



2x200Gb/s to 2x200Gb/s (2xQSFP56 to 2xQSFP56) MMF Active Optical Cross Connect Splitter H-Cable



MFS1S90-HxxxE

Mellanox® MFS1S90-HxxxE is a QSFP56 VCSEL-based (Vertical Cavity Surface-Emitting Laser), cost-effective, 2x200Gb/s to 2x200Gb/s active optical splitter cable (AOC) designed for use in 200Gb/s InfiniBand HDR (High Data Rate) systems.

It provides cross-connectivity between a 200G Top of Rack (ToR) switch port configured as 2x100G ports and two 200G spine switch ports also configured as 2x100G ports. This offers a substantial CAPEX saving by reducing the required number of spine ports and cables. For data centers with more than 1600 servers, it will also save the third layer switches.

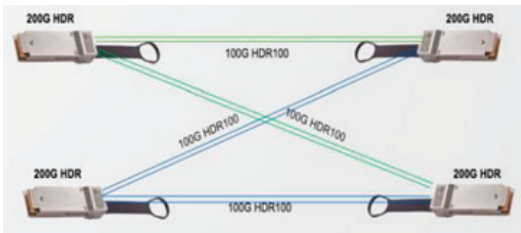


Figure 1. AOC Splitter H-Cable

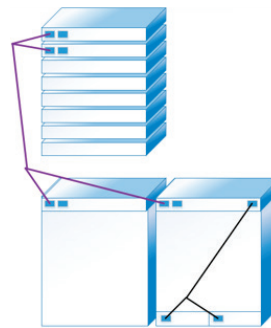


Figure 2. Up to 3200 Ports, 2 Level Fat-Tree

Each QSFP56 end of the cable comprises an EEPROM providing product and status monitoring information, which can be read by the host system.

Rigorous production testing ensures the best out-of-the-box installation experience, performance and durability.

Mellanox's unique quality active fiber cable solutions provide power-efficient connectivity for data center interconnects. It enables higher port bandwidth, density and configurability at a low cost, and reduced power requirement in the data centers.

LinkX[†]

HIGHLIGHTS

- Supports IBTA InfiniBand HDR and HDR100
- 2x200Gb/s HDR to 2x200Gb/s
- 4x 50Gb/s PAM4 modulation
- Programmable Rx output amplitude and pre-emphasis
- SFF-8665 compliant QSFP56 port
- Single 3.3V power supply
- 4.35W power dissipation (typ., each end)
- Bit Error Rate (BER) better than 1E-15 with Mellanox systems
- Up to 30m length
- Hot pluggable
- RoHS compliant
- SFF-8636 compliant I²C management interface
- Application: Connects between ToR/leaf switches and spine switches with fat-tree spine redundancy

Table 1 - Absolute Maximum Ratings

Parameter	Minimum	Maximum	Units
Supply voltage	-0.3	3.6	V
Data input voltage	-0.3	3.456	V
Control input voltage	-0.3	4.0	V
Damage threshold	3.4	---	dBm
Storage temperature	-40	85	°C

Table 2 - Operational Specifications

Parameter	Minimum	Typical	Maximum	Units
Supply voltage (Vcc)	3.135	3.3	3.465	V
Power dissipation 200Gb/s end	---	4.35	4.55	W
Supply noise tolerance (10Hz-10MHz)	66	---	---	mVpp
Operating case temperature	0	---	70 ⁽¹⁾	°C
Operating relative humidity	5	---	85	%

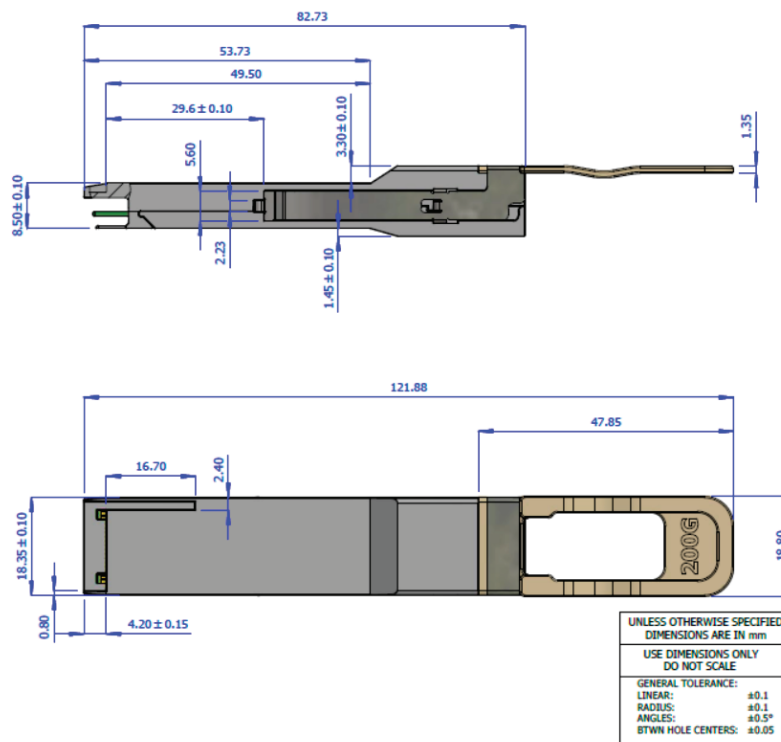
Note 1. Internal temperature readout through DDMI of up to 75°C is allowed.

Table 3 - Cable Mechanical Specifications

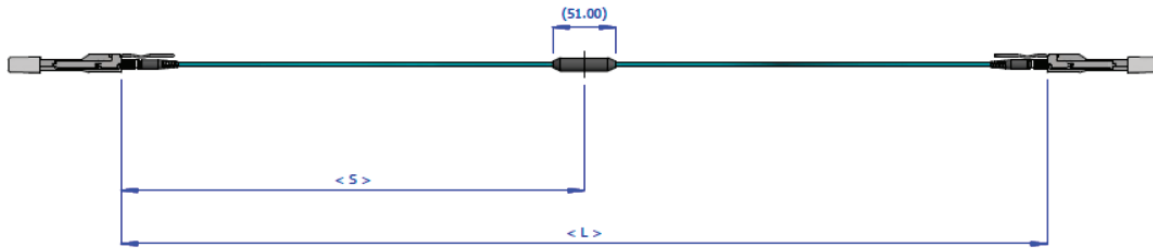
Parameter	Value	Units
Diameter	3 ± 0.2	mm
Minimum bend radius	30	mm
Length tolerance	Length < 5m: +300mm / -0 5m ≤ Length < 50m: +500mm / -0	m, mm
Cable color	Aqua	---

Note 1. See Figure 3 for the cable length definition.

Mechanical Schematics



Mechanical Schematics (cont.)



CABLE LENGTH AND TOLERANCE		
CABLE LENGTH <L> [Meter]	TOLERANCE [Meter]	SPLIT LOCATION <S> [Meter]
L = 3	+0.3/-0	1.50 +0.15/-0
L = 5	+0.5/-0	2.50 +0.25/-0
5 < L ≤ 50	+0.5/-0	3.00±0.1

Figure 3. Fan-out Point and Cable Length

Table 4 - Part Numbers and Descriptions

OPN	Description
MFS1S90-H003E	Mellanox® active optical splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 3m
MFS1S90-H005E	Mellanox® active optical splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 5m
MFS1S90-H010E	Mellanox® active optical splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 10m
MFS1S90-H015E	Mellanox® active optical splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 15m
MFS1S90-H020E	Mellanox® active optical splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 20m
MFS1S90-H030E	Mellanox® active optical splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56, LSZH, 30m

Warranty Information

Mellanox LinkX AOC cables include a 1-year limited hardware warranty, which covers parts repair or replacement.