

MACH 5

130 kHz Energy Meter



Mach 5 Module

KEY FEATURES

- 130 kHz Pulse-to-Pulse Measurements**
Measure pulse energy of high rep rate lasers in real time with 12-bit accuracy
- Capture and Store up to 4 million Pulses**
Store 40 seconds of data at 100 kHz
- Track Missing Pulses and Pulses Below Threshold**
Know how many pulses were missed or that didn't make the energy threshold with this unique pulse feature
- Several Probes to Choose From**
Silicon, InGaAs and Pyroelectric heads for a broad wavelength and energy range
- Analog Module Available**
Possibility to measure with an APM and an oscilloscope
- Easy USB 2.0 Connection**
Ensures high data rate transfer and fast operation

AVAILABLE MODELS

- M5-6-Si 6 mm Ø, Silicon Sensor (0.19-1.1 μm)
- M5-6-Si-L 6 mm Ø, Silicon Sensor (0.19-1.1 μm), Low Noise Level
- M5-6-In 6 mm Ø, InGaAs Sensor (1.0-1.6 μm)
- M5-6-In-L 6 mm Ø, InGaAs Sensor (1.0-1.6 μm), Low Noise Level
- M5-6-PY 6 mm Ø, Pyroelectric Sensor with Chromium Coating (0.1-6 μm)
- M5-12.5-PY 12.5 mm Ø, Pyroelectric Sensor with Chromium Coating (0.1-6 μm)

All M5 heads need to be used with the Mach 5 kHz Energy Meter

7 User-Friendly Software with Many Diagnostic Features

- Live Mode, Strip Chart, Histogram and Statistics displays
- FFT display of pulse energy data for temporal diagnostics
- Life Test Mode to automate laser testing

ACCESSORIES



Stand with Delrin Post

Additional 9V Power Supply
(Ethernet version only)

USB Cable



Pelican Carrying Case

SEE ALSO

TECHNICAL DRAWINGS 58
COMPATIBLE MODULES

MACH 5 CURRENT PAGE



APM 30



MACH 5

SENSOR SPECIFICATIONS



Approved or in the process of being approved*

MODELS	M5-6-Si	M5-6-Si-L	M5-6-In	M5-6-In-L	M5-6-PY	M5-12.5-PY
MAX ENERGY	200 µJ	2 µJ	200 µJ	2 µJ	20 mJ	200 mJ
MAX AVERAGE POWER	5 W	5 W	5 W	5 W	5 W	25 W
MAX REPETITION RATE	130 000 Hz	130 000 Hz	130 000 Hz	130 000 Hz	130 000 Hz	130 000 Hz
EFFECTIVE APERTURE	6 mm Ø	6 mm Ø	6 mm Ø	6 mm Ø	6 mm Ø	12.5 mm Ø

MEASUREMENT CAPABILITY	M5-6-Si With Mach 5	M5-6-Si-L With Mach 5	M5-6-In With Mach 5	M5-6-In-L With Mach 5	M5-6-PY With Mach 5	M5-12.5-PY With Mach 5
Spectral Range	0.35 - 1.1 µm	0.35 - 1.1 µm	0.35 - 1.6 µm	0.35 - 1.6 µm	0.35 - 2.5 µm	0.35 - 2.5 µm
Max Measurable Energy	200 µJ	2 µJ	200 µJ	2 µJ	20 mJ	200 mJ
Noise Equivalent Energy	2 nJ	20 pJ	2 nJ	20 pJ	0.2 µJ	200 µJ
Rise Time (0-100%)	150 ns	150 ns	150 ns	150 ns	150 ns	150 ns
Max Repetition Rate	130 000 Hz	130 000 Hz	130 000 Hz	130 000 Hz	130 000 Hz	130 000 Hz
Max Pulse Width	100 nsec	100 nsec	100 nsec	100 nsec	100 nsec	100 nsec
Calibration Uncertainty	± 4%	± 4%	± 4%	± 4%	± 4%	± 4%
Repeatability	± 1%	± 1%	± 1%	± 1%	± 1%	± 1%
DAMAGE THRESHOLDS						
Max Avg Power (60 seconds)	5 W	5 W	5 W	5 W	5 W	25 W
Max Probe Energy (@ 1064 nm)	200 µJ	2 µJ	200 µJ	2 µJ	20 mJ	200 mJ
PHYSICAL CHARACTERISTICS						
Effective Aperture	6 mm Ø	6 mm Ø	6 mm Ø	6 mm Ø	6 mm Ø	12.5 mm Ø
Sensor	Silicon	Silicon	InGaAs	InGaAs	Pyroelectric	Pyroelectric
Absorber	WA	WA	WA	WA	WA	WA
Dimensions	38.1 Ø x 58.4D mm	38.1 Ø x 58.4D mm	38.1 Ø x 58.4D mm	38.1 Ø x 58.4D mm	38.1 Ø x 58.4D mm	76H x 111W x 76D
Weight (Head only)	150 g	150 g	150 g	150 g	150 g	N/A
ORDERING INFORMATION						
Full Product Name	M5-6-Si	M5-6-Si-L	M5-6-In	M5-6-In-L	M5-6-PY	M5-12.5-PY
Product Number	201551	201553	201545	201546	201547	201549

Specifications are subject to change without notice

MACH 5 MODULE SPECIFICATIONS



Mach 5 (Front)



Mach 5 (Rear)

Power Module	Mach 5 Specifications	Mach 5 LED Indicators
On/Off Switch	9VDC	Green
Detector Input	Power On Light	Amber
Detector Analog Output	Lemo Connector	Orange
Computer Connection	BNC Connector 0-3.6 V	Red
Trigger Input (TTL)	USB 2.0 Full Speed	Green
	BNC Connector	
	Trigger Light	
	Buffer Full	
	Detector Overtemp	
	Out of Range	
	Armed Light	

* For details, contact your Gentec-EO representative