

RTU32 Series

Siemens S7 Client

User guide

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Table of Content

1. Customer Information	3
Disclaimer.....	3
Life Support Policy.....	3
Brodersen Systems Customer Services	3
Technical Support.....	3
Product Warranty.....	4
2. Introduction.....	5
3. Create and configure the application	5
Create the Siemens S7 Client configuration.....	5
Configure the Siemens S7 Client configuration	5
Create status variables for connection diagnostic	7
4. Build and download the application	8
5. Example configuration.....	8



1. Customer Information

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As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Brodersen Systems Customer Services

Your satisfaction is our primary concern. Here is a guide to Brodersen customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So, if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in the product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult this manual first.

To receive the latest version of the user guide, please visit our Web site: <https://www.brodersen.com>

Choose the product in question under product search and under each product you will find accompanying data sheets, manuals, user guides etc.

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our distributors are well trained and ready to give you the support you need to get the most from your Brodersen products. In fact, most problems reported are minor and are able to be easily solved over the phone.

In addition, technical support is available from Brodersen engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us on support@brodersen.com.

Denmark:

Brodersen Systems A/S
Islevdalvej 187
DK-2610 Roedovre
Tel.: +45 45 35 26 27
Fax: +45 45 35 26 29
sales@brodersensystems.com
www.brodersensystems.com



Product Warranty

Brodersen Systems warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Brodersen, or which have been subject to misuse, abuse, accident or improper installation. Brodersen assumes no liability under the terms of this warranty as a consequence of such events. Because of Brodersen's high quality control standards and rigorous testing, most of our customers never need to use our repair service. If a Brodersen product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your distributor for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, Product type and s/n, hardware and software version etc.) Note anything abnormal and describe the error in a product failure report.

2. Call your distributor and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, make arrangement with your distributor about this.

4. Carefully pack the defective product, a complete failure report and a photocopy of proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Ship it to your distributor.



2. Introduction

This document describes how to start working with the Siemens S7 Client in Brodersen WorkSuite.

3. Create and configure the application

This chapter describes how to configure the different parts of the Siemens S7 Client configuration in Brodersen WorkSuite.

Create the Siemens S7 Client configuration

Start by opening the Fieldbus Configurations () , and add a “Siemens S7 Client” configuration:



Name	Value
Description	S7 Client
Trace Level	None

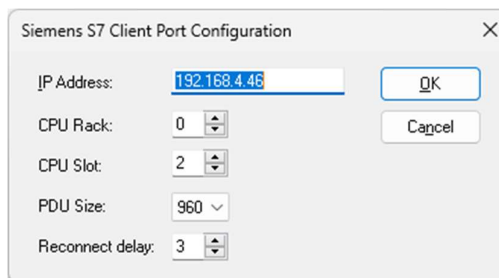
The Siemens S7 Client is now added to the fieldbus configurator and you can start editing the configuration.

Configure the Siemens S7 Client configuration

On the first level of the configuration, it is possible to configure:

- Description: Description of the driver
- Trace Level
 - None: No debug information
 - Debugging: Hex dump of the data in the communication frames
 - Informational: Information about what the driver is doing (Read/Write request)

Add the second level of the configuration (Master/Port) and configure the following:



Siemens S7 Client Port Configuration

IP Address:

CPU Rack:

CPU Slot:

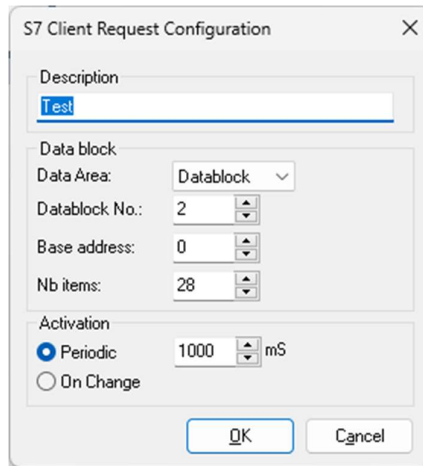
PDU Size:

Reconnect delay:

- IP Address: The IP Address of the remote Siemens PLC
- CPU Rack: Must match the configuration in the Siemens PLC
- CPU Slot: Must match the configuration in the Siemens PLC
- PDU Size: Specifies the maximum allowed PDU size to use during communication
- Reconnect delay: Delay in seconds between connection attempt

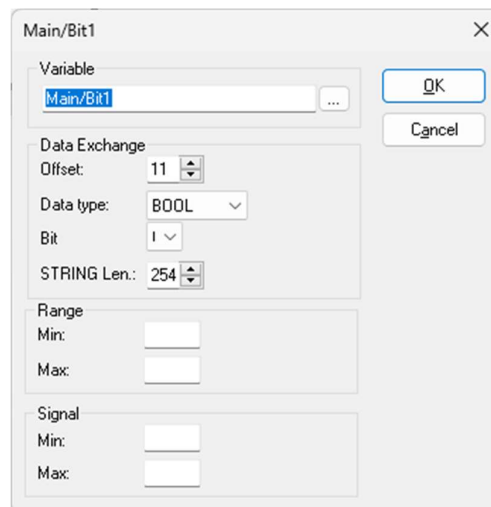


Now you are ready to add the third level. Right-click the second level of the configuration and select “Insert Slave/Data block”, and configure the following:



- Description: A description of the request (e.g. Digital Inputs)
- Data block:
 - Data Area: Specifies the data area in the PLC (Input, Output, Memory, Counter etc.)
 - Datablock No.: Specifies the datablock number in the PLC (e.g. DB2)
 - Base address: Specifies where to start to read from. (e.g. when reading DB2.DBB10, then the base address is 10)
 - Nb items: Specifies the number of items to read in the request
- Activation:
 - Periodic: Used for reading data periodically from the PLC. Specified in milliseconds
 - On Change: Used for writing data to the PLC. If a mapped variable changes value a write request is send to the PLC

Once done adding the needed request configurations, add the variables to the request(s). Right-click the “Request configuration” and select “Insert variable” and configure the following:



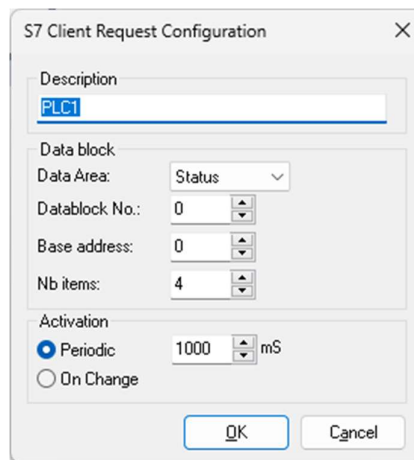
- Variable: Name of the application variable
- Data Exchange:
 - Offset: Offset from the base address set in parent level (e.g. DB2 base address 0, offset 11 => DB2.DBB11)
 - Data type: Specifies the data type to read
 - Bit: Specified the bit number mapping – only available for when data type “BOOL” is selected



- STRING Len: Specifies the length of a string – Used when data type “STRING” is selected
- Range: For scaling, this is the scale of the application variable
 - Min: Specifies the minimum of the application variable
 - Max: Specifies the maximum of the application variable
- Signal: For scaling, this is the scale of the S7 data
 - Min: Specifies the minimum of the S7 data
 - Max: Specifies the maximum of the S7 data

Create status variables for connection diagnostic

In order to get diagnostic information on the communication it is recommend to add a variable mapping to the Dat Area “Status”



The following diagnostic information is available:

- Offset 0: Connected to PLC
 - 0 – Not connected
 - 1 - Connected
- Offset 1: PLC Error:
 - Integer value holding the last error from the S7 stack – used for troubleshooting



4. Build and download the application

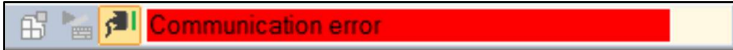
Once done with the configuration of the Siemens S7 Client, you are ready to download the application to the RTU32.

- Select the communication parameters in menu “Tools” -> “Communication Parameters”
- Establish the connection through the menu “Project” -> “Online”

Result is:



The download is successful and the application started correctly.



The RTU32 is not running or communication parameters are wrong.



The application is not yet downloaded or an error occurred during startup. For more details look in the output view or the “RTU32 EventViewer”-tool.

5. Example configuration

The following is defined in DB2 in a Siemens S7-300 PLC:

Address	Name	Type	Initial value
0.0		STRUCT	
+0.0	DBVAR0	INT	1
+2.0	DBVAR1	INT	2
+4.0	DBVAR2	INT	4
+6.0	DBINT0	INT	8
+8.0	DBINT2	INT	16
+10.0	DBB10	BYTE	B#16#12
+11.0	DBBOOL1	BOOL	FALSE
+11.1	DBBOOL2	BOOL	TRUE
+11.2	DBBOOL3	BOOL	FALSE
+12.0	DBWORD0	WORD	W#16#256
+14.0	DBDWORD0	DWORD	DW#16#512
+18.0	DBDINT0	DINT	L#-12
+22.0	DBREAL0	REAL	1.234500e+002
+26.0	DBCHAR0	CHAR	'A'
+28.0	DBDATE	DATE	D#2022-4-16
+30.0	DBTIME	TIME	T#20MS
+34.0	DBTIMEOFDAY	TIME_OF_DAY	TOD#1:10:3.300
+38.0	DBSSTIME	SSTIME	SST#30MS
+40.0	DBDATETIME	DATE_AND_TIME	DT#90-1-1-0:0:0.000
+48.0	DBSTRING	STRING[200]	'This is a test'
=250.0		END_STRUCT	



The configuration of the Siemens S7 Client will be as follows:

The screenshot shows the configuration tree for the Siemens S7 Client. The tree is expanded to show the 'Test (Datablock 2 [0..99])' and 'PLC1 (Status [0..3])' sections. The 'Test' section contains 18 variables, and the 'PLC1' section contains 2 variables. Below the tree is a table summarizing the variables, their offsets, and data types.

Variable	Offset	DB String Le...	Data Type
S7_Read_DBVar0	0	254	INT
S7_Read_DBVar1	2	254	INT
S7_Read_DBVar2	4	254	INT
S7_Read_DBInt0	6	254	INT
S7_Read_DBInt2	8	254	INT
S7_Read_DBB10	10	254	BYTE
S7_Read_DBBool1	11	254	BOOL
S7_Read_DBBool2	11	254	BOOL
S7_Read_DBBool3	11	254	BOOL
S7_Read_DBWord0	12	254	WORD
S7_Read_DBDWord0	14	254	DWORD
S7_Read_DBDInt0	18	254	DINT
S7_Read_DBReal0	22	254	REAL
S7_Read_DBChar0	26	254	CHAR
S7_Read_DBDate	28	254	DATE
S7_Read_DBTime	30	254	TIME
S7_Read_DBTimeOfDay	34	254	TOD
S7_Read_DBSSTime	38	254	SSTIME
S7_Read_DBString	48	50	STRING