

# AXC760x 100A High Current SMU Family



## TECHNICAL DATA SHEET

PXI

VXI

LAN

cPCI

PXIe

GPIB

USB

RS232  
485

external  
PCIe

### Features

- Extreme low noise with linear output stage
- Output current up to 100 A pulse mode
- Output current up to 20 A (temp. control)
- Programmable output voltage up to 50 V
- Very fast rise time (50 A/ $\mu$ s)
- Programmable current pulse
- Integrated voltage measurement unit with voltage monitor
- Integrated current measurement unit with current monitor
- Front touch display available

## Product Information

The AXC760x 100 A High Current Source and Measurement Unit family was designed for semiconductor and high throughput testing.

### Very fast linear output stage

The very fast rise time allows short current pulses up to 100 A with a programmable pulse length. Three voltage ranges allow accurate programming of the output voltage.

### Integrated measurement units...

Together with the integrated voltage measurement unit (VMU) and the integrated current measurement unit (CMU) all high current tests of power semiconductor can be done.

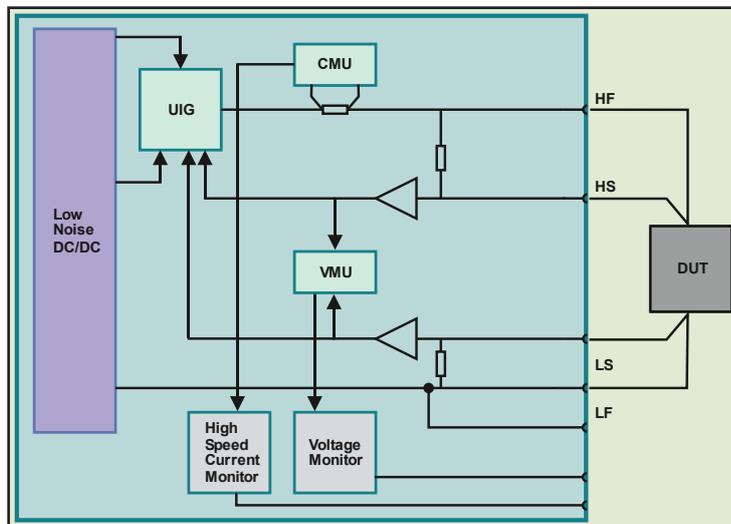
### ...with monitor signals

Output current and voltage drop on the load can be measured with an oscilloscope in a very easy way using the integrated monitor outputs.

### Two operation modes

In "Static Current" operation mode an output current up to 20 A can be set. The source can provide a continuous current up to 10 A without time limit. In addition, the use of the integrated temperature control circuit allows the generation of output currents of up to 20 A as long as the maximum power dissipation is not exceeded.

In "Pulsed Current" operation mode output current pulses up to 100 A can be generated. The pulse duration can be configured from 100  $\mu$ s to 2 ms (8 ms at the AXC7608). An integrated "Ixt limiter" monitors the maximum current-time product of 100 A x 2 ms (8 ms at the AXC7608). This allows a multitude of current-pulse-length combinations.



Ordering Option	Comment
<b>AXC7603</b>	100 A / 50V / 2 ms
<b>AXC7608</b>	100 A / 40V / 8 ms
<b>Option GPIB<sup>1</sup></b>	GPIB interface
<b>Option USB<sup>1</sup></b>	USB 2.0 interface
<b>Option LAN<sup>1</sup></b>	Ethernet interface
<b>Option EPCIE<sup>1</sup></b>	External PCIe interface
<b>Option FE</b>	Front touch display
<b>Option HIRES</b>	High resolution volt meas.
<b>Option RMK</b>	19" rack mounting kit

<sup>1</sup> One of the interface options is mandatory.

General	Specification	Comment
AC line voltage	230 V <sub>AC</sub> ±10%	
AC line frequency	47 Hz...63 Hz	
Power consumption	<2,000 W	
Operating temperature	0 ... 50°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 455 mm	
Weight	≈32 kg	
Electrical safety	According EN61010-1	
Isolation output to PE	100 V CAT I, Pollution Degree 2	

Voltage Control Unit	Specification	Comment
Resolution	16 Bit	In all ranges
DC accuracy		
Gain error	±0.1% of value	
Offset error	±0.1% of full scale	
Voltage drop at force cable	±8 V	Maximum regulated voltage drop
Output voltage		Programmable output voltage
Range 1	-1 V... +1 V	
Range 2	-10 V... +10 V	
Range 3	-50 V... +50 V (AXC7603) -40 V... +40 V (AXC7608)	

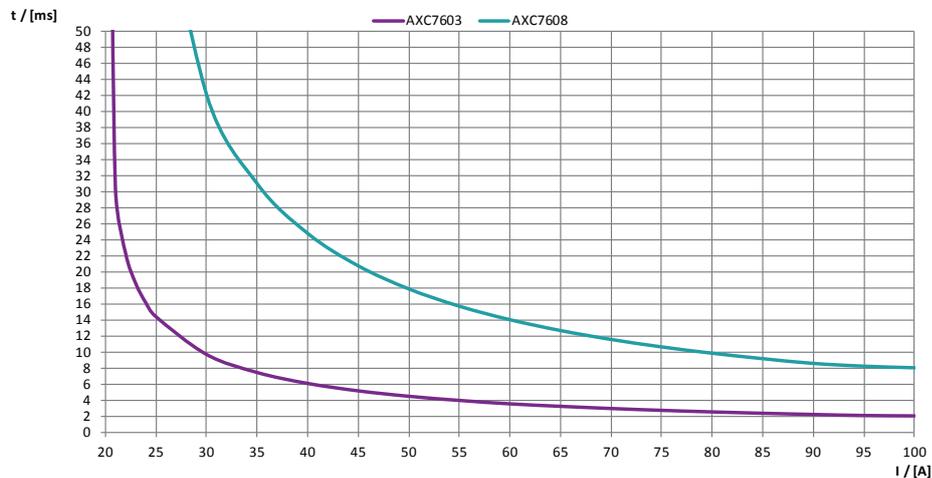
Current Control Unit	Specification	Comment
Resolution	16 Bit	
DC accuracy		
Gain error	±1.0% of value	
Offset error	±1.0% of full scale	
Pulse length	100 µs... DC	
Maximum output current		
Continuous current	-20 A... +20 A	With temperature control
Continuous current	-10 A... +10 A	Without temperature control
Pulse current <sup>1</sup>	-100 A... +100 A	Maximum pulse length see "I <sub>X</sub> T-Limiter" diagram
Minimum pulse length	100 µs	Fixed to ≥2 ms with option HIRES

<sup>1</sup> See "I<sub>X</sub>T-Limiter" diagram.

**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.

Ixt-Limiter – Maximum pulse length in milliseconds depending upon the output current

I [A]	100	90	80	75	70	65	60	55	50	45	40	35	30	25
$t_{AXC7603}$	2.00	2.18	2.50	2.69	2.92	3.19	3.50	3.93	4.45	5.12	6.05	7.42	9.67	14.20
$t_{AXC7608}$	8.00	8.55	9.82	10.61	11.53	12.65	14.00	15.68	17.85	20.72	24.78	31.00	42.14	100.00



The integrated "Ixt limiter" provides a multitude of current - pulse length combinations while monitoring the maximum current-time product.

Voltage Measurement	Specification
<b>Resolution</b>	16 Bit
<b>Filter frequencies<sup>1</sup></b>	100Hz, 1 kHz, 10kHz, 100kHz
<b>DC accuracy<sup>2</sup></b>	
Range 100mV (opt. HIRES)	±0.5% of full scale
Range 1V	±0.1% of full scale
Range 10V	±0.1% of full scale
Range 100V	±0.1% of full scale

Current Measurement	Specification
<b>Resolution</b>	16 Bit
<b>Filter frequencies</b>	100Hz, 1 kHz, 10kHz, 100kHz
<b>DC accuracy<sup>2</sup></b>	
Range 10 A	±1.0% of full scale
Range 100 A	±1.0% of full scale

Voltage Monitor	Specification
<b>Output voltage</b>	+5V equivalent to +full scale in each range
<b>Internal resistance</b>	10k
<b>Accuracy</b>	±2% of full scale

Current Monitor	Specification
<b>Output voltage</b>	+5V equivalent to +full scale in each range
<b>Internal resistance</b>	10k
<b>Accuracy</b>	±2% of full scale

<sup>1</sup> The 100mV range supports filter frequencies of 100Hz and 1kHz only.

<sup>2</sup> With 100Hz filter and 20 samples with an interval of 1ms.