



WebAccess Driver Configuration Manual

Advantech ADAM-4000

ADAM4K.DLL

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English Version 1.1



Revision History

Date	Version	Author	Reviewer	Description
2018-10-2	1.0	Jimmy.Lee	Joseph.Chiu	Initial Release
2018-11-05	1.1	Jimmy.Lee	Neal.Chen	Update error code

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1. Introduction to Advantech ADAM-4000 serial device

WebAccess SCADA Node provides a serial driver to connect the ADAM-4000 by using the Advantech ADAM-4000 ASCII protocol or the Modbus protocol.

The current version Adam4K driver supports ADAM-4000 modules as follow:

- A4011
- A4011D
- A4012
- A4013
- A4014D
- A4015
- A4016
- A4017
- A4017P
- A4018
- A4018M
- A4018P
- A4019
- A4021
- A4024
- A4050
- A4051
- A4052
- A4053
- A4055
- A4056S
- A4060
- A4068
- A4080
- A4080D
- A4117
- A4118
- A4150
- A4168

1.1 Address Definition

The body of the driver worksheet allows you to associate each tag to its respective module, slot and channel. In the column **Tag Name**, you must type the tag from your application database. This tag will receive or send values from or to an address device.

The address cell complies to the following syntax:

<Module's Name>&<Module's Function>@<Module's Address>.<Channel>

Module's Function: Module's function

Module's Address: Module's Address in the network

Channel: Channel's Number to be read or written from the module.

For example, a Tag that reads channel number 1 of a Model 4017 Analog Input Module and its network address is 2. Then the address of the tag is:

4017&AI@2.1

Another example is for Adam-4056S, which is a DO Digital Output module. You can set its network address as a number which is between 0 and 255. Now you set it as 3 and you want to output a digital number from channel 2 of Adam-4056S. The address of tag is:

4056S&DO@3.2

When configuring a Tag for the ADAM4XXX, it is recommended to use one of the pre-built Parameters.

For most applications, NO MODIFICATION of the Parameter Address is required!

The Digital Inputs all use the same Address; the channels vary by which Bit is read from the word.

Similarly, Digital Outputs use the same channel, but read different bits

1.2 Parameter

WebAccess supplies a set of parameters to use as a template for Tag configuration. NO MODIFICATION of the Parameter Address is required!

The following table lists all the parameters which Adam4K device driver supports.

	Name	Description	Data Type of Tag
1	DI	Digital input	Integer
2	DO	Digital output	Integer
3	DO:R	Digital output read back	Integer
4	AI	Analog input	Real
5	AO	Analog output	Real
6	AO:R	Analog output read back	Real
7	ALM:ON_MOM	Enable momentary alarm	-----
8	ALM:ON_LAH	Enable Latching alarm	-----

9	ALM:OFF	Disable alarm	-----
10	ALM:S	Read alarm status (0=OFF, 1=ON)	Integer
11	ALM:CLR	Clear alarm	-----
12	ALM:M	Read alarm mode(0=Disable,1=Enable(4080 only), 2=Momentary, 3=Latching)	
13	ALM:M_H	Read high alarm mode (0= Disable, 2=Momentary, 3=Latching)	Integer
14	ALM:M_L	Read low alarm mode (0=Disable, 2=Momentary, 3=Latching)	Integer
15	ALM:S_H	Read high alarm status(0=Alarm not occur; 1=Alarm occurred)	Integer
16	ALM:S_L	Read low alarm status(0=Alarm not occur; 1=Alarm occurred)	Integer
17	ALM:ON_H	Enable high alarm	-----
18	ALM:ON_L	Enable low alarm	-----
19	ALM:OFF_H	Disable high alarm	-----
20	ALM:OFF_L	Disable low alarm	-----
21	ALM:CLR_H	Clear high alarm	-----
22	ALM:CLR_L	Clear low alarm	-----
23	CNT:R	Read counter value	Integer
24	CNT:ON	Start counter	-----
25	CNT:OFF	Stop counter	-----
26	CNT:S	Read counter start/stop status(S=0,stops counting; S=1,starts counting)	Integer
27	CNT:CLR	Clear counter	-----

2. Configure ADAM-4000 connection by using SERIAL

The steps, in summary, are:

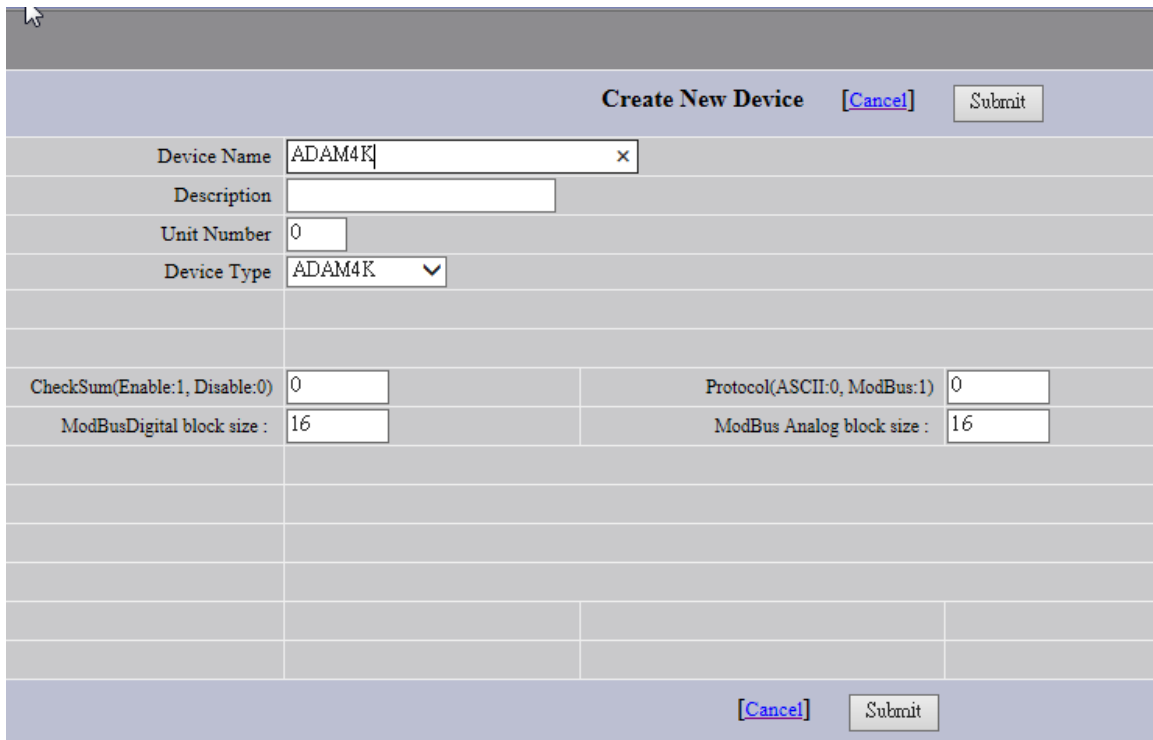
1. Start Internet Explorer **Web Browser**.
2. Enter IP address of the **Project Node**.
3. Use **WebAccess Configuration**.
4. Open or Create a **Project**.
5. Configure a **SCADA node** (the PC that will connect to the automation hardware).
6. Configure a **Comport** for the SCADA Node that is a **SERIAL type Comport**.

Create New Comport [Cancel] <input type="button" value="Submit"/>	
Interface Name	SERIAL <input type="button" value="v"/>
Comport Number	<input type="text" value="4"/>
Description	<input type="text" value="Description"/>
Baud Rate	19200 <input type="button" value="v"/> bps
Data Bit	<input type="radio"/> 7 <input checked="" type="radio"/> 8 bits
Stop Bit	<input checked="" type="radio"/> 1 <input type="radio"/> 2 bits
Parity	<input checked="" type="radio"/> None <input type="radio"/> Odd <input type="radio"/> Even
Scan Time	<input type="text" value="1"/> <input type="radio"/> MilliSecond <input checked="" type="radio"/> Second <input type="radio"/> Minute <input type="radio"/> Hour
Timeout	<input type="text" value="1000"/> MilliSecond
Retry Count	<input type="text" value="3"/>
Auto Recover Time	<input type="text" value="60"/> Second
HandShakeRts	<input checked="" type="radio"/> Yes <input type="radio"/> No
HandShakeDtr	<input checked="" type="radio"/> Yes <input type="radio"/> No
Backup Port Number	<input type="text" value="0"/>
[Cancel] <input type="button" value="Submit"/>	

Figure 2.1 SERIAL Comport properties

2.1 Device Setting

The user needs to set the device name, unit number, device type.



Create New Device [Cancel] Submit			
Device Name	ADAM4K x		
Description			
Unit Number	0		
Device Type	ADAM4K v		
Checksum(Enable:1, Disable:0)	0	Protocol(ASCII:0, ModBus:1)	0
ModBusDigital block size :	16	ModBus Analog block size :	16
[Cancel] Submit			

Figure 2.2 ADAM4K device properties

In the graph, you need to set checksum with number 0 or 1. you can watch your ADAM-4000 module's checksum with utility. If the checksum of the module is enabled, you must fill the checksum form with 1, on the other hand, if not enabled, fill it with 0.

The user can choose the ASCII or the Modbus to connect with ADAM-4000 modules by setting the value of the Protocol. For the ADAM-4017 AI_0 parameter, the default address is
4000&AI@0.0;40001

If the user wants to use the ASCII protocol, the Protocol value should be 0 and the user needs to modify the address as

4017&AI@0.0;40001

If the user wants to use the Modbus protocol, the Protocol value should be 1 and the user doesn't need to modify the address

4000&AI@0.0;40001

2.2 Tag property

In the WebAccess SCADA, there are two data types for the discrete and analog tags. The below screenshots are the samples for the tag property setting for the ADAM-4000.

Discrete tag property

Create New Tag		[Cancel]	Submit
Parameter	DI	Point (discrete)	
Alarm	No Alarm		
Tag Name			
Description	DI		
Scan Type	Constant Scan		
Address	4xxx&DI@0.0		
Conversion Code	BwAdamIO_Text_number		
Start Bit	0		
Length	1		
Signal Reverse	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Log Data	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Data Log Dead Band	3	%	
Write Action Log	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Read Only	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Keep Previous Value	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Initial Value	0		
Security area	0		
Security level	0		
State 0	0		
State 1	1		
State 2	NotUsed		

Figure 2.3 The discrete tag property for the BOOL variable

Analog tag property

Create New Tag		[Cancel]	Submit
Parameter	AI	Point (analog)	
Alarm	No Alarm		
Tag Name	ai0		
Description	AI		
Scan Type	Constant Scan		
Address	4000&AI@0.0;40001		
Conversion Code	BwAdamIO_Text_number		
Start Bit	0		
Length	16		
Signal Reverse	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Scaling Type	No Scale		
Scaling factor 1	0		
Scaling factor 2	0		
Log Data	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Data Log Dead Band	3	%	
Write Action Log	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Read Only	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Keep Previous Value	<input type="radio"/> Yes <input checked="" type="radio"/> No		

Figure 2.4 The analog tag property for the INT variable

3. Error Code

8000 Time out

8100 Open port failed

8300 Receive data error

9200 Check sum error

9300 unit number or function code error

9500 Address error