

User Manual

ADAM-6300 Series

IoT OPC UA Ethernet I/O Modules



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Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This type of cable is available from Advantech. Please contact your local supplier for ordering information.

Test conditions for passing also include the equipment being operated within an industrial enclosure. In order to protect the product from damage caused by electrostatic discharge (ESD) and EMI leakage, we strongly recommend the use of CEcompliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In this event, users are required to correct the interference at their own expense.

Technical Support and Assistance

- 1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
- 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Safety Instructions

- 1. Read these safety instructions carefully.
- 2. Keep this User Manual for later reference.
- 3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- 4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
- 12. Never pour any liquid into an opening. This may cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- 14. If one of the following situations arises, get the equipment checked by service personnel:
- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it to work according to the user's manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.
- 15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -25°C OR ABOVE 70°C. THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
- 16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

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Product Overview

1.1 ADAM-6300 Introduction

Advantech's ADAM-6300 series are highly-secure groundbreaking remote I/O modules supporting OPC UA without the need of gateways. They can link directly to SCADA and cloud, accelerating OT and IT convergence. ADAM-6300 series are equipped with security IC, OPC UA security certificate and encryption. Their high I/O density and support for daisy-chaining make ADAM-6300 series a highly integrated and cost-effective remote I/O solution.

1.2 Features

- 1. Uniquely-designed remote I/O with OPC UA protocol.
- Remote I/O directly links to SCADA and cloud, accelerating OT and IT convergence.
- 3. Additional OPC UA provides security certificate and encryption.
- 4. Most integrated and cost effective- high I/O density and support of daisy-chaining.

1.3 Hardware Introduction

1.3.1 Front Name Plate



Figure 1.1 Front Name Plate

"U" icon in I/O label means Upper block assignment.

1.3.2 Power Connection



Figure 1.2 Power Connector

1.3.3 Ethernet Connector and Grounding Screw



Figure 1.3 Ethernet Connector and Grounding Screw

1.3.4 LED Definition

The ADAM-6300 series are equipped with LED indicators that show the device status. The LED indicator behaviors are defined below.

LED	Color	Behavior	Definition
Statua	Croop	Flashing(1Hz)	Normal mode
Status	Green	Flashing(10Hz)	Module is booting
Link1	Yellow	Stay on	Ethernet(Eth1) speed is connected
Link2	Yellow	Stay on	Ethernet(Eth2) speed is connected
Active1	Green	Flashing	Ethernet(Eth1) is transmitting/receiving data
Active2	Green	Flashing	Ethernet(Eth2) is transmitting/receiving data

The indicator behavior for Error LED light can be configured using ASCII command: \$01ErrLEDs \$01ErrLED0: Error light off

\$01ErrLED1: Error light stay on

1.3.5 **Dimensions**





1.4 Package Information

- 1 x ADAM-6300 module
- 1 x ADAM-6300 quick start note
- 1 x Electronic information for pollution (China only)
- 1 x DIN rail mounting bracket



Hardware Installation

2.1 Mounting: DIN rail

The ADAM-6300 module can be secured to a cabinet by using DIN rails. First, user can fix the ADAM-6300 module to the DIN rail adapter and then secure it on the DIN rail. When mounting the module on the rail, you should consider using end brackets at each end of the rail in order to prevent the module from sliding.



Figure 2.1 DIN Rail Adapter

2.2 Power Supply Wiring

The ADAM-6300 series is designed for a standard industrial unregulated 24 VDC power supply. For further applications, it can also accept +10 to 30 VDC.

Power supply ripple must be limited to 200 mV peak-to-peak, and the immediate ripple voltage should be maintained between +10 and 30 VDC. Screw terminals +Vs and GND are for wiring the power supply.

We advise using the following standard colors (which are also indicated on the modules) for the power lines: +Vs (R) Red GND (B) Black.

2.3 I/O Module Wiring

A plug-in screw terminal block is used for the interface between I/O modules and field devices. The following information must be considered when connecting electrical devices to I/O modules.

- The terminal block accepts Wire Size #16~28 AWG (stripped length: 6.5 mm)
- Always use a continuous length of wire; do not combine wires
- Use the shortest possible wire length
- Use wire trays for routing where possible
- Avoid running wires near high-energy wiring
- Avoid running input wiring proximal to output wiring
- Avoid creating sharp bends in the wires

Note! The wires should be at least 2 mm in diameter.



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Introduction to Digital

3.1 Specifications

3.1.1 General

- **Power input:** $10 \sim 30 V_{DC}$
- LAN: 10/100Base-T(X)
- Connectors: 2 x RJ-45 (LAN), 1 MAC ID; Plug-in screw terminal block (I/O and power)
- **Screw terminal block:** Accepts wire size #16-28 AWG, stripped length: 6.5 mm
- Watchdog: System and Communication
- Real-time clock accuracy: 2 seconds per day
- Certification: CE, FCC

3.1.2 Protection

Power Reversal Protection

3.1.3 Environment

- **Operating temperature:** -25 ~ 70 °C (-13 ~ 158 °F)
- Storage temperature: -40 ~ 85 °C (-40 ~ 185 °F)
- **Operating humidity:** 20 ~ 95% RH (non-condensing)
- **Storage humidity:** 0 ~ 95% RH (non-condensing)

3.1.4 OPC UA Specification

- Support Address Space
- Session, Monitored item and Subscription

Items	Max	Remark
Max Monitored Items	600	Including all sessions
Max Sessions	4	The maximum sessions supported, includ- ing security and non security session.
Max Subscriptions per Session	1	

Note!

ADAM-6300 supports 4 session including security and non security session. User can disconnect session in Utility and remove sessions you don't need.

Security Policy

An endpoint security policy is a predefined communication mode that mandates a combination of security algorithms and optionally message signing and encryption.

- Endpoint Security Policy: None
- Endpoint Security Policy: Sign Basic128Rsa15
- Authentication Policy
 - User Token Anonymous Token Security Policy None
 - User Token Username / Password Token Security Policy Basic128Rsa15
- Supports 8 certificates

Note!



ADAM-6300 supports 8 certificates. User can click Delete Certificates and ADAM-6300 will be automatically restart and then remove certificates you don't need.

3.2 Digital Input/Output Modules (ADAM-6350)

The ADAM-6350 is a high-density I/O module with a built-in 10/100BASE-T interface for seamless Ethernet connectivity. The module has 18 digital inputs and 18 digital outputs with 2,500 VDC isolation protection. All inputs have a latch function for handling important signal handling, and they can be used as 3-kHz counter and frequency input channels(DI12~DI17). The outputs support 3 kHz Pulse Output (DO12~DO17).

3.2.1 Specifications

General

- Power Consumption: 4W @ 24 V_{DC}
- Isolation: 2,500 V_{DC}

Digital Input

- Channel: 18
- Dry contact: Logic 0: Open; Logic 1: Closed to DGND
- Wet contact: Logic 0: 0 ~ 3 V_{DC}, Logic 1: 10 ~ 30 V_{DC}
- DI12~DI17 Supports 3 kHz Counter Input
- DI12~DI17 Supports 3 kHz Frequency Input

Digital Output

- Channel: 18
- Type: Sink 30 V_{DC}, 0.1A max. per channel
- DO12~DO17 Supports 3 kHz Pulse Output

3.2.2 Application Wiring

Digital Output Wiring

Digital Input Wiring

Example: Wiring in "U" (upper) terminal blocks



Figure 3.1 Application Wiring (Top View)

Example: Wiring in "U"(upper) terminal blocks



Figure 3.2 Application Wiring (Side View)

Note!

It suggest that user use fly-diode when customer use inductive load.





Figure 3.3 DO Output Wiring (Resistive and inductive load)

3.3 Analog Input Modules (ADAM-6317)

The ADAM-6317 is a high-density I/O module with a built-in 10/100BASE-T interface for seamless Ethernet connectivity. The module has 8 analog input, 11 digital inputs and 10 digital outputs with 2,500 VDC isolation protection.

3.3.1 Specifications

Analog Input

- Channels: 8 (differential)
- Sampling Rate: 10 or 100 samples/ second(total)
- Resolution: 16 bits
- Input Range: 0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA, 0 ~ 20 mA, 4 ~ 20 mA

Digital Input

- Channel: 11
- Dry contact: Logic 0: Open; Logic 1: Closed to DGND
- Wet contact: Logic 0: 0 ~ 3 V_{DC}, Logic 1: 10 ~ 30 V_{DC}
- DI5~DI10 supports 3 kHz Counter Input
- DI5~DI10 supports 3 kHz Frequency Input

Digital Output

- Channel: 10
- Type: Sink 30 V_{DC}, 0.1A max. per channel
- DO4~DO9 supports 3 kHz Pulse Output

3.3.2 Application Wiring



Figure 3.4 Analog Input Wiring

Digital Input Wiring



Figure 3.5 Digital Input Wiring



Figure 3.6 Digital Output Wiring



Figure 3.7 "U" (Upper) and Bottom Terminal Block

3.4 SSR Relay Output Module Modules (ADAM-6360D)

The ADAM-6360D is a high-density I/O module with a built-in 10/100BASE-T interface for seamless Ethernet connectivity. The module has 8 SSR(Solid-State Relay) relay output, 14 digital inputs and 6 digital outputs with 2,500 VDC isolation protection.

3.4.1 Specifications

SSR(Solid-State Relay) Relay Output(PhotoMOS SPST)

- Channels: 8 (Form A)
- Contact rating(Resistive and Inductive load): 1 A @25°C@30 V_{DC} 0.7A @70°C@30 V_{DC}
- Relay-on time: 1.3 ms
- Relay-off time: 0.8 ms
- Isolation(Relay output to power): 1500 Vrms
- Peak Load Current: 4 A (100 ms (1 pulse))
- Total Power Dissipation: 400 mW / channel
- On-state resistance: 0.5 Ω

Digital Input

- Channel: 14
- Dry contact: Logic 0: Open; Logic 1: Closed to DGND
- Wet contact: Logic 0: 0 ~ 3 V_{DC}, Logic 1: 10 ~ 30 V_{DC}
- DI8~DI13 Supports 3 kHz Counter Input
- DI8~DI13 Supports 3 kHz Frequency Input

Digital Output

- Channel: 6
- Type: Sink 30 VDC, 0.1A max. per channel
- DO0~DO5 Supports 3 kHz Pulse Output

3.4.2 Application Wiring



Figure 3.8 Relay Output Wiring

Digital Input Wiring



Figure 3.9 Digital Input Wiring



Figure 3.10 Digital Output Wiring



Figure 3.11 "U"(Upper) and Bottom Terminal Block

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System Configuration

4.1 System Requirements

Host Computer

- Microsoft Windows 7 or above
- 64 MB RAM
- 100 MB free hard disk space
- Mouse or other pointing device
- 10/100-Mbps Ethernet Card

4.2 Installing Adam/Apax .NET Utility

Adam/Apax .NET Utility is an application provided by Advantech for the configuration and operation of ADAM modules. The installation file is available for free download at http://www.advantech.com (click on Download Area under Service & Support for the latest version). Once installed, a shortcut to the utility will appear on your desktop.



Before installing Adam/Apax .NET Utility, you will need to install .NET Framework 4.5.1 or later.

4.3 Adam/Apax .NET Utility Overview

Adam/Apax .NET Utility is a graphical interface for configuring and operating ADAM modules. The following text instructions describe how to use the utility.

To start Adam/Apax .NET Utility, double-click the shortcut on the desktop or click the icon in the start menu folder. When the program is first opened, the main window will appear as shown in Figure 4.1.

Menu Bar	
<u>File T</u> ools <u>S</u> etup <u>H</u> elp	
🕒 🖪 🔍 📽 🍠 🐝 🕨	■ 123 O Toolbar
Favorite Group ADAM4500_5510Series Wireless Sensor Networks RFID Module Tree Display Area	Information Status Display Area Host name: NE090519 Adapter: 10.0.0.00; 192.168.201.105 Connection timeout: 2000 ms Send timeout: Send timeout: 2000 ms Send timeout: Send timeout: 1000 ms Scan interval: Supervisor password: ms Support Module : [APAX-5070 [APAX-5070 APAX-5071 APAX-5070 APAX-5072 [ADAM-5000 Series] ADAM-5000 Series] ADAM-5000 Series] ADAM-5000 Series] ADAM-6015 ADAM-6017 ADAM-6015 ADAM-6018 ADAM-6015 ADAM-6024 ADAM-6051 ADAM-6052
	[ADAM-6100 Series]

Figure 4.1 Adam/Apax .NET Utility Operation Window

As shown in the figure, this window has four main areas: 1) the Menu Bar, 2) the Toolbar, 3) the Module Tree Display Area, and 4) the Status Display Area.

4.3.1 Menu Bar

The menu bar comprises four menus: File, Tools, Setup, and Help. The items under each menu are described as follows:

File Menu

Open Favorite Group	Allows you to load a saved configuration file for a favorite group.
	, , , , , , , , , , , , , , , , , , , ,
Save Favorite Group	Allows you to save a favorite group into a configuration file.
Auto-Initial Group	Checking this option will load the same favorite group configuration
	next time you launch Adam/Apax .NET Utility.
Exit	Exit Adam/Apax .NET Utility.

Tools Menu

Search Device	Search for all ADAM modules connected to the host PC.
Add Devices to Group	Adds ADAM modules to the favorite group; only selected devices in the Module Tree Display Area will be added to the group.
Group Configuration	This item is for updating the firmware, configuration, and HTML files of a single module or multiple modules. The configuration file includes settings on device information, general information, P2P and streaming, GCL, and Modbus address XML files. The configuration file can be exported as a Cfg file from the Firmware tab in the Status Display Area.
Terminal for Command Testing	Launches a terminal for communicating with ADAM modules via ASCII command and Modbus/TCP.
Print Screen	Exports the Adam/Apax .NET Utility screen as an image file
Monitor Stream/Event Data	ADAM modules support a datastream function. This allows you to define the host (such as a PC) by IP, and ADAM modules will then periodically transmit their I/O status to the host. The IP address and transmission period can be configured from the Stream tab in the Status Display Area.

Setup Menu

Favorite Group	This is for configuring your Favorite group, including adding devices, modifying or deleting current devices, sorting current devices, and diagnosing device connections.
Refresh Serial and Ethernet	This will cause Adam/Apax .NET Utility to refresh the serial and LAN network connection.
Add COM Ports	This is for adding serial COM ports to Adam/Apax .NET Utility (this does not apply to ADAM-6000 modules).
Show TreeView	Clicking on this item shows the Module Tree Display Area.
Allow Calibration	Select this to enable/disable module calibration.

Help Menu

Check Up-to-Date on the Web	Connect to the Advantech download website and checks for the latest version of the utility.
About	This shows information on the version of Adam/Apax .NET Utility currently installed on your computer.

4.3.2 Toolbar

The toolbar contains icons for the most commonly used menu items.



Figure 4.2 Adam/Apax .NET Utility Toolbar

From left to right icon are:

- 1. Open favorite group
- 2. Save favorite group
- 3. Search Modules
- 4. Add Devices to Group
- 5. Terminal for Command Testing
- 6. Group Configuration
- 7. Monitor Data Stream/Event
- 8. Print Screen
- 9. Adjust the size of toolbar
- 10. NTP

Click NTP icon and click **Start** to start the NTP process. Adam/Apax .NET Utility uses NTP broadcasting pocket to module for time synchronization.

Note: User must select one Ethernet interface before click NTP icon.

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н	\smile

NTP Server Broa	dcast	x
Send NTP	broadcast packet No: 1	
Operations		
	Start	
l	Stop	

4.3.3 Module Tree Display Area



Figure 4.3 Adam/Apax .NET Utility Module Display Area

The Module Tree Display Area is the left part of the main window. There are five major categories in the display area, some of which will be visible only when you have certain modules connected:

Serial	All serial I/O modules (ADAM-4000, ADAM-4100, and ADAM-5000 RS-485 modules) connected to the host PC will be listed in this category.
Ethernet	All Ethernet I/O Modules (ADAM-5000, ADAM-6000, and ADAM- 6100 TCP modules) connected to the host PC will be listed in this category.
Favorite Group	Devices you have added to your personal favorite group are listed under this category, making it easier for you to locate specific mod- ules. The favorite group can contain multiple groups. To create a new group, right-click on Favorite Group and select Add New Group . You will then be prompted to enter a name for the group. To add devices to that group, right-click on the group you have cre- ated and select Add New Device . You will then be prompted to give the new device a name and select the module type from either the Serial Device tab or the Ethernet Device tab. You can also enter the device parameters here. In addition to modifying the group (select Modify Group) and deleting the group (select Delete Group), you can also select diagnose the connection for a group (select Diagnose Connection) by right-clicking on the group name.
ADAM-4500_5510Se- ries	Any DOS-based remote controllers (e.g., ADAM-4500 and ADAM- 5510 series) will be listed under this category.

4.3.4 Status Display Area

The Status Display Area is the main window that you will interact with. All configuration and testing is performed here. The content of this window will vary depending on which items you select in the Module Tree Display Area.

4.4 Configuration of ADAM-6300 Modules

Once an ADAM-6300 module has been connected to the host PC and you have searched for it, you will find it listed in the Module Tree Display Area under the Ethernet category. Select the Ethernet category on the Module Tree Display Area and click the Search Modules icon on the Toolbar. Adam/Apax .NET Utility will then search for all ADAM-6300 modules on the Ethernet network. If this is the first time you have connected the module, its IP will be 10.0.0.1 by default and it will appear under others in the Module Tree Display Area.



If a network firewall is enabled, you might not be able to connect to your ADAM-6300 module. You may need to add an exception for Adam/Apax .NET Utility in Windows Firewall via Windows Control Panel.



The default password is 00000000.



You need to change the IP address of the ADAM-6300 module so that it is the same subnet as the host PC. Enter the correct IP address, subnet address, and default gateway on the Status Display Area and then click Apply Change. A dialog box will appear asking you to enter the password. The default password of ADAM-6300 modules is "00000000" (without quotation marks). After you have entered the correct password, the ADAM-6300 module will be under IP of your host PC. Note that you can change the password later.

When you select the IP address of the ADAM-6300 modules you want to use in Module Tree Display Area, tabs will become available in the Status Display Area. These tabs are for the general configuration of that module. Once you have changed any settings, remember to click Apply or Apply Change. These tabs are detailed in the following sections.

4.4.1 The Information Tab

formatic ⁷ irmware	on Netwo e Version:	rk Administr 1.10 B03	ation Firm	ware OPCUA	IO Version:	A1.01 B005	
evice N	ame:	ADAM-6350	Alvin5				Apply
Dev	vice						
Descripti	ion						
Slot	Module		Description	1			
	6350		ADAM-63	50 OPCUA mo	dule		

It indicates basic information of ADAM-6300 module.

This tab shows the firmware version as well as the device name and device description, both of which can be modified from here. Giving your modules a specific name and description can be useful for when several ADAM-6300 modules are connected to the same network.

Firmware Version

Indicates the current Firmware version of ADAM-6300 module.

Device Name

Means model name of ADAM-6300 module. You also can rename it for recognition if required.

Device Description

You can add comments on this module for recognition.

4.4.2 The Network Tab

Information	Network	Administration	Firmware	OPCUA	Certificates		
–Network Se	tting						
MAC Addr		Apply					
IP Address:		10.0.0.3	10.0.0.3				
Subnet Add	lress:	255.255.255.0					
Default Gat	eway:	0.0.0.0					

You can set up required network connection on this page.

Network Setting

You can configure the IP address, Subnet address, Default gateway.

Note! Static IP mode is set to 10.0.0.1 as default.



1

4.4.3 The Administration Tab

Information	Network	Administration	Firmware	OPCUA	Certificates
Password Se	tting				
Old passwor	d:			Apply	v change
New passwo	rd:			Reset	password
Verify passw	vord:				



The default password is "00000000".

The **Administration** tab allows you to set the password for the selected ADAM-6300 modules. To change the password, you will need to enter the current password in the Old password box and then enter the new password in the New password and Verify password boxes. The password is required for many configurations and operations, so setting your own password can help ensure system security.

4.4.4 The Firmware Tab

Information	Network Administration Firmware OPCUA Certificates	
File Import		
Туре:	System or IO Firmware File $\qquad \checkmark$	
File:		Browse
		Download

Advantech will occasionally release new firmware versions to add or improve the functionality of ADAM-6300 modules. Visit http://www.advantech.com to check for the latest firmware downloads. User can download System or IO Firmware file(Bin).

This is where you can import firmware to your ADAM-6000 module. Click Browse to select the firmware file on your computer. Then, click Download to install the new firmware on the ADAM-6300 module.

4.5 Getting start: The Connection of OPC UA Server and Client

You can refer below flowchart of getting start guide, the connection of OPC UA Server(ADAM-6300) and Client(Adam/Apax .NET Utility).



Figure 4.4 Flowchart of getting start guide, the connection of OPC UA Server(ADAM-6300) and Client(Adam/Apax .NET Utility)

4.5.1 Network and I/O type setting

4.5.1.1 Network setting

1. Connect the module to your PC and execute **Adam/Apax**.**NET Utility** from your desktop or start menu.

2. In the Module Tree Display Area, right-click on the Ethernet group and click **Search Device**.



3. If you see the module under the **Others** group, you need to change the IP address of the ADAM-6300 module so that it is the same subnet as the host PC. Enter the correct IP address, subnet address, and default gateway on the Status Display Area and then click **Apply Change**.

Please input password, default password is 00000000.

The module should now appear under your network domain and will be ready for configuration.

Serial Ethernet 10.0.0.100 192.168.201.105 Others 172.16.16.230-[ADAM-6350-Alvin5] Favorite Group ADAM4500_5510Series Wieless Sensor Networks RFID	Setting Network setting: MAC address: 00-D0-C9-FE-EE-FC IP address: 10.0.0.2 Subnet address: 255.0.0.0 Default gateway: 0.0.0	Apply change
<u>F</u> ile	Image: Image	

4.5.1.2 I/O type setting

Refer to the Module Tree Display Area shown. When you click on the IP address of the ADAM-6300 module you wish to configure, you will see items below the IP address. When you click on the plus and minus control beside the module number, you will be prompted to enter the password for the selected module. Once you have entered the correct password, a list of individual channels (for individual channel configuration) will appear below the module number.



When you click on one of the individual channel items, you can select I/O type mode and click **Apply mode** for this channel or click **Apply to CH12~17** for channel 12~17.

	^	ADAM-6350 DO[12]	setting:			
 ☐ 2 10.0.0.5-[ADAM-6350-Alvin5] ☐ 2 6350 ☐ DL_00 ☐ DL_01 		DO mode:	Pulse output DO Pulse output	~	Apply mode	Apply to CH 12~17
→ DI_02 → DI_03 → DI_04 → DI_04		Setting:	Pulse output Contin Low signal width (1~65535)	ue 65535	📮 0.1 ms	Apply change
- DI_06 - DI_07 - DI_08			High signal width (1~65535)	5000	● 0.1 ms	
D_09 D_10 D_11 D_11 D_12			Output frequency	0.14 Hz	Hz	
DI_13 DI_14 DI_15 DI_15			Day cycle	7.09 %	70	
→ D_10 → Δ DI_17 → Δ DO_00 → Δ DO_01						
		Pulse output:	Remain Count: Setting Count:	0	÷ Start	Stop
Chapter 4 System Configuration

4.5.2 Connection of OPC UA Server and OPC UA Client

4.5.2.1 Enter port number (OPC UA Client)

EndPoint URL(opc.tcp://10.0.0.5:4840) has been set in default setting of Adam/Apax .NET Utility. Enter 4840 in Port Number if you use other OPC UA client.

Information	Network	Administration	Firmware	OPCUA	Certificates	Modbu	is Address		
EndPoint U	RL: opc.tcj	p://10.0.0.3:4840			E	inable Sec	curity C	Connect	Disconnect
Address	Space				At	ributes			
					Na	ume	Value	Data Typ	e

4.5.2.2 Select Security policy, security mode and authorization

ADAM-6300 supports two security options of sessions(OPC UA client). One is Basic128Rsa15 – Sign and the other is non security session.

- 1. Select security mode
 - A. Click Enable Security and click Connect, the dialogue window shown, enter root in Username and Password (default password is 0000000) and click OK.

ndPoint URL: Openep.	/10.0.0.27:4840	Enable Security Connect Disconnect
Address Space		Attributes
		Name Value Data Type
	OPCUA User Security	/ Check X
	Security Policy URI:	http://opcfoundation.org/UA/SecurityPolicy#Basic128Rsa15
	User Name:	root
	Password:	******
Data Access View		

B. The log window shows "BadSecureChannelClosed", since OPC UA client and server need to have bidirectional authentication at first connection.

EndPoint URL: opc.tcp://10.0.0.27:4840	A Certificates Modbus Address)1	odbus Address
Address Space Attributes Name Value Data Type OPCUA Connection Error × Data Access View BadSecureChannelClosed No. ID Display Name Mc	Enable Security Connect	e	Security Connect Disconnect
Name Value Data Type OPCUA Connection Error × Data Access View BadSecureChannelClosed No. ID Display Name	Attributes		es
Data Access View OPCUA Connection Error × No. ID Display Name Mc	Name Value Data T		Value Data Type
Data Access View OPCUA Connection Error X No. ID Display Name Mc			
Data Access View Mo. ID Display Name Mo			- E
Data Access View BadSecureChannelClosed No. ID Display Name Mc	JPCOA Connection Error A		
No. ID Display Name Mc	BadSecureChannelClosed		reChannelClosed
			d Value
確定	確定		確定

- C. Go to Certificate tab for bidirectional authentication.
 - a. Trusting the OPC UA Sever's certificate (on the OPC UA Client): Adam/ Apax .NET Utility automatically trusts ADAM-6300 (sever) certificate.
 Name of Local certificate list will show the Adam/Apax .NET Utility's certificate.

nforms	tion 1	Network	Administration	Firmware	OPCUA	Certificates	Modbus Address
ADAM	Loc	al					
Local	Certifi	cate List					
	No.	Ste	itus Name				
•	1	Tru	sted Advanted	h AdamApa	ax Utility []	F8AB8F3D39	BD5C01563A203346CEF3F5BE6125D6].der
¥	iew Cei	rtificate					

. .

b. Trusting the OPC UA Client's certificate: Please click Trust Certificate in ADAM tab, and ADAM-6300 module will be automatically restarted to make certification take effect. And then you can see Trusted in Status of ADAM Client Certificate List.

ADAM Local ADAM Client Certificate List No. Status Name 1 Rejected F8AB8F3D39BD5C01563A203346CEF3F5BE6125D6.der	uoimau	on Netv	work Adm	inistration	Firmware	OPCUA	Certificates	Modbus Address
No. Status Name 1 Rejected F8AB8F3D39BD5C01563A203346CEF3F5BE6125D6.der	DAM	Local						
No. Status Name 1 Rejected F8AB8F3D39BD5C01563A203346CEF3F5BE6125D6.der	ADAM	Client C	ertificate Lis	:t				
Rejected F8AB8F3D39BD5C01563A203346CEF3F5BE6125D6.der		No.	Status	Name				
	•	1	n · · · ·	TO A DOD			224600000000	DECIDEDE A.
		1	Rejected	F8AB8F.	3D39BD5C	U1563A2U	3340CEF3F31	3E0125D0.der
	,	1	Rejected	F8AB8F.	3D39BD5C	U1563A2U	33400873731	3E0125D0.der
		1	Rejected	F8AB8F	3D39BD5C	U1563A2U	33400.843451	3E0125D0.0er
		1	Rejected	F8AB8F.	3D39BD5C	U1563A2U.	3340CEF3F3	3E0125D0.der
Max. certificates amount : 8 Trusted, 8 Rejected	Max. ce	rtificates	Rejected	Trusted, 8	Rejected	01563A20	3340CEF3F31	3E0125D0.der
Max. certificates amount : 8 Trusted, 8 Rejected View Certificate Trust Certificate Delete Certificate	Max. ce: Viev	rtificates w Certific	Rejected	F8AB8F. Trusted, 8 Trust Cer	Rejected	Delete	Certificate	3E0125D0.der

Please click Trust Certificate to trust client's certificate.

DAN	Local	and Contact Tria		
DAN	4 Chent C	ertificate Lis		
	No.	Status	Name	
	1	Rejected	F8AB8F3D39BD5C01563A203346CEF3F5BE6125D6.der	
ax.c Vi Certif	ertificates ew Certifi ficate Deta	amount:8 icate	Trusted, 8 Rejected Trust Certificate Require Module Restart	×
ax.c Vi	ertificates ew Certifi ficate Deta	amount : 8 icate	Trusted, 8 Rejected Trust Certificate Delete Certificate Require Module Restart Trust Certification Ok! Do you want to restart module to make Certification take effect?	×

This certificate of status was changed to Trusted.

	ation Ne	twork	Administra	tion Firmwar	e OPCUA	Certificates	Modbus Address
ADAM	f Local						
ADA	M Client (Certifica	te List				
	No.	Stat	us Nau	ne			
•	1	Trus	ed F8A	B8F3D39BD5	C01563A20	3346CEF3F5	BE6125D6.der
Max.	certificate	samoun	t : 8 Truste	d, 8 Rejected			
Max. V	certificate 'iew Certif	s amoun îicate	it : 8 Truste	d, 8 Rejected st Certificate	Delete	Certificate	
Max.	certificate 'iew Certif	s amoun îicate	t : 8 Truste Tru:	d, 8 Rejected st Certificate	Delete	Certificate	

Note!

ADAM-6300 supports 8 trusted certificates. User can click **Delete Cer***tificate* and ADAM-6300 module will be automatically restarted to remove certificates you don't needed.

D. Go to **OPC UA** tab to connect this session of OPC UA server and client again.

Click **Enable Security** and click **Connect**, the dialogue window shown, enter root in **Username** and **Password** (default password is 0000000) and click OK.

Address Space	Attributes	
	Name Value Data Type	
	OPCUA User Security Check x	
	Security Policy URI: http://opcfoundation.org/UA/SecurityPolicy#Basic128Rsa15	l
	Security Policy URI: http://opcfoundation.org/UA/SecurityPolicy#Basic128Rsa15 User Name: root	
	Security Policy URI: http://opcfoundation.org/UA/SecurityPolicy#Basic128Rsa15 User Name: root Password: ******	
Data Access View -	Security Policy URI: http://opcfoundation.org/UA/SecurityPolicy#Basic128Rsa15 User Name: root Password: ******	

- E. The connection of ADAM-6300 modules and Adam/Apax .NET Utility (OPC UA client) is successful.
 - OPC UA tab includes Address Space, Attributes, Data Access View.
 Address Space: to provide a standard way for the OPC UA Server to represent objects to the OPC UA Client. Address space is constructed of nodes and references. Nodes contain attributes and properties, and nodes are in in the address space.

- Attributes: the information that presents value of a variable, the read and write permissions of the variable, a textual description of the variable for node.
- Data Access View: to monitor changes of node's attributes
- **Subscriptions and Monitored Items:** User establishs subscription in OPC UA server to monitor the value of monitored items in a periodic time.

ndPoint U	RL: opc.tcp Space	://10.0.0.27:4840		Attributes	Connect Dis	connect		
••••••••••••••••••••••••••••••••••••••	Objects Server Digital Digital Digital Objects Do Do Do Do Do Do Do Do Do Do	input Dutput 00_DOValue 01_DOValue 02_DOValue 03_DOValue 04_Mode 04_DOValue 04_PulseStart		Name NodeId NodeClass BrowseName DisplayName Description WriteMask UserWriteMask EventNotifier	Value ns=1;=={ObjectsFold Object 1:Digital_Output Digital_Output 0 0 None	er/Digital_Output	Data T Nodeli Int32 Qualifi Locali Locali UInt32 UInt32 Byte	'ype d zed Nam zed Text 2 2
	🕂 🔗 DO_	04_PulseWidthLow	~	<				
Data Acce	ess View —							
No.	ID	Display Name	Mode	Sampling Rate	Deadband	Value		Oual

F. Please start your OPC UA project now

2. Select non security mode

A. Click Connect in OPC UA tab

Information Network Administration Firmware OPCUA	Certificates 1	Modbus Address	
EndPoint URL: opc.tcp://10.0.0.3:4840	🗌 Ena	able Security	Connect Disconnect
Address Space	Attrib	outes	
	Name	e Value	Data Type

B. OPC UA tab will show Address Space, Attributes, Data Access View.

indPoint U Address	JRL: opc.tcp s Space	//10.0.0.27:4840		Attributes	Connect Discor	nnect		
	Objects Server Server Digital_I Digital_O Digital_O Digital_O Digital_O	nput Dutput 00_DOValue 01_DOValue 02_DOValue 03_DOValue 04_Mode 04_DOValue 04_PulseStart 04_PulseStart		Name NodeId NodeClass BrowseName DisplayName Description WriteMask UserWriteMask EventNotifier	Value ns=1;s=/ObjectsFolder/ Object 1:Digital_Output Digital_Output 0 0 None	Digital_Output	Data T Nodeld Int32 Qualifi Localiz Localiz UInt32 UInt32 Byte	ype 1 zedNami zedText 2 2
Data Acc	ess View	_						
No.	ID	Display Name	Mode	Sampling Rate	Deadband	Value		Quality

C. You can start your OPC UA project now.

4.6 I/O Configuration

		Digita	al Input	Digita	al Output	
Model	Analog Input	Support DI mode	Support DI, counter and frequency	Support DO mode	Support DO, pulse output, pulse output	SSR Relay (VDC)
			mode		continue mode	
ADAM-6317	AI0~AI7	DI0~DI4	DI5~DI10	DO0~DO3	DO4~DO9	N/A
ADAM-6350	N/A	DI0~DI11	DI12~DI17	DO0~DO11	DO12~DO17	N/A
ADAM-6360D	N/A	DI0~DI7	DI8~DI13	N/A	DO0~DO5	Relay 0~7

Please see the below table for I/O channel of ADAM-6300 series.

4.6.1 Analog Input

4.6.1.1 All Channel Configuration

1. Integration Time:

To remove noise from the power supply, analog input modules of ADAM-6300 series feature a built-in filter (50 and 60 Hz). Please follow below steps.

A. Select Al_IntegrationTime and right click Write

Information	Network	Administration	Firmware	OPCUA	Certificates
EndPoint UI	RL: opc.tcj	p://10.0.0.1:4840			Er Er
Address	Space				Attr
	Objects				^ Nar
÷	🥥 Server				
÷	🧳 Digital_	Input			
÷	🥥 Digital_	Output			
ė	🧳 Analog	Input			
	🧼 🗚	IntegrationTime			
	🧳 🗛 🕹	BurnOutEnable	N	Ionitor	
	🧳 AI_	BumOutValue	V	/rite	
	🔷 AI_	00_Range	P	ofrach	
	🥥 AI_	00_Scaled Value		eiresn	
	🛆 Ó T	00 Channal States	~		

- B. Enter below value to choose 50/60Hz or High speed.
 - a. 0: 50/60Hz
 - b. 1: High speed

🖳 Ent	er Value to Write	-		×
Value	0			A
0	K		Cance	el 🔡

C. Select this Al_IntegrationTime and right click Monitor

Information	Network	Administration	Firmware	OPCUA	Certific	ates Mod
EndPoint UI	RL: opc.tcj	p://10.0.0.1:4840				Enable S
Address	Space					Attributes
÷	🔷 Analog	_Input IntegrationTime			^	Name
	🔷 AI_	BumOutEnab	Monit	or		Nodel
	AI_	BumOutValu 00 Pence	Write.			Brows
		00_Kange 00_ScaledVal	Refres	h		🥥 Displa
	🗄 🧼 🖉 🗛	00_ChannelStatu	15			Descri
		01_Range 01_ScaledValue				 Writel UserW

And you can see this node(Al_IntegrationTime) in Data Access View box. Or you can left click and drag this node(Al_IntegrationTime) in Data Access View box.

		~	Name Nod Nod Bro Disp Disp Disp Value Value Value Data <	leId leClass wseName playName cription teMask rWriteMask ue aType	Val no= Vau 1:A AI_ 0 0 1 UIr	ue 1 ≫-ObjectsFo isable I_IntegrationTi IntegrationTi 116	lder/Anslo Time ne	ogInput/AI_I	ntegration Time	Data Type NodeId Int32 QualifiedI Localized Ulnt32 UInt32 Variant NodeId	
Data	Access View										
No.	ID	Display Nan	ne	Mode	Sampling Rate	Deadband	Value	Quality	Timestamp	Last Error	
	INTERCOMPANY AND ADDRESS OF A COMPANY AT A COMPANY AND A COMPANY	AT Internati	ion Time	Reporting	1000	None	1	Good	14-50-04-000		

2. Burnout

You can enable burn out function, to select **AI_BurnOutEnable** and right click **Write**. It's only support for 4 - 20mA input range.

A. Select Al_BurnOutEnable and right click Write

Information	Network	Administration	Firmware	OPCUA	Certificat
EndPoint U	RL: opc.tc	p://10.0.0.1:4840			
Address	Space				
	🧳 Analog	_Input			^
	🔷 AI_	IntegrationTime			
	🗳 🔼	BumOutEnable			
	🔷 AI_	BumOutValue	Mor	nitor	- 1
	- 🧼 AI_	00_Range	Write	e	
	🕂 🔷 🕂	00_Scaled Value	Pofr	ach	
	🕂 💊 🕂	00_ChannelStat	Rein	esn	
	🕂 💊 🕂	01_Range			
	🗄 🥥 🗛 🖳	01_Scaled Value			
	ф 🛆 АТ	01 ChannalStates	^		

- B. Select True or False to enable or disable this function.
 - a. True: enable burn out function
 - b. False: disable burn out function

🖳 Ente	r Value to Write	-	\times
Value	True		\sim
0	True False		

C. Select this Al_BurnOutEnable and right click Monitor.



3. Burnout value:

If you select up scale, you will see the value FFFF in Modbus address when

open circuit happens. Otherwise, it will show 0000 as down scale. It's only support for 4 - 20mA input range.

A. Select Al_BurnOutValue and right click Write

Information	Network	Administration	Firmware	OPCUA	Certifica
EndPoint U	RL: opc.tc	p://10.0.0.1:4840			
Address	Space				
—	Analog	_Input InteractionTime			^

Monitor	
Write	
Defreeb	
Refresh	
	~
	Monitor Write Refresh

- B. Enter below value to choose up scale or down scale.
 - a. 0: down scale
 - b. 1: up scale

🛃 Ent	er Value to Write	-		\times
Value	1			•
0	K		Cano	el

C. Select Al_BurnOutValue and right click Monitor





You need to enter **1** in **AI_BurnOutEnable** to enable burn out fuction at first. And then you can select up scale or down scale.

4.6.1.2 Individual Channel Configuration

1. Input range

This node allows you to set a different range for each channel.

A. Select AI_(Channel)_Range and right click Write

Information	Network	Administration	Firmware	OPCUA	Certificates
EndPoint UI	RL: opc.t	cp://10.0.0.1:4840			En En
Address	Space —				Attri
÷	🥥 Analo	g_Input			^ Nan
	🔷 A	[_IntegrationTime			01
	🧳 A	I_BumOutEnable			
	🗳 A	I_BumOutValue			
	🧼 🗚	[_00_Range			
	÷ 🧳 🗚	[_00_Scaled Value	M	onitor	1
	÷ 🧳 🗚	[_00_ChannelStatu	s W	rite	1
	🗄 🧳 🗚	[_01_Range	R	efresh	1
	÷ 🧳 🗚	[_01_Scaled Value		circon	I
	🗄 🧳 🔺	[_01_ChannelStatu	s		-=Q1
	÷ 🧳 A	[_02_Range			🥥 1
	🕂 🧼 🕂	[_02_Scaled Value			V 🔷 1

B. Enter below value to choose different input ranges.

🖳 Ente	er Value to Write	-		×
Value	75			A
0	K		Can	cel

Enter Value	Input Range
7	4~20 mA
8	± 10 V
9	± 5 V
10	± 1 V
11	± 500 mV
12	± 150 mV
13	± 20 mA
72	0 ~ 10 V
73	0 ~ 5 V
74	0 ~ 1 V
75	0 ~ 500 mV
76	0 ~ 150 mV
77	0 ~ 20 mA

C. Select this Al_(Channel)_Range and right click Monitor And you can see this node Al_(Channel)_Range in Data Access View box

Information	Network	Administr	ation	Firmware	OPCUA	Certif
EndPoint U	RL: opc.tcj	p://10.0.0.1	:4840			
Address	Space —					
 	 Analog AI_ AI_ AI_ AI_ 	_Input Integration BurnOutEr BurnOutV: 00_BurnOutV:	Time nable alue			^
		00_Scal	N	Ionitor		
		00_Cha 01_Ran	V	/rite		
		01_Scal 01_Chann 02_Range	elStatu	s serresh		1

2. Al_(Channel)_ScaledValue:

You can see the scaled value if you select this **AI_(Channel)_ScaledValue** and right click **Monitor**

Information	Network	Administrati	on Firmware	OPCUA	Cer
EndPoint U	RL: opc.tc	p://10.0.0.1:48	340		
Address	Space				
÷	🧳 Analog	_Input			~
	🔷 AI_	IntegrationTi	me		
	🧳 AI_	BumOutEnab	ole		- 11
	🔷 AI_	BumOutValu	e		
	🔷 AI_	00_Range			
	🕂 🌾 🖷	00_Scaled Val	lue		
	🕂 🧳 🕂	_00_Ch	Monitor		
	🕂 🧳 🕂	01_Ra	Write		
	🕂 🧳 🕂	01_Sce	vviite		
	🕂 🧳 🕂	01_Ch	Refresh		
	🕂 🧳 🕂	02_Range			
	🕂 🧳 🕂	02_Scaled Val	lue		~

3. Al_(Channel)_ChannelStatus:

You can see the channel status if you select this **AI_(Channel)_ChannelStatus** and right click **Monitor**.



You can see the Value of this Al_(Channel)_ChannelStatus in Data Access View.

- a. 0: good
- b. 4: under range(4-20mA only)
- c. 8: burn out(4-20mA only)

Information Network Administration Firmware OPCUA Certificates Modbus Address

Add	ress Space		Attributes							
	 Analog Input Al_Integration Time Al_BunDoutEnable Al_DumDoutValue Al_D0_Range Al_00_ChannelStatus Al_01_Range Al_01_Range Al_01_Range Al_01_Range Al_01_Range Al_01_Range Al_02_Range 	*	Name Nodeld NodeCl Displayl Descript WriteMa UserWr Value DataTyp <	ass Name Name tion ask ask iteMask	Value ns=1;==K Variable 1:AI_00_0 AI_00_0 0 0 0 UInt16	DbjectsFolde: _ChannelStat	/AnslogInp tus	ut/AI_00_C}	uannelStatus	Data Typ Nodeld Int32 Qualified Localizer Localizer UInt32 UInt32 Variant Nodeld
Data .	Access View									
No.	ID	Display N	ame	Mode	Sampling Rate	Deadband	Value	Quality	Timestamp	Last H
1	ObjectsFolder/AnalogInput/AI 00 ChannelStatus	AT 00 Ch	nannelStatus	Reporting	1000	None	0	Good	17:05:22.00	0

4.6.2 Digital input

Please see the below table for I/O channel of ADAM-6300 series.

		Digital Input		Digita		
Model	Analog Input	Support DI mode	Support DI, counter and frequency mode	Support DO mode	Support DO, pulse output, pulse output continue mode	SSR Relay (VDC)
ADAM-6317	AI0~AI7	DI0~DI4	DI5~DI10	DO0~DO3	DO4~DO9	N/A
ADAM-6350	N/A	DI0~DI11	DI12~DI17	DO0~DO11	DO12~DO17	N/A
ADAM-6360D	N/A	DI0~DI7	DI8~DI13	N/A	DO0~DO5	Relay 0~7

4.6.2.1 DI mode introduction

There are two type of DI channels in ADAM-6300. The first type of DI channel is only to support DI mode, the second type of DI channel is to support DI, counter, frequency mode. The latter channel supports 3 kHz counter input and 3 kHz frequency input.

4.6.2.2 DI configuration in OPC UA tab

- 1. DI mode: (Please refer below contents when you want to use DI mode)
 - A. Select **DI_(channel)_DIValue** and right click **Monitor** to monitor this DI status.

Information	Network	Administration	Firmware	OPCUA	Certifi
EndPoint UI	RL: opc.tcj	p://10.0.0.50:4840	0		
Address	Space				
	 Digital_ Digital_ DI_ 	Input 00_DIValue 01_DIValue 02_DIValue 03_DIValue 04_DIValue			^
	• DI • OI • OI • OI • OI • OI • OI • OI	05_DIValue 05_EnableInv 05_EnableFil 05_FilterWid 05_FilterWid	Monito Write Refres	or h	
	∯… 🧳 DI_	05_CounterStart			~

_Data Access View

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- B. Invert signal
 - a. Select DI_(channel)_EnableInvert and right click Write

Information	Network	Administration	Firmware	OPCUA	Certificate
EndPoint UI	RL: opc.tc	p://10.0.0.50:4840)		
Address	Space				A
	🥥 Digital_	Input			^])
	🗄 🧳 DI_	00_DIValue			
	🗄 🧳 DI_	01_DIValue			
	🗄 🧳 DI_	02_DIValue			
	🗄 🧳 DI_	03_DIValue			
	🗄 🧳 DI_	04_DIValue			
	🔷 DI_	05_DIValue			
	🧼 DI	05_EnableInvert			
	🗄 🧳 DI_	05_EnableFilter	Mo	nitor	
	🗄 🥥 DI_	05_FilterWidthLo	Wri	te	
	🗄 🧳 DI_	05_FilterWidthH	Ref	resh	
	🗄 🧳 DI_	05_CounterStart	Iter	reall	

b. Select **True** or **False** to enable or disable this function. The default setting is false.

🖳 Ente	er Value to Write	-	×
Value	True		~
0	True False		

c. Right click to select Monitor to monitor this function.

Information	Network	Administration	Firmware	OPCUA	Certifica
EndPoint U	RL: opc.tc	p://10.0.0.50:484()		
Address	Space				
	Ø Digital	Input			^
	🗄 🧳 DI	00_DIValue			
	🗄 🧳 DI_	01_DIValue			
	🗄 🧳 DI_	02_DIValue			
	🗄 🧳 DI_	_03_DIValue			
	🕂 🔷 DI_	_04_DIValue			
	🖉 DI_	_05_DIValue			
	🖗 DI	_05_EnableInvert			
	🕂 🧳 DI_	05_EnableFilter	Mo	nitor	
	🕂 🖌 DI_	_05_FilterWidthL	Writ	e	
		05_FilterWidthH	Def		
	🕀 🖓 DI_	_05_CounterStart	Refi	resn	

C. Digital filter

It contains minimum high signal width and minimum low signal width (1-65535) for filtering the noise.

a. Select DI_(channel)_EnableFilter and right click Write

Information	Network	Administration	Firmware	OPCUA	Certificat
EndPoint UN	RL: opc.tc	p://10.0.0.50:484	0		
Address	space				
ė (Digital_	Input			A .
	÷ 🧳 DI_	00_DIValue			
	🗄 🥥 DI_	01_DIValue			
	🗄 🥥 DI_	02_DIValue			
	🗄 🧳 DI_	03_DIValue			
	🗄 🥥 DI_	04_DIValue			
	🔷 DI_	05_DIValue			
	🔷 DI_	05_EnableInvert			
	🗄 🤣 🔃	05_EnableFilter	Ma	aitar	
	🗄 🧳 DI_	05_FilterWidthL	IVIO	nitor	
	🗄 🥥 DI_	05_FilterWidthH	Writ	te	
	🗄 🥥 DI_	05_CounterStart	Ref	resh	

b. Select True or False to enable or disable this function. The default setting is false.

			×
Value 7	frue		\sim
OIF	'rue False		

c. Select DI_(channel)_EnableInvert, DI_(channel)_FilterWidthLow and DI_(channel)_FilterWidth-High

You can define the filter width in the low signal width(right click **Write** in selected **DI_(channel)_FilterWidthLow**), and high signal width(right click

Write in selected **DI_(channel)_FilterWidthHigh**), to enter **1~65535**(The unit is 0.1ms).

Information	Network	Administration	Firmware	OPCUA	Certific	cates 1
EndPoint UI	RL: opc.tc;	p://10.0.0.50:484()			Ena
Address	Space					Attrib
	🥥 Digital_	Input			^	Nam
	🗄 🧳 🛛 DI_	00_DIValue				(A N
	🕂 🔷 🖓 🕂	01_DIValue				A N
	🗄 - 🧳 DI_	02_DIValue				
	🕂 🔷 🖓 🗄	03_DIValue				
	🗄 🧳 DI_	04_DIValue				
	🔷 DI_	05_DIValue				9 D
	🔷 DI_	05_EnableInvert				9 W
	🔷 DI_	05_EnableFilter				🖉 Ü
	🖗 DI_	05_FilterWidthL	ow N	Aonitor		Y
	🔷 DI_	05_FilterWidthH	igh			p
	🕂 🧳 🕂	05_CounterStart	V	Vrite		- 1
Data Acce	ss View		F	Refresh		

🖳 Ent	er Value to Write	_		×
Value	2			
C	K		Can	cel

d. After above setting, left click and drag each of nodes of DI_(channel)_EnableFilter, DI_(channel)_FilterWidthLow and DI_(channel)_Filter-WidthHigh to Data Access View, and start to monitor these nodes. 2. Counter mode:

A counter counts the number of pulse numbers of a digital signal from the selected channel and then records.

A. Select **DI_(channel)_CounterStart**, and right click **Write**, click **True** to start counter and click **False** to close counter. The default setting is True.



🖳 Ent	er Value to Write	-	×
Value	True		\sim
0	True I False		

B. Select DI_(channel)_CounterValue

- a. When **DI_(channel)_CounterValue** is added **Data Access View**, the current count value of the selected channel will be displayed in the **Value** of **Attributes** of this **DI_(channel)_CounterValue**.
- b. You can right click to select Write and enter 0 to clean current counter value.



🖳 Ent	er Value to Write	_		\times
Value	0			•
C	K		Canc	el

C. Select DI_(channel)_CounterRemain

The function of counter remain is to keep last counter value when power off.

a. Right click Write

formation	Network	Administration	Firmware	OPCUA	Certify	icate:
EndPoint U	RL: opc.to	p://10.0.0.55:484	0			
Address	Space					A
	 DI 	_12_DI∀alue _12_EnableInvert _12_EnableFilter _12_FilterWidthL _12_FilterWidthH _12_CounterStart	ow igh		^	N
		<u>12_CounterRetai</u> 12_CounterValu 12_FrequencyVa 13_DIValue _13_EnableInvert	n e M du W R	Ionitor /rite efresh		
Data Accor	🕀 🥥 DI	_13_EnableFilter			~	<
Louid Root	ID	Display Na	ume	Mode		Sa

b. Select True or False to enable or disable the function.

🖳 Ente	er Value to Write	-	×
Value	True		\sim
0	True I False		

D. You can add the nodes of **EnableInvert, EnableFilter**, **FilterWidthLow**, **FilterWidthHigh** functions in **Counter mode** if user need these functions.

3. Frequency mode:

When Frequency is selected, the module will calculate the frequency of the digital input signal for the selected channel.

A. Select **DI_(channel)_FrequencyValue** and right click **Monitor**

Information	Network	Administration	Firmware	OPCUA	Certificates
EndPoint U	RL: opc.tc	p://10.0.0.50:484	0		En En
Address	Space				Attri
	🖉 DI_	05_DIValue			^ Nan
	🔷 DI_	05_EnableInvert			
	🔷 DI_	05_EnableFilter			
	🔷 DI_	05_FilterWidthL	ow		
	🔷 DI_	05_FilterWidthH	igh		
	🔷 DI_	05_CounterStart			
	🔷 DI_	05_CounterRetai	in		9
	🔷 DI_	05_CounterValu	e		9
	🧳 DI	05_FrequencyVa	lue		
	🗄 🧳 DI_	06_DIValue	1	Monitor	
	🗄 🧳 DI_	06_EnableInvert	1	Write	
	🗄 🧳 DI_	06_EnableFilter		Refresh	
-Data Acce	ss View —			1000-000-01-00-00-00-00-00-00-00-00-00-0	

B. The current frequency value of the selected channel will be displayed in the **Value** of **Attributes** of this **DI_(channel)_ FrequencyValue** in **Data Access View**.

Address Space		Attributes							
	~	Name Nodeld NodeClass ExowseNan DisplayNan Description WitheMask UserWriteM Value DataType <	ue ue lask	Velue n=1,p=0bje 1:DI_05_Freq DI_05_Freq 0 0 0 0 UInt32	ectsFolder/Di equencyValu uencyValue	gitelInput/D e	I_05_FrequencyValu	Dat e Nod Int3 Que Loc UIn UIn Var Nod	a T: leId 32 alifi aliz aliz aliz aliz aliz aliz aliz ali
Data Access ¥ 1ew	1.2.5.6				D		A 11. B1		

4.6.3 Digital Output

Please see the below table for I/O channel of ADAM-6300 series.

	Analog	Digita	al Input	Digita	l Output	SSR Relay (VDC)
Model	Input	Support DI mode	Support DI, counter and frequency mode	Support DO mode	Support DO, pulse output, pulse output continue mode	
ADAM-6317	AI0~AI7	DI0~DI4	DI5~DI10	DO0~DO3	DO4~DO9	N/A
ADAM-6350	N/A	DI0~DI11	DI12~DI17	DO0~DO11	DO12~DO17	N/A
ADAM-6360D	N/A	DI0~DI7	DI8~DI13	N/A	DO0~DO5	Relay 0~7

4.6.3.1 DO mode introduction

There are two type of DO channels in ADAM-6300. The first type of DO channel is only to support DO mode, the second type of DO channel is to support DO mode, Pulse output mode, Pulse output continue mode. The latter channel supports 3 kHz pulse output.

4.6.3.2 DO configuration in OPC UA tab

1. DO mode selection:

There are three DO modes including DO mode, Pulse output mode, Pulse output continue mode. To generate a continuous pulse train or infinite number of pulses is Pulse Output Continue, and Pulse Output is for a finite number of pulses.

A. Select DO_(channel)_Mode and right click Write

Information	Network	Administration	Firmware	OPCUA	Certific
EndPoint UI	RL: opc.tcj	p://10.0.0.55:484	0		
Address	Space				
	🗄 🧳 DO	_08_DOValue			^
	u	_09_DOValue _10_DOValue			
	🗄 🧳 DO	_11_DOValue			
	🔷 DO	_12_DOV	Monitor		
	Ø DO	_12_Pulse _12_Pulse	Write		
	0 DO	12_Pulse	Refresh		
	⊕	_12_FulseConCon _12_PulseRemain	un ningCount		
	🕂 🧳 DO	_13_Mode			~

- B. Enter below value to choose DO mode
 - a. 0: DO mode
 - b. 1: Pulse output mode

c. 2: Pulse output continue mode

🖳 Ent	er Value to Write	-		\times
Value	0			•
C	K		Can	cel

C. Select this **DO_(channel)_Mode** and right click **Monitor**

Information	Network	Administration	Firmware	OPCUA	Certificates	Modbus	Addres
EndPoint UI	RL: opc.tc	p://10.0.0.55:4840)		E	nable Secu	rity
Address	Space				Att	ributes	
	DO DD D	_08_DOValue _09_DOValue _10_DOValue _11_DOValue _12_Mode			A Na	me NodeId NodeClass BrowseNa DisplayNa	s ome ome
	Ø DO	12_PulseS 12_PulseV	Monitor Write			Descriptio WriteMasl	n k
	 → DO → O 	12_Pulse\ 12_Pulse(Refresh		Ø	UserWrite Value	Mask
		_12_PulseRemain _13_Mode	ungCount		✓	DataType	
Data Acce	ss View —						
No. ID	Display N	lame Mode	Sampling	Rate D	eadband V	Quality	Times

And you can see this node(**DO_12_Mode**) in **Data Access View**. Or you can left click and drag this this node(**DO_12_Mode**) in **Data Access View** box.

terri de la constante de la c	D_12_PulseOutCount D_12_PulseRemainingCount D_13_Mode	~	 Value Ø DataT 	уре	2 UInt16				Variant NodeId	~
No ID		Display Name	Mode	Sampling Rate	Deadhand	Value	Onality	Timestamp	Last Empr	_

DO mode: (Please refer below contents when you want to use DO mode)
 A. Select **DO_(channel)_DOValue** and right click to select **Write**

Information	Network	Administration	n Firmware	OPCUA	Cert
EndPoint UI	RL: opc.tcj	p://10.0.0.55:48	340		
Address	Space				
	DO D	_08_DOValue _09_DOValue _10_DOValue _11_DOValue _12_Mode			^
	- Ø DO	_12_Pulse	Monitor		
		12_Pulse	Write		
		_12_Pulse	Refresh		
	⊕ � DO ⊕ � DO	_12_PulseRems _13_Mode	ainingCount		~

B. And select **True** to turn on the DO. The default setting is false, which means DO off.

......

🖳 Ente	er Value to Write	-	×
Value	True		 \sim
01	True False		

C. Right click to select Monitor to monitor this DO status.

Information	Network	Administration	Firmware	OPCUA	Certific
EndPoint U	RL: opc.tcj	p://10.0.0.55:484	0		[
Address	Space				
	DO D	_08_DOValue _09_DOValue _10_DOValue _11_DOValue _12_Mode			^
	🖉 DO	_12_PulseS	Monitor	•	
	→ Ø DO → Ø DO	_12_Pulse \\ _12_Pulse \\ _12_Pulse \(Write Refresh		
	⊕ � DO ⊕ � DO	_12_PulseRemain _13_Mode	ningCount		~

3. Pulse output mode:

Pulse output is for a finite number of pulses. Please follow below steps to implement pulse out function. A. Select **DO_(channel)_Mode**, and right click to select **Write** and enter **1**.

	110//10/10/10/10/10	Firmware	OFCOA	Certific
L: opc.tcj	;//10.0.0.55:484	40		
pace				
) 🧳 DO	_08_DOValue			^
) 🥥 DO	_09_DOValue			
) 🧳 DO	_10_DOValue			
) 🧳 DO	_11_DOValue			
🧳 DO	_12_Mode			_
🧳 DO	_12_DOV	Monitor		
🥥 DO	_12_Pulse	Write		
🥥 DO	_12_Pulse			
🥥 DO	_12_Pulse	Refresh		
) 🥥 DO_	_12_PulseOutCo	ount		_
) 🧳 DO	12_PulseRemai	iningCount		
🥥 DO	13_Mode			~
	 iopc.tcj iace iace iopc.tcj iopc.tcj<td> opc.tcp://10.010.55:483 opc.tcp://10.010.55:483 opc.tcp://10.010.55:483 opc.10_DOValue opc.10_DOValue opc.11_DOValue opc.12_Mode opc.12_Pulse opc.13_Mode </td><td>.: opc.tcp://10.0.0.5534840 acce DO_09_DOValue DO_10_DOValue DO_11_DOValue DO_12_Mode DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_13_Mode</td><td>.: opc.tcp://10.010.555:4840 acce DO_09_DOValue DO_10_DOValue DO_11_DOValue DO_12_Mode DO_12_Pulse DO_13_Mode</td>	 opc.tcp://10.010.55:483 opc.tcp://10.010.55:483 opc.tcp://10.010.55:483 opc.10_DOValue opc.10_DOValue opc.11_DOValue opc.12_Mode opc.12_Pulse opc.13_Mode 	.: opc.tcp://10.0.0.5534840 acce DO_09_DOValue DO_10_DOValue DO_11_DOValue DO_12_Mode DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_12_Pulse DO_13_Mode	.: opc.tcp://10.010.555:4840 acce DO_09_DOValue DO_10_DOValue DO_11_DOValue DO_12_Mode DO_12_Pulse DO_13_Mode

🖳 Ent	er Value to Write	-		×
Value	1			A
0	K		Can	cel

B. Select DO_(Channel)_ PulseWidthLow and DO_(Channel)_ PulseWidth-High

You can define the pulse width in the low signal width(right click **Write** in selected **DO_(Channel)_PulseWidthLow)**, and high signal width(right click **Write** in selected **DO_(Channel)_PulseWidthHigh**), to enter **1~65535**(The unit is 0.1ms). The frequency and duty cycle of the pulse output signal will be calculated automatically.

Information	Network	Administration	Firmware	OPCUA	Certific	cates 1
EndPoint UI	RL: opc.tcj	p://10.0.0.55:4840)		[Ena
Address	Space					Attrib
	2 DO 2 DO 2 DO	_12_Mode _12_DOValue _12_PulseStart			^	Name
	DO	12_Pulse WidthL 12 Pulse WidthH	ow ligh	Monitor		
	🕀 🧳 DO	_12_PulseOutCou	unt	Write		
		_12_PulseRemain _13_Mode	uing	Refresh		, v
	• OD • OD • OD • OD • OD • OD	13_DOValue 13_PulseStart 13_PulseWidthL	.ow			 ♀ U: ■♀ V: ♀ D:
		_13_PulseWidthH	ligh		~	<

🛃 Enter Value to Write - 🛛							
Value	65535			•			
OK Cancel							

C. Select **DO_(Channel)_PulseOutputCount**, and right click **Write** the counter number. (The range is **1~4294967295**)

Information	Network	Administration	Firmware	OPCUA	Certifi	cates
EndPoint UI	RL: opc.tc	p://10.0.0.55:484(0			Ens
Address	Space					Attrit
	 DO DO DO DO DO DO DO 	_12_Mode _12_DOValue _12_PulseStart _12_PulseWidthL _12_PulseWidthH	.ow High		^	Nami Van N N E D
	DO	_12_PulseRemain	ning	Monitor		
	🗄 🧳 DO	_13_Mode		Write		
	⊕… 🗭 DO ⊕… 🧳 DO	_13_DOValue _13_PulseStart		Refresh		
	⊕… � DO ⊕… � DO	_13_Pulse WidthL _13_Pulse WidthF	.ow High		*	D

🖳 Ent	er Value to Write	-		\times
Value	100			•
C	K		Can	cel

D. Select **DO_(Channel)_PulseStart**, and right click Write the True to start DO pulse.

Information	Network	Administration	Firmware	OPCUA	Certific	*
EndPoint UI	RL: opc.tcj	p://10.0.0.55:484	0		[
Address	Space					
	- 🔗 DO - 🔗 DO	_12_Mode _12_DOValue			^	ſ
	🖉 DO	<u>12_PulseStart</u> 12_PulseWidtl	Mon	itor		١
	🥥 DO	_12_PulseWidtl	Write	·		
	0 DO	_12_PulseOutC _12_PulseRems_	Refre	esh		J
	🗄 🧳 DO	_13_Mode	-			I
	⊕… 🏈 DO ⊕… 🧳 DO	_13_DOValue _13_PulseStart				
	⊕… 🧼 DO ⊕… 🧼 DO	_13_Pulse WidthI _13_Pulse WidthF	low High		~	

🖳 Ente	×		
Value	True		~
OI	True False		

E. After above setting, left click and drag each of nodes of DO_(channel)_Mode, DO_(Channel)_ PulseWidthLow, DO_(Channel)_Pulse-WidthHigh, DO_(Channel)_PulseOutputCount, DO_(Channel)_PulseStart, DO_(Channel)_PulseRemainingCount to

Data Access View, and start to monitor these nodes. You can see the remaining counter in DO_(Channel)_PulseRemaining-Count.

	at UKL: 0pc.sp.m10.0.0.55.4040		Enable Security Connect	Disco	nnect				
Add	ress Space		Attributes						
	□ ○ D0_13_PulseWidt/High □ ○ D0_13_PulseRemainingCount □ ○ D0_14_Mode □ ○ D0_14_DOValue □ ○ D0_14_DoValue □ ○ D0_14_PulseStart □ ○ D0_14_PulseWidthHigh □ ○ D0_14_PulseRomsingCount □ ○ D0_14_PulseRomsingCount □ ○ D0_14_PulseRomsingCount □ ○ D0_15_Mode □ ○ D0_15_DOValue		Name VodeId NodeClas ForwoseName DisplayName Description WriteMask UserWriteMask Value Dat Type	Value ns=1;==AOE Variable 1:DO_14_ DO_14_Pt 0 0 True Boolean	ojectsFolder/Digit PulseStart IlseStart	alOutput/DO	_14_Puls	eStart 1	Data Type NodeId int32 QualifiedN Localized Localized UInt32 Variant NodeId
Data.	Access View								
No.	ID		Display Name	Mode	Sampling Rate	Deadband	Value	Quality	Timest
2	/ObjectsFolder/DigitalOutput/DO_14_PulseWidthLow		DO_14_Pulse WidthLow	Reporting	1000	None	10000	Good	16:13:
3	/ObjectsFolder/DigitalOutput/DO_14_PulseWidthHigh		DO_14_Pulse WidthHigh	Reporting	1000	None	10000	Good	16:13:
4	/ObjectsFolder/DigitalOutput/DO_14_PulseOutCount		DO_14_PulseOutCount	Reporting	1000	None	100	Good	16:14:0
5	/ObjectsFolder/DigitalOutput/DO_14_PulseRemainingCoun	nt	DO_14_PulseRemainingCount	Reporting	1000	None	88	Good	16:14:1
6	/OhiectsFolder/DigitalOutput/DO 14 PulseStart		DO 14 PulseStart	Reporting	1000	None	Time	Good	16.14.0

4. Pulse output continue mode

Pulse output Continue (for a pulse train) is to generate a continuous pulse train or finite number of pulses. Please follow below steps to implement pulse out function.

A. Select **DO_(channel)_Mode**, and right click to select **Write** and enter **2**.

Information	Network	Administration	Firmware	OPCUA	Certific
EndPoint U	RL: opc.tcj	p://10.0.0.55:484	0		
Address	Space				
	🗄 🧳 DO	_08_DOValue			^
	⊕	_09_DOValue _10_DOValue			
	🕀 🧳 DO	_11_DOValue 12 Mode			
	0 DO	_12_DOV	Monitor		
	↓ DO	_12_Pulse	Write		
	🧳 DO	_12_Pulse 12_PulseOutCo	Refresh		- 11
		_12_PulseRemai	ningCount		
	🕂 🏈 DO	_13_Mode			~

🖳 Ent	er Value to Write	-		×
Value	2			A
C	K		Can	cel .:

B. Select DO_(Channel)_PulseWidthLow and DO_(Channel)_PulseWidth-High

You can define the pulse width in the low signal width(right click **Write** in selected **DO_(Channel)_ PulseWidthLow**), and high signal width(right click **Write** in selected **DO_(Channel)_PulseWidthHigh**), to enter **1~65535**(The unit is 0.1ms). The frequency and duty cycle of the pulse output signal will be calculated automatically.

Information Network	Administration	Firmware	OPCUA	Certifi	cates 1
EndPoint URL: opc.tc	p://10.0.0.55:4840)			Ena
Address Space					Attrib
🧼 DO	_12_Mode			^	Name
🧼 DO	_12_DOValue				4 M.
🧼 DO	_12_PulseStart				A M
🔷 DO	_12_Pulse WidthL	ow	Manitan		
🧼 DO	_12_Pulse WidthH	ligh	Monitor		î
😟 🧼 😥 😥	_12_PulseOutCou	unt	Write		ľ
🕂 🖓 DO	_12_PulseRemain	ing	Refresh		ľ
🗄 🧳 DO	_13_Mode	_			Y
😟 🧼 😥 😥	_13_DOValue				🔷 U:
😟 🧼 😥 😥	_13_PulseStart				= 🔍 V:
😟 🖓 😥	_13_Pulse WidthL	ow			🥏 D:
🕂 🧳 DO	_13_Pulse WidthH	igh		~	<

🖳 Ent	er Value to Write	_		×
Value	65535			•
0	K		Can	cel

C. Select **DO_(Channel)_PulseStart**, and right click **Write** the **True** to start DO pulse.

Information	Network	Administration	Firmware	OPCUA	Certifica
EndPoint UI	RL: opc.tc;	p://10.0.0.55:4840	D		
Address	Space				
	Ø DO	_12_Mode 12_DOValue			^
	🖉 DO	12_PulseStart	Mon	itor	
	Ø DO	_12_Pulse Widtl	Write		
	Ø DO	_12_PulseOutC 12_PulseRems_	Refre	esh	
	🛨 🧼 DO	_13_Mode			
	🗄 🥥 DO	_13_DOValue 13_PulseStart			
		_13_Pulse WidthL	vow		
	🗄 🧼 DO	_13_Pulse WidthH	ligh		¥
🖳 Enter Va	alue to Wr	rite	-		×
Value Tru	le				~
OI <mark>Fals</mark>	e xe				

D. After above settings, left click and drag each of nodes of DO_(channel)_Mode, DO_(Channel)_ PulseWidthLow, DO_(Channel)_Pulse-WidthHigh, DO_(Channel)_PulseStart to Data Access View, and start to monitor these nodes.

Chapter 4 System Configuration

4.6.4 SSR Relay Output

- 1. SSR Relay Output mode:
 - A. Select **SSR_(channel)_RelayValue** and right click to select **Write**



B. And select **True** to turn on the relay. The default setting is false, which means relay off.

🖳 Ente	er Value to Write	—	×
Value	True		\sim
0	True False		

C. Right click to select **Monitor** to monitor this SSR relay status.

Information	Network	Administration	Firmware	OPCUA	Certificates
EndPoint UI	RL: opc.tc	p://10.0.0.50:484()		E
Address	Space				Att
+ + + + 	 Server Digital_ Digital_ SSR_O 	Input Output utput			^ Na
		{_00_RelayValue }_01_RelayValue	Mo	onitor	
	- 🔷 SSF	<pre>{_02_RelayValue</pre>	Wr	ite	
	→ I SSF	{_03_RelayValue { 04 RelayValue	Re	fresh	
	+	R_05_RelayValue R_06_RelayValue R_07_RelayValue			

ADAM-6300 User Manual



Modbus Table

A.1 ADAM-6317: 8AI/11DI/10DO IoT Modbus/OPC UA Ethernet Remote I/O

Address (0X):

Address (0x)	Channel	Description	Attribute
0x0001	0		
0x0002	1		
0x0003	2		
0x0004	3		
0x0005	4		
0x0006	5	DI Value	Read
0x0007	6		
0x0008	7		
0x0009	8		
0x0010	9		
0x0011	10		
0x0033	0		
0x0034	1		
0x0035	2		
0x0036	3		
0x0037	4		
0x0038	5		
0x0039	6		
0x0040	7		
0x0041	8		
0x0042	9		
0x0065	5		
0x0066	6		
0x0067	7	— DI Stop/Start Counter	R/W/
0x0068	8		
0x0069	9		
0x0070	10		
0x0073	5		
0x0074	6		
0x0075	7	— DI clear counter	R/W
0x0076	8		
0x0077	9		
0x0078	10		
0x0081	5		
0x0082	6		
0x0083	7	— DI enable/disable filter	R/W
0x0084	8		
0x0085	9		
0x0086	10		

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0x0089 4 0x0090 5 0x0091 6 0x0092 7 0x0093 8 0x0094 9 0x0097 0 0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4x): Channel Address (4x) Channel 4x0001 0 4x0003 2	R/W Read	
0x0090 5 0x0091 6 0x0092 7 0x0093 8 0x0094 9 0x0097 0 0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Channel Address (4x) Channel 4x0001 0 4x0003 2	R/W Read	
0x0091 6 DO start/stop pulse 0x0093 8 000000000000000000000000000000000000	R/W Read	
0x0092 7 Destatistic pulse 0x0093 8 0 0x0094 9 9 0x0097 0 0 0x0098 1 0 0x0100 3 0 0x0101 4 0 0x0102 5 0 0x0103 6 0 0x0104 7 0 Address (4X): Channel Description 4x0001 0 4x0002 1 4x0003 2 0	Read	
0x0093 8 0x0094 9 0x0097 0 0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Channel Description 4x0001 0 4x0003 2	Read	
0x0094 9 0x0097 0 0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Channel Description 4x0001 0 4x0002 1 4x0003 2	Read	
0x0097 0 0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Description 4x0001 0 4x0002 1 4x0003 2	Read	
0x0097 0 0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Channel Description 4x0001 0 4x0002 1 4x0003 2	Read	
0x0098 1 0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Description 4x0001 0 4x0002 1 4x0003 2	Read	
0x0099 2 0x0100 3 0x0101 4 0x0102 5 0x0103 6 0x0104 7 Address (4X): Channel Description 4x0001 0 4x0002 1 4x0003 2	Read	
0x0100 3 Burnout flag 0x0101 4 0 0x0102 5 0 0x0103 6 0 0x0104 7 0 Address (4X): Description 4x0001 0 0 4x0002 1 1 4x0003 2 0	Read	
0x0101 4 Dumbut hag 0x0102 5 0 0x0103 6 0 0x0104 7 0 Address (4X): Channel Description 4x0001 0 0 4x0002 1 1 4x0003 2 0	Reau	
0x0102 5 0x0103 6 0x0104 7 Address (4X): Description 4x0001 0 4x0002 1 4x0003 2		
0x0103 6 0x0104 7 Address (4X): Channel Description 4x0001 0 4x0002 1 4x0003 2		
0x0104 7 Address (4X): Description Address (4x) Channel Description 4x0001 0 0 4x0002 1 1 4x0003 2 1		
Address (4X): Channel Description 4x0001 0 0 4x0002 1 0 4x0003 2 0		
Address (4x) Channel Description 4x0001 0		
4x0001 0 4x0002 1 4x0003 2	Attribute	
4x0002 1 4x0003 2		
4x0003 2		
4x0004 3	Pood	
4x0005 4	Neau	
4x0006 5		
4x0007 6		
4x0008 7		
4x0009 0		
4x0010 1		
4x0011 2		
4x0012 3		
4x0013 4	Read	
4x0014 5	Read	
4x0015 6	Read	
4x0016 7	Read	

4x0017	0		
4x0018	0		
4x0019	1		
4x0020	I		
4x0021	C		
4x0022	2		
4x0023	3		
4x0024	5	Al Scaled Value	Read
4x0025	1	A Scaled value	Reau
4x0026			
4x0027	5		
4x0028	5		
4x0029	6		
4x0030	0		
4x0031	7		
4x0032	/		
4x0033	5		
4x0034	5		
4x0035	C		
4x0036	0		
4x0037	7 °		
4x0038		DI Counter Value	Pead
4x0039			Reau
4x0040	0		
4x0041	Q		
4x0042	9		
4x0043	10		
4x0044	10		
4x0045	5		
4x0046	5		
4x0047	6		
4x0048	0		
4x0049	7		
4x0050	7		Pead
4x0051	8	-Diffequency value	Nedu
4x0052	0		
4x0053	0		
4x0054	Э		
4x0055	10		
4x0056	10		

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4x0057	Λ		
4x0058	4		
4x0059	5		
4x0060	5	DO Remained Pulse Output	Pood
4x0061	6	Count	Reau
4x0062	0		
4x0063	7		
4x0064	7		
4x0065	0		
4x0066	0	DO Remained Pulse Output	Deed
4x0067	0	Count	Read
4x0068	9		
4x0101	0		
4x0102	1		
4x0103	2		
4x0104	3		DAA
4x0105	4	AI Range Type	R/W
4x0106	5		
4x0107	6		
4x0108	7		
4x0109	5		
4x0110	6		
4x0111	7		
4x0112	8	DI Filler Low Signal Width	R/W
4x0113	9		
4x0114	10		
4x0115	5		
4x0116	6		
4x0117	7		DAA
4x0118	8	DI Fliter High Signal Width	R/W
4x0119	9		
4x0120	10		
4x0121	5		
4x0122	6		
4x0123	7		
4x0124	8	Pulse Out Low Level Width	K/W
4x0125	9		
4x0126	10		

4x0127	4	Pulse Out Low Level Width	R/W
4x0128	5		
4x0129	6		
4x0130	7		
4x0131	8		
4x0132	9		
4x0133	4	Total Pulse Output Count	R/W
4x0134			
4x0135	5		
4x0136			
4x0137	6		
4x0138			
4x0139	7		
4x0140			
4x0141	8		
4x0142			
4x0143	9		
4x0144			
4x0221	All	All DI Values	Read
4x0222			
4x0223	All	All DO Values	R/W
4x0224			
A.2 ADAM-6350: 18DI/18DO IoT Modbus/OPC UA Ethernet Remote I/O

Address (0X):

Address (0x)	Channel	Description	Attribute
0x0001	0		
0x0002	1		
0x0003	2		
0x0004	3		
0x0005	4		
0x0006	5		
0x0007	6		
0x0008	7		
0x0009	8		Pood
0x0010	9		Redu
0x0011	10		
0x0012	11		
0x0013	12		
0x0014	13		
0x0015	14		
0x0016	15		
0x0017	16		
0x0018	17		
0x0033	0		
0x0034	1		
0x0035	2		
0x0036	3		
0x0037	4		
0x0038	5		
0x0039	6		
0x0040	7		
0x0041	8	— DO Value	R/W
0x0042	9		
0x0043	10		
0x0044	11		
0x0045	12		
0x0046	13		
0x0047	14		
0x0048	15		
0x0049	16		
0x0050	17		

0x0065	12		
0x0066	13		
0x0067	14	DI Stop/Start Counter	
0x0068	15		K/W
0x0069	16		
0x0070	17		
0x0073	12		R/W
0x0074	13		
0x0075	14	—— DI clear counter	
0x0076	15		
0x0077	16		
0x0078	17		
0x0081	12		
0x0082	13		R/W
0x0083	14	——DI enable/disable filter	
0x0084	15		
0x0085	16		
0x0086	17		
0x0089	12		
0x0090	13		R/W
0x0091	14		
0x0092	15		
0x0093	16		
0x0094	17		_
Address (4X):			
Address (4x)	Channel	Description	Attribute
4x0033	10		
4x0034	12		Deed
4x0035	10		
4x0036	13		
4x0037			
4x0038	14		
4x0039	AE	DI Counter Value	Read
4x0040	15		
4x0041	40		
4x0042	16		
4x0043	47		
4x0044	17		

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Modbus Table

4x0045	10		
4x0046	12		
4x0047	12		
4x0048			
4x0049	11	—— DI Frequency Value	
4x0050	14		Read
4x0051	15		
4x0052	15		
4x0053	16		
4x0054	10		
4x0055	17		
4x0056	17		
4x0057	12		
4x0058			
4x0059	13		
4x0060		DO Remained Pulse Output	Read
4x0061	14	Count	
4x0062			
4x0063	15		
4x0064	10		
4x0065	16		
4x0066	-	DO Remained Pulse Output Count	Read
4x0067	17		
4x0068			
4.0400			
4x0109	12		
4x0110	13		
4x0111	14	— DI Filter Low Signal Width	R/W
4x0112	15	_	
4x0113	16		
4x0114	17		
4x0115	12		
4x0116	13		
4x0117	14		
4x0118	15	— DI Filter High Signal Width	R/W
4x0119	16		
4x0120	17		
4x0121	12		
4x0122	13		
4x0123	14		-
4x0124	15	Pulse Out Low Level Width	R/W
4x0125	16		
4x0126	17		

4x0127	12		R/W
4x0128	13	Pulse Out Low Level Width	
4x0129	14		
4x0130	0130 15		
4x0131164x013217			
	17		
4x0133	10		
4x0134	12		R/W
4x0135	10		
4x0136	13		
4x0137	11		
4x0138	14	——— Total Pulse Output Count	
4x0139	15		
4x0140	15		
4x0141	16		
4x0142	10		
4x0143	17		
4x0144	17		
4x0221	A11		Pood
4x0222	All	All DI Values	neau
4x0223	A II		
4x0224	All	All DO Values	K/W

A.3 ADAM-6360D: 8Relay(SSR)/14DI/6DO IoT Modbus/OPC UA Ethernet Remote I/O

Address (0X):

Address (0x)	Channel	Description	Attribute
0x0001	0		
0x0002	1		
0x0003	2		
0x0004	3		
0x0005	4		
0x0006	5		
0x0007	6		Pood
0x0008	7		Reau
0x0009	8		
0x0010	9		
0x0011	10		
0x0012	11		
0x0013	12		
0x0014	13		
0x0033	0		
0x0034	1		R/W
0x0035	2		
0x0036	3		
0x0037	4		
0x0038	5		
0x0039	6		
0x0040	7		
0x0041	0		
0x0042	1		R/W
0x0043	2	— DO Value	
0x0044	3		
0x0045	4		
0x0046	5		
0x0065	8		
0x0066	9		
0x0067	10		R/W
0x0068	11		1 1/ 1 1
0x0069	12		
0x0070	13		

0x0073	8		
0x0074	9	DI clear counter	
0x0075	10		
0x0076	11		R/W
0x0077	12		
0x0078	13		
0x0081	8		
0x0082	9		
0x0083	10		D 444
0x0084	11	— DI enable/disable filter	R/W
0x0085	12		
0x0086	13		
0x0089	0		
0x0090	1		
0x0091	2		
0x0092	3	— DO start/stop pulse	R/W
0x0093	4		
0x0094	5		
Address (4X):			
Address (4x)	Channel	Description	Attribute
4x0033	0		
4x0034	0		
4x0035	0		
4x0036	9		
4x0037	10		
4x0038	10	DL Counter Value	Dood
4x0039	11	Di Counter value	Reau
4x0040	11		
4x0041	10		
4x0042	12		
4x0043	40		
4x0044	13		
4x0045	0		
4x0046	Ö		
4x0047			
	0		
4x0048	9		
4x0048 4x0049	9		
4x0048 4x0049 4x0050	9		
4x0048 4x0049 4x0050 4x0051	9 10	DI Frequency Value	Read
4x0048 4x0049 4x0050 4x0051 4x0052	9 10 11	 —— DI Frequency Value	Read
4x0048 4x0049 4x0050 4x0051 4x0052 4x0053	9 10 11	DI Frequency Value	Read
4x0048 4x0049 4x0050 4x0051 4x0052 4x0053 4x0054	9 10 11 12	DI Frequency Value	Read
4x0048 4x0049 4x0050 4x0051 4x0052 4x0053 4x0054 4x0055	9 10 11 12	DI Frequency Value	Read

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4x0057	0		
4x0058	0		
4x0059	1		
4x0060	2	DO Remained Pulse Output Count	Dood
4x0061			Read
4x0062			
4x0063	2		
4x0064	3		
4x0065	Λ		
4x0066	4	DO Remained Pulse Output	Pood
4x0067	5	Count	Reau
4x0068	5		
4x0109	8		
4x0110	9		
4x0111	10	DI Eiltor Low Signal Width	R/W
4x0112	11		
4x0113	12		
4x0114	13		
4x0115	8		
4x0116	9		
4x0117	10	DI Eiltor High Signal Width	
4x0118	11		
4x0119	12		
4x0120	13		
4x0121	0		
4x0122	1		
4x0123	2		
4x0124	3		
4x0125	4		
4x0126	5		
4x0127	0		
4x0128	1		
4x0129	2		R/\\/
4x0130	3		
4x0131	4		
4x0132	5	_	

4x0133	0		
4x0134	0		R/W
4x0135	1 2		
4x0136			
4x0137			
4x0138		Tatal Dulas Output Count	
4x0139	2		
4x0140	3		
4x0141	4		
4x0142			
4x0143	5		
4x0144	5		
4x0221	ΛU	All DI Values	Read
4x0222	All	All DI values	Neau
4x0223	A II		
4x0224	All	All DO & SSR Values	Γ\/ ٧ V



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