MELSECA - Driver of MITSUBISHI MELSEC-A PLC Protocol User's Manual

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1. MELSECA - Driver of MITSUBISHI MELSEC-A PLC Protocol

1.1. Driver Use

The MELSECA driver is used for data exchange between **asix** computers and the A1SJ71C24-R2 communication processor of MITSUBISHI MELSEC-A PLCs. The transmission is executed by means of serial interfaces by using standard serial ports of an **asix** system computer.

The cooperation of **asix** with the controller by using the MELSECA protocol does not require any controller's program adaptation.

1.2. Declaration of Transmission Channel

The full syntax of declaration of transmission channel working according to the MELSECA protocol is given below:

logical_name=MELSECA,*type*,*pc_cpu*,*port*,*[baud*,*character*,*parity*,*stop]*

where:

type	- set of realized commands: ACPU or AnCPU;
pc_cpu	- PC CPU number; in case of connection point-point it should be given `ff` (*self PC CPU number*),
port	- serial port name;
baud	- transmission speed in baud;
character	- number of bits in a transmitted character;
parity	- parity check type (even,odd,none);
stop	- number of stop bits.

Parameters *baud*, *character*, *parity*, *stop* and *buffer* are optional. In case of omitting them the default values are taken as follows:

- transmission speed - 9600 Bd,
- number of bits in a character - 8,
- parity check type - parity check (none),
- number of stop bits - 1.

EXAMPLE

An example declaration of transmission channel operating according to the MELSECA protocol is given below:

```
CHAN1=MELSECA,AnCPU,ff,COM1,9600,8,even,1
```

The transmission channel with logical name `CHAN1` has defined the following parameters:

- MELSECA protocol,
- set of commands AnCPU,
- connection point-point (self PC CPU number),

- port COM1,
- transmission speed of 9600 Bd,
- transmitted character length - 8 bits,
- parity check,
- one stop bit.

1.3. Addressing the Process Variables

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

VARIABLE_TYPE variable_index

where:
VARIABLE_TYPE - string identifying the variable type in the MELSECA protocol,
variable_index - index within a given type.

The following symbol of types of process variables are allowed (in columns on the right side the range of variable indexes for the ACPU and AnCPU sets of commands are given).

		ACPU	AnCPU
X	- Input X	0 - 7FF	0 - 7FF
Y	- Output Y	0 - 7FF	0 - 7FF
M	- Internal relay M.	0 - 2047	0 - 8191
L	- Latch relay L	0 - 2047	0 - 8191
S	- Step relay S	0 - 2047	0 - 8191
B	- Link relay B	0 - 3FF	0 - 0FFF
F	- Annunciator F	0 - 255	0 - 2047
TS	- Timer (contact) T	0 - 255	0 - 2047
TC	- Timer (coil) T	0 - 255	0 - 2047
TN	- Timer (present value) T	0 - 255	0 - 2047
CS	- Counter (contact) C	0 - 255	0 - 1023
CC	- Counter (coil) C	0 - 255	0 - 1023
CN	- Counter (present value) C	0 - 255	0 - 1023
MS	- Special relay M	9000 - 9255	9000 - 9255
D	- Data register D	0 - 1023	0 - 6143
W	- Link register W	0 - 3FF	0 - 0FFF
R	- File register R	0 - 8191	0 - 8191
DS	- Special register D	9000 - 9255	9000 - 9255

The variable index for types X, Y, B and W is given in hexadecimal form, at the same time the indexes beginning with a letter should be preceded by digit 0, e.g. a correct declaration of input no. E has a form of X0E (declaration XE will be rejected as wrong).

Indexes of the other types are given in decimal format.

EXAMPLE

X0A2	- value of input no. A2
D1010	- value of register D no. 1010

All process variables are treated as 16-bit numbers.

A correct operation of a communication processor A1SJ71C24-R2 requires apropriate setting of switches SW04 - SW12 and MODE (work mode) on the front panel. The MODE switch should be unconditionally set to position 1, because the MELSECA driver is based on the dedicated protocol with number 1. The SW04 switch should be set to ON if the application executes controls (state ON of the switch allows to write data in RUN mode). The SW12 switch should be set to ON (counting and verification of a checksum). The state of switches SW05 - SW11 should be set according to transmission parameters given in the item declaring a MELSECA transmission channel:

(transmission speed, number of characters in a word,number of stop bits, manner of parity check).

The cable connecting a communication processor A1SJ71C24-R2 with an **asix** system computer should be made according to the pattern given for the connection with a device which does not use signals DTR/DTS for transmission check (*see: chapter 4.5 External Wiring of documentation 'Computer Link Module type A1SJ71C24-R2'*).

The MELSECA driver is installed as a DLL automatically.

1.4. Driver Configuration

Configuration in the **[MELSECA]** section.

☑ ***LOG_FILE = file_name***

Meaning	- allows to define a file where all diagnostic messages of the MELSECA driver and information about the contents of telegrams received and sent by the MELSECA driver will be written.
Default value	- by default, the contents of telegrams are not written to the log file.

☑ ***CHECKSUM=YES|NO***

Meaning	- allows to use a checksum in the protocol.
Default value	- YES.

☑ ***LOG_OF_TELEGRAMS=YES|NO***

Meaning	- allows to write to the log file (declared by using the item LOG_FILE) the contents of telegrams sent and received by the MELSECA driver within the reading/writing of process variables.
Default value	- NO.

LOG_FILE_SIZE=number

Meaning - allows to specify the size of log file in MB.
Default value - 1 MB.

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