Data Sheet CODESYS Modbus TCP Client SL

CODESYS Modbus TCP Client is a product for extending the functionality of CODESYS compatible devices. Using a standard Ethernet adapter, Modbus clients are created from these devices. In this way, configured devices exchange data with Modbus TCP Servers.

Product description

The CODESYS Modbus TCP Client configurator, which is integrated in the CODESYS Development System, expects a license on the device. This license is either already stored in the controller by the device manufacturer or added afterwards by the end user. The product is also available for Modbus Client (RTU).

The license is saved to a CODESYS compatible device — on CODESYS Key (hardware device) or Soft Key (software license container).If a license for the CODESYS Modbus TCP Client is available on the device to be programmed, then the device can communicate with connected adapters and read and write their inputs and outputs, respectively. For this purpose, the communication parameters are predefined in the configurator, for example the settings of the Ethernet adapter (baud rate, port number).

Modbus commands are defined in the configurator and are oriented to a specific Modbus server. The commands are processed by the device at specific intervals, or triggered programmatically. For predefined commands, I/O channels are generated automatically with variables that can be mapped (I/O mapping).

Processing requires a protocol stack and CODESYS I/O driver that implements Modbus communication on the configured Ethernet port. This I/O driver is supplied with the license as CODESYS libraries.

The CODESYS Modbus TCP Client is configured completely from within the CODESYS Development System.

Modbus Configurator

The CODESYS Modbus TCP Client configurator consists of editors for the following device categories that are inserted into the device tree hierarchy:

- Ethernet:

    The Ethernet adapter is configured here (IP address, subnet mask, etc.)

- Modbus TCP Client:

    A Modbus TCP Client can be inserted below the Ethernet node. Communication settings can be defined specifically for Modbus, for example "Response Timeout" for defining the time to wait for a response from a Modbus TCP server.

- Modbus TCP Server:

   Multiple Modbus TCP server devices can be inserted below a Modbus TCP Client. The server address is defined here, as well as a series of Modbus commands (incl. respective I/O mapping). These are processed by the driver and exchanged with the Modbus TCP server.

The CODESYS Modbus TCP Client is configured completely from within the CODESYS Development System.
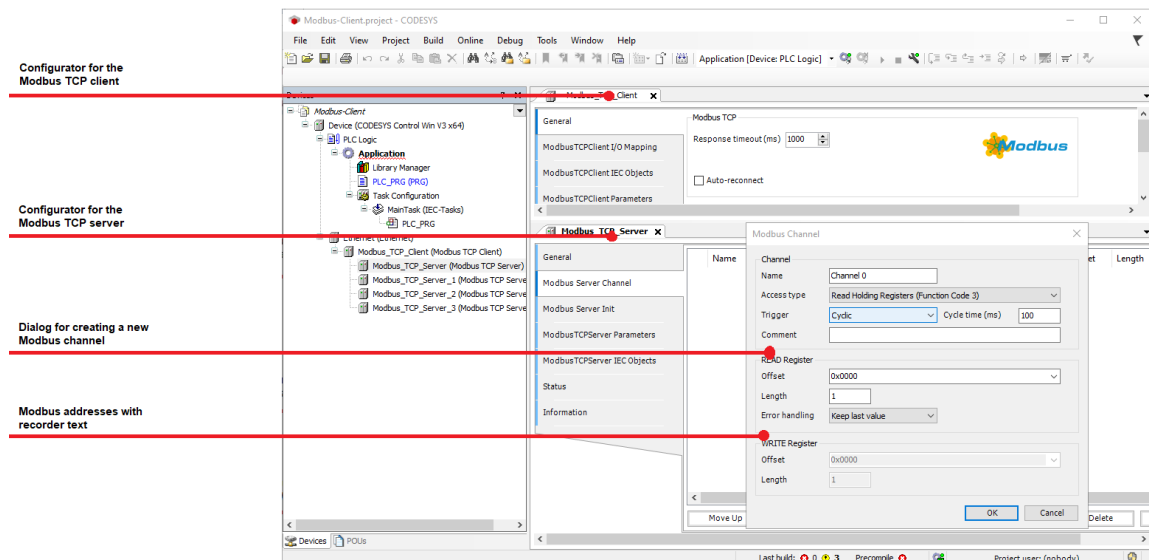
Device description files

Modbus TCP servers are defined in the CODESYS format "devdesc.xml" because there is generally not native description format, such as GSD or GSDML, for Modbus devices. For example, description texts can be predefined for Modbus registers that are then evaluated by the configurator. Moreover, Modbus commands can be defined that are created automatically when devices are inserted into the project.

Modbus driver library

The Modbus driver supports all Modbus function codes for exchanging I/O data: * FC 01 – Read Coils * FC 02 – Read Discrete Inputs * FC 03 – Read Holding Registers * FC 04 – Read Input Registers * FC 05 – Write Single Coil * FC 06 – Write Single Register * FC 15 – Write Multiple Coils * FC 16 – Write Multiple Registers * FC 23 – Read/ Write Multiple Registers

A scheduling mechanism checks the queue for the next predefined command in each bus cycle that queued for processing. Then, it executes the first in the queue (example: trigger variable or time difference since the last execution).

Picture 1: Integrated CODESYS Modbus TCP Client configurator

General information

Supplier:

CODESYS GmbH
Memminger Strasse 151
87439 Kempten
Germany

Support:

Technical support is not included with this product. To receive technical support, please purchase a CODESYS Support Ticket.

https://support.codesys.com

Item:

CODESYS Modbus TCP Client SL

Item number:

2303000001

Sales/Source of supply:

CODESYS Store
https://store.codesys.com

Included in delivery:

- License key

System requirements and restrictions

Programming System	CODESYS Development System V3.5.17.0 or higher
Runtime System	CODESYS Control V3.5.12.0 or higher
Supported Platforms/ Devices	Note: Use the project "Device Reader" to find out the supported features of your device. "Device Reader" is available for free in the CODESYS Store.
Additional Requirements	• CODESYS Control runtime system on the device with SysSocket component • Available Ethernet adapter on the device
Restrictions	Max. 64 Modbus TCP Servers
Licensing	

DEVICE

Single device license: The license can be used on the target device/PLC on which the CODESYS runtime system is installed.

Licenses are activated on a software-based license container (soft container), which is permanently connected to the controller. Alternatively, the license can be stored on a CODESYS Key (USB dongle). By replugging the CODESYS Key, the license can be used on any other controller.

Required Accessories	Optional: CODESYS Key

Note: Technical specifications are subject to change. Errors and omissions excepted. The content of the current online version of this document applies.

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