XMU5201B Four-Channel High-Precision Source Measure Unit

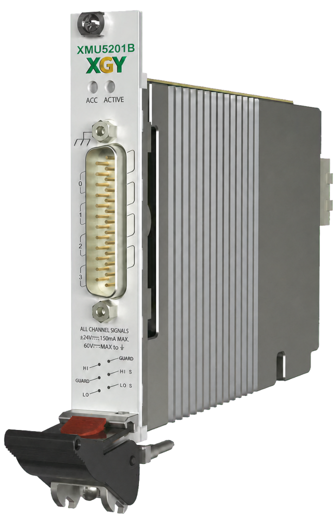
600 kS/s PXIe SMU with ±24 V sourcing and current resolution down to 100 pA

At a Glance

XMU5201B is a compact 3U, 4 HP PXIe four-channel high-precision source measure unit for semiconductor and electronic-device test systems.

The module supports voltage sourcing to ±24 V and current sourcing to ±150 mA, with 200 µV voltage resolution and current resolution down to 100 pA.

A 600 kS/s sampling rate, Windows and Linux support, and a VISA-based DLL driver enable integration into automated research and production-test workflows.



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Four-Channel Source and Measurement Integration

XMU5201B is a standard PXIe four-channel high-precision source measure unit for semiconductor and electronic-product testing. It combines a four-quadrant voltage source, current source, current meter, voltage meter, and electronic-load function in one module.

The module is compatible with standard PXI measurement systems. A PXI controller and a customized host graphical interface can be used to create efficient, precise automated measurement systems.

The 3U, 4 HP construction provides a compact plug-in format and high-isolation signals for installations where channel density and measurement performance must be combined.

Key Features

- **Four-Channel Operation**
  Four source and measurement channels support four-quadrant output operation.
- **Integrated SMU Functions**
  Combines voltage and current sources, voltage and current meters, and electronic-load operation.
- **High-Speed Measurement**
  Supports a sampling rate of 600 kS/s for fast measurement sequences.
- **Voltage Performance**
  Supports a ±24 V range with 200 µV resolution.
- **Current Performance**
  Supports current ranges through ±150 mA with minimum resolution of 100 pA.
- **Software Integration**
  Supports Windows and Linux operating systems and a VISA-based DLL driver for secondary development.

Application Areas

Semiconductor Test

Precision source and measurement functions for semiconductor devices and electronic components.

LED and LD Test

Electrical test of LEDs, laser diodes, and other optoelectronic devices.

Aerospace Electronics

Automated source and measurement functions for aerospace electronic devices.

Power Electronics

Measurement support for power-electronic devices and power-supply design.

Semiconductor Research

Multi-channel electrical characterization for semiconductor research workflows.

Materials and Biochemical Research

Source and measurement functions for materials and biochemical research.

General and Voltage Specifications

General Characteristics	
Channel count	4
Sampling rate	600 kS/s
Operating temperature	0 °C to +55 °C
Storage temperature	-20 °C to +70 °C
Form factor	3U, 4 HP
Bus format	PXIe
Supported operating systems	Windows and Linux
Driver interface	VISA-based DLL
Voltage Programming and Measurement	
Range	±24 V
Resolution	200 µV
Noise, typical	200 µV peak-to-peak, 0.1 Hz to 10 Hz
Accuracy at 23 °C ± 5 °C	±(0.1% + 10 mV)

Noise is a typical peak-to-peak value measured over 0.1 Hz to 10 Hz.
Accuracy is expressed as ±(percentage of reading + offset) at 23 °C ± 5 °C.

Current Programming and Measurement Specifications

Parameter	10 µA	100 µA	1 mA	10 mA	150 mA
	Current Ranges				
Resolution	100 pA	1 nA	10 nA	100 nA	1.5 µA
Noise, typical	100 pA	1 nA	10 nA	100 nA	1.5 µA
Accuracy	±(0.1% + 4 nA)	±(0.1% + 40 nA)	±(0.1% + 0.4 µA)	±(0.1% + 4 µA)	±(0.1% + 60 µA)

Noise values are typical peak-to-peak measurements over 0.1 Hz to 10 Hz.
Accuracy is expressed as ±(percentage of reading + offset) at 23 °C ± 5 °C.

PXIe Slot Power Requirements

Slot Supply	
+3.3 V rail	2 A
+5 V rail	0 A
+12 V rail	2.5 A
-12 V rail	0 A

Product characteristics may change; refer to the latest product manual for current specifications.

Ordering Information

Orderable Model	
Model	XMU5201B
Description	Four-channel high-precision source measure unit
Bus format	PXIe
Form factor	3U, 4 HP

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Specifications subject to change without notice. Per AS/NZS standards.