

NI 6624 Specifications

This document lists the specifications for the NI PCI/PXI-6624 device. These specifications are typical at 25 °C unless otherwise noted.

Power

Power requirement 0.75 A from +5 V rail;
0.15 A from +3.3 V rail

Isolated Inputs

Number of input channels 26 (3 per counter and
2 extra PFIs)

Input type Driven reference to either supply
or ground (two terminals per
input)

Maximum input frequency 400 kHz

Minimum input pulse width 1 μ s

Input-to-input, input-to-output,
and input-to-PC ground isolation 60 VDC, continuous

Input waveform types Any

Voltage

Voltage range Up to 48 VDC

Typical ON voltage 2.5 V

Guaranteed ON voltage 4 V

Guaranteed OFF voltage 0.8 V

Current

ON state current	2.2 mA min, 6 mA typ, 10 mA max
OFF state current	0.1 mA max

Protection

Current limit	10 mA max (over operating temperature range)
Reverse and overvoltage.....	±60 VDC max continuous
Functionality with transient spikes	Up to 400 V peak

Propagation Delays (for a 5 V Input Signal)

LOW to HIGH	280 ns typ
HIGH to LOW	220 ns typ

Isolated Outputs

Number of output channels.....	8
Output type	Sinking (low-side switch)
Output power requirement.....	5 to 48 VDC (10 mA per channel, typical at 400 KHz)
Load voltage range	5 to 48 VDC
Switching current.....	100 mA per channel, max
Inrush current.....	600 mA per channel, max
Maximum output frequency	400 kHz
Minimum output pulse width	1 μ s
Output-to-output, output-to-input, and output-to-PC ground isolation	60 VDC peak, continuous
Typical switching times (with a 5 V, 100 Ω load)	
Turn on	500 ns
Turn off.....	150 ns

Output low maximum voltage
(with SH100-100-S2 cable) 0.47 V at 10 mA;
0.75 V at 100 mA

Output leakage current when OFF 60 μ A max

Protection

Short circuit (on output pins) 0.6 A min, 1.1 A max
(stays off after detecting a short
circuit and retries to operate every
250 ms, then automatically
recovers after removing the short)

Reverse and overvoltage
(on output and Vdd pins) \pm 60 VDC max continuous

Functionality with transient spikes
(on Vdd pins) Up to 80 V peak

Timing I/O

Number of counters 8 up/down

Resolution 32 bits

Maximum count 4,294,967,295

Rollover times

 100 kHz timebase 11.93 hours

 20 MHz timebase 214.74 s

Base clocks available 100 kHz and 20 MHz

Base clock accuracy 50 ppm (\pm 0.005%)
over temperature

Maximum source frequency 20 MHz

Data transfer DMA (up to 3 channels),
interrupts

RTSI Trigger Lines (PCI Only)

Trigger lines <0..6> 7

RTSI clock 1

PXI Trigger Bus (PXI Only)

Trigger lines <0..6>	7
RTSI clock	1

Physical

Dimensions	
PCI	17.5 cm × 10.7 cm (6.9 in. × 4.2 in.)
PXI	16.0 cm × 10.0 cm (6.3 in. × 3.9 in.)
I/O connector	100-pin female, SCSI-II type

Environmental

The NI 6624 is intended for indoor use only.

Operating Environment

Ambient temperature range	
PCI	0 to 50 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)
PXI	0 to 55 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)
Relative humidity range	10% to 90%, noncondensing (Tested in accordance with IEC-60068-2-56.)
Altitude	2,000 m (at 25 °C ambient temperature)
Pollution Degree	2

Storage Environment

Ambient temperature range.....	-20 to 70 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2.)
Relative humidity range	5% to 95%, noncondensing (Tested in accordance with IEC-60068-2-56.)

Shock and Vibration (PXI Only)

Operational shock	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC-60068-2-27. Test profile developed in accordance with MIL-PRF-28800-F.)
Random vibration	
Operating	5 to 500 Hz, 0.3 g _{rms}
Nonoperating	5 to 500 Hz, 2.4 g _{rms} (Tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800-F, Class 3.)



Note Clean the device with a soft, non-metallic brush. Make sure that the device is completely dry and free from contaminants before returning it to service.

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1
- CAN/CSA C22.2 No. 61010.1



Note For UL and other safety certifications, refer to the product label, or visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

Emissions	EN 55011 Class A at 10 m FCC Part 15A above 1 GHz
Immunity	EN 61326:1997 + A2:2001, Table 1
EMC/EMI	CE, C-Tick, and FCC Part 15 (Class A) compliant



Note For EMC compliance, operate this device with shielded cabling or a ribbon cable no longer than 1 m.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

Low-Voltage Directive (safety).....	73/23/EEC
Electromagnetic Compatibility Directive (EMC).....	89/336/EEC



Note Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

