

# QSFP DD Loopback Modules

## QSFP DD LOOPBACKS 200G / 400G / 800G SYSTEM CONFIGURATION SOLUTION

Amphenol's QSFP DD (Double-Density) Loopback Modules are part of Amphenol's comprehensive QSFP DD product family offering – cables, connectors and AOC's. These QSFP DD loopback cable assemblies are offered in 3 configurations – Passive Electrical, Passive Thermal and Active Electrical or Thermal. All loopback cable assemblies are backwards plug compatible with existing 100G based systems and support 200G (8 lanes @ 25G NRZ) or 400G (8 lanes @ 50G PAM4) or 800G (16 lanes @ 50G PAM4) signaling transmission.



### TARGET MARKETS



### FEATURES

- Backwards plug capability to 100G; seamless transition to future higher aggregate bandwidth
- Adaptable design that provides the user adjustable dynamic control of different power levels per QSFP DD MSA power class definition
- Available with passive or active (repeater) high speed data path configurations
- Available with and without thermal loading
- 2 LED system indicators – thermal loopbacks
- On-board diagnostic monitoring – thermal loopbacks
- Signal conditioning of QSFP DD control lines – for both passive & active modules
- EEPROM per QSFP DD MSA; customization is available
- Enables 25G/ lane NRZ and 50G PAM4 per channel transmission
- Compatible with both existing 100G QSFP based connector ports (with heat sinks and/or light pipes) as well as the 200G / 400G / 800G ports
- Custom solutions supported
- Part of Amphenol's overall QSFP DD based product offerings
- RoHS compliant

### BENEFITS

- Addresses current and future market desired bandwidth port capability requirements
- Modules are field upgradeable enabling customized programs to customer specific requirements
- Enables electrical system debug and validation testing
- Inexpensive testing of host hardware ports
- Visual indication of module power settings and interrupt flags
- On-board voltage and temperature monitoring
- Control line compliance with MSA – passive models follow the DAC requirements; Thermal follow optical requirements
- Enables system communication over I2C buss
- 200G / 400G / 800G aggregate bandwidth capacity
- Assured cable plug-ability regardless of port bandwidth configuration
- Custom solutions from adapter cables to loopback cables and beyond
- Comprehensive QSFP DD I/O system that includes cabling & connector solutions for copper or optical based solutions
- Environmentally friendly

## TECHNICAL INFORMATION

### MATERIAL

- Nickel plated zinc die cast shells & latching mechanism parts
- Low loss PCB with gold finger and solder pads
- Thermoplastic pull tab

### ELECTRICAL PERFORMANCE

- Differential Impedance:  $100\Omega \pm 10\Omega$

### MECHANICAL PERFORMANCE

- Refer to QSFP DD MSA document

### ENVIRONMENTAL

- Thermal Shock: EIA 364-32, Condition 1, 25 cycles,  $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Service life expectancy to exceed 5 years at  $65^{\circ}\text{C}$

### APPROVALS AND CERTIFICATIONS

- GR-253-CORE
- InfiniBand Architecture Specifications
- FC-PI-6p
- FC-PI-7
- Applicable IEEE specifications
  - IEEE802.3by
  - IEEE802.3bs
  - IEEE802.3cd

### PACKAGING

- Loopback ends packaged with dust covers

### TARGET MARKETS/APPLICATIONS



Low Latency Communication Systems  
 Network Interface Cards (NICs)  
 Routers  
 Switches



Servers  
 Networked Storage Systems  
 High Performance Computing (HPC) Applications  
 Data Center Networking

## PART NUMBERS

Description	Part Numbers
QSFP DD Loopback Cable Assembly, Passive, 28G or 56G per lane	NLNAMB-0001
QSFP DD Loopback Cable Assembly, Passive Thermal with Microcontroller, 28G or 56G per lane	NLNAME-0001
QSFP DD Loopback Cable Assembly, Active Thermal, 28G or 56G per lane	TBD*
QSFP DD Loopback Cable Assembly, Passive, 112G per lane	NLNACB-0001
QSFP DD Loopback Cable Assembly, Passive Thermal with Microcontroller, 112G per lane	NLNACE-0001
QSFP DD Loopback Cable Assembly, Thermal, 112G per lane	TBD*

\*Active Thermal to be designed to customer defined specifications