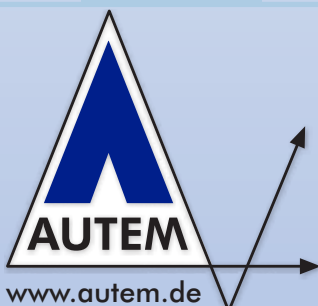


PLC-Driver

PILZ PSS / PNOZ

Ethernet TCP/IP



**PLC-ANALYZER** *pro 5*

The logic analyzer for  
programmable  
logic controls

## **Driver Addendum PILZ PSS / PNOZ - Ethernet TCP/IP**

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For references, suggestions and improvement suggestions we are always grateful. Please send these to AUTEM.

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# 1 Installation

This driver addendum describes the particularities of the following PLC driver and gives you hints on the usage:

- PILZ PSS / PNOZ - Ethernet TCP/IP

The listed driver makes the acquisition of PLC signals through Ethernet (TCP/IP) possible.

It is important, that you read through the driver addendum first, before you use a PLC driver. Please pay attention to the WARNINGS that advise you on possible dangers when using PLC-ANALYZER pro.



## WARNING

Errors that may occur in the automated facility endangering humans or causing large-scale material damage must be prevented by additional external precautions. These precautions (e.g. independent limit monitors, mechanical interlocks) must guarantee a safe operation even in the case of dangerous errors.

## 1.1 Installation of PLC driver

The PLC driver can be installed while PLC-ANALYZER pro is operating. Select *PLC driver* in the menu *Extras*. In the window PLC driver click the button *Add*. If the desired driver is not on the list, you have to install a new driver via the License-key management (s. *user manual PLC-ANALYZER pro 5 - chapter 2-2 Installation*).

With PLC-ANALYZER pro you can load the same or different PLC drivers more than once. You can, for example, acquire simultaneously signal data from two PILZ PSS, which are connected to the Ethernet TCP/IP network.

### 1.1.1 Installing additional hardware

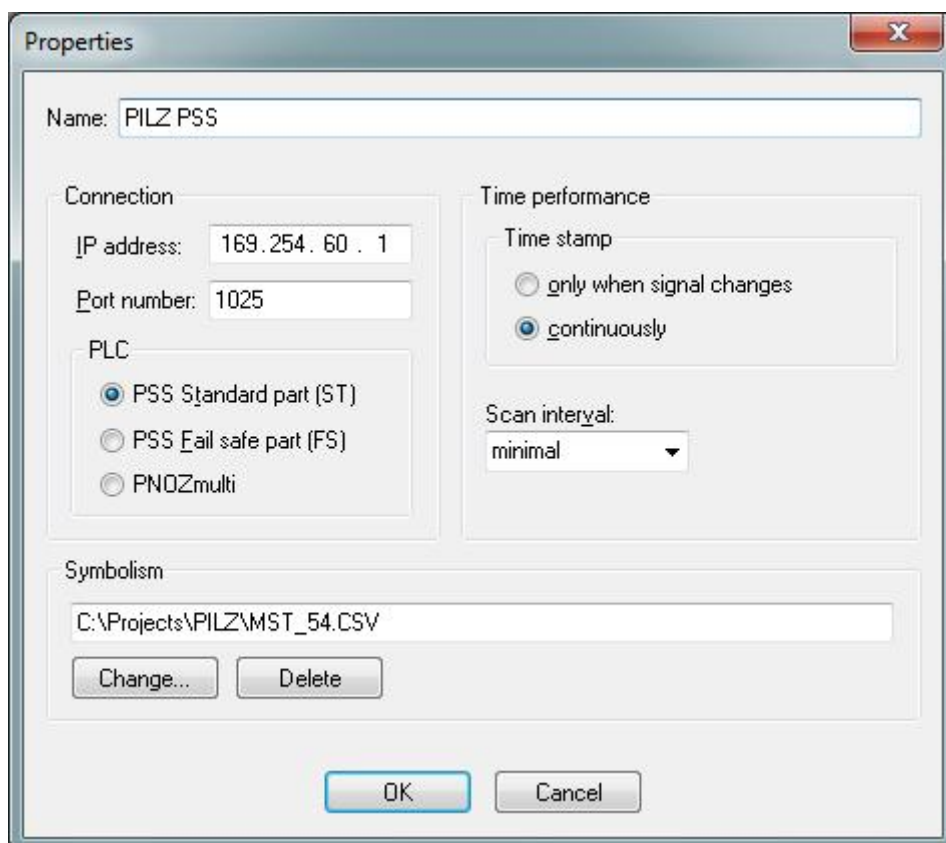
If you have already connected your programming unit (or your PC) with the automation device via Ethernet TCP/IP network, usually nothing else must be done.

### 1.1.2 Installing additional software

In addition to the PLC-ANALYZER pro basic module and the PLC driver no other software is necessary.

## 1.2 Configuration of PLC driver

After installing the driver you can change important parameters under *Properties*. If you have loaded several drivers, you can set the properties for each driver individually.



**Fig. 1-1 Driver settings**

Choose a *Name* for the driver first, then specify under *Connection* the *IP-Address* of PLC and the *Port number*. You find these settings in the Ethernet configuration of your PSS WIN-PRO project.

Under *PLC* you decide, if data should be recorded out of the *Standard part (ST)* or out of the *Fail safe part (FS)* of the PSS or out of a *PNOZmulti*.

Use *Time stamp* to specify, if the time stamps should be entered into the signal file continually (at every scan point) or only for signal changes. For a continuous time stamp the exact scan points are documented even for a signal which does not change. The signal files are therefore larger.

Under *Scan interval* enter the length of time between read-out of data from the PLC. A longer scan interval may be chosen for non-critical time signals, e.g. temperature. The signal files thus created become smaller.

Under *Symbolism* you can assign a symbol file to the loaded driver. This makes the use of a symbolic identifier for the address definition possible (*s. user manual PLC-ANALYZER pro 5 - chapter 4.1 Address selection*). Besides the absolute addresses, the symbolic identifier and the comments will be shown and stored in a signal- or project-file.

## 2 Data acquisition

### 2.1 Supported PLC models

All models of the PILZ PSS-Series and PNOZmulti with an Ethernet port are supported.

### 2.2 Recordable PLC addresses

The following table shows the recordable addresses and the corresponding address syntax:

Syntax	Address type	Example
A y.z	PSS output byte y, bit z	A 32.4
AB y.z	PSS output byte y	AB 9.24
AW x.z	PSS output word x.z	AW 14.00
E y.z	PSS input byte y, bit z	E 17.23
EB y.z	PSS input byte y.z	EB 23.24
EW x.z	PSS input word x.z	EW 14.16
O y.z	PNOZ output byte y, bit z	O 32.4
OB y.z	PNOZ output byte y	OB 9.24
OW x.z	PNOZ output word x.z	OW 14.00
I y.z	PNOZ input byte y, bit z	I 17.23
IB y.z	PNOZ input byte y.z	IB 23.24
IW x.z	PNOZ input word x.z	IW 14.16
M y.z	Flag byte y, bit z	M 3.07
MB y.z	Flag byte y.z	MB 25.08
MW x.z	Flag word x.z	MW 24.16
T x	Status Timer x	T 2
Z x	Status Counter x	Z 5
ZW x	Counter x	ZW 5
y DL x	Left data byte x from DB y	82 DL 622
y DR x	Right data byte x from DB y	24 DR 346
y DW x	Dataword x from DB y	12 DW 600

**Table 2-1 Address syntax PILZ PSS / PNOZ**



#### NOTE

The automation devices of the PILZ PSS series allow only byte-oriented data acquisition. PLC-ANALYZER pro automatically converts a given bit address to a byte address. All bits are available for display.

### 2.3 Number of simultaneously recordable addresses

Up to 1000 addresses can be recorded. The term “address” means a byte- or a word-address.

### 2.4 Time behavior and particularities



#### NOTE

Acquiring data with PLC-ANALYZER pro results in a small increase in cycle time in the automation device to the same manner as it happens with PSS WIN-PRO in the operating mode “Variable display”.

The intervals between scan transfers from the PILZ PLC to the computer are depending on the following items:

- CPU type
- cycle time of PLC
- Number of recorded addresses.

For the PSS SB 3006-3 ETH-2 the scan interval for a address is approximately 5 ms, i.e. for a cycle time  $> 5$  ms there is one scan for each cycle. For a longer PLC cycle time data transfer is synchronized with the PLC cycle.

For a shorter cycle time the computer does not obtain a scan for each cycle, resulting in a partial loss of information. This loss can be compensated by repeated measurements of the interesting signals.

Every additional requested address leads to an increase in scan time of about 0.1 ms. The following table exemplarily shows some values of time behaviour during acquisition:

Requested data	Scan time
1 flag byte	5 ms
50 flag words	11 ms
100 flag words	22 ms
1 flag byte, 1 output byte	5 ms
50 flag byte, 50 data words	23 ms
10 flag words, 10 data words, 10 inputs, 10 outputs	10 ms

**Table 2-2 Scan times on PSS SB 3006-3 ETH-2**