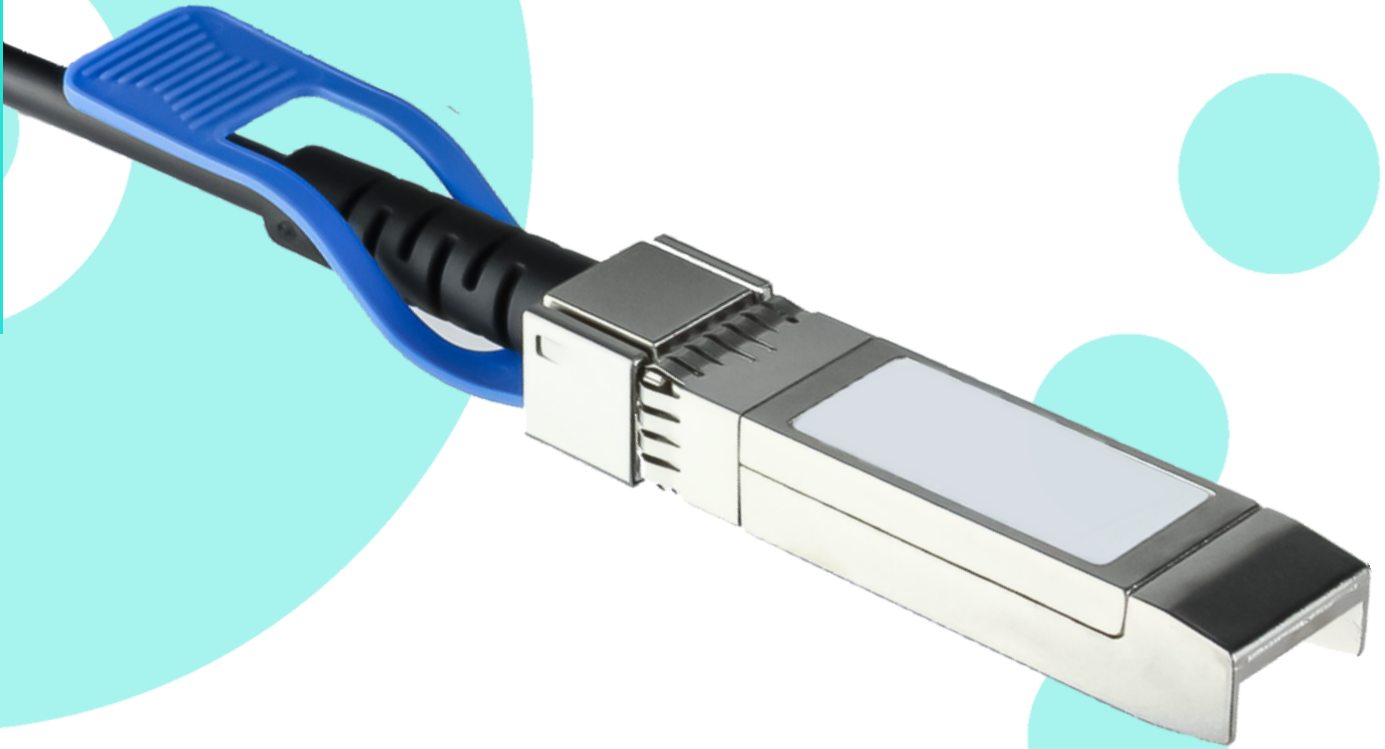




leader
optec

25G SFP28 Direct Attach Cable (DAC)



A high-performance cable perfectly suited to short distance applications in data centres.



**Cost-effective
Copper solution**



**Low power
consumption**



**Lowest total
system EMI**



**Optimised for
signal integrity**

fibre optic assembly specialists



DIRECT ATTACH CABLE (DAC)

SFP28 DACs (Direct Attach Cables) consist of two SFP28 modules with a copper cable permanently embedded into each end. The SFP28 passive cable assemblies are high-performance, cost-effective interconnect solutions, targeted at enabling 25Gb/s to 28Gb/s applications, such as 25Gb/s Ethernet. In addition to this, DACs are ideal for application with high-speed servers, making them an ideal cable for Inter Rack Connection in data centres.

SFP28 Copper cables allow hardware manufactures to achieve high port density, configurability and utilisation, at a very low cost and reduced power budget.

This DAC is compliant with SFF-8432 and SFF-8402 specifications. Various choices of wire gauge are available from 30 to 26 AWG with various choices of cable length (up to 5m).

APPLICATION

- Ethernet
- Networked storage systems
- External storage systems
- Data Centre networking
- Hubs, Switches, Routers, Servers



Next Page; Features and Benefits....

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DIRECT ATTACH CABLE (DAC)



KEY FEATURES

- Up to 25.78125 Gbps data rate
- Up to 5 metre transmission
- Hot-pluggable SFP 20PIN footprint
- Compatible to SFP20 MSA
- Compatible to SFF-8402 and SFF-8432
- Temperature range: 0-70 °C
- ROHS Compatible

BENEFITS

- Cost-effective copper solution
- Lowest total system power solution
- Lowest total system EMI solution
- Optimised design for signal integrity
- Low power consumption
- Improved pluggable form factor (IPF) compliant for enhanced ENU/EMC performance

SPECIFICATIONS

Parameter	Symbol	Min	Typ.	Max	Unit	Note
Recommended Operating Conditions						
Storage Temp		-40		+85	°C	
Operating Case Temp	Tc	0		+70	°C	
Power Supply Voltage	Vcc3	3.14	3.3	3.47	V	
High Speed Characteristics						
Differential Impedance	TDR	90	100	110	Ω	
Insertion Loss	SDD21	-22.48			dB	At 12.8906 GHz
Differential Return Loss	SDD11 SDD22			See 1	dB	At 0.05 to 4.1 GHz
				See 2		At 4.1 to 19 GHz
Common mode to common mode output return loss	SCC11 SCC22			-2	dB	At 0.2 to 19 GHz
Differential to common mode return loss	SCD11 SCD22			See 3	dB	At 0.01 to 12.89 GHz
				See 4		At 12.89 to 19 GHz
Differential to common Mode Conversion Loss	SCD21 IL			-10	dB	At 0.01 to 12.89 GHz
				See 5		At 12.89 to 15.7 GHz
				-6.3		At 15.7 to 19 GHz

Notes:

- Reflection Coefficient given by equation $SDD11(dB) < 16.52 \times \sqrt{f}$, with f in GHz
- Reflection Coefficient given by equation $SDD11(dB) < 10.66 \log_{10}(f/5.5)$, with f in GHz
- Reflection Coefficient given by equation $SCD11(dB) < 22(20/25.78)^*f$, with f in GHz
- Reflection Coefficient given by equation $SCD11(dB) < 15(6/25.78)^*f$, with f in GHz
- Reflection Coefficient given by equation $SCD21(dB) < 27(29/22)^*f$, with f in GHz



DIRECT ATTACH CABLE (DAC)



PIN DESCRIPTIONS

Pin	Logic	Symbol	Name/Description	Note
SFP28 Pin Function Definition				
1		VeeT	Transmitter Ground	
2	LV-TTL-O	TX_Fault	N/A	1
3	LV-TTL-I	TX_DIS	Transmitter Disable	2
4	LV-TTL-I/O	SDA	Tow Wire Serial Data	
5	LV-TTL-I	SCL	Tow Wire Serial Clock	
6		MOD-DEFO	Module present, connect to VeeT	
7	LV-TTL-I	RS0	N/A	1
8	LV-TTL-O	LOS	LOS of Signal	2
9	LV-TTL-I	RS1	N/A	1
10		VeeR	Receiver Ground	
11		VeeR	Receiver Ground	
12	CML-O	RD-	Receiver Data Inverted	
13	CML-O	RD+	Receiver Data Non Inverted	
14		VeeR	Receiver Ground	
15		VccR	Receiver Supply 3.3V	
16		VccT	Transmitter Supply 3.3V	
17		VeeT	Transmitter Ground	
18	CML-I	TD+	Transmitter Data Non Inverted	
19	CML-I	TD-	Transmitter Data Inverted	
20		VeeT	Transmitter Ground	

Notes

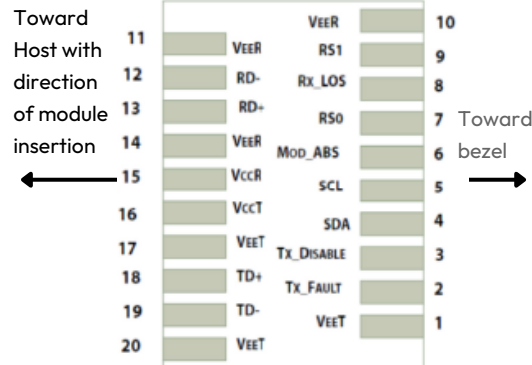
- Signals not supported in SFP+ Copper pulled down to VeeT with 30K ohms resistor
- Passive cable assemblies do not support LOS and TX_DIS



DIRECT ATTACH CABLE (DAC)



PIN DESCRIPTIONS

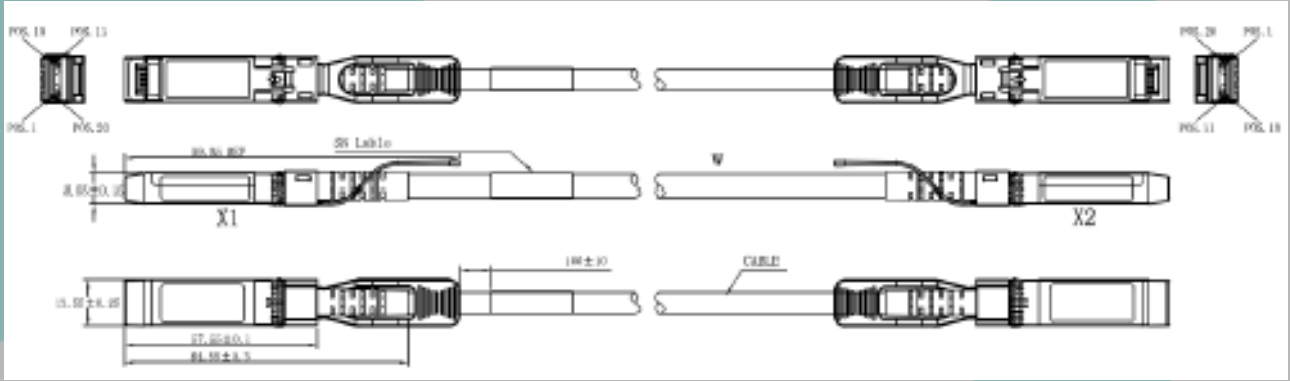


MECHANICAL SPECIFICATIONS

Length (M)	Cable AWG
1	30
2	30
3	30/26
4	26
5	26

This connector is compatible with the SFF-8432 specification.

MECHANICAL SPECIFICATIONS



REGULATORY COMPLIANCE

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1 (>2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity (RFI)	IEC61000-4-3	Typically Show no Measurable Effect from a 10V/m Field Swept from 80 to 1000MHz
RoHS Compliance	RoHS Directive 2011/65/EU & Amendment Directives (EU) 2015/863	RoHS (EU) 2015/863 compliant
REACH Compliance	REACH Regulation (EC) No 1907/2006	REACH (EC) No 1907/2006 compliant

