PLC-ANALYZER pro 6

PLC-Logic analysis in no time

Driver Addendum

PLC-driver

PILZ PSS / PNOZ

Ethernet TCP/IP / programming interface

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PLC-ANALYZER pro **6 - Driver Addendum**

PILZ PSS / PNOZ - Ethernet TCP/IP
PILZ PSS / PNOZ - programming interface

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

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Signal source

PILZ PSS / PNOZ

This driver addendum describes the particularities of the following PLC drivers and gives you hints on using them.

- PILZ PSS / PNOZ - Ethernet TCP/IP
- PILZ PSS / PNOZ - programming interface

With the PLC driver "PILZ PSS / PNOZ - Ethernet TCP/IP" PLC signals can be acquired via Ethernet (TCP/IP) and the PLC driver "PILZ PSS / PNOZ - programming interface" via the serial communication port of the PLC.

It is important that you read through the driver addendum before using 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 precautions. These precautions (e.g. independent limit monitors, mechanical interlocks) must guarantee safe operation, even in case of dangerous errors.

Installation

The PLC driver can be added to the project as a new signal source. If the driver you want is not yet in the list of available signal sources, you must first activate the license for the PLC-driver with the AUTEM LicenseManager on your computer.

Installing additional hardware

If you have already connected your PC to the PLC via a TCP/IP network or a serial cable, you normally do not need to do anything else. Otherwise, connect your PC to the PLC.

Installing additional software

No software is required in addition to the PLC-ANALYZER pro basic module and the PLC driver.

Configuration

Open driver settings to set important parameters for data recording. If you have added the driver to the project several times, you can set the properties individually for each individual driver.

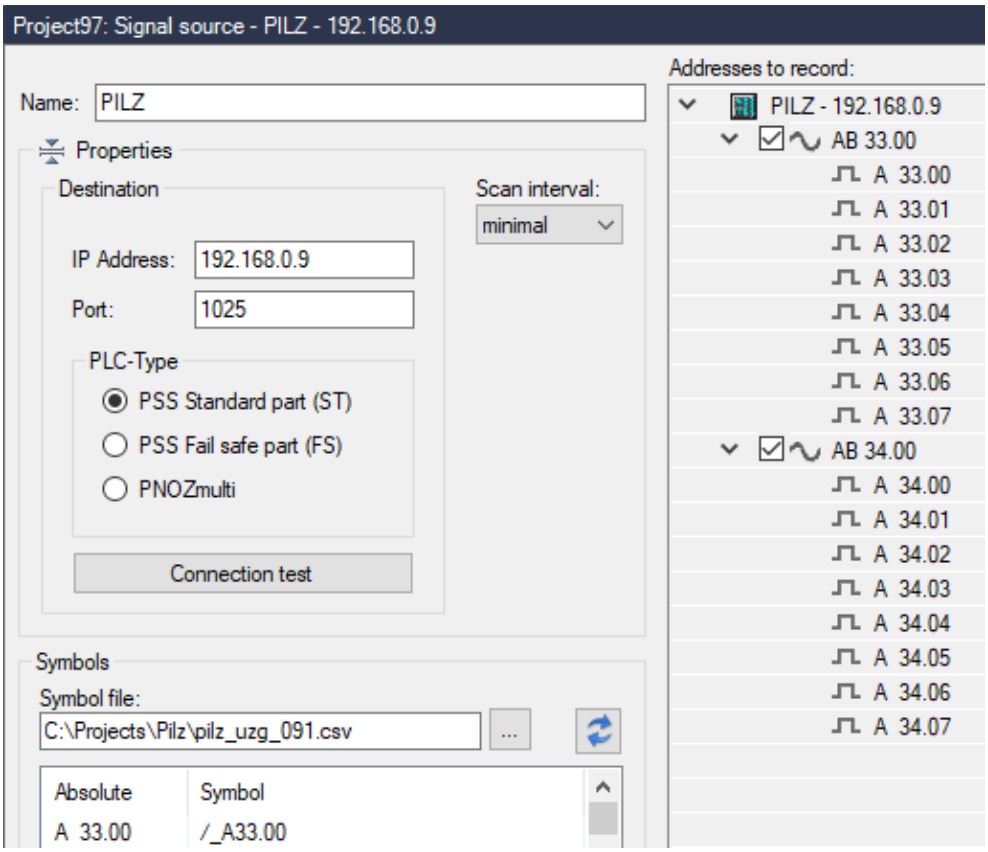

Fig. 1-1 Settings PILZ PSS - Ethernet TCP/IP

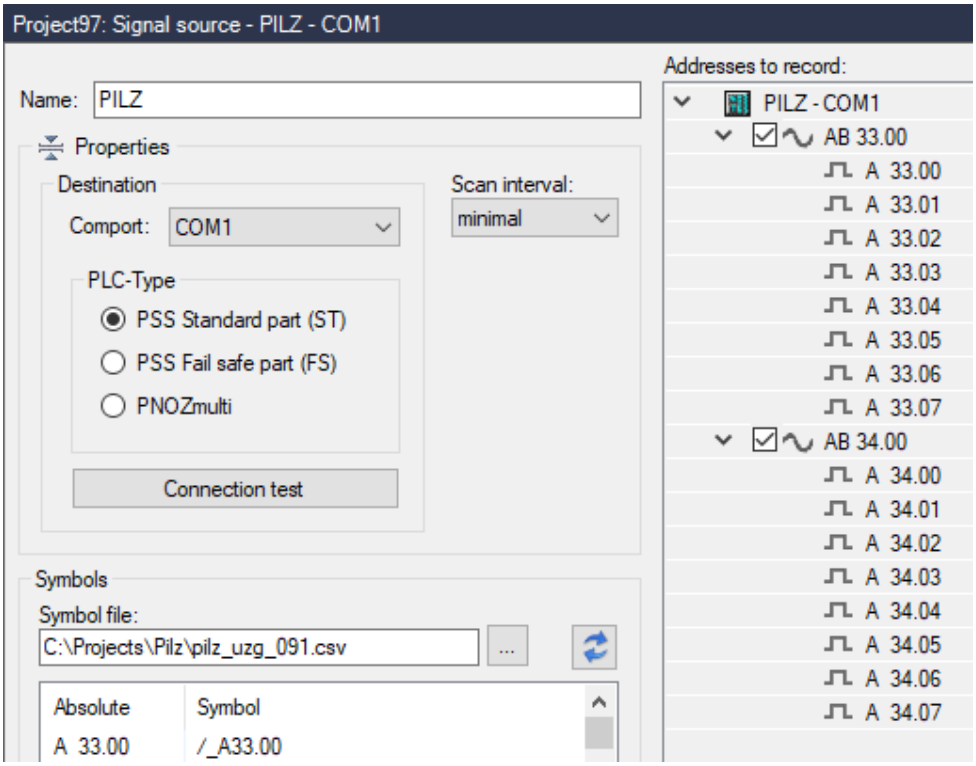

Fig. 1-2 Settings PILZ PSS - Ethernet TCP/IP

First give the driver a meaningful *name*. Then set the *IP Address* and the *Port* of the PLC or the *Comport* to which the PLC is connected. These settings can be found in the configuration of your PSS WIN-PRO project.

Under *PLC type*, specify whether you want to record data from the *Standard part* or from the *Fail-safe part* of a PSS CPU or from a *PNOZmulti*.

Press *Connection test* to check, whether a connection to the PLC can be established.

Under *Scan interval* you specify the time interval at which measured values are read out from the PLC. A longer sampling interval can be selected for signal paths that are not time-critical, e. g. temperature. As a result, the generated signal files become smaller.

Under *Symbols*, select a *Symbol file* to make the symbols available for address selection. This makes it possible to use symbolc identifiers when entering addresses. In addition to the absolute address, the symbolic identifier and comment are also displayed and stored in a signal- or project file.

After setting the communication properties, add the PLC signals to be recorded. When a symbol file is loaded, the signals to be recorded can be conveniently selected from the symbol list by double-click or drag and drop.

Data acquistion

Supported PLC models and CPUs

All models of the PILZ PSS 3000 series and the PNOZmulti are supported, which support a connection to the programming software (PILZ Win-PRO) via the corresponding interface.

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 1-1 Address syntax PILZ PSS / PNOZ

Number of recordable addresses

A maximum of 16 million addresses can be acquired from up to 250 signal sources.

Time behaviour and particularities

> **NOTE**
>
> Acquiring data with PLC-ANALYZER pro results in a small increase in cycle time in the PLC to the same manner as it happens with programming software PSS WIN-PRO in the online-mode.

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 1-2 Scan times on PSS SB 3006-3 ETH-2

The following table shows typical scan times for PILZ PSS 3046 (cycle time ca. 40ms):

Scandata	Scan time
1 Byte	90 ms
32 Words	120 ms

Table 1-3 Recording time PILZ PSS 3046