



***DP5412 - Driver of PROFIBUS DP Protocol
for CP5412 Card
User's Manual***

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1. DP5412 - Driver of PROFIBUS DP Protocol for CP5412 Card

1.1. Driver Use

The DP5412 driver is used for data exchange in the PROFIBUS network with devices operating according to the PROFIBUS DP standard. The CP5412(A2) communication processor card and the DP-5412 software package (version 4.1 or higher) or the CP5613 card with the SIEMENS DP-5613 package must be installed on the **asix** system computer.

1.2. Declaration of Transmission Channel

The full syntax of item declaring the transmission channel working according to the DP5412 protocol is given below:

logical_name=DP5412, *card_no*, *address*

where:

<i>board_no</i>	- number of the CP5412 (A2) or CP5613 card used for communication with the given DP device (DP slave). In the present version the DP5412 driver may handle only one CP5412(A2) or CP5613 card,
<i>address</i>	- address assigned to the DP device.

The DP5412 driver is loaded as a DLL.

1.3. Configuration of DP Devices

The DP devices (DP slave) configuration is performed by the COM PROFIBUS program included in the DP-5412 package.

The application designer must ensure the compatibility of numbers assigned to the DP devices during the DP network configuration with the program COM PROFIBUS and of DP device numbers declared in the **asix** application INI file.

1.4. Addressing the Process Variables

The values transferred from modules connected to the DP device are written to an input buffer and to an output buffer of the DP5412 driver, in order according to the arrangement of Input/Output modules in the DP device cassette. The addressing the process variables consists in indication of:

- buffer type (input buffer or output buffer);
- byte no. (in the buffer), where the value of a given input/output is stored; depending on the type of process variable, the variable value occupies one byte (one-byte type variable) or 2 successive bytes (2-byte type variable);
- type of the variable (one-byte or 2-byte).

The syntax of symbolic address which is used for variables belonging to the DP5412 driver channel is as follows:

<type><index>

where:

<i>type</i>	- type of process variables:
IB	- byte from the input buffer,
IW	- 2 successive bytes from the input buffer treated as a fixed-point unsigned number in INTEL format,
IDW	- 4 successive bytes from the input buffer treated as a double word in INTEL format,
IFP	- 4 successive bytes from the input buffer treated as a floating-point number in INTEL format,
IWM	- 2 successive bytes from the input buffer treated as a fixed-point unsigned number in MOTOROLA format,
IDWM	- 4 successive bytes from the input buffer treated as a double word in MOTOROLA format,
IFPM	- 4 successive bytes from the input buffer treated as a floating-point number in MOTOROLA format,
OB	- byte from the output buffer,
OW	- 2 successive bytes from the output buffer treated as a fixed-point unsigned number in INTEL format,
ODW	- 4 successive bytes from the output buffer treated as a double word in INTEL format,
OFP	- 4 successive bytes from the output buffer treated as a floating-point number in INTEL format,
OWM	- 2 successive bytes from the output buffer treated as a fixed-point unsigned number in MOTOROLA format,
ODWM	- 4 successive bytes from the output buffer treated as a double word in MOTOROLA format,
OFPM	- 4 successive bytes from the output buffer treated as a floating-point number in MOTOROLA format;
<i>Index</i>	- number of the byte in the input/output buffer.

EXAMPLE

IB9	- 9-th byte from the area of inputs
IW2	- word created from the 2-nd and 3-rd byte of the area of inputs (INTEL format)
IWM2	- word created from the 3-rd and 2-nd byte of the area of inputs (MOTOROLA format)
IDW5	- double word created from the 5-th, 6-th, 7-th and 8-th byte of the area of inputs (INTEL format)
IDWM5	- double word created from the 8-th, 7-th, 6-th and 5-th byte of the area of inputs (MOTOROLA format)

1.5. Driver Configuration

The DP5412 driver may be configured using the **[DP5412]** section placed in the application INI file. Items in the DP5412 section have the following syntax:

item_name = [*number* [,*number*]] [*text*][YES|NO]

**REFRESH_CYCLE=number**

Meaning	- the item used to declare an interval between successive data readings from buffers of the CP5412(A2) or CP5613 CARD to the DP5412 driver structures.
Default value	- by default, the DP5412 driver reads data from buffers of the CP5412(A2) or CP5613 card every 0.5 second.
Parameter: <i>number</i>	- number of 0.5-second intervals, which must pass between successive data readings from buffers of the CP5412 (A2) or CP5613 card.

A declaration of data reading every 1 second:

REFRESH_CYCLE=2

**CONSOLE=YES|NO**

Meaning	- the item allows to create a console window, where the DP5412 driver messages, concerning to status of communication between an asix system computer and DP devices, are displayed.
Default value	- by default, the console window is not created.

**LOG_FILE=file_name**

Meaning	- the item allows to define a file where all the DP5412 driver messages, concerning to the status of communication between an asix system computer and DP devices, will be written. If the item does not define the full path, then the log file is created in the current directory.
Default value	- by default, the log file is not created.

EXAMPLE

An example item declaring a transmission channel using the DP5412 protocol for the communication with ET200U no. 7 is given below. The following input/output modules are connected to the ET200U (in order of their arrangement in the list):

- Digital Output module (8 outputs) 6ES5 461-8MA11,
- Analog Input module (4 inputs) 6ES5 464-8ME11,
- Digital Input module (8 inputs) 6ES5 431-8MA11.
- Digital Output module (8 outputs) 6ES5 461-8MA11.

CHAN1=DP5412,1,7

The transmission channel named **CHAN1** has the following parameters defined:

- DP5412 protocol,
- communication via the CP5412 (A2) card no. 1,
- DP device is assigned no. 7 in the PROFIBUS DP network.

In the considered configuration the area of inputs has 9 bytes. The meaning of the bytes is as follows:

bytes 1,2	- analog input 1	(module 6ES5 431-8ME11),
bytes 3,4	- analog input 2	(module 6ES5 431-8ME11),
bytes 5,6	- analog input 3	(module 6ES5 431-8ME11),
bytes 7,8	- analog input 4	(module 6ES5 431-8ME11),
byte 9	- digital input byte	(module 6ES5 431-8MA11).

In the considered configuration the area of outputs has 2 bytes. The meaning of the bytes is as follows:

byte 1	- digital output byte	(the first module 6ES5 451-8MA11)
byte 2	- digital output byte	(the second module 6ES5 451-8MA11)

Example declarations of process variables are given below:

```
# X1 – digital output – 1-st byte of output buffer
X1,      OB1,  CHAN1, 1, 1, NOTHING_BYTE
# X2 – digital output - 2-nd byte of output buffer
X2,      OB2,  CHAN1, 1, 1, NOTHING_BYTE
# X3 – digital input - 9-th byte of input buffer
X3,      IB9,   CHAN1, 1, 1, NOTHING_BYTE
# X4 – analog input 1 - 1-st and 2-nd bytes of input buffer
X4,      IW1,   CHAN1, 1, 1, NOTHING
# X5 – analog input 2 - 3-rd and 4-th byte of input buffer
X5,      IW3,   CHAN1, 1, 1, NOTHING
# X6 – analog input 3 - 5-th and 6-th byte of input buffer
X6,      IW5,   CHAN1, 1, 1, NOTHING
# X7 – analog input 4 - 7-th and 8-th byte of input buffer
X7,      IW7,   CHAN1, 1, 1, NOTHING
```

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