

ART2523 User's Manual



Beijing ART Technology Development Co., Ltd.

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Chapter 1 Overview

In the fields of Real-time Signal Processing, Digital Image Processing and others, high-speed and high-precision data acquisition modules are demanded. ART2523 data acquisition module, which brings in advantages of similar products that produced in China and other countries, is convenient for use, high cost and stable performance.

ART2523 is a data acquisition module based on PC104 bus. It can sample, detect, and control external signals through microprocessor. The relay output according to the function can control the on-off of DC and AC voltage.

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.

- ART2523 Data Acquisition Board
- ART Disk
 - a) user's manual (pdf)
 - b) drive
 - c) catalog
- Warranty Card

FEATURES

Digital Output

- 16-ch relay output
- Contact Rating: 30V_{DC} @ 2A

Chapter 2 Components Layout Diagram and a Brief Description

2.1 The Main Components Layout Diagram

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2.2 The Function Description for the Main Component

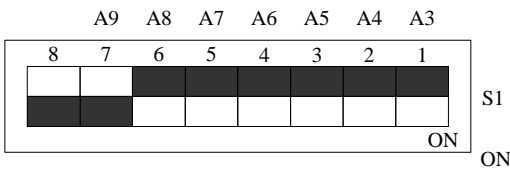
2.2.1 Signal Input and Output Connectors

CN1, CN2: digital output connector

2.2.2 Board Base Address Selection

S1: board base address DIP switches. Board base address can be set to binary code which from 200H to 3F0H be divided by 16, board base address defaults 300H, will occupy the base address of the date of 6 consecutive I/O addresses. Switch No. 8 is not used, No.1, 2, 3, 4, 5, 6, 7, correspond to address bits A3, A4, A5, A6, A7, A8, A9, are the base address of selector switch. Board base address selection is as follows: when the black box DIP switches dial to "ON" that means the low virtual is 1, the switch to the other side means high virtual value is 0.

Board base address selection switch S1 shown as following:

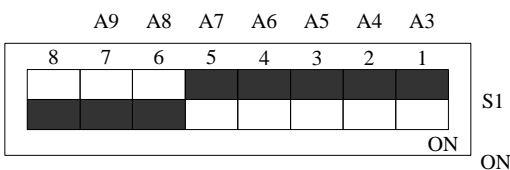


Base address configuration methods

Address bit	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
X is configurable bit	unused	unused	x	x	x	x	x	x	x	0	0	0
	The third hex bits				The second hex bits				The first hex bits			

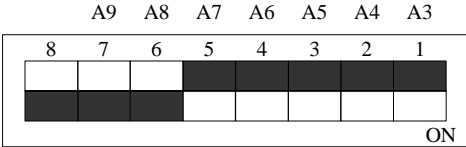
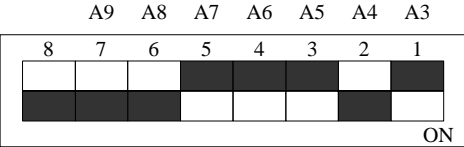
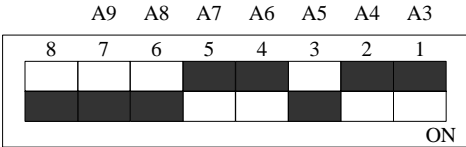
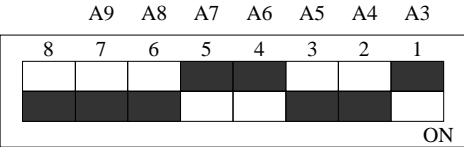
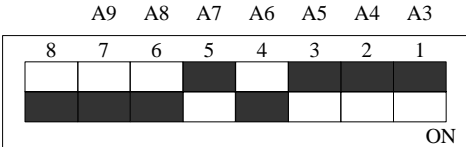
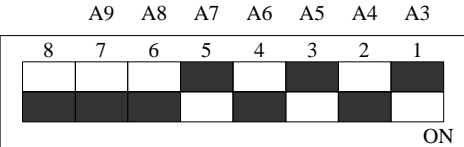
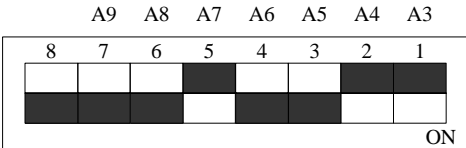
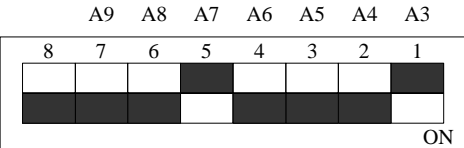
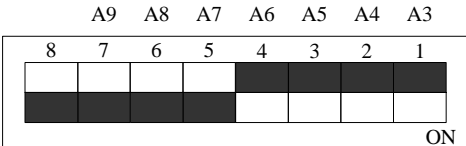
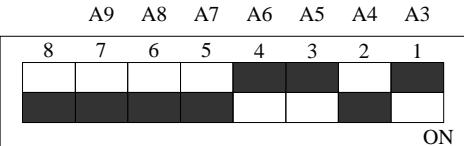
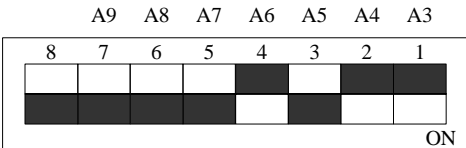
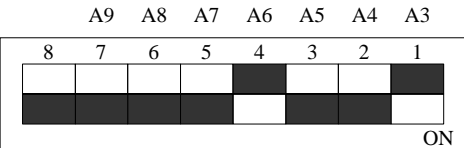
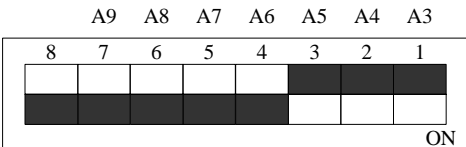
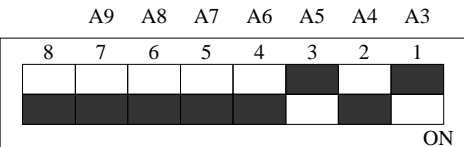
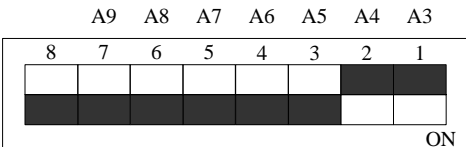
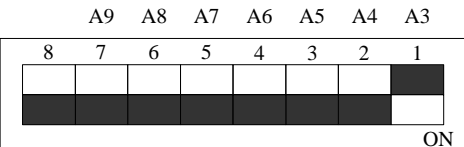
Note: in the table, the bit which is labeled "0" is a fixed value, only the bit that labeled "x" can be changed by the S1 jumper.

For example, the default base addresses is 300H, A9, A8 = "ON", A3, A4, A5, A6, and A7 = "OFF", shown as the following:



Common base address

















Adr	S1	Adr	S1
200H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	210H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
220H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	230H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
240H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	250H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
260H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	270H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
280H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	290H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
2A0H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	2B0H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
2C0H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	2D0H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>
2E0H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>	2F0H	<p style="text-align: center;">A9 A8 A7 A6 A5 A4 A3</p> <p style="text-align: center;">8 7 6 5 4 3 2 1</p> <p style="text-align: right;">S1 ON</p>

<p>300H</p>  <p>S1 ON</p>		<p>310H</p>  <p>S1 ON</p>	
<p>320H</p>  <p>S1 ON</p>		<p>330H</p>  <p>S1 ON</p>	
<p>340H</p>  <p>S1 ON</p>		<p>350H</p>  <p>S1 ON</p>	
<p>360H</p>  <p>S1 ON</p>		<p>370H</p>  <p>S1 ON</p>	
<p>380H</p>  <p>S1 ON</p>		<p>390H</p>  <p>S1 ON</p>	
<p>3A0H</p>  <p>S1 ON</p>		<p>3B0H</p>  <p>S1 ON</p>	
<p>3C0H</p>  <p>S1 ON</p>		<p>3D0H</p>  <p>S1 ON</p>	
<p>3E0H</p>  <p>S1 ON</p>		<p>3F0H</p>  <p>S1 ON</p>	

Chapter 3 Signal Connectors

3.1 The Definition of Signal Connector

















CN1 definition

	K0-
	K0+
	K1-
	K1+
	K2-
	K2+
	K3-
	K3+
	K4-
	K4+
	K5-
	K5+
	K6-
	K6+
	K7-
	K7+

Pin definition about CN1:

Pin name	Type	Pin function definition
K0+~K15+	Output	Digital output K0+~K15+positive.
K0~-K15-	Output	Digital output K0~-K15- negative.

CN2 definition

K15+	
K15-	
K14+	
K14-	
K13+	
K13-	
K12+	
K12-	
K11+	
K11-	
K10+	
K10-	
K9+	
K9-	
K8+	
K8-	

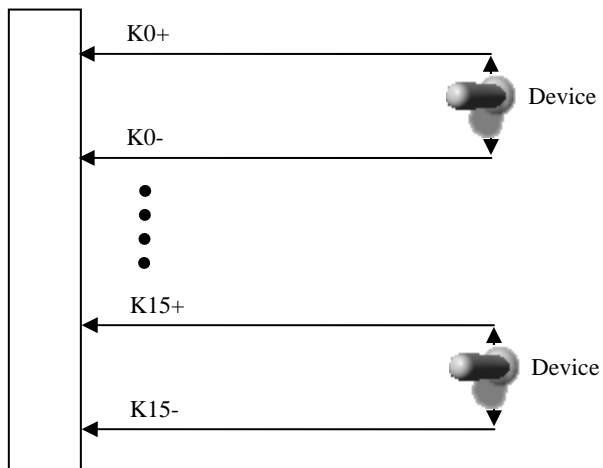
Pin definition about CN2:

Pin name	Type	Pin function definition
K8+~K15+	Output	Digital output K8+~K15+ positive.
K8-~K15-	Output	Digital output K8-~K15- negative.

Chapter 4 Connection Ways for Signal

K0+ ~ K15+ are positive, K0-~ K15- are negative.

Relay output wiring diagram is as follows:



Chapter 5 Address Allocation Table

Address Assignment = base address + offset address

A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
----	----	----	----	----	----	----	----	----	----

Base address is controlled by the switch S1 (A9 ~ A3) (each card only has one based address).

Offset address A2 ~ A0 is controlled by software, only even address is valid.

Offset address and channel relation

Offset	Address	Channel
00		D0~D7
02		D8~D15
04		D16~D23
06		D24~D31
Note: Other offset address is invalid		

Note: Assuming the card base address is 300H, then the effective address is (300 ~ 306H). Other PC104 boards can not take this section addresses.

For example:

A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
1	1	0	0	0	0	0	X	X	X

Base address: 0x300 (ART2523 default address is 0x300).

Address is 0x300, you can visit the D0 ~ D7 channels;

Address is 0x302, you can visit the D8 ~ D15 channels.

Chapter6 Notes, Calibration and Warranty Policy

6.1 Notes

In our products' packing, user can find a user manual, an ART2523 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 ART2523, in order to prevent the IC (chip) from electrostatic harm, please do not touch IC (chip) in the front panel of ART2523 module.

6.2 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.