ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

**Artisan Technology Group**
(217) 352-9330 | sales@artisantg.com | artisantg.com

**Full-service, independent repair center**
with experienced engineers and technicians on staff.

**We buy your excess, underutilized, and idle equipment**
along with credit for buybacks and trade-ins.

**Custom engineering**
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

**Expert team | Trust guarantee | 100% satisfaction**

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *National Instruments PXIe-6355* at our website: *Click HERE*

DEVICE SPECIFICATIONS

# NI 6355

## X Series Data Acquisition: 80 AI, 1.25 MS/s, 1 MS/s, 16-Bit Resolution, ±10 V, 24 DIO, 2 AO

| Français | Deutsch | 日本語 | 한국어 | 简体中文 |
|---|---|---|---|---|
| ni.com/manuals | | | | |

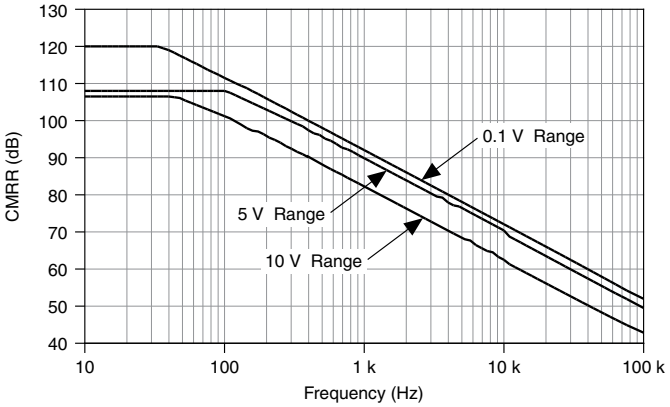
The following specifications are typical at 25 °C, unless otherwise noted. For more information about the NI 6355, refer to the *X Series User Manual* available at *ni.com/manuals*.

## Analog Input

| | |
|---|---|
| Number of channels | 40 differential or 80 single-ended |
| ADC resolution | 16 bits |
| DNL | No missing codes guaranteed |
| INL | Refer to the *AI Absolute Accuracy* section. |
| Sample rate | |
| Single channel maximum | 1.25 MS/s |
| Multichannel maximum | 1.00 MS/s |
| Minimum | No minimum |
| Timing resolution | 10 ns |
| Timing accuracy | 50 ppm of sample rate |
| Input coupling | DC |
| Input range | ±0.1 V, ±0.2 V, ±0.5 V, ±1 V, ±2 V, ±5 V, ±10 V |
| Maximum working voltage for analog inputs (signal + common mode) | ±11 V of AI GND |
| CMRR (DC to 60 Hz) | 100 dB |

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Figure 1.** CMRR




| | |
|---|---|
| Input impedance | |
| Device on | |
| AI+ to AI GND | >10 GΩ in parallel with 100 pF |
| AI- to AI GND | >10 GΩ in parallel with 100 pF |
| Device off | |
| AI+ to AI GND | 820 Ω |
| AI- to AI GND | 820 Ω |
| Input bias current | ±100 pA |
| Crosstalk (at 100 kHz) | |
| Adjacent channels | -75 dB |
| Non-adjacent channels | -88 dB |
| Small signal bandwidth (-3 dB) | 1.7 MHz |
| Input FIFO size | 4,095 samples |
| Scan list memory | 4,095 entries |
| Data transfers | DMA (scatter-gather), programmed I/O |
| Overvoltage protection for all analog input and sense channels | |
| Device on | ±25 V for up to two AI pins |
| Device off | ±15 V for up to two AI pins |
| Input current during overvoltage condition | ±20 mA max/AI pin |

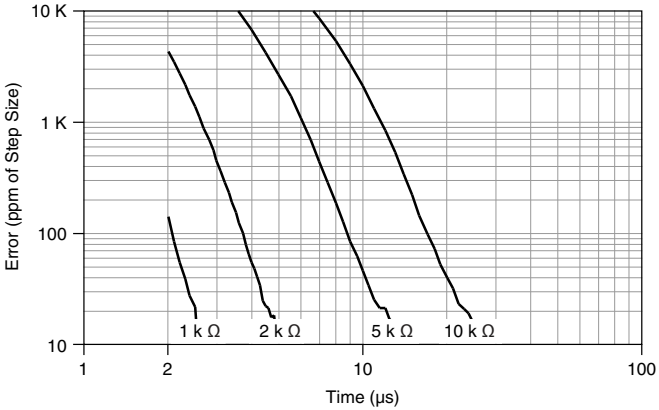


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## Settling Time for Multichannel Measurements

| Range | ±60 ppm of Step (±4 LSB for Full-Scale Step) | ±15 ppm of Step (±1 LSB for Full-Scale Step) |
|---|---|---|
| ± 10 V, ±5 V, ±2 V, ±1 V | 1 µs | 1.5 µs |
| ±0.5 V | 1.5 µs | 2 µs |
| ±0.2 V, ±0.1 V | 2 µs | 8 µs |

**Figure 2.** Settling Time versus Time for Different Source Impedances




## AI Absolute Accuracy

**Table 1.** AI Absolute Accuracy

| Nominal Range Positive Full Scale | Nominal Range Negative Full Scale | Residual Gain Error (ppm of Reading) | Residual Offset Error (ppm of Range) | Offset Tempco (ppm of Range/°C) | Random Noise, σ (µVrms) | Absolute Accuracy at Full Scale[1] (µV) |
|---|---|---|---|---|---|---|
| 10 | -10 | 48 | 13 | 21 | 281 | 1520 |
| 5 | -5 | 55 | 13 | 21 | 137 | 800 |
| 2 | -2 | 55 | 13 | 24 | 56 | 320 |

[1] Refer to the *AI Absolute Accuracy Example* section.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Table 1.** AI Absolute Accuracy (Continued)

| Nominal Range Positive Full Scale | Nominal Range Negative Full Scale | Residual Gain Error (ppm of Reading) | Residual Offset Error (ppm of Range) | Offset Tempco (ppm of Range/°C) | Random Noise, σ (μVrms) | Absolute Accuracy at Full Scale[1] (μV) |
|---|---|---|---|---|---|---|
| 1 | -1 | 65 | 17 | 27 | 35 | 180 |
| 0.5 | -0.5 | 68 | 17 | 34 | 26 | 95 |
| 0.2 | -0.2 | 95 | 27 | 55 | 21 | 50 |
| 0.1 | -0.1 | 108 | 45 | 90 | 16 | 32 |

| | |
|---|---|
| Gain tempco | 13 ppm/°C |
| Reference tempco | 1 ppm/°C |
| INL error | 46 ppm of range |

**Note** Accuracies listed are valid for up to two years from the device external calibration.

## AI Absolute Accuracy Equation

AbsoluteAccuracy = Reading · (GainError) + Range · (OffsetError) + 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 σ 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 σ

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

GainError = 48 ppm + 13 ppm · 1 + 1 ppm · 10 = 71 ppm

[1] Refer to the *AI Absolute Accuracy Example* section.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OffsetError = 13 ppm + 21 ppm · 1 + 46 ppm = 80 ppm

NoiseUncertainity = $\frac{281\ \mu V \cdot 3}{\sqrt{10,000}}$ = 8.4 µV

AbsoluteAccuracy = 10 V · (GainError) + 10 V · (OffsetError) + NoiseUncertainity = 1, 520 µV

# Analog Triggers

| | |
|---|---|
| Number of triggers | 1 |
| Source | AI <0..79> |
| Functions | Start Trigger, Reference Trigger, Pause Trigger, Sample Clock, Convert Clock, Sample Clock Timebase |
| Source level | |
| AI <0..79> | ±Full scale |
| APFI 0 | ±10 V |
| Resolution | 16 bits |
| Modes | Analog edge triggering, analog edge triggering with hysteresis, and analog window triggering |
| Bandwidth (-3 dB) | |
| AI <0..79> | 3.4 MHz |
| 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 |

# Analog Output

| | |
|---|---|
| Number of channels | 2 |
| DAC resolution | 16 bits |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| | |
|---|---|
| DNL | ±1 LSB |
| Monotonicty | 16-bit guaranteed |
| Maximum update rate | |
| 1 channel | 2.86 MS/s |
| 2 channels | 2.00 MS/s |
| Timing accuracy | 50 ppm of sample rate |
| Timing resolution | 10 ns |
| Output range | ±10 V, ±5 V, ±external reference on APFI 0 |
| Output coupling | DC |
| Output impedance | 0.2 Ω |
| Output current drive | ±5 mA |
| Overdrive protection | ±25 V |
| Overdrive current | 26 mA |
| Power-on state | ±5 mV |
| Power-on/off glitch | 1.5 V peak for 200 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) | 2 µs |
| Slew rate | 20 V/µs |
| Glitch energy at midscale transition, ±10 V range | 10 nV · s |

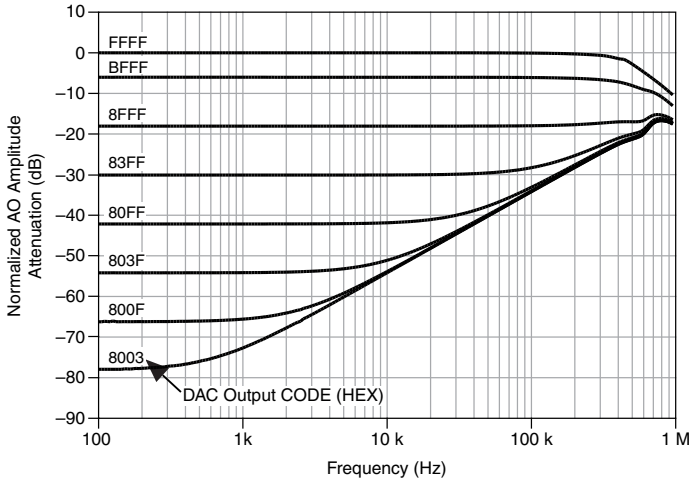
## External Reference

| | |
|---|---|
| APFI 0 characteristics | |
| Input impedance | 10 kΩ |
| Coupling | DC |
| Protection, device on | ± 30 V |
| Protection, device off | ± 15 V |
| Range | ± 11 V |
| Slew rate | 20 V/µs |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Figure 3.** AO External Reference Bandwidth




# AO Absolute Accuracy

Absolute accuracy at full-scale numbers is valid immediately following self calibration and assumes the device is operating within 10 °C of the last external calibration.

**Table 2.** AO Absolute Accuracy

| Nominal Range Positive Full Scale | Nominal Range Negative Full Scale | Residual Gain Error (ppm of Reading) | Gain Tempco (ppm/°C) | Absolute Accuracy at Full Scale (µV) |
|---|---|---|---|---|
| 10 | -10 | 63 | 17 | 1890 |
| 5 | -5 | 70 | 8 | 935 |

| | |
|---|---|
| Reference tempco (ppm/°C) | 1 |
| Residual offset error (ppm of range) | 33 |
| Offset tempco (ppm of range/°C) | 2 |
| INL Error (ppm of range) | 64 |

**Note** Accuracies listed are valid for up to two years from the device external calibration.

## AO Absolute Accuracy Equation

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



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

GainError = ResidualGainError + GainTempco · (TempChangeFromLastInternalCal) + ReferenceTempco · (TempChangeFromLastExternalCal)

OffsetError = ResidualOffsetError + OffsetTempco · (TempChangeFromLastInternalCal) + INLError

# Digital I/O/PFI

## Static Characteristics

| | |
|---|---|
| Number of channels | 24 total, 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 kΩ typical, 20 kΩ minimum |
| Input voltage protection | ±20 V on up to two pins |

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

| | |
|---|---|
| Input FIFO size | 255 samples |
| Output FIFO size | 2,047 samples |
| Resolution | 32 bits |

## 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 10 MHz, system and bus activity dependent |
| DO Sample Clock frequency | 0 to 10 MHz, system and bus activity dependent |
| Data transfers | DMA (scatter-gather), programmed I/O |
| Digital line filter settings | 160 ns, 10.24 µs, 5.12 ms, disable |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

## 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 µs, 2.56 ms, custom interval, disable; programmable high and low transitions; selectable per input |

## Recommended Operation Conditions

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

## Digital I/O Characteristics

| | |
|---|---|
| Positive-going threshold (VT+) | 2.2 V maximum |
| Negative-going threshold (VT-) | 0.8 V minimum |
| Delta VT hysteresis (VT+ - VT-) | 0.2 V minimum |
| $I_{IL}$ input low current ($V_{IN}$ = 0 V) | -10 µA maximum |
| $I_{IH}$ input high current ($V_{IN}$ = 5 V) | 250 µA maximum |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Figure 4.** P0.<0..7>: $I_{OH}$ versus $V_{OH}$

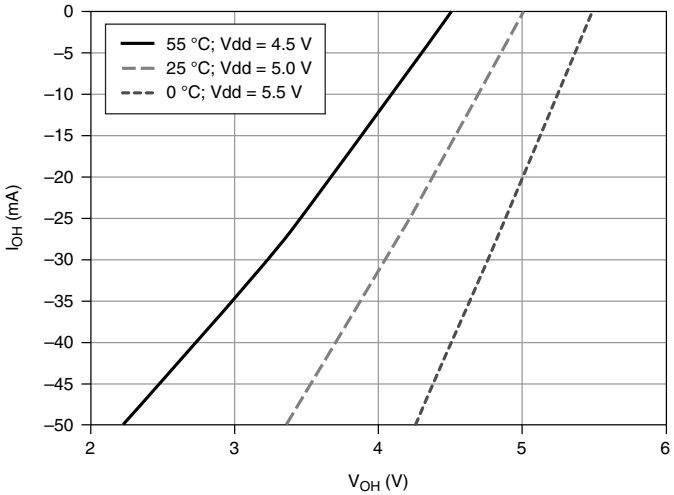
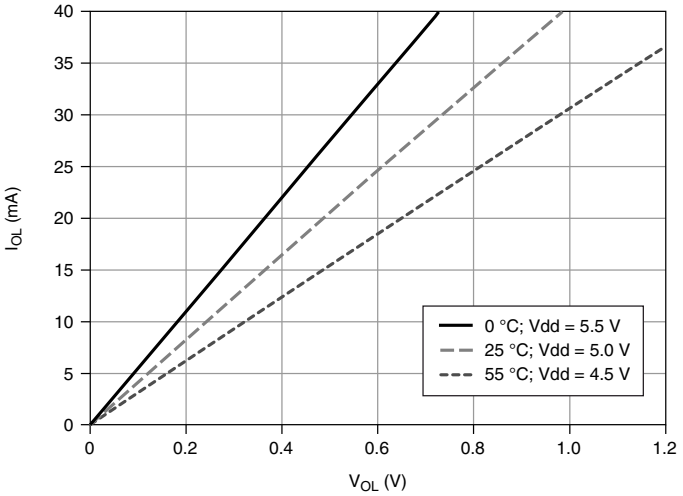



**Figure 5.** P0.<0..7>: $I_{OL}$ versus $V_{OL}$






Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Figure 6.** PFI <0..15>/P1/P2: $I_{OH}$ versus $V_{OH}$

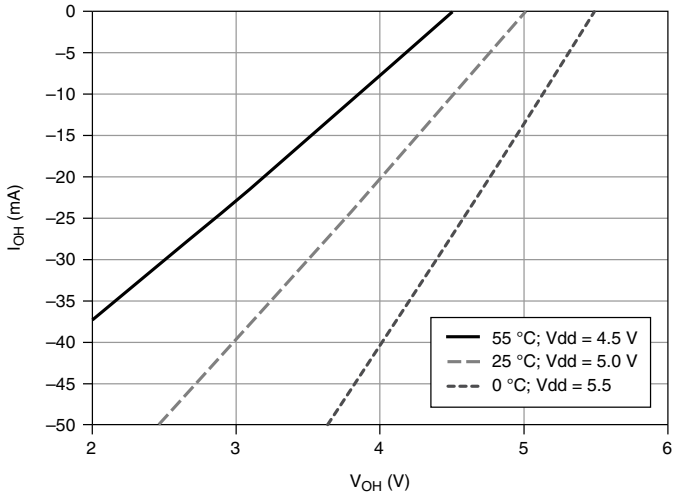
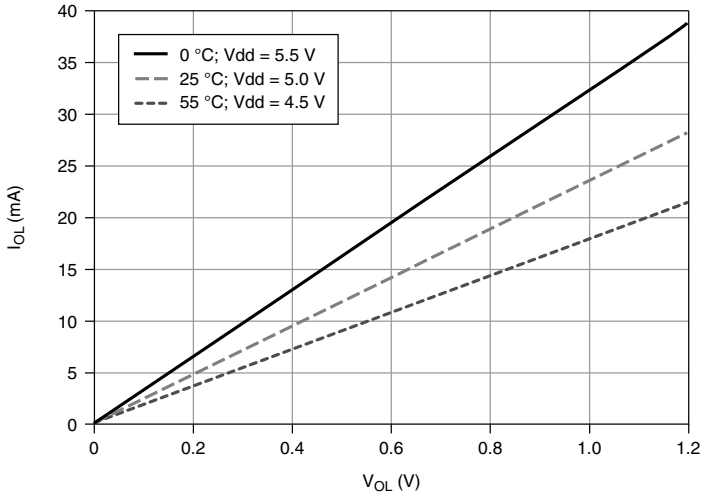



**Figure 7.** PFI <0..15>/P1/P2: $I_{OL}$ versus $V_{OL}$




# General-Purpose Counters

| | |
|---|---|
| Number of counter/timers | 4 |
| Resolution | 32 bits |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

| | |
|---|---|
| Counter measurements | Edge counting, pulse, pulse width, semi-period, period, 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 signals |
| 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 |

# Phase-Locked Loop (PLL)

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

**Table 3.** 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 |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Table 3.** Reference Clock Locking Frequencies (Continued)

| Reference Signal | PXI Express Locking Input Frequency (MHz) |
|---|---|
| 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 µs, 2.56 ms, custom interval, disable; programmable high and low transitions; selectable per input |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# Bus Interface

| | |
|---|---|
| Form factor | x1 PXI Express peripheral module, specification rev. 1.0 compliant |
| Slot compatibility | x1 and x4 PXI Express or PXI Express hybrid slots |
| DMA channels | 8: analog input, analog output, digital input, digital output, counter/timer 0, counter/timer 1, counter/timer 2, counter/timer 3 |

Devices may be installed in PXI Express slots or PXI Express hybrid slots.

# Power Requirements

**Caution** The protection provided by the device can be impaired if the device is used in a manner not described in the *X Series User Manual*.

| | |
|---|---|
| +3.3 V | 1.6 W |
| +12 V | 19.8 W |

# Current Limits

| | |
|---|---|
| +5 V terminal (connector 0) | 1 A max |
| P0/PFI/P1/P2 and +5 V terminals combined | 1.5 A max |

# Physical Characteristics

| | |
|---|---|
| Device dimensions | Standard 3U PXI |
| Weight | 198 g (7.0 oz) |
| I/O connectors | 2 68-pin VHDCI |

**Caution** If you need to clean the module, wipe it with a dry towel.

# Calibration (AI and AO)

| | |
|---|---|
| Recommended warm-up time | 15 minutes |
| Calibration interval | 2 years |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# Maximum Working Voltage

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

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

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.

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

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

# 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 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-28800F, Class 3.) |



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

# Environmental

| | |
|---|---|
| Operating temperature | 0 to 55 ºC |
| Storage temperature | -40 to 70 ºC |
| Operating humidity | 10 to 90% RH, noncondensing |
| Storage humidity | 5 to 95% RH, noncondensing |
| Pollution degree | 2 |
| Maximum altitude | 2,000 m |

Indoor use only.

# Safety

This product meets 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 the *Online Product Certification* 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 B emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class B emissions
- EN 55022 (CISPR 22): Class B emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class B emissions
- AS/NZS CISPR 22: Class B emissions
- FCC 47 CFR Part 15B: Class B emissions
- ICES-001: Class B 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,



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

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 and certifications, and additional information, refer to the *Online Product Certification* section.

# CE Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

# Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and 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.

# 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 *Minimize Our Environmental Impact* 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.

## Waste Electrical and Electronic Equipment (WEEE)

**EU Customers** 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）

**中国客户** National Instruments 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 National Instruments 中国 RoHS 合规性信息，请登录

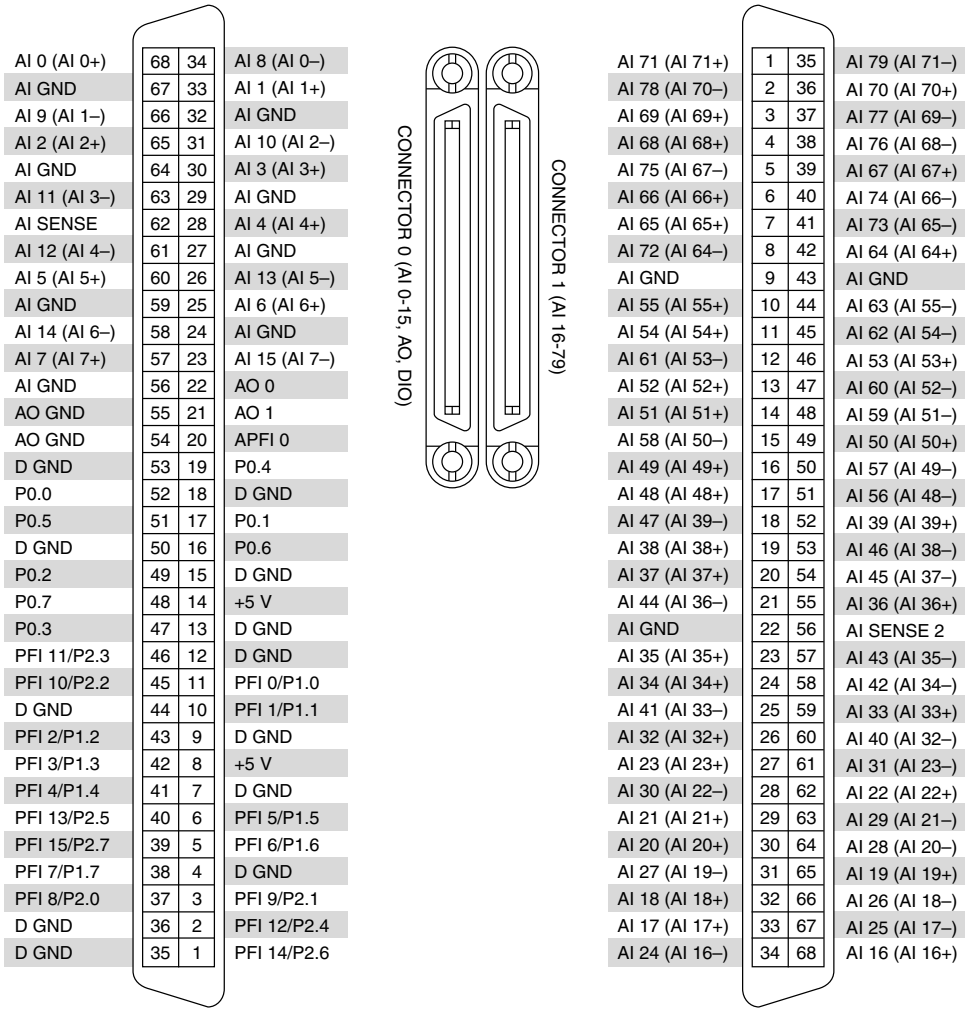


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

# Device Pinout

**Figure 8.** NI PXIe-6355 Pinout






Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Refer to the *NI Trademarks and Logo Guidelines* at ni.com/trademarks for information on National Instruments trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering National Instruments products/technology, refer to the appropriate location: **Help**»**Patents** in your software, the patents.txt file on your media, or the *National Instruments Patent Notice* at ni.com/patents. You can find information about end-user license agreements (EULAs) and third-party legal notices in the readme file for your NI product. Refer to the *Export Compliance Information* at ni.com/legal/export-compliance for the National Instruments global trade compliance policy and how to obtain relevant HTS codes, ECCNs, and other import/export data. NI MAKES NO EXPRESS OR IMPLIED WARRANTIES AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL NOT BE LIABLE FOR ANY ERRORS. U.S. Government Customers: The data contained in this manual was developed at private expense and is subject to the applicable limited rights and restricted data rights as set forth in FAR 52.227-14, DFAR 252.227-7014, and DFAR 252.227-7015.

© 2014—2015 National Instruments. All rights reserved.

374653C-01 Sep15

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

**Artisan Technology Group** is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP