



*Driver of ADAM Protocol
User's Manual*

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1. Driver of ADAM Protocol

1.1. Driver Use

The ADAM driver is used for data exchange with ADAM-4000 series modules developed by Advantech. The transmission is performed with use of serial interfaces via standard serial ports of a computer (using the converter) or by using an additional card with an RS485 interface.

The only **asix** system requirement is that the ADAM modules should be configured to the following data transfer mode:

- number of character bits 10 (1 start bit, 8 character bits, 1 stop bit),
- no parity check,
- checksum.

1.2. Declaration of Transmission Channel

The full syntax of declaration of transmission channel which operate according to the ADAM protocol is given below:

logical_name=ADAM,no,type,port,[bauds]

where:

<i>no</i>	- network number of the ADAM module;
<i>type</i>	- identifier of the ADAM module type. At present the following types are implemented:
	1 - ADAM-4011
	2 - ADAM-4012
	3 - ADAM-4013
	4 - ADAM-4017
	5 - ADAM-4018
	6 - 8-channel pulse counter Mcom-1 (an equivalent of ADAM-4080D)
	7 - ADAM-4050
	8 - ADAM-4052
	9 - ADAM-4060
	10 - ADAM-4053
	11 - ADAM-4080;
<i>port</i>	- serial port name;
<i>bauds</i>	- transmission speed.

The *bauds* parameter is an optional parameter. Its default value is 9600 (Bd).

EXAMPLE

An example item which declares the use of transmission channel operating according to the ADAM protocol is given below:

CHAN1=ADAM,1,5,COM1,9600

The transmission channel of the logical name CHAN1 has the following parameters:

- ADAM protocol;
- network number 1;
- module type - ADAM-4018;
- transmission speed 9600 Bd.

1.3. Addressing the Process Variables

The syntax of symbolic address which is used for process variables belonging to the ADAM driver channel is as follows:

VARIABLE_TYPE *variable_index* [*.subchannel_no*]

where:

VARIABLE_TYPE - string identifying the variable name in the ADAM protocol;
variable_index - variable index within a given type;
subchannel_no - subchannel number for multichannel modules or a bit number for digital in/out modules.

The following symbols of process variable types are allowed:

R - read only variable;
W - write only variable;
RW - read/write variable.

Depending on the ADAM module type, various ranges of *variable_index* and *subchannel_no* are allowed. Process variables implemented at present are given below (see **Table 1**).

Table 1. Types of Implemented Process Variables Serviced by ADAM Modules.

Symb. Address	Variable Type in Device	Type of Raw Variable	Device Type	Data Format
	Variables Only for Reading			
R1	Read analog Input	Float	ADAM-4011	Eng. units
R1	Read analog Input	Float	ADAM-4012	Eng. units
R1	Read analog Input	Float	ADAM-4013	Eng. units
R1	Current readback	Float	ADAM-4021	Eng. Units
R1.0	Read analog Input 0	Float	ADAM-4017	Eng. units
R1.1	Read analog Input 1	Float	ADAM-4017	Eng. units
R1.2	Read analog Input 2	Float	ADAM-4017	Eng. units
R1.3	Read analog Input 3	Float	ADAM-4017	Eng. units
R1.4	Read analog Input 4	Float	ADAM-4017	Eng. units
R1.5	Read analog Input 5	Float	ADAM-4017	Eng. units
R1.6	Read analog Input 6	Float	ADAM-4017	Eng. units
R1.7	Read analog Input 7	Float	ADAM-4017	Eng. units
R1.0	Read analog Input 0	Float	ADAM-4018	Eng. units
R1.1	Read analog Input 1	Float	ADAM-4018	Eng. units
R1.2	Read analog Input 2	Float	ADAM-4018	Eng. units
R1.3	Read analog Input 3	Float	ADAM-4018	Eng. units
R1.4	Read analog Input 4	Float	ADAM-4018	Eng. units
R1.5	Read analog Input 5	Float	ADAM-4018	Eng. units
R1.6	Read analog Input 6	Float	ADAM-4018	Eng. units
R1.7	Read analog Input 7	Float	ADAM-4018	Eng. units
R1.0	Read counter/frequency value channel 0	Dword	MCom-1	Hex
R1.1	Read counter/frequency value channel 1	Dword	MCom-1	Hex
R1.2	Read counter/frequency value channel 2	Dword	MCom-1	Hex
R1.3	Read counter/frequency value channel 3	Dword	MCom-1	Hex
R1.4	Read counter/frequency value channel 4	Dword	MCom-1	Hex
R1.5	Read counter/frequency value channel 5	Dword	MCom-1	Hex
R1.6	Read counter/frequency value channel 6	Dword	MCom-1	Hex
R1.7	Read counter/frequency value channel 7	Dword	MCom-1	Hex
R2.0	Read timer interval value channel 0	Dword	MCom-1	0.1 sec incr.
R2.1	Read timer interval value channel 1	Dword	MCom-1	0.1 sec incr.
R2.2	Read timer interval value channel 2	Dword	MCom-1	0.1 sec incr.
R2.3	Read timer interval value channel 3	Dword	MCom-1	0.1 sec incr.
R2.4	Read timer interval value channel 4	Dword	MCom-1	0.1 sec incr.
R2.5	Read timer interval value channel 5	Dword	MCom-1	0.1 sec incr.
R2.6	Read timer interval value channel 6	Dword	MCom-1	0.1 sec incr.
R2.7	Read timer interval value channel 7	Dword	MCom-1	0.1 sec incr.

Table 2. Types of Implemented Process Variables Serviced by ADAM Modules (continuation).

Symb. Address	Variable Type in Device	Type of Raw Variable	Device Type	Data Format
R1.0	Read digital Input 0	Word	ADAM-4050	0/1
R1.1	Read digital Input 1	Word	ADAM-4050	0/1
R1.2	Read digital Input 2	Word	ADAM-4050	0/1
R1.3	Read digital Input 3	Word	ADAM-4050	0/1
R1.4	Read digital Input 4	Word	ADAM-4050	0/1
R1.5	Read digital Input 5	Word	ADAM-4050	0/1
R1.6	Read digital Input 6	Word	ADAM-4050	0/1
RW1	Analog Data Out/Last value readback	Float	ADAM-4021	Eng. Units
RW1.0	Read/Write digital Output 0	Word	ADAM-4050	0/1
RW1.1	Read/Write digital Output 1	Word	ADAM-4050	0/1
RW1.2	Read/Write digital Output 2	Word	ADAM-4050	0/1
RW1.3	Read/Write digital Output 3	Word	ADAM-4050	0/1
RW1.4	Read/Write digital Output 4	Word	ADAM-4050	0/1
RW1.5	Read/Write digital Output 5	Word	ADAM-4050	0/1
RW1.6	Read/Write digital Output 6	Word	ADAM-4050	0/1
RW1.7	Read/Write digital Output 7	Word	ADAM-4050	0/1
R1.0	Read digital Input 0	Word	ADAM-4052	0/1
R1.1	Read digital Input 1	Word	ADAM-4052	0/1
R1.2	Read digital Input 2	Word	ADAM-4052	0/1
R1.3	Read digital Input 3	Word	ADAM-4052	0/1
R1.4	Read digital Input 4	Word	ADAM-4052	0/1
R1.5	Read digital Input 5	Word	ADAM-4052	0/1
R1.6	Read digital Input 6	Word	ADAM-4052	0/1
R1.7	Read digital Input 7	Word	ADAM-4052	0/1
RW1.0	Read/Write digital Output 0	Word	ADAM-4060	0/1
RW1.1	Read/Write digital Output 1	Word	ADAM-4060	0/1
RW1.2	Read/Write digital Output 2	Word	ADAM-4060	0/1
RW1.3	Read/Write digital Output 3	Word	ADAM-4060	0/1
R1.0	Read counter/frequency value - channel 0	Dword	ADAM-4080	Hex
R1.1	Read counter/frequency value - channel 1	Dword	ADAM-4080	Hex
RW1.0	Read/Write initial counter - channel 0	Dword	ADAM-4080	Hex
RW1.1	Read/Write initial counter - channel 1	Dword	ADAM-4080	Hex
W1.0	Clear counter - channel 0	Dword	ADAM-4080	Hex
W1.1	Clear counter - channel 1	Dword	ADAM-4080	Hex

Table 3. Types of Implemented Process Variables Serviced by ADAM Modules (continuation).

Symb. Address	Variable Type in Device	Type of Raw Variable	Device Type	Data Format
R1.0	Read digital Input 0	Word	ADAM-4053	0/1
R1.1	Read digital Input 1	Word	ADAM-4053	0/1
R1.2	Read digital Input 2	Word	ADAM-4053	0/1
R1.3	Read digital Input 3	Word	ADAM-4053	0/1
R1.4	Read digital Input 4	Word	ADAM-4053	0/1
R1.5	Read digital Input 5	Word	ADAM-4053	0/1
R1.6	Read digital Input 6	Word	ADAM-4053	0/1
R1.7	Read digital Input 7	Word	ADAM-4053	0/1
R1.8	Read digital Input 8	Word	ADAM-4053	0/1
R1.9	Read digital Input 9	Word	ADAM-4053	0/1
R1.10	Read digital Input 10	Word	ADAM-4053	0/1
R1.11	Read digital Input 11	Word	ADAM-4053	0/1
R1.12	Read digital Input 12	Word	ADAM-4053	0/1
R1.13	Read digital Input 13	Word	ADAM-4053	0/1
R1.14	Read digital Input 14	Word	ADAM-4053	0/1
R1.15	Read digital Input 15	Word	ADAM-4053	0/1

The ADAM driver is installed as a DLL automatically.

1.4. Driver Configuration

The driver configuration is defined in the [ADAM] section, which allows to configure the driver for data exchange with ADAM series 4000 modules.



DEFAULT_REPLAY LENGHT=YES/NO

Meaning

- using the default answer length;

YES – waiting for the maximal possible answer length or character timeout;

NO – it is used if the answer length is not known in order not to wait for a timeout by the answer; otherwise the default answer length is used and a character timeout is waited.

Default value

- NO.



CHECKSUM =YES/NO

Meaning

- using the checksum in transfers PC <--> ADAM.

Default value

- YES.



READ_TIMEOUT = number

Meaning - timeout for answer as a multiple of 100 milliseconds.
Default value - 15, i.e. 1500 ms.



CHAR_TIMEOUT = number

Meaning - character timeout as a multiple of 10 ms.
Default value - 5, i.e. 50 ms.

2. List of Tables

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