

# Programmable 30ps~10ns Electrical Pulse Generator

EPG-330M/L

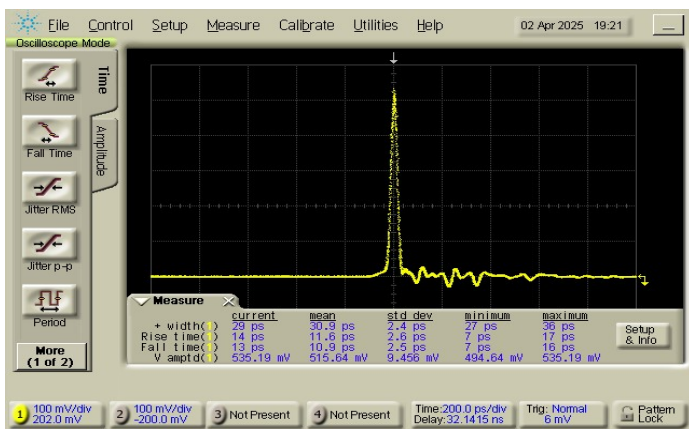
- Pulseth width tuning range of 30ps~10ns
- Pulse amplitude up to 6.5Vpp
- Frequency range from Single Shot or 100kHz~1GHz

## Specification

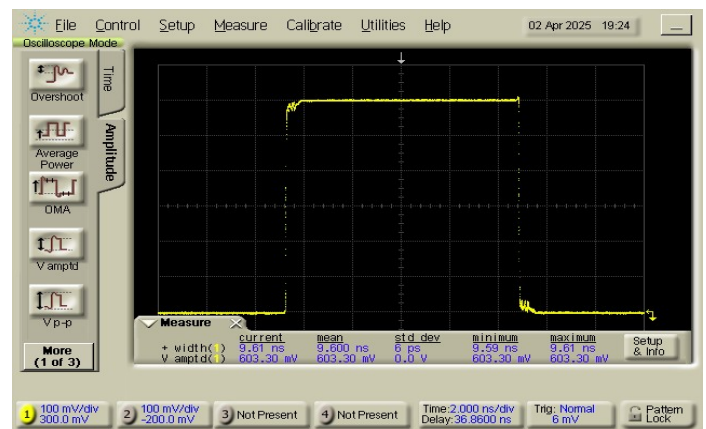
Item	Basic	Option "A"	Option "C"	Option "A" & "C"	Unit	
Variants	Combination	Standard Output Level No Built-in Clock	High Output Level No Built-in Clock	Standard Output Level Built-in Clock	High Output Level Built-in Clock	
Input Trigger	Clock Type <sup>1</sup>	Square			-	
	Input Level <sup>2</sup>	Typ. 0.3 ~ 0.5, Max. 0.6			-	Vpp
	Clock Trigger Rise Time (20%~80%, <100MHz)	< 3.0			-	ns
	Freq. Repetition Rate <sup>3</sup> , "SF"	0.0001 (100kHz) ~ 1.0			-	GHz
	Freq. Repetition Rate <sup>3</sup> , "Single Shot" Option	Single Shot ~ 1.0			-	GHz
Output+/Output-	Pulse Width Tuning Range <sup>4</sup> (FWHM)	30 ~ 10,000	30 ~ 500	30 ~ 10,000	30 ~ 500	ps
	Tuning Resolution	Typ.1, Max.2				ps
	Rise / Fall Time (20 - 80 %)	Typ.15, Max 20				ps
	Output Voltage (Fixed)	Typ.0.5, Max.0.65	Typ.5.0, Max.6.5	Typ.0.5, Max.0.65	Typ.5.0, Max.6.8	Vpp
	Output Type / Polarity (Specify when order)	Single-Ended / Positive or Negative				
	Additive Timing Jitter	< 0.7				ps
Electrical Characteristics	Input / Output Coupling	AC Coupling / AC Coupling				
	Input / Output Coupling, "Single Shot" Option	DC Coupling / AC Coupling		-		
	Input / Output Impedance	50				Ohm
	Input / Output Connector	SMA Female / 2.92mm K				
	Power Supply	DC5V, 2A	DC12V, 2A			
Control	PC Interface	USB-C, UART	USB Type-B (Virtual COM Port)			
Operating & Storing Environment	Operating Temperature	15 ~ 40			°C	
	Storage Temperature	-20 ~ 70			°C	
Physical	Form Factor	Module	Larger Module			
	Diemnsion (W x H x D)	60 x 20 x 100 or TBD		125 x 125 x 35 or TBD		mm
	Weight	150		500		g

(1) Use square wave for minimal additive jitter, particularly at repetition below 100MHz. (2) The input couple is AC, for single shot, input coupling is DC. (3) Repetition rate can be tuned by tuning the input clock frequency. (4) Max. settable pulseth width is determined by pulse repetition frequency.

## Typical Performance (Standard Output Level Variant, Positive Polarity)



30ps Pulseth width @ Clock Freq. 1MHz,  
Positive Polarity, Output Level >500mVpp



10ns Pulseth width @ Clock Freq. 1MHz,  
Positive Polarity, Output Level >500mVpp

## Ordering Information

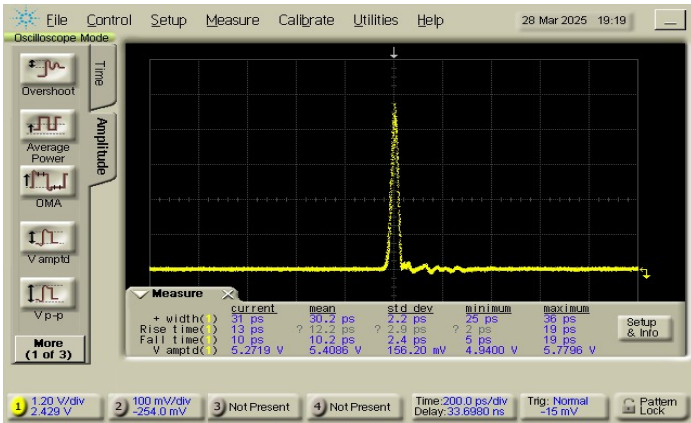
EPG-330M-030-S-P(N)-T-N-SF(SS)-N

EPG-330L-030-S-P(N)-T-A(N)-SF(SS)-C(N)

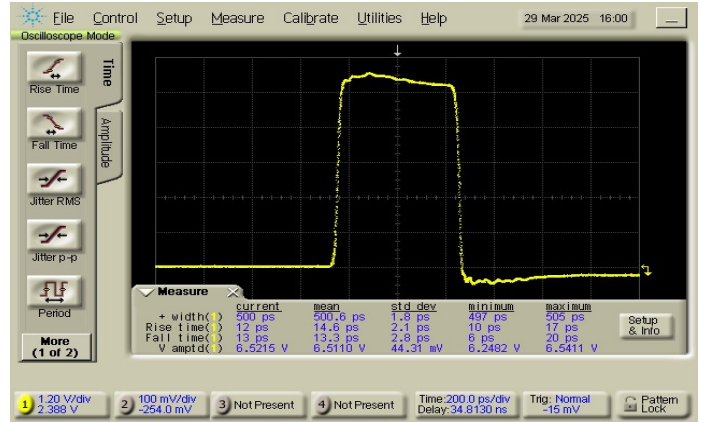
M: Module, S: Single-ended, P: Positive, N: Negative, T: Tunable, N: No Amplifier, SF: Standard Freq., SS: Single Shot, N: No Built-in Clock  
L: Larger Module, A: Amplifier, C: Built-in Clock



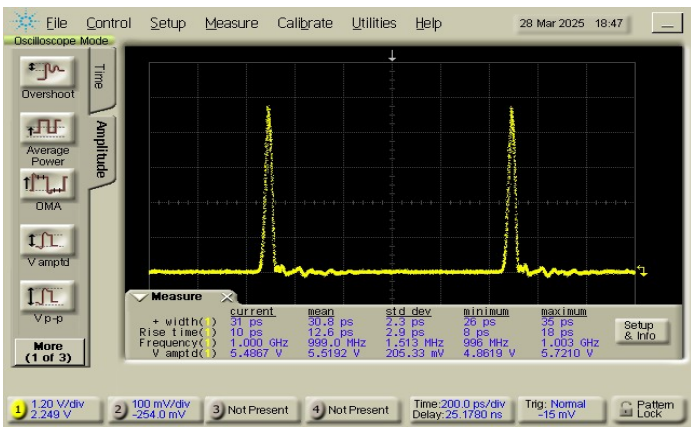
### Typical Performance (High Output Level Variant, Positive Polarity)



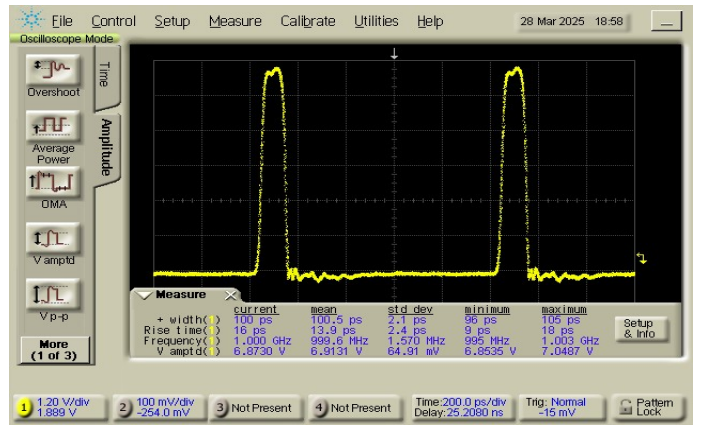
30ps Pulsewidth @ Clock Freq. 100kHz, Output Level 5.2Vpp



500ps Pulsewidth @ Clock Freq. 100kHz, Output Level 6.5Vpp

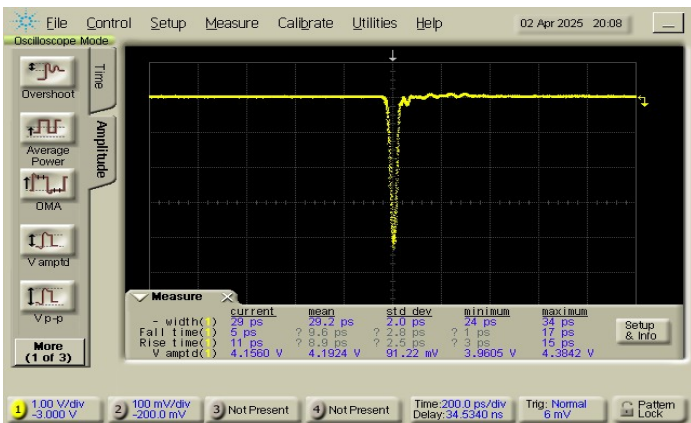


30ps Pulsewidth @ Clock Freq. 1GHz, Output Level 5.4Vpp

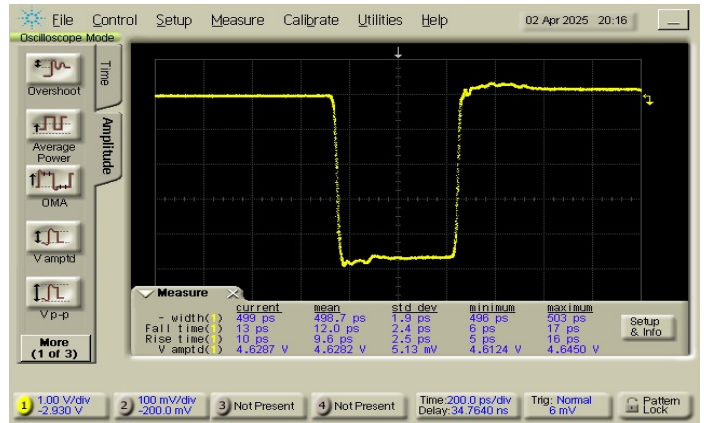


100ps Pulsewidth @ Clock Freq. 1GHz, Output Level 6.8Vpp

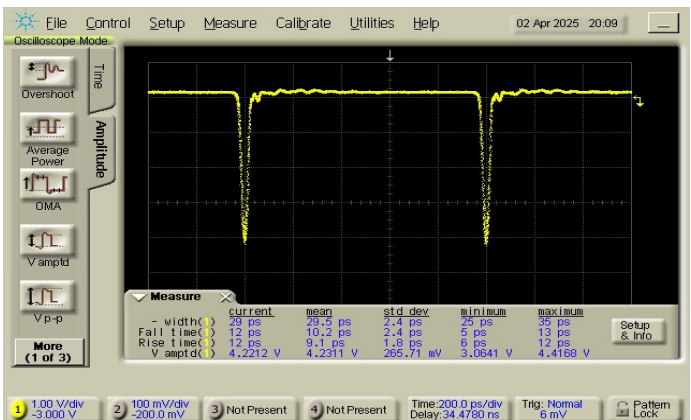
### Typical Performance (High Output Level Variant, Negative Polarity)



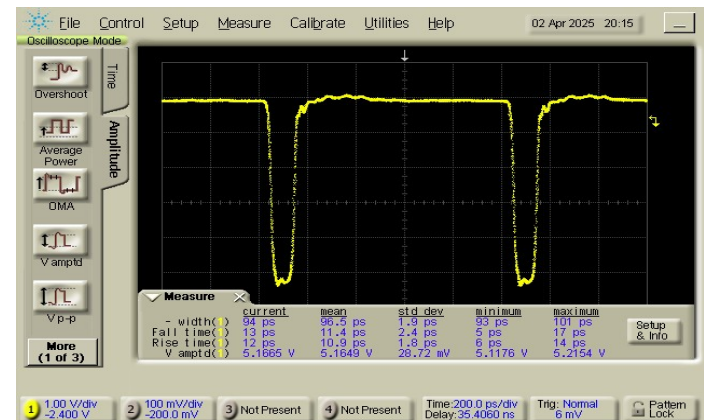
30ps Pulsewidth @ Clock Freq. 100kHz, Output Level 4.1Vpp



500ps Pulsewidth @ Clock Freq. 100kHz, Output Level 4.6Vpp



30ps Pulsewidth @ Clock Freq. 1GHz, Output Level 4.2Vpp



100ps Pulsewidth @ Clock Freq. 1GHz, Output Level 5.1Vpp

## Programmable Electrical Pulse Generator

### EPG-300M

- Pulsewidth tuning range of 100ps ~ 10ns, Option 50ps ~ 10ns
- Pulsewidth tuning resolution of 1ps
- Frequency range 100kHz ~ 1GHz



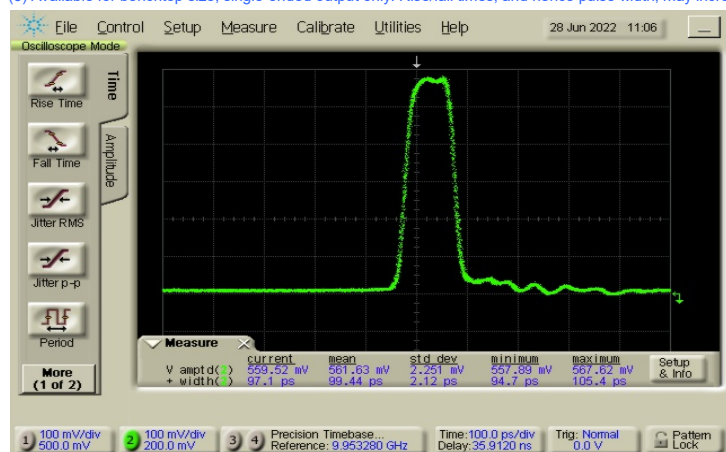
### Specification

Item		EPG-300M				
		Min.	Typ.	Max.	Unit	
Input Characteristics	Signal Type <sup>1</sup>	Sine or Square (Preferred)				
	Input Level <sup>2</sup>	(No Built-in Clock, "NC")	0.3	0.5	Vpp	
	Frequency Repetition Rate <sup>3</sup>		0.0001 (100kHz)	1	GHz	
Output Characteristics	Pulse Shape	Square				
	Pulse Width Tuning Range (FWHM)	100		10,000	ps	
	Extended Pulsewidth Range (Optional) <sup>4</sup>	50		10,000	ps	
	Tuning Resolution		1	2	ps	
	Rise / Fall Time (20 - 80 %)	15		20	ps	
	Output Voltage	(Standard) <sup>5</sup>	0.4	0.5	0.6	Vpp
		(High-Voltage Option, "A") <sup>6</sup>		> 5		Vpp
	Additive Timing Jitter			< 0.7		ps
Electrical	Clock Trigger Amplitude	(Built-in Clock Option, "C")	0.5	1.0	Vpp	
	Input/Output Coupling	AC/AC				
	Input/Output Impedance	50				
	Connector	Advanced SMA				
Power Supply		(Module)	DC5V, 1A (Module)			
		(Benchtop)	AC100~240, 50/60H			
Control	PC Interface	USB (Virtual COM Port)				
Operating & Storing	Operating Temperature	15		35	°C	
Environment	Storage Temperature	-20		70	°C	
Physical	Diemnsion (W x H x D)	(Module)	68 x 16 x 54			
		(Benchtop)	236 x 88 x 380			
	Weight	(Module)	60			
		(Benchtop)	< 5			

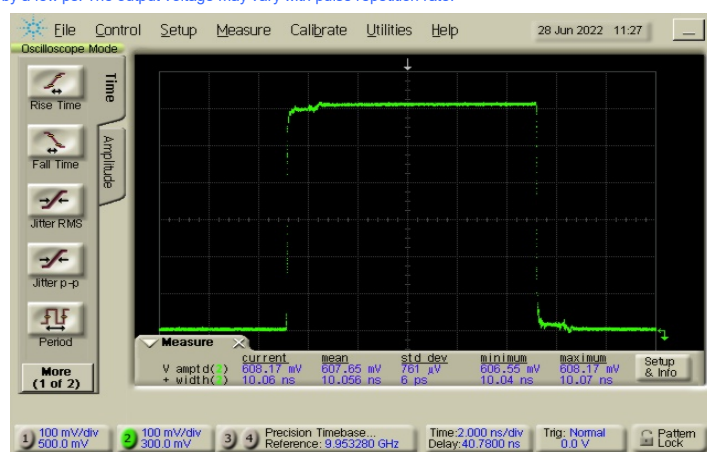
(1) Use square wave for minimal additive jitter, particularly at repetition below 100MHz. (2) The input couple is AC. (3) Repetition rate can be tuned by tuning the input clock frequency. Max. repetition rate is limited by pulse width. Please inquire for operation at <0.1MHz. The device can also be triggered on-demand within the specified frequency range.

(4) Custom pulse width of down to 50ps is possible. The pulse width may broaden when combined with the high-voltage option. (5) Voltage for single-ended output.

(6) Available for benchtop size, single-ended output only. Rise/fall times, and hence pulse width, may increase by a few ps. The output voltage may vary with pulse repetition rate.



100ps Pulsewidth @ Clock Freq. 1MHz



10,000ps Pulsewidth @ Clock Freq. 1MHz

### Ordering Information

**EPG-300M-XXX-S(D)-P(N)-T-N-N**

**EPG-300B-XXX-S-P(N)-T-A(N)-C(N)**

**M:** Module,  
**B:** Benchtop,

**XXX:** 050 or 100,  
**S:** Single-ended,

**D:** Differential,

**P:** Positive,  
**N:** Negative,

**T:** Tunable,

**A:** Amplifier,  
**N:** No Amplifier,

**C:** Built-in Clock Generator  
**N:** No Clock Generator