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Communication via the CM PtP RS232 of the SIMATIC S7-1500 using Freeport Protocol

SIMATIC S7-1500, CM PtP, SIMATIC MV340

https://support.industry.siemens.com/cs/ww/en/109474684

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1 Task

Introduction

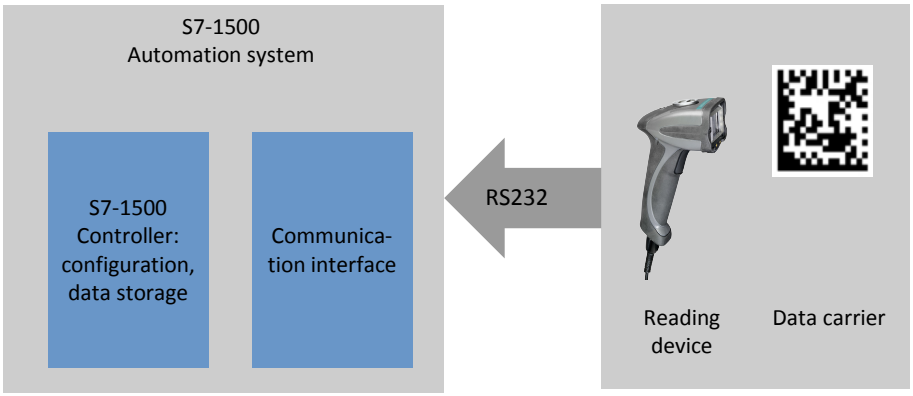
This application shows you how to use the serial interface of the SIMATIC S7-1500 automation system.

As an example, the data of a handheld scanner is received via the communication interface of the automation system and stored in the controller.

Overview of the automation task

The following figure gives an overview of the automation task:

Figure 1-1



Requirements of the automation task

This application is to cover the following requirements:

- The application demonstrates the handling of the CM PtP RS232 HF on a concrete application.
- The information of a code (e.g. data matrix code) should be transferred by a handheld reader via the serial interface to a SIMATIC S7-1500 controller.
- The data is to be temporarily stored for further processing.

2 Solution

2.1 Solution overview

Objective of this application

This application shows you how to do the following in a S7-1500 system

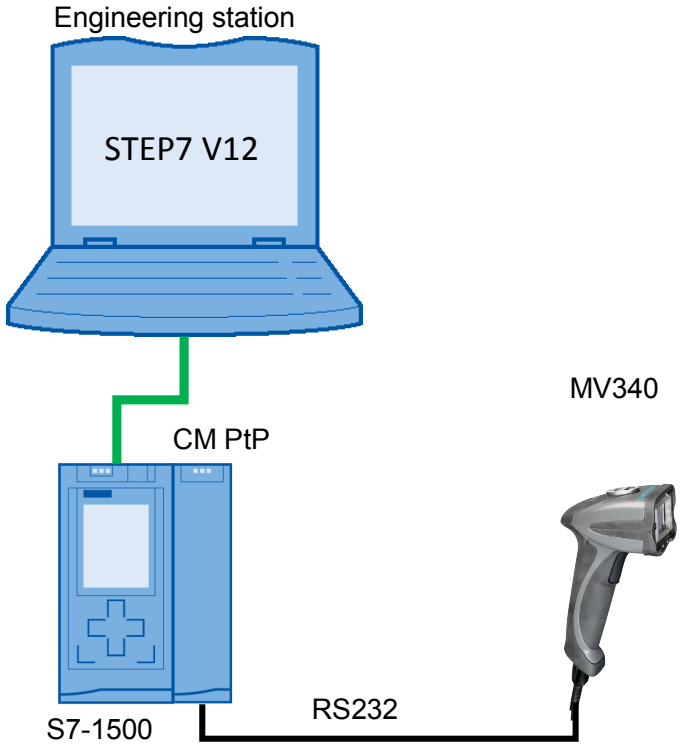
- configuring the serial interface of the CM (Communication Module) PtP RS232 HF for Freeport. The configuration is performed via the hardware configuration as well as via instructions.
- programming data receipt from the SIMATIC MV340 handheld reader.

The precise functionality of the program is described in chapter 4.

Schematic layout

The following figure gives a schematic overview of the most important components of the solution:

Figure 2-1



Core topics of this application

The following core points are discussed in this application:

- Basics on Freeport(ASCII) protocol
- Configuring the hardware environment
- Configuring the PtP (Point to Point) interface
- Programming the data receipt

Advantages of this solution

This application offers you the following advantages:

- conveying general information about the Freeport protocol.
- Demonstration of the handling of the serial interface of a SIMATIC S7-1500 system.
- adjustable sample project for fast creation of own projects.

Validity

- Software versions from TIA Portal V12
- SIMATIC S7-1500 CPUs
- CM PtP RS232 HF and CM PtP RS232 BA

Topics not covered by this application

This application does not contain

- a description for operating the MV340. An operating instruction can be found in the manual to the device (see \http://support.automation.siemens.com/WW/view/en/61909865 \).
- Introduction to the issue of SCL programming
- Basics on TIA Portal V12

Basic knowledge of these topics is assumed.

2.2 Hardware and software components used

This application was generated with the following components:

Hardware components

Table 2-1

Component	Qty.	Ordering number	Note
PM 70W 120/230 AVC	1	6EP1332-4BA00	
CPU 1516-3 PN/DP	1	6ES7516-3AN00-0AB0	Other CPUs from the S7-1500 spectrum can also be used.
CM PtP RS232 HF	1	6ES7541-1AD00-0AB0	The CM PtP RS232 BA (6ES7 540-1AD00-0AB0) can also be used.
SIMATIC MV340	1	6GF3340-0HT01	

Note If you are using a different hardware than the one in the sample project, you have to perform the respective changes in the hardware configuration!

Standard software components

Table 2-2

Component	Qty.	Ordering number	Note
STEP7 V12 (TIA Portal V12)	1	6ES7822-1AE02-0YA5	

Example files and projects

The following list includes all files and projects used in this example.

Table 2-3

Component	Note
109474684_S7-1500_CM_PtP_MV340_DOKU_V1_en.pdf	Application Description
109474684_S7-1500_CM_PtP_MV340_CODE_V1.zip	This zip file contains the STEP 7 V12 (TIA) project.

In the chapter Literature you can find helpful links on the issue.

On the HTML page of the application you can furthermore find a project to connect the handheld reader MV340 via the CM PtP of an ET 200SP to a S7-300 station.

3 Description of the Freeport Protocol

3.1 Introduction

Freeport is a freely programmable, telegram-based protocol which is also known as ASCII protocol. It controls the data transmission for a point-to-point connection between the communication module and a communication partner.

The Freeport protocol only includes the bit transmission layer (layer 1).

You can set different parameters for the protocol. You have to specify a large amount of the parameters separately, for the send and for the receive direction.

Parameter

The following parameters for the connection can be set for the sending of data via the Freeport protocol:

- Data transmission rate (in baud)
- Bits per character
- Parity
- Stop bits
- Flow control
- Operating mode

The parameters below can be set separately, for the receive and the send direction each:

- Break before telegram start
- Specifying a send break (“idle line”)
- Specifying the start of the message (preamble)
- Specifying the end of the message (postamble)
- Character delay time

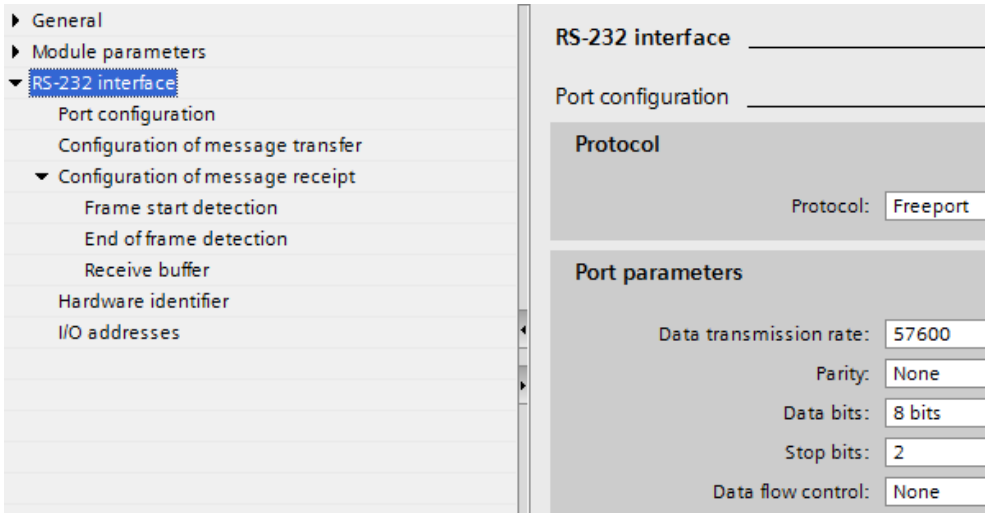
According to the settings, the CM will recognize the start and the end of a telegram.

An extensive list with description of the parameters of the Freeport protocol can be found in the “Configurations for Point-to-Point Connections” manual (see Literature \http://support.automation.siemens.com/WW/view/en/59057093 \)

3.2 Setting the parameters in the TIA Portal V12

The parameters for the Freeport communication can be set in the “Properties” of the inspector window of the CM PtP.

Figure 3-1



Make sure that the communication partner of the CM PtP (in this application example the handheld reader MV340) is suitably configured to your settings.

Instructions for Freeport

Additionally or alternatively to the settings in the hardware configuration (see Figure 3-1) the following three instructions are provided. These instructions overwrite the settings of the hardware configuration.

- Port_Config

  You can change the RS232 port parameters, such as, for example, the data transmission rate in running operation with the Port_Config (port configuration) instruction from the user program.

- Receive_Config

  You can change the serial receive parameters in running operation with the Receive_Config (receive configuration) instruction. This instruction configures the conditions that identify the start and the end of the received data.

- Send_Config

  You can change the serial transmission parameters in the user program in running operation with the Send_Config (send configuration) instruction. This instruction configures the start and end identifier that are sent with a telegram.

In order to receive or send data from a serial terminal device, use the following instructions:

- Receive_P2P

  The Receive_P2P instruction (receiving data via a point-to-point connection) checks the telegrams that have been received in the CM. If a telegram is available, it is transferred from the CM to CPU.

- Send_P2P

  The Send_P2P instruction (sending point-to-point data) starts the transmission of data and transfers the content of the assigned buffer to the communication module.

If your serial terminal device uses secondary signals, you can set them and read them out with the following instructions, provided automatic operation is not configured:

- Signal_Set
- Signal_Get

4 Description of the STEP7 Program

4.1 Overview

Functions

The S7 program realizes the following functions:

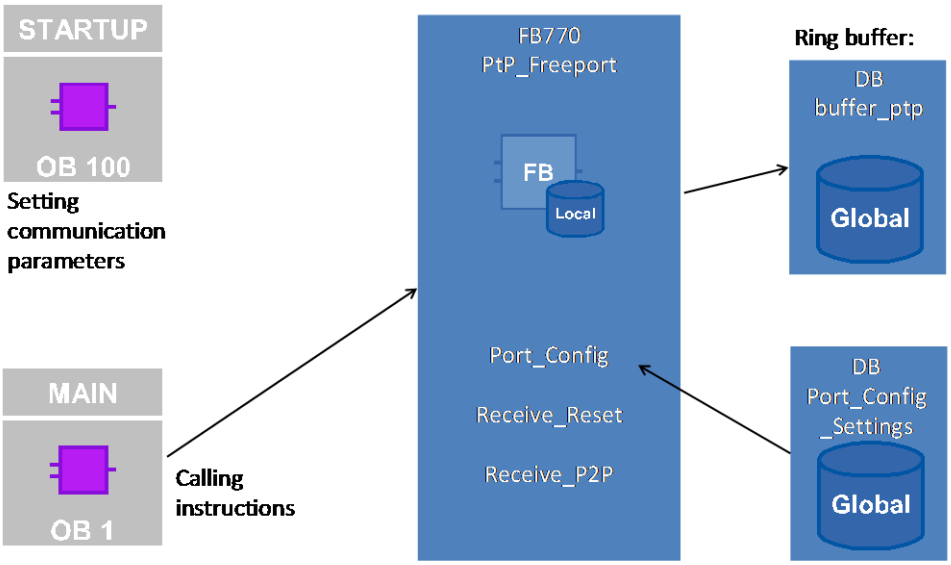
- Initializing parameters used
- Configuring point-to-point connection of the CM PtP (Port_Config)
- Deleting the receive buffer of the CM PtP (Receive_Reset)
- Receiving the data of the MV340 from the CM PtP (Receive_P2P) and storage in a ring buffer

The functions are encapsulated in the FB PtP_Freeport (FB770) and are successively processed in a sequence (compare chapter 4.2).

Schematic layout

Figure 4-1 shows the program structure of the STEP7 project.

Figure 4-1



Blocks and instructions

The following blocks and instructions are used in the STEP7 project:

Table 4-1

Element	Symbolic name	Description/classification	
OB1	Main	Calls the FB PtP_Freeport and transmits the hardware identifier of the CM. You have to adjust this call, if you have a different hardware identifier in your configuration.	Program call
OB100	Startup	Sets the communication parameters in DB Port_Config_Settings when restarting the program.	
FB770	PtP_Freeport	The FB PtP_Freeport encapsulates the instructions Port_Config, Receive_Reset and Receive_P2P.	In-house development
DB770	PtP_Freeport_DB	Instance DB of FB PtP_Freeport	
DB771	Port_Config_Settings	Includes the communication parameter for Port_Config. You can perform changes of the communication settings via a change of the start parameters (see chapter 5).	
DB772	buffer_ptp	Includes the ring buffer of the program. This is where the data from the receive buffer is stored in order to be able to keep it for longer.	
Instruction: FB610	Port_Config	Configuration of the serial interface of the CM PtP.	System blocks
Instruction: FB617	Receive_Reset	Delete receive buffer of the CM PtP.	
Instruction: FB614	Receive_P2P	Store data from the CM PtP in receive buffer of the CPU.	
Instruction: FB1001	R_TRIG	Detects a positive edge of the input.	

4.2 Operation of the FB PtP_Freeport (FB770)

4.2.1 States and call of the FB PtP_Freeport (FB770)

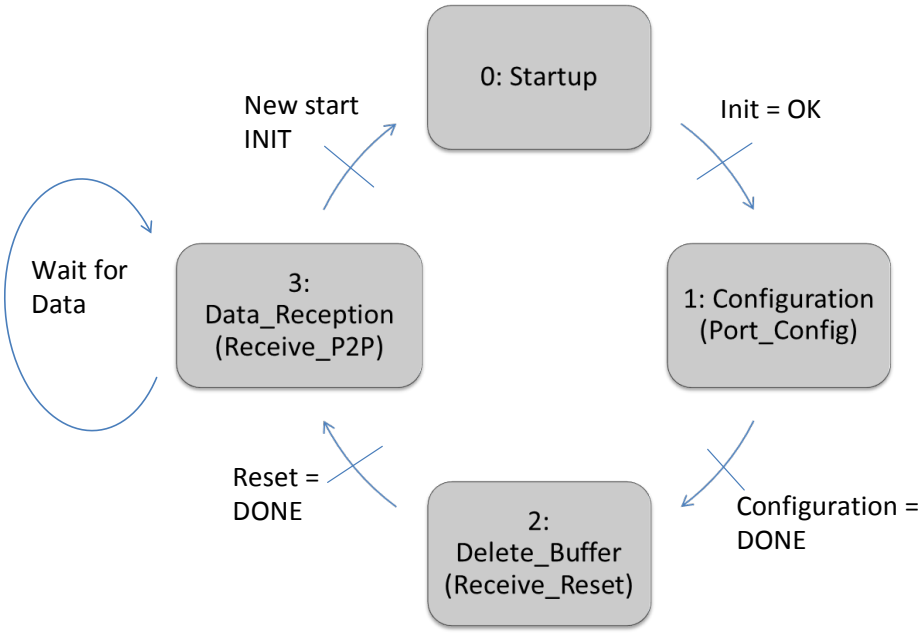
States

FB770 fulfils the following tasks:

- Initializing the parameters
- Configuring the point-to-point connection
- Deleting the receive buffer in the communication module
- Receiving data from the communication module and storage in a ring buffer

This functionality has been realized as a simple sequence with the following states:

Figure 4-2



A precise description of the individual states can be found in chapter 4.2.2 “Startup” state.

Call and parameters

The figure shows the call interface of FB PtP_Freeport (FB770). The parameters are described in Table 4-2.

Figure 4-3

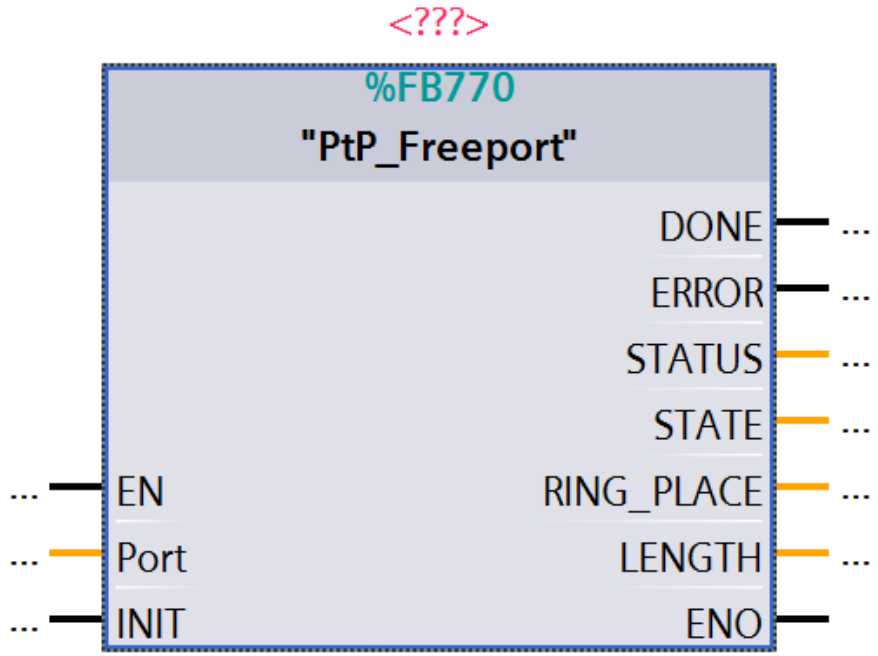
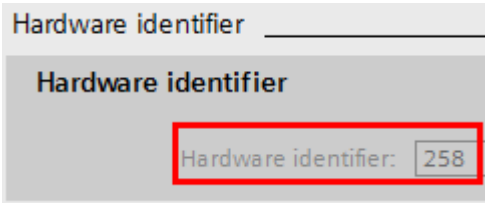


Table 4-2

Parameter	Type	Note
PORT	IN UInt	The value of the “Port” IN parameter is the hardware identifier of the CM. The hardware identifier that is in the properties of the CM which is used as input value for the “Port” parameter. 
INIT	IN Bool	If the edge is positive, the “Startup” state is introduced.
DONE	OUT Bool	If new data is stored in the ring buffer, DONE =TRUE is the case for one cycle.
ERROR	OUT Bool	If an error is pending in the block, ERROR=TRUE is set.

Parameter	Type	Note
STATUS	OUT DWORD	Specifies values to evaluate the pending error. Setup: 16#0001_xxxx : Status of the Port_Config instruction 16#0002_xxxx: Status of the Receive_Reset instruction 16#0004_xxxx: Status of the Receive_P2P instruction
STATE	OUT Int	Shows the state of the user program (see Figure 4-2).
RING_PLACE	OUT Int	Shows the location where the telegram last received was written in the ring buffers (in byte).
LENGTH	OUT UInt	Shows the length (in byte) of the telegram last received.

4.2.2 “Startup” state

Overview

The “Startup” state is introduced by calling the FB PtP_Freeport in OB1 once.

The “Startup” state is also triggered by a positive edge of the “Port_Config_Settings”.User_Init variable.

In this state the parameters required for the program sequence are initialized.

Description

The following parameters are initialized:

- The control inputs of the Port_Config, Receive_Reset instructions.
- The internal program variables, such as, for example, the current state of the program and the current position in the ring buffer.

4.2.3 “Configuration” (Port_Config) state

Overview

The FB770 is in the “Configuration” state due to the initialization in “Startup” state and the setting of the internal "PtP_Freeport_DB".navi.state = "Configuration" variable.

In this state the Port_Config instruction for setting the communication parameters of the point-to-point connection is called.

Note

The call of Port_Config is optional and overwrites the settings of the hardware configuration. If you want to change your communication settings dynamically, use the Port_Config instruction for this purpose.

Program code

Figure 4-4

```
//*********************************************************************
//call port_config with the values of the
//default-connection settings of the MV340
//*********************************************************************
"Configuration":
#Port_Config_Instance(REQ:=#Input_Data.Config_REQ,          1.
                      "PORT":=#Port,                       2.
                      PROTOCOL:="Port_Config_Settings".PROTOCOL,
                      BAUD:="Port_Config_Settings".BAUD,
                      PARITY:="Port_Config_Settings".PARITY,
                      DATABITS:="Port_Config_Settings".DATABITS,
                      STOPBITS:="Port_Config_Settings".STOPBITS,
                      FLOWCTRL:="Port_Config_Settings".FLOWCTRL,   3.
                      XONCHAR:= "Port_Config_Settings".XONCHAR,
                      XOFFCHAR:= "Port_Config_Settings".XOFFCHAR,
                      WAITTIME:="Port_Config_Settings".WAITTIME,
                      MODE:="Port_Config_Settings".MODE,
                      LINE_PRE:= "Port_Config_Settings".LINE_PRE,
                      DONE=>#Output_Data.Config_DONE,
                      ERROR=>#Output_Data.Config_ERROR,        4.
                      STATUS=>#Output_Data.Config_STAT);
 #Input_Data.Config_REQ:= 1; // trigger of Port_Config
```

Description

The following step table describes the program code:

Table 4-3

<table>
<tr><th>No.</th><th>Step</th><th>Note</th></tr>
<tr><td>1.</td><td>The configuration job is triggered via a positive edge of the “REQ” input.</td><td>It is recommended to call the instruction once with REQ=0 in order to definitely create a positive edge at the input.</td></tr>
<tr><td>2.</td><td>The value of the “Port” parameter is transferred by you to the FB PtP_Freeport as INPUT.</td><td>The value can be found in the inspector window of the CM PtP (see Table 4-2).</td></tr>
<tr><td>3.</td><td>The table on the right lists the parameters of Port_Config that are used by the user program.
The values listed adjust the interface of the CM to the default communication settings of the handheld reader MV340 (see manual \http://support.automation.siemens.com/WW/view/en/61909865 \ chapter 4 “Communications”).

Note!
To change the communication settings, please note chapter 5.</td><td>
<table>
<tr><th>Parameter</th><th>Value</th><th>Note</th></tr>
<tr><td>PROTOCOL</td><td>0 (Freeport)</td><td>Protocol</td></tr>
<tr><td>BAUD</td><td>9 (57.6k baud rate)</td><td>Data transmission rate of the port</td></tr>
<tr><td>PARITY</td><td>1 (no parity bit)</td><td>Parity of the port</td></tr>
<tr><td>DATABITS</td><td>1 (eight data bits)</td><td>Bits per character</td></tr>
<tr><td>STOPBITS</td><td>2 (2 stop bits)</td><td>Stop bits</td></tr>
<tr><td>FLOWCTRL</td><td>1 (no data flow control)</td><td>Flow control</td></tr>
<tr><td>MODE</td><td>0 (Full duplex RS232)</td><td>Operating mode</td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>The outputs “ERROR” and “STATUS” can be used for evaluation. Detailed information on the values that “STATUS” can assume, can be found in the help of the TIA Portal.
The “DONE” output shows that the configuration job was successful and in this example, triggers the next step.</td><td></td></tr>
</table>

Note Receive_Config can optionally change other parameters. Receive_Config is not used in this example since its default parameters match the default settings of the handheld reader MV340.

4.2.4 “Reset receive buffer” (Receive_Reset) state

Overview

If the “DONE” output of Port_Config shows that the configuration job has been completed, the “reset receive buffer” state is triggered.

The receive buffer is reset, in the event that there is already data in the receive buffer of the CM PtP.

Program code

Figure 4-5

```
//*************************************************************
//reset buffer of CM
//*************************************************************
"Delete_Buffer":
#Receive_Reset_Instance(REQ:=#Input_Data.Reset_REQ,     1.
                        "PORT":=#Port,    2.
                        DONE=>#Output_Data.Reset_DONE,    3.
                        ERROR=> #Output_Data.Reset_ERROR,
                        STATUS=> #Output_Data.Reset_STAT);
#Input_Data.Reset_REQ:=1;
```

Description

The following step table describes the program code:

Table 4-4

No.	Step	Note
1.	The “REQ” input triggers the deleting of the receive buffer in the CM PtP through a positive edge.	It is recommended to call the instruction once with REQ=0 in order to definitely create a positive edge at the input
2.	The value of the “Port” parameter is transferred by you to the FB PtP_Freeport as INPUT. The value can be found in the inspector window of the CM PtP (see Table 4-2).	
3.	The “DONE” output shows that the resetting was successful and in this example, triggers the next step.	

4.2.5 “Receive data” (Receive_P2P) state

Overview

FB770 goes to the “Receive data” state once the receive buffer of the communication module was deleted. As a result, the initialization steps are ended and the “Receive data” state is processed cyclically.

The “Receive data” state is split the following way:

- Waiting for data from the CM PtP RS232 HF (Receive_P2P)
- Picking up data from the CM (Receive_P2P)
- Storing data in the ring buffer

“Picking up of data” program code

Figure 4-6

```
//*********************************************************************
//receive data from MV340 and place the data into the ringbuffer
//*********************************************************************
"Data_Reception":
#DONE :=0;
#Receive_P2P_Instance("PORT":=#Port,    1.
                      BUFFER:=#Recv_Buffer,    2.
                      ERROR=> #Output_Data.P2P_ERROR,
                      STATUS=>#Output_Data.P2P_STAT,    3.
                      NDR=>#Output Data.P2P NDR,
```

Description of “Picking up of data”

The following step table describes the program code:

Table 4-5

No.	Step	Note
4.	The value of the “Port” parameter is transferred by you to the FB PtP_Freeport as INPUT. The value can be found in the inspector window of the CM PtP (see Table 4-2).	
5.	As soon as data from the serial terminal device has been received in the CM, the instruction will write this data in the BUFFER input of the 256 byte array. From this receive buffer the data is saved in the ring buffer once it has been successfully transferred.	**Note!** The CM PtP RS232 HF can receive telegrams of a length of up to 4kByte.
6.	The outputs “ERROR” and “STATUS” can be used for evaluation. Detailed information on the values that “STATUS” can assume, can be found in the help of the TIA Portal. In the event that the array is too small for the received data (ERROR = 1 and STATUS = 0x8088), the program will go to the “Reset receive buffer” state.	

Program code “Storing of data“

Figure 4-7

```
//move data to ringbuffer
FOR #navi.#i2 := 1 TO #Control.Rcv_Length_save DO 1.
  "buffer_ptp".ringbuffer[#navi.i]:=#Recv_Buffer[#navi.i2];
  #navi.i:=#navi.i+1;
      IF (#navi.i > 1024) THEN
      #navi.i:= 0;
      #Control.While_Section:=1;
      END_IF;                                              2.
END_FOR;
//end-identifier
      .
      .                                                    3.
```

Description of “Storing of data“

The following step table describes the program code:

No.	Step	Note
7.	NDR=TRUE shows that data has been written in the “Recv_Buffer” receive buffer.	
8.	The program writes the number of bytes that are displayed on the LENGTH output from the receive buffer to the ring buffer. The new data is stored in the ring buffer directly after the data last received.	DB2 buffer_ptp has been created for the ring buffer that can accommodate a data volume of 1024 byte.
9.	The end identifier „; „ that consists of two bytes, is attached to the received telegram and a possibly overwritten old telegram is overwritten with blanks.	**Note!** Your telegram last received starts in the DB buffer_ptp with “RING_PLACE” offset and ends with „; „ or after the number of “LENGTH” bytes.

5 Configuring the Communication Parameters via TIA Portal

Requirement

You have to adjust the communication settings of the CM PtP if one of the following conditions is fulfilled:

- You are not using the default settings of the handheld reader SIMATIC MV340
- You are using a different distributed I/O device which has different communication settings than the default settings of the MV340.

You have three options for setting the parameters:

- Changing the parameter in DB Port_Config_Settings (DB771).
- Adjusting and inserting the respective instructions in FB770.
- Changing the hardware configuration.

Configuring whilst using the DB Port_Config_Settings

If you would like to change the settings of the serial interface via the DB Port_Config_Settings, proceed as follows:

Table 5-1

No.	Procedure	Note
10.	Adjust the start values of the DB Port_Config_Settings in OB100 to your requirements. For the meaning of the individual values, use the help function of the TIA Portal. (help for Port_Config instruction)	(*** set the parameter for the port_config instruction *** "Port_Config_Settings".PROTOCOL := 0; "Port_Config_Settings".BAUD := 9; "Port_Config_Settings".PARITY := 1; "Port_Config_Settings".DATABITS := 1; "Port_Config_Settings".STOPBITS := 2; "Port_Config_Settings".FLOWCTRL := 1; "Port_Config_Settings".WAITTIME := 0; "Port_Config_Settings".MODE := 0; "Port_Config_Settings".LINE_PRE := 0;
11.	Compile your project and load it into the CPU.	

Adjusting and inserting instructions

Three instructions are available to you to adjust the communication settings via the user program.

Port_Config is already used in the user program:

- Port_Config:

  Changing of parameters such as data transmission rate via the user program in running operation.

  For this purpose, compare the previous section with the instruction on how to directly change parameters in the sample project via the DB Port_Config_Settings.

If you want to change other parameters, you can insert the following instructions:

- Send_Config

  Changing the serial transmission parameters via your program. This instruction configures the conditions that indicate the start and the end of the data to be sent.

- Receive_Config:

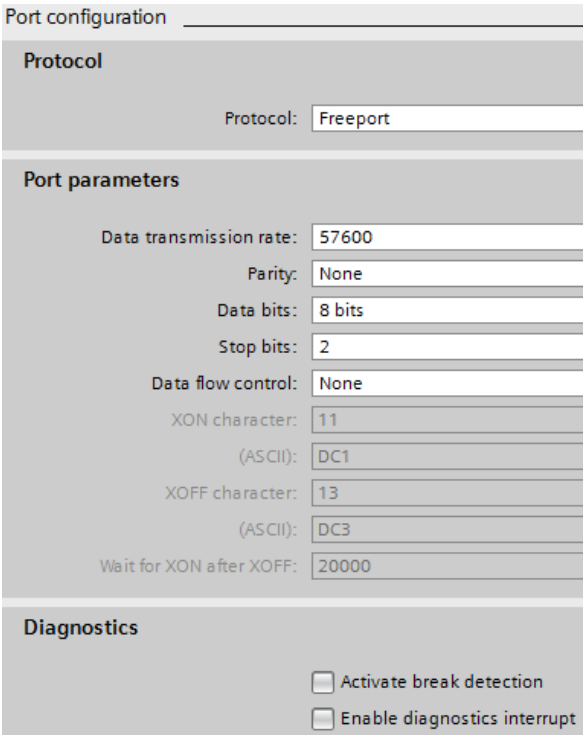
  Changing the serial receive parameter via your program in running operation. This instruction configures the conditions that identify the start and the end of the received data.

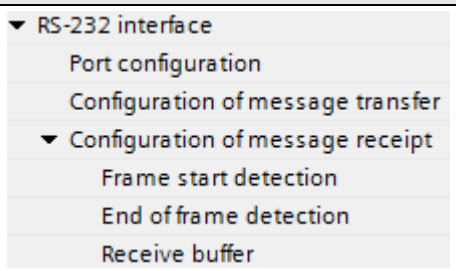
For further information, please read the function manual (see \http://support.automation.siemens.com/WW/view/en/59057093 \) or the help of the TIA Portal V12.

Adjusting in the hardware configuration

Table 5-2 shows the configuration of the CM PtP for the default communication settings of the MV340. You have to adjust these settings individually to your serial terminal device.

Table 5-2

No.	Instruction	Note
12.	Open the STEP7 V12 project. Go to the “Device view” tab. This is where you select your CM PtP and then go to the property tab in the inspector window	
13.	Navigate to the port configuration and make the desired settings.	

No.	Instruction	Note
14.	Via the configuration of message sending/receiving, you can adjust parameters such as message start, breaks and idle lines.	
15.	Delete the “Port_Config” instruction from your user program and add the instruction on the right to the “Configuration” step.	`"Configuration": #navi.state:="Delete_Buffer";`
16.	Save your program and load the hardware configuration in your CPU.	

NOTICE	If you are calling the blocks Port_Config, Send_Config or Receive_Config in your user program, they will overwrite the settings made there.

6 Starting Up the Application

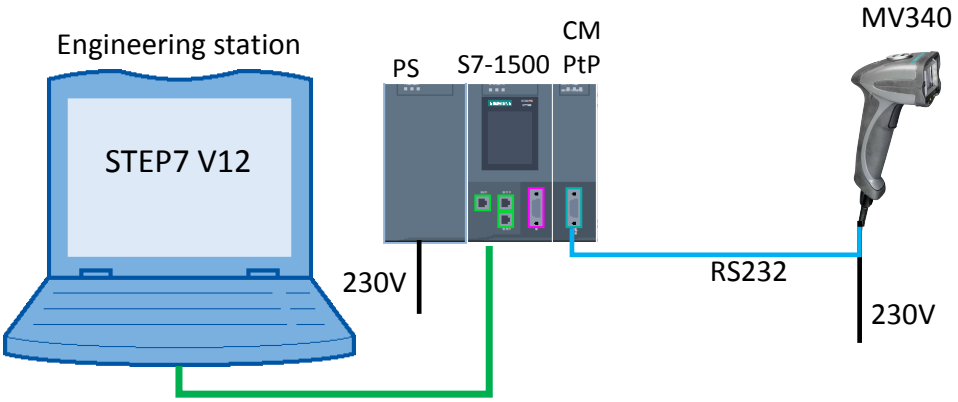
6.1 Configuration of the hardware

Hardware

You require the hardware that is listed in chapter 2.2 “Hardware and software components used”.

Structure

Figure 6-1



The table describes the procedure for the hardware setup of the project.

Observe the rules for the set up of a PLC station.

Table 6-1

No.	Procedure	Note
17.	Connect the S7-1500 controller with the CM PtP via the backplane bus.	• CPU 1516-3 PN/DP • CM PtP RS232 HF
18.	Connect your S7-1500 station to a power supply with 24 volt.	
19.	Connect the S7-1500 station via the PROFINET port to your engineering station.	
20.	0Set the IP address of the S7-1500 port via the display to the IP address used in the example (192.168.0.1). The IP address can be set under “Settings > Addresses >X1 (IE/PN) > IP address” in the display.	

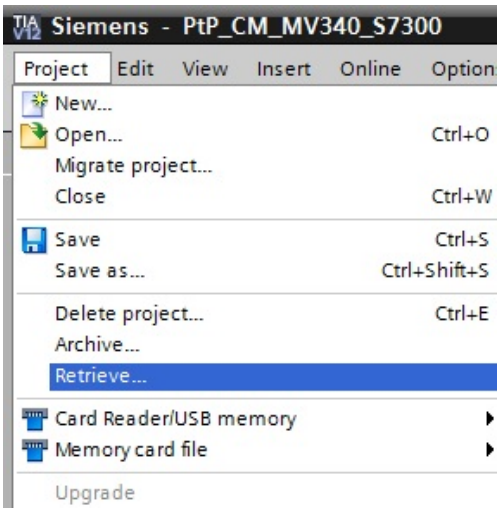
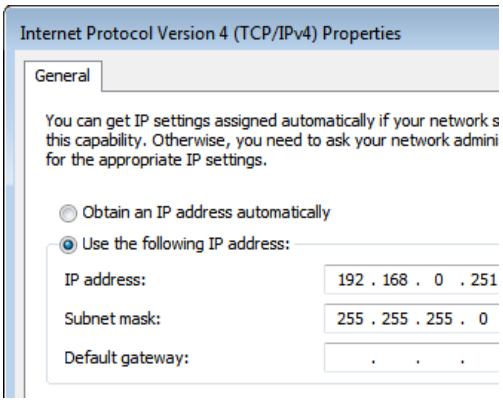
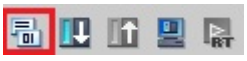
No.	Procedure	Note
21.	Set the MV340 to the default settings for the RS232 communication. For this purpose scan the data matrix code on the right.	 M418_02
22.	Now save the settings by reading the code on the right.	 M188_02 Save settings
23.	Connect the handheld reader MV340 via RS232 with the CM PtP. Now you have the hardware setup as can be seen in Figure 6-1.	

6.2 Opening and loading of the STEP 7 project

Retrieving the project

The following table shows you how to open the STEP7 project and how to load it in your S7-Station.

Table 6-2

No.	Procedure	Note
1.	Unzip the "67811800_S7-1500_CM_PtP_MV340_CODE_V1d0.zip " file to a local folder of your PC.	
2.	Navigate into the created folder. Open the STEP 7-project with double click on the file “S7-1500_CM_PtP_MV340.ap12” Now the project gets opened in TIA Portal.	
3.	Make sure that your engineering station is located in the same subnet as the S7-1500 CPU. Example: IP address: 192.168.0.251 Subnet mask: 255.255.255.0	
4.	Compile the project via "S7-1500 > Compile" or via the respective icon. In the inspector window the message will appear that the compilation was performed successfully.	
5.	Load the configuration into your S7-1500 CPU after error-free compilation via the “Download to device” button. After the download the message will appear that the download process was completed successfully.	

6.3 Operating the Application

Using the handheld reader

In order to store data from the handheld reader in the CPU you only have to read in the respective data codes with the hand scanner.

For this purpose, observe the instructions in the manual of the MV340 (see \http://support.automation.siemens.com/WW/view/en/61909865 \).

Sample codes

To test the transmission, several sample codes are available. The string included is always written under the data matrix codes.

Figure 6-2

ABCDEFGHIJKL

Hello World!

Siemens AG

0123456789

If you would like to send individual data, you can use, for example, code generators that you can find on the internet.

Example:

http://www.automation.siemens.com/mcms/identification-systems/en/code-reading-systems/Pages/default.aspx

On the right under "More information > Data Matrix Code Generator"

Information of the Freeport_Overview monitoring table

The Freeport_Overview monitoring table is included in the project. The table below shows you what information you can find in it. In the table, in the program itself you can find other comments.

Table 6-3

Variable	Note
“PtP_Freeport_DB".navi.state	Indicates the current status of the program.
“PtP_Freeport_DB".RING_PLACE	Indicates the location (in byte) of the ring buffers where the last telegram was stored.
“PtP_Freeport_DB".Control.Rcv_Length_save	Shows the length (in byte) of the telegram last received.
“PtP_Freeport_DB".Control.P2P_NDR_save	Shows the status of the telegram receipt last completed.
“PtP_Freeport_DB".Control.P2P_ERROR_save	Shows the status of the last error message of the receive block.
“PtP_Freeport_DB".Control.Config_ERROR_save	Shows the status of the last error message of the Config block.
“PtP_Freeport_DB".Control.Reset_ERROR_save	Shows the status of the last error message of the Reset block.

7 Related literature

This list is by no means complete and only reflects a selection of suitable information.

Table 7-1

	Topic	Title
\1\	Link to this document	http://support.automation.siemens.com/WW/view/en/109474684
\2\	Siemens Industry Online Support	http://support.automation.siemens.com
\3\	SIMATIC MV340 Manual	http://support.automation.siemens.com/WW/view/en/61909865
\4\	CM PtP Configurations for Point- to- Point Connections	http://support.automation.siemens.com/WW/view/en/59057093
\5\	Device manual Communication module CM PtP RS232 HF	http://support.automation.siemens.com/WW/view/en/59057160
\6\	Device Manual Communication Module CM PtP RS232 BA	http://support.automation.siemens.com/WW/view/en/59057152

8 History

Table 8-1

Version	Date	Modifications
V1.0	27.02.2013	First version