

# M9602A and M9603A PXIe Precision Source/Measure Units

15 MSa/s, 1 pA/100 fA, 60 V, 3.5 A DC/10.5 A pulse

The PXIe precision SMU features a best-in-class narrow pulse width as narrow as 10  $\mu\text{s}$ , a fast sampling rate of up to 15 MSa/s and a wide output range, enabling dynamic/pulsed measurements for broad emerging applications such as VCSEL optical devices and IC testing.

## Narrow pulse and high sampling rate enable emerging dynamic/pulsed measurements

- Best-in-class narrow pulse width as low as 10  $\mu\text{s}$  enables the measurement to suppress self-heating effects.
- Best in the industry high sampling rate of up to 15 MSa/s can capture dynamic behavior.

## Broad coverage from low current to high current via a single module

- A wide output range of up to 60 V/3.5 A DC/10.5 A pulse enables flexible I/V measurement from DC to pulsed measurement
- Minimum 100 fA resolution with triaxial output ensures stable low current measurement

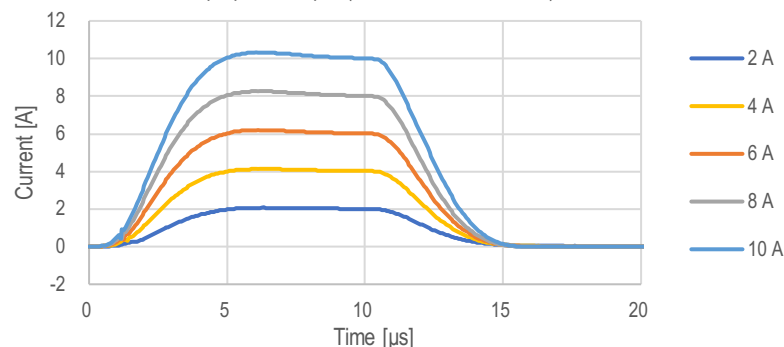
## Faster throughput

- Low noise performance can shorten the measurement time for low current measurements of less than nA (as low as 400 fArms at 1 PLC)
- Seamless current measurement ranging eliminates the range change time
- M9602A and M9603A fully utilize PXIe advantages such as increased testing speed thanks to the PCIe bus speed and embedded PC controller

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10  $\mu\text{s}$  pulse output (Measured at 15 MSa/s)



## Typical Applications

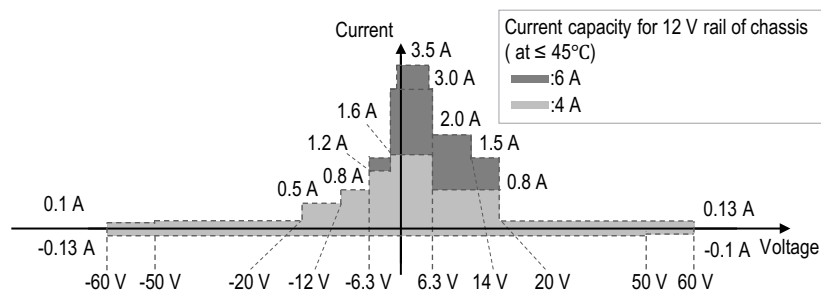
- Optical devices which need fast dynamic and pulsed measurement capability to fully characterize their functionality such as a vertical cavity surface emitting laser (VCSEL) for 3D facial recognition and Light Detection and Ranging (LiDAR)
- Integrated circuit (IC) tests which need to cover a broader range of characteristics while in stand-by, sleep, and active modes such as RF front-end module (FEM)

## Key Specifications and Characteristics:

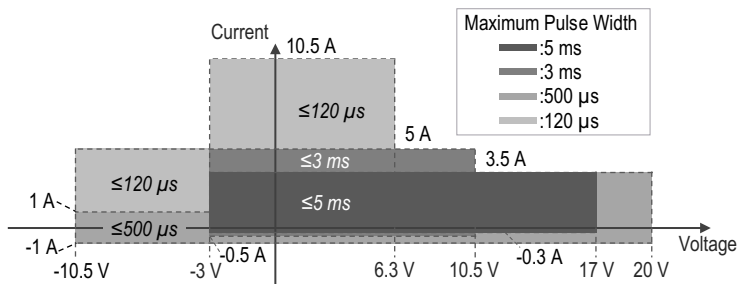
Parameters		M9602A	M9603A
Output	Maximum voltage	60 V	
	Maximum current (DC / pulse)	3.5 A/10.5 A	
	Quadrant operation	4-quadrant	
Current	Minimum resolution	1 pA	100 fA
Voltage	Minimum resolution	6 $\mu$ V	
Dynamic measurement	Minimum pulse width	10 $\mu$ s	
	Sampling rate	15 MSa/s	
Slots / module		1-slot	
Channel / module		1-channel	

1. Supplemental characteristics; Refer to [M9602A](#) and [M9603A](#) datasheet for details.

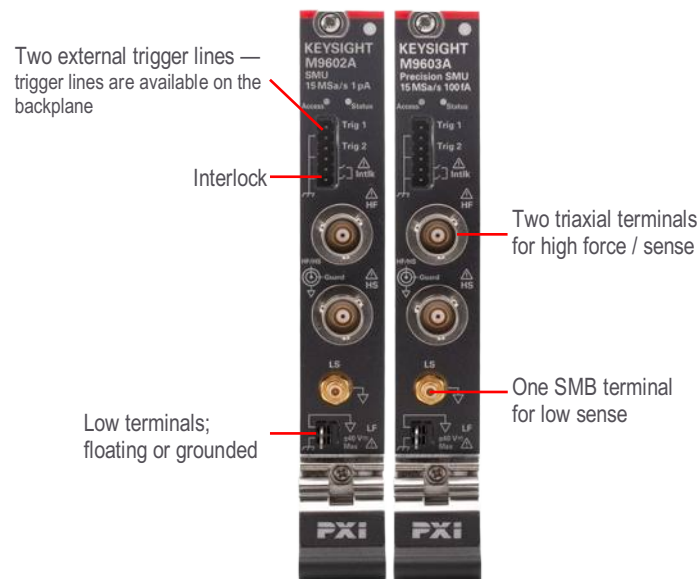
### DC voltage and current output range



### Pulsed voltage and current output range



### Front panel connectors:



### PXIe Source/Measure Unit



**M9601A**  
Precision SMU  
1.25 MSa/s, 10 fA  
210 V, 315 mA



**M9614/15A**  
5-ch Precision SMU  
500 kSa/s, 10 pA/100 pA,  
30 V, 500 mA



**M9111A**  
High-Speed SMU  
13 V,  $\pm 1$  A or 6 V,  $\pm 3$  A

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