Schneider Modbus – Master protocol TCP

Driver documentation

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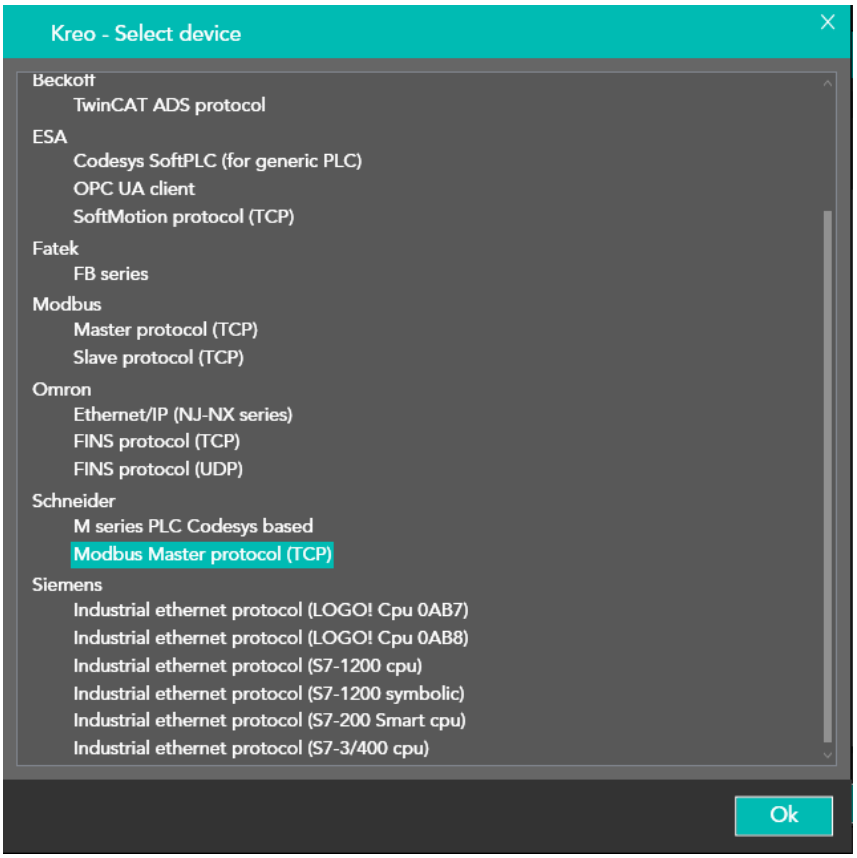
Document description

This document is dedicated to the functionalities and programming of the Schneider Modbus master TCP driver.
In this configuration the HMI acts as Modbus master (Client)and sends the read and write requests to the Schneider PLC (Modbus slave) defined in the Kreo HMI configuration.

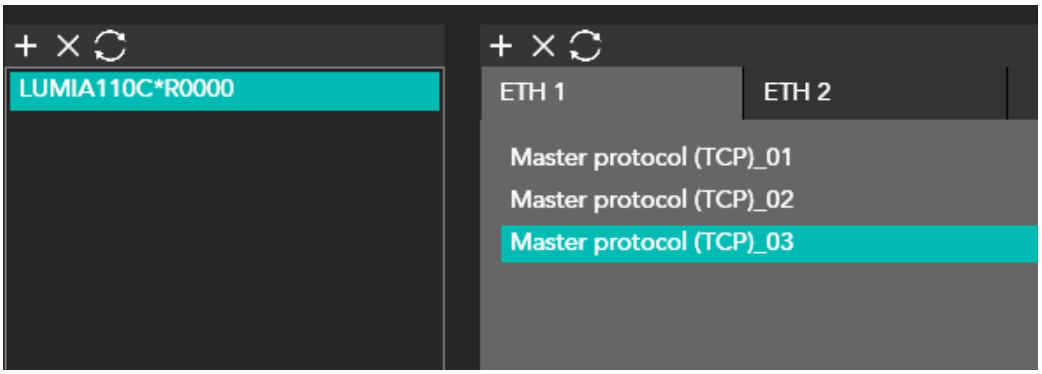
The user can setup a Modbus network configuration with several Modbus slaves simply adding different instances of the Schneider modbus master driver.
Each instance is dedicated to the communication with a specific slave.

Driver selection



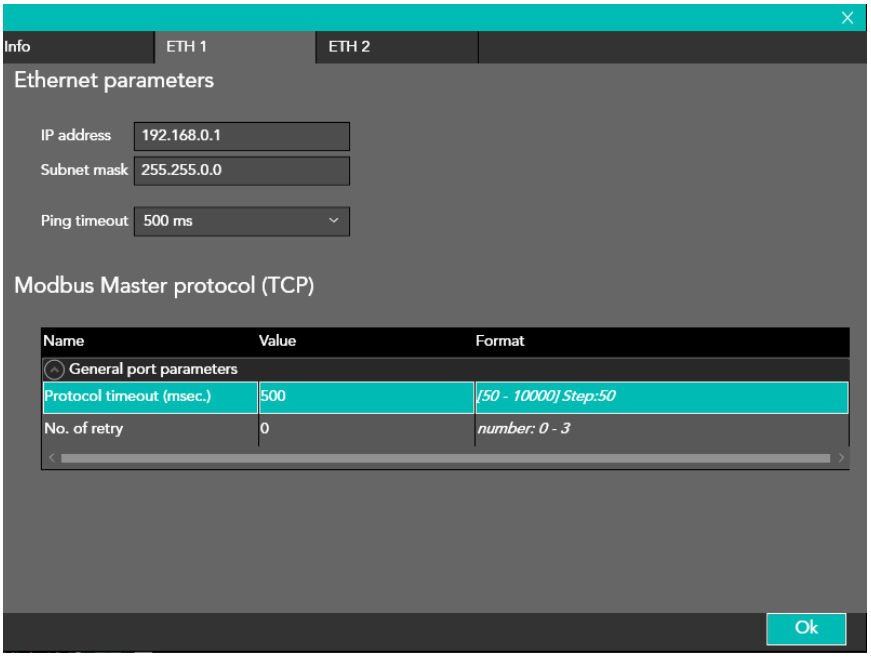
In the Kreo HMI driver portfolio select Schneider – Modbus Master protocol (TCP)

The user can add several instances of the Modbus Master driver via the add button (+) displayed below.
In case 3 slaves have to exchange the data with the Modbus master it is mandatory to add 3 different instances of the driver.



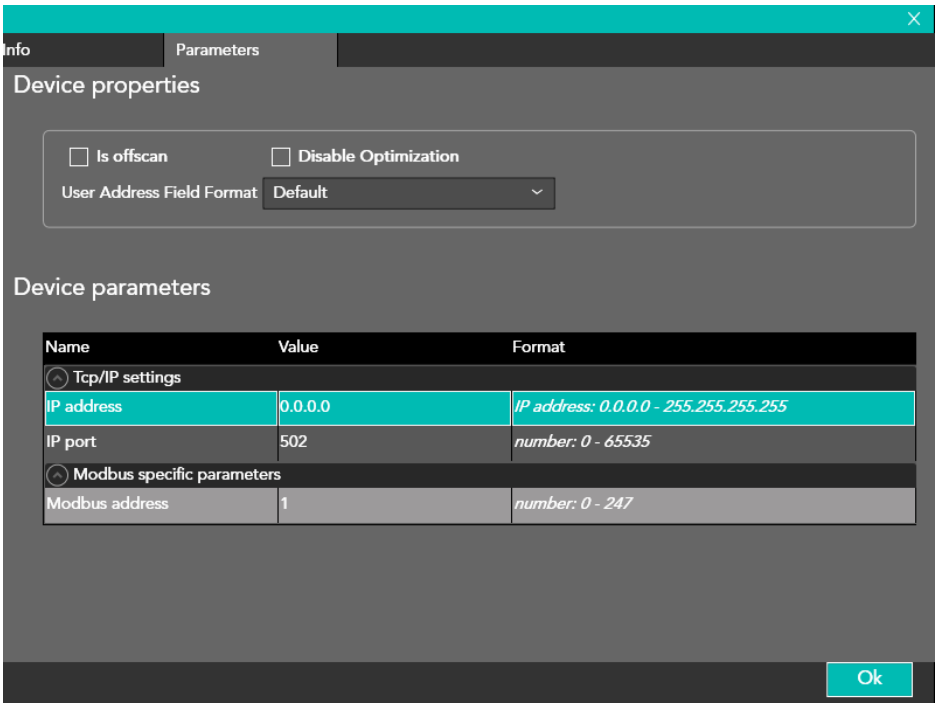
Communication parameters

The page below is displayed by double clicking on the HMI model



IP address	Ip address of the HMI port
Subnet mask	Subnet mask of the HMI port
Ping timeout	The PING command is sent in order to test the connection stability
Protocol Timeout	The PLC has to reply before this time out window will expire in order not to have communication error
No. Of retry	Number of retry before having the communication error

The page below is diplayed by double clicking over the communication driver



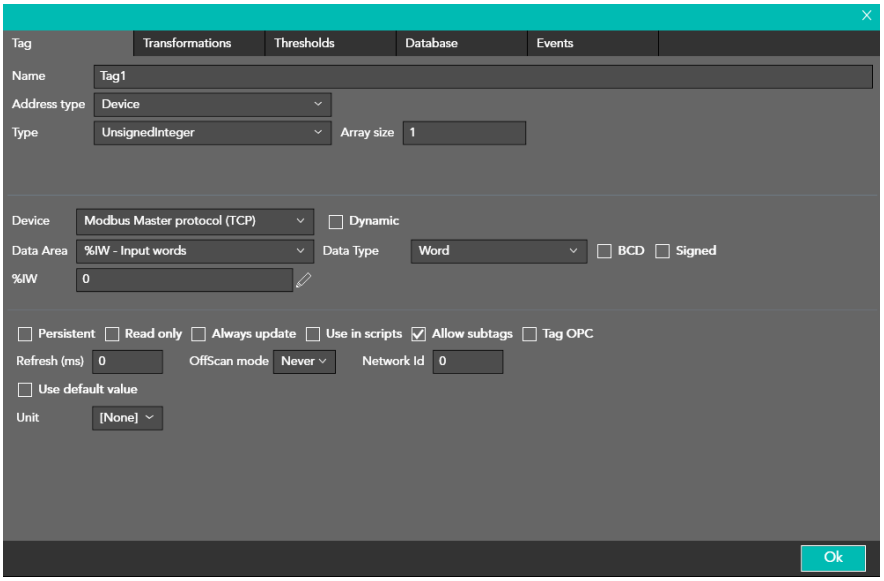
Is Offscan	The driver is defined in the project but will not be scheduled. In order to enable the driver it is mandatory to use the ST script function: TAG_SETOFFSCANDEV (device, state) TAG_SETOFFSCAN (Tag, state)
Disable the optimization	Disable the data optimization. Each tag will be refreshed with a separate communication message.
User address field format	Tag address format. The default format is defined in the driver description but the user can select the desired format (DECIMAL or HEXADECIMAL)
Ip address	Ip address of the PLC port
Ip port	Communication port The default value is 502
Modbus address	Slave PLC address. In case of several instances of the communication driver each instance must have a different slave address

IsOffscan
Is offscan management can be used in case a specific machine module will be part of the Kreo HMI project but will not be physically connected.

A NOT CONNECTED and ONSCAN device will reduce dramatically the performance of the page refresh due to the communication timeout.

Disable Optimization:
This option can be used in order to identify wich of the data displayed on a specific page is causing the communication error.
The value will not be displayed but a series of ????? will let the user identify the faulty tag to be fixed.

Tag programming



The Tag address is based on the PLC memory areas.

Memory areas

AREA	TIPO	DIM.	R/W	DESCRIZIONE
%M – Internal bits	Bit	1	R/W	Read/Write of a block of consecutive coils via a single message (FC 01/05)
%MW – Internal words	Word Dword Real String	16 32 32 16 (2 char)	R/W	Read/Write of a block of consecutive holding registers via a single message (FC03/16)
%MX – Internal words	Bit	1	R/W	Read/Write of a block of consecutive holding registers via a single message (FC03/16)
%IX – Input bits	Bit	1	R/-	Read of a block of consecutive coils via a single message (FC02)
%IW – Input words	Word Dword	16 32	R/-	Read of a lock of consecutive Input registers via a single message (FC04)
%QX – Output bits	Bit	1	R/W	Write of a block of consecutive coils via a single message (FC01/05)

Error codes

CODICE	*DESCRIZIONE*
PROTOCOL ERROR	Generic error. The message received from the slave is not correct
PROTOCOL TIMEOUT	Timeout error. No reply from the slave before the time out window has expired
SOCKET ERROR	The ethernet socket cannot be opened
TRANSMISSION ERROR	Transmission error of the TCP message
ERROR	Generic error

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