



CtMus04 -
- driver for data exchange with MUS-04 control devices from
ELEKTROMETAL S.A.

User's Manual

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1. CtMus04 – driver for data exchange with MUS-04 control devices from ELEKTROMETAL S.A.

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Driver Use

The CtMus04 protocol driver allows data between the **asix** system and the microprocessor-based control devices MUS-04 manufactured by ELEKTROMETAL S.A. from Cieszyn to be exchanged. The transmission is executed with the use of serial links by means of standard computer serial ports in RS-485 standard.

Parameterization of the CtMus04 driver is performed with the use of the Architect module.

Declaration of Transmission Channel

Declaration of the transmission channel operating according to CtMus04 protocol requires a channel with the following parameters to be added to the *Current data* module:

Standard tab:

Name: logical name of the transmission channel
Driver: CtMus04

CtMus04 tab:

Channel parameter:

Port=number; *No*=number
 [[: *Timeout*=number]; *CharTimeout*=number]

where:

<i>Port</i>	- serial port number,
<i>No</i>	- number of Mus04 supported through this channel,
<i>Timeout</i>	- max. waiting time for the first response character (in milliseconds); by default – 1000 milliseconds;
<i>CharTimeout</i>	- max. waiting time between the response characters (in milliseconds); by default – 100 milliseconds;

Transmission parameters are constant and have the following values:

- transmission speed 2400 Bd,
- 8 character bits,
- no parity bit,

- 1 stop bit.

EXAMPLE

An example of the declaration of the transmission channel for communication with the Mus04 devices no. 1 and 2 with the use of the COM2 serial port and with Mus04 no. 3 with the use of the COM1 serial port.

Name: K1

Driver: CtMus04

Channel parameters: Port=2;No=1

Name: K2

Driver: CtMus04

Channel parameters: Port=2;No=2

Name: K3

Driver: CtMus04

Channel parameters: Port=1;No=3

Addressing Variables

Symbolic address of the process variable has the following syntax:

< type> . < index>

where:

<i>type</i>	- variable type,
<i>index</i>	- index within type – in relation to the variable reading operation.

Variable types markings (in the brackets, the raw variable value type is given) are discussed below:

Read-only variable types:

R1 – information on MUS status, index range 1 – 12, index meanings – as in box 161,

R2 – is not used,

R3 – function matrix, index range 1 – 9, index meanings – as in box 163,

R4 – delay times, index range 1 – 8, index meanings – as in box 164,

R5 – retention times, index range 1 – 8, index meanings – as in box 164,

R6 – description of input determined by the index, index range 1 – 8,

R7 – description of output determined by the index, index range 1 – 8,

R8 - access password, only index 1,

R9 – input settings, index range 1 – 8, index meanings – as in box 169,

R10 – output settings, index range 1 – 8, index meanings – as in box 170,

R11 – MW settings, only index 1,

R12 – settings change information, only index 1,

R13 – additional settings information, only index 1.

Write-only (control) variables types:

W1 – RESET,

W2 - change of MUS number, it is not implemented,
W3 – sending new function matrix – buffer must have frame format of 3,
W3 – sending new delay times – buffer must have frame format of 4,
W5 – sending new retention times – buffer must have frame format of 5,
W6 – sending new retention times – buffer must have frame format of 6,
W7 – sending output description – buffer must have frame format of 7,
W8 – sending access password – buffer must have frame format of 8,
W9 – sending new input settings – buffer must have frame format of 9,
W10 – sending new output settings – buffer must have frame format of 10,
W11 – sending new MW settings – buffer has a size of 1 byte,
W12 – deleting bits related to settings change – buffer has a size of 1 byte.

Writing variables of **W6**, **W7** and **W8** types can be executed from **CAPTION** objects.

Writing variables of **W11** and **W12** types can be executed from **NUMBER** objects.

Writing variables of the remaining types can be executed with the use of scripts.

EXAMPLES

Examples of variable declaration – channel K1 supports the Mus-04 device no.1, channel K2 supports the Mus-04 device no.2:

JJ_10, IN1 input status of Mus-04 no. 1, R1.1, K1, 1, 1, NIC
 JJ_11, IN8 input status of Mus-04 no. 2, R1.8, K2, 1, 1, NIC
 JJ_12, battery voltage for Mus-04 no. 1, R1.10, K1, 1, 1, NIC_FP
 JJ_13, supply voltage of Mus-04 no. 2, R1.11, K2, 1, 1, NIC_FP
 JJ_14, description of input no. 1 of Mus-04 no. 2, R6.1, K2, 1, 1, NIC_TEXT
 JJ_15, description of output no.5 of Mus-04 no.1, R7.5, K1, 1, 1, NIC_TEXT
 JJ_16, delay time no. 2 of Mus-04 no. 1, R4.2, K1, 1, 1, NIC
 JJ_16, settings of inputs no. 3 of Mus-04 no. 1, R9.3, K1, 1, 1, NIC
 JJ_17, settings of outputs no. 4 of Mus-04 no. 2, R10.4, K2, 1, 1, NIC

Variables used only for execution of controls:

JJ_20, sending RESET order to Mus-04 no. 2, W1, K2, 1, 1, NIC
 JJ_21, new matrix settings for Mus-04 no. 2, W3, K2, 9, 1, NIC_BYTE
 JJ_22, new delay times settings for Mus-04 no. 1, W4, K1, 8, 1, NIC_BYTE
 JJ_23, new input settings for Mus-04 no. 1, W9, K1, 8, 1, NIC_BYTE
 JJ_24, new output settings for Mus-04 no. 2, W10, K2, 8, 1, NIC_BYTE

Driver Parameterization

The CtMus04 driver parameters are declared in the *Miscellaneous* module, on *Directly entered options* tab.

☒ **Section name:** CtMus04

☒ **Option name:** LOG_FILE

☒ **Option value:** log_filename

Meaning - a text log file, where the driver operation status messages are entered.

Default value - by default, the log file is not created.

Defining - manual.

☒ **Section name:** CtMus04

☒ **Option name:** LOG_FILE_SIZE

☒ **Option value:** number

Meaning - option is used to determine the size of the log file defined with use of the LOG_FILE option.

Default value - default log file size is 10 MB.

Parameters:

number - log file size in MB.

Defining - manual.

☒ **Section name:** CtMus04

☒ **Option name:** LOG_OF_TELEGRAMS

☒ **Option value:** YES/NO

Meaning - allows the contents of telegrams sent between the driver and controllers to the log file (declared with use of LOG_FILE option) to be saved. The discussed option can be used only during the asix system start-up.

Default value - by default, the option value is set to NO.

Defining - manual.

EXAMPLE OF DRIVER SECTION:

Section name: CTMUS04

Option name: LOG_FILE

Option value: d:\tmp\CtMus04\mus.log

Section name: CTMUS04

Option name: LOG_FILE_SIZE

Option value: 20

Section name: CTMUS04

Option name: LOG_OF_TELEGRAMS

Option value: YES