



Fine Tooling

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FT5402 Product Manual

64CH SE, 24-Bit, 31.25KSPS, $\pm 100V$



History list

Version	Date	Content
1.0	2023/3/30	First release

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Products Feature

- 64 channels of single-ended analog input
- 24-bit resolution, asynchronous data acquisition, maximum sampling rate of 31.25KSPS
- Signal input range up to $\pm 100V$
- Single-ended input impedance $1M\Omega$
- SCSI100 connection
- Support FTStudio, LabVIEW, Visual Studio and other languages for secondary development

Overview

Fidas 64ch Multi voltage acquisition board is a series of Ethernet Fidas products. Through the backplane, it can communicate with the motherboard with 100M Ethernet, issue test instructions, and input voltage with a single end.

This board provides 64-way AI single-ended input interface, supports $\pm 100VDC$ voltage input, and adopts 24bits resolution ADC. 1500VDC power isolation module is used to enhance the reliability of the system in harsh environments.

System support: Windows XP/Win7/10 Linux

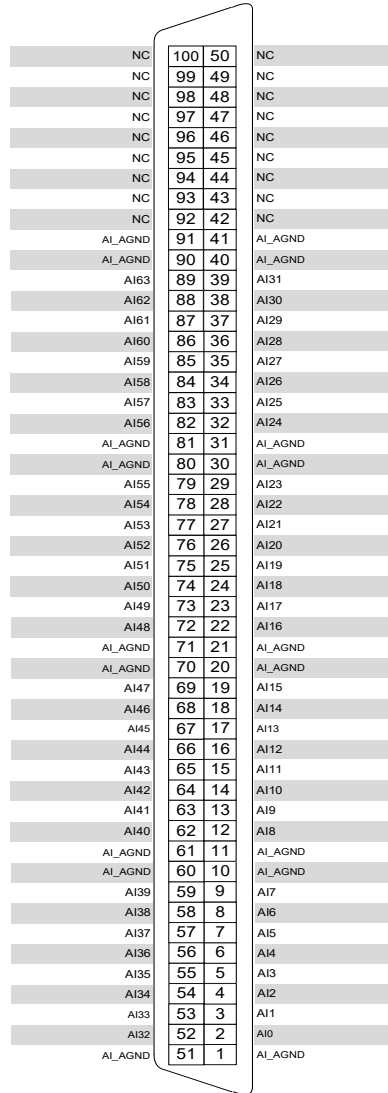
Software compatible: LabVIEW Visual Studio FT Studio

Analog input characteristics

All the following measurements were taken at room temperature $25^{\circ}C$, unless otherwise noted.

Number of channels	64 channel single-ended input
ADC resolution	24 bits
ADC type	Delta-Sigma
Sampling pattern	Single sampling
Sampling rate	1.25S/s to 31.25KS/s
Input coupling	DC
Range of input	$\pm 100V$
Maximum input current	$\pm 5mA$
Input impedance	AI to AIGND: $1M\Omega$ $6.4pF$
Input bias current	$\pm 20pA$
accuracy	Gain Error: 0.01% of Reading

Interface Definition



AI channel	Pin	Signal	Description
AI0~7	1	AI_AGND	AI0~63 Analog signal reference ground
	2	AI0	AI Input analog signal
	3	AI1	
	4	AI2	
	5	AI3	
	6	AI4	
	7	AI5	
	8	AI6	
	9	AI7	
		10	AI_AGND
AI8~15	11	AI_AGND	AI0~63 Analog signal reference ground
	12	AI8	AI Input analog signal
	13	AI9	
	14	AI10	

	15	AI11	
	16	AI12	
	17	AI13	
	18	AI14	
	19	AI15	
	20	AI_AGND	
AI16~23	21	AI_AGND	AI0~63 Analog signal reference ground
	22	AI16	AI Input analog signal
	23	AI17	
	24	AI18	
	25	AI19	
	26	AI20	
	27	AI21	
	28	AI22	
	29	AI23	
	30	AI_AGND	AI0~63 Analog signal reference ground
AI24~31	31	AI_AGND	AI0~63 Analog signal reference ground
	32	AI24	AI Input analog signal
	33	AI25	
	34	AI26	
	35	AI27	
	36	AI28	
	37	AI29	
	38	AI30	
	39	AI31	
	40、41	AI_AGND	AI0~63 Analog signal reference ground
AI32~39	51	AI_AGND	AI0~63 Analog signal reference ground
	52	AI32	AI Input analog signal
	53	AI33	
	54	AI34	
	55	AI35	
	56	AI36	
	57	AI37	
	58	AI38	
	59	AI39	
	60	AI_AGND	AI0~63 Analog signal reference ground
AI40~47	61	AI_AGND	AI0~63 Analog signal reference ground
	62	AI40	AI Input analog signal
	63	AI41	

	64	AI42	
	65	AI43	
	66	AI44	
	67	AI45	
	68	AI46	
	69	AI47	
	70	AI_AGND	
AI48~55	71	AI_AGND	AI0~63 Analog signal reference ground
	72	AI48	AI Input analog signal
	73	AI49	
	74	AI50	
	75	AI51	
	76	AI52	
	77	AI53	
	78	AI54	
	79	AI55	
	80	AI_AGND	AI0~63 Analog signal reference ground
AI56~63	81	AI_AGND	AI0~63 Analog signal reference ground
	82	AI56	AI Input analog signal
	83	AI57	
	84	AI58	
	85	AI59	
	86	AI60	
	87	AI61	
	88	AI62	
	89	AI63	
	90、91	AI_AGND	AI0~63 Analog signal reference ground
—	其他	NC	—

Technical specification

Items	Description
Work environment	temperature: -40℃~85℃, relative humidity: 10%~90%RH
Storage environment	temperature: -40℃~85℃, relative humidity: 5%~95%RH No condensation

Note 1: With respect to environmental adaptability

1) Ambient temperature:

- a) Operating temperature: 0~55℃, meet the test standards IEC 60068-2-1 and IEC 60068-2-2
- b) Storage temperature: -20~70℃, meet the test standards IEC 60068-2-1 and IEC 60068-2-2

2) Environmental humidity:

- a) Working humidity: 10~90%, meet the test standards IEC 60068-2-1 and IEC 60068-2-2

- b) Working humidity: 5~95%, meet the test standards IEC 60068-2-1 and IEC 60068-2-2
- 3) Suitable for indoor applications only

Use of the free debugging tool HWSuit

The HWSuit tool can be downloaded from the official website of www.finetooling.com

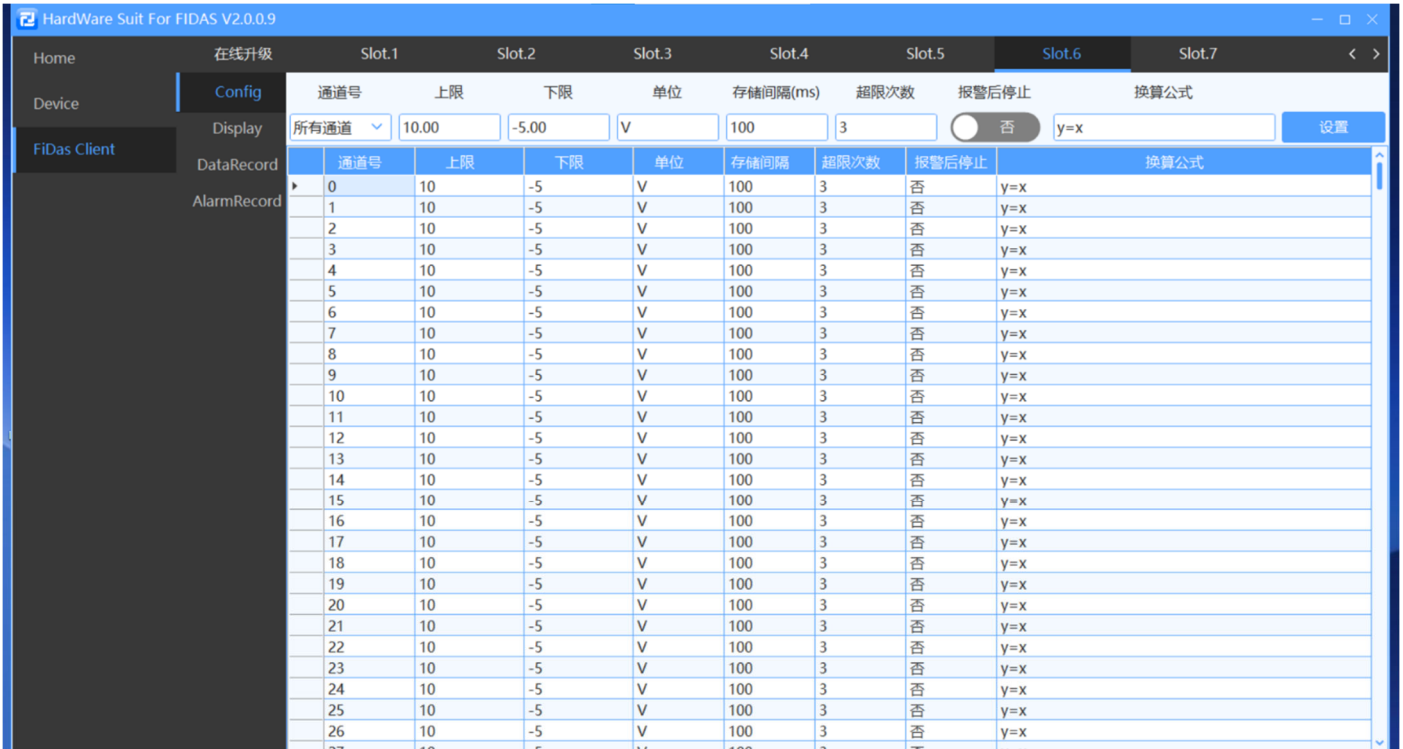
HWSuit version: Please download HWSuit V3.5.8.0 or later.

Steps to Use

- After the Fidas host device is connected, open the corresponding slot according to the expansion card position sequence number.
- Config: Acquisition parameter setting interface.

Note: an alarm will be issued if the exceedance number is set.

Click Settings, and the password input box will pop up. Default password:



- Display: measurement value display interface.

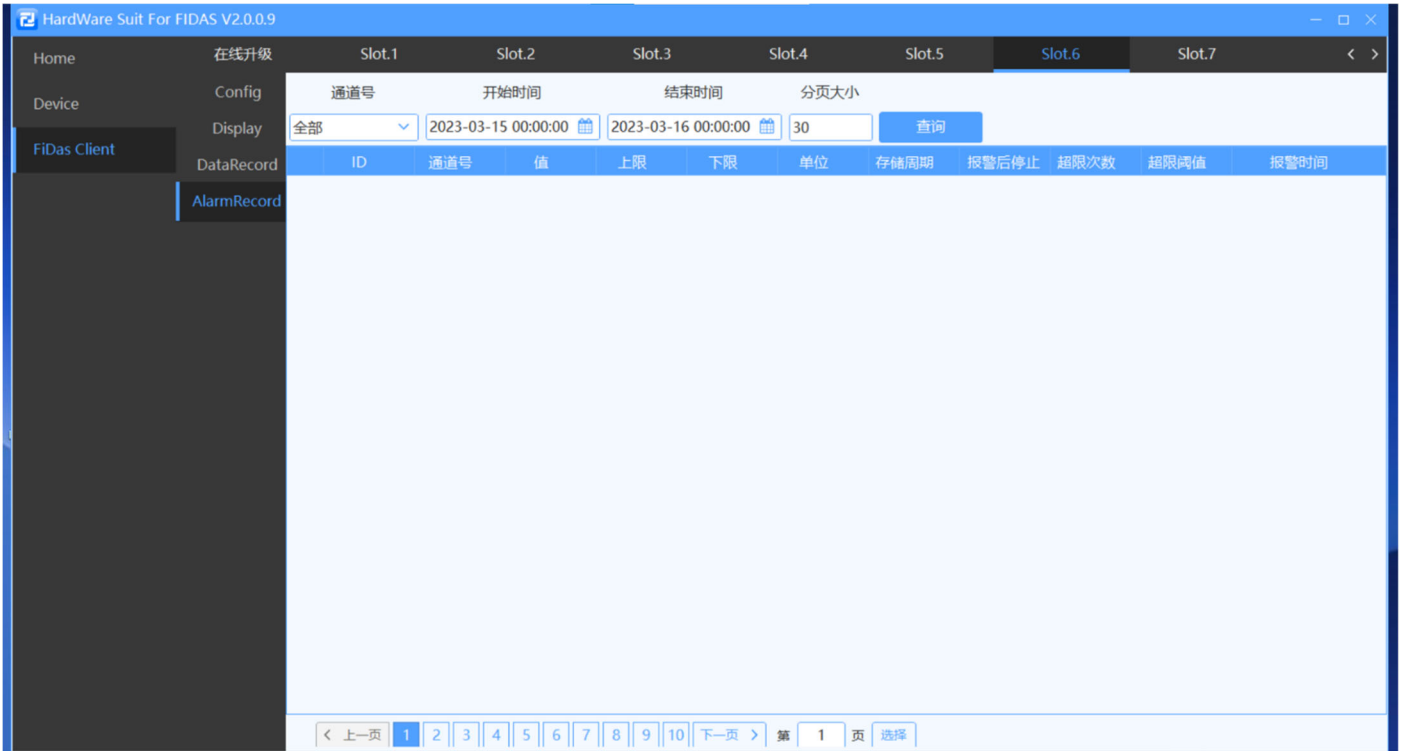
Note: When the channel alarm occurs, you can click the "Clear" button on the right to clear the alarm.

通道号	测量值	上限	下限	单位	是否报警	清除报警
0	2.9726923	10	2	V	否	清除
1	2.9686093	10	2	V	否	清除
2	2.9731691	10	2	V	否	清除
3	2.9731989	10	2	V	否	清除
4	2.9707253	10	2	V	否	清除
5	2.9753745	10	2	V	否	清除
6	2.9690564	10	2	V	否	清除
7	2.9870868	10	2	V	否	清除
8	2.9815137	10	2	V	否	清除
9	2.989471	10	2	V	否	清除
10	2.9872656	10	2	V	否	清除
11	2.9696226	10	2	V	否	清除
12	2.9855669	10	2	V	否	清除
13	2.9947758	10	2	V	否	清除
14	2.9777884	10	2	V	否	清除
15	2.9831827	10	2	V	否	清除
16	2.9898286	10	2	V	否	清除
17	2.9728711	10	2	V	否	清除
18	2.9791296	10	2	V	否	清除
19	2.980113	10	2	V	否	清除
20	2.9803813	10	2	V	否	清除
21	2.9806495	10	2	V	否	清除
22	2.9852688	10	2	V	否	清除
23	2.981782	10	2	V	否	清除
24	2.9993653	10	2	V	否	清除
25	2.9829144	10	2	V	否	清除
26	3.00318	10	2	V	否	清除
27	2.9816628	10	2	V	否	清除
28	3.0045211	10	2	V	否	清除
29	3.0004084	10	2	V	否	清除
30	2.9950738	10	2	V	否	清除

- DataRecord: Data query interface

ID	通道号	值	上限	下限	单位	存储周期	报警后停止	采集时间	开始时间
45740708	30	2.492398	2.8	2.2	V	100	是	2023-03-14 14:22:48...	0001-01-01 00:00:00...
45740709	30	2.4951696	2.8	2.2	V	100	是	2023-03-14 14:22:48...	0001-01-01 00:00:00...
45740710	31	2.4879575	2.8	2.2	V	100	是	2023-03-14 14:22:48...	0001-01-01 00:00:00...
45740711	31	2.4862587	2.8	2.2	V	100	是	2023-03-14 14:22:48...	0001-01-01 00:00:00...
45740712	32	2.4871826	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740713	32	2.4885833	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740714	33	2.4904609	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740715	33	2.491802	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740716	34	2.4824739	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740717	34	2.4832785	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740718	35	2.4844706	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740719	35	2.4835169	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740720	36	2.4841428	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740721	36	2.4812818	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740722	37	2.4712384	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740723	37	2.4698973	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740724	38	2.4969578	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740725	38	2.4945736	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740726	39	2.4741888	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740727	39	2.474606	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740728	40	2.4859905	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740729	40	2.4850965	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740730	41	2.4883747	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740731	41	2.489686	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740732	42	2.4898648	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...
45740733	42	2.489686	2.8	2.2	V	100	是	2023-03-14 14:22:49...	0001-01-01 00:00:00...

- AlarmRecord: Alarm query interface.



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