

PLC-ANALYZER pro 6

PLC-Logic analysis in no time

Driver Addendum



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PLC-driver

Fanuc R-30i / R-J3i
Ethernet TCP/IP

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PLC-ANALYZER pro 6 - Driver Addendum

Fanuc R-30i / R-J3i - Ethernet TCP/IP


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Signal source

Fanuc R-30i / R-J3i

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

- Fanuc R-30i / R-J3i

With the PLC driver Fanuc R-30i / R-J3i 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) via TCP/IP network for programming the Fanuc controller, then you normally must do nothing else.

Otherwise connect via TCP/IP network to the according PLC.

Installing additional software

In addition to the PLC-ANALYZER pro basic module and the PLC driver you must install the FANUC Robot-Interface Runtime.

Configuration

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 Configuration of the PLC driver

First enter a meaningful name. Then select under *Connection* the *Station address* of the FANUC controller.

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

Scan interval lays down the interval between reading data from the PLC. For time insensitive applications e.g. temperatures a generous probe interval can be chosen. The signal files resulting is smaller.

After setting the communication properties, add the PLC signals to be recorded.

Data acquisition

Supported PLC models and CPUs

The following models of FANUC Controllers are supported:

- R-J3iB 7D80/45, R-J3iB 7D81/09, R-J3iB 7D82/01, R-J3iB Mate 7D91/01
- R-30iA, R-30iA Mate
- R-30iB

Recordable PLC addresses

The following table shows the possible addresses and the appropriate syntax:

Syntax	Type of address	Example
DI[x]	Digital input x	DI[1]
DO[x]	Digital output x	DO[2]
RI[x]	Digital robot input x	RI[4]
RO[x]	Digital robot output x	RO[5]
SI[x]	Operator panel input x	SI[1]
SO[x]	Operator panel output x	SO[2]
UI[x]	Peripherie input x	UI[4]
UO[x]	Peripherie output x	UO[5]
GI[x]	Group input x	GI[1]
GO[x]	Group output x	GO[2]
AI[x]	Analog input x	AI[4]
AO[x]	Analog output x	AO[5]
WI[x]	Welding input x	WI[1]
WSI[x]	Welding rod output x	WSI[2]
WO[x]	Welding robot input	WO[4]
CP[x]	Current position of group x	CP[1]
R[x]	Numeric register x	R[2]
PR[x, y]	Position register y of group x	PR[1,2]

Table 1-1 Variable syntax Fanuc R-30i / R-J3i

Number of recordable addresses

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

Time behaviour and particularities

The intervals between scan transfers from the Fanuc-PLC to the computer depend on:

- Type of controller
- Cycle time of the controller
- Number and combination of selected addresses. Transfer blocks are formed from the selected addresses. Each block causes further delays.

With type R30iB using Ethernet TCP/IP the scan interval is 1 ms for each byte, means if cycle time > 1 ms each cycle a scan. In the event of larger cycle times PLC data transfer and PLC cycle synchronise one another. In the event of shorter cycle times one scan per cycle is not possible. Repeated measurement of the relevant procedures can balance this problem out.

The scan interval is slightly increased for each additional variable. For 1000 variables the scan rate is about 18 ms.