



JY-5327/5328

Specifications and User Manual



Specs and Manual Version: V1.0.0

1 USB/PCIe/PXIe-5327/5328 Specification

Family of Simultaneous Data Acquisition Modules



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

Overview

The JY-5327 and JY-5328 are high-accuracy, simultaneous-sampling voltage measurement instruments. They offer 20-bit resolution and 144 ppm accuracy, with up to 1 MS/s per channel and 1 MHz bandwidth. The JY-5327 provides 32 simultaneous voltage channels, while the JY-5328 provides 16. Selectable input ranges include ± 16 V, ± 10 V, ± 5 V, and ± 2.5 V, with ± 26 V maximum overvoltage protection. Resolution reaches $4.8 \mu\text{V}$, and system noise is as low as $1.9 \mu\text{V}_{\text{rms}}$ at 100 S/s. Dynamic performance includes better than -108 dB THD at 1 kHz, -1 dBFS. A 480 MB FIFO buffer supports sustained acquisition, and analog, digital, and software triggers enable flexible synchronization. These features make them ideal for precision multi-channel test and measurement applications.

1.1 Main Features

- High accuracy: 144 ppm
- 20 bits resolution
- 32 (JY-5327) / 16 (JY-5328) simultaneous voltage measurement channels
- 1 MS/s per channel
- Up to 1 MHz bandwidth
- Better than -108dB THD @1kHz, -1dBFS
- System noise as low as 1.9 μVrms @100 S/s
- Up to 4.8 μV resolution
- Input voltage ranges: $\pm 16\text{V}/\pm 10\text{V}/\pm 5\text{V}/\pm 2.5\text{V}$
- Maximum Overvoltage protection: $\pm 26\text{V}$
- 480 MB of FIFO buffer
- Analog, Digital and Software Trigger

1.2 Analog Input Specifications

	JY-5327	JY-5328
Number of Input channels	32	16
ADC resolution (Bits)	20	
Sampling Rate	1M Sample/s	
Clock	Internal / External	
Input range(V)	$\pm 16/\pm 10/\pm 5/\pm 2.5$	
Maximum Working Voltage(V)	± 16 V (ref. AIGND)	
Input Terminal Type	Differential	
Input impedance (AI+ vs AIGND)	$> 10\text{ G}\Omega$	
Input impedance (AI- vs AIGND)	$> 10\text{ G}\Omega$	
Input coupling	DC	
CMRR (@60 Hz)	110 dB	
Crosstalk (@10 kHz)	-130 dB	
Input FIFO	480 MB	
Trigger Type	Analog/Digital/Software	
Analog Trigger Voltage Range	Software Programmable Between -16 V ~ +16 V	
Trigger Mode	StartTrigger,ReferenceTrigger,ReTrigger	
Interval of retrigger	5 Samples	
Small Signal Bandwidth (-3 dB)	1 MHz	
Overvoltage protection	± 26 V	
Input current during overvoltage protection	$\leq 10\text{ mA}$	

Table 1 Analog Input Specifications

1.3 Digital IO Specifications

	JY-5327	JY-5328
Number of channels	32	16
Max update rate	10 MHz	
Ground reference	D GND	
Directional control	Independent control of each port	
Input Impedance	10 k Ω (Power-down status)	
Output Impedance	50 Ω	
Initial state	Input low level	
Logic Signal Level	3.3V LVTTTL	
Digital Input	Logic Low: VIL Min : 0 V / Max : 0.8 V Logic High: VIH Min : 2.0V / Max : 5.0V	
Digital Output	Logic Low : 0 V, IOL Max: 12 mA Logic High : 2.0 V ~ 3.3 V, IOH: -12 mA ~ 0 mA	
Overvoltage Protection	Continuous 12 mA, 0.0 V ~ 5.0 V; Instantaneous 50 mA, -2.2 V ~ 5.0 V; Duty cycle of instantaneous current pulse does not exceed 15%	

Table 2 DIO Specifications

PFI Specifications

	JY-5327	JY-5328
Number of channels	32	16
External digital trigger interface	Trigger voltage 3.3 V (LVTTTL) trigger edge: Rising/Falling	
Initial state	Input	

Table 3 PFI Specifications

1.4 DC Accuracy

An instrument's DC accuracy is defined by the gain and offset errors as follows:

$$\text{Accuracy} = \text{Gain Error (\% of reading)} + \text{Offset Error (\% of range)}$$

Equation 1 Gain and Offset Errors

It should be noted when the reading is close to zero, the gain error is very small and negligible, the offset error is dominant; when the reading is getting close to the full range, the gain error becomes more significant.

1.4.1 Basic DC Accuracy of JY-5327/5328

JY-5327/5328 AI Basic Accuracy = $\pm(\% \text{ Reading} + \% \text{ Range})^*$								
Nominal Range (V)	24 Hour Tcal $\pm 1^\circ\text{C}$		90 Days Tcal $\pm 5^\circ\text{C}$		Temperature Coefficients ($^\circ\text{C}$)	24 Hr Full Scale Accuracy	90 Days Full Scale Accuracy	Full Scale Accuracy (%)
2.5	0.005	+ 0.011	0.014	+ 0.012	0.000 + 0.000	0.41 mV	0.65 mV	0.026
5	0.004	+ 0.006	0.013	+ 0.006	0.000 + 0.000	0.56 mV	1.00 mV	0.020
10	0.004	+ 0.004	0.013	+ 0.004	0.000 + 0.000	0.89 mV	1.73 mV	0.017
16	0.004	+ 0.003	0.013	+ 0.003	0.000 + 0.000	1.35 mV	2.71 mV	0.017
*Accuracy valid to 97.5% of full range.								

Table 4 AI Accuracy of JY-5327/5328

1.4.2 System Noise

Input Range Sample Rates(S/s)	Noise (μ Vrms)				
	OSR	$\pm 16V$	$\pm 10V$	$\pm 5V$	$\pm 2.5V$
1,000,000	1	75.2	74.5	74.3	74.2
500,000	2	53.2	52.8	52.6	52.5
250,000	4	37.7	37.3	37.3	37.3
125,000	8	26.7	26.5	26.4	26.4
62,500	16	17.5	17.3	17.3	17.3
31,250	32	12.4	12.4	12.3	12.3
15,625	64	9.0	8.9	8.9	8.9
7,812	128	6.5	6.5	6.5	6.5
3,906	256	4.9	4.8	4.8	4.8
1,953	512	4.6	4.6	4.6	4.6
977	1024	3.0	3.0	3.0	3.0
488	2048	2.5	2.5	2.5	2.5

Table 5 System Noise of JY-5327/5328(OverSampling enabled)

OSR	Noise (μVrms) ¹								
	Sample Rates (S/s)	$\pm 16\text{V}$		$\pm 10\text{V}$		$\pm 5\text{V}$		$\pm 2.5\text{V}$	
		Noise	Effective Resolution (bits)	Noise	Effective Resolution (bits)	Noise	Effective Resolution (bits)	Noise	Effective Resolution (bits)
1	1,000,000	245.4	17.0	135.3	17.2	83.2	16.9	73.4	16.1
2	500,000	173.9	17.5	95.8	17.7	58.9	17.4	52.5	16.5
4	250,000	123.1	18.0	67.8	18.2	41.8	17.9	37.2	17.0
8	125,000	87.2	18.5	48.1	18.7	30.0	18.3	26.4	17.5
16	62,500	56.7	19.1	31.3	19.3	19.3	19.0	17.3	18.1
32	31,250	40.1	19.6	22.2	19.8	13.8	19.5	12.3	18.6
64	15,625	28.4	20.1	15.8	20.3	9.9	19.9	8.9	19.1
128	7,812	20.2	20.6	12.3	20.6	7.2	20.4	6.5	19.6
256	3,906	14.5	21.1	8.2	21.2	5.3	20.8	4.8	20.0
512	1,953	13.6	21.2	7.7	21.3	5.0	20.9	4.5	20.1
1024	977	7.6	22.0	4.5	22.1	3.2	21.6	3.0	20.7
2048	488	5.7	22.4	3.6	22.4	2.6	21.9	2.5	20.9
1. The noise was tested when the input was short circuited and OverSampling was turned off.									

Table 6 System Noise of JY-5327/5328(OverSampling disable)

1.5 Dynamic Performance

AI bandwidth, THD, SINAD, SFDR, SNR and Noise:

Nominal Range (V)	Max Sample Rate (S/s)	Resolution (μV)	Bandwidth (MHz)	THD* (dB)	SINAD* (dB)	SFDR* (dB)	SNR* (dB)	Noise (μVrms)
2.5	1 M	4.8	1	-108	85	100	85	74.2
5	1 M	9.6	1	-114	91	107	91	74.3
10	1 M	19.1	1	-111	94	111	94	74.5
16	1 M	31	1	-111	94	110	94	75.2
* 1 kHz tone, -1 dBFS input amplitude.								

Table 7 Dynamic Performance of JY-5327/5328

1.5.1 AI Bandwidth

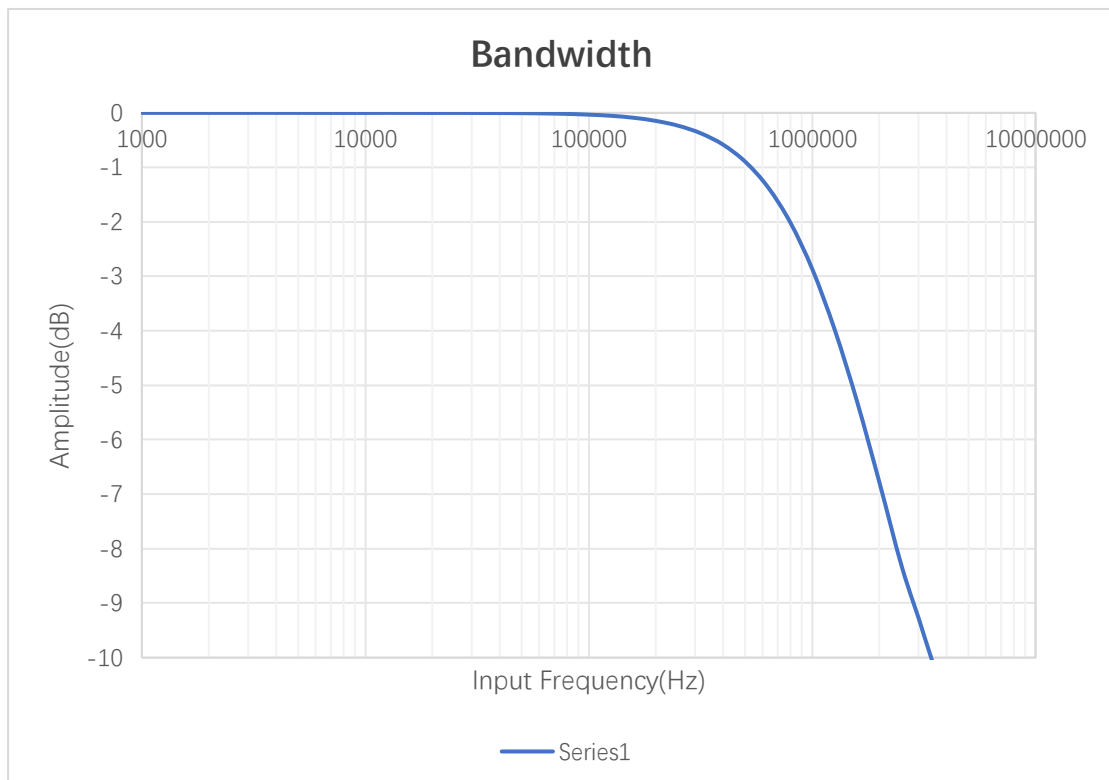


Figure 1 -3dB Bandwidth

1.5.2 AI Filter delay

Mode Sample rate (kS/s)	Wideband (sample)	LowLatency (sample)
250 < f_s ≤ 500	13.50	< 1
125 < f_s ≤ 250	16.00	< 1
62.5 < f_s ≤ 125	16.75	< 1
Note: If aiTask.Advanced.Oversampling.Enabled = true, there exists group delay. You can get group delay through aiTask.GetSamplingInfo().		

Figure 2 AI Filter delay

1.5.3 Common-Mode Rejection Ratio (CMRR)

Table	Range (V)	CMRR* (dBc)
	2.5	110
	5	110
	10	110
	16	110
* Channel to ground (DC to 200 Hz)		

8

CMRR

1.5.4 Crosstalk

Table

Range (V)	Crosstalk* (dBc)
2.5	-130
5	-130
10	-130
16	-130
* 1 kHz tone, -1 dBFS input amplitude.	

Crosstalk

1.6 Counter IO (CIO)

Counter	JY-5327	JY-5328
Number of channels	2	1
Resolution	32	
Counter Input	edge count, period measurement, frequency measurement, pulse width measurement, two-edge interval measurement, quadrature encoder, etc.	
Counter Output	Single, finite and continuous pulse	
Clock (Internal)	100 MHz	
FIFO	16 MB	
Input	Gate, Source, Aux	
Output	OUT	

Table 10 CIO Specifications

1.7 Connector

1.7.1 JY-5327 provides 32 channels

Connector 1			
Pin	Signal Name	Pin	Signal Name
1	PFI 16	35	PFI 17
2	PFI 18	36	PFI 19
3	PFI 20	37	PFI 21
4	PFI 22	38	PFI 23
5	D_GND	39	D_GND
6	PFI 24	40	PFI 25
7	PFI 26	41	PFI 27
8	PFI 28	42	PFI 29
9	PFI 30	43	PFI 31
10	D_GND	44	D_GND
11	AI 16-	45	AI 16+
12	AI_GND	46	AI_GND
13	AI 17-	47	AI 17+
14	AI 18-	48	AI 18+
15	AI_GND	49	AI_GND
16	AI 19-	50	AI 19+
17	AI 20-	51	AI 20+
18	AI_GND	52	AI_GND
19	AI 21-	53	AI 21+
20	AI 22-	54	AI 22+
21	AI_GND	55	AI_GND
22	AI 23-	56	AI 23+
23	AI 24-	57	AI 24+
24	AI_GND	58	AI_GND
25	AI 25-	59	AI 25+
26	AI 26-	60	AI 26+
27	AI_GND	61	AI_GND
28	AI 27-	62	AI 27+
29	AI 28-	63	AI 28+
30	AI_GND	64	AI_GND
31	AI 29-	65	AI 29+
32	AI 30-	66	AI 30+
33	AI_GND	67	AI_GND
34	AI 31-	68	AI 31+

Connector 0			
Pin	Signal Name	Pin	Signal Name
1	PFI 0	35	PFI 1
2	PFI 2	36	PFI 3
3	PFI 4	37	PFI 5
4	PFI 6	38	PFI 7
5	D_GND	39	D_GND
6	PFI 8	40	PFI 9
7	PFI 10	41	PFI 11
8	PFI 12	42	PFI 13
9	PFI 14	43	PFI 15
10	D_GND	44	D_GND
11	AI 0-	45	AI 0+
12	AI_GND	46	AI_GND
13	AI 1-	47	AI 1+
14	AI 2-	48	AI 2+
15	AI_GND	49	AI_GND
16	AI 3-	50	AI 3+
17	AI 4-	51	AI 4+
18	AI_GND	52	AI_GND
19	AI 5-	53	AI 5+
20	AI 6-	54	AI 6+
21	AI_GND	55	AI_GND
22	AI 7-	56	AI 7+
23	AI 8-	57	AI 8+
24	AI_GND	58	AI_GND
25	AI 9-	59	AI 9+
26	AI10-	60	AI10+
27	AI_GND	61	AI_GND
28	AI 11-	62	AI 11+
29	AI 12-	63	AI 12+
30	AI_GND	64	AI_GND
31	AI 13-	65	AI 13+
32	AI 14-	66	AI 14+
33	AI_GND	67	AI_GND
34	AI 15-	68	AI 15+

Connector 0		Connector 1	
Pin	Signal	Pin	Signal
1	CTR0_Source/A	1	CTR1_Source/A
35	CTR0_Gate/Z	35	CTR1_Gate/Z
2	CTR0_AUX/B	2	CTR1_AUX/B
3	CTR0_OUT	3	CTR1_OUT

Table 11 Pinout definition of JY-5327

1.7.2 JY-5328 provides 16channels

Connector 0			
Pin	Signal Name	Pin	Signal Name
1	PFI 0	35	PFI 1
2	PFI 2	36	PFI 3
3	PFI 4	37	PFI 5
4	PFI 6	38	PFI 7
5	D_GND	39	D_GND
6	PFI 8	40	PFI 9
7	PFI 10	41	PFI 11
8	PFI 12	42	PFI 13
9	PFI 14	43	PFI 15
10	D_GND	44	D_GND
11	AI 0-	45	AI 0+
12	AI_GND	46	AI_GND
13	AI 1-	47	AI 1+
14	AI 2-	48	AI 2+
15	AI_GND	49	AI_GND
16	AI 3-	50	AI 3+
17	AI 4-	51	AI 4+
18	AI_GND	52	AI_GND
19	AI 5-	53	AI 5+
20	AI 6-	54	AI 6+
21	AI_GND	55	AI_GND
22	AI 7-	56	AI 7+
23	AI 8-	57	AI 8+
24	AI_GND	58	AI_GND
25	AI 9-	59	AI 9+
26	AI10-	60	AI10+
27	AI_GND	61	AI_GND
28	AI 11-	62	AI 11+
29	AI 12-	63	AI 12+
30	AI_GND	64	AI_GND
31	AI 13-	65	AI 13+
32	AI 14-	66	AI 14+
33	AI_GND	67	AI_GND
34	AI 15-	68	AI 15+

Connector 0	
Pin	Signal Name
1	CTR0_Source/A
35	CTR0_Gate/Z
2	CTR0_AUX/B
3	CTR0_OUT

Table 12 Pinout definition of JY-5328

1.8 Front Panel connections and Pinout Definition



Figure 3 JY-5328 Front Panel

1.9 Physical and Environment

Bus interface

Form factor (PXle)	3U PXI Express peripheral module
Form factor(PCIe)	PCIe Gen2 x 4
Slot supported	x1 and x4 PXI Express or PXI Express hybrid slots

Size

External physical size	3 U PXle
Weight	

Operating Temperature

Operating ambient temperature range	0-50°C
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Storage Environment

Ambient temperature range	-20°C to 80°C
Relative humidity range	10% to 90%, None-condensing

Power

3.3V	0.2 W
12V	10 W

Table 13 Physical and Environment

1.10 Synchronization Accuracy

	JY-5327/5328
Synchronization Accuracy (Single module)	5ns
Synchronization Accuracy (Two modules in one chassis)	5ns

Table 14 Synchronization Accuracy

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2 Software

2.1 System Requirements

JY-5327/5328 modules can be used in a Windows or a Linux operating system.

Microsoft Windows: Windows 7 32/64 bit, Windows 10 32/64 bit. We highly recommend the user to use Windows 10 whenever possible.

Linux Kernel Versions: There are many Linux versions. It is not possible JYTEK can support and test our devices under all different Linux versions. JYTEK will at the best support the following Linux versions.

Linux Version
Ubuntu LTS
16.04: 4.4.0-21-generic(desktop/server)
16.04.6: 4.15.0-45-generic(desktop) 4.4.0-142-generic(server)
18.04: 4.15.0-20-generic(desktop) 4.15.0-91-generic(server)
18.04.4: 5.3.0-28-generic (desktop) 4.15.0-91-generic(server)
Localized Chinese Version
中标麒麟桌面操作系统软件（兆芯版）V7.0（Build61）: 3.10.0-862.9.1.nd7.zx.18.x86_64
中标麒麟高级服务器操作系统软件V7.0U6: 3.10.0-957.el7.x86_64

Table 15 Supported Linux Versions

2.2 System Software

When using JY-5327/5328 in the Window environment, you need to install the following software from Microsoft:

Visual Studio Version 2015 or above,

.NET version is 4.0 or above.

.NET is coming with Windows 10. For Windows 7, please check .NET version and upgrade to 4.0 or later version.

Given the resources limitation, JYTEK only tested JY-5327/5328 modules with .NET 4.0 with Visual Studio 2015. JYTEK relies on Microsoft to maintain the compatibility for the newer versions.

2.3 C# Programming Language

All JYTEK default programming language is Microsoft C#. This is Microsoft recommended programming language in Visual Studio and is particularly suitable for the test and measurement applications. C# is also a cross platform programming language.

2.4 C++ Programming Language

JYTEK provides QT C++ drivers for C++ programmers. We also provide many QT C++ examples. However, due to our limited resources, we do not support C++ based applications.

2.5 JY-5327/5328 Hardware Driver

After installing the required application development environment as described above, you need to install the JY-5327/5328 hardware driver.

JYTEK hardware driver has two parts: the shared common driver kernel software (FirmDrive) and the hardware specific driver software.

Common Driver Kernel Software (FirmDrive): FirmDrive is the JYTEK's kernel software for all hardware products of JYTEK instruments. You need to install this kernel software before using any other JYTEK hardware products. FirmDrive only needs to be installed once. After that, you can install the hardware specific driver.

Hardware Specific Driver: Each JYTEK hardware has a C# hardware specific driver. This driver provides rich and easy-to-use C# interfaces for users to operate various JY-5327/5328 function. JYTEK has standardized the ways JYTEK and other vendor's DAQ cards are used by providing a consistent user interface, using the methods, properties and enumerations in the object-oriented programming environment. Once you get yourself familiar with how one JYTEK DAQ card works, you should be able to know how to use all other DAQ hardware using the same methods.

2.6 Install the SeeSharpTools from JYTEK

To efficiently and effectively use JY-5327/5328 boards, you need to install a set of free C# utilities from JYTEK SeeSharp Test and Measurement platform. The SeeSharp platform offers rich user interface functions you will find convenient in developing your applications. They are also needed to run the examples come with JY-5327/5328 hardware. Please register and download the latest SeeSharpTools from our website www.jytek.com.

2.7 Running C# Programs in Linux

Most C# written programs in Windows can be run by Microsoft Mono development system in a Linux environment. You would develop your C# applications in Windows using Visual Studio. Once it is done, run this application in the Mono environment. This is JYTEK recommended way to run your C# programs in a Linux environment.

If you want to use your own Linux development system other than Mono, you can do it using our Linux driver. However, JYTEK does not have the capability to support the Linux applications. JYTEK completely relies upon Microsoft to maintain the cross-platform compatibility between Windows and Linux using Mono.

3 Order Information

- PXIe-5327 (PN: JY7178278-01)
32-ch, 20-bit, 1MS/s/ch , 32 DIO, PXIe Simultaneous sampling Multifunction I/O Module
- PCIe-5327 (PN: JY8313778-01)
32-ch, 20-bit, 1MS/s/ch , 32 DIO, PCIe Simultaneous sampling Multifunction I/O Module
- USB-5327 (PN: JY3161806-01)
32-ch, 20-bit, 1MS/s/ch , 32 DIO, USB Simultaneous sampling Multifunction I/O Module
- DDA-5327 (PN: JY3396330-01)
Distributed Data Acquisition Platform with built-in 32-ch, 20-bit, 1MS/s/ch , 32 DIO, Simultaneous sampling Multifunction I/O Module
- PXIe-5328 (PN: JY3562143-01)
16-ch, 20-bit, 1MS/s/ch , 16 DIO, PXIe Simultaneous sampling Multifunction I/O Module
- PCIe-5328 (PN: JY2641780-01)
16-ch, 20-bit, 1MS/s/ch , 16 DIO, PCIe Simultaneous sampling Multifunction I/O Module
- USB-5328 (PN: JY9176051-01)
16-ch, 20-bit, 1MS/s/ch , 16 DIO, USB Simultaneous sampling Multifunction I/O Module
- DDA-5328 (PN: JY2657732-01)
Distributed Data Acquisition Platform with built-in 16-ch, 20-bit, 1MS/s/ch , 16 DIO, Simultaneous sampling Multifunction I/O Module

4 JYPEDIA

JYPEDIA is an excel file. It contains JYTEK product information, pricing, inventory information, drivers, software, technical support, knowledge base etc. You can register and download a JYPEDIA excel file from our web www.jytek.com. JYTEK highly recommends you use this file to obtain information from JYTEK.

5 Additional Hardware Information

5.1 DC Accuracy

DC voltage measurement refers to the measurement of a slowly changing voltage. The accuracy of the DC measurement is affected by gain error and offset error. An instrument's DC accuracy is defined by the gain and offset errors as follows:

$$\text{Accuracy} = \text{Gain Error (\% of reading)} + \text{Offset Error (\% of range)}$$

Equation 2 Gain and Offset Errors

It should be noted when the reading is close to zero, the gain error is very small and negligible, the offset error is dominant; when the reading is getting close to the full range, the gain error becomes more significant.

The AI DC Accuracy of JY-5327/5328 is shown in Table 4.

5.2 Dynamic Performance

JY-5327/5328 offers excellent dynamic performance as shown in Table 7, where THD stands for total harmonic distortion; SINAD stands for signal-to-noise and distortion; and SFDR stands for spurious-free dynamic range.

6 Additional Software Information

6.1 System Requirements

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16.04.6:	4.15.0-45-generic(desktop) 4.4.0-142-generic(server)
18.04:	4.15.0-20-generic(desktop) 4.15.0-91-generic(server)
18.04.4:	5.3.0-28-generic (desktop) 4.15.0-91-generic(server)
Localized Chinese Version	
中标麒麟桌面操作系统软件（兆芯版）V7.0（Build61）: 3.10.0-862.9.1.nd7.zx.18.x86_64	
中标麒麟高级服务器操作系统软件V7.0U6: 3.10.0-957.el7.x86_64	

Table 16 Supported Linux Versions

6.2 System Software

When using JY-5327/5328 series in the Window environment, you need to install the following software from Microsoft:

Visual Studio Version 2015 or above,

.NET version is 4.0 or above.

.NET is coming with Windows 10. For Windows 7, please check .NET version and upgrade to 4.0 or later version.

Given the resources limitation, JYTEK only tested modules with .NET 4.0 with Visual Studio 2015. JYTEK relies on Microsoft to maintain the compatibility for the newer versions.

6.3 C# Programming Language

All JYTEK default programming language is Microsoft C#. This is Microsoft recommended programming language in Visual Studio and is particularly suitable for the test and measurement applications. C# is also a cross platform programming language.

6.4 C++ Programming Language

JYTEK provides QT C++ drivers for C++ programmers. We also provide many QT C++ examples. However, due to our limited resources, we do not support C++ based applications.

6.5 Python

JYTEK provides and supports a native python driver for JY-5327/5328 cards. There are many different versions of Python. JYTEK has only tested in CPython version 3.5. There is no guarantee that JYTEK python drivers will work correctly with other versions of Python. If you want to be our partner to support different Python platforms, please contact us.

7 Calibration

JYTEK 5327 boards are precalibrated before the shipment. We recommend you recalibrate JY-5327/5328 boards periodically to ensure the measurement accuracy. A commonly accepted practice is one year. If you need to recalibrate your board, please contact JYTEK.

8 Appendix

8.1 Typical Measurement Error

Typical measurement error is a term used to describe the variation or uncertainty in a measurement that is repeated under the same conditions. It can be caused by random errors (chance differences between observed and true values) or systematic errors (consistent biases in measurement).

Typical measurement error can be expressed as a standard deviation (the typical error of measurement) or as a percentage of the mean (the coefficient of variation) .

8.2 System Noise

System noise refers to any unwanted and random fluctuations or disturbances in a physical or electronic system that can interfere with its normal operation. System noise can arise from various sources such as electrical interference, thermal noise, environmental factors, and inherent limitations of the system's components.

In electronic systems, system noise can affect the accuracy and reliability of signal processing and communication. For example, in audio systems, system noise can lead to hissing or humming sounds,

and in wireless communication systems, it can cause interference and reduce the quality of the signal.

Reducing system noise is an important consideration in the design and operation of many types of systems, and engineers use various techniques to mitigate its effects, including shielding, filtering, and signal processing algorithms.

8.3 Temperature Drift

Temperature drift refers to the phenomenon where the performance or behavior of a physical or electronic system changes as the temperature changes. Temperature drift can affect various parameters such as frequency, voltage, resistance, and sensitivity, and it can cause errors or inaccuracies in the system's operation.

In electronic systems, temperature drift can arise due to the temperature dependence of the properties of the system's components, such as resistors, capacitors, and transistors. For example, the resistance of a resistor increases with temperature, and this can affect the accuracy of voltage measurements in a circuit. Similarly, the frequency of an oscillator can drift due to the temperature dependence of its resonant circuit components.

Temperature drift is an important consideration in the design and operation of many types of systems, particularly those that require high accuracy and stability over a wide range of temperatures. Engineers use various techniques to compensate for temperature drift, including using temperature sensors to monitor and control the temperature, selecting components with low temperature coefficients, and implementing temperature compensation algorithms in software or firmware.

9 About JYTEK

9.1 JYTEK China

Founded in June, 2016, JYTEK China is a leading Chinese test & measurement company, providing complete software and hardware products for the test and measurement industry. The company has evolved from re-branding and reselling PXI(e) and DAQ products to a fully-fledged product company. The company offers complete lines of PXI, DAQ, USB products. More importantly, JYTEK has been promoting open-sourced based ecosystem and offers complete software products. Presently, JYTEK is focused on the Chinese market. Our Shanghai headquarters and production service center have regular stocks to ensure timely supply; we also have R&D centers in Xi'an and Chongqing. We also have highly trained direct technical sales

representatives in Shanghai, Beijing, Tianjin, Xi'an, Chengdu, Nanjing, Wuhan, Guangdong, Haerbin, and Changchun. We also have many partners who provide system level support in various cities.

9.2 JYTEK Software Platform

JYTEK has developed a complete software platform, SeeSharp Platform, for the test and measurement applications. We leverage the open sources communities to provide the software tools. Our platform software is also open sourced and is free, thus lowering the cost of tests for our customers. We are the only domestic vendor to offer complete commercial software and hardware tools.

9.3 JYTEK Warranty and Support Services

With our complete software and hardware products, JYTEK is able to provide technical and sales services to wide range of applications and customers. In most cases, our products are backed by a 1-year warranty. For technical consultation, pre-sale and after-sales support, please contact JYTEK of your country.

10 Statement

The hardware and software products described in this manual are provided by JYTEK China, or JYTEK in short.

This manual provides the product review, quick start, The manual is copyrighted by JYTEK.

No warranty is given as to any implied warranties, express or implied, including any purpose or non-infringement of intellectual property rights, unless such disclaimer is legally invalid. JYTEK is not responsible for any incidental or consequential damages related to performance or use of this manual. The information contained in this manual is subject to change without notice.

While we try to keep this manual up to date, there are factors beyond our control that may affect the accuracy of the manual. Please check the latest manual and product information from our website.

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