User Manual

Communication

SIMOTION

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Contents

1. General

1.1 Purpose of this user manual

This user manual provides the information required for connecting Micro Innovation automation components to SIMOTION.

This user manual describes the installation and configuration. The operating system and application software are not described.

1.2 Comments about this user manual

Please send any comments, recommendations or suggestions relating to this user manual to info@microinnovation.com.

1.3 Additional documentation

Further documents may be helpful in addition to this user manual.

The following documentation can be obtained from our website (www.microinnovation.com):

[1] M000174
System description, Windows CE

[2] M000138
System description, Networks in Brief

[3] M001826
User manual, ThcSymbolicClient library

The following documentation can be obtained from Siemens:

[4] Configuration manual SIMOTION Technology Package OAMIIF

2. Communication overview

2.1 Operating principle

The communication is based on TCP/IP. The SIMOTION Technology Package OAMIIF installed on the SIMOTION is used as the communication server. This server can be accessed by several clients on the TCP Port 6443. The communication server allows read and write access to variables.

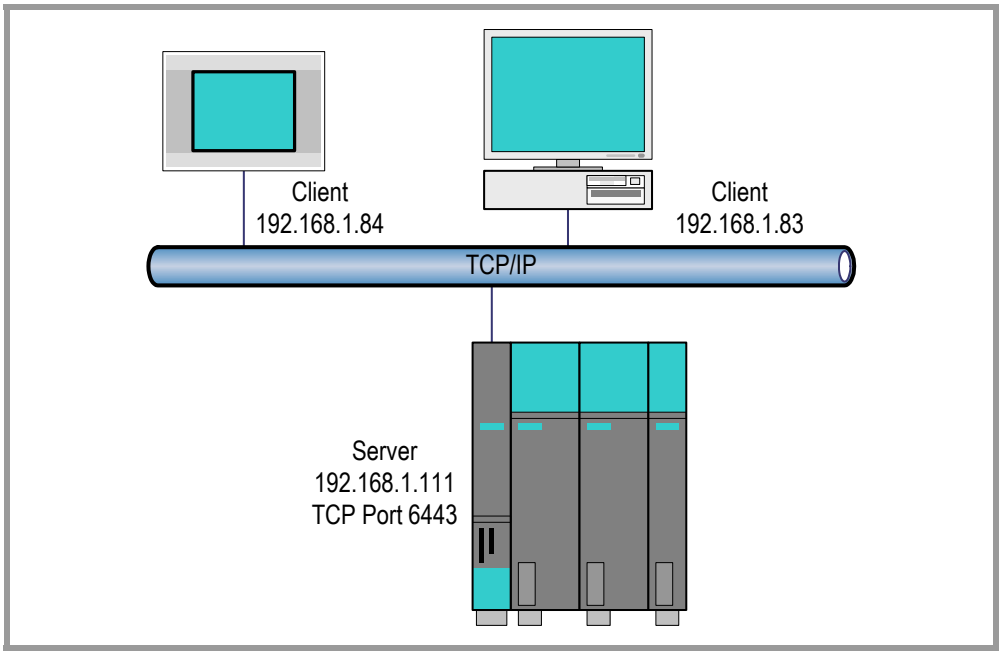

Fig. 1 Operating principle

2.2 Supported systems

2.2.1 Client

The following devices support communication with a SIMOTION:
- PC with GALILEO Open and Ethernet interface
- MICRO PANEL XV series (exceptions: XVC100, XVC600)
- MICRO PANEL M series
- MICRO PANEL GF2
- MA2

The term «client» is used in the following to represent these devices and the software running on them.

2.2.2 Server

The configuration manual SIMOTION Technology Package OAMIIF provides a list of supported devices. The term «SIMOTION» is used in the following to represent these devices and the software running on them.

2.3 Supported data

2.3.1 Addresses

Declare the variables on the SIMOTION in the INTERFACE of the units. All sources that appear in the SCOUT under the heading PROGRAMS are defined as units:
- ST programs
- MCC sources
- LAD/FDB sources

Configure the name of the unit on the SIMOTION and the client with exactly the same upper and lower case.
The case is currently not relevant for the remaining address elements.
However, we recommend using the exact upper and lower case for all address components.

2.3.2 Variable type

Declare the variables on the SIMOTION with a supported variable type:
- VAR_GLOBAL
- VAR_GLOBAL_RETAIN

2.3.3 Data type

Declare the variables on the SIMOTION with a supported data type:

Data type	Comment
BOOL	–
SINT	–
USINT, BYTE	The communication server does not distinguish between USINT and BYTE.
INT	–
UINT, WORD	The communication server does not distinguish between UINT and WORD.
DINT, Enumeration types	Enumeration types are transferred as DINT. The writing of an undefined value in the enumeration type is not detected.
UDINT, DWORD	The communication server does not distinguish between UDINT and DWORD.
REAL	REAL can also be mapped in the client to LREAL. The usable value range is not extended by this.
LREAL	LREAL can also be mapped in the client to REAL. The usable value range is restricted by this.
STRING	–

Tab. 1 Supported data types

The following elementary data types are currently not supported:
- **TIME**
- **DATE**
- **TIME_OF_DAY (TOD)**
- **DATE_AND_TIME (DT)**

2.3.4 Arrays and structures

Arrays are supported and are read very efficiently in a block. Structures are supported and are read by element. The structures on the SIMOTION can also contain variables with unsupported data types if these variables are not used by a client.

3. Hardware

Both client and also SIMOTION are provided with an Ethernet interface which can be used to connect them to an Ethernet network. Information on installation, wiring and commissioning is provided in the operating instructions of the devices.

4. Network

☞ **The SIMOTION must be accessible for each client via ICMP (ping) and via TCP Port 6443. If SIMOTION and client are not located in the same subnet, it may be necessary to configure the associated routers accordingly.**

5. Software

5.1 SIMOTION

5.1.1 Installation

Install the SIMOTION Technology Package OAMIIF on the SIMOTION. This is available from Siemens under MLFB code 6AU1820-3DA20-0AB0. Refer to the SIMOTION Technology Package OAMIIF configuration manual for the necessary installation steps.

5.1.2 Configuration

Refer to the SIMOTION Technology Package OAMIIF configuration manual for the required configuration steps for the SIMOTION.

5.2 GALILEO

The GALILEO visualization software supports several parallel communication channels. A communication channel is required for each SIMOTION. If required you can also configure several communication channels to the same SIMOTION.

5.2.1 Configuring communication in GALILEO

Choose «Siemens – SIMOTION MIIF» and set the communication parameters.

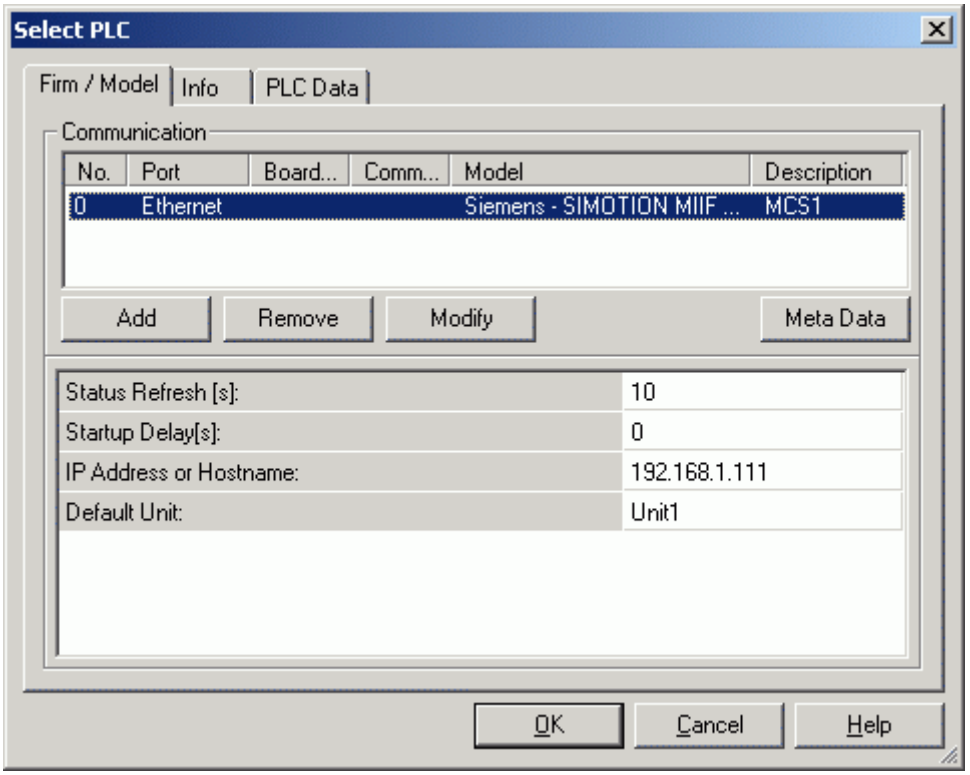

Fig. 2 Configuring communication in GALILEO

Communication parameters	Comment
Status Refresh	For this read the Online Help of your GALILEO version.
Startup Delay	For this read the Online Help of your GALILEO version.
IP Address or Hostname	Enter in GALILEO the IP address of the SIMOTION. If the network has a name resolution (e.g. DNS) you can also enter the network name of the SIMOTION instead of the IP address.
Default Unit	If you are using an address form without a unit for addressing, the default unit is used.

Tab. 2 Communication parameters in GALILEO

5.2.2 Addressing variables in GALILEO

The chapter 2.3 describes which variables of the SIMOTION you can access. GALILEO supports the following address forms and data types:

GALILEO	SIMOTION
<tag>	Variable in the default unit
<tag>.<array index>	Array in the default unit
<struct>.<tag>	Structure in the default unit
<struct>.<tag>.<array index>[ ]	Structure in the default unit
<unit>.<tag>	Variable in <unit>
<unit>.<tag>.<array index>[ ]	Array in <unit>
<unit>.<struct>.<tag>	Structure in <unit>
<unit>.<struct>.<tag>.<array index>[ ]	Structure in <unit>

Tab. 3 Address forms in GALILEO

GALILEO	SIMOTION
Bit	BOOL
Error	BOOL
Signed Byte	SINT
Unsigned Byte	USINT, BYTE
Signed Word	INT
Unsigned Word	UINT, WORD
Signed DWord	DINT
Unsigned DWord	UDINT, DWORD
Float	REAL
Float [1)]	LREAL
String, 1 byte per character, zero terminated [2)]	STRING
String, 1 byte per character, Pascal [2), 4)]	STRING
String, 1 byte per character, not terminated [3)]	STRING
String, 1 word per character, zero terminated [2)]	STRING
String, 1 word per character, Pascal [2)]	STRING
String, 1 word per character, not terminated [3)]	STRING

Tab. 4 Data types in GALILEO

1) Read values are limited to the value range of Float.
2) Configure in GALILEO one character more than on the SIMOTION.
3) Configure in GALILEO the same number of characters as on the SIMOTION
4) The STRING of the SIMOTION is a string with 1 byte per character.
The communication protocol uses the Pascal convention.
Therefore prefer to use this data type in GALILEO.

5.3 THC

A THC component (THC = Tag Handle Container) is used on the client for the communication to the server. As a GALILEO user, you do not have anything to do directly with the THC component. However, you need the following information when using, for example, the ThcSymbolicClient library in CoDeSys.

5.3.1 Configuration

Configuration parameters	Value
Component	MicroPanel.SIMOTION.dll
ProgId	MicroInnovation.SIMOTION.TagServer

Tab. 5 THC configuration parameters

Communication parameters	Data type	Comment
ServerAddress	String	IP address or network name of the server e.g. 192.168.1.111

Tab. 6 THC communication parameters

5.3.2 Addressing

THC offers two ways of addressing variables.

- Specific
- Generic

Configure a unit in both cases. With generic addressing the unit is transferred as a program name, with specific addressing you place the designation «unit/» in front of the name (e.g.: «unit/Unit1.theStruct.bitArray[0] »).

Addresses in error messages are shown in specific addressing, even if you have configured it as generic.