMF/2xLC	1550	1550	-5	0	-35	30	0	3.3	0 - 70	Yes	100
	P21027.06	SFP-DFW-FE-T85R85-M2	MMF/2xLC	850	850	-10	-4	-24	14	0	3.3	0 - 70	Yes	2
<b>Dual Fibre 622 Mbps SDH STM-1/4</b>	P21070.01	SFP-DFW-STM14-T3R3-20	SMF/2xLC	1310	1310	-15	-8	-28	13	-8	3.3	0 - 70	Yes	20
	P21070.02	SFP-DFW-STM14-T5R5-80	SMF/2xLC	1550	1550	-3	2	-28	25	-3	3.3	0 - 70	Yes	80
	P21070.03	SFP-DFW-STM14-T3R3-50	SMF/2xLC	1310	1310	-3	3	-28	25	-3	3.3	0 - 70	Yes	50
<b>Single Fibre Bidirectional 622 Mbps SDH STM-4</b>	P21072.01	SFP-SFW-STM4-T3R5-20	SMF/2xLC	1310	1550	-9	-3	-23	14	-3	3.3	0 - 70	Yes	20
	P21072.02	SFP-SFW-STM4-T5R3-20	SMF/2xLC	1550	1310	-9	-3	-23	14	-3	3.3	0 - 70	Yes	20
	P21072.05	SFP-SFW-STM4-T3R5-40	SMF/2xLC	1310	1550	-3	2	-23	20	2	3.3	0 - 70	Yes	40
	P21072.06	SFP-SFW-STM4-T5R3-40	SMF/2xLC	1550	1310	-3	2	-23	20	2	3.3	0 - 70	Yes	40
	P21072.09	SFP-SFW-STM4-T51R57-80	SMF/2xLC	1510	1570	-2	3	-24	22	3	3.3	0 - 70	Yes	80
	P21072.10	SFP-SFW-STM4-T57R51-80	SMF/2xLC	1570	1510	-2	3	-24	22	3	3.3	0 - 70	Yes	80

	Part Number	Long Ordering Code	Connector Type	Data Rate	Link type	Supply Voltage (V)	Temp Range (°C)	Digital Diagnostics	Range(m)
<b>Copper Pluggables</b>	P21028.01	SFP-COP-1000Base-T	RJ45	1000M	Cat5	3.3	0 - 70	Yes	100
	P21028.02	SFP-COP-100Base-T	RJ45	100M	Cat5	3.3	0 - 70	Yes	100

	Part Number	Long Ordering Code	Media & Connector Type	Tx Wavelength (nm)		Output Power (dBm)		Receiver Sensitivity (dBm)		Receiver Operating Wavelength		Saturation Power (dBm)	Margin (dBm)	Supply Voltage (V)	Temp Range (°C)	Digital Diagnostics
				Min	Max	Min	Max	Min	Max	Min	Max	Max				
<b>Dual Fibre Pluggables CWDM Gigabit Ethernet</b>	P21037.27	SFP-CWDM-GE-20-1270	SMF/2xLC	1264.5	1277.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.29	SFP-CWDM-GE-20-1290	SMF/2xLC	1284.5	1297.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.31	SFP-CWDM-GE-20-1310	SMF/2xLC	1304.5	1317.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.33	SFP-CWDM-GE-20-1330	SMF/2xLC	1324.5	1337.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.35	SFP-CWDM-GE-20-1350	SMF/2xLC	1344.5	1357.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.37	SFP-CWDM-GE-20-1370	SMF/2xLC	1364.5	1377.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.39	SFP-CWDM-GE-20-1390	SMF/2xLC	1384.5	1397.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.41	SFP-CWDM-GE-20-1410	SMF/2xLC	1404.5	1417.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.43	SFP-CWDM-GE-20-1430	SMF/2xLC	1424.5	1437.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.45	SFP-CWDM-GE-20-1450	SMF/2xLC	1444.5	1457.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.47	SFP-CWDM-GE-20-1470	SMF/2xLC	1464.5	1477.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.49	SFP-CWDM-GE-20-1490	SMF/2xLC	1484.5	1497.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.51	SFP-CWDM-GE-20-1510	SMF/2xLC	1504.5	1517.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.53	SFP-CWDM-GE-20-1530	SMF/2xLC	1524.5	1537.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.55	SFP-CWDM-GE-20-1550	SMF/2xLC	1544.5	1557.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.57	SFP-CWDM-GE-20-1570	SMF/2xLC	1564.5	1577.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.59	SFP-CWDM-GE-20-1590	SMF/2xLC	1584.5	1597.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
	P21037.61	SFP-CWDM-GE-20-1610	SMF/2xLC	1604.5	1617.5	-4	+1	-24		1260	1620	-1	20	3.3	0 - 70	Yes
<b>Dual Fibre Pluggables CWDM Gigabit Ethernet</b>	P21038.27	SFP-CWDM-GE-30-1270	SMF/2xLC	1264.5	1277.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.29	SFP-CWDM-GE-30-1290	SMF/2xLC	1284.5	1297.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.31	SFP-CWDM-GE-30-1310	SMF/2xLC	1304.5	1317.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.33	SFP-CWDM-GE-30-1330	SMF/2xLC	1324.5	1337.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.35	SFP-CWDM-GE-30-1350	SMF/2xLC	1344.5	1357.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.37	SFP-CWDM-GE-30-1370	SMF/2xLC	1364.5	1377.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.39	SFP-CWDM-GE-30-1390	SMF/2xLC	1384.5	1397.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.41	SFP-CWDM-GE-30-1410	SMF/2xLC	1404.5	1417.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.43	SFP-CWDM-GE-30-1430	SMF/2xLC	1424.5	1437.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.45	SFP-CWDM-GE-30-1450	SMF/2xLC	1444.5	1457.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.47	SFP-CWDM-GE-30-1470	SMF/2xLC	1464.5	1477.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.49	SFP-CWDM-GE-30-1490	SMF/2xLC	1484.5	1497.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.51	SFP-CWDM-GE-30-1510	SMF/2xLC	1504.5	1517.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.53	SFP-CWDM-GE-30-1530	SMF/2xLC	1524.5	1537.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.55	SFP-CWDM-GE-30-1550	SMF/2xLC	1544.5	1557.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.57	SFP-CWDM-GE-30-1570	SMF/2xLC	1564.5	1577.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.59	SFP-CWDM-GE-30-1590	SMF/2xLC	1584.5	1597.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes
	P21038.61	SFP-CWDM-GE-30-1610	SMF/2xLC	1604.5	1617.5	0	+5	-30		1260	1620	-8	30	3.3	0 - 70	Yes

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