



ASNT_PRBS32A 4-32Gbps PRBS Generator with USB Control Interface



- Data rates from 4Gbps to 32Gbps
- Generates industry standard PRBS7, PRBS9, PRBS11, PRBS15, PRBS17, PRBS20, PRBS23, PRBS29, PRBS31
- Adjustable differential data output amplitude from 0V to 1.2V @ 32Gbps
- 11ps Rise, 16ps Fall time for PRBS data output
- 17ps Rise/Fall time for sync output
- User selectable clock divide by 1 to 256 sync output for scope triggering
- GUI software interfaces with onboard USB

Figure 1. PRBS32A Generator

DESCRIPTION

The ASNT_PRBS32A can be used for test applications, design verification, and R&D environments. The pseudo random bit sequence (PRBS) generator operates from 4Gbps to 32Gbps. A single-ended half-rate clock is needed to ensure the instrument's operation. An input frequency of 16GHz corresponds to a 32Gbps PRBS data output. The output data is adjustable from 0V to 1.2V differentially. The trigger output is a user defined divide ratio from 1 to 256. I/O's are SMA female connectors with internal AC coupling. All operation and adjustment controls are accessed by a GUI controlled interface connected through a USB port. Power is supplied with an included AC-DC power supply.



Front Panel

The front panel of the instrument is shown in **Figure 2** with its differential data output, and single-ended Trigger output.



Figure 2. Front Panel

Trigger Output

The Trigger Output provides a selectable clock divided ratio with n integer values ranging from 1 to 256 with an AC coupled single-ended output amplitude of 600mV. Trigger Output can be connected to an oscilloscope's trigger to allow display of a PRBS7 pattern or eye diagram.

Back Panel

The back panel of the instrument is shown in **Figure 3** with a single-ended half-rate clock input. The power ON/OFF switch turns the instrument on and off. The +5V DC power supply (included) connects to the male barrel jack shown in **Figure 3**. The USB-B connector allows connection to a computer for controlling the instrument through a Windows GUI.



Figure 3. PRBS32A Back Panel



ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
Clock Input					
Single-ended Swing	600		1000	<i>mV_{PP}</i>	
Frequency	2		16	<i>GHz</i>	
Data Output					
Differential Swing	0		1200	<i>mV_{PP}</i>	Adjustable
Data Rate	4		32	<i>Gbps</i>	
Rise/Fall times		11/16		<i>ps</i>	20% - 80%
Duty Cycle	45	50	55	<i>%</i>	
Trigger Output					
Frequency	0.0001		16	<i>GHz</i>	
Single-ended Swing		600		<i>mV_{PP}</i>	
Duty Cycle	47	50	53	<i>%</i>	
Rise/Fall time	15	17	19	<i>ps</i>	20%-80%
ALL I/O's are AC coupled					

MECHANICAL DIMENSIONS

PARAMETER	TYP	UNIT	COMMENTS
Length	124	<i>mm</i>	
Width	107	<i>mm</i>	
Height	58	<i>mm</i>	Without rubber feet

REVISION HISTORY

Revision	Date	Changes
1.0.1	11-2014	Initial Release