

Bit Error Rate Tester SBF 44G



Self-synchronizing Bit Error Analyzer with Error Counters

Gap Free Coverage of Bit Rates between 1 and 44 Gbps

Data Threshold and Clock Phase Adjustment for Eye Contour Analysis

Operation via Front Panel or Graphical User Interface on PC (via USB-Interface)

Brief Description

The Bit Error Rate Tester SBF 44G is used to detect errors contained in a data stream. Together with the SYMPULS Pattern Generators BPG 30G, BPG 40G or BPG 60G it forms a complete measurement set for bit error rate testing.

Synchronous clock and data signals are needed to perform a measurement. Six different pseudo random binary sequences (PRBS) of length $2^7 - 1$, $2^9 - 1$, $2^{11} - 1$, $2^{15} - 1$, $2^{23} - 1$ and $2^{31} - 1$ structured according to the CCITT standard can be analysed at bitrates between 1 and 44 Gbps.

The error rate can be measured in two modes: Errors per Bit and Errors per Time. The time interval for error measurements can be chosen between 10^5 and 10^{14} periods for the Error/Bit measurement and between 10^{-5} and 10^4 seconds for the Error/Time measurement.

The integrated data threshold and clock phase adjustment allows a detailed analysis of the connected data signal, e. g. eye contour analysis.

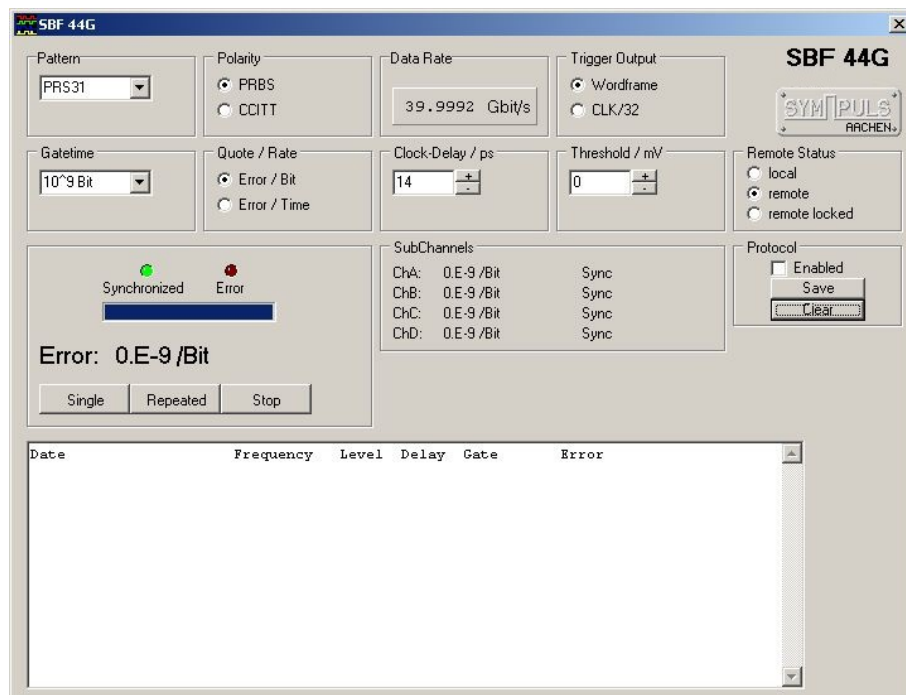
The instrument can be operated via its front panel or remotely controlled via its USB-interface. An easy-to-use graphical user interface is included in the supplied software. Additionally self-programmed software may be used to control the instrument.

Technical Specifications

SBF 44G	
Synchronisation	1 Gbps ... 44 Gbps (with External Clock), Phase Tolerance between Data and Clock Signal: $\pm 20\%$ of the Clock Period, Phase Shifting of ± 40 ps through Adjustable Delay, Self-Synchronizing in the Complete Frequency Range, Synchronisation LED
Clock Input	0.5 GHz ... 22 GHz (Bit Rate/2), AC Coupled, $U_i = 0.3 \dots 1.0 V_{pp}$, 50 Ω SMA, $ r < 0.2$
Pattern	PRBS $2^{31} - 1$, PRBS $2^{23} - 1$, PRBS $2^{15} - 1$, PRBS $2^{11} - 1$, PRBS $2^9 - 1$, PRBS $2^7 - 1$,
Data Input	NRZ or /NRZ, Polarity Reversible, $U_i = 0.3 \dots 0.8 V_{pp}$, 50 Ω 2.92mm (K-Type), $ r < 0.2$, Adjustable Threshold, Display of Data Balance: LED Display of 1 / 0 Distribution after Decision Unit
Clock Output	Clock/2 (=Bit Rate/2), $0.4 V_{pp}$, 50 Ω 2.92mm (K-Type)
Trigger Output	Selectable: 1. Clock/64 2. Word Frame Trigger CML: 0/ - 0.4V, AC Coupled, 50 Ω SMA, $ r < 0.2$
Error Counter	Error Rate Measurement (Resolution 6 Digits: 5 Mantissa, 1 Exponent): 1. Error/Time: $10^7 \dots 10^{-4}/s$ Gate Time: $10 \mu s \dots 10.000 s$ 2. Error/Bit: $10^{-3} \dots 10^{-14}$ Gate Time: $10^5 \dots 10^{14}$ Clock Periods Single or Repetitive Measurement, Error Display: LED
Interface	High Speed USB, Max. Data Transmission Rate 2 MByte/s
Software	Graphical User Interface for Operation
Dimensions	19" Desktop, W x H x D = 462 x 135 x 435 mm
Weight	approx. 8 kg
Power Supply	115 V/230 V/50-60 Hz/85 VA
Optionally Available	
Option 1	Clock Input 1 GHz ... 44 GHz

Graphical User Interface

All instrument settings can be changed via an easy-to-use graphical user interface on your PC. The measurement results are displayed and can be saved to a file.



Graphical User Interface of the Operating Software (Illustration similar)

Ordering Information

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Included in delivery:

- SBF 44G
- User Manual, 115/230 V Mains, USB Cable,
- CD-ROM with Device Drivers and Operating Software

**The instrument is produced by SYMPULS in Germany.
We offer a reliable service and 24 month warranty.**