



# PVM-1001 Pulsed Voltage Module — Datasheet



## Instrument Description

The PVM-1001 adjustable pulsed voltage source can drive a 50 ohm resistive load from 0 V to 950 V in less than 10 ns (Rise Time). Pulse widths can range from 55 ns to 10,000 ns with repetition rates to 1 MHz (bursts to 5 MHz). Typical applications include instrument calibration, component testing, beam steering, and PMT and MCP gating.

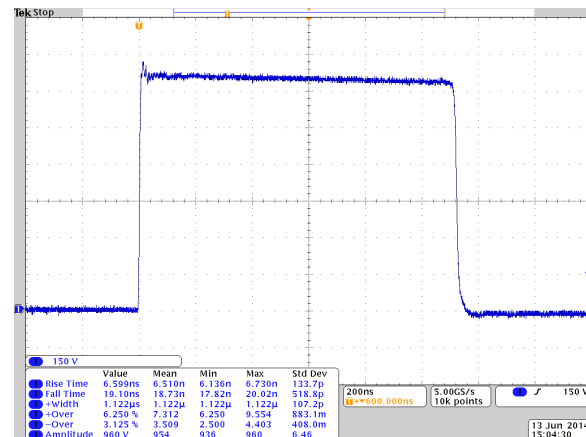
The output pulse width and frequency are controlled by an external trigger source.

Two models are available: The PVM-1001-P produces positive voltage pulses and requires an external positive high voltage power supply; the PVM-1001-N produces negative pulses and requires a negative supply.

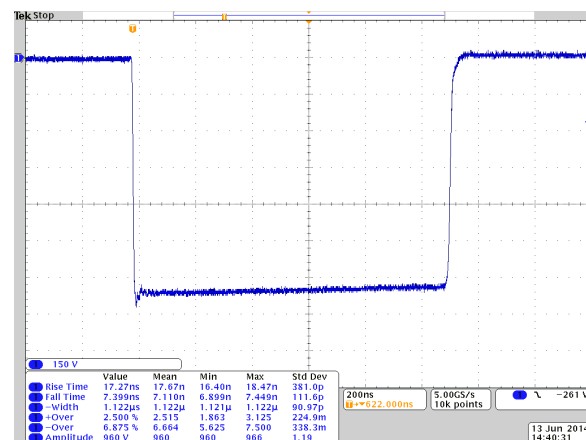
The front panel has an SMB connector for the trigger input and a connector for the AC-to-DC adapter. The rear panel has MHV connectors for high voltage input and pulsed high voltage output.

## Ordering Information

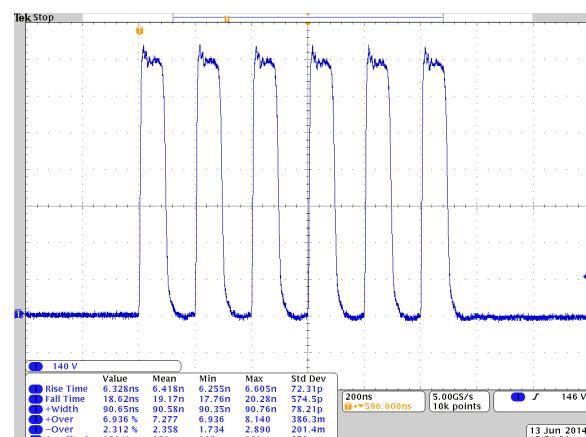
|            |                         |
|------------|-------------------------|
| PVM-1001-P | Positive module         |
| PVM-1001-N | Negative module         |
| PVA-1001   | Input and output cables |



960 V Positive output pulse into a 50  $\Omega$  load



960 V Negative output pulse into a 50  $\Omega$  load



969 V Positive output 5 MHz burst pulse into a 50  $\Omega$  load  
 The negative model has the same burst pulse capability.

## PVM-1001 Positive

### Input HVPS Requirements

|                  |                           |
|------------------|---------------------------|
| HV Input Voltage | ≤ 975 VDC Positive Source |
| HV Input Power   | > Output Power + 5 W      |

### Pulse Amplitude

|                      |               |
|----------------------|---------------|
| Output Voltage Range | 0 V to +950 V |
| Output Droop         | < 10 V/μs     |

|                   |                         |
|-------------------|-------------------------|
| Voltage Overshoot | ≤ 10 % (900 V to 950 V) |
|                   | ≤ 12 % (700 V to 899 V) |
|                   | ≤ 14 % (400 V to 699 V) |
|                   | ≤ 15 % (100 V to 399 V) |
|                   | ≤ 17 % (50 V to 99 V)   |

|           |                         |
|-----------|-------------------------|
| Rise Time | ≤ 8 ns @ 200 V to 950 V |
|           | ≤ 10 ns @ 50 V to 199 V |

|           |                          |
|-----------|--------------------------|
| Fall time | ≤ 50 ns @ 450 V to 950 V |
|           | ≤ 80 ns @ 200 V to 449 V |
|           | ≤ 130 ns @ 50 V to 199 V |

|                      |                                   |
|----------------------|-----------------------------------|
| Polarity             | Positive                          |
| Compliance Voltage   | 25 V above desired output voltage |
| Maximum Output Power | 208 W <u>Refer to SOA Graphs</u>  |

## PVM-1001 Negative

### Input HVPS Requirements

|                  |                            |
|------------------|----------------------------|
| HV Input Voltage | ≤ -975 VDC Negative Source |
| HV Input Power   | > Output Power + 5 W       |

### Pulse Amplitude

|                      |               |
|----------------------|---------------|
| Output Voltage Range | 0 V to -950 V |
| Output Droop         | < -10 V/μs    |

|                   |                         |
|-------------------|-------------------------|
| Voltage Overshoot | < 10 % -800 V to -950 V |
|                   | < 12 % -150 V to -799 V |
|                   | < 20 % -50 V to -149 V  |

|           |                            |
|-----------|----------------------------|
| Fall Time | ≤ 9 ns @ -500 V to -950 V  |
|           | ≤ 10 ns @ -200 V to -499 V |
|           | ≤ 12 ns @ -50 V to -199 V  |

|           |                            |
|-----------|----------------------------|
| Rise time | ≤ 50 ns @ -450 V to -950 V |
|           | ≤ 80 ns @ -200 V to -449 V |
|           | ≤ 130 ns @ -50 V to -199 V |

|                      |                                    |
|----------------------|------------------------------------|
| Polarity             | Negative                           |
| Compliance Voltage   | -25 V above desired output voltage |
| Maximum Output Power | 208 W <u>Refer to SOA Graphs</u>   |

## PVM-1001 Positive & Negative

### External Trigger Requirements

|                                 |                                 |
|---------------------------------|---------------------------------|
| Frequency Range                 | ≤ 1 MHz                         |
| Burst Mode                      | ≤ 5 MHz                         |
| Trigger pulse width             | 55 ns ≤ Pulse width ≤ 10,000 ns |
| Delay (input trigger to output) | ≤ 75 ns                         |
| Termination Impedance           | 50 Ω                            |
| Connector                       | SMB                             |
| Voltage Levels                  | 0 V, output off (open)          |
|                                 | 5 V, output on (high voltage)   |

### Power Specifications

|                            |  |
|----------------------------|--|
| DC Power Source            | 12 VDC, 12 W, supplied by adapter (included) |
| Adapter Power Requirements | 100 VAC to 240 VAC                           |

### Output Connector

|                  |                 |
|------------------|-----------------|
| Output Connector | MHV, Rear Panel |
|------------------|-----------------|

### General

|              |                          |
|--------------|--------------------------|
| Size (HxWxD) | 6.5 cm x 20.4 cm x 10 cm |
| Weight       | 0.5 kg                   |

|                       |                |
|-----------------------|----------------|
| Operating Temperature | 15 °C to 40 °C |
|-----------------------|----------------|

### Notes

Warranty: One year parts and labor on defects in materials and workmanship.

The PVM-1001 voltage source meets or exceeds these specifications. Specifications were measured driving a 50 ohm load (Bird Electronics, 1500W, 50 Ohm, Model 8860) connected with 3 feet of RG-58 coax cable.

Specifications subject to change without notice.



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