

# An Uncommon Pulse Generator

## Electrical or Optical outputs - Model 6040

- Adjustable rates up to 100 MHz
- 5V to 800V amplitudes
- 635, 850, 904, 1064, 1300 and 1550 nm wavelengths
- 1 ns resolution delay and width control



The Model 6040 pulse generator provides superior performance characteristics. For example, the timing accuracies of 0.01% for frequency and 0.2% for delay and width are unusual for a pulse generator. The triggering jitter of 25 ps provides synchronizing capabilities usually associated with only the very best digital delay systems. Plug-in modules let you select the output configuration you currently need. Even the mainframe 6040 without any module provides capable positive and negative outputs.

Capabilities of the mainframe with its modules include: single pulse, double pulse, impulse, external drive, external modulation and CW. The modules themselves determine which of these capabilities are available. Some modules can operate to full repetition rate of the mainframe; others are limited to a smaller number.

### Specifications – the Model 6040 mainframe

Listed below are the timing and output characteristics of the 6040 mainframe. However, modules determine specific performance limits and characteristics such as maximum pulse width and maximum rep rate.

<p><i>Internal Trigger</i></p> <p><i>Pulse Width</i></p> <p><i>Delay</i></p>	<p>0.01Hz to 100 MHz, Accuracy: 0.01% of setting</p> <p>3 ns to 640 S, resolution of 1 ns or 5 digits, accuracy 0.2%, jitter 25 ps or 0.005%.</p> <p>0 ns to 640 S, resolution of 1 ns or 5 digits, accuracy 0.2%, jitter 25 ps or 0.005%.</p>
<p><i>Trig Out</i></p> <p><i>Pulse Out</i></p> <p><i>ECL Out</i></p>	<p>A 3 ns wide, 2V high T0 pulse into 50 ohms.</p> <p>A positive 4V pulse into 50 ohms. 1 ns risetime.</p> <p>An ECL level output into 50 ohms. 700 ps risetime.</p>
<p><i>External Trigger</i></p> <p><i>Single Cycle</i></p> <p><i>Double Pulse</i></p> <p><i>Impulse</i></p> <p><i>External Drive</i></p> <p><i>External Modulation</i></p> <p><i>CW</i></p>	<p>0 to 100 MHz, slope select and threshold adjust, 50 ohm input impedance.</p> <p>A push button initiates a single pulse cycle.</p> <p>A pair of identical Width pulses separated by the Delay for each event.</p> <p>A sub-ns impulse is provided for each event. (optical only)</p> <p>An incoming waveform drives a module's output between two selected levels.</p> <p>Analog or digital signals modulate the output of an optical module with high bandwidths. (optical only)</p> <p>Constant light level outputs. (optical only)</p>

More detailed specs are available – please contact the factory

*Electrical Modules*

These interchangeable modules provide electrical signals from 5V, 180ps risetimes to 800V, 10 ns risetimes. The higher amplitudes have slower risetimes and the slower risetimes result in reduced maximum rep rates.

Electrical Module	Characteristics	Amplitude	Offset	Max Rate	Risetime	Min Width	Max Width
		into 50 ohms					
201E	fast risetime high rep rate	5V	+/- 5 V	100 MHz	180 ps	1 ns	640 S
204M	general purpose	20V	None	5 MHz	3 ns	5 ns	640 S
202H	high pulse power	300V	None	500 kHz	5 ns	12 ns	.005%/us droop
310H	higher pulse power	800V	None	40 kHz	15 ns	25 ns	1%/us droop

More detailed specs are available – please contact the factory

*Optical Modules*

These interchangeable modules provide wavelengths of 635 nm, 650 nm, 660 nm, 850 nm, 904 nm, 1064 nm, 1300 nm and 1550 nm. *Other wavelength options may be available so check with the factory if you have special needs.* The optical modules offer rep rate, delay and width control as well as amplitude adjust – essentially providing the optical equivalent of an electrical pulse generator. For all the modules, light is conveniently provided at end of an optical fiber for easy routing on an optical bench or to a test system.

Optical Module	Wavelength	Peak Power	Mode	Max Rate	Min Width	Max Width	Impulse	CW	Ext Mod	Ext Dr
065	650 nm 635, 660 available	2 mW higher available	multi	100 MHz	3 ns	640 S	yes	yes	yes	yes
085	850 nm	2 mW	multi	100 MHz	3 ns	640 S	yes	yes	yes	yes
090	904 nm	1 mW	single	100 MHz	3 ns	640 S	yes	yes	yes	yes
106C	1064 nm	1 mW	single	100 MHz	3 ns	640 S	yes	yes	yes	yes
106H	1064 nm	50 mW	multi	2 kHz	10 ns	25 ns* *4 widths only	contact factory	pulse only	no	no
130	1300 nm	1 mW	single	100 MHz	3 ns	640 S	yes	yes	yes	yes
155	1550 nm	1 mW	single	100 MHz	3 ns	640 S	yes	yes	yes	yes
155H	1550 nm	50 mW	multi	2 kHz	10	25 ns* *4 widths only	contact factory	pulse only	no	no

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