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AXS844x
Source and Measurement Unit Family



TECHNICAL DATA SHEET

PXI
VXI
LAN
cPCI
PXIe
GPIB
USB
RS232
485
external
PCIe

Features

- Extreme low noise with linear output stage
- Up to 4 independent channels with 200 W_{DC} each
- Configurable as 2 independent channels with 400 W_{DC} each or 1 channel with 800 W_{DC}
- Programmable output current up to 100 A
- Programmable output voltage up to 400 V_{DC}
- Very fast and programmable rise and fall times
- Integrated contact check
- Integrated voltage measurement unit
- Integrated current measurement unit
- Fully isolated design, isolated inputs and outputs
- Especially designed for automatic test equipment and high troughput testing of e. g. LEDs, MOSFETs and diodes
- Short rise and fall times due to integrated sink capability
- Trigger inputs and outputs

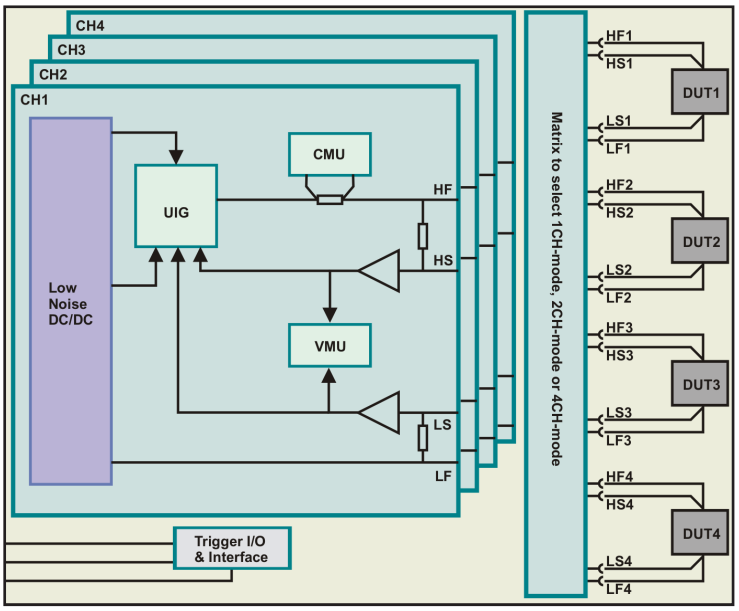
Product Information

The AXS844x Source and Measurement Unit family is designed for high throughput semiconductor testing. It is perfect for the very fast and precise measurement of e. g. LEDs, MOSFETs and diodes.

The linear output stage with a very short rise time allows current pulses up to 100 A. Three voltage ranges (100 V, 200 V, 400 V) and ten current ranges (20 µA ... 100 A) allow accurate programming of the output.

With two integrated measurement units for voltage (VMU) and current (CMU) all high current tests of power semiconductors can be done.

The AXS844x devices are able to generate current- or voltage pulses with automated measurement after a programmed delay. A versatile trigger engine with different trigger in- and outputs allows synchronization with additional equipment.

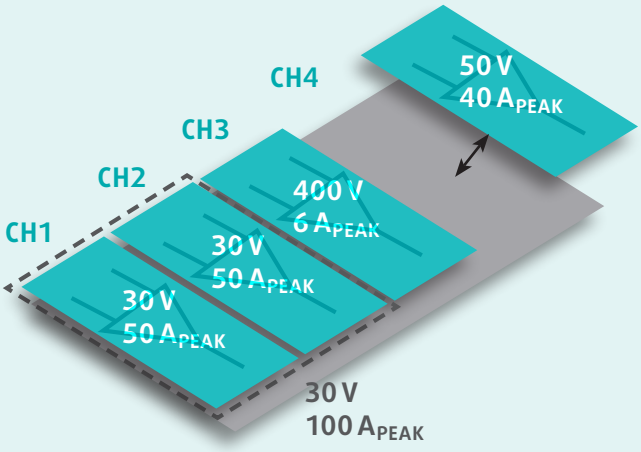


Ordering Option	Comment
AXS8441	1 channel output
AXS8442	1 or 2 channel output
AXS8444	1, 2 or 4 channel output
Option EXTVOLT	Extended output voltage range
Option PCG	Primary current generator
Option GPIB[1]	GPIB interface
Option USB[1]	USB 2.0 interface
Option LAN[1]	Ethernet interface
Option EPCIE[1]	External PCIe interface
Option FE	Front touch display
Option ECR-L	Extended current ranges L
Option ECR-H	Extended current ranges H
Option RMK	19" rack mounting kit

[1] One of the interface options is mandatory.

Modular Concept

Due to the modulear concept of this unit, it is easily possible to customize the power stage and output specification. The hardware architecture of the AXS844x family supports output currents up to 100 A and output voltages up to 400 V. The maximum static output power is limited to 800 W and the maximum pulse output power can be up to 10 kW.
A mixture of output channels with different specification is possible.



Example configuration

General	Specification	Comment
AC line voltage	100 ... 250 V_{AC} ; 47 Hz ... 63 Hz	
Power consumption	<1500 W	
Operating temperature	0 ... 40°C	
Operating altitude	<2,000 m	
Relative humidity	Up to 85% at 35°C	
Storage temperature range	-25 ... 70°C	
Size	19" x 6U x 690 mm	
Weight	≈40 kg	

Voltage Control Unit	Specification	Comment
Resolution	16 Bit	In all ranges
DC accuracy		
Gain error	±0.05% of value	
Offset error	±0.10% of full scale	
Voltage drop at force cable	±5 V	Maximum regulated voltage drop
Output voltage		Programmable output voltage
Range 1	-50 V ... +100 V	
Range 2	-50 V ... +200 V	Additionally with option EXTVOLT
Range 3	-50 V ... +400 V	Additionally with option EXTVOLT
Pulse length	100 µs ... DC	Pulse mode
Maximum capacitive load		
Ranges ±2 ... ±100 A	<500 µF	
Ranges ±20 ... ±200 mA	<300 nF	
Ranges ±20 µA ... ±2 mA	<10 nF	
Slew rate	1 V/ms ... 1,500 V/ms	Software programmable

Current Control Unit	Specification	Comment
Resolution	16 Bit	In all ranges
DC accuracy		Programmable output current
Range -100 ... +100 A	±(1.00% of value + 1.00% of full scale)	Only in pulse mode (Option ECR-H)
Range -8 ... +8 A	±(0.20% of value + 0.20% of full scale)	Only in 1 channel mode
Range -4 ... +4 A	±(0.10% of value + 0.10% of full scale)	Only in 1 and 2 channel mode
Range -2 ... +2 A	±(0.05% of value + 0.05% of full scale)	In 1, 2 and 4 channel mode
Range -200 ... +200 mA	±(0.05% of value + 0.05% of full scale)	In 1, 2 and 4 channel mode
Range -20 ... +20 mA	±(0.05% of value + 0.05% of full scale)	In 1, 2 and 4 channel mode
Range -2 ... +2mA	±(0.05% of value + 0.05% of full scale)	In 1, 2 and 4 channel mode (Option ECR-L)
Range -200 ... +200 µA	±(0.10% of value + 0.10% of full scale)	In 1, 2 and 4 channel mode (Option ECR-L)
Pulse length	100 µs ... DC	Pulse mode
Maximum capacitive load		
Ranges ±20 mA ... ±100 A	<100 nF	PCG mode
Ranges ±20 µA ... ±2 mA	<10 nF	PCG mode
Slew rate	10 µA/ms ... 600 A/ms	Software programmable in PCG mode; depends on current range

Notes: All product data are specified for 1 year at an ambient temperature of 23°C ±5°C (after 1 hour warm-up time).
Product specification and description in this document are subject to change without notice.

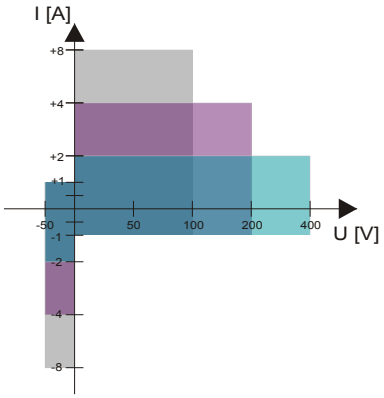
Voltage Measurement	Specification
Resolution	20 Bit
Filter frequencies	100 Hz, 1 kHz, 10 kHz, 100 kHz
DC accuracy[1]	
Range 100 mV	±0.25 % of full scale
Range 1 V	±0.15 % of full scale
Range 10 V	±0.1 % of full scale
Range 100 V	±0.1 % of full scale
Range 400 V	±0.1 % of full scale additionally with option EXTVOLT

Current Measurement	Specification
Resolution	20 Bit
Filter frequencies	100 Hz, 1 kHz, 10 kHz, 100 kHz
DC accuracy[1,2]	
Range 100 A	±1.0% of full scale
Range 8 A	±0.2% of full scale
Range 4 A	±0.1% of full scale
Range 2 A	±0.05% of full scale
Range 200 mA	±0.05% of full scale
Range 20 mA	±0.05% of full scale
Range 2 mA	±0.05% of full scale
Range 200 µA	±0.1% of full scale
Range 20 µA	±0.2% of full scale

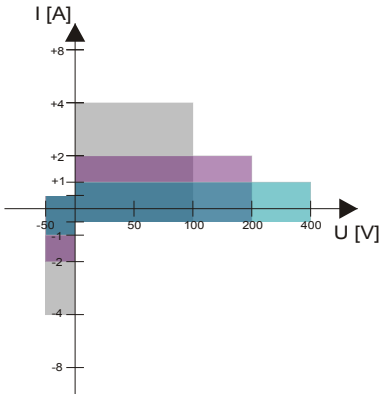
Mode[3]	Output 1	Output 2	Output 3	Output 4
1 channel	-50 ... 400 V / -2 ... 2 A -50 ... 200 V / -4 ... 4A -50 ... 100 V / -8 ... 8 A			
2 channel	-50 ... 400 V / -1 ... 1 A -50 ... 200 V / -2 ... 2 A -50 ... 100 V / -4 ... 4 A		-50 ... 400 V / -1 ... 1 A -50 ... 200 V / -2 ... 2 A -50 ... 100 V / -4 ... 4 A	
4 channel	-50 ... 400 V / -0.5 ... 0.5 A -50 ... 200 V / -1 ... 1 A -50 ... 100 V / -2 ... 2 A	-50 ... 400 V / -0.5 ... 0.5 A -50 ... 200 V / -1 ... 1 A -50 ... 100 V / -2 ... 2 A	-50 ... 400 V / -0.5 ... 0.5 A -50 ... 200 V / -1 ... 1 A -50 ... 100 V / -2 ... 2 A	-50 ... 400 V / -0.5 ... 0.5 A -50 ... 200 V / -1 ... 1 A -50 ... 100 V / -2 ... 2 A

1 With 100 Hz filter and 20 samples with an interval of 1 ms.
2 Current measurement range is equal to generator source range.
3 200 V and 400 V ranges wide.

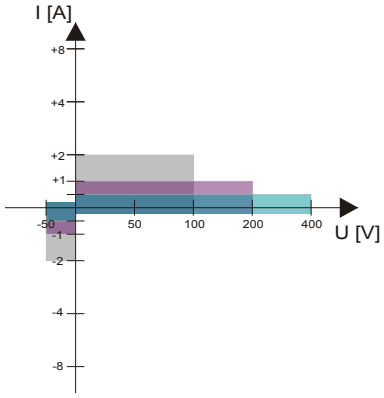
AXS8444/AXS8442 in 1 channel mode or AXS8441



AXS8444 in 2 channel mode or AXS8442



AXS8444 in 4 channel mode



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