



***S7\_TCPIP – Driver for Data Exchange with SIMATIC Controllers  
with Use of Ethernet  
User's Manual***

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# 1. S7\_TCPIP – driver for data exchange with SIMATIC controllers with use of Ethernet

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## Driver Designation

The S7\_TCPIP driver is used for data exchange with SIMATIC S7-series controllers through the Ethernet connection with the use of a standard computer network card.

The S7\_TCPIP protocol driver does not require the installation of SIMATIC NET software from SIEMENS on the **asix** system computer, nor the adaptation of the controller program for the needs of data exchange.

The parameterization of the S7\_TCPIP driver is performed by the Architect application.

## Transmission Channel Declaration

The declaration of the transmission channel operating according to S7\_TCPIP protocol requires a channel with the following parameters to be added to the *Current data* module:

### **Standard** tab:

*Name*: logical name of the logical transmission channel

*Driver*: S7\_TCPIP

### **S7\_TCPIP** tab:

*Server IP address*

*Local TSAP address*

*Remote TSAP address*

*Control variable* – name of variable used to control the controller's RUN-STOP status

*Alarm number* – alarm number generated upon the change of the controller's RUN-

STOP status; by default, the alarm is not generated

*Error signal* – setting the error status for all variables in the given channel if the controller switches into STOP status; by default

the error status is set

### EXAMPLE

Below is an example of the declaration of the transmission channel utilizing protocol S7-TCPIP:

Name: CHAN1  
 Driver: S7\_TCPIP  
 Server IP address: 10.10.10.40  
 Local TSAP address: 10.02  
 Remote TSAP address: 10.03

## Process Variable Addressing

The rules for creating symbolic variable addresses belonging to the transmission channel utilizing S7\_TCPIP protocol are the same as in the case of channel utilizing SAPI7 protocol.

The symbolic address for variables belonging to the S7\_TCPIP channel has the following syntax:

*variable\_type*[*db\_number*.]*variable\_index*

where:

- variable\_type* - string identifying the variable type in the controller;
- db\_number* - optional data block number; used only in the case of process variables being the mapping of word contents in the data blocks;
- variable\_index* - variable index within the given type; in the case of data blocks, this is the word number in the data block.

The following process variable type markings (based on the variable type names used by SIEMENS) are allowed:

- EA - statuses of outputs, transmitted in bytes,
- EE - statuses of inputs, transmitted in bytes,
- EM - statuses of flags, transmitted in bytes,
- EZ - statuses of meters, transmitted in words,
- ET - statuses of clocks, transmitted in words,
- ED - word values in data blocks,
- EL - double word values in data blocks,
- EG - double word values in data blocks, treated as number in floating point format KG,
- EDI - 16-bit words in INTEL convention,
- ER - contents of the data blocks treated as floating point numbers,
- EB - contents of the data blocks treated as bytes.

### EXAMPLES

- ED10.22 - word number 22 in data block no. 10
- EZ100 - meter no. 100

## Driver Parameters

Driver parameters are declared in the *Current data* module on *S7\_TCPIP* tab of the channel operating on the basis of S7\_TCPIP driver protocol:



### **Log file**

Meaning - option allows the definition of a file, where all S7\_TCPIP driver messages related to operations executed by the driver will be saved. If the LOG\_FILE option does not define a full path, the log file will be created in the current folder.

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

Parameter:

*file\_name*



### **Log file size in MB**

Meaning - allows log file size in MB to be determined.

Default value - by default, option takes the value of 1 MB.

Parameter:

*number*



### **Log of telegrams**

Meaning - declaration of writing the contents of telegrams sent and received by the S7\_TCPIP driver within the reading/writing process variables to the log file, declared in LOG\_FILE option.

Default value - by default, the option is disabled.



### **Log of telegram content**

Meaning - writing telegram contents to the log file.

Default value - by default, the option is disabled.



### **Statistics**

Meaning - the option allows information on the number of performed transmission sessions, average transmission time and the transmission error number to be displayed every minute; this option was developed to support the designer in the system start-up stage.

Default value - by default, transmission statistics are not displayed.