

10G Programmable Pattern Generator System



System Features (SP10PE)

- Programmable pattern generator with single-tap de-emphasis
- Operation from 500Mb/s to 7Gb/s, or from 500Mb/s to 12.5Gb/s with -OPTS13
- 32Mbit pattern memory
- Divided clock or pattern trigger output
- Adjustable clock phase
- Adjustable differential output:
 - Amplitude
 - DC offset
 - Crossover
 - De-emphasis
- GPIB or USB control

Description

The SP10PE is a single-channel programmable pattern generator with single-tap de-emphasis (model TG4P1-A) and a 0.5-7GHz clock synthesizer (model TG1C1-A) with options for extending coverage to 13GHz and to add integrated jitter injection capability. The generator has an integrated precision clock phase adjust to align the output waveform if necessary.

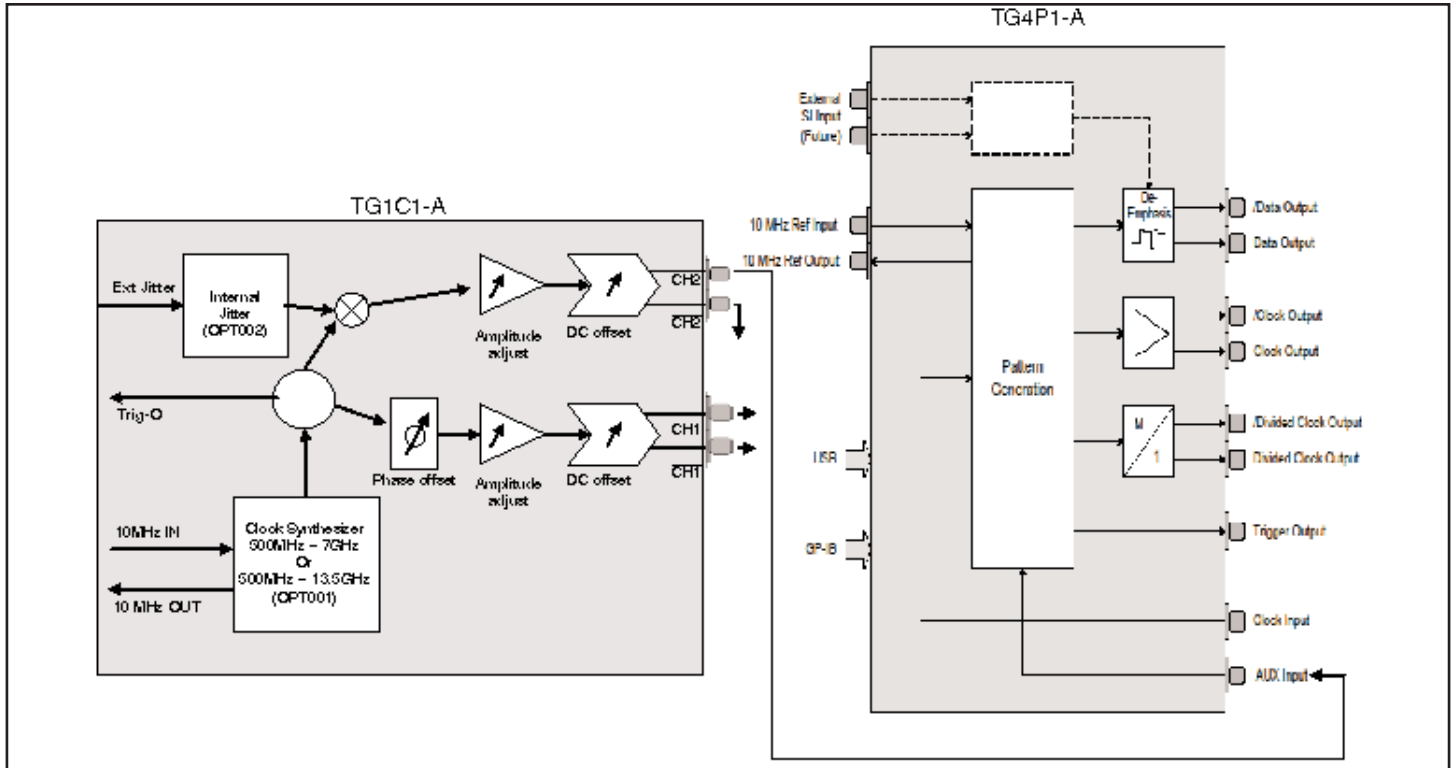
The generator has 32Mbit programmable pattern memory and flexible trigger output. The programming software has many telecom and datacom preloads ready, including CJTPAT, CSPAT, CRPAT, K28.5, PRBS2^N-1 [N=7,9,10,11,15,23,29,31], etc. The generator differential output has fully adjustable output amplitude, crossover, DC offset, and single-tap de-emphasis.

All features can be controlled through the TG4P1-A control panel, TG1C1-A control panel, or remotely through GPIB or USB. Labview drivers are available at no cost.

Applications

- Compliance testing to telecom and datacom specifications requiring unique pattern sequences and stressed eye patterns (with jitter injection)
- Testing ICs with pre-coded control signals integrated into the data stream
- Delivering packetized random data
- BER testing with Centellax Programmable Error Detector (coming soon)

Block Diagram



TG4P1-A Generator Preliminary Specifications

Parameter	Units	Min	Typ	Max
Input Clock Frequency	MHz	500	-	12500
Output Bit Rate	b/s	500	-	12500
Output Amplitude	Vpp-d	0.4	-	3.6
DC Offset Adjustment	V	-2	-	+2
Crossover Adjust	%	25	50	75
Single-tap De-Emphasis	dB	0	-	20

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

Clock

Parameter	Units	Min	Typ	Max
Input and Differential Output Frequency Range	GHz	0.5	-	13.5
Differential Sub-rate Divider Output Ratio	%n	8	-	511
Clock / Data Delay Range	UI	-10	0	+10

Differential Data Outputs

Parameter	Units	Min	Typ	Max
Operating Range	Gb/s	0.5	-	13.5
Amplitude Range (single-ended)	mVpp	200	-	1800
Amplitude Offset Range	V	-2	-	+2
Termination Voltage Range	V	-2	0	+2
Rise/Fall Time	pS	-	25	30
RMS Jitter	pS	-	-	1.0
Cross-over Adjustment	%	25	50	75
De-emphasis (single tap)	dB	0	-	20
External Interface	AC Coupled + bias tee, 50 ohm nominal, female 2.92mm			

Trigger Outputs

Parameter	Units	Min	Typ	Max
Pulse Type	Clock/256 or Pattern			
Amplitude	500 mVpp centered around +850 mV offset			

Patterns

Parameter	Specifications
PRBS	2^n-1 where $n=7,9,10,11,15,23,29,31$
PRBS with mark density	2^n-1 where $n=7,10,11,13,15,23$ mark density = 1/8, 1/4, 1/2, 3/4, 7/8
User pattern length	32Mbit
User Pattern Storage	2Gbit

Ordering Information

SP10PE

10G Programmable Pattern Generator System,
0.5-12.5Gb/s Generator (TG4P1-A) and 0.5-7GHz Clock
Synthesizer (TG1C1-A) (w/1-year warranty)

Options

- OPT101 European Power Cord
- OPT102 UK Power Cord
- OPTRCK Rack Mount Kit

Warranty, Calibration, & Services

- OPT300 SP10PE + 1 Year Warranty Extended to 3 Years
- OPT301 SP10PE + 1 Year Warranty Extended to 5 Years
- OPT320 SP10PE + Centellax Calibration - Per Incident
- OPT321 SP10PE + Annual Centellax Calibration for 3 Years
- OPT322 SP10PE + 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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