PLC-ANALYZER pro 6

PLC-Logic analysis in no time

SIMATIC S7
SIMATIC S5
SINUMERIK
SIMOTION
CODESYS
Allen-Bradley
TwinCAT
BOSCH Rexroth
SELECTRON
MITSUBISHI
SCHNEIDER
MODICON
PHOENIX
OMRON
FANUC
PILZ
ABB
B&R
..

S7TIA

Videotrack

CODESYS

OPC UA

TwinCAT

Allen-Bradley

AD_USB-Box®
U(V)
I(A)
T(°C)
External measured
values via USB

Compatible with
TIA-Portal

SIMATIC
cycle precise*

S7-1200 / 1500
optimized data block access

Supports all common PLC systems
**uses existing PLC connection
simultaneous recording possible**

Failure diagnosis ✓
Long term recording ✓
System documentation ✓
Installation / Service ✓
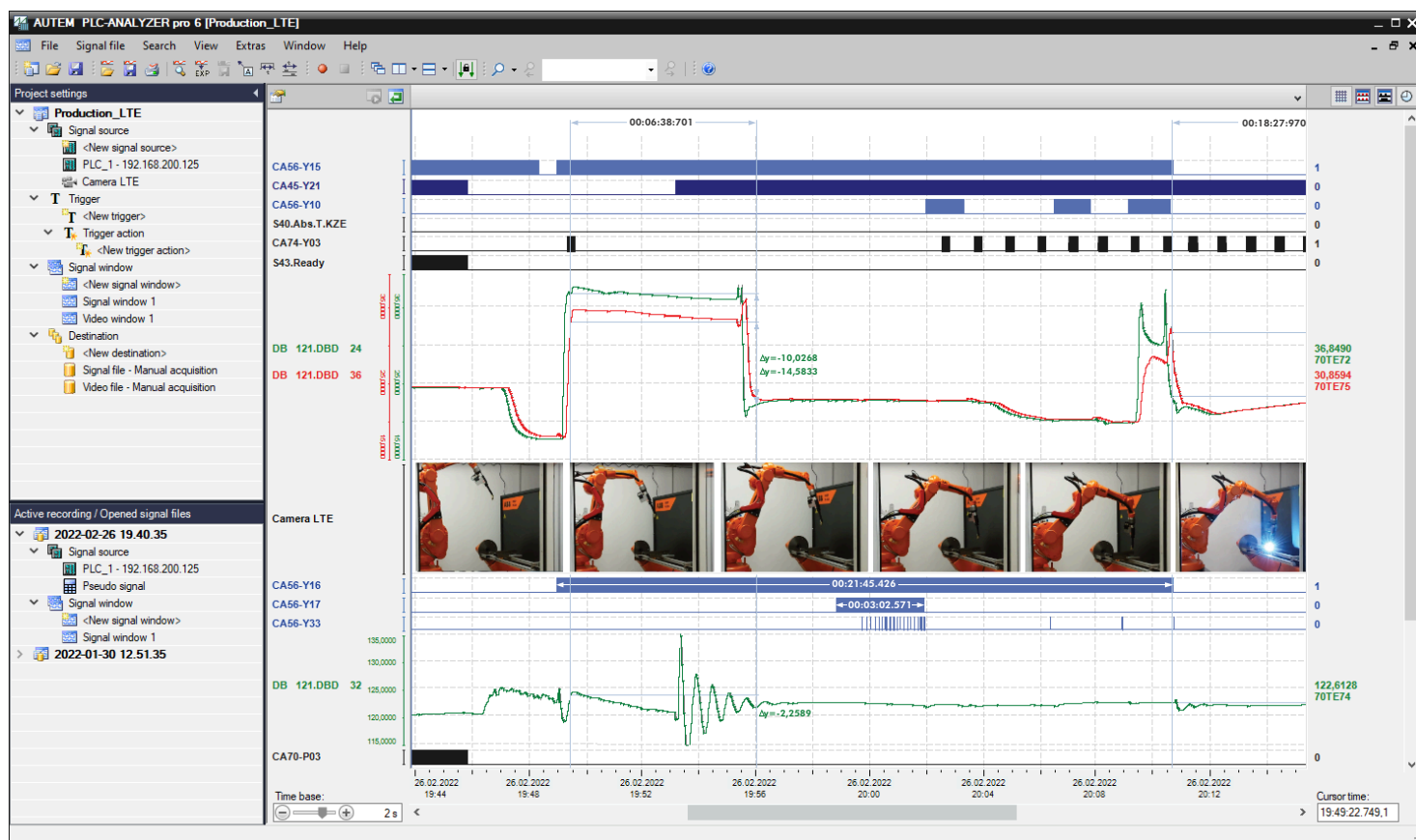**Predictive maintenance** ✓
Condition monitoring ✓
Cycle-time optimisation ✓

BLACKBOX 4 *Edge*

SIMATIC FIELD PG

Easy and intuitive to use

Complex failures rapidly analysed

AUTEM

Fields of application

- Failure diagnosis in PLC systems
- Detecting and localizing of sporadic errors
- Analysis and optimization / cycle time reduction
- Long-term recording of measured values
- QA and documentation, TPM/OEE, EU-Machinery directive
- Installation, development, maintenance

PLC-ANALYZER pro **6** is a software system for logic analysis and recording of measured values in PLC-controlled facilities. Acquisition, representation and evaluation of PLC signals such as input, output, flags, timer, counter and data of data blocks, is now very easy.

Live display allows the observation of the signal waveform in real time. Analysis and evaluation can already be carried out at the time of recording. In addition to long-term recording, trigger conditions can be specified for the acquisition of particular events. This allows rarely occurring sporadic errors to be specifically recorded for later analysis.

PLC-ANALYZER pro **6** has the decisive advantage of recording process data via standardized PLC interfaces. For example, for SIMATIC S7 signals can be acquired using TCP/IP PROFINET or MPI/PPI, PROFIBUS. All CODESYS communication paths, OPC-UA and many other PLC connections of various manufacturers are supported. A programming device or notebook, that is connected for the purpose of programming the PLC, can be used for recoding process data without modification. By means of high-performance PLC drivers (in-house development) the **PLC-ANALYZER** pro **6** achieves sampling rates, which would not be possible with an OPC-UA-based solution.

Cycle-precise recording* is attractive because of the complete acquisition of measured values in each PLC cycle. Up to 16 million variables from 250 signal sources can be recorded simultaneously (theoretical values).

PLC-ANALYZER pro **6** simplifies the signal selection by using symbol files or projects of the PLC programming software. Loading a TIA / STEP7 project makes all settings and variables immediately available. Symbols can also be imported directly from the TIA PLC.

The **Videotrack module** provides additional visual support for troubleshooting by video recording synchronous to the PLC signal acquisition. This is a great help for error analysis on machines and systems, since the mechanical situation can be viewed synchronously with the process data using the video frame.

The **Virtual HMI module** helps to clarify plant accidents when human operators are involved. The subsequent HMI visualization from recorded process data makes it easier to detect possible operating errors.

By using the measurement interface **AD_USB-Box**® external voltage and current signals, which are not available in the PLC, can also be recorded. This is also very helpful in case of the demand of capturing I/Os from PLCs, for which a specific PLC driver is not available.

For a direct **PLC-ANALYZER** pro **6** integration in the plant, AUTEM offers the ultra compact **BLACKBOX 4** *Edge*. This special IPC allows autarkic process data archiving over long periods of time. Thanks to numerous remote connection possibilities - 4G/5G-Modem, WAN, LAN - the **BLACKBOX 4** *Edge* is perfectly suitable for machine remote service.

PLC-ANALYZER pro **6** is an indispensable tool for PLC software development, construction, installation, maintenance and training.

AUTEM offers a customer-friendly licensing concept (incl. maintenance & support) with primary and additional licenses for the equipment of one or more workstations. For prices and part-numbers please refer to our current price list.

Technical Features

- All-in-One: Project setup, recording, analysis in one tool
- Pure software solution: No special additional hardware required
- No changes in the PLC program necessary
- Data recording via existing connection to the PLC (Ethernet TCP/IP, serial, Fieldbus, ...)
- High-performance sampling by specific PLC drivers
- Recording of input, output, flag, timer, counter, peripheral, data of data blocks and other PLC variables
- Use symbols directly from the PLC programming software, e.g. load TIA projects and use symbols / settings
- Import symbols also directly from TIA PLCs
- Optimized data blocks (S7 1200/1500): Variables direct readable
- bit-, byte-, word-, double- or quad-word format
- Pseudo signals: generating of virtual signals by [complex] calculation from recorded signals
- Simultaneous acquisition from several PLC systems / also different manufactures (e.g. SIMATIC S7 + CODESYS)
- Up to 250 signal sources / 16 million variables (theoretical values)
- Videotrack: Camera recording synchronous with PLC signal capturing
- Cycle precise recording for different PLC systems
- Supports PC based PLC (e.g. Beckhoff TwinCAT) and PLC simulators (e.g. S7-PLCSIM)
- Recording modes: continuous recording, trigger-, time-controlled
- Enable/Disable of addresses and triggers during recording
- Real-time live display of signals
- Comfortable PLC signal selection for signal window by drag & drop
- Analysis of signal data possible while recording
- Highly accurate display of signals with short-term fluctuations of measured values („spikes")
- Comfortable trigger definition by drag & drop
- Trigger on binary and register values with AND/OR/XOR/RS and cascading
- Pre- and post-trigger time freely selectable
- Extensive trigger actions: Notification (E-Mail, SMS, acoustic announcement, pop-up-window), any PC-commands
- Comparing of signal files
- Search function: search for trigger, edge, bit pattern, register values, time and notes - even across several signal files
- Time difference measurement and automatic bit measurement
- Relative and absolute data-time
- Flexible signal scaling and normalization - e.g. conversion in physical units or min/max-adjustment of measured value
- Number format: decimal, hexadecimal, binary, ASCII, REAL (floating point), S5-TIME, TIME, DATE, DATETIME
- Projects for pre-configuring and automating data acquisition runs
- Extreme robust and compact file format
- Multiple data targets at the same time: simultaneous writing of e.g. signal file and CSV file
- Export of signal files: PDF, CSV, Excel, HTML, graphic formats
- Import of CSV files: visualisation of other measure values
- Printing of signal files and measurement configuration
- Multilingual user interface: German / English
- System requirements: Microsoft® Windows 7/8/10/11 (32/64-Bit)

- **AD_USB-Box®** (optional): Recording of external voltage and current with external box connected via USB
- **Videotrack module** (optional): The Videotrack module enables video recording time-synchronous to PLC signal capturing.
- **Virtual HMI module** (optional): Subsequent HMI visualization from recorded process data.
- **BLACKBOX 4 *Edge*** (opt.): Ultra-compact special IPC for control cabinet; long-term process data recording, monitoring, remote maintenance

PLC-Driver

Siemens SIMATIC S7 / TIA**
Ethernet TCP/IP / PROFINET (cycle precise*)

Siemens SIMATIC S7 / TIA**
MPI/PPI + PROFIBUS (cycle precise*)

Siemens SIMATIC S5 / SINUMERIK
Progr. interface (cycle precise*) / Ethernet TCP/IP

Siemens LOGO!
Programming interface / Ethernet TCP/IP

Siemens SIMOTION C/P/D
MPI / PROFIBUS / Ethernet TCP/IP (servo cycle p.)

CODESYS
All common protocols (e.g. Ethernet TCP/IP, CAN)

BECKHOFF TwinCAT
Ethernet TCP/IP

OPC UA
Ethernet TCP/IP

B&R
Serial / Ethernet TCP/IP

PILZ PSS / PNOZ
Programming interface

PILZ PSS / PNOZ
Ethernet TCP/IP

Allen-Bradley ControlLogix / PLC / SLC
DF1 / DH+ / DH-485

Allen-Bradley Compact/ControlLogix / PLC / SLC
Ethernet TCP/IP

PHOENIX
Ethernet TCP/IP (cycle precise*)

BOSCH CL
Programming interface (BUEP19E)

GE Fanuc Serie 90 / VersaMax / Nano / Micro
Programming interface (SNP)

GE Fanuc CNC / PMC
HSSB / Ethernet TCP/IP

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

OMRON C / CV / CS1 / NJ / NX / NY / CJ2
Programming interface (Host Link) / Ethernet TCP/IP

MITSUBISHI MELSEC Q / L / A / FX
Programming interface

MITSUBISHI MELSEC Q / L / A / FX
Ethernet TCP/IP

Schneider Modicon TSX Quantum / Momentum
Compact - Modbus I / Modbus Plus

Schneider Modicon TSX Quantum / Momentum
Compact / M - Modbus TCP/IP

Schneider Modicon TSX Premium / Atrium
Micro / Nano - Uni-Telway / TCP/IP

Schneider AEG TSX A250 / A120 / Micro
Programming interface (KS)

Selectron
Ethernet TCP/IP

Jetter JetControl / Delta / Nano
Serial / Jetway / PC-PPLC / Ethernet TCP/IP

HITACHI H / EH-150 / Micro-EH
Programming interface / Ethernet TCP/IP

Videotrack module
Software driver for IP / GigE Vision / USB cameras

Virtual HMI module
Subsequent HMI visualization from process data

AD_USB-Box®
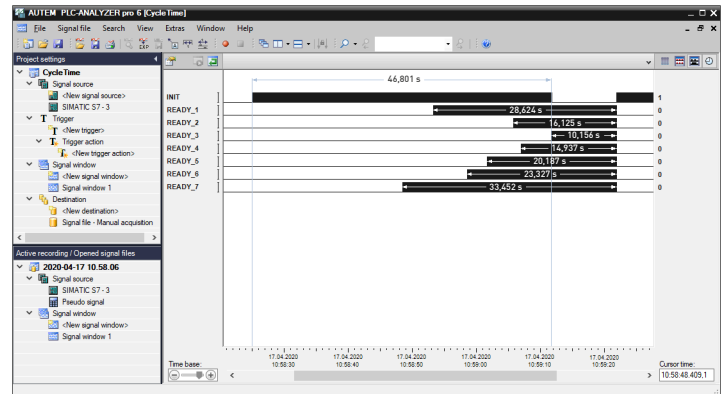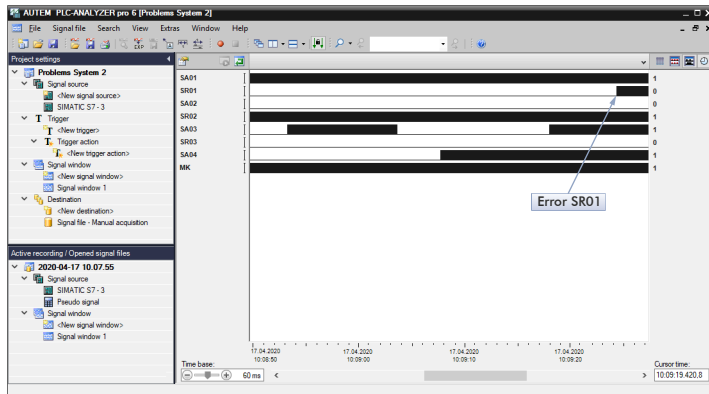USB-Port (recording of ext. voltage and current)

*   depending on PLC type
** TIA compatible, also suitable for SIMATIC C7, M7, S7-PLCSIM, SINUMERIK ONE / S7, VIPA S7, Insevis S7, Yaskawa SILO/300S+

Typical fields of application

Diagnosis of sporadic faults

By focused monitoring of relevant signals, the sporadic error can be captured and the associated components are effectively isolated.

Cycle time optimization

The investigation of delay times of a production system, e.g. by exact measurement of acknowledgement signals, supports actions to optimize the machine.
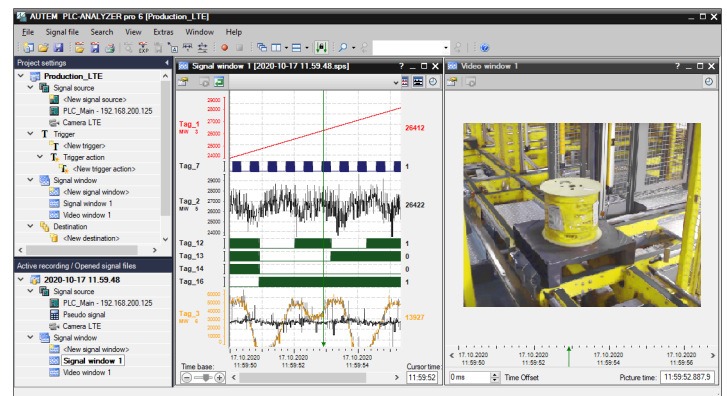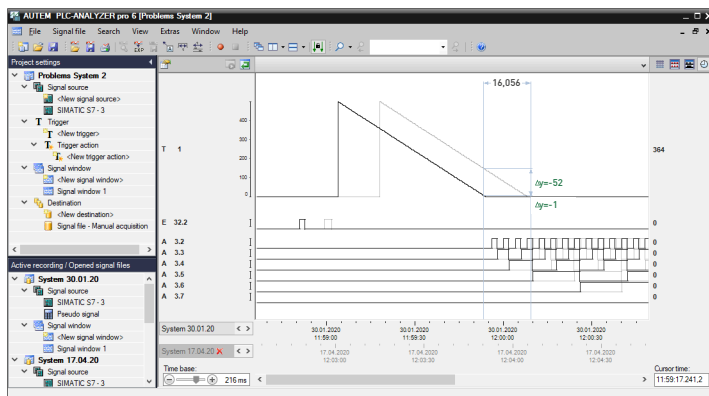

Condition monitoring

The target/actual comparison of the runtime behavior of the system allows to draw conclusions regarding possible failures and serves as a basis for preventive maintenance.

Troubleshooting with video support

With the time-synchronous video track - in addition to the PLC process signals - troubleshooting is meaningful supported in many cases.
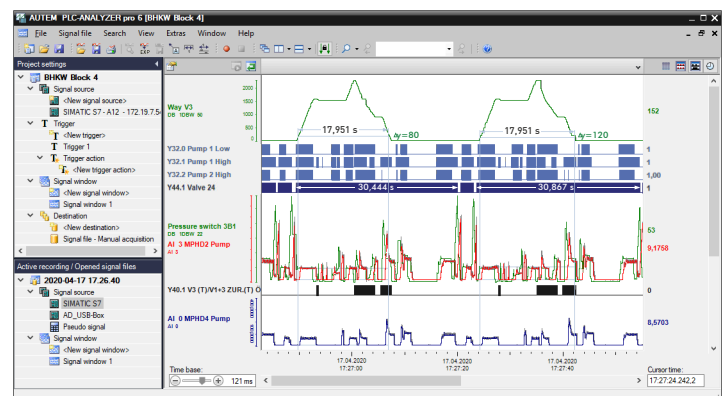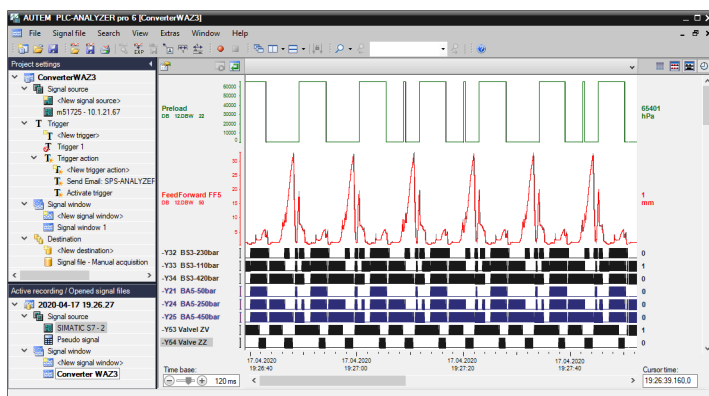
Machine documentation

Machine manufacturers and customers can document the runtime behavior of the system down to the finest detail and check or verify specifications.

Warranty questions

The objective measurement and recording of the process signals allows unambiguous clarification of responsibility in warranty issues.