

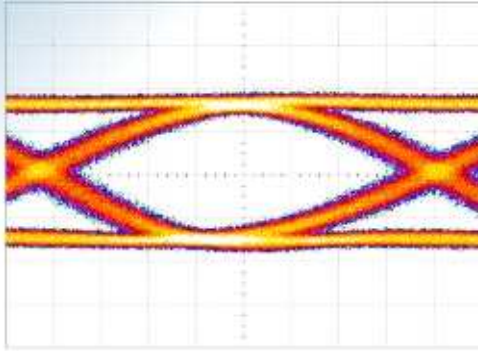


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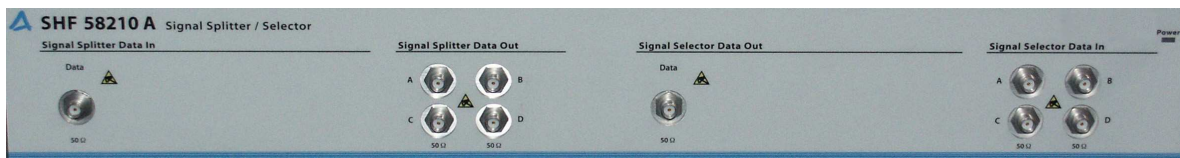
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Datasheet

SHF 58210 A

Signal Splitter / Signal Selector





Description

The SHF 58210A is a combined module which contains a signal splitter and/or a signal selector part. The splitter part of this module splits an input signal into four output signals whereas the signal selector is a four-way-switch which selects from four inputs and passes it to a single output signal. This plug-in module is part of the SHF modular measurement series and needs to be installed in a mainframe type SHF 10001A or SHF 10000B. Together with other plug-in modules from this instrument series, a modular and scalable measurement system can be configured.

This module can be equipped with both or with only one of the two functional blocks. Extra flexibility and cost efficiency are the benefits for the customer.

The mainframe with the installed modules is controlled over a standard Ethernet connection by an external computer which is a standard part of the package. An easy to use software package provides not only a user friendly interface for changing the operating parameters but also the capabilities of feature enhancement through firmware & software upgrades.

Together with the 4:1 multiplexer SHF 24210A and the 1:4 demultiplexer SHF 34210A, the SHF 58210A provides an excellent solution to upgrade existing 12.5 Gbps BERT systems up to 50 Gbps.

Signal Splitter Part

The signal splitter part of the SHF 58210A is mainly designed for splitting and de-correlating one data stream up to 15 Gbps into four quasi independent data streams at the same bit rate. In conjunction with the 4:1 multiplexer SHF 24210A, it is the ideal instrument for upgrading single channel 15 Gbps pattern generators up to 60 Gbps.

The incoming signal is divided into four channels. Each of the four channels is delayed by a different value in order to provide sufficient decorrelation of the output signals up to a pattern length of $2^{31}-1$. For fine adjustments, a 160 ps computer controlled adjustable delay line is implemented in each channel.

Signal Selector Part

The signal selector part of the SHF 58210A is basically a SP4T-switch which selects one out of four inputs signals. In combination with the 1:4 demultiplexer SHF 34210A it is perfectly suited for convenient BER measurements up to 15 Gbps. It is only required to feed the four output channels from the demultiplexer into the four inputs of the signal selector. One of these channels can be selected and analyzed with a 15 Gbps one-channel error analyzer. The other channels can then be successively tested by simply switching through the channels. No effort is needed for permanent connecting and disconnecting of single channels. Its programming features allow automated measurements using test programs like Agilent VEE or National Instruments LabView.



Features

- Scalable and modular system
- Windows Style Bert Control Center software package
- Computer controlled operation over the Ethernet which also enables remote access.
- Feature enhancement through firmware & software upgrades

Signal Splitter Part

- Broadband operation up to 15 Gbps
- One input channel divided into four output channels
- Relative delay between the output channels approximately 3 ns
- Additional delay variation up to 160 ps for all four channels by built in high precision computer controlled delay line
- SMA female input and output connectors

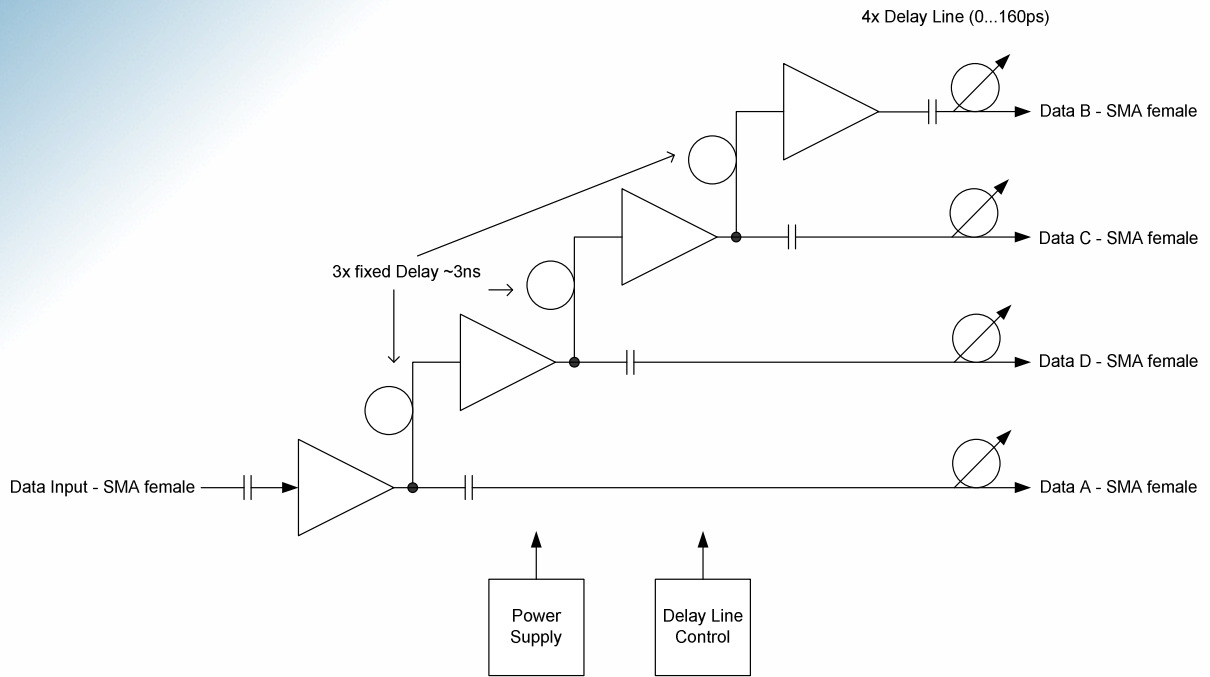
Signal Selector Part

- Broadband operation up to 15 Gbps
- Selection of one out of four input channels
- SMA female input and output connectors

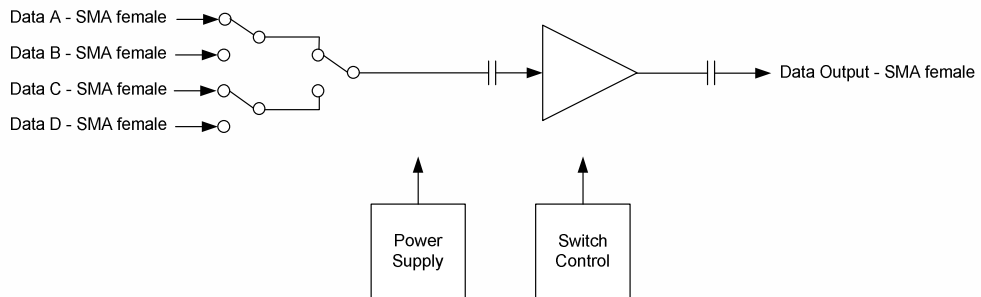


Functional Block Diagram

Signal Splitter Part



Signal Selector Part





Specifications

Parameter	Unit	Min.	Typ.	Max.	Conditions
Signal Splitter Part					
Connector Types (All inputs and outputs)	Ω		50		SMA female
Input voltage	mV	300		1000	
Input impedance	Ω		50		
Operating bit rate range	Gbps			15	
Data B delay relative to Data A ¹	ns		9		+ 160 ps adjustable
Data C delay relative to Data A ¹	ns		6		+ 160 ps adjustable
Data D delay relative to Data A ¹	ns		3		+ 160 ps adjustable
Delay variation	ps	0		160	
Delay resolution	ps		1		
Positioning error	ps		±0.4		
Output voltage level	mV	600		1000	limiting
Input/output return loss	dB		10 8		<10 GHz <20 GHz
Rise/fall time	ps			50	
Signal Selector Part					
Connector Types (All inputs and outputs)	Ω		50		SMA female
Input voltage	mV	300		1000	
Input impedance	Ω		50		selected input, unselected inputs open
Operating bit rate range	Gbps			15	
Input/output return loss	dB		10 8		<10 GHz <20 GHz
Output voltage level	mV	600		1000	limiting



General					
Power consumption	W			60	
Weight	kg		5		
Dimensions (WxHxD)					Full-size plugin
Operating temperature	°C	10		35	
Storage temperature	°C	-20		70	

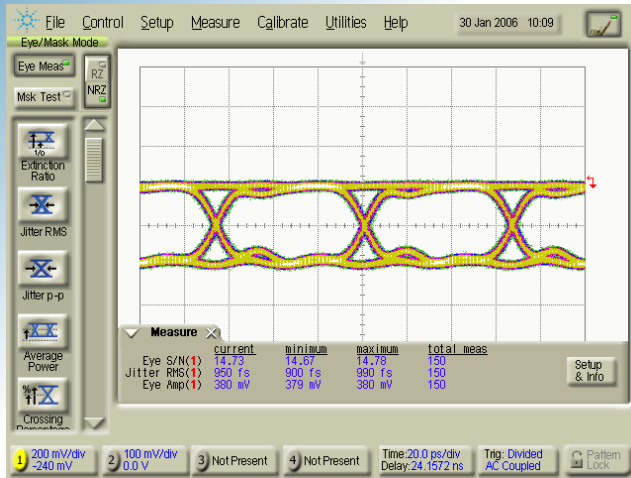
Note 1: Approximate values only. An inspection report is supplied with each instrument indicating the exact delay



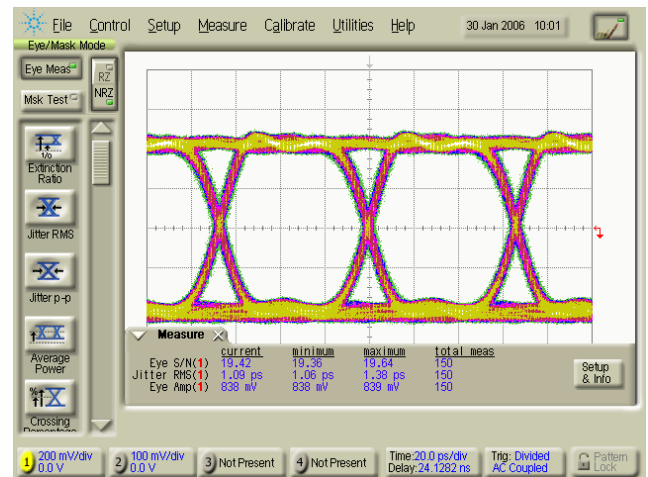
Output Waveforms

Signal Splitter Part

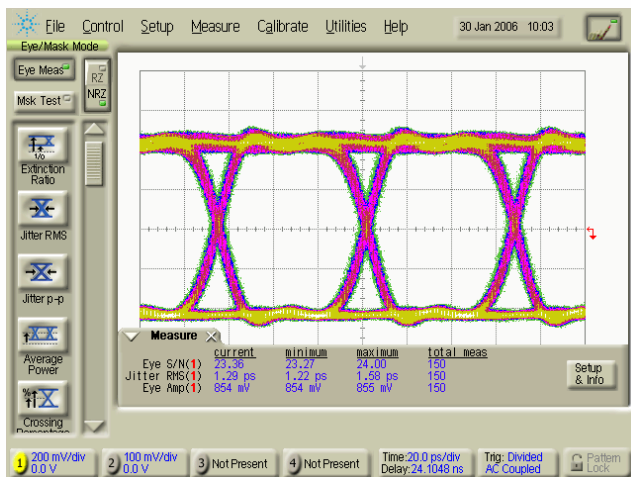
Input 15 Gbps Data Signal



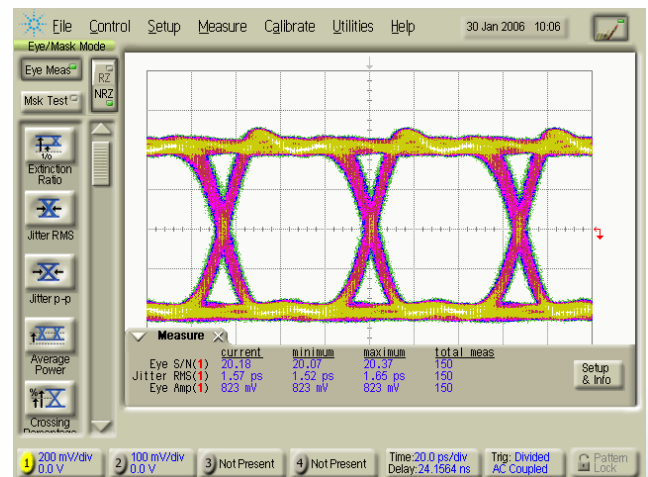
Data A Output Signal (836 mV)



Data B Output Signal (838 mV)



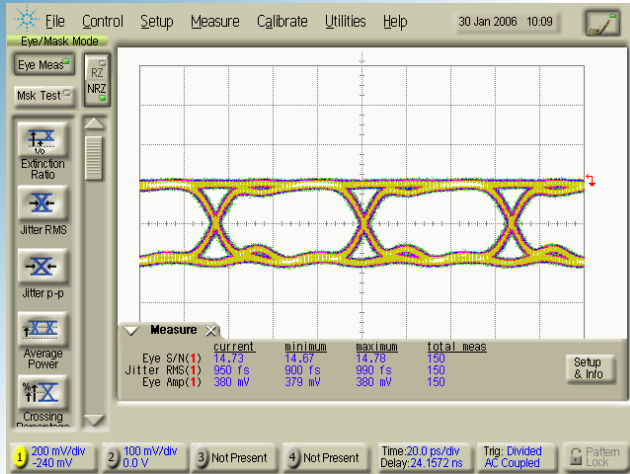
Data C Output Signal (854 mV)



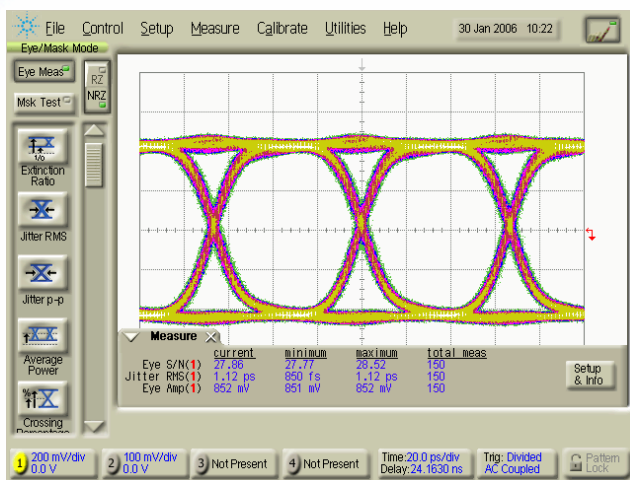
Data D Output Signal (823 mV)



Signal Selector Part



15 Gbps Input Signal



15 Gbps Output Signal