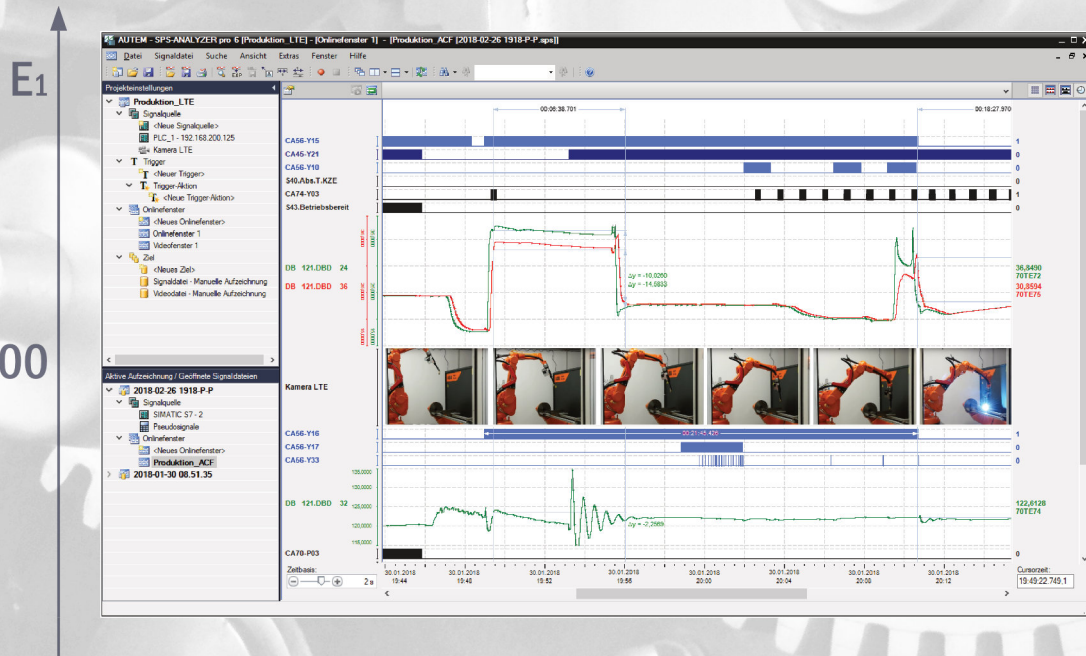


# PLC-ANALYZER pro 6

PLC-Logic analysis in no time

## Driver Addendum



E1  
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QB

MW



PLC-driver

**Allen-Bradley**

Compact/ControlLogix/PLC/SLC - Ethernet TCP/IP  
ControlLogix/PLC/SLC - DF1 / DH+ / DH-485

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

## **Allen-Bradley Compact/ControlLogix / PLC / SLC - Ethernet TCP/IP Allen-Bradley ControlLogix / PLC / SLC - DF1, DH+, DH-485**


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1<sup>st</sup> Edition 2022

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## Signal source

### Allen-Bradley ControlLogix / PLC / SLC

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

- Allen-Bradley ControlLogix / PLC / SLC - DF1 / DH+ / DH-485
- Allen-Bradley Compact/ControlLogix / PLC / SLC - Ethernet TCP/IP

The driver Allen-Bradley ControlLogix/PLC/SLC - DF1 / DH+ / DH-485 acquires PLC signals via the Data-Highway network (DH+ und DH-485) or the PLC programming unit serial interface. The driver Allen-Bradley Compact/ControlLogix/PLC/SLC - Ethernet TCP/IP acquires PLC signals via 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

Connect your PLC to the PC or programming unit intended for the purpose of programming with the Allen-Bradley software via Ethernet, the serial interface or the Data-Highway network if this has not been done. Otherwise please make a connection via one of them. To make a connection via Data-Highway network you need a special Data-Highway network-card or adapter-cable. To make a connection via TCP/IP a normal Ethernet-card is adequate.

The following components are supported by Allen-Bradley ControlLogix/PLC/SLC - DF1 / DH+ / DH-485:

1784-KT, 1784-KTx/KTxD, 1784-PKTx

### 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.

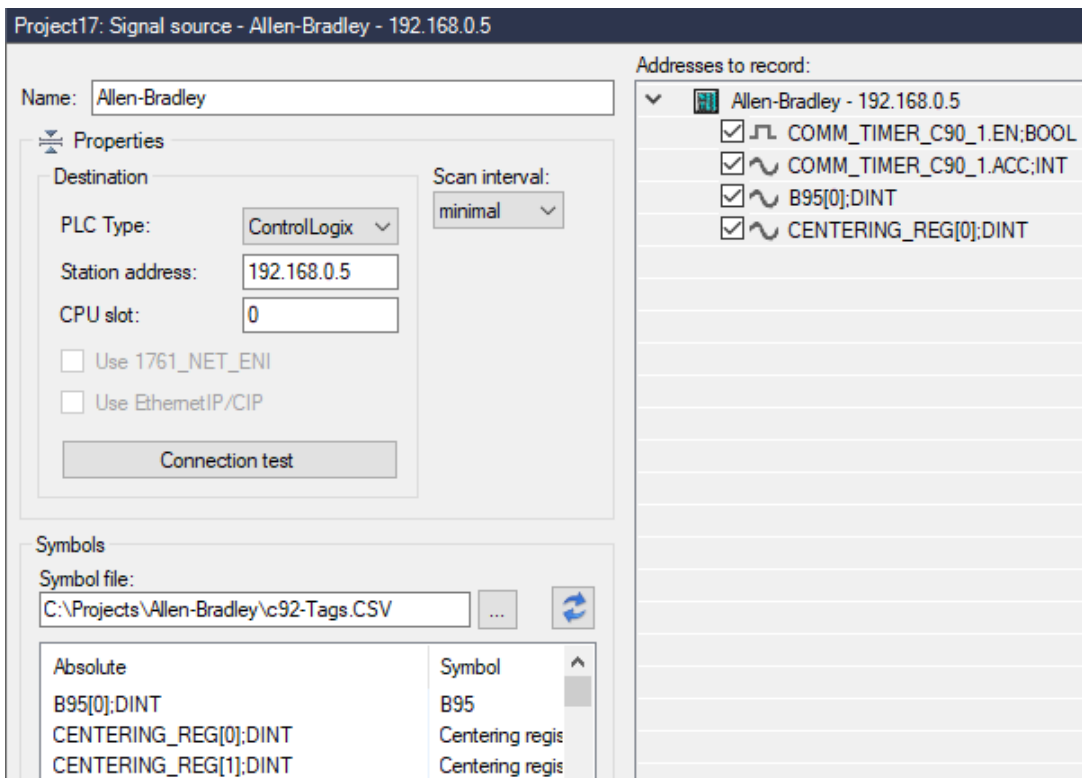


Fig. 1-1 Settings Allen-Bradley TCP/IP

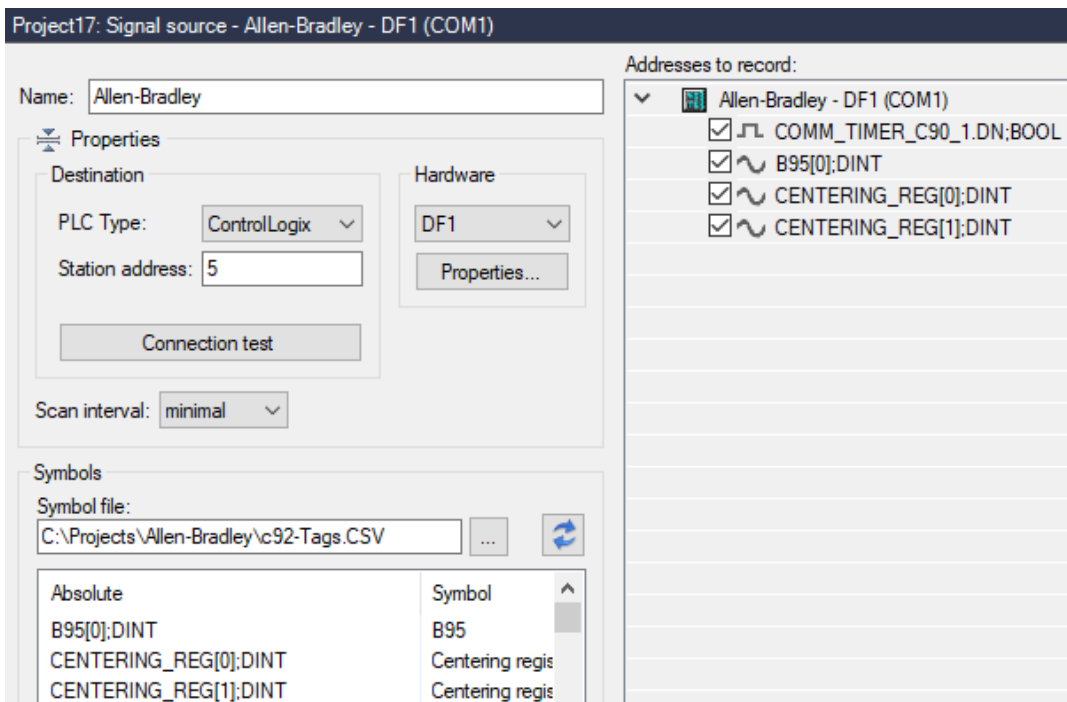


Fig. 1-2 Settings Allen-Bradley - DF1 / DH+ / DH-485

First enter a meaningful name. Then choose the correct *PLC-Type* and enter the *Station address* of the selected PLC. This is the address laid down by the switch settings of the processor of interest.

If using the TCP/IP-driver enter the TCP/IP-address in *Station address*. By acquisition via ControlLogix

specify the *CPU slot*. If you choose other CPU types, specify, if you use a *1761-NET-ENI* module.

With the PLC driver Allen-Bradley - DF1 / DH+ / DH-485 you define under Hardware which interface is used to communicate with the PLC. By clicking the *Properties* button the properties of the selected hardware can be changed. The parameters must match the settings in the PLC.

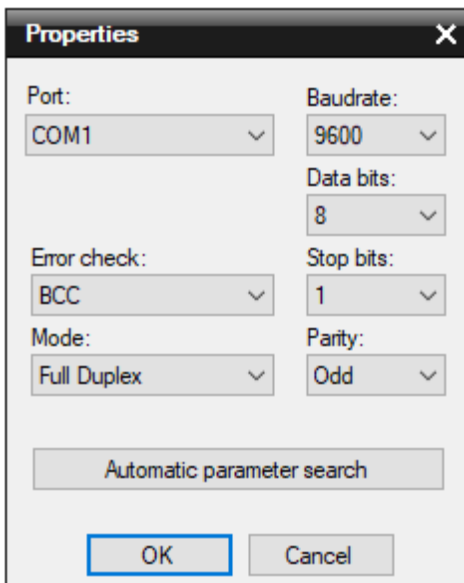


Fig. 1-3 Properties DF1

*Port* defines which serial interface of the PC is used.

Make a correct adjustment of the data transfer parameters (*Baudrate*, *Data bits*, *Stop bits* and *Parity*) for the serial interface connection and the PC (see Allen-Bradley programming software menu „Online Configuration“).

Select the type of error checking to be used during data transfer under *Error check*. Define in addition, which *Mode* will be used.

Click OK to accept the settings.

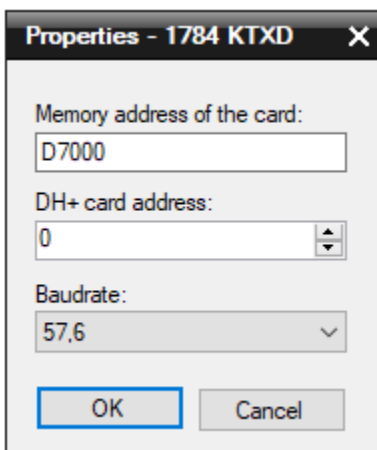


Fig. 1-4 Properties DH+

Under *Memory address of the card* set the adapter memory. The address of the PCMK-adapter (PCMCIA) is allocated automatically and can be read in the System Control using PCMKinfo.

Under *DH+ Address* enter the station address of the Data-Highway adapter in the network.

Under *DH+ Baudrate* enter the baudrate of the Data-Highway network.

Click OK to accept the settings.

Press *Test Connection* 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.

The ControlLogix processors support symbolic addressing (tags). These are only supported by the Ethernet TCP/IP driver. Under *Symbols*, select an exported Tag list to make the symbols available for address selection. 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 is loaded, the signals to be recorded can be conveniently selected from the symbol list by double-click or drag and drop.

## Data acquisition

### Supported PLC models and CPUs

The following models of the Allen-Bradley family are supported by Allen-Bradley ControlLogix/PLC/SLC - DF1 / DH+ / DH-485:

- ControlLogix, MicroLogix
- PLC-5, PLC-3, PLC-2
- SLC-5xx.

The Allen-Bradley Compact/ControlLogix/PLC/SLC - Ethernet TCP/IP supports following models:

- ControlLogix with 1756-ENET
- CompactLogix
- GuardLogix with 1756-ENET
- FlexLogix with 1756-ENET
- MicroLogix via channel 0 with 1761-NET-ENI module
- SoftLogix5, SoftLogix5800
- PLC5/20E, PLC5/40E, PLC5/80E, PLC5 with 1785-ENET or via channel 0 with 1761-NET-ENI module
- SLC5/05, SLC500 via channel 0 with 1761-NET-ENI module

Not listed automation instruments and CPUs of the Allen-Bradley family are normally compatible, but not explicitly tested.

### Recordable PLC addresses

The following table shows the addresses possible and the appropriate syntax<sup>1</sup>:

Syntax	Types of address	Example
O:x.z	Output word x, Bit z	O:4.7
O:x	Output word x	O:13
I:x.z	Input word x, Bit z	I:11.3
I:x	Input word x	I:14
Bx:y.z	Binary, File x, Word y, Bit z	B3:6.7
Bx:y	Binary, File x, Word y	B200:250
Tx:y.z	Timer, File x, Structure y, Element z	T4:34.ACC
Tx:y	Timer, File x, Structure y	T4:34
Cx:y.z	Counter, File x, Structure y, Element z	C5:5.PRE
Cx:y	Counter, File x, Structure y	C5:5
Nx:y.z	Integer, File x, Wort y, Bit y	N7:6.3
Nx:y	Integer, File x, Wort y	N7:6
Fx:y	Floating point, File x, Wort y	F8:34

**Table 1-1 Address syntax Allen-Bradley**

<sup>1</sup> The SLC500 family does not permit direct I/O address access.





## INFORMATION

The ControlLogix-processor supports symbolic addressing (tags). These will only be supported by TCP/IP-driver. Therefore define the symbolic name and after it the typ of the address (e.g. WATER\_CONTENT;INT). To use the DF1 / DH+ / DH-485 driver it is necessary to map the symbolic addresses with the RSLogix5000 PLC5 tag-mapping-function on a integer-value. The integer-values can be acquired.

### Number of recordable addresses

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

### Time behaviour and particularities

Delays in the scan transfer from the Allen-Bradley PLC to the Computer depend on the following factors:

- PLC and CPU type
- Type and speed of the data transfer
- Number and combination of selected addresses. Transfer blocks are formed from the selected addresses. Each block causes further delays.

The scan delay for the PLC-5/20 for one word monitored via Data-Highway Plus (57.6 k) is around 30 ms, i.e. cycle times > 30 ms one scan per cycle is available. 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.

Each additional word value scan causes a further 0,5 ms delay. If several words from one file be monitored, the block with the lowest address comes at the beginning. If I:3, I:6 and I:7 are monitored, then the block consists of 5 words (I:3 bis I:7). In this example the scan delay would increase by 2.5 ms.

If data from various files is requested, the scan delay increases by 30 ms per file.