

PLC-ANALYZER pro 6

PLC-Logic analysis in no time

Driver Addendum



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PLC-driver

PHOENIX

Ethernet TCP/IP, cycle precise



AUTEM
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PLC-ANALYZER pro 6 - Driver Addendum

PHOENIX - Ethernet TCP/IP, cycle precise

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Table of Contents

Signal source	3
PHOENIX	3
Installation	3
Installing additional hardware	3
Installing additional software	3
Configuration	4
Data acquisition	6
Supported PLC models and CPUs	6
Recordable PLC addresses	6
Number of recordable addresses	6
Time behaviour and particularities	7

Signal source

PHOENIX

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

- PHOENIX - Ethernet TCP/IP

With the PLC driver PHOENIX - Ethernet TCP/IP PLC signals can be acquired via Industrial Ethernet (TCP/IP).

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 programming unit (or your PC) with the automation device via Ethernet TCP/IP network, usually nothing else must be done. Otherwise connect your PC to the TCP/IP network, which is connected 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 PHOENIX - Ethernet TCP/IP

Choose a meaningful *Name* for the driver first, then specify under *Destination*, the *IP-Address* of the PLC. Select the *PLC Type*. ProConOS systems support cycle exact acquisition. For recording of very brief signal changes, activate *Cycle precise recording*. Select a *Task* which is used for cycle-precise acquisition. Click *Read Tasks form PLC* to fill the task list with all available Tasks of the PLC.

Cycle-precise signal acquisition guarantees an acquisition of selected signals of each PLC-cycle without gaps. During cycle-precise signal acquisition a limited number of signals are acquired in the memory of the PLC. The selected signals are stored in the memory during each PLC cycle and are transmitted to the PC in such way, that a continuous cycle-precise acquisition is possible.

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.

In *Symbols* you select an OPC variable list (*.CSV) or a PCWorx project (*.MWT) to make the symbols of this project available for address selection. Click *Read symbols from destination* to read the variable list

directly from the PLC. This makes it possible to use symbolic 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 or project is loaded, the signals to be recorded can be conveniently selected from the symbol list by double-click or drag and drop.

NOTE

Variables will only write in the OPC variable list when these are declared as OPC (OPC checkbox) in PC-WorX.

Data acquisition

Supported PLC models and CPUs

All models are supported which use based on ProConOS or ProConOS-eCLR:

- ILC 130 ETH, ILC 150 ETH, ILC 170 ETH 2TX, ILC 150 GSM/GPRS
- ILC 330 PN, ILC 350 PN, ILC 370 PN 2TX-IB/M, ILC 390 PN 2TX-IB
- RFC 470 PN 3TX, RFC 470S PN 3TX
- S-MAX 400 CE, S-MAX 412 CE, S-MAX 415 CE, S-MAX 417 CE
- PC WORX RT

Not listed automation instruments and CPUs are normally compatible, but not explicitly tested for it.

Recordable PLC addresses

ProConOS-eCLR systems use the variable names to record data. All in the PLC available variables are supported. You should use a symbol file for adding addresses to your project.

ProCoOS systems support absolute addresses. The following table shows the recordable addresses and the corresponding address syntax:

Syntax	Art der Adresse	Beispiel
%MXx.y	Bit y from flag byte x	%MX 32.2
%MBx	Flag byte x	% MB 9
%MWx	Flag word x	%MW 14
%MDx	Flag double word x	%MD 98
%IXx.y	Bit y from input byte x	%IX 17.0
%IBx	Input byte x	%IB 127
%IWx	Input word x	%IW 12
%IDx	Input double word x	%ID 124
%QXx.y	Bit y from output byte x	%QX 3.7
%QBx	Output byte x	%QB 250
%QWx	Output word x	%QW 24
%QDx	Output double word x	%QD 134

Table 1-1 Address-Syntax PHOENIX

Number of recordable addresses

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

Time behaviour and particularities

The PLC signal data requested from the PC - a scan - come from one cycle at a time. The intervals between scan transfers from the PLC to the computer are depending on the type and the cycle time of the PLC.

With a ILC 390 PN 2TX-IB with a cycle time of 2 ms you can reach a scan interval of 4 ms.

During cycle- precise signal acquisition the temporal minimum distance of the scans is equal to the task cycle time, i.e. a cycle time of e.g. 2 ms results in a temporal distance of 2 ms between two scans. The requested PLC signal data are transferred to the PC in blocks. One block contains several scans.