Manual

Toolmonitor PLC

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WITH SENSITIVE TESTING

Softline

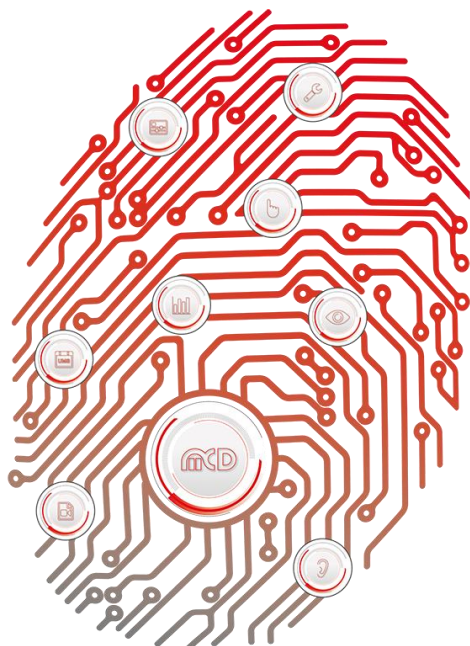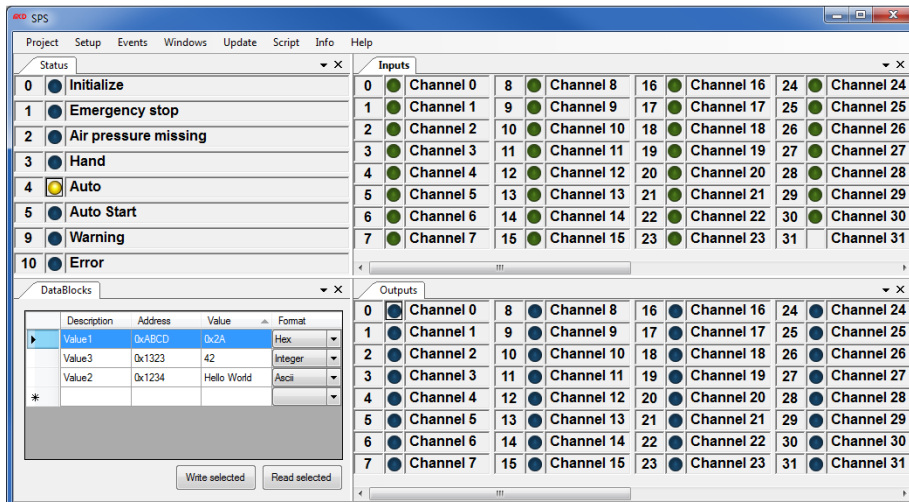Modline

Conline

Boardline

Avidline

Pixline

Application

Table of Contents

1.   General

The Toolmonitor PLC supports uniform communications with a PLC system using a self - developed communications protocol. This standardizes the control of different PLC systems so they can be used in the same way in different applications.

To permit communication, a corresponding program must be implemented on the PLC to handle the communications protocol. This is also available from MCD. We support controllers from Siemens, Beckhoff, and Allen Bradley / Rockwell.

The Toolmonitor offers the following functionality:

- 64 inputs
- 64 virtual inputs
- 64 outputs
- 64 virtual outputs
- Transmission and reading out of data blocks at defined addresses
- Setting and reading of the current state of the PLC

Order number: # 151585

2.   Extent of Delivery

The extent of delivery includes the software Toolmonitor PLC.

3.   Safety Instructions

Toolmonitor PLC is intended only for communication with a PLC system. The product has been created and tested with the greatest possible care.

However, all liability for any damages resulting from use of the product is still explicitly excluded. All trademarks or service marks that appear in the documentation are subject to intellectual property law and are the property of their various owners.

A special program is needed on the PLC which implements the necessary communications protocol. Do not use your own implementations.

4. Installing the Software

4.1. Installing Software and Drivers

To be able to use the Toolmonitor PLC, only the file SPSMonitor.exe is required. No specific installation is needed.

To integrate the Toolmonitor into MCD TestManager, Toolmonitor must be registered. To do this, start the software and execute *Setup → Register COM Server*.
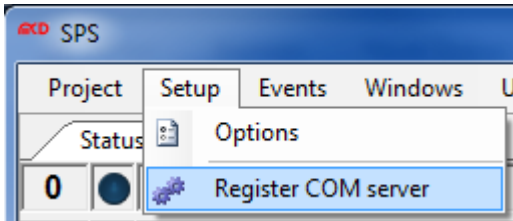

Figure 1: Integreation of the Toolmonitor in MCD TestManager

If the registration is not successful, start the Toolmonitor from Windows$^{®}$ with administrator privileges.

4.2. Connecting the Hardware

The PLC is connected by Ethernet to the computer on which the Toolmonitor PLC is located. To make communications possible, special software must be implemented on the PLC which provides the communications protocol. This is available from MCD.

4.3. Starting the Installed Software

To be able to use Toolmonitor, it is sufficient simply to start SPSMonitor.exe. After starting the software, you can find additional information under the menu item "*Help*".

5. Introduction to Operation

5.1. Quick Guide

The PLC Toolmonitor is started by executing SPSMonitor.exe. For communication to be possible with the PLC, it must be connected to the PC by Ethernet and execute a corresponding program which implements the communications protocol. To establish a connection, it is first necessary to set the IP address of the PLC and two ports for communication.

You can do this under *Options → Setup → Communication*.

Figure 2: Set the IP Address

After the settings are configured, you can communicate with the PLC.

The menu item "*Windows*" can be used to open the interfaces for the individual functions of the Toolmonitor.

To query the current state of the PLC and its digital inputs and outputs, this can be done either once or periodically.

Figure 3: Query the Current State

Outputs can be set or reset by clicking the displayed LEDs.

Figure 4: Virtual Outputs

6. Software Manual

6.1. Updating the Data Display

The data displayed on the Toolmonitor is updated when data is transmitted or when an output is set. It is also possible to use the menu item "U*pdate*" to retrieve the displayed values once or periodically. This cannot be done with data blocks. These can only be read out when they are actively requested.

6.2. (Virtual) Digital Inputs and Outputs

The "*Outputs*" and "*Virtual Outputs*" interfaces can be used to set digital outputs. Virtual outputs are not physical outputs.

The "*Inputs*" and „*Virtual Inputs*" interfaces display the status of inputs.

Figure 5: Virtual Inputs

The names of the individual channels can be changed in the Toolmonitor options. It is also possible to disable individual channels there, hiding them.

6.3. Data Blocks

The interface "*DataBlocks*" can be used to define data blocks that can be transmitted to the PLC. Each data block consists of a name, an address, and the associated value. The format field can be used to change its display on the user interface. The formats supports are ASCII, hex, integer, and binary.

It is also possible to use the user interface to query the corresponding values from the PLC.
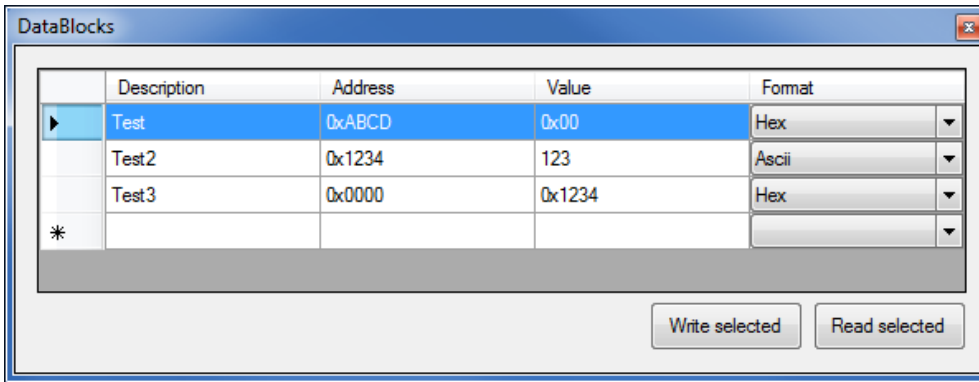
Figure 6: Define Data Blocks

The name of the data block is not sent to the PLC. It is only used to transmit the block through the *Virtual Interface*.

6.4. General PLC Information

The interface "*General Info*" can be used to read out basic information.
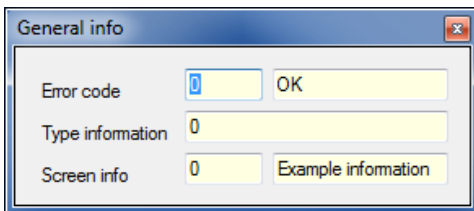
Figure 7: Query General Information

This information includes error codes. The interpretation of error codes can be customized in the Toolmonitor options or in the interface "*Error codes*". An alternative name can also be specified for an error code, for example in a different language.

Figure 8: Read Out Error Codes

This is also possible for the "*Screen Info*".

Whether the alternative (local) language is used depends on the language set in the MCD TestManager. If the Toolmonitor was started without the TestManager, the default language from the „*Description*" field is always used.

6.5. Status

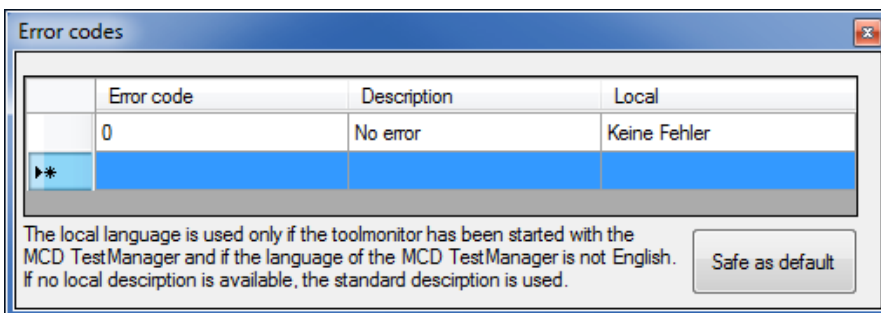The status interface is used to display the current state of the PLC. It is also possible to change the state of the PLC by clicking the corresponding status. If it is not set to an allowed status, the PLC will ignore the command or will go into an error state.

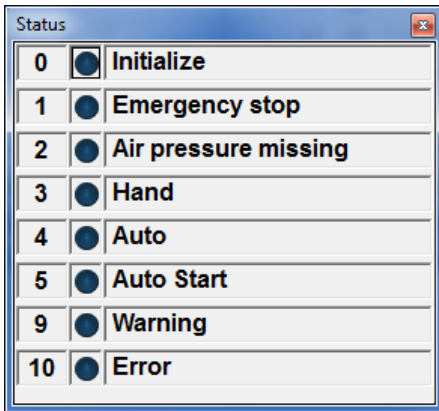|		
0	●	Initialize
1	●	Emergency stop
2	●	Air pressure missing
3	●	Hand
4	●	Auto
5	●	Auto Start
9	●	Warning
10	●	Error

Figure 9: Status Interface of the PLC

7. Virtual Interface

The *Virtual Interface* can be used to remote control the Toolmonitor from other applications.

The program can be controlled in an external higher - level system using a COM / DCOM interface or with a Net assembly. This permits it to be embedded in a variety of applications such as Microsoft Visual Studio® (C#, C++, Visual Basic), Microsoft Office® (such as Excel®), Open Office®, LabView®, and the MCD TestManager CE.#

The commands in the virtual interface can be found from the software help screens in the Toolmonitor. They can be retrieved from the menu *Help → SPS Help.*