

PX773x PXI SOURCE MEASUREMENT UNIT



TECHNICAL DATA SHEET

PXI

VXI

LAN

cPCI

PXIe

GPIB

USB

RS232
485

external
PCIe

- Supports current source and sink (four-quadrant operation)
- No external power source required
- Readback function for output voltage and current (measurement functions)
- Six current ranges, two power ranges
- Very fast rise and fall times
- Four included configurable TTL Digital-I/O's
- Four included open drain outputs up to 60V
- Sense inputs for superior load control
- Auto sensing to protect UUTs reliably
- Digitizing or Arbitrary waveform generator option for voltage or current

Product Information

High speed Source and Measurement Unit

The PX773x is a high precision, high speed Source and Measurement Unit, which is designed for automated high throughput testing.

Programmable rise and fall times

The fast low-noise linear bipolar power stage provides a full 4 quadrant source and sink capability at very fast rise and fall times, even at high capacitive loads. In addition the rise and fall times are programmable.

Two power ranges

With its optional second power range ($\pm 20\text{V}/\pm 0.5\text{A}$ to $\pm 60\text{V}/\pm 0.2\text{A}$) one PX773x device covers a wide range of different loads.

Auto sensing protects units under test

An auto sensing feature is integrated as a security to protect devices under test.

Configurable digital inputs/outputs

The PX773x has 4 included free configurable digital TTL I/Os and 4 open drain outputs e.g. to drive relays or LEDs.

No external power supply required

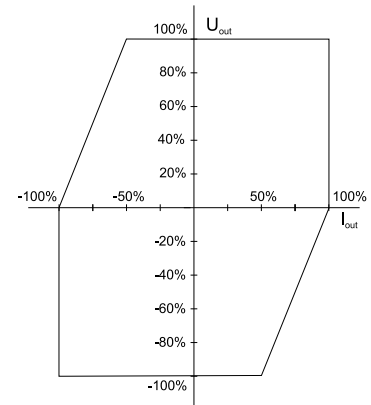
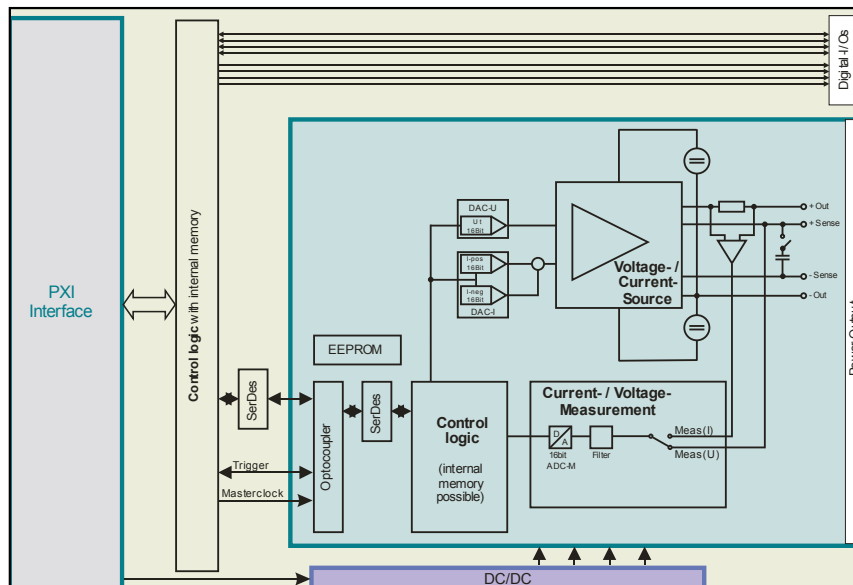
The PX773x does not require an external DC source. The output power is drawn from the PXI backplane. All internal voltages are generated with extremely low-noise DC/DC converters.

Waveform digitizing option

The integrated measurement unit provides digitizing features with sample rates up to 100kS/s and a sample depth of up to 8kS.

Arbitrary waveform generator option

The PX773x has an integrated waveform memory for up to 8k waveform datapoints with an output rate up to 50kS/s.



General	Specification	Comment
Module size	2 slot, 3U	
Module weight	<0.7 kg	
Front connector type	25-pin, Sub-D	
Operating temperature	0 ... 40°C	
Operating altitude	Up to 2000 m	
Humidity	To 80% relative humidity below 30°C To 45% relative humidity up to 50°C	
Storage temperature range	-25 ... 70°C	
Electrical safety	According EN61010-1	
Isolation output to PE	60V CAT I, pollution degree 2	

Device Specifications	PX7731	PX7732	PX7733
Output ratings			
Output voltage ¹	-10 V _{DC} ... 10 V _{DC}	-20 V _{DC} ... 20 V _{DC}	-30 V _{DC} ... 30 V _{DC}
Output current	-1.0 A _{DC} ... 1.0 A _{DC}	-0.5 A _{DC} ... 0.5 A _{DC}	-0.4 A _{DC} ... 0.4 A _{DC}
Current ranges (DC)	1.0 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA	0.5 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA	0.4 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA
Measurement Unit			
Voltage range	-10 V _{DC} ... 10 V _{DC}	-20 V _{DC} ... 20 V _{DC}	-30 V _{DC} ... 30 V _{DC}
Current ranges (DC)	1.0 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA	0.5 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA	0.4 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA

Device Specifications	PX7734	PX7736
Output ratings		
Output voltage ¹	-40 V _{DC} ... 40 V _{DC}	-60 V _{DC} ... 60 V _{DC}
Output current	-0.25 A _{DC} ... 0.25 A _{DC}	-0.2 A _{DC} ... 0.2 A _{DC}
Current ranges (DC)	0.25 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA	0.2 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA
Measurement Unit		
Voltage range	-40 V _{DC} ... 40 V _{DC}	-60 V _{DC} ... 60 V _{DC}
Current ranges (DC)	0.25 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA	0.2 A, 0.1 A, 10 mA, 1 mA, 100 µA, 10 µA

¹ The addition of common mode and output voltage may not exceed 60V.

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.

Generator Specification	Specification	Comment
Number of outputs	1	
Output relays	Yes	On/off via software or trigger
Resolution	16 Bit	
Voltage accuracy	0.05% + 0.05%	±(of programmed value + of full range ²)
Current accuracy		
Accuracy in highest range	0.1% + 0.1%	±(of programmed value + of full range)
Accuracy all other ranges	0.05% + 0.05%	±(of programmed value + of full range)
Temperature drift		
Voltage	50 ppm/°C	
Current	150 ppm/°C	
Ripple&Noise (20Hz...20MHz)		
Voltage (highest I-range)	<12 mV _{RMS} , <60 mV _{pp}	RMS Normal Mode
Voltage (all other I-ranges)	<10 mV _{RMS} , <40 mV _{pp}	RMS Normal Mode
Output settling time ¹		
Rise time	<250 μs	10% to 90% of full scale output setting
Fall time	<250 μs	90% to 10% of full scale output setting
Voltage ramp	1-500 V/ms	Programmable range

Measurement Specification	Specification	Comment
Resolution	16 Bit	
Filters	100 Hz, 1 kHz, 10 kHz, 100 kHz	
Voltage accuracy ³		
Accuracy ⁴ (standard)	0.05% + 0.05%	±(of reading + of full range ⁵)
Accuracy with option LSM	<±10 mV even for very low signals	For signals <10% of full range ⁵
Current accuracy ³		
Accuracy ^{4,6}	0.1% + 0.1%	±(of reading + of full range)
Accuracy all other ranges ^{4,6}	0.05% + 0.05%	±(of reading + of full range)
Accuracy with option LSM	0.1% + 0.1%	For signals <10% of selected range

¹ Programmed voltage change at maximum current.

² Full range means the highest possible output voltage of the used PX773x device.

³ 6 month, 23°C ± 2°C.

⁴ For readings >10% of range.

⁵ Full range means the highest possible output voltage of the used PX773x device.

⁶ Current measurement range is equal to the selected current range of the voltage source.

Digitizer Acquisition	Specification	Comment
Maximum sample rate	100 kS/s	
Bandwidth	100 kHz	
Resolution	16 Bit	
Sampling times	10 μ s, 20 μ s, 50 μ s, 100 μ s, 200 μ s, 500 μ s, 1 ms, 2 ms, 5 ms, 10 ms, 20 ms, 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s, 5 s, 10 s	Software selectable
Time base		
Accuracy	50 ppm	In operating temperature range
Aging per year	5 ppm	
Coupling	DC	
DC accuracy ^{1,2,3,4}	0.1% + 0.1%	\pm (of reading + of full range)
Filters	100 Hz, 1 kHz, 10 kHz, 100 kHz	Software selectable
Waveform memory	20 kB, 10 kS	

Arbitrary Waveform	Specification	Comment
Resolution	16 Bit	
Maximum sample rate	10 kS/s	
DC accuracy		
DC-offset	<0.1% of full scale	
DC-gain	<0.1% of value	
AC accuracy		
f <1 kHz	<0.5% of full scale	Sine wave into Hi-Z
f <10 kHz	<1.0% of full scale	
Waveform memory	20 kB, 10 kS	

Trigger System	Specification	Comment
Input from		
Software		Via software command
Front trigger		Trigger input on device front connector
PXI trigger		Trigger 0...7 & star-trigger at the PXI backplane
Output to		
PXI trigger		Trigger 0...7 at the PXI backplane
Level resolution	16 Bit	
Level accuracy	0.6% + 0.3%	\pm (of programmed value + of full range)
Trigger slope	Positive or negative	
Trigger hysteresis	0 ... 100% of signal range	Programmable via software
Pre-trigger	0 ... 100% of full record length	Trigger is armed after all pre-samples are captured. After trigger event, number of samples are captured defined by post-trigger
Post-trigger	0 ... 100% of full record length	Number of samples captured after trigger event

¹ 6 month, 23°C \pm 2°C.

² For readings >10% of range.

³ Full range means the highest possible output voltage of the used PXS840x device.

⁴ Current measurement range is equal to the selected current range of the voltage source.

Ordering Information	Comment
PX7731	Device PX7731 with $\pm 10\text{V} / \pm 1.00\text{A}$
PX7732	Device PX7732 with $\pm 20\text{V} / \pm 0.50\text{A}$
PX7733	Device PX7733 with $\pm 30\text{V} / \pm 0.40\text{A}$
PX7734	Device PX7734 with $\pm 40\text{V} / \pm 0.25\text{A}$
PX7736	Device PX7736 with $\pm 60\text{V} / \pm 0.20\text{A}$
Option DG	Digitizing option
Option ARB	Arbitrary waveform generator option
Option PR-20¹	Second power range: $\pm 20\text{V} / \pm 0.50\text{A}$
Option PR-30¹	Second power range: $\pm 30\text{V} / \pm 0.40\text{A}$
Option PR-40¹	Second power range: $\pm 40\text{V} / \pm 0.25\text{A}$
Option PR-60¹	Second power range: $\pm 60\text{V} / \pm 0.20\text{A}$
Option LSM²	Measurement for signals less than 10% of selected range with same precision

¹ The second power range output voltage has always to be higher than the basic device voltage.

² An x10 post-amplifier increases the precision of the measurement signal.