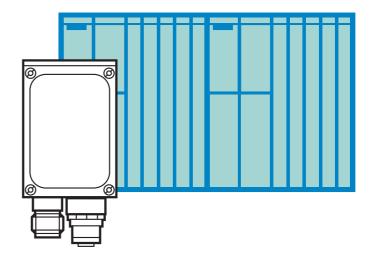


Programming manual Supplement

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Communication between multicode reader O2I1xx and Siemens Simatic S7



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Contents

1	Preliminary note	
2	General	3
3	Ethernet connection via TCP protocol 4 3.1 Principles 4 3.2 Set-up of the multicode reader 4 3.3 Set-up of the hardware configuration / NetPro Step7 4 3.4 Setting parameters on function block FB50 10 3.5 Description function block FB50 10	4 7 0
4	Serial connection via ASCII driver124.1 Principles124.2 Set-up of the multicode reader124.3 Set-up in step 7144.4 Setting parameters on function block FB49174.5 Function block description FB4917	2 2 4 7

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1 Preliminary note

These instructions serve for the set-up and parameter setting of the communication between the multicode reader O2I1xx from ifm electronic and a Simatic S7 controller from Siemens.

1.1 Symbols used

- Instruction
- > Reaction, result
- [...] Designation of pushbuttons, buttons or indications
- \rightarrow Cross-reference



Important note

Non-compliance can result in malfunctions or interference.



Information

Supplementary note

2 General

Communication via Ethernet or serial communication is possible.

The following functions can be executed:

- Release trigger (code read, fail string or match string are provided)
- Select configuration/group (confirmation is given)
- Enquire configuration (list of all configurations is provided)
- Enquire statistics (number of readings is provided)

3 Ethernet connection via TCP protocol

3.1 Principles

The data of the TCP connection is transmitted as a data flow, i.e. there is no defined start or end character on the protocol level.

The returned data is received byte for byte and stored in the receive buffer.

For communication via Ethernet, all TCP protocol compatible Ethernet CPs can be used.

However, the different selection of the Siemens communication blocks when using controllers of the 300 or 400 series is to be taken into account.

The communication was tested with a CPU 414-2DP and a CP 443-1.

3.2 Set-up of the multicode reader

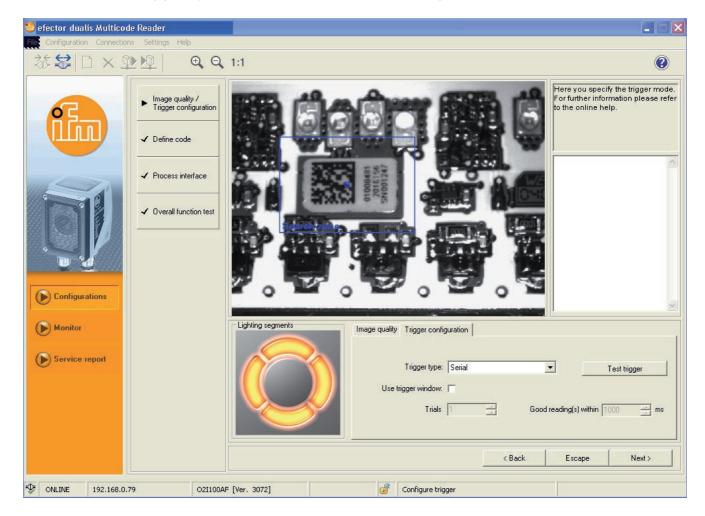
► Select Global device settings → Process interface → Selection of the process interface → TCP/IP.

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• Select Global device settings \rightarrow Network parameters \rightarrow set IP address.

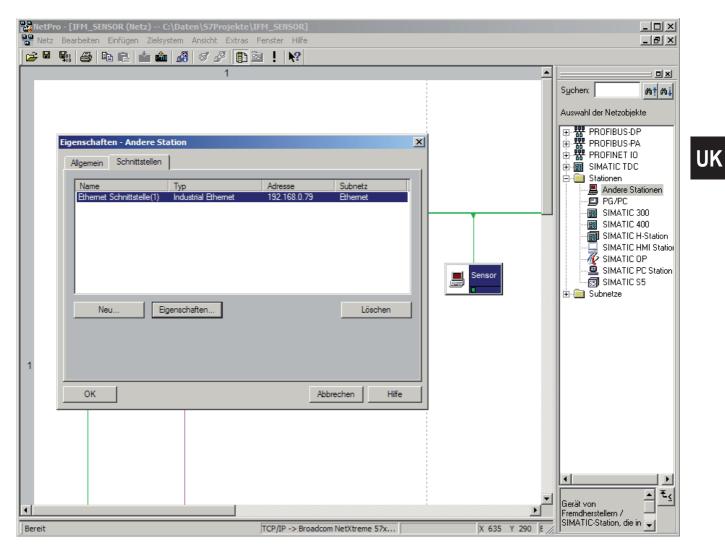
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Service report	Help Escape OK Assign	1			
	Global device settings Save bookmark data	Help Escape Next >			
Image: Constraint of the setting mode Image: Constraint of the setting mode					

► Select the trigger type "Serial" in the active configuration.



3.3 Set-up of the hardware configuration / NetPro Step7

► Set up and link the multicode reader as "Andere Stationen" in NetPro.



7

- ► Create TCP connection with multicode reader.
- Note down the connection ID and CP address for the function block parameter setting.

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► Set the port number as in the parameter setting software.

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3.4 Setting parameters on function block FB50

 Indicate ID and LADDR as set up in Net-Pro. (Are forwarded to the communication function blocks.)

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Kommentar:			
	"IDB SENSOR"		
	"FB O21 ETHERNET"		
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TRIGGER			
CHANGE GROUP			
GROUP_NR			
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READ_CONF			
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			•
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The parameter RECV_BUF must be declared as absolute, because with some controller types the width of access may not be transmitted correctly in case of symbolic declaration.

3.5 Description function block FB50

The function block establishes the telegrams to be sent to the multicode reader and creates a character string from the received data flow.

The "trigger" input sends a trigger command to the multicode reader with each positive edge. In addition the receive buffer is deleted.

The "change_group" input sends a change group command to the multicode reader with each positive edge. The selection is indicated at the "group_nr" and "conf_nr" inputs. In addition the receive buffer is deleted.

The "read_conf" and "read_stat" inputs send the corresponding status query to the multicode reader with each positive edge. In addition the receive buffer is deleted.

The received data is read byte-by-byte from the data flow and then stored consecutively in the receive buffer.

The length of the receive buffer is defined variably as ANY pointer and can be extended or reduced according to the respective requirements.

The character string received from the configuration software after the start and end characters have to be evaluated externally.

4 Serial connection via ASCII driver

4.1 Principles

The received data is received byte for byte and stored in the receive buffer.

All PtP CPs with ASCII protocol driver can be used for serial communication. In that case, however, the transmitting and receiving function blocks used in FB49 have to be adapted accordingly.

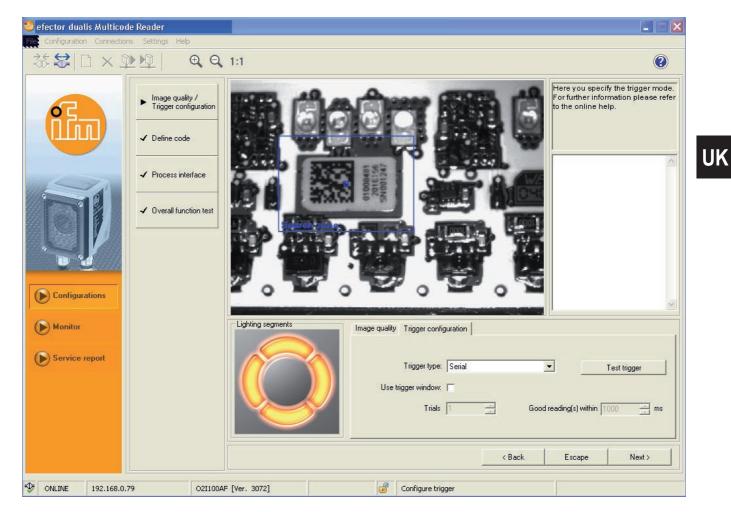
The communication was tested with a CPU 414-2DP, a CP 440 and an RS-485/ RS-232 interface converter.

4.2 Set-up of the multicode reader

► Select Global device settings → Process interface → Selection of the process interface → "Serial".

👶 efector dualis Multicode Reader 📃 🗆 🗙					
File Configuration Connections Settings Help					
漆\$\$10×型▶	1:1	0			
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Configurations	Global settings Process interface Network parameters Selection of the process interface Serial Protocol version V1 (standard) Send connect message Extended settings				
Service report	Help Escape OK Global device settings Save bookmark data	Help			
Image: Concentration of the second	Ever. 3072]	Escape Next >			

- Select Global device settings \rightarrow set transfer parameters (here 9600 8N1).
- Select the trigger type "Serial" in the active configuration.



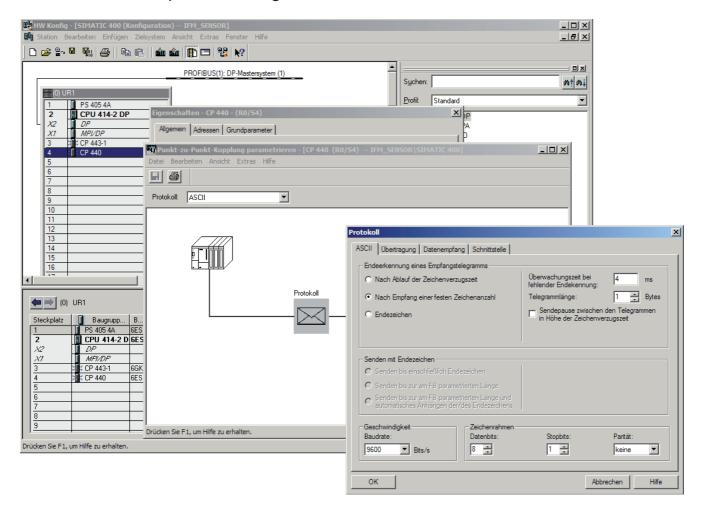
13

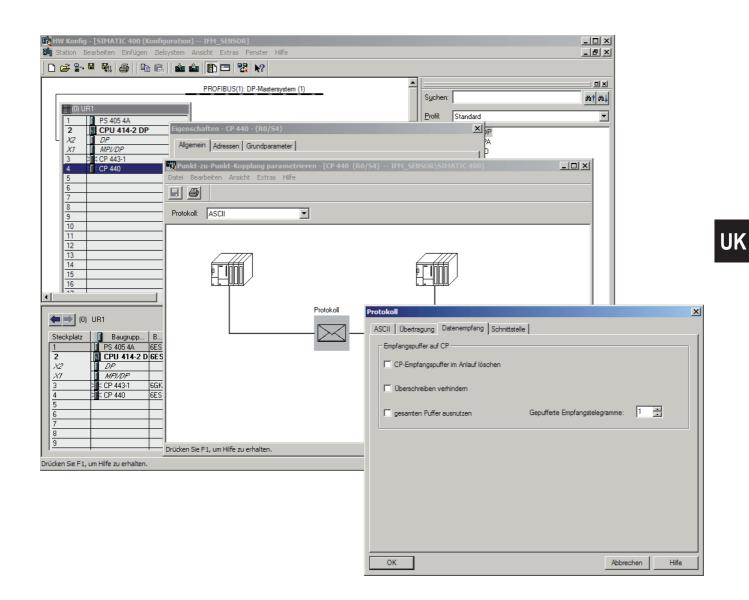
4.3 Set-up in step 7

Set up an ASCII coupling for the corresponding CP and define the telegram length 1 byte.

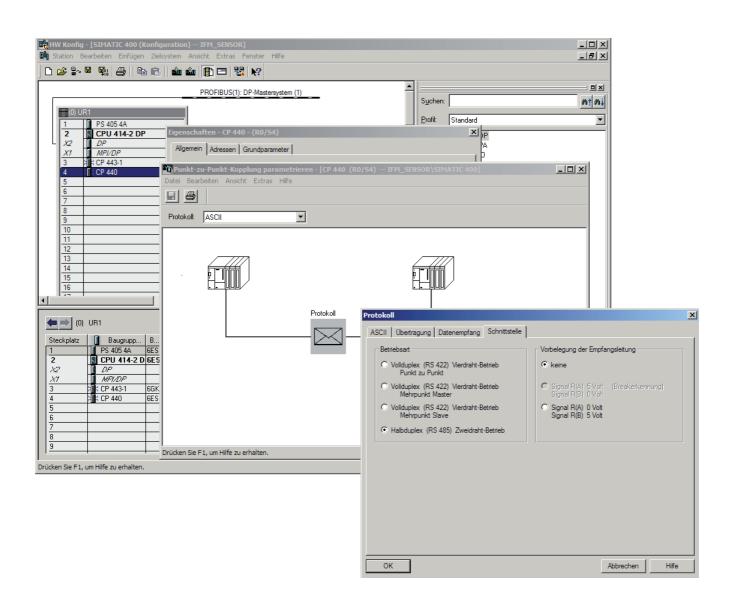
All other settings depend on the CP used.

Below as an example the setting of a CP 440 with interface converter:





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4.4 Setting parameters on function block FB49

Enter parameters for the CP address.
 (Are forwarded to the communication function blocks.)

KOP/AWL/FUP - [OB1 IFM_SENSOR\SIMATIC 400\CPU 414-2			
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Kommentar:			
Netzwerk 1: Titel:			
Kommentar:			
	IDB SENSOR RS232"		
	"FB 02I RS232"		
— EN			
TRIGGER			
CHANGE_GROUP			
GROUP_NR			
CONF_NR			
READ_CONF			
READ_STAT			
512 — LADDR			
200 SEND DB BUF			
0SEND_DBB_NO			
200 — RECV_DB_BUF		ERROR M100.6	
10RECV_DBB_NO		LENGTH MW106	
P#DB222.DBX0.0 BYTE 90 RECV_BUF		ENO	
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Netzwerk 2: Titel:			
Drücken Sie F1, um Hilfe zu erhalten.	🛛 🖾 offline	Sym >= 5.2 Nw 1	Einfg Änd

The parameters SEND_DB_BUF, SEND_DBB_NO, RECV_DB_BUF und RECF_DBB_NO are the start addresses for an intermediate buffer needed for this coupling.



The parameter RECV_BUF must be declared as absolute, because with some controller types the width of access may not be transmitted correctly in case of symbolic declaration.

4.5 Function block description FB49

The function block establishes the telegrams to be sent to the multicode reader and creates a character string from the received data flow.

The "trigger" input sends a trigger command to the multicode reader with each positive edge. In addition the receive buffer is deleted.

The "change_group" input sends a change group command to the multicode reader with each positive edge. The selection is indicated at the inputs "group_nr" and "conf_nr". In addition the receive buffer is deleted.

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The "read_conf" and "read_stat" inputs send the corresponding status query to the multicode reader with each positive edge. In addition the receive buffer is deleted.

The received data is read byte-by-byte from the CP and then stored consecutively in the receive buffer.

The length of the receive buffer is defined variably as ANY pointer and can be extended or reduced according to the respective requirements.

For the serial coupling there is an additional intermediate buffer for the telegram to be sent and the telegram to be received. Stored here in DB200, parameters can be set at the inputs SEND_DB_BUF, SEND_DBB_NO, RECV_DB_BUF and RECF_DBB_NO.

The character string received from the configuration software after the start and end characters have to be evaluated externally.