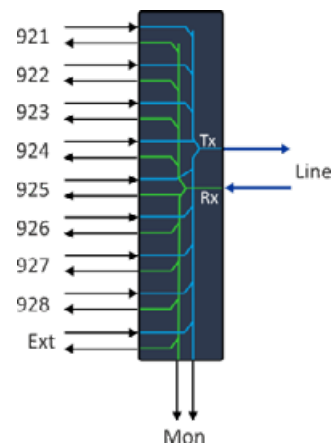
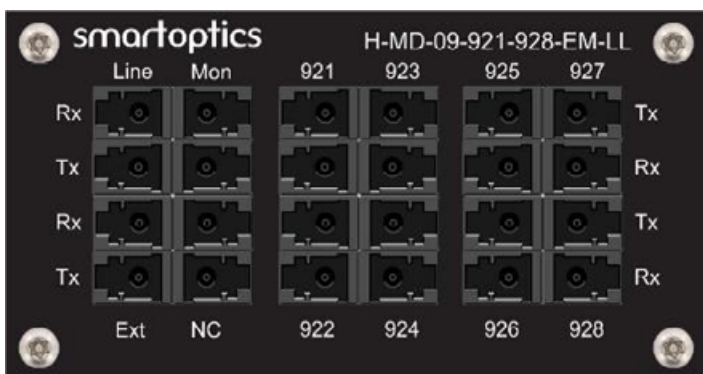


DATASHEET 5.0

H-MD-09-xxx-yyy-EM-LL

Low-loss 8-channel DWDM Mux/Demux with Extension and Monitor ports



OVERVIEW

The H-MD-09-xxx-yyy-EM-LL filters are a range of low-loss, passive 8-channel DWDM protocol transparent Mux/Demux units. They operate with 100GHz spacing and have a low-loss Extension port so that additional channels can be seamlessly added to increase capacity. The channels operate in the standard C-band in dual fiber working configuration.

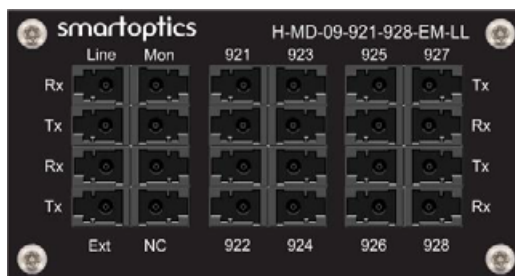
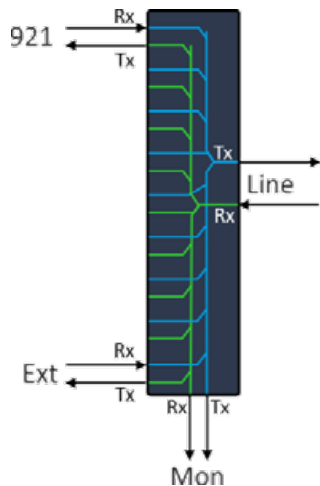
The H-MD-09-xxx-yyy-EM-LL filters have two Monitor ports that tap off 1% of the transmitted and received line signal. This provides the ability to monitor the channel power levels via a connected Optical Channel Monitoring (OCM) device or an optical spectrum analyzer.

The H-MD-09-xxx-yyy-EM-LL filters support the industrial temperature (I-temp) range of -40°C to +85°C (-40°F to +185°F) which gives an extended application range into sites without temperature control. If the operating temperature is kept within 0 to +70°C (+32 to +158°F) some of the worst-case loss values will be reduced. The listed loss values in the below table are for 0 to +70°C operation. Loss values increased at I-temp conditions are marked.

FUNCTIONAL OVERVIEW AND PORT DESCRIPTION

Client and Line signals entering the filter is denoted "Rx".
 Client and Line signals exiting the filter is denoted "Tx".

The monitor ports tap off 1% (18 - 22dB) of the line signal.
 The monitor port from transmitted line signal is denoted "Tx".
 The monitor port from received line signal is denoted "Rx".



Line Rx	Mon Tx	921 Rx	923 Tx	925 Rx	927 Tx
Line Tx	Mon Rx	921 Tx	923 Rx	925 Tx	927 Rx
Ext Rx	NC	922 Rx	924 Tx	926 Rx	928 Tx
Ext Tx	NC	922 Tx	924 Rx	926 Tx	928 Rx

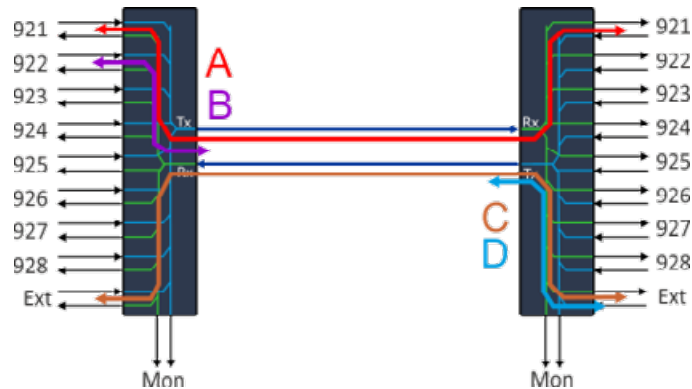
The port allocation and overlay example is for H-MD-09-921-928-EM-LL. Note row dependent location of Tx and Rx ports.

TECHNICAL SPECIFICATIONS

Parameter	Min	Max	
Channels	H-MD-09-921-928-EM-LL	192.1 THz	192.8 THz
	H-MD-09-929-936-EM-LL	192.9 THz	193.6 THz
	H-MD-09-937-944-EM-LL	193.7 THz	194.4 THz
	H-MD-09-945-952-EM-LL	194.5 THz	195.2 THz
	H-MD-09-953-960-EM-LL	195.3 THz	196.0 THz
Passband Ext-port	1504 -1580nm / 189.7 to 199.33THz excl. ch passband		
Channel spacing	100GHz		
Channel passband	ITU±0.11nm		
Link loss, per channel (A), normal operating temperature	4.3dB typical ¹⁾	4.8dB typical ¹⁾	
Insertion loss, per channel (B), normal operating temperature	2.5dB typical ¹⁾	2.8dB typical ¹⁾	
Link loss, extension port (C), normal operating temperature	1.6dB typical ¹⁾	1.7dB typical ¹⁾	
Insertion loss, extension port (D), norm/ext operating temperature	0.8dB typical	1.0dB max	
Insertion loss, monitor	18dB	22dB	
Isolation, adjacent channel	30dB		
Isolation, non-adjacent channel	40dB		
Ripple, passband	0.5dB		
Directivity	45dB		
Return loss	45dB		
Polarization dependent loss	0.2dB		
Polarization mode dispersion	0.20ps		
Operating temperature	-40 °C	+85 °C	
Max optical power	300mW		
Connector type	LC/UPC		
Module width	84mm		
Mounting bracket	H-Chassi-1RU (19"), 422mm slot width		

Note! A typical loss value is to be seen as a value that ~90% of a population has at beginning of life and at room temperature. The max value is the guaranteed worst-case value over time and over temperature.

1) The given loss values are for "normal operating temperature" conditions. When used in "extended operating temperature" i.e. I-temp conditions, the values shall be increased by 0.2dB.



ORDERING INFORMATION

The H-MD-09-xxx-yyy-EM-LL is available in 5 different versions depending on desired channel plan. The table below shows the part numbers and a short description.

Part number	Description
H-MD-09-921-928-EM-LL	8ch DWDM Mux/Demux 921-928 Ext+Mon LL
H-MD-09-929-936-EM-LL	8ch DWDM Mux/Demux 929-936 Ext+Mon LL
H-MD-09-937-944-EM-LL	8ch DWDM Mux/Demux 937-944 Ext+Mon LL
H-MD-09-945-952-EM-LL	8ch DWDM Mux/Demux 945-952 Ext+Mon LL
H-MD-09-953-960-EM-LL	8ch DWDM Mux/Demux 953-960 Ext+Mon LL