

### DESCRIPTION

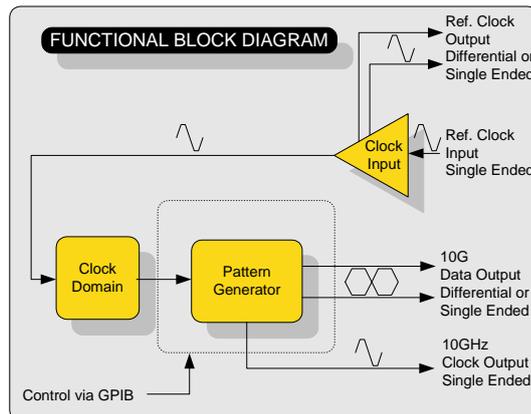
EPG10-x is an Electrical Pattern Generator module that plugs into the *XBERT* and *ParalleX™* Chassis. EPG10-x can generate electrical data from 8.5 Gb/s up to 11.3 Gb/s (options are available to extend this range). Optionally the EPG10-x module can operate in the 5G range. User programmable PRBS patterns can be changed via an easy to use GUI. A pattern trigger output provides an electrical trigger synchronous with the pattern for use with an oscilloscope or other test equipment. Front panel indicators give immediate status for Tx Data.



PATTERN GENERATOR MODULE PN L-6001-EPG10-x

### KEY FEATURES

- Data Rates 9.9 to 11.3Gbps (EPG10-3 standard)
- Option: additional 4.9 to 5.7Gbps mode
- Data Rates 8.5 to 11.3 Gbps (EPG10-5 standard)
- Option: 8.0 to 11.3Gbps
- Option: additional 4.25 to 5.65Gbps mode
- Options can be combined to give 4.0 to 5.65Gbps
- Option: 8.5 to 12.5Gbps
- Option: 8.5 to 11.3Gbps and 4.25 to 6.25Gbps
- Differential Electrical Pattern Generator (SMA Connector)
- Output crossing adjustable from 20% to 80% (EPG10-5)
- Variable data output level (EPG10-5)
- PRBS: 7, 9, 10, 11, 15, 21, 23, 31  
User-Pattern: 8Bit - 8Kbyte  
Additional: K28.0-K28.7, CJPAT, SSPS-64 etc.
- Pre-emphasis (EPG10-3)
- 10GHz clock output (EPG10-3)
- Data output polarity swap
- Single error and error rate injection: E-3 to E-15
- Reference Clock Input (single ended) and Output (diff)
- LabView™ drivers available
- Small size: width 50.8mm (2")



### XBERT PLATFORM: LETS YOU START SMALL AND GROW BIG



*XBERT* is a low-cost, modular Bit Error Rate Test Platform used for verification and test of 10Gb/s and above optical and electrical chip, sub assembly and system designs. *ParalleX™* allows users to perform several BER tests at once using a single clock source. The system is ideal for developers desiring to run simultaneous BER tests on parallel interfaces or multiple independent interfaces. *XBERT* and *ParalleX™* are scalable so users can start off with a single channel and add modules to grow the system. Manufacturers can realize great savings by taking advantage of the *XBERT* and *ParalleX™* system's scalability to perform parallel testing in volume production environments.

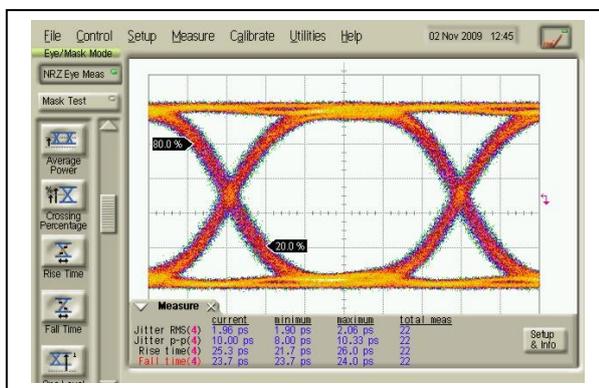
# Pattern Generator Module PN L-6001-EPG10-x

## KEY PERFORMANCE PARAMETERS

PARAMETER	SYMBOL	Min	Max	UNIT	NOTE	
Data Rate EPG10-5	DR	8.5 (8.0)	11.3	Gbps	Standard mode 8.0 Gbps Opt113	
		4.3 (4.0)	5.65	Gbps	Option 115 4.0 Gbps Opt113	
Data Rate EPG10-3	DR	9.5	11.5	Gbps	Standard mode.	
		4.9	5.7	Gbps	Additionally by Option 110	
Data Formats		NRZ				
PRBS Pattern		7, 9, 10, 11, 15, 21, 23, 31				
User-Defined Pattern		8	65536	Bit	Note 2	
Data Output Signal Channel P or N (single ended)	$D_{Out/P/N}$	1	3	$V_{pp}$	EPG10-5 EPG10-3	
Data Output Rise and Fall time	$t_r / t_f$	Typical		23	ps	20% - 80%
Output Jitter	$J_{rms}$	Typical		1.5	ps	Note 3
Crossing	Cr	20	80	%	Adjustable EPG10-5	
Differential Output Impedance	$Z_{ODiff}$	90	110	$\Omega$		
Data Output Termination		AC - coupled				
Reference Clock Input Frequency	$P_{ref}$	531.25 622.08	707.35 707.5	MHz	EPG10-5 EPG10-3	
Reference Clock Input Impedance	$Z_{Ref}$	45	55	$\Omega$		
Reference Clock Input Termination		AC - coupled				
Sync Signal	Sync	550	1100	mV	Note 1	
Operating Temperature	$T_{OP}$	0	40	$^{\circ}C$	Ambient temp.	

Note:

- 1 Default function is pattern trigger. Other functions like pulse per error byte are possible. For more detailed information contact Luceo Technologies
  - 2 Pattern input from 8 to 128 bit in 8 bit steps and from 128 to 65536 bit in 128 bit steps. Preset patterns eg K28.5, CJPAT etc are available on request
  - 3 Measured at: cross point 50%, PRBS31, DR = 11.3Gbps (output voltage= 3V, EPG10-5)
- Opt113 This option extends the operating data rate for the EPG10-5 down to 8.0Gbps  
 Opt115 This option is for the additional '5G mode' for the EPG10-5 that covers 4.3 to 5.7Gbps. In combination with Opt113, the lower data rate is moved to 4.0Gbps  
 Opt110 This option is for the additional '5G mode' for the EPG10-3 that covers 4.9 to 5.7Gbps.



ELECTRICAL EYE-DIAGRAM EPG10-5  
 Duty cycle 50%, PRBS31, DR=11.3Gbps, output voltage=2.5V