

# 10G Multi-Channel Signal Integrity Test System



## System Features (ST10ME)

- Multi-channel remote-head system with single tap de-emphasis
- Operation from 500Mb/s to 7Gb/s, or from 500Mb/s to 12.5Gb/s with -OPTS13
- Interchangeable heads (see below) with 0-50.00UI clock phase adjust
- Jitter injection capability with -OPTSJT
- GPIB or USB control

## Description

The ST10ME is a multi-channel signal integrity test system comprised of a controller (model TE1A), a 0.5-7GHz clock synthesizer (model TG1C1-A) with options for extending coverage to 13GHz and to add integrated jitter injection frequency, and one to five remote heads on 3-foot (1-metre) cables. Interchangeable heads include a PRBS generator and a PRBS error detector, additional heads will be released for generating, receiving, or conditioning bitstreams used for signal integrity testing.

The TE1A controller requires an external full-rate clock to drive the primary head. This same clock can also drive the other four heads or a second external clock can be used. The TG1C1-A reference and jittered clock output can be used to apply clean or jittered clocks to the remote heads. The controller has highly-accurate multi-UI phase shift control for four of the five heads; this allows heads to generate synchronized (or intentionally un-synchronized) outputs or make measurements with accurate clock/data alignment.

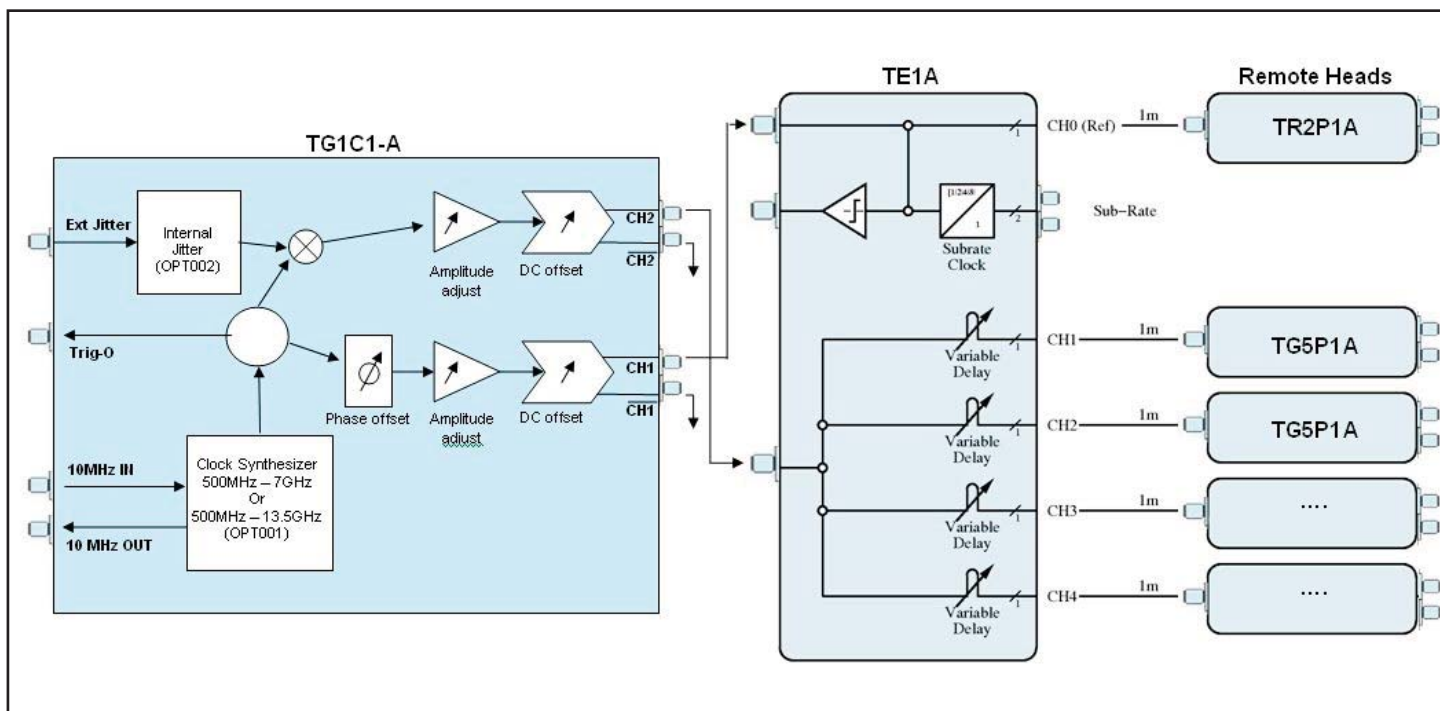
All features can be controlled through the TE1A control panel, TG1C1-A control panel, or remotely through a GPIB or USB interface. Labview drivers are available at no cost.

## Applications

- BER or eye-mask testing of multi-lane high-speed data channels
- Testing backplane performance in the presence of multiple aggressors
- Parallel stimulus/response testing for higher manufacturing throughput
- Multi-aggressor crosstalk analysis and verification
- Multi-channel BER testing



## Block Diagram



## Controller (TE1A) Specifications

Parameter	Units	Min	Typ	Max
Input Clock Frequency	MHz	500	-	12500
Un-Jittered Clock Input Amplitude	V	0.05	-	2.0
Jittered Clock Input Amplitude	V	0.05	-	2.0
Sub-rate Clock Output Amplitude	V	0.8	1.0	-
CH [1-4] Delay	UI	0	-	50.00

## TG1C1-A Clock Synthesizer Specifications

Parameter	Units	Min	Typ	Max
Operating Rate	GHz	0.5	-	7.0
Operating Rate (with -OPTS13)	GHz	0.5	-	13.5
Jitter (TJ) 0.5-2.5GHz	pS	-	-	2.0
Jitter (TJ) 2.5-13.5GHz	pS	-	-	1.0

### Jitter Injection Option (-OPTSJT)

Jitter Modulation Frequency	GHz	0	-	100
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### Jitter Magnitude (Phase Deviation)

0 to 75kHz	UI	-	-	32
75kHz to 2.4MHz	UI	-	-	16 -> 1
2.4MHz to 100MHz	UI	-	-	0.6

## -OPTP1E: Remote Head: PRBS Generator with De-Emphasis (TG5P1A)

- PRBS generator with de-emphasis
- Differential or single-ended output
- PRBS patterns:
  - $2^7$ ,  $2^{10}$ ,  $2^{15}$ ,  $2^{23}$ ,  $2^{31}$
  - Mark / Space Density
  - Inverted / Non-Inverted
- Fixed patterns: 1010, 1100
- Adjustable output amplitude, DC offset, crossover, de-emphasis



## -OPTP1E PRBS Generator Head (TG5P1A) Specifications

Parameter	Units	Min	Typ	Max
Output Bit Rate	Mb/s	500	-	12500
Output Amplitude	V-d	0.05	-	3.6
DC Offset Adjustment	V	-2	-	+2
Crossover Adjustment	%	20	50	80
Single-tap De-Emphasis	dB	0	-	20

## -OPTR10: Remote Head: PRBS Error Detector (TR2P1A)

- PRBS error detector
- Differential or single-ended input
- PRBS  $2^7$ ,  $2^{10}$ ,  $2^{15}$ ,  $2^{23}$ ,  $2^{31}$
- Input signal detection
- Adjustable sampling threshold



## -OPTR10 PRBS Error Detector Head (TR2P1A) Specifications

Parameter	Units	Min	Typ	Max
Input Bit Rate	Mb/s	500	-	12500
Input Amplitude	V-d	0.2	-	4.0
Threshold Adjustment	V	-1	0	+1

## Ordering Information

ST10ME 10G Multi-Channel Signal Integrity Test System,  
0.5-12.5 Gb/s Controller (TE1A) and 0.5-7GHz Clock  
Synthesizer (TG1C1-A) (w/1-year warranty)

## Options

### Remote Heads

-OPTP1E ST10ME Remote Head: PRBS Generator with De-Emphasis (TG5P1A)  
(w/1-year warranty)  
-OPTR10 ST10ME Remote Head: PRBS Error Detector (TR2P1A)  
(w/1-year warranty)

### Clock Generator

-OPTS13 ST10ME Upgrade Clock Synthesizer to 13.5GHz (-OPT001 TG1C1-A)  
(w/1-year warranty)  
-OPTSJT ST10ME Upgrade Clock Synthesizer to add Jitter Injection Capability  
(-OPT002 TG1C1-A) (w/1-year warranty)

### Other Options

-OPT101 ST10ME European Power Cord  
-OPT102 ST10ME UK Power Cord

### Warranty, Calibration, & Services

-OPT300 ST10ME + 1 Year Warranty Extended to 3 Years  
-OPT301 ST10ME + 1 Year Warranty Extended to 5 Years  
-OPT320 ST10ME + Centellax Calibration - Per Incident  
-OPT321 ST10ME + Annual Centellax Calibration for 3 Years  
-OPT322 ST10ME + Annual Centellax Calibration for 5 Years

## More Information

For additional information, to schedule a demo, or to request a quote, please contact:

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