USB5529
User's Manual

Beijing ART Technology Development Co., Ltd.

Contents

Chapter 1 Overview

USB5529 data acquisition board is compatible with USB bus, may access the computer via USB cable, which constitutes the laboratory, product quality testing center, field monitoring and control, medical equipment and other fields' data acquisition, waveform analysis and processing system, it can also constitute the industrial production process control monitoring system. And it has a small size, plug-and-play characteristics, so it is the best choice for portable system.

Software

Analysis Software

ART USB5529 module is well-suited for precision data acquisition analysis applications, which you can specifically address with the ART Data Acquisition Measurement Suite. The suite has two components –digital and graphics mode analysis (functions) for voltage (any signal can be transformed into the voltage signal), frequency response and other analysis.

The Data Acquisition Measurement Suite is interactive software designed to simplify the process of acquiring and analyzing voltage signals.

Unpacking Checklist

Check the shipping carton for any damage. If the shipping carton and contents are damaged, notify the local dealer or sales for a replacement. Retain the shipping carton and packing material for inspection by the dealer.

Check for the following items in the package. If there are any missing items, contact your local dealer or sales.

➢ USB5529 Data Acquisition Board
➢ ART Disk
    a) user's manual (pdf)
    b) drive
    c) catalog
➢ Warranty Card

FEATURES

DI digital input

➢ Channel No.: 8-channel
➢ Input Type: dry contact, wet contact (common anode)
➢ Input High Level: 5V~30V
➢ Input Low Level: 0V~1V
➢ Isolated Voltage: 3750V
➢ Input channel IN0 can be used as counter
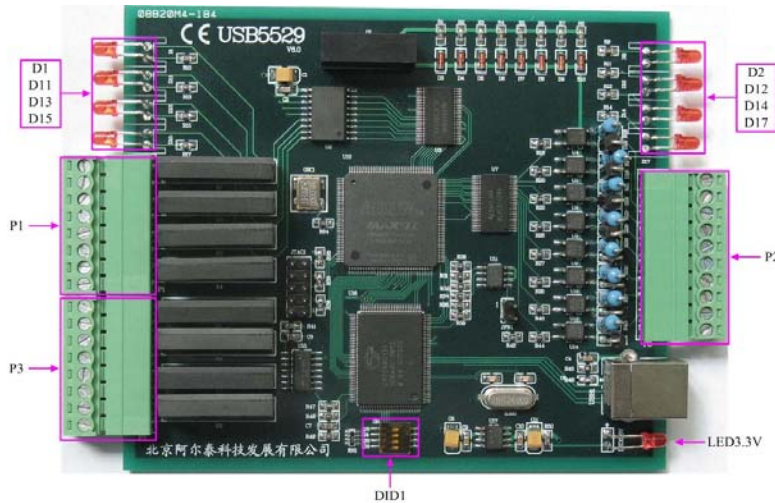➢ interrupt handing function

DO digital output

- ➢ Channel No.: 6-channel
- ➢ Output Type: Solid state relay
- ➢ Contact Capacity: 100~240Vac@1A
- ➢ Isolated Voltage: 3750V

Other features

Board Clock Oscillation: 10MHz

Chapter 2 Components Layout Diagram and a Brief Description

2.1 The Main Components Layout Diagram

2.2 The Function Description for the Main Component

2.2.1 Signal Input and Output Connectors

P2: Digital signal input connectors

P1, P3: digital signal output connectors

### 2.2.2 Physical ID of DIP Switch

DID1: Set physical ID number. When the PC is installed more than one USB5529 , you can use the DIP switch to set a physical ID number for each board, which makes it very convenient for users to distinguish and visit each board in the progress of the hardware configuration and software programming. The following four-place numbers are expressed by the binary system: When DIP switch points to "ON", that means "1", and when it points to the other side, that means "0." As they are shown in the following diagrams: place "ID3" is the high place."ID0" is the low place, and the black part in the diagram represents the location of the switch. (Test softwares of the company often use the logic ID management equipments and at this moment the physical ID DIP switch is invalid. If you want to use more than one kind of the equipments in one and the same system at the same time, please use the physical ID as much as possible. As for the differences between logic ID and physical ID, please refer to the function explanations of "CreateDevice" and "CreateDeviceEx" of *The Prototype Explanation of Device Object Management Function* in *USB5529S* software specification).

ON   ID3 ID2 ID1 ID0

DID1
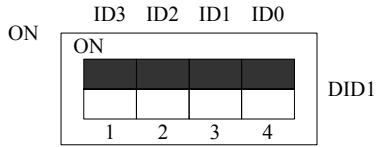
The above chart shows"1111", so it means that the physical ID is 15.

ON   ID3 ID2 ID1 ID0

DID1
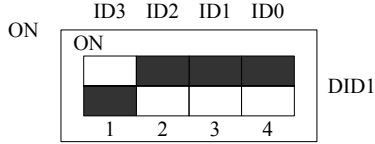
The above chart shows"0111", so it means that the physical ID is 7.

ON   ID3 ID2 ID1 ID0

DID1
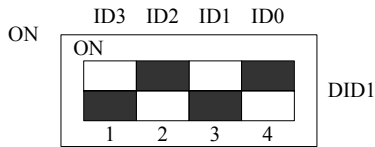
The above chart shows"0101", so it means that the physical ID is 5.

ID3	ID2	ID1	ID0	物理ID（Hex）	物理ID（Dec）
OFF（0）	OFF（0）	OFF（0）	OFF（0）	0	0
OFF（0）	OFF（0）	OFF（0）	ON（1）	1	1
OFF（0）	OFF（0）	ON（1）	OFF（0）	2	2
OFF（0）	OFF（0）	ON（1）	ON（1）	3	3
OFF（0）	ON（1）	OFF（0）	OFF（0）	4	4
OFF（0）	ON（1）	OFF（0）	ON（1）	5	5
OFF（0）	ON（1）	ON（1）	OFF（0）	6	6
OFF（0）	ON（1）	ON（1）	ON（1）	7	7
ON（1）	OFF（0）	OFF（0）	OFF（0）	8	8
ON（1）	OFF（0）	OFF（0）	ON（1）	9	9
ON（1）	OFF（0）	ON（1）	OFF（0）	A	10
ON（1）	OFF（0）	ON（1）	ON（1）	B	11
ON（1）	ON（1）	OFF（0）	OFF（0）	C	12
ON（1）	ON（1）	OFF（0）	ON（1）	D	13
ON（1）	ON（1）	ON（1）	OFF（0）	E	14
ON（1）	ON（1）	ON（1）	ON（1）	F	15

2.2.3 Status indicator

D15, D13, D11, D1, D17, D14, D12, D2: Ch-0~Ch7 relay working status indicator
LED3.3V: 3.3V power indicator, on for normal condition.

Chapter 3 Signal Connectors

3.1 The Definition of Digital Input Connectors

pin definition of P2

1	COM	⊘
	IN0	⊘
	IN1	⊘
	IN2	⊘
	IN3	⊘
P2	IN4	⊘
	IN5	⊘
	IN6	⊘
	IN7	⊘
10	NC	⊘

Pin definition about digital input

Pin name	Pin feature	Pin function definition
IN0~IN7	Input	8-channel digital inputs
COM	Input	Digital inputs common port
NC		Not Connected

3.2 The Definition of Digital Output Connectors

pin definition of P1

pin definition of P3

Pin definition about digital output

Pin name	Type	Pin function definition
COM0~COM1	Output	Channel 0 relay output
COM2~COM3	Output	Channel 1 relay output
COM4~COM5	Output	Channel 2 relay output
COM6~COM7	Output	Channel 3 relay output
COM8~COM9	Output	Channel 4 relay output
COM10~COM11	Output	Channel 5 relay output
COM12~COM13	Output	Channel 6 relay output
COM14~COM15	Output	Channel 7 relay output

Chapter 4 Connection Ways for Each Signal

4.1 Dry/wet contact selection

Select dry or wet contact by choosing the value of resistance R51, R52. The positions of R51, R52 are as shown in the following figure.
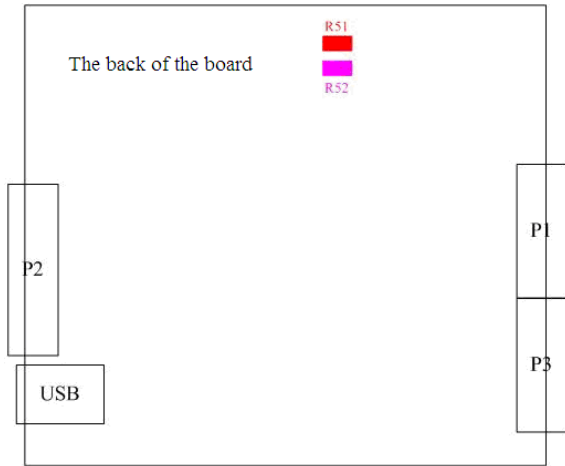
Contact Type	R51	R52
Dry Contact	Welding 0Ω resistor	No welding
Wet Contact	No welding	Welding 0Ω resistor

4.2 Digital Input Connection Mode

4.2.1 Dry contact signal input connection mode
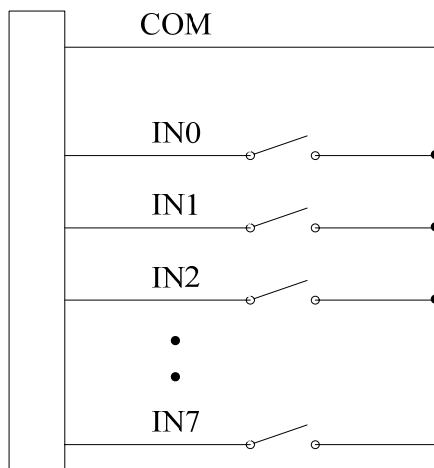
4.2.2 Wet contact signal input connection mode
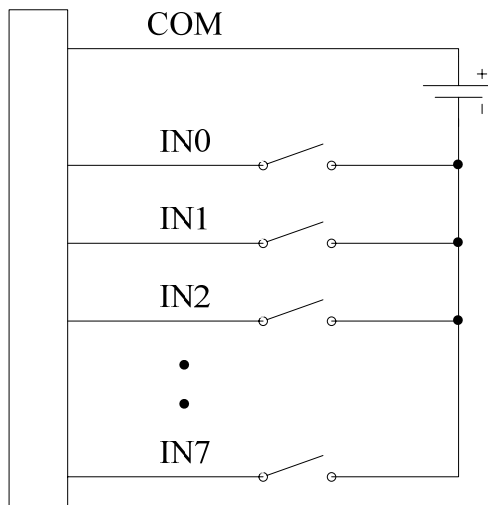
4.2.3 Digital signal (relay) input connection mode
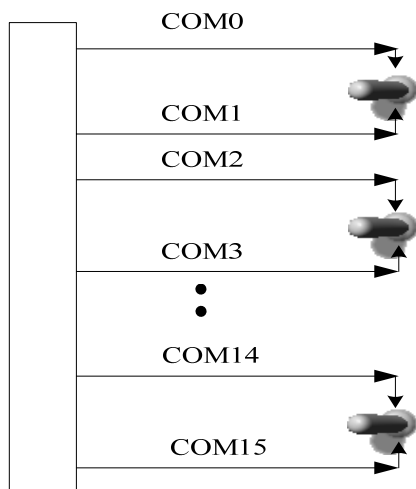
Chapter 5 Notes, Warranty Policy

5.1 Notes

In our products' packing, user can find a user manual, a USB5529 module and a quality guarantee card. Users must keep quality guarantee card carefully, if the products have some problems and need repairing, please send products together with quality guarantee card to ART, we will provide good after-sale service and solve the problem as quickly as we can.

When using USB5529, in order to prevent the IC (chip) from electrostatic harm, please do not touch IC (chip) in the front panel of USB5529 module.

Users must insert the USB card before turning on the power of the Signal Source; turn off the power of the Signal Source before pulling the USB card.

5.2 Warranty Policy

Thank you for choosing ART. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully.

1. Before using ART's products please read the user manual and follow the instructions exactly. When sending in damaged products for repair, please attach an RMA application form which can be downloaded from: www.art-control.com.

2. All ART products come with a limited two-year warranty:

➢ The warranty period starts on the day the product is shipped from ART's factory

➢ For products containing storage devices (hard drives, flash cards, etc.), please back up your data before sending them for repair. ART is not responsible for any loss of data.

➢ Please ensure the use of properly licensed software with our systems. ART does not condone the use of pirated software and will not service systems using such software. ART will not be held legally responsible for products shipped with unlicensed software installed by the user.

3. Our repair service is not covered by ART's guarantee in the following situations:

➢ Damage caused by not following instructions in the User's Manual.

➢ Damage caused by carelessness on the user's part during product transportation.

➢ Damage caused by unsuitable storage environments (i.e. high temperatures, high humidity, or volatile chemicals).

➢ Damage from improper repair by unauthorized ART technicians.

➢ Products with altered and/or damaged serial numbers are not entitled to our service.

4. Customers are responsible for shipping costs to transport damaged products to our company or sales office.

5. To ensure the speed and quality of product repair, please download an RMA application form from our company website.

Products Rapid Installation and Self-check

Rapid Installation

Product-driven procedure is the operating system adaptive installation mode. After inserting the disc, you can select the appropriate board type on the pop-up interface, click the button【driver installation】or select CD-ROM drive in Resource Explorer, locate the product catalog and enter into the APP folder, and implement Setup.exe file. After the installation, pop-up CD-ROM, shut off your computer, insert the PCI card. If it is a USB product, it can be directly inserted into the device. When the system prompts that it finds a new hardware, you do not specify a drive path, the operating system can automatically look up it from the system directory, and then you can complete the installation.

Self-check

At this moment, there should be installation information of the installed device in the Device Manager (when the device does not work, you can check this item.). Open "Start -> Programs -> ART Demonstration Monitoring and Control System -> Corresponding Board -> Advanced Testing Presentation System", the program is a standard testing procedure. Based on the specification of Pin definition, connect the signal acquisition data and test whether AD is normal or not. Connect the input pins to the corresponding output pins and use the testing procedure to test whether the switch is normal or not.

Delete Wrong Installation

When you select the wrong drive, or viruses lead to driver error, you can carry out the following operations: In Resource Explorer, open CD-ROM drive, run Others-> SUPPORT-> PCI.bat procedures, and delete the hardware information that relevant to our boards, and then carry out the process of section I all over again, we can complete the new installation.