

---

# PXle-6349

# Specifications

---

2025-07-23



# Contents

PXIe-6349 Specifications ..... 3

# PXIe-6349 Specifications

## PXIe-6349 Specifications

### 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.

### PXIe-6349 Pinout

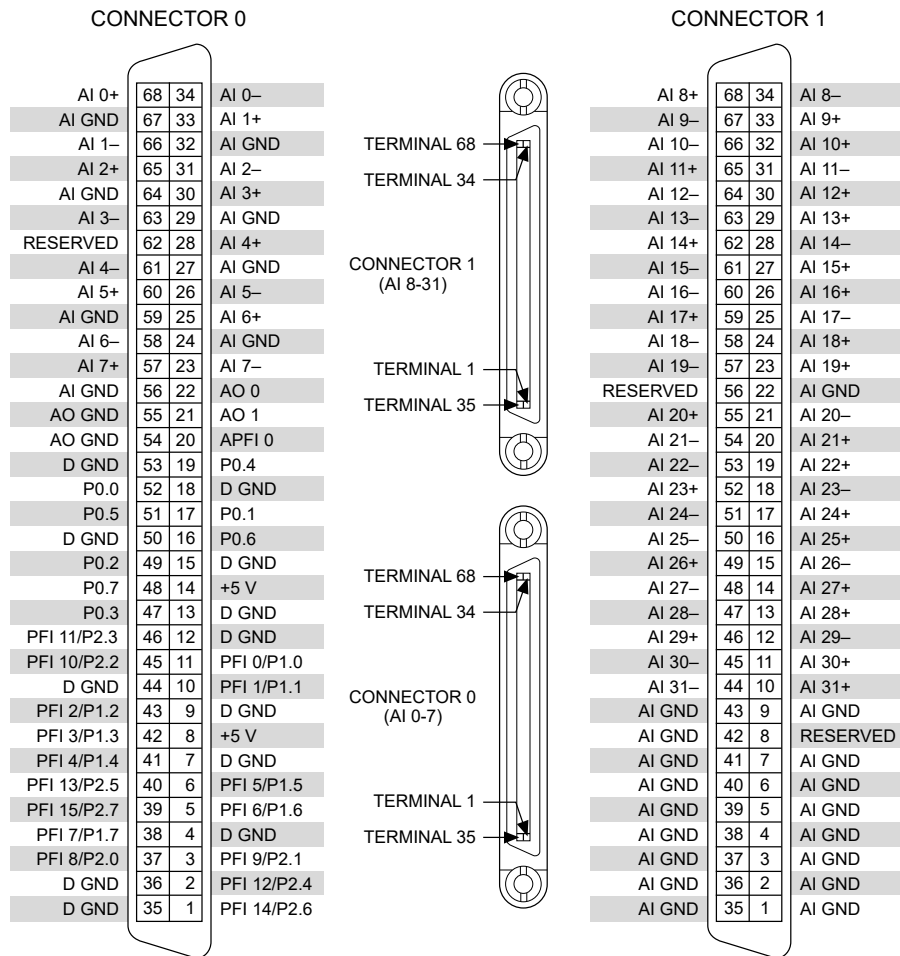


Table 1. Default Counter/Timer Terminals

| Counter/Timer Signal | Default PFI Terminal |
|----------------------|----------------------|
| CTR 0 SRC            | PFI 8                |
| CTR 0 GATE           | PFI 9                |
| CTR 0 AUX            | PFI 10               |
| CTR 0 OUT            | PFI 12               |
| CTR 0 A              | PFI 8                |
| CTR 0 Z              | PFI 9                |
| CTR 0 B              | PFI 10               |
| CTR 1 SRC            | PFI 3                |
| CTR 1 GATE           | PFI 4                |

| Counter/Timer Signal | Default PFI Terminal |
|----------------------|----------------------|
| CTR 1 AUX            | PFI 11               |
| CTR 1 OUT            | PFI 13               |
| CTR 1 A              | PFI 3                |
| CTR 1 Z              | PFI 4                |
| CTR 1 B              | PFI 11               |
| CTR 2 SRC            | PFI 0                |
| CTR 2 GATE           | PFI 1                |
| CTR 2 AUX            | PFI 2                |
| CTR 2 OUT            | PFI 14               |
| CTR 2 A              | PFI 0                |
| CTR 2 Z              | PFI 1                |
| CTR 2 B              | PFI 2                |
| CTR 3 SRC            | PFI 5                |
| CTR 3 GATE           | PFI 6                |
| CTR 3 AUX            | PFI 7                |
| CTR 3 OUT            | PFI 15               |
| CTR 3 A              | PFI 5                |
| CTR 3 Z              | PFI 6                |
| CTR 3 B              | PFI 7                |
| FREQ OUT             | PFI 14               |

Table 2. Signal Descriptions

| Signal | Reference | Description                                                                                                                        |
|--------|-----------|------------------------------------------------------------------------------------------------------------------------------------|
| AI GND | —         | Analog Input Ground—These terminals are the bias current return point for DIFF measurements. All ground references—AI GND, AO GND, |

| Signal     | Reference | Description                                                                                                                                                                                                                                                                                                                  |
|------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |           | and D GND—are connected on the device. Though AI GND, AO GND, and D GND are connected on the device, they are connected by small traces to reduce crosstalk between subsystems. Each ground has a slight difference in potential.                                                                                            |
| AI <0..31> | AI GND    | Analog Input Channels—AI 0+ and AI 0- are the positive and negative inputs of differential analog input channel 0.                                                                                                                                                                                                           |
| AO <0,1>   | AO GND    | Analog Output Channels—These terminals supply voltage output.                                                                                                                                                                                                                                                                |
| AO GND     | —         | Analog Output Ground—AO GND is the reference for AO. All ground references—AI GND, AO GND, and D GND—are connected on the device. Though AI GND, AO GND, and D GND are connected on the device, they are connected by small traces to reduce crosstalk between subsystems. Each ground has a slight difference in potential. |
| D GND      | —         | Digital Ground—D GND supplies the reference for port 0, port 1, port 2 digital channels, PFI, and                                                                                                                                                                                                                            |

| Signal                                      | Reference | Description                                                                                                                                                                                                                                                                   |
|---------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             |           | +5 V. All ground references—AI GND, AO GND, and D GND—are connected on the device. Though AI GND, AO GND, and D GND are connected on the device, they are connected by small traces to reduce crosstalk between subsystems. Each ground has a slight difference in potential. |
| P0.<0..7>                                   | D GND     | Port 0 Digital I/O Channels—You can configure each signal individually as an input or output.                                                                                                                                                                                 |
| APFI 0                                      | AI GND    | Analog Programmable Function Interface Channel—The APFI signal can be used as an analog trigger input. APFI 0 is referenced to AI GND when it is used as an analog trigger input.                                                                                             |
| +5 V                                        | D GND     | +5 V Power Source—These terminals provide a fused +5 V power source.                                                                                                                                                                                                          |
| PFI <0..7>/P1.<0..7>, PFI <8..15>/P2.<0..7> | D GND     | <p>Programmable Function Interface or Digital I/O Channels—Each of these terminals can be individually configured as a PFI terminal or a digital I/O terminal.</p> <p>As an input, each PFI terminal</p>                                                                      |

| Signal   | Reference | Description                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |           | can be used to supply an external source for AI, AO, DI, and DO timing signals or counter/timer inputs. As a PFI output, you can route many different internal AI, AO, DI, or DO timing signals to each PFI terminal. You can also route the counter/timer outputs to each PFI terminal. As a port 1 or port 2 digital I/O signal, you can individually configure each signal as an input or output. |
| Reserved | —         | Reserved Pin—May be connected internally to device. Should never be connected to any signal.                                                                                                                                                                                                                                                                                                         |

## Analog Input



**Note** Floating inputs can cause unnecessary power consumption and higher operating temperatures. NI recommends connecting unused analog input channels to AIGND.

|                    |                             |
|--------------------|-----------------------------|
| Number of channels | 32 differential             |
| ADC resolution     | 16 bits                     |
| DNL                | No missing codes, warranted |

|                                                             |                                                          |  |
|-------------------------------------------------------------|----------------------------------------------------------|--|
| INL                                                         | Refer to the <i><b>AI Absolute Accuracy</b></i> section. |  |
| Sample rate (simultaneous sampling on all channels sampled) |                                                          |  |
| Maximum                                                     | 500 kS/s                                                 |  |
| Minimum                                                     | No minimum                                               |  |
| Timing resolution                                           | 10 ns                                                    |  |
| Timing accuracy                                             | 50 ppm of sample rate                                    |  |
| Input coupling                                              | DC                                                       |  |
| Input range                                                 | ±1 V, ±2 V, ±5 V, ±10 V                                  |  |
| Maximum working voltage for all analog inputs (AI±)         |                                                          |  |
| Ranges ±10 V, ±5 V                                          | ±11 V, Measurement Category I                            |  |
| Ranges ±2 V, ±1 V                                           | ±9 V, Measurement Category I                             |  |



**Caution** Do not use for measurements within Categories II, III, and IV.

|                 |       |
|-----------------|-------|
| CMRR (at 60 Hz) | 80 dB |
|-----------------|-------|

|                                      |                                                                |                                                 |
|--------------------------------------|----------------------------------------------------------------|-------------------------------------------------|
| Bandwidth (small signal)             |                                                                | 2.0 MHz at $\pm 1$ V<br>2.9 MHz at other ranges |
| Input impedance                      |                                                                |                                                 |
| Device on                            |                                                                |                                                 |
| AI+ to AI GND                        | >1 G $\Omega$ in parallel with 18 pF                           |                                                 |
| AI- to AI GND                        | >1 G $\Omega$ in parallel with 18 pF                           |                                                 |
| Device off                           |                                                                |                                                 |
| AI+ to AI GND                        | 2.37 k $\Omega$                                                |                                                 |
| AI- to AI GND                        | 2.37 k $\Omega$                                                |                                                 |
| Input bias current                   | $\pm 6$ nA<br>$\pm 90$ nA, maximum over full temperature range |                                                 |
| Crosstalk (at 100 kHz)               | -80 dB                                                         |                                                 |
| Input FIFO size                      | 4,095 samples shared among channels used                       |                                                 |
| Data transfers                       | DMA (scatter-gather), programmed I/O                           |                                                 |
| Overvoltage protection for AI<0..31> |                                                                |                                                 |
| Device on                            | $\pm 30$ V                                                     |                                                 |

|                                             |                                                      |
|---------------------------------------------|------------------------------------------------------|
| Device off                                  | ±15 V                                                |
| Input current during overvoltage conditions | ±6.3 mA maximum/AI pin                               |
| Maximum AI channels in overvoltage          | 4 channels on AI<0..15> and 4 channels on AI<16..31> |



**Notice** Exceeding overvoltage specifications may result in data corruption on non-overvoltaged channels.

## Analog Triggers

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Number of triggers  | 1                                                                                    |
| Source              | AI <0..31>, APFI 0                                                                   |
| Functions           | Start Trigger, Reference Trigger, Pause Trigger, Sample Clock, Sample Clock Timebase |
| <b>Source level</b> |                                                                                      |
| AI <0..31>          | ±Full scale                                                                          |
| APFI 0              | ±10 V                                                                                |
| Resolution          | 16 bits                                                                              |

|                                    |                                                                                              |  |
|------------------------------------|----------------------------------------------------------------------------------------------|--|
| Modes                              | Analog edge triggering, analog edge triggering with hysteresis, and analog window triggering |  |
| Bandwidth (large signal, to -3 dB) |                                                                                              |  |
| AI <0..31>                         | 600 kHz                                                                                      |  |
| APFI 0                             | 3.9 MHz                                                                                      |  |
| Accuracy                           | ±1% of range                                                                                 |  |
| APFI 0 characteristics             |                                                                                              |  |
| Input impedance                    | 10 kΩ                                                                                        |  |
| Coupling                           | DC                                                                                           |  |
| Protection, power on               | ±30 V                                                                                        |  |
| Protection, power off              | ±15 V                                                                                        |  |

## AI Absolute Accuracy

Table 3. AI Absolute Accuracy

| Nominal Range Positive Full Scale | Nominal Range Negative Full Scale | Residual Gain Error (ppm of Reading) | Offset Tempco (ppm of Range/°C) | Random Noise, $\sigma$ ( $\mu\text{V}_{\text{rms}}$ ) | Absolute Accuracy at Full Scale ( $\mu\text{V}$ ) |
|-----------------------------------|-----------------------------------|--------------------------------------|---------------------------------|-------------------------------------------------------|---------------------------------------------------|
| 10                                | -10                               | 115                                  | 2                               | 265                                                   | 3,225                                             |
| 5                                 | -5                                | 115                                  | 2                               | 148                                                   | 1,613                                             |

| Nominal Range Positive Full Scale | Nominal Range Negative Full Scale | Residual Gain Error (ppm of Reading) | Offset Tempco (ppm of Range/°C) | Random Noise, $\sigma$ ( $\mu\text{Vrms}$ ) | Absolute Accuracy at Full Scale ( $\mu\text{V}$ ) |
|-----------------------------------|-----------------------------------|--------------------------------------|---------------------------------|---------------------------------------------|---------------------------------------------------|
| 2                                 | -2                                | 117                                  | 2                               | 74                                          | 650                                               |
| 1                                 | -1                                | 124                                  | 3                               | 50                                          | 333                                               |



**Note** For more information about absolute accuracy at full scale, refer to the *AI Absolute Accuracy Example* section.

|                       |                  |
|-----------------------|------------------|
| Gain tempco           | 16.7 ppm/°C      |
| Reference tempco      | 5 ppm/°C         |
| Residual offset error | 12 ppm of range  |
| INL error             | 126 ppm of range |



**Note** Accuracies listed are warranted for up to one year from the device external calibration when the device is within 10 °C of the external calibration temperature and 1 °C of the last self calibration, when averaging 10,000 DC samples. Other accuracies may be calculated for different temperatures and sample sizes using the given equations.



**Notice** This product may become more sensitive to electromagnetic disturbances in the operational environment when test leads are attached or when connected to a test object.

## AI Absolute Accuracy Equation

$$\text{AbsoluteAccuracy} = \text{Reading} \cdot (\text{GainError}) + \text{Range} \cdot (\text{OffsetError}) + \text{NoiseUncertainty}$$

- **GainError** = **ResidualGainError** + **GainTempco** · **(TempChangeFromLastInternalCal)** + **ReferenceTempco** · **(TempChangeFromLastExternalCal)**
- **OffsetError** = **ResidualOffsetError** + **OffsetTempco** · **(TempChangeFromLastInternalCal)** + **INLError**
- **NoiseUncertainty** = 
$$\frac{\text{Random Noise} \cdot 3}{\sqrt{10,000}}$$
 for a coverage factor of 3  $\sigma$  and averaging 10,000 points.

## AI Absolute Accuracy Example

Absolute accuracy at full scale on the analog input channels is determined using the following assumptions:

- **TempChangeFromLastExternalCal** = 10 °C
- **TempChangeFromLastInternalCal** = 1 °C
- **number\_of\_readings** = 10,000
- **CoverageFactor** = 3  $\sigma$

For example, on the 10 V range, the absolute accuracy at full scale is as follows:

- **GainError** = 115 ppm + 16.7 ppm · 1 + 5 ppm · 10 = 181.7 ppm
- **OffsetError** = 12 ppm + 2 ppm · 1 + 126 ppm = 140 ppm
- **Noise Uncertainty** = 
$$\frac{265 \mu\text{V} \cdot 3}{\sqrt{10,000}}$$
 = 8  $\mu\text{V}$
- **AbsoluteAccuracy** = 10 V · (**GainError**) + 10 V · (**OffsetError**) + **NoiseUncertainty** = 3225  $\mu\text{V}$

## Analog Output

|                                           |                                                   |
|-------------------------------------------|---------------------------------------------------|
| Number of channels                        | 2                                                 |
| DAC resolution                            | 16 bits                                           |
| DNL                                       | $\pm 1$ LSB, maximum                              |
| Monotonicity                              | 16 bit guaranteed                                 |
| Accuracy                                  | Refer to the <b>AO Absolute Accuracy</b> section. |
| <b>Maximum update rate (simultaneous)</b> |                                                   |
| 1 channel                                 | 900 kS/s                                          |
| 2 channels                                | 840 kS/s                                          |
| Minimum update rate                       | No minimum                                        |
| Timing accuracy                           | 50 ppm of sample rate                             |
| Timing resolution                         | 10 ns                                             |
| Output range                              | $\pm 10$ V                                        |

|                                                |                                                                                                                                                        |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output coupling                                | DC                                                                                                                                                     |
| Output impedance                               | 0.2 $\Omega$                                                                                                                                           |
| Output current drive                           | $\pm 5$ mA                                                                                                                                             |
| Overdrive protection                           | $\pm 15$ V                                                                                                                                             |
| Overdrive current                              | 15 mA                                                                                                                                                  |
| Power-on state                                 | $\pm 20$ mV                                                                                                                                            |
| Power-on/off glitch                            | 2 V peak for 150 ms                                                                                                                                    |
| Output FIFO size                               | 8,191 samples shared among channels used                                                                                                               |
| Data transfers                                 | DMA (scatter-gather), programmed I/O                                                                                                                   |
| AO waveform modes                              | Non-periodic waveform, periodic waveform regeneration mode from onboard FIFO, periodic waveform regeneration from host buffer including dynamic update |
| Settling time, full-scale step, 15 ppm (1 LSB) | 6 $\mu$ s                                                                                                                                              |

|                                      |                 |
|--------------------------------------|-----------------|
| Slew rate                            | 15 V/μs         |
| Glitch energy at midscale transition | 100 mV · 2.6 μs |

## AO Absolute Accuracy

Accuracies listed are warranted for up to one year from the device external calibration when the device is within 10 °C of the external calibration temperature and 1 °C of the last self calibration.

Table 4. AO Absolute Accuracy

| Nominal Range Positive Full Scale | Nominal Range Negative Full Scale | Residual Gain Error (ppm of Reading) | Gain Tempco (ppm/°C) | Reference Tempco (ppm/°C) | Residual Offset Error (ppm of Range) | Offset Tempco (ppm of Range/°C) | INL Error (ppm of Range) | Absolute Accuracy at Full Scale (μV) |
|-----------------------------------|-----------------------------------|--------------------------------------|----------------------|---------------------------|--------------------------------------|---------------------------------|--------------------------|--------------------------------------|
| 10                                | -10                               | 130                                  | 11.3                 | 5                         | 52                                   | 4.8                             | 128                      | 3,761                                |

AO Absolute Accuracy Equation

$$\text{AbsoluteAccuracy} = \text{OutputValue} \cdot (\text{GainError}) + \text{Range} \cdot (\text{OffsetError})$$

- $\text{GainError} = \text{ResidualGainError} + \text{GainTempco} \cdot (\text{TempChangeFromLastInternalCal}) + \text{ReferenceTempco} \cdot (\text{TempChangeFromLastExternalCal})$
- $\text{OffsetError} = \text{ResidualOffsetError} + \text{OffsetTempco} \cdot (\text{TempChangeFromLastInternalCal}) + \text{INLError}$

# Digital I/O/PFI

## Static Characteristics

|                          |                                                                 |
|--------------------------|-----------------------------------------------------------------|
| Number of channels       | 24 total<br>8 (P0.<0..7>)<br>16 (PFI <0..7>/P1, PFI <8..15>/P2) |
| Ground reference         | D GND                                                           |
| Direction control        | Each terminal individually programmable as input or output      |
| Pull-down resistor       | 50 k $\Omega$ , typical<br>20 k $\Omega$ , minimum              |
| Input voltage protection | $\pm 20$ V on up to two pins                                    |



**Notice** Stresses beyond those listed under the ***Input voltage protection*** specification may cause permanent damage to the device.

## Waveform Characteristics (Port 0 Only)

|                  |                    |
|------------------|--------------------|
| Terminals used   | Port 0 (P0.<0..7>) |
| Port/sample size | Up to 8 bits       |

|                                  |                                               |
|----------------------------------|-----------------------------------------------|
| Waveform generation (DO) FIFO    | 2,047 samples                                 |
| Waveform acquisition (DI) FIFO   | 255 samples                                   |
| DI Sample Clock frequency        | 0 to 1 MHz, system and bus activity dependent |
| <b>DO Sample Clock frequency</b> |                                               |
| Regenerate from FIFO             | 0 to 1 MHz                                    |
| Streaming from memory            | 0 to 1 MHz, system and bus activity dependent |
| Data transfers                   | DMA (scatter-gather), programmed I/O          |
| Digital line filter settings     | 160 ns, 10.24 $\mu$ s, 5.12 ms, disable       |

## PFI/Port 1/Port 2 Functionality

|                          |                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------|
| Functionality            | Static digital input, static digital output, timing input, timing output                                            |
| Timing output sources    | Many AI, AO, counter, DI, DO timing signals                                                                         |
| Debounce filter settings | 90 ns, 5.12 $\mu$ s, 2.56 ms, custom interval, disable; programmable high and low transitions; selectable per input |

## Recommended Operating Conditions

|                                                  |                 |
|--------------------------------------------------|-----------------|
| <b>Input high voltage (<math>V_{IH}</math>)</b>  |                 |
| Minimum                                          | 2.2 V           |
| Maximum                                          | 5.25 V          |
| <b>Input low voltage (<math>V_{IL}</math>)</b>   |                 |
| Minimum                                          | 0 V             |
| Maximum                                          | 0.8 V           |
| <b>Output high current (<math>I_{OH}</math>)</b> |                 |
| P0.<0..7>                                        | -24 mA, maximum |
| PFI <0..15>/P1/P2                                | -16 mA, maximum |
| <b>Output low current (<math>I_{OL}</math>)</b>  |                 |
| P0.<0..7>                                        | 24 mA, maximum  |
| PFI <0..15>/P1/P2                                | 16 mA, maximum  |

## Digital I/O Characteristics

|                                       |                |
|---------------------------------------|----------------|
| Positive-going threshold ( $V_{T+}$ ) | 2.2 V, maximum |
|---------------------------------------|----------------|

|                                               |                      |
|-----------------------------------------------|----------------------|
| Negative-going threshold ( $V_{T-}$ )         | 0.8 V, minimum       |
| Delta VT hysteresis ( $V_{T+} - V_{T-}$ )     | 0.2 V, minimum       |
| $I_{IL}$ input low current ( $V_{IN} = 0$ V)  | -10 $\mu$ A, maximum |
| $I_{IH}$ input high current ( $V_{IN} = 5$ V) | 250 $\mu$ A, maximum |

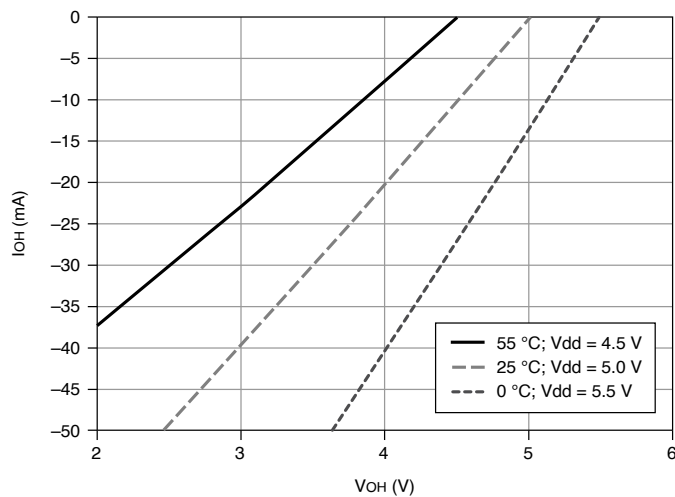
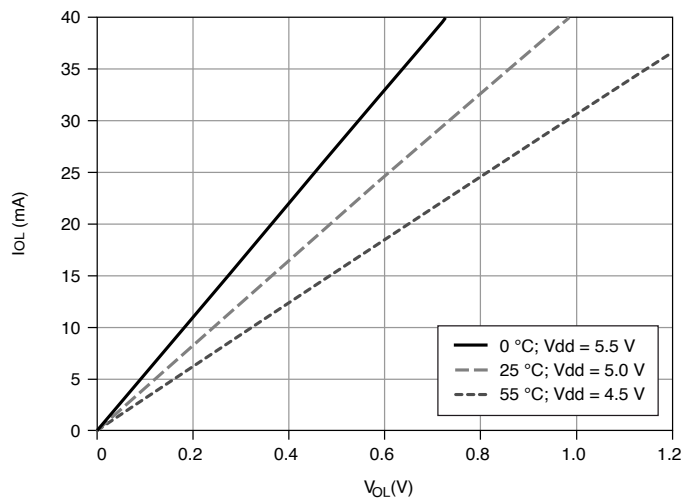
Figure 1. P0.<0..7>:  $I_{OH}$  versus  $V_{OH}$ Figure 2. P0.<0..7>:  $I_{OL}$  versus  $V_{OL}$ 

Figure 3. PFI <0..15>/P1/P2:  $I_{OH}$  versus  $V_{OH}$

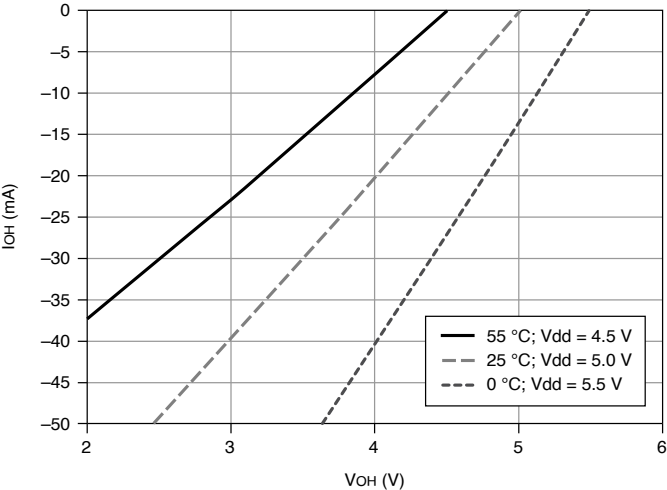
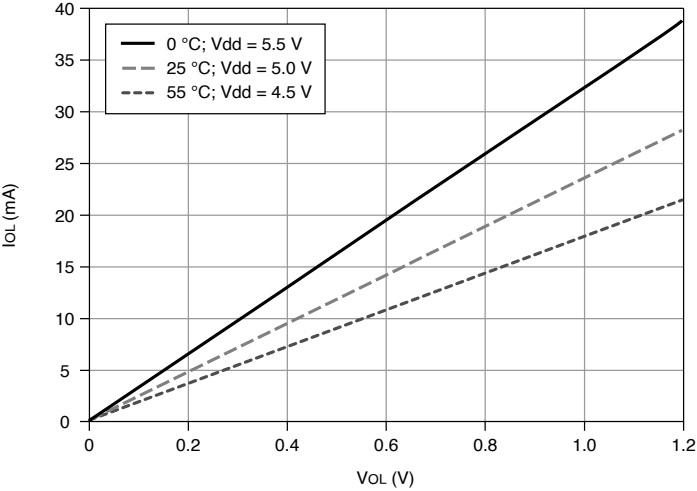


Figure 4. PFI <0..15>/P1/P2:  $I_{OL}$  versus  $V_{OL}$



# General-Purpose Counters

|                              |                                                                                |
|------------------------------|--------------------------------------------------------------------------------|
| Number of counter/<br>timers | 4                                                                              |
| Resolution                   | 32 bits                                                                        |
| Counter measurements         | Edge counting, pulse, pulse width, semi-period, period,<br>two-edge separation |

|                               |                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------|
| Position measurements         | X1, X2, X4 quadrature encoding with Channel Z reloading; two-pulse encoding           |
| Output applications           | Pulse, pulse train with dynamic updates, frequency division, equivalent time sampling |
| Internal base clocks          | 100 MHz, 20 MHz, 100 kHz                                                              |
| External base clock frequency | 0 MHz to 25 MHz; 0 MHz to 100 MHz on PXIe_DSTAR<A,B>                                  |
| Base clock accuracy           | 50 ppm                                                                                |
| Inputs                        | Gate, Source, HW_Arm, Aux, A, B, Z, Up_Down, Sample Clock                             |
| Routing options for inputs    | Any PFI, PXIe_DSTAR<A,B>, PXI_TRIG, PXI_STAR, analog trigger, many internal triggers  |
| FIFO                          | 127 samples per counter                                                               |
| Data transfers                | Dedicated scatter-gather DMA controller for each counter/timer, programmed I/O        |

## Frequency Generator

|                    |   |
|--------------------|---|
| Number of channels | 1 |
|--------------------|---|

|                     |                         |
|---------------------|-------------------------|
| Base clocks         | 20 MHz, 10 MHz, 100 kHz |
| Divisors            | 1 to 16                 |
| Base clock accuracy | 50 ppm                  |

Output can be available on any PFI or PXI TRIG<0..7> terminal.

## Phase-Locked Loop (PLL)

|                |   |
|----------------|---|
| Number of PLLs | 1 |
|----------------|---|

Table 5. Reference Clock Locking Frequencies

| Reference Signal | PXI Express Locking Input Frequency (MHz) |
|------------------|-------------------------------------------|
| PXIe_DSTAR<A,B>  | 10, 20, 100                               |
| PXI_STAR         | 10, 20                                    |
| PXIe_CLK100      | 100                                       |
| PXI_TRIG <0..7>  | 10, 20                                    |
| PFI <0..15>      | 10, 20                                    |

|               |                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------|
| Output of PLL | 100 MHz Timebase; other signals derived from 100 MHz Timebase including 20 MHz and 100 kHz Timebases |
|---------------|------------------------------------------------------------------------------------------------------|

## External Digital Triggers

|        |                                              |
|--------|----------------------------------------------|
| Source | Any PFI, PXIe_DSTAR<A,B>, PXI_TRIG, PXI_STAR |
|--------|----------------------------------------------|

|                                            |                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Polarity                                   | Software-selectable for most signals                                                                |
| Analog input function                      | Start Trigger, Reference Trigger, Pause Trigger, Sample Clock, Convert Clock, Sample Clock Timebase |
| Analog output function                     | Start Trigger, Pause Trigger, Sample Clock, Sample Clock Timebase                                   |
| Counter/timer functions                    | Gate, Source, HW_Arm, Aux, A, B, Z, Up_Down, Sample Clock                                           |
| Digital waveform generation (DO) function  | Start Trigger, Pause Trigger, Sample Clock, Sample Clock Timebase                                   |
| Digital waveform acquisition (DI) function | Start Trigger, Reference Trigger, Pause Trigger, Sample Clock, Sample Clock Timebase                |

## Device-to-Device Trigger Bus

|                          |                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------|
| Input source             | PXI_TRIG <0..7>, PXI_STAR, PXIe_DSTAR<A,B>                                                                          |
| Output destination       | PXI_TRIG <0..7>, PXIe_DSTARC                                                                                        |
| Output selections        | 10 MHz Clock, frequency generator output; many internal signals                                                     |
| Debounce filter settings | 90 ns, 5.12 $\mu$ s, 2.56 ms, custom interval, disable; programmable high and low transitions; selectable per input |

## Bus Interface

|                    |                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Form factor        | x1 PXI Express, specification v1.0 compliant                                                                                                       |
| Slot compatibility | x1 and x4 PXI Express or PXI Express hybrid slots                                                                                                  |
| DMA channels       | 8 (can be used for analog input, analog output, digital input, digital output, counter/timer 0, counter/timer 1, counter/timer 2, counter/timer 3) |

All PXIe devices may be installed in PXI Express slots or PXI Express hybrid slots.

## Power Requirements



**Caution** The protection provided by the PXIe-6349 can be impaired if it is used in a manner not described in the user documentation.



**Attention** La protection apportée par le PXIe-6349 risque d'être endommagée s'il est utilisé d'une autre façon que celle décrite dans la documentation utilisateur.

|        |        |
|--------|--------|
| +3.3 V | 2.1 W  |
| +12 V  | 22.5 W |

## Current Limits



**Notice** Exceeding the current limits may cause unpredictable device behavior.

|                             |              |
|-----------------------------|--------------|
| +5 V terminal (connector 0) | 1 A, maximum |
|-----------------------------|--------------|



**Note** Connector 0 has a self-resetting fuse that opens when current exceeds this specification.

|                                          |                |
|------------------------------------------|----------------|
| P0/PFI/P1/P2 and +5 V terminals combined | 1.2 A, maximum |
|------------------------------------------|----------------|

## Physical Characteristics

|                                       |                                                              |
|---------------------------------------|--------------------------------------------------------------|
| PXIe printed circuit board dimensions | Standard 3U PXI                                              |
| Weight                                | 140 g (4.8 oz)                                               |
| <b>I/O connectors</b>                 |                                                              |
| PXIe module connector                 | 68-Pos Right Angle Single Stack PCB-Mount VHDCI (Receptacle) |
| Cable connector                       | 68-Pos Offset IDC Cable Connector (Plug) (SHC68-*)           |



**Note** For more information about the connectors used for DAQ devices, refer to the document, ***NI DAQ Device Custom Cables, Replacement Connectors, and Screws***, by going to [ni.com/info](http://ni.com/info) and entering the Info Code `rdspmb`.

## Calibration

|                          |            |
|--------------------------|------------|
| Recommended warm-up time | 15 minutes |
| Calibration interval     | 1 year     |

## Maximum Working Voltage

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

|                  |                              |
|------------------|------------------------------|
| Channel to earth | 11 V, Measurement Category I |
|------------------|------------------------------|



**Caution** Do not connect the PXle-6349 to signals or use for measurements within Measurement Categories II, III, or IV.



**Attention** Ne connectez pas le PXle-6349 à des signaux et ne l'utilisez pas pour effectuer des mesures dans les catégories de mesure II, III ou IV.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as **MAINS** voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.



**Note** Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

# Environmental Characteristics

## Temperature and Humidity

| Temperature      |                                                   |
|------------------|---------------------------------------------------|
| Operating        | 0 °C to 55 °C                                     |
| Storage          | -40 °C to 71 °C                                   |
| Humidity         |                                                   |
| Operating        | 10% to 90% RH, noncondensing                      |
| Storage          | 5% to 95% RH, noncondensing                       |
| Pollution Degree | 2                                                 |
| Maximum altitude | 2,000 m (800 mbar) (at 25 °C ambient temperature) |

## Shock and Vibration

| Random vibration |                              |
|------------------|------------------------------|
| Operating        | 5 Hz to 500 Hz, 0.3 g RMS    |
| Non-operating    | 5 Hz to 500 Hz, 2.4 g RMS    |
| Operating shock  | 30 g, half-sine, 11 ms pulse |