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. Refer to the *NI 6624 User Manual* for more information about NI 6624 devices.

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 µs

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

Isolation voltage (verified by a dielectric withstand test, 1 min max)

- Input channels to backplane (bus) ..... 400 Vrms
- Input channels to ground ..... 400 Vrms
- Input channel to channel ..... 330 Vrms

Propagation Delays (for a 5 V Input Signal)

LOW to HIGH ..... 350 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 µs

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 µA max

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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, and then automatically recovers after removing the short)

Reverse and overvoltage (on output and Vdd pins).....±60 VDC

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 h
- 20 MHz timebase .....214.74 s

Baseclocks available.....100 kHz and 20 MHz

Baseclock accuracy .....50 ppm (±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

Minimum pulse width for trigger and clock .....50 ns

PXI Trigger Bus (PXI Only)

Trigger lines <0..5>.....6

Star trigger.....1

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

Maximum Working Voltage

Maximum working voltage refers to the signal voltage plus the common-mode voltage.

Channel-to-earth ..... ±11 V, Measurement Category I

Channel-to-channel..... ±22 V, Measurement Category I

Caution Do not use this module for connection to signals or for measurements within Categories II, III, or IV.

Environment

NI 6624 devices are intended for indoor use only.

Maximum altitude..... 2,000 meters (at 25 °C ambient temperature)

Pollution Degree 2

Operating Environment

Ambient temperature range ..... 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.)

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-28800F.)

Random vibration

Operating ..... 5 to 500 Hz, 0.3 grms

Nonoperating ..... 5 to 500 Hz, 2.4 grms (Tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, 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, CSA 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

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

- EN 61326 EMC requirements; Minimum Immunity
- EN 55011 Emissions; Group 1, Class A
- CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A

Note For EMC compliance, operate this device with shielded cabling.

CE Compliance

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

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

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.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of their life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit `ni.com/environment/weee.htm`.

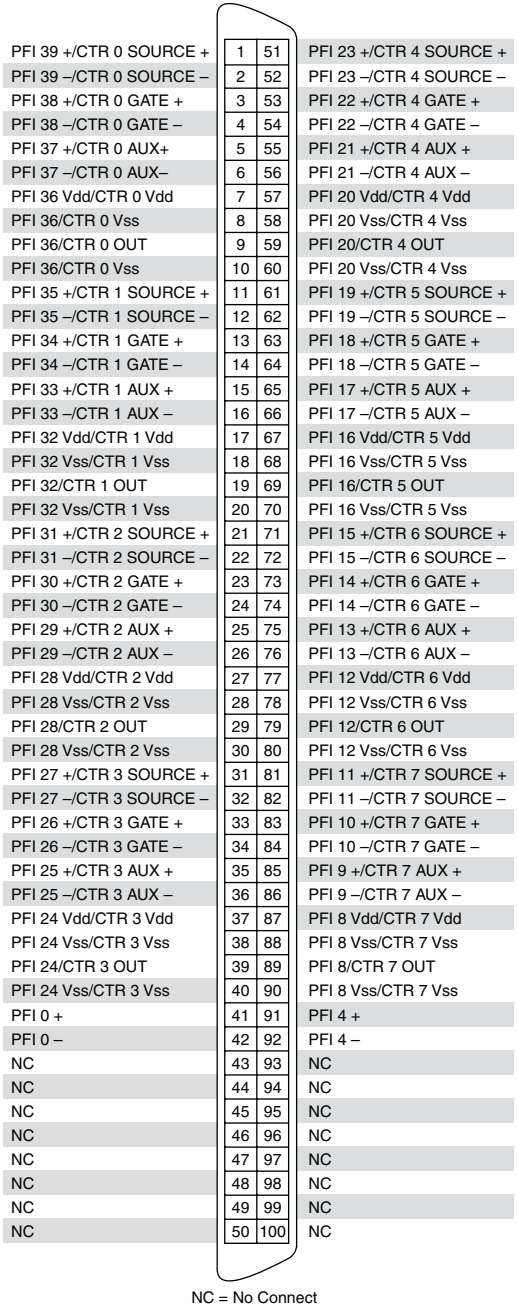

Figure 1. NI 6624 Pin Assignments