# PXI-2569 Specifications

2025-03-10

# Contents

# PXI-2569 Specifications

> **Caution** The protection provided by the PXI-2569 can be impaired if it is used in a manner not described in this document.

## Definitions

***Warranted*** specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

***Characteristics*** describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- ***Typical*** specifications describe the performance met by a majority of models.
- ***Nominal*** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are ***Typical*** unless otherwise noted.

## Conditions

Specifications are valid at 23 °C unless otherwise noted.

All voltages are specified in DC, $AC_{pk}$, or a combination unless otherwise specified.

## PXI-2569 Pinout

### 50-DPST Topology

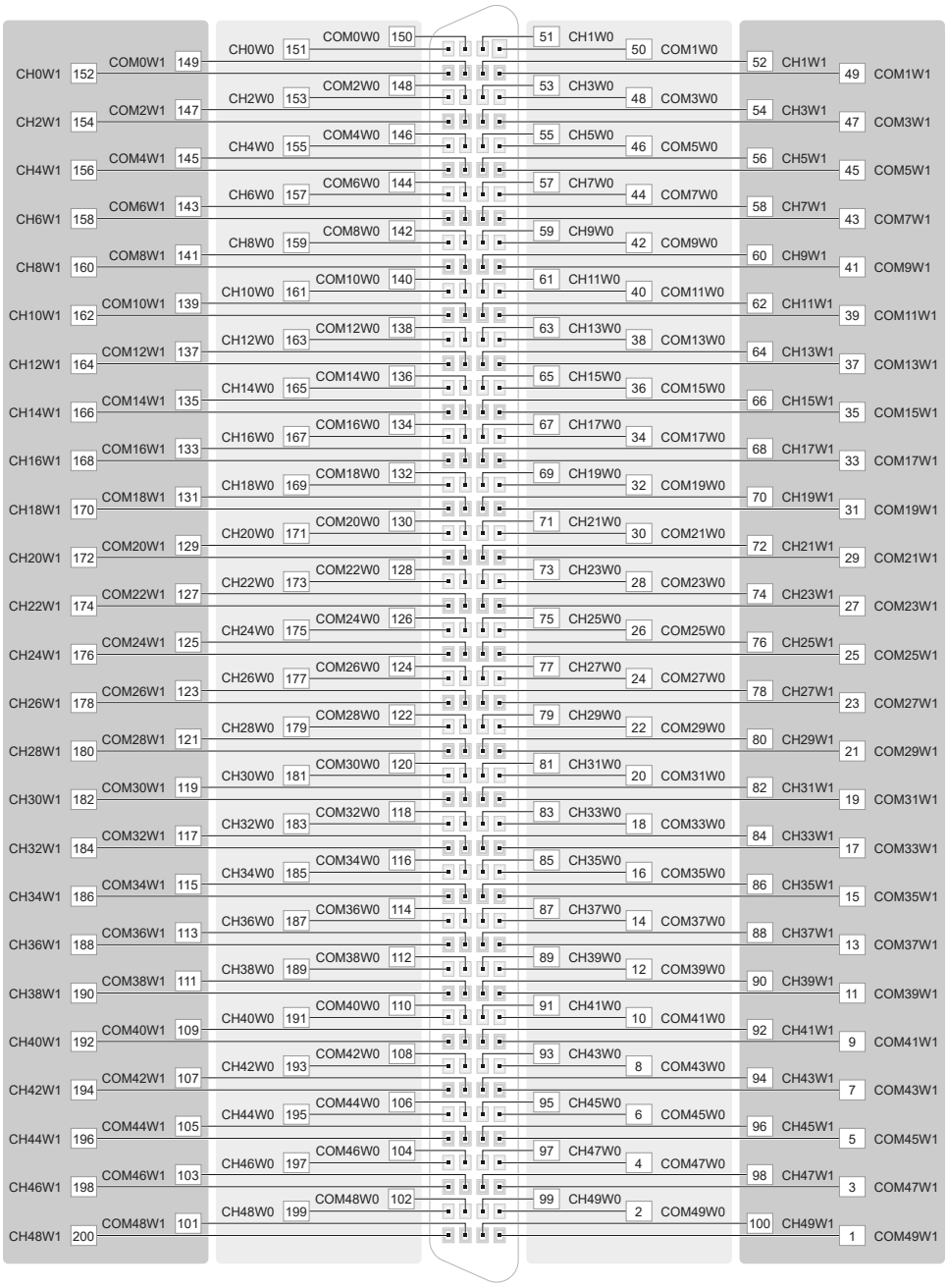



Table 1. Signal Descriptions

| Signal | Description |
|---|---|
| CH***x***W0 | Wire 0 signal connection |
| CH***x***W1 | Wire 1 signal connection |
| COM***x***W0 | Routing destination for Wire 0 on the corresponding channel |

| Signal | Description |
|---|---|
| COM***x***W1 | Routing destination for Wire 1 on the corresponding channel |

## 100-SPST Topology

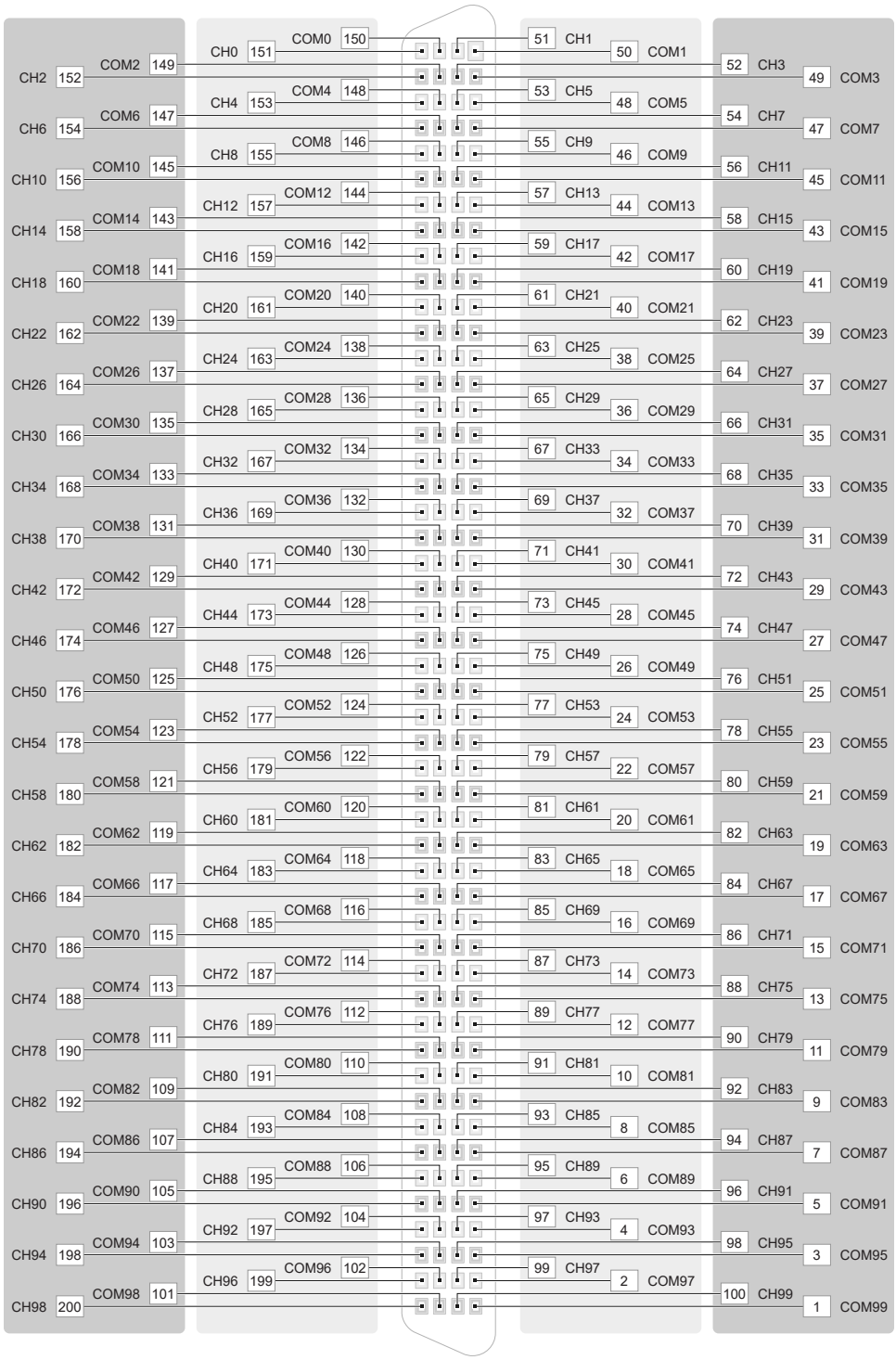



Table 2. Signal Descriptions

| Signal | Description |
|---|---|
| CH***x*** | Signal connection |

| Signal | Description |
|---|---|
| COM***x*** | Routing destination for the corresponding channel |

## Topology

| | |
|---|---|
| Topology | 100-SPST (latching)<br><br>50-DPST |

## Input

**Caution** This module is rated for Measurement Category I. It is intended to carry signal voltages no greater than 100 $V_{rms}$, 150 $V_{pk}$, or 150 VDC. This module can withstand up to 800 V impulse voltage. Do not use this module for connection to signals or for measurements within Categories II, III, or IV. Do not connect to MAINS supply circuits (for example, wall outlets) of 115 VAC or 230 VAC.

**Caution** When hazardous voltages (>42.4 $V_{pk}$/60 V DC) are present on any channel, safety low-voltage (≤42.4 $V_{pk}$/60 V DC) cannot be connected to any other channel.

| **Maximum switching voltage** | |
|---|---|
| Channel-to-channel | 100 V |
| Channel-to-ground | 100 V, CAT I |

**Caution** The switching power is limited by the maximum switching current and the maximum voltage and must not exceed 60 W, 62.5 VA.

| | |
|---|---|
| Maximum switching power (per channel)[1] | 60 W, 62.5 VA (DC to 60 Hz) |
| Maximum current (switching or carry, per channel) | 1 A |
| Simultaneous channels at maximum current (≤35 °C) | 50 |

## Module Load Derating at >35 °C

Load derating is dependent on the ambient temperature and the sum of the current squared of each channel simultaneously carrying a signal. The result must fall within the shaded region of the following figure. The following examples represent this calculation:

Example 1: Fifty channels carry 0.75 A while 10 channels carry 0.5 A.

$(50 \times 0.75^2) + (10 \times 0.5^2) = 30.6\ A^2 \times \text{channels}$

Example 1 can be used at ambient temperatures between 0 °C and 55 °C.

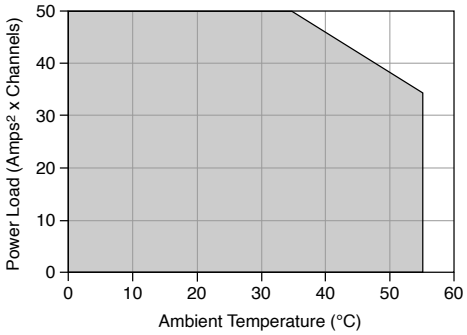
Example 2: Sixty channels carry 0.75 A while 35 channels carry 0.5 A.

$(60 \times 0.75^2) + (35 \times 0.5^2) = 42.5\ A^2 \times \text{channels}$

Example 2 can be used at ambient temperatures between 0 °C and 45 °C.

1. Switching inductive loads (for example, motors and solenoids) can produce high voltage transients in excess of the module's rated voltage. Without additional protection, these transients can interfere with module operation and impact relay life. For more information about transient suppression, visit ni.com/info and enter the Info Code relayflyback.

Figure 1. Module Load Derating




| | |
|---|---|
| Minimum switch load | 20 mV/10 mA |
| **DC path resistance**[2] | |
| Initial | <0.55 Ω, warranted |
| End of life | ≥1.0 Ω |
| Thermal EMF | <12 µV, typical |
| Bandwidth (-3 dB, 50 Ω termination) | ≥20 MHz, typical |
| **Crosstalk (50 Ω termination, channel-to-channel)** | |
| 10 kHz | ≤-85 dB, typical |
| 100 kHz | ≤-65 dB, typical |
| 1 MHz | ≤-45 dB, typical |

2. DC path resistance typically remains low for the life of the relay. At the end of relay life, the path resistance rises rapidly above the specified value. Load ratings apply to relays used within the specification before the end of relay life.

| | |
|---|---|
| 10 MHz | ≤-25 dB, typical |
| **Isolation (50 Ω termination, open channel)** | |
| 10 kHz | ≥85 dB, typical |
| 100 kHz | ≥65 dB, typical |
| 1 MHz | ≥45 dB, typical |
| 10 MHz | ≥25 dB, typical |

# Dynamic

| | |
|---|---|
| Relay operate time[3] | 1 ms, typical<br>3.4 ms, maximum |
| **Expected relay life**[4] | |
| Mechanical | $1 \times 10^8$ cycles |
| **Electrical** | |
| 10 VDC, 100 mADC resistive | $2.5 \times 10^6$ cycles |
| 10 VDC, 1 ADC resistive | $1 \times 10^6$ cycles |

3. Certain applications may require additional time for proper settling. Refer to the ***NI Switches Help*** for more information about including additional settling time.

| | |
|---|---|
| 30 VDC, 1 ADC resistive | $5 \times 10^5$ cycles |
| 60 VDC, 1 ADC resistive | $1 \times 10^5$ cycles |

# Trigger

| | |
|---|---|
| **Input trigger** | |
| Sources | PXI trigger lines <0...7> |
| Minimum pulse width[5] | 150 ns |
| **Output trigger** | |
| Destinations | PXI trigger lines <0...7> |
| Pulse width | Software-selectable: 1 µs to 62 µs |

# Physical

| | |
|---|---|
| Relay type | Electromechanical, latching |
| Relay contact material[6] | Palladium-ruthenium, gold covered |

4. Relays are field replaceable. Refer to the ***NI Switches Help*** for more information about replacing a failed relay.
5. The PXI-2569 can recognize trigger pulse widths less than 150 ns if you disable digital filtering. Refer to the ***NI Switches Help*** for information about disabling digital filtering.
6. Certain devices are built with silver, gold covered. Contact NI for more details on a specific device.

| | |
|---|---|
| I/O connector | 200 POS LFH Matrix 50, receptacle |
| Power requirement | 6 W at 5 V<br>2.5 W at 3.3 V |
| Dimensions (L × W × H) | 3U, one slot, PXI/cPCI module, PXIe compatible,<br>21.6 cm × 2.0 cm × 13.0 cm(8.5 in. × 0.8 in. × 5.1 in.) |
| Weight | 289 g (10.2 oz) |

# Environment

| | |
|---|---|
| Maximum altitude | 2,000 m (at 25 °C ambient temperature) |
| Pollution Degree | 2 |

Indoor use only.

## Operating Environment

| | |
|---|---|
| Ambient temperature range | 0 °C 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 | to (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

| | |
|---|---|
| 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 Hz to 500 Hz, 0.31 $g_{rms}$ (Tested in accordance with IEC 60068-2-64.) |
| Nonoperating | 5 Hz to 500 Hz, 2.46 $g_{rms}$ (Tested in accordance with IEC 60068-2-64. Test profile exceeds the requirements of MIL-PRF-28800F, Class 3.) |

# Compliance and Certifications

## Safety Compliance Standards

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

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

**Note** For safety certifications, refer to the product label or the Product

Certifications and Declarations section.

## Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

**Note** In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.

**Note** Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

**Note** For EMC declarations, certifications, and additional information, refer to ***Product Certifications and Declarations***.

## Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

# Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the ***Engineering a Healthy Planet*** web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

### EU and UK Customers

- **Waste Electrical and Electronic Equipment (WEEE)**—At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

### 电子信息产品污染控制管理办法（中国RoHS）

- **中国RoHS**— NI符合中国电子信息产品中限制使用某些有害物质指令(RoHS)。关于NI中国RoHS合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

© 2025 National Instruments Corporation.