

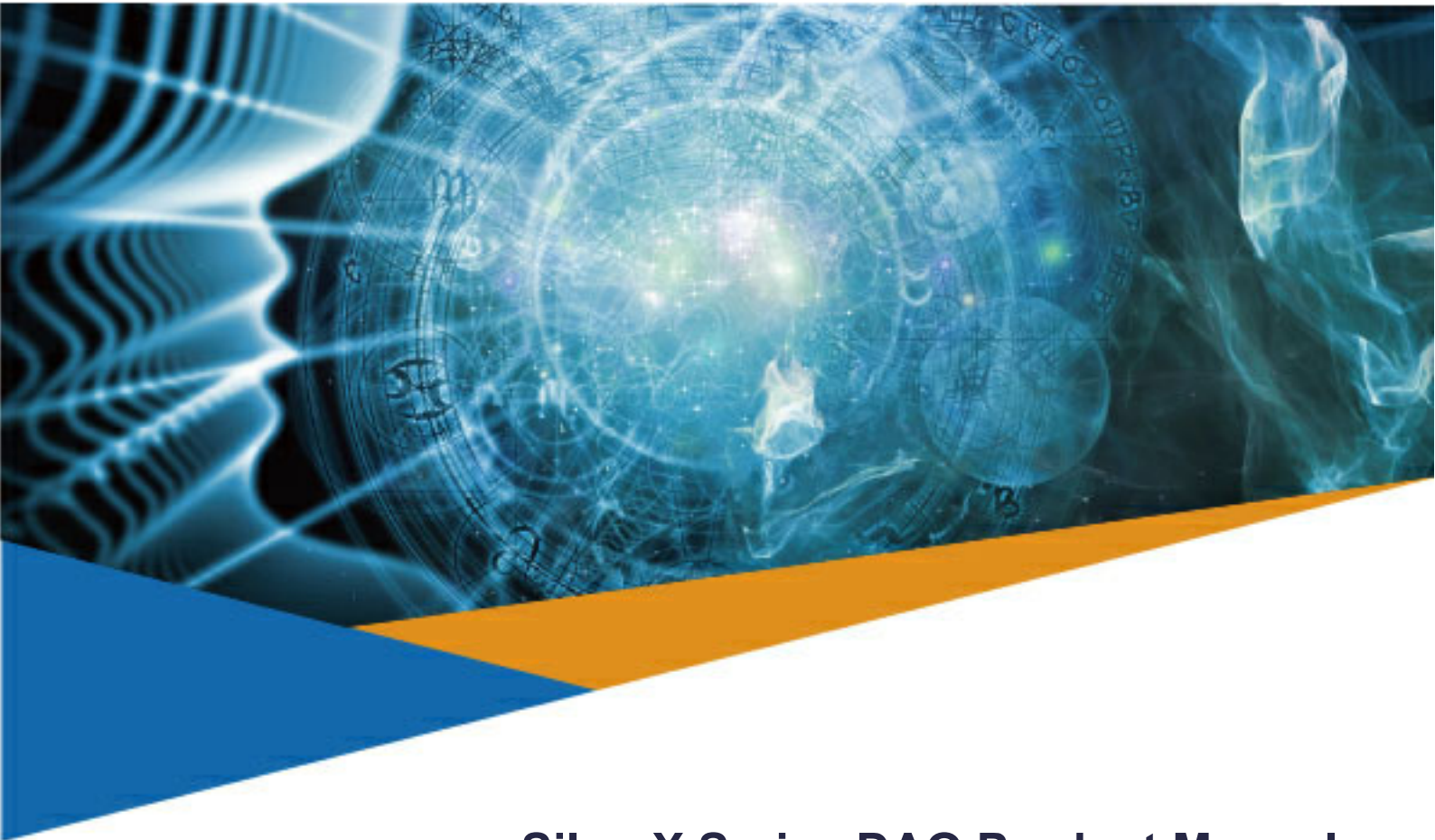


Fine Tooling

广州市方瞳科技有限责任公司

Web: www.finetooling.com

Tel: 0086-20-82108945



SilverX Series DAQ Product Manual

DAQ SilverX Series, 16Bit, up to 16 AI, 800KS/s, 2 AO, 24 DIO



History list

Version	Date	Content
1.0	2023/3/30	First release

Catalogue

Products feature	1
Overview	1
Comparison table of SilverX series acquisition cards:	1
Analog input characteristic	1
Analog output characteristic	3
Digital IO/PFI	3
Count/timer	4
Power/data transmission	4
Interface definition	5

Products feature

- 16-channel analog input, 16 bits resolution, maximum sample rate 800KS/s
- Programmable analog input range: $\pm 10V$, $\pm 5V$
- AI can be configured as pseudo-differential input
- 2-channel analog output, 16 bits resolution, maximum sampling rate of 1.2MS/s
- 24Bits bidirectional digital IO, can be set as input/output by Bit/Port, 3.3V logic level
- 2-channel timing/counter
- FTStudio, LabVIEW, Visual Studio and other languages for secondary development support
- Free testing software (Finetooling HWSUIT)

Overview

The USB DAQ SilverX series provides up to 16-channel single-ended analog input, 8-channel differential analog input, 16 bits sampling rate, up to 800KS/s, 24-bit DIO, and synchronous sampling between some channels to meet many common measurement requirements. The equipment is suitable for a variety of industrial applications such as laboratory automation, research and design validation. The free Finetooling HWSUIT supporting software provides basic measurement and analysis functions, such as SNR, THD, SINAD, etc., while Finetooling's automated test platform FTStudio supports all USB DAQ SilverX series data acquisition cards, which is convenient for users to use quickly.

System support: Windows XP/Win7/10 Linux

Software compatible: LabVIEW Visual Studio FT Studio

Comparison table of SilverX series acquisition cards:

Serie	Bus	AI	AI Resolution	AI Sampling	AO	AO Resolution	AO Range	Digital IO
FT8206	USB,GbE,Fidas	16	16	800KS/S	2	16	$\pm 10V$	24
FT8203	USB	16	16	800KS/S	2	16	$\pm 10V$	24
FT8204	USB	8	16	800KS/S	2	16	$\pm 10V$	24

Analog input characteristic

All measurements below are taken at room temperature of 25°C unless otherwise specified.

Project	Parameter
FT8206	8-channel differential / 16-channel single-ended
FT8203	16-channel single-ended
FT8204	8-channel differential
Resolution	16 bits
Input Signal 1KHz, DIFF; 800KSPS, 8K Samples:	
SNR (20Vpp)	>92dB
SINAD (2Vpp)	>93dB
THD (2Vpp)	<0.002%
DNL	±1LSB
INL	±1LSB
Synchronous sampling	Synchronous sampling in some channels (FT8206)
Sampling	
Maximum sampling rate of a single channel	800KS/s
Multi-channel maximum sampling rate (summation)	800KS/s
AI0~AI7, AI8~AI15, AI16~AI23 A single channel between groups	800KS/s/CH (FT8206)
Minimum sampling rate	No minimum
Timing resolution	50ns
Input coupling	DC
Input range	±10V, ±5V
Maximum input current	±10mA
Input impedance	
AI+ to AIGND	> 10GΩ 6.4pF
AI- to AIGND	> 10GΩ 6.4pF
Input bias current	±20pA
Sample point cache FIFO size	8192 samples
Multichannel scan cache size	8192 samples

Analog output characteristic

All measurements below are taken at room temperature of 25°C unless otherwise specified.

Project	Parameter
Number of channels	2 channels, single-ended output
ADC Resolution	16 bits
SNR(Signal : 20Vpp, 1KHz)	>100dB
SINAD(Signal : 10Vpp, 1KHz)	>83dB
THD(Signal : 10Vpp, 1KHz)	<0.008%
DNL	±1LSB
Data update rate	1.2MS/s/CH
Timing resolution	50ns
Output coupling	DC
Output range	±10V
Output impedance	0.2Ω
Input bias current	±20pA
AO Output data cache	1024 samples
Slew rate	20V/uS
Maximum driving current	10mA

Digital IO/PFI

All measurements below are taken at room temperature of 25°C unless otherwise specified.

Project	Parameter
Number of channels	24Bits DIO, 2Bits PFI(P0.0/P0.1)
Reference ground	DGND
Direction control	Each bit can be set individually as input/output
Input voltage range	0~3.3V
Input high level	2.2V~3.3V
Input low level	<0.7V
Output high level	>3.2V
Output low level	<0.1V
Maximum driving current	4mA
Initial power-on status	Input
Timer resolution	20ns
PFI	Can output square wave with adjustable duty cycle

Count/timer

All measurements below are taken at room temperature of 25°C unless otherwise specified.

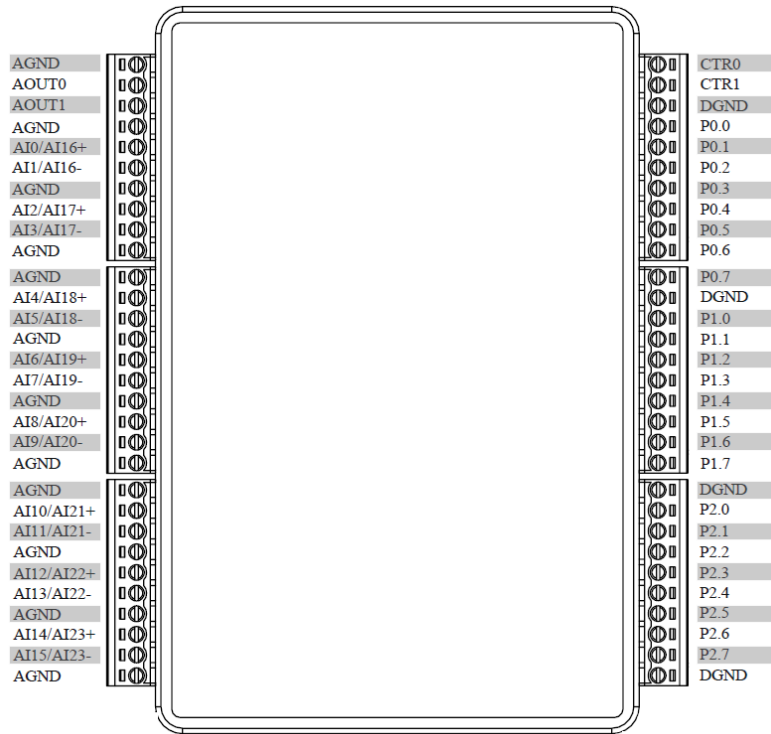
Project	Parameter
Number of channels	2 channels, can work simultaneously
Reference ground	DGND
Count/timer bits	32Bits
Input voltage range	0~3.3V
Input high level	2.2V~3.3V
Input low level	<0.7V
Counting measurement	Edge count
Counting mode	Count up
Clock precision	10PPM
Timing clock	50MHZ
Timing resolution	20ns

Power/data transmission

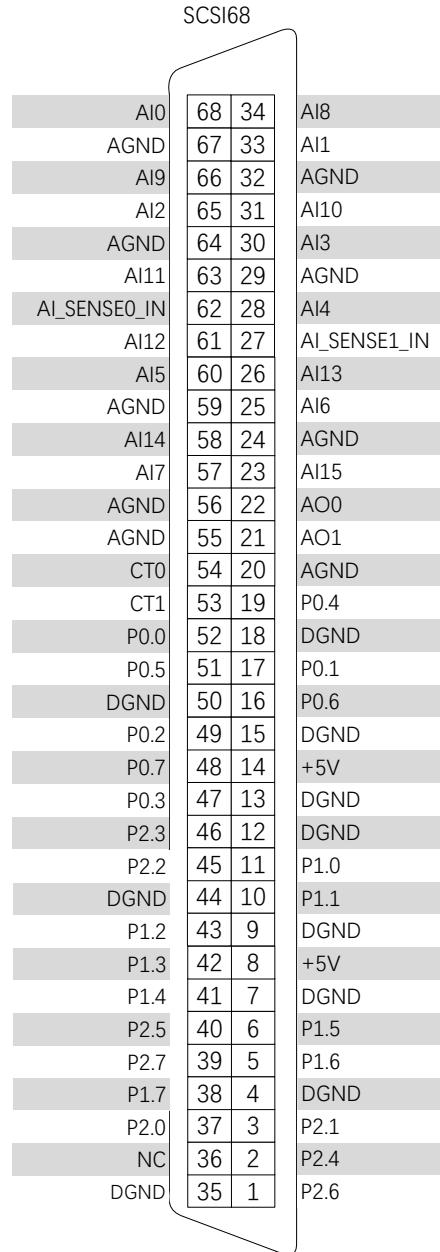
All measurements below are taken at room temperature of 25°C unless otherwise specified.

Project	Parameter
Power supply	DC9~24V/1A
Power interface	DC5.5*2.1mm
Current	<250mA
Fuse	1A/30V
Mode of data transmission	High Speed USB (480Mb/s) , Gigabit Ethernet interface (1Gb/s) , Fidas Bus
Bus Interface	USB Type B bus, RJ45 port, Fidas backplane port

Interface definition



USB or Ethernet DAQ interface



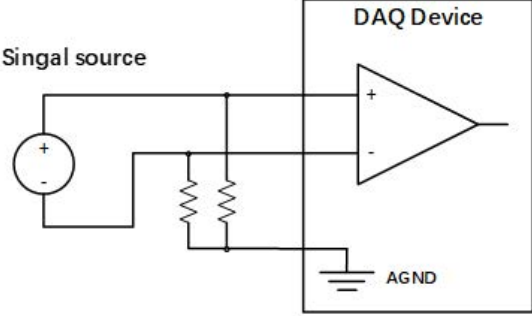
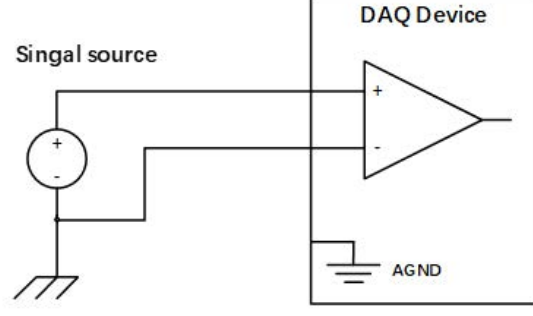
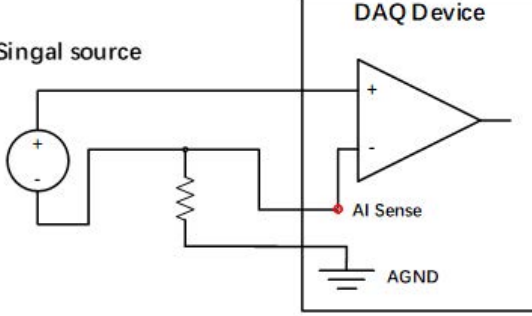
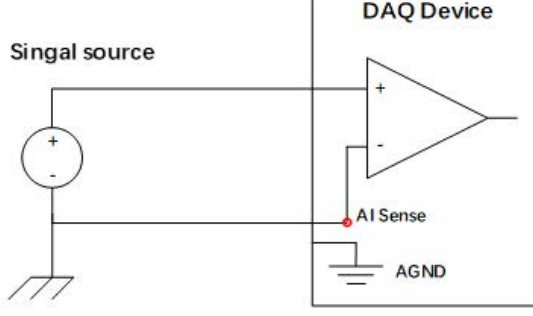
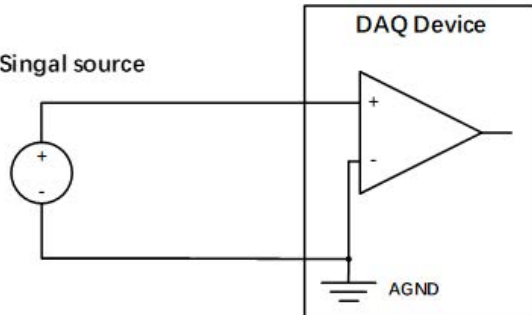
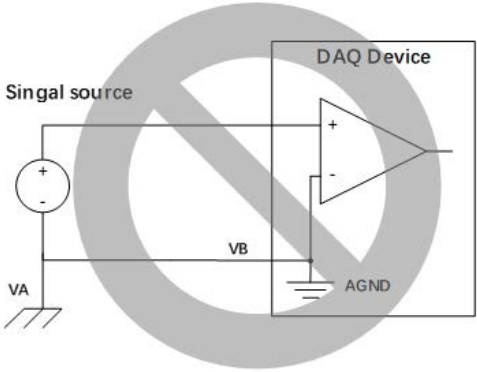
Fidas8206 interface

Sheet1: Connector signal

Signal Name	Reference	Direction	Description
AGND	-- 1165642023002397	--	Analog input ground, single-ended analog signal input reference ground, differential analog input bias current return path, AGND, DGND is shorted together inside the device. For the connection mode of the analog input signal, see the analog input signal configuration Sheet 2.

AI<0..23>	AGND	Input	Analog input channel, single-ended signal channel AI<0... 15>, the signal reference ground is AGND, AI<16... 23> is a differential signal channel, pin and AI<0... 15> Multiplexing.
AOUT<0..1>	AGND	Output	Analog signal output channel, single-end signal output, signal reference ground is AGND, voltage signal output.
DGND	--	--	Numerically, P0.<0... 7>, P1.<0.. 7>, P2.<0.. 7>, CTR0, CTR1 digital signal reference.
P0.<0..7>	DGND	I/O	Port0 Bidirectional digital input/output channel, which can be configured as input or output by software, by Port or by bit. P0.0, P0.1 have PFI function, can output customized duty cycle square wave.
P1.<0..7>	DGND	I/O	Port0 Bidirectional digital input/output channel, which can be configured as input or output by software, by Port or by bit.
P2.<0..7>	DGND	I/O	Port0 Bidirectional digital input/output channel, which can be configured as input or output by software, by Port or by bit.
CTR<0..1>	DGND	Input	Timing counter input channel, which can be configured as timer or counter function by software, and the signal reference ground is DGND.
AI sense0 AI sense1	--	Input	The analog input reference signal is used when the analog input is in pseudo-differential mode. AI0 to 7 uses AI sense0 as the reference, and AI8 to 15 uses AI sense1 as the reference.

Sheet 2: Analog input signal configuration

	Floating signal source	Common ground signal source
Signal type	Such as: <ul style="list-style-type: none"> ● Isolate the output signal source ● Battery powered equipment ● Isolated power supply devices 	Such as: <ul style="list-style-type: none"> ● Non-isolated output signal source ● Devices powered by non-isolated power sources
DIFF		
NRSE		
RSE		 <p>Note: In a common ground system, single-ended signals are forbidden to use this connection mode, this connection mode has a ground loop, which will generate a loop voltage between VA-VB. Can cause deviation of measurement.</p>

Purchase Contacts:

Tel: 0086-20-82108945-8015

E-mail: Marketing@finetooling.com

Web: www.finetooling.com

广州市方瞳科技有限责任公司 | Finetooling Technology (Guangzhou) Co.,Ltd.

广东省广州市黄埔区春分路 88 号 3 栋 Building 3, No. 88, Chunfen Road, Huangpu District, Guangzhou City,
Guangdong Province