

USB/PCIe/PXIe-5710 Series

Family of Analog Output Modules



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Overview

The USB/PCIe/PXIe-5710 Series is a family of Analog Output function modules, which can run on PCIe, PXIe, TXI (Thunderbolt) and USB buses. Depending on the model number, a 5710 series provide different AO channels, sampling rate.

JYTEK PCIe/PXIe-5711 is a 32 channels analog output module with 16 bits resolution. PCIe/PXIe-5711 has an output range of ± 10 V with maximum update rate to 2 MS/s. It also provides output current drive in the range of ± 10 mA.

USB-5710 Series supports USB 3.0 bus protocol or above.

Main Features

- High accuracy: 0.02%
- 32 channels of voltage output
- 16 bits DAC
- Output range: ± 10 V
- Maximum update rate
 - 8 channels (2 MS/s/ch, 1 channel per bank)
 - 16 channels (2 MS/s/ch, 2 channels per bank)
 - 32 channels (1 MS/s/ch)
- Output current drive: ± 10 mA
- Overdrive current: 15 mA
- 8M samples FIFO buffer size per channel
- DMA for data transfers

Hardware Specifications

Analog Output Specifications

Number of channels	32 ch
Resolution	16 bits
DNL	±1 LSB
Unscaled data format	Signed integer (-32768 to 32767)
Monotonicity	16 bits
Clock	200 MHz
Maximum update rate ¹	
1 channel	2 MS/s
16 channels (1 channel per DAC) ²	2 MS/s
32 channels	1 MS/s
Output range	±10 V
Output coupling	DC
Output impedance	0.2 Ω
Output current drive	±10 mA
Overdrive protection	±15 V
Overdrive current	15 mA
Power-on state	±200 mV
FIFO buffer size	8M Samples per channel
Data transfers	DMA
AO waveform modes	Nonperiodic waveform, Periodic waveform regeneration mode from onboard FIFO, Periodic waveform regeneration from host buffer including dynamic update
Slew rate	20 V/μs
Noise	400 μVrms, DC to 1 MHz
AO update glitch Glitch energy	5 nVs
Channel crosstalk	-65 dB
Reference clock	PXIe_DSTARA, PXIe_DSTARB, PXIe_CLK100
Clock accuracy	25 ppm
External sample clock	PFI, PXI_TRIG
Trigger source	Digital, Software
Trigger type	Start Trigger
Digital trigger source	PFI, PXI_TRIG
1: Update rate = 200MS/s/N N=100,101,102...65535	
2: Each DAC has two channels.	

Analog Output Specifications

JY5711 AO Basic Accuracy = $\pm(\% \text{ of Output} + \% \text{ of Range})$				
Nominal Range (V)	24 Hour Tcal $\pm 1^\circ\text{C}$		90 Days Tcal $\pm 5^\circ$	
10	0.003	+	0.005	0.012 + 0.008
				24 Hr Full-Scale Accuracy
				90 Days Full-Scale Accuracy
				790 μV
				2000 μV

JY5711 AO Additional Accuracy Adjustment			
Nominal Range (V)	Temperature Coefficients (/ $^\circ\text{C}$)		Full-Scale Temp Adjustment ($\mu\text{V}/^\circ\text{C}$)
10	0.0007	+	0.0002
			90 μV

Digital IO Specifications

Static Characteristics

Number of channels	3 DIO
Ground reference	DGND
Direction control	Each terminal individually programmable as input or output
Pull-down resistor	50 k Ω typical
Input voltage protection	$\pm 15\text{ V}$

PFI Specifications

Number of channels	3
External digital trigger interface	Trigger voltage 3.3 V TTL; Trigger edge: Rising/Falling
Initial state	Input

Power Requirements

3.3 V:	3.0 W
+12 V:	14.0 W

Physical and Environment

Operating Environment

Ambient temperature range	0 $^\circ\text{C}$ to 50 $^\circ\text{C}$
Relative humidity range	20% to 80%, noncondensing

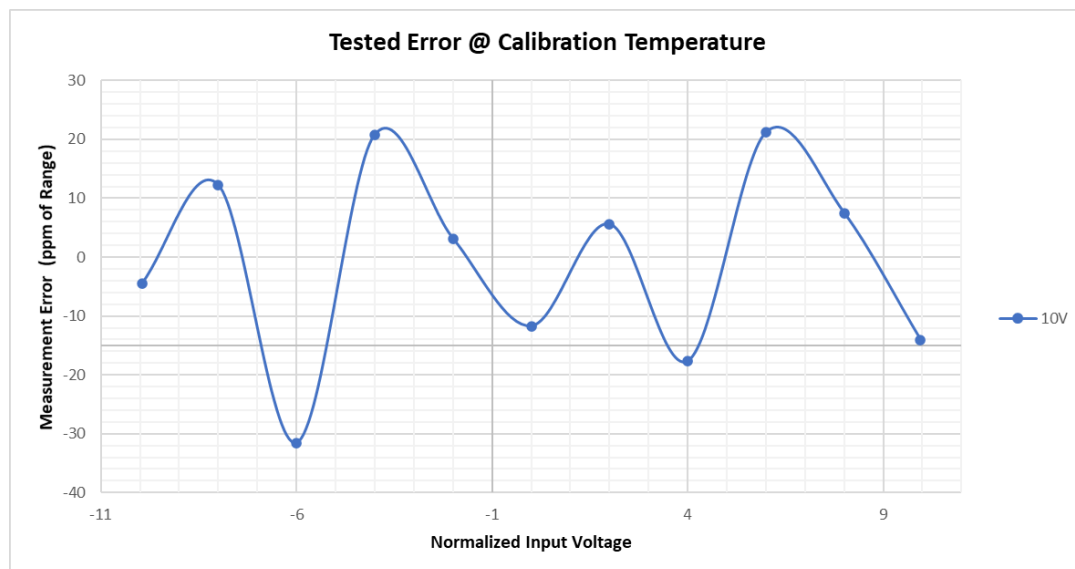
Storage Environment

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

Performance and Tests

AO Accuracy

JY5711 AO Basic Accuracy = $\pm(\% \text{ of Output} + \% \text{ of Range})$					
Nominal Range (V)	24 Hour Tcal $\pm 1^\circ\text{C}$		90 Days Tcal $\pm 5^\circ$		24 Hr Full-Scale Accuracy
10	0.003	+	0.005	0.012	790 μV
				+	0.008
					2000 μV



Crosstalk

Reference Channel	Tested Channel	Crosstalk (dB at 100 KHz)
0	1	-71.8
0	15	-71.4
0	16	-70.4
1	2	-71.8
6	7	-71.4
6	22	-70.9
10	11	-72.1
16	17	-67.2
31	30	-71.6

Order Information

- PXIe-5711 (PN: JY5711001-01)
32-ch, 2MS/s/ch, 16-bit PXIe Analog Output Module
- PCIe-5711 (PN: JY5711001-02)
32-ch, 2MS/s/ch, 16-bit PCIe Analog Output Module
- USB-5711 (PN: JY5711001-03)
32-ch, 2MS/s, 16-bit USB Analog Output 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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