



CZAZ -

- Driver for Communication with CZAZ-U and CZAZ-UM

User's Manual

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1. CZAZ – Driver for Communication with CZAZ-U and CZAZ-UM

Driver use

The driver of serial link RS-485 that allows to exchange data between **asix** system and digital protection devices CZAZ-U and CZAZ-UM of ZEG-Energetyka.

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

Declaration of Transmission Channel

Declaration of the transmission channel using the CZAZ driver 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: CZAZ

CZAZ tab:

Channel parameters:
address, port, [baud, character, parity, stop]

where:

<i>address</i>	- device address in network;
<i>port</i>	- serial port name;
<i>baud</i>	- transmission speed in bauds;
<i>character</i>	- number of bits in a transmitted character;
<i>parity</i>	- parity check type (even, odd, none);
<i>stop</i>	- number of stop bits,

An exemplary Chanel declaration:

Name (of channel): ASMEN
Driver: CZAZ
Channel parameters: 10, COM1,115200,8,none,1

Declaration of Process Variables

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

object_id[.element_nr[bit_nr]]

where:

object_id - hexadecimal identifier of an object

- according to CZAZ device documentation. It is also possible to use the name of an object instead of the number.
- element_nr* - The number of element within an object. The first element has the number 0. If *element_nr* is omitted, it is taken 0.
- bit_nr* - The number of bit within an element. The first bit has the number 0.

Example

In the documentation of CZAZ device there is the 0102 object named Signal, which contains three elements: Signal1, Signal2 i Signal3.

Address	Meaning
102	first element of the object – Signal1 (as 32-bit word)
0102	as a/m
Signal	as a/m
102.0	as a/m
Signal.0	as a/m
102.1	second element of the 102 object – Signal2 (as 32-bit word)
102.1.4	Bit named SPZ5 in the second element of 102 object

Variables referring to objects of OB type are 8-bit elements (NOTHING_BYTE conversion function).

Variables referring to objects of 2B type are 16-bit words (NOTHING conversion function).

Variables referring to objects of 4B type are 32-bit words (NOTHING_DW conversion function).

Variables referring to individual bits in objects are 8-bit elements (NOTHING_BYTE conversion function).

Variables referring to elements of ULONG type objects are 32-bit words (NOTHING_DW conversion function).

Variables referring to elements of UWORD type objects are 16-bit words (NOTHING_DW conversion function).

The first element of 0110 object (Counter) is 32-bit word (NOTHING_DW conversion function), and the rest elements are 16-bit words (NOTHING conversion function).

The driver allows access to the first element of 0004 object (Time). It is 32-bit number (NOTHING_DW conversion function). To display this element on visualization masks it is possible to use the NUMBER object with the format %D. The driver permits to write such a variable into a device and set (in this way) its time. The number of 0004 object milliseconds are unavailable.

The driver allows access to the following objects: 0001, 0002, 0004, 0011, 0012, 0013, 0014, 0100, 0101, 0102, 0105, 0110, 0111, 0112, 0114, 0115, 0119, 011B, 011D, 011E, 0120, 0121, 0125, 0126, 0200, 0201, 0202, 0203,

0204, 0208, 0209, 020A, 020B, 020D, 020E, 020F, 0210, 0211, 0212, 0213, 0221, 0222, 0223, 0224, 0225, 0227, 0228, 0229, 022A, 022C, 022D, 0230, 0231, 0232, 0233, 0234, 0235, 0236, 0300, 0311, 0312, 0313, 0314, 031A, 0320, 0321, 0330, 0400, 0401, 0402, 0500, 0501, 0502 and 0503.

Generation of Alarms

The driver of CZAZ device with the interval defined by the *Event_check_period* parameter checks the state of device event lists and generates alarms for all new detected events. The number of **asix** system alarm is created as the sum of the number of CZAZ device event and the value defined by the *Alarms_base* parameter. The buffer of CZAZ device events can include up to 500 new events. For each event the alarm of event beginning / end is generated. Therefore it is possible to generate 1000 alarms at the same time for each serial link that CZAZ devices are connected to, while the default alarm buffer size of **asix** system equals 200. To prevent losing alarms, the buffer size should be set with use of the *INPUT_BUFFER_SIZE* parameter of *ALARMS_SYSTEM* section¹.

Driver Configuration

CZAZ driver parameters are declared in the *Miscellaneous* module, the *Directly entered options* tab.

The CZAZ driver may be configured using the 'CZAZ' section as well as sections having the same name as channel names. The parameters placed in the 'CZAZ' section apply to all devices and have global meaning. The parameters placed in other sections refer to a specified device. Some parameters can be declared only for the 'CZAZ' section, other can be placed in all sections.

Example

Channel declaration:

Name: CZAZ1
Channel parameters: 10, COM1,57600,8,none,1

Name: CZAZ2
Channel parameters: 10, COM2,57600,8,none,1

Name: CZAZ3
Channel parameters: 10, COM2,57600,8,none,1

Driver parameters:

- Section name:* CZAZ
- Option name:* Global_alarms
- Option value:* yes

- Section name:* CZAZ

¹ The option is not directly supported by Architect module, so to declare it for the application, you should use the *Miscellaneous* module (in Architect), *Directly entered options* tab.

- Option name: Time_sync*
- Option value: 50*

- Section name: CZAZ1*
- Option name: Time_sync*
- Option value: 120*

The *Global_alarms* parameter refers to all devices. As devices are not individual parameterized, the parameter can be used only in 'CZAZ' section. The *Time_sync* parameter placed in 'CZAZ' section defines 50 second time interval to control the time of all devices with the exception of CZAZ1 channel device, as in the 'CZAZ1' section one has defined the time interval equaled 120 seconds.

There are same driver parameters below. The 'global parameter' means the parameter declared only in 'CZAZ' section.

- Section name: CZAZ***
- Option name: Alarms_base***
- Option value: number***

Meaning: allows to specify numeration of alarms for each device.
Default value: -1 (no alarm service).

- Section name: CZAZ***
- Option name: Global_alarms***
- Option value: yes/no***

Meaning: the item controls the way of transferring alarms read from remote devices to the alarm system of **asix**; **global parameter**.

Default value: by default, the alarms are transferred to the alarm system as global alarms (transferred to the alarm system by means of the function *AsixAddAlarmGlobalMili()*). Setting the value of the item GLOBAL_ALARMS on NO causes that the alarms are transferred to the alarm system by means of the function *AsixAddAlarmMili()*.

- Section name: CZAZ***
- Option name: Event_check_period***
- Option value: number***

Meaning: the option declares the interval (in seconds) between checking the state of events and alarm generation in two subsequent devices connected to the same serial port; **global parameter**.

Default value: 10

- Section name: CZAZ***
- Option name: Field_number***
- Option value: number***

Meaning: the option declares a field number for a given device; it is transmitted as an alarm parameter.

Default value: -1

Section name: CZAZ

Option name: Log_file

Option value: file_name

Meaning: the item allows to define a file to which all diagnostic messages of CZAZ driver and all messages describing the telegrams received and sent by CZAZ driver will be written; if LOG_FILE does not define the full path, then the log file will be created in the current directory; the log file should be used only while the **asix** start-up; **global parameter**.

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

Section name: CZAZ

Option name: Transmission_delay

Option value: number

Meaning: the item allows to determine a time interval (as a multiple of 10 milliseconds) between two successive operations on a communication bus; **global parameter**.

Default value: by default, the item assumes a value of 1 (10 milliseconds).

Section name: CZAZ

Option name: Number_of_repetitions

Option value: number

Meaning: the item allows to define maximal number of trials to do the command in case of transmission errors; **global parameter**.

Default value: 3

Section name: CZAZ

Option name: Recv_timeout

Option value: number

Meaning: allows to specify a waiting time for arriving the first character of an answer sent from a specified device.

Default value: 1000

Section name: CZAZ

Option name: Time_sync

Option value: number

Meaning: allows to specify a time (in seconds) between successive time readouts from a device. If the parameter equals 0, the time is not read and all variables get a Windows time stamp.

Default value: 600

- Section name: CZAZ**
- Option name: *Roznica_Czasu***
- Option value: *number***

Meaning: allows to specify the time difference (in milliseconds) between a device time and Windows time. After exceeding the time defined by *Time_difference*, the time in CZAZ device will be set and equalized with the Windows time. The parameter is taken into consideration only if the *Time_sync* parameter differs from 0.

Default value: 0 (time in CZAZ device is not changed)