

JY5312/5315

Simultaneous Data Acquisition Modules



📄 Please download the JYTEK <[JYPEDIA](#)>, you can quickly inquire the product prices, the key features and available accessories.

Overview

JY5312/5315 series simultaneous DAQ provide 16 channels, 16 bits resolution, 5 MS/s (PCIe/PXIe-5315) or 2 MS/s (PCIe/PXIe-5312) samples per second per channel. It also has 16 digital IO lines. The device utilizes a high-throughput PCI Express bus and multi-core optimized drivers and application software to provide high-performance capabilities.

Main Features

- 16 simultaneous analog input channels
- Maximum sample rate : 5 MS/sec per channel
- 16 bits resolution
- 4 voltage ranges: $\pm 10V/\pm 5V/\pm 2V/\pm 1V$
- 256M samples of FIFO buffer
- 8 ports digital IO, 2 channels per port
- Analog/Digital/Software Trigger

Hardware Specifications

Analog Input Specifications

Analog Input	5312	5315
Number of Input channels	16	
ADC resolution (Bits)	16	
Sampling Rate	2 M Sample/s	5 M Sample/s
Clock	200 MHz	
Input range(V)	±10/±5/±2/±1	
Maximum Working Voltage(V)	±10.83 V (ref. AIGND)	
Input Terminal Type	Differential	
Input impedance(AI+ vs AIGND)	5.3 GΩ 50 pF	
Input impedance(AI- vs AIGND)	5.3 GΩ 50 pF	
Input coupling	DC	
CMRR(@60 Hz)* ¹	105 dB	
Crosstalk(@100 KHz) * ¹	Adjacent Ch: -90 dB, Non-adjacent: -105 dB	
DNL	No Missing Code	
INL	30 ppm of range	
Input FIFO	256 M Samples	
Trigger Type	Analog/Digital/Software	
Analog Trigger Voltage Range	Software Programmable Between -10 V ~ +10 V	
Trigger Mode	StartTrigger,ReferenceTrigger,ReTrigger	
Interval of retrigger	5 Samples	
Bandwidth (-3 dB)* ²	2.2 MHz	
Overvoltage protection	ON: ±25 V ; OFF: ±15 V	
Input current during overvoltage protection	±20 mA	
*1 ±1 Range Typical Test *2 ±10 Range Typical Test		

AI Absolute Accuracy

JY531X Accuracy = ±(% of Reading+% of Range)													
Nominal Range (V)	Sample Rate per Channel ¹	Resolution (16-bits) (uV)	24 Hour Tcal ±1°C ²		90 Days Tcal ± 5°C ³		Temperature Coefficients (/ °C) ⁴		24 Hr Full Scale Accuracy	90 Days Full Scale Accuracy			
10	5 MS/s, 2MS/s	305.2	0.0023	+	0.0153	0.0044	+	0.0158	0.0005	+	0.0001	1755 uV	2015 uV
5	5 MS/s, 2MS/s	152.6	0.0018	+	0.0156	0.0038	+	0.0162	0.0005	+	0.0001	872 uV	998 uV
2	5 MS/s, 2MS/s	61.0	0.0022	+	0.0182	0.0040	+	0.0196	0.0005	+	0.0004	407 uV	473 uV
1	5 MS/s, 2MS/s	30.5	0.0017	+	0.0222	0.0041	+	0.0253	0.0006	+	0.0008	239 uV	293 uV

1. Accuracies apply to Sample Rate 5 MS/s for 5315 or 2MS/s for 5312.
2. Add temperature error for each °C outside Tcal± 5°C , 1PPM=0.0001%.
3. Add 20% to Gain and Offset Errors From 91 Days to 1 Year. Preliminary.
4. Specs subject to minor changes when more tests become available.
5. Accuracy valid to ±9.5V only.
Tcal=23°C in this table.

Digital IO Specifications

Number of channels	Port<0..7>
Ground reference	D GND
Directional control	Independent control of each port
Initial state	Input
Digital Input	Logic Low: V_{IL} Min : 0 V / Max : 1.0 V Logic High: V_{IH} Min : 2V / Max : 5.3V
Digital Output	Logic Low : 0 V, I_{OL} Max: 24 mA Logic High : 2.6 V~5 V, I_{OH} : -24 mA~0 mA
Overvoltage Protection	Continuous 30 mA -3.9 V~ 8.9 V; Instantaneous 200 mA -25 V~ 25 V; Duty cycle of instantaneous current pulse does not exceed 15%

PFI Specifications

Number of channels	16
External digital trigger interface	Trigger voltage 3.3 V TTL; Trigger edge: Rising/Falling
Initial state	Input

Power

3.3V	2.13 A
12V	0.95 A

Physical and Environment

Operating Environment

Ambient temperature range	0 °C to 50 °C
Relative humidity range	20% to 80%, noncondensing

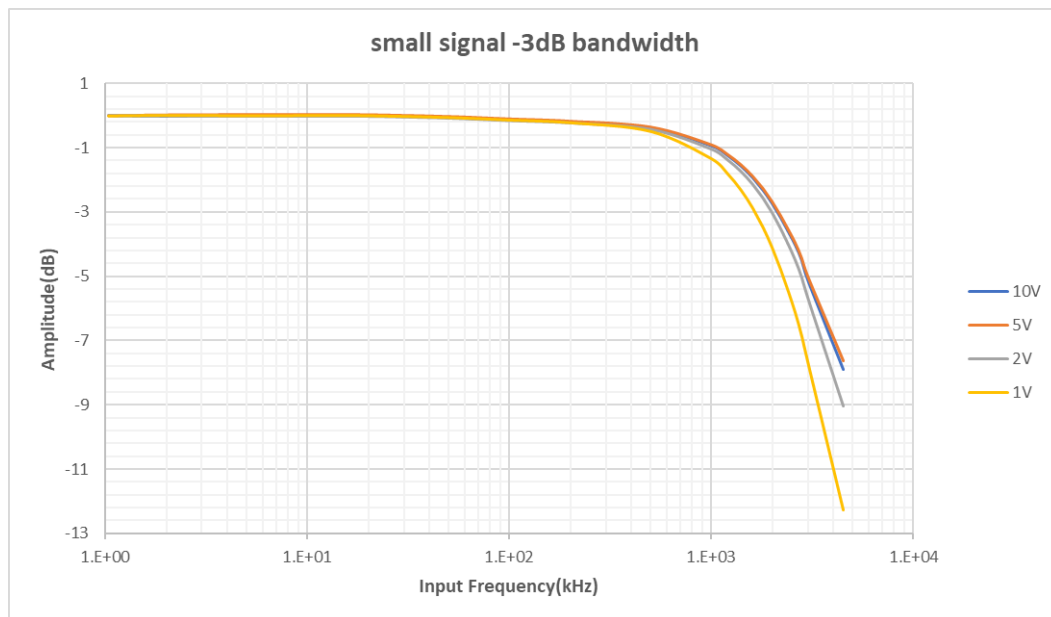
Storage Environment

Ambient temperature range	-20 °C to 80 °C
Relative humidity range	10% to 90%, noncondensing

Performance Test

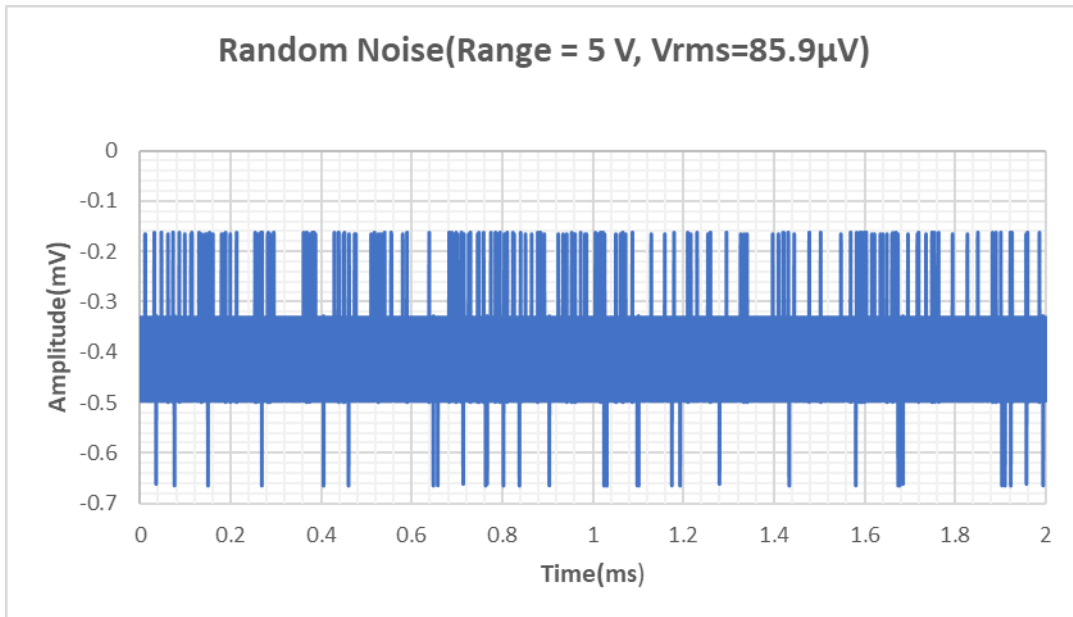
AI Bandwidth

Range (V)	-3dB Bandwidth (MHz)
10	2.2
5	2.1
2	2
1	1.6

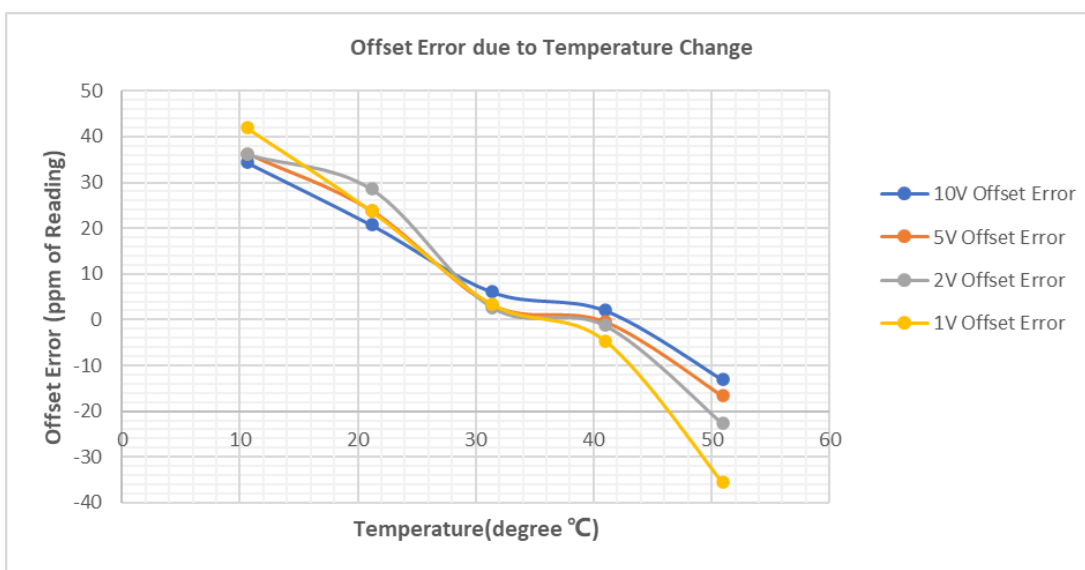
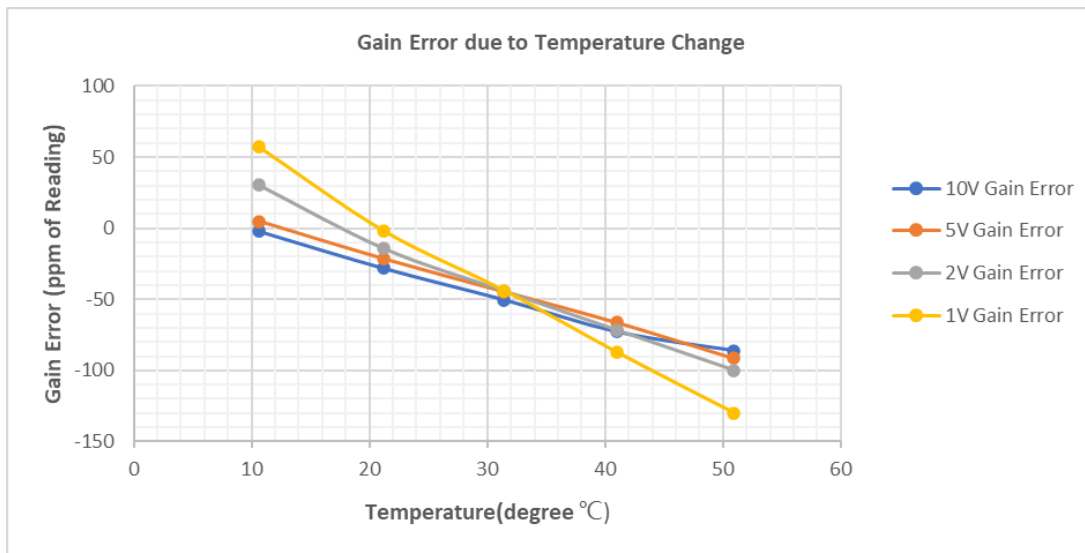


System Noise

Range (V)	Random Noise (Test, μ Vrms)
10	167
5	85.9
2	42.9
1	29.1

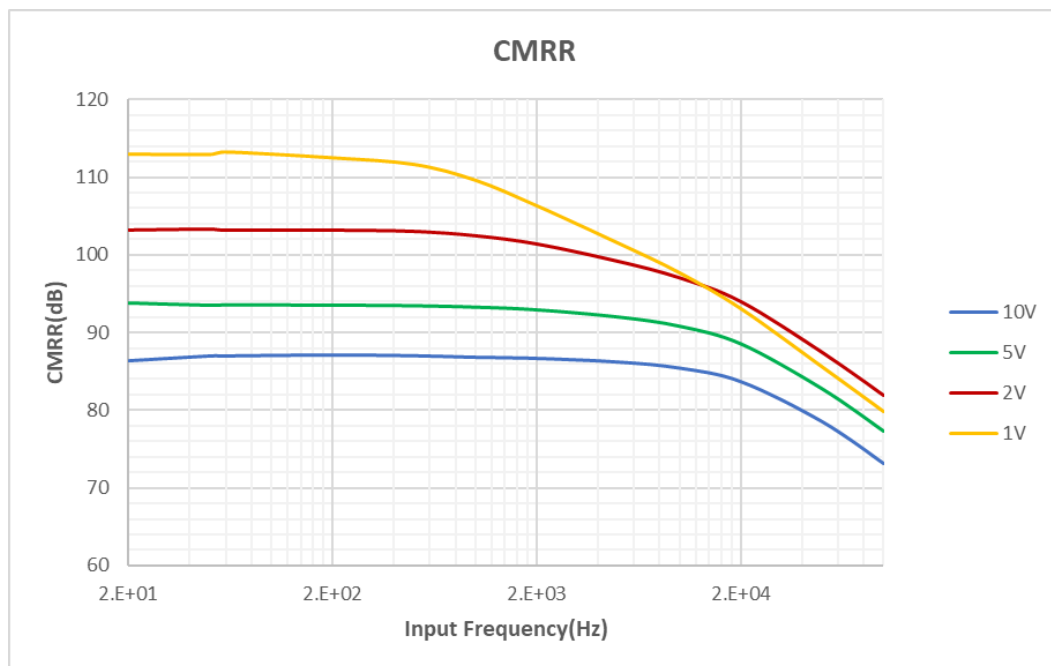


Temperature Drift



CMRR

Range (V)	CMRR (dB at 60 Hz)
10	86.9
5	93.6
2	103
1	113



Crosstalk

Adjacent channel

Range (V)	Crosstalk (dB at 100 kHz)
10	-113
5	-113
2	-113
1	-114

Non-adjacent channel

Range (V)	Crosstalk (dB at 100 kHz)
10	-128
5	-127
2	-127
1	-126

Order Information

- PXIe-5312(PN: JY2005312-01)
16-ch,16-bit,2MS/s/ch,16 DIO, PXIe Simultaneous sampling Multifunction I/O Module
- PCIe-5312(PN: JY3005312-01)
16-ch,16-bit,2MS/s/ch,16 DIO, PCIe Simultaneous sampling Multifunction I/O Module
- PXIe-5315(PN: JY2005315-01)
16-ch,16-bit,5MS/s/ch,16 DIO, PXIe Simultaneous sampling Multifunction I/O Module
- PCIe-5315(PN: JY3005315-01)
16-ch,16-bit,5MS/s/ch,16 DIO, PCIe Simultaneous sampling Multifunction I/O Module

Accessories

- DIN-68S-01(PN: JA9114029-01)
SCSI 68-pin Terminal board
- TB-68(PN: JY2000068-03)
68-Pin SCSI Shielded I/O Connector Block
- ACL-2016868-1(PN: JY2016868-01)
1M 68pin VHDCI 68M-SCSI68M 100 Ω shielded cable
- ACL-2016868-2(PN: JY2016868-02)
2M 68pin VHDCI 68M-SCSI68M 100 Ω shielded cable

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