PLC-ANALYZER pro 6

PLC-Logic analysis in no time

Driver Addendum

PLC-driver

HITACHI H/EH-150/Micro-EH

Ethernet TCP/IP / programming interface

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

HITACHI H / EH-150 / Micro-EH - programming interface / 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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Signal source

HITACHI H / EH-150 / Micro-EH

This driver addendum is additional to the PLC-ANALYZER pro handbook and explains particularities and provides important information for the use of the following driver:

- HITACHI H / EH-150 / Mirco-EH - programming interface
- HITACHI H / EH-150 / Mirco-EH - Ethernet TCP/IP

The HITACHI H / EH-150 / Mirco-EH - PG - interface driver makes possible the acquisition of PLC signals through the programming interface of the PLC. The HITACHI H / EH-150 / Mirco-EH - Ethernet TCP/IP driver makes possible the acquisition of PLC signals via Ethernet (TCP/IP).

> **!** **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 additiional hardware

If you have already connected your programming unit (or your PC) for programming with Pro-H via you COM-Port or via Ethernet, then you normally don’t have to do anything else.

Otherwise connect your programming unit (or PC) with a serial connection or via Ethernet interface of the automation device. For TCP/IP a usual Ethernet card is necessary.

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.

Recording via Ethernet TCP/IP

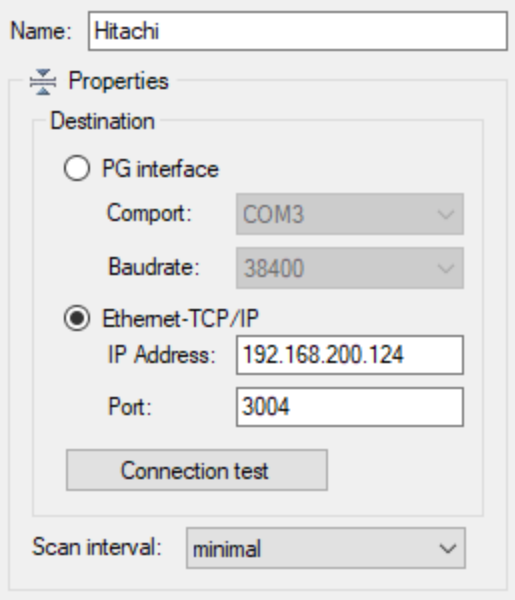

Fig. 1-1 Configuration of the PLC driver (Ethernet TCP/IP)

First enter a meaningful *name*. After installing the driver select under *Properties* the important Parameters.

For Ethernet TCP/IP-driver insert the *IP address* and the *Port* of the PLC-Ethernet module. Click the button *Connecting test* to check whether the PLC-ANALYZER could establish a connection to the PLC with the adjusted parameters.

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.

Recording via Programming interface

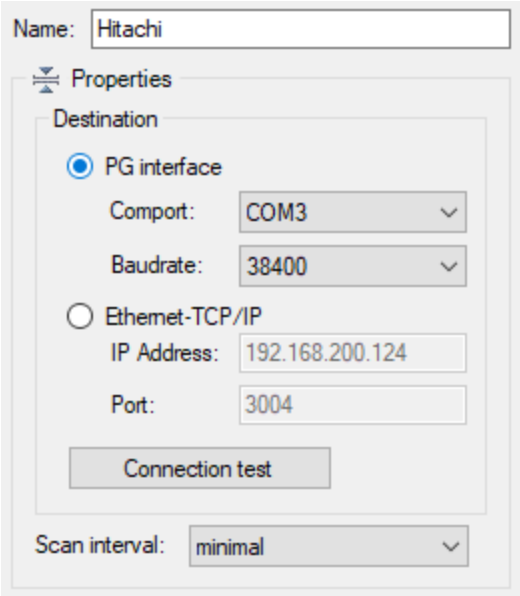

Fig. 1-2 Configuration of the PLC driver (PG-interface)

First enter a meaningful name. After installing the driver select under *Properties* the important Parameters.

Under *Port* you select the COM port (serial interface) from the PC, where the connection cable is connected with the PLC. Then choose the right *Baudrate.* Click the button *Connecting test* to check whether the PLC-ANALYZER could establish a connection to the PLC with the adjusted parameters.

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.

Data acquisition

Supported PLC models and CPUs

The following models are supported:

- H series
- EH-150
- Micro-EH.

Not listed automation instruments and CPUs of the HITACHI-family are normally compatible, if H-protocol is used, but not explicit tested for it.

Recordable PLC addresses

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

Syntax	Art der Adresse	Beispiel
Xxxxx	Input bit	X 305
Yxxxx	Output bit	Y 107
Rxxxx	R-flag bit	R 55
Lxxxx	CPU-link-Bit	L 42
Mxxxx	Flag bit	M A334
DIFxxxx	Rising edge	DIF 12
DFNxxxx	Trailing edge	DFN 6
CLxxxx	Counter output bit	CL 33
TDxxxx	Timer output bit	TD 12
WXxxxx	Input word	WX 22
WYxxxx	Output word	WY 21
WRxxxx	R-flag word	WR AA1
WLxxxx	CPU-link-Wort	WL 122
WMxxxx	Flag word	WM A43
TCxxxx	Timer actual value (Word)	TC 121
DXxxxx	Input double word	DX 12
DYxxxx	Output double word	DY 30
DRxxxx	R-flag double word	DR 452
DLxxxx	CPU-link-Doppelwort	DL 1F
DMxxxx	Flag double word	DM 1A2

Table 1-1 Address-Syntax HITACHI

Number of recordable addresses

Up to 60 addresses can be recorded. An address can be a bit- or word address. If recording a double word, two internal word addresses will be recorded, so 30 double word addresses can be recorded maximal.

Time behaviour and particularities

Protocol

The HITACHI-driver communicates with the PLC via the H-protocol. With the serial HITACHI-driver you can use procedure 1 as well as procedure 2 of the H-protocol. Identification and switching of the protocols ensue automatically.

Data transfer speed

Normally the required data from one scan are from one PLC cycle. The intervals between scan transfers from the PLC to the computer depend on the speed of the data transfer (baudrate), the set min. of transmit data and the number of recorded signals.

For a scan interval of e.g. 20 ms and an equal cycle time of the CPU there is one scan for each cycle. If the cycle time of the PLC is longer, the scan intervals synchronize 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 made up by repeated measurement of the signals in question.

The following table show some values of time behaviour of data acquisition from a HITACHI EH-150:

Scandata	Serial - 38.400 Baud	TCP/IP
1 word	25 ms	16 ms
10 words	60 ms	30 ms
50 words	200 ms	45 ms

Table 2-1 Recording time HITACHI EH-150

The more addresses will be recorded the longer the cycle time will be. This is a normal effect and occurs by monitoring operations with Pro-H also.