



***COMLI - Driver of COMLI Protocol
User's Manual***

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1. COMLI - Driver of COMLI Protocol

1.1. Driver Use

The driver is designed to data exchange between the **asix** system and SattConxx and other ABB PLCs supporting the COMLI (**COM**munication **L**ink) protocol. The data exchange is performed by means of a serial interface in the RS-232 or RS-485 standard.

In the present driver version the following functions of COMLI protocol are implemented:

- Transfer individual I/O bits,
- Transfer I/O bits or a register,
- Request individual I/O bits,
- Request several I/O bits or registers,
- Transfer date and time,
- Acknowledge.

1.2. Declaration of Transmission Channel

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

```
channel_name=COMLI, slave_no, port [, baud] [,parity] [,data_type]
```

where:

<i>COMLI</i>	- driver name;
<i>slave_no</i>	- slave no. assigned to the PLC;
<i>port</i>	- name of the serial port through which the connection with the PLC will be executed;
<i>baud</i>	- option: transmission speed; by default 9600;
<i>parity</i>	- option: parity check; by default ODD;
<i>data_type</i>	- option: representation of ASCII data (ASCII) or binary (BINARY); by default it is BINARY.

EXAMPLE

Below there is an example of declaration of transmission channel named CHANNEL, that is used for communication with the PLC no. 3 through the port COM2 in default mode, i.e. 9600 Bd, 8 bit character, check parity ODD, binary representation of data:

```
CHANNEL = COMLI, 3, COM2
```

1.3. Types of Process Variables

In the driver the following types of process variables are defined:

IO	- I/O states,
RG	- values of registers,
TM	- writing date and time to a PLC.

The values of **IO** and **RG** type variables may be read and written whereas the values of **TM** type variable may only be written.

1.4. Addressing the Process Variables

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

<Type><Index>

where:

Type - name of variable type,
Index - address of the variable within the *Type* type of the variable.

Ranges of indexes are following:

type **IO**: 0 – 16383,
 type **REG**: 0 – 3071,
 type **TM**: no index is given.

EXAMPLE

Examples of declaration of process variables:

JJ_1, state I/O number 1, IO1, CHANNEL,1,1,NOTHING
 JJ_2, register number 10, RG10, CHANNEL,1,1,NOTHING
 JJ_40, writing date and time every 1 minute, TM, CHANNEL,12,60,NOTHING_BYTE

1.5. Synchronization of Date and Time with the Controller

In the driver a mechanism of synchronization of date and time between **asix** and PLCs is included. The synchronization is activated for each transmission channel separately with use of items included in the ASMEN section:

TIME_SYNCHRONIZATION = *channel, variable*

where:

channel - name of transmission channel used for communication with defined PLC;
variable - name of an ASMEN variable belonging to the channel *channel* and using for synchronization of date and time.

The synchronization of date and time consists in writing to a PLC a frame containing the current date and time of **asix**. The frame is written by using the function for writing the date and time of the COMLI protocol according to the frequency assigned to the *variable*. The variable type must be the type **TM** (supporting date and time), the number of elements assigned to the *variable* must be 12 (the size of frame of date and time). The function NOTHING_BYTE must be used as a calculation function.

EXAMPLE

An example of the definition of time synchronization every 1 minute for the channel *CHANNEL* by using the variable *SYNCHRO* is given below.

```
[ASMEN]
DATA= COMLI.DAT
CHANNEL = COMLI, 2, COM1
TIME_SYNCHRONIZATION = CHANNEL, SYNCHRO
```

The declaration of the variable *SYNCHRO* is found in the file *COMLI.DAT* and has the following form:

```
SYNCHRO, synchronization of date and time, TM, CHANNEL,12, 60, NOTHING_BYTE
```

1.6. Driver Configuration

The driver configuration is performed by using a separate section named [**COMLI**]. By means of this section it is possible to declare:

- wait timeout for a response from a PLC,
- log file and its size,
- log of telegrams,
- number of repetitions.



RECV_TIMEOUT=slave_no, number

Meaning - for each slave it is possible to define the maximal time, which may elapse between sending query and receiving response (so-called receiving timeout).

Default value - by default, the item has a value of 2000.

Parameter:

slave_no - slave no. assigned to the PLC.
number - value of timeout in milliseconds.



LOG_FILE=file_name

Meaning - the item allows to define a file to which all the diagnostic messages of the driver and the information about the content of telegrams sent/received by the driver will be written. If the item doesn't define a full path the log file will be created in the current directory. The log file should be used only while the **asix** start-up.

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



LOG_FILE_SIZE=number

Meaning - the item allows to define the size of the log file in MB.

Default value - the default size of the log file amounts 1 MB.

Parameter:

number - size of the log file in MB

***LOG_OF_TELEGRAMS =YES/NO***

- Meaning - the item allows to write the content of telegrams sent/received by the driver to the log file (declared by means of the item LOG_FILE). Writing the content of telegrams should be used only while the **asix** start-up.
- Default value - by default, the driver does not write the content of telegrams to the log file.

***NUMBER_OF_REPETITIONS=number***

- Meaning - the item allows to define maximal number of trials to do the command in case of transmission errors.
- Default value - by default, max. 3 repetitions are executed.
- Parameter:
number - number of repetitions.

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