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Library description • 01/2018

Library for Communication between a SIMATIC S7-1200/1500 and the RFID Communication Module RF160C

SIMATIC RF160C, STEP 7 V14

https://support.industry.siemens.com/cs/ww/en/view/63969277

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http://support.automation.siemens.com/WW/view/en/50203404

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1 Library Overview

This document describes the RF160C_S71200_1500_V14_LIB block library. The block library provides you with tested SIMATIC blocks with defined interfaces. They can be used as a basis for your task to be implemented.

The main focus of this document is to describe

- all blocks of the block library
- the functionality implemented through these blocks.

Furthermore, this documentation shows possible fields of application and helps you integrate the library into your STEP 7 project using step-by-step instructions.

1.1 Field of application of the library

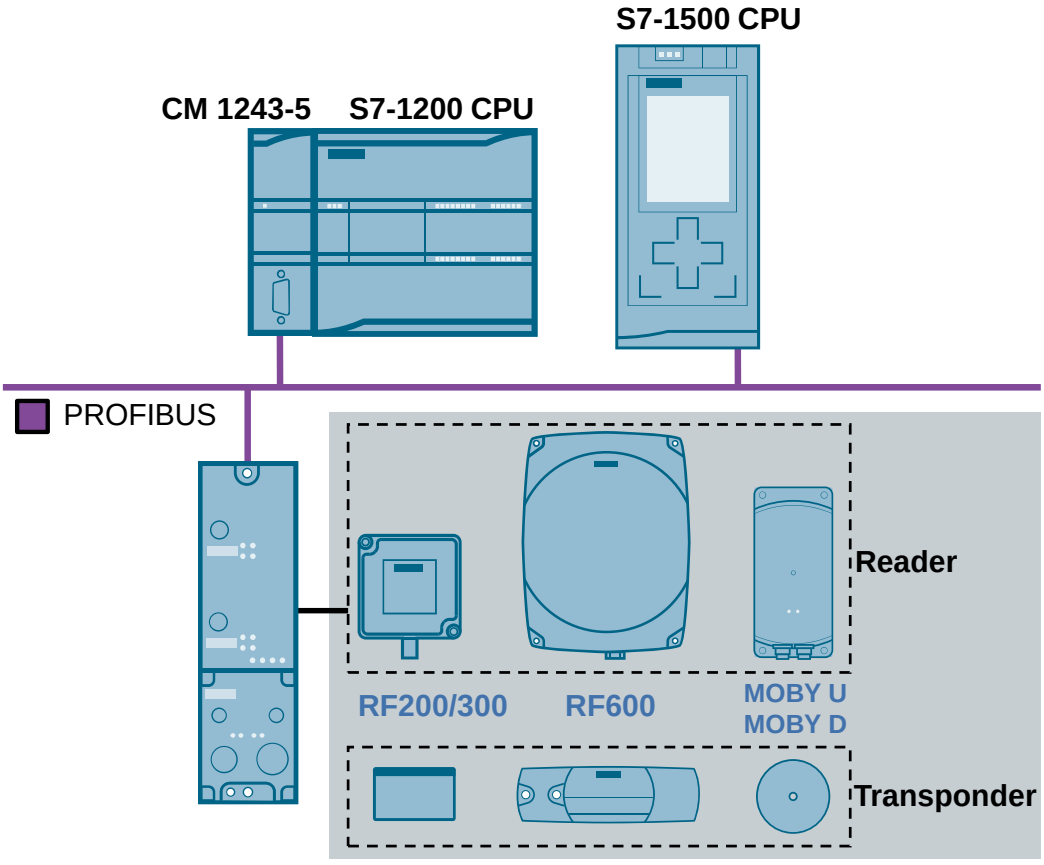
Overview

With the blocks of this library, an S7-1200/1500 CPU can communicate with the RF160C communication module via PROFIBUS DP.

Diagrammatic representation

The diagrammatic representation below shows the most important components for the possible use of the library.

Figure 1-1



1.2 Functions

Communication between the S7-1200/1500 CPU and the RF160C via PROFIBUS DP is implemented by reading or writing appropriately parameterized address ranges (input and output ranges) of the RF160C. The following table describes the core functions of the RF160C communication module. Each individual function is implemented in a separate block from the library (see Table 2-1).

Table 1-1

Function	Description
RESET	Resets the communication module. Aborts the active job. (If a read/write job was interrupted with RESET, the reset acknowledgement includes error 1F (hex value)). RESET is parameterized via the GSD file.
WRITE	Writes data to the transponder.
READ	Reads data from the transponder.
INIT	This function is necessary when using a new transponder that has not yet been written to. The transponder has already been initialized for normal mode.
STATUS	Returns the status byte of the RF160C.
SET_ANT	Only MOBY U/D, RF300 or RF600: This command switches the antenna field on the reader off and back on.

1.3 Hardware and software requirements

Requirements for this library

To be able to use the functionality of the library described in this document, the following hardware and software requirements must be met:

Hardware

Table 1-2 Hardware components

No.	Component	Order no.	Qty.
1	RF160C	6GT2002-0EF00	1
2	Reader of the RFID families RF200/300/600, MOBY D/U (RS422 INTERFACE)	RF200: 6GT2821xxx RF300: 6GT280xxxx RF600: 6GT281xxxx MOBY D: 6GT260xxxx MOBY U: 6GT250xxxx	1-2
3	RF transponder		n
4	Reader cable RF300/600 MOBY D/U		1-2
5	M12 connection block	6ES7194-3AA00-0BA0	1
6	ECOFAST connection block	6ES7194-3AA00-0AA0	1
7	CPU S7-1200: Kommunikationsmodul CM 1243-5	6GK7 243-5DX30-0XE0	1
8	CPU S7-1500: (alternativ) Kommunikationsmodule CM/CP 1542-5	CM: 6GK7542-5DX00-0XE0 CP: 6GK7542-5FX00-0XE0	1

Software

Table 1-3 Software

No.	Component	Order no.	Qty.
1	STEP 7 Professional V12, SP1	6ES7822-1AA02-0YA5	1

1.4 Library resources and performance data

The following section gives you an overview of the memory requirement, execution time and transfer time of the library blocks.

Memory requirement

The overall size of all blocks of the RF160C_S71200_1500_V14_LIB in the main memory is 14.112 Kbytes.

Figure 1-2

Execution time

The following table shows the maximum execution time of the blocks in the OB1 cycle. An S7-1200 CPU 1214C (data memory: 50 KB) and an RF310R reader without an additional user program in OB1 were used for the measurement.

Table 1-4

Block	Max. block execution time in OB1 cycle
RF160C_READ (read data)	2 ms
RF160C_WRITE (write data)	3 ms
RF160C_RESET (reset RF160C)	1 ms
RF160C_INIT (initialize transponder)	2 ms
RF160C_ANT (turn antenna on/off))	2 ms
RF160C_STATUS (check status of RF160C)	2 ms

Note The measured values are highly dependent on the used hardware.

Transfer time

Without an additional user program in OB1

The following table shows the average transfer times measured for the data between the S7 CPU and the transponder with differently configured IO channel lengths (without an additional user program in OB1).

Table 1-5

Command	GSD_IO (channel length)	Data length	Avg. transfer time
READ	Words:10 IN/OUT	10 bytes	0.15 s
		1000 bytes	14.8 s
	Words:32 IN/OUT	10 bytes	<0.1 s
		1000 bytes	2.6 s
		10000 bytes	26.5 s
	Words:122 IN/OUT	1000 bytes	0.7 s
		15000 bytes	13.9
WRITE	Words:10 IN/OUT	10 bytes	0.15 s
		1000 bytes	14.9 s
	Words:32 IN/OUT	10 bytes	<0.1 s
		1000 bytes	2.7s
		10000 bytes	26.5s
	Words:122 IN/OUT	1000 bytes	0.7 s
		15000 bytes	14.1 s

With an additional user program in OB1

The following table shows the average transfer times measured for the data between the S7 CPU and the transponder with an additional user program in OB1 (GSD_IO: 122 Words In/Out).

Table 1-6

Command	Data length	Max. execution time of the user program	Avg. transfer time
READ	15,000 bytes	10 ms	15.5 s
		50 ms	23.8 s
WRITE	15,000 bytes	10 ms	15.5 s
		50 ms	23.8 s

2 Blocks of the Library

Depending on the functionality, different blocks are used for communication between an S7 CPU and the RF160C communication module.

2.1 List of the blocks

The following table lists all blocks of the RF160C_S71200_1500_V12_Library.

Table 2-1

Block	Symbol	Function	Description/classification	
FB 2	RF160C_READ	READ	Function block for reading from the transponder	In-house development
FB 3	RF160C_WRITE	WRITE	Function block for writing to the transponder	
FB 4	RF160C_RESET	RESET	Function block for resetting the RF160C	
FB 5	RF160C_INIT	INIT	Function block for initializing the transponder	
FB 6	RF160C_ANT_300	SET_ANT	Function block for turning the antenna of an RF300 reader on/off	
FB 7	RF160C_STATUS	STATUS	Function block for checking the status of the RF160C	
FB 8	RF160C_ANT_600	SET_ANT	Function block for turning the antennas of an RF600 reader on/off	
DB1	RF_PARAMETER	-	Global data block for saving the data	
PLC data type	RF_VAR	-	RFID data structure	

Note After startup of the RF160C, a RESET must be performed. This is the only way to ensure that the other blocks function correctly.

2.2 Explanation of the blocks

The following sections provide explanations of all blocks of the RF160C_S71200_1500_V12_Library.

2.2.1 FB RF160C_READ (FB2)

The RF160C_READ library block reads a data block from the transponder. The following figure and table show the call interface of the FB RF160C_READ (FB2) library block.

Figure 2-1

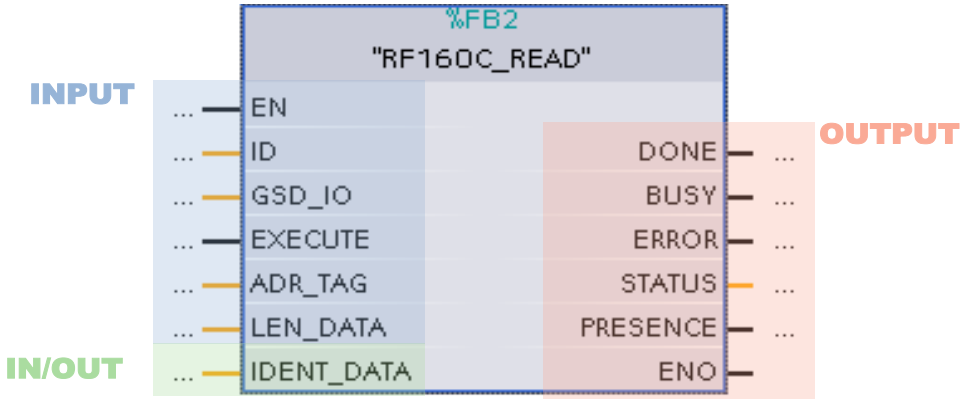
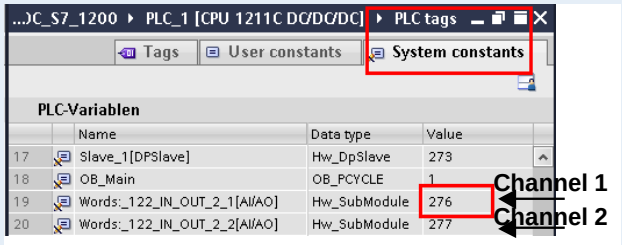
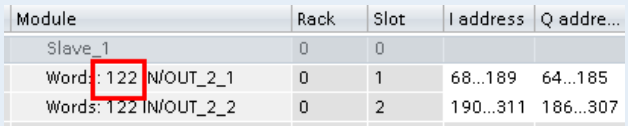
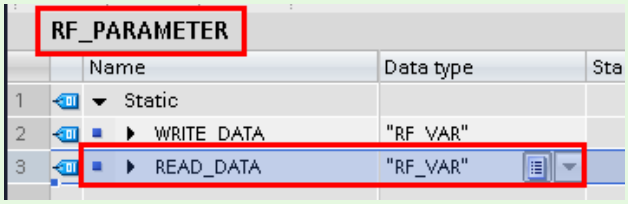


Table 2-2

Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[1]. 
EXECUTE	BOOL	• Activates the read job • Reacts to a positive edge

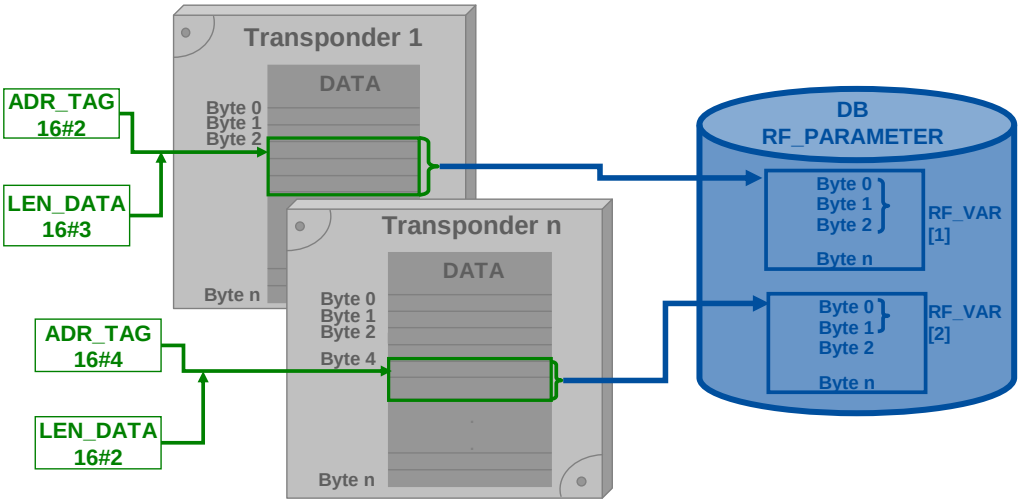
[1] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.

Symbol	Data type	Explanation
ADR_TAG	WORD	Start address of the data to be read on the transponder (see \3\, Chapter 5.3.4).
LEN_DATA	WORD	Length of the data that is read from the transponder (see \3\, Chapter 5.3.4) [2].
IDENT_DATA	RF_VAR UDT	Area in the S7 CPU where the read data is stored. (E.g., **"RF_PARAMETER.READ_DATA"**. You can use any data block in which the RF_VAR data structure is declared). 
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.
BUSY	BOOL	TRUE if the RF160C_READ block is active. FALSE if the job was stopped or if an error occurred.
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE
STATUS	WORD	Status if ERROR=TRUE Takes on the value DW#16#00 as soon as a new command is started.
PRESENCE	BOOL	Presence bit. This bit is only set if a transponder is in the field of the reader.
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

[2] The length of the data block must be less than/equal to the length of the "DATA" variable in the RF_VAR data structure. If necessary, customize this length (see Chapter 3.5).

The data to be read from the transponder is stored in a data block, e.g. “RF_PARAMETER”, after the first byte of the RF_VAR structure. For each transponder, you can declare an RF_VAR structure in your data block. The figure below shows the response for two READ calls.

Figure 2-2



2.2.2 FB RF160C_WRITE (FB3)

The RF160C_WRITE library block writes a data block to the transponder.

The following figure and table show the call interface of the FB RF160C_WRITE (FB3) library block.

Figure 2-3

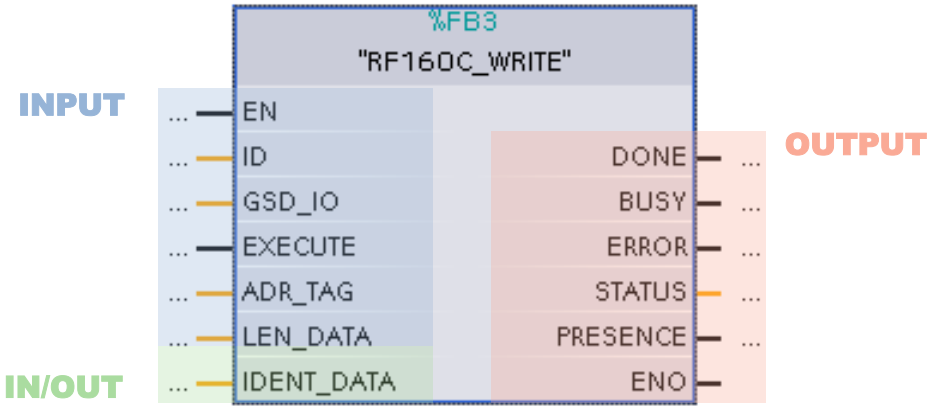
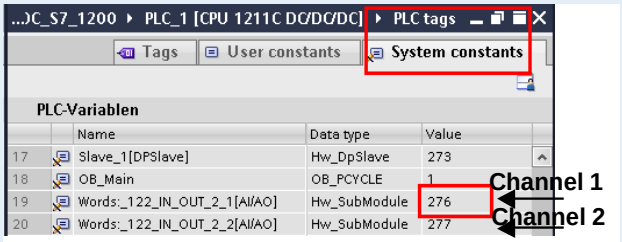
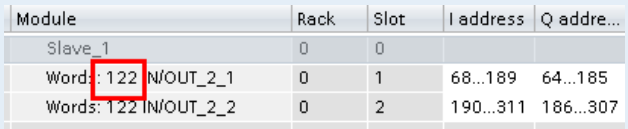
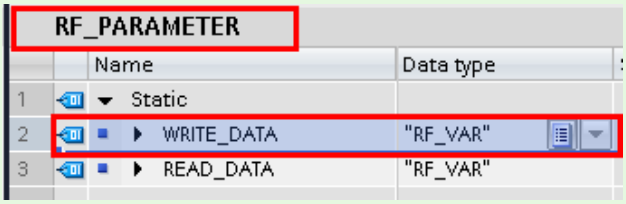


Table 2-3

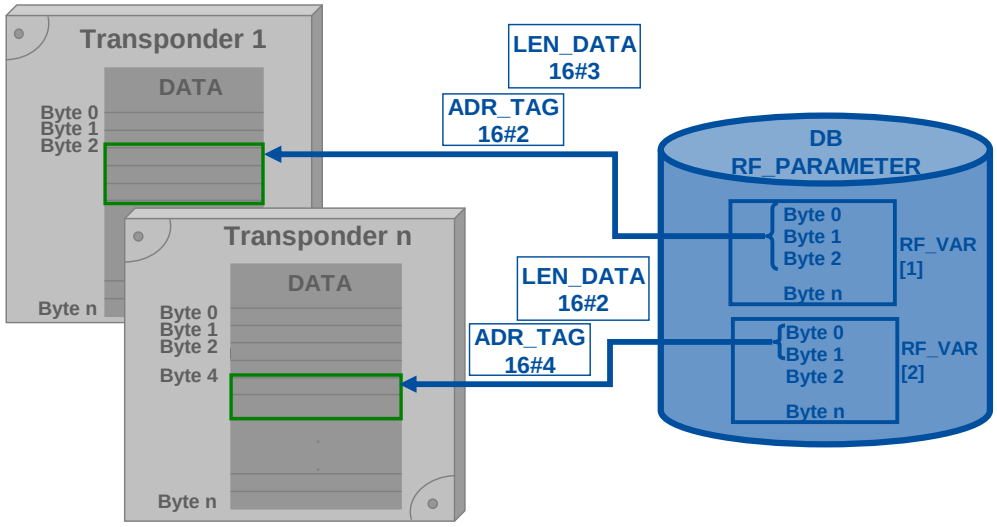
Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[3]. 
EXECUTE	BOOL	• Activates the write job • Reacts to a positive edge
ADR_TAG	WORD	Start address of the data to be edited on the transponder (see \3\, Chapter 5.3.4).
LEN_DATA	WORD	Length of the data that is written to the transponder (see \3\, Chapter 5.3.4) [4].
IDENT_DATA	RF_VAR UDT	Area in the S7 CPU that contains the data to be written. (E.g., **"RF_PARAMETER.WRITE_DATA"**. You can use any data block in which the RF_VAR data structure is declared). 
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.
BUSY	BOOL	TRUE if the RF160C_WRITE block is active. FALSE if the job was stopped or if an error occurred.
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE
STATUS	WORD	Status if ERROR=TRUE Takes on the value DW#16#00 as soon as a new command is started.

[3] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.
[4] The length of the data block must be less than/equal to the length of the "DATA" variable in the RF_VAR data structure. If necessary, customize this length (see Chapter 3.5).

Symbol	Data type	Explanation
PRESENCE	BOOL	Presence bit. This bit is only set if a transponder is in the field of the reader.
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

The data to be written to the transponder is to be taken from a data block, e.g. RF_PARAMETER, after the first byte of the RF_VAR structure. For each transponder, you can declare an RF_VAR structure in your data block. The figure below shows the response for two WRITE calls.

Figure 2-4



2.2.3 FB RF160C_RESET (FB4)

The RF160C_RESET library block resets the RF160C communication module.

The following figure and table show the call interface of the FB RF160C_RESET (FB4) library block.

Figure 2-5

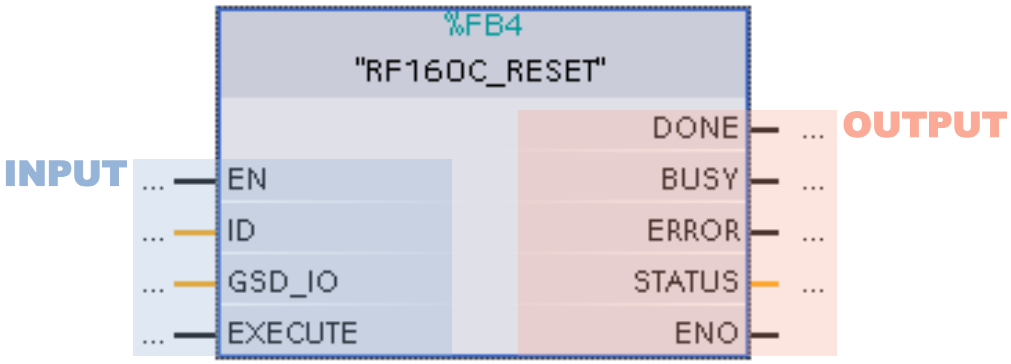
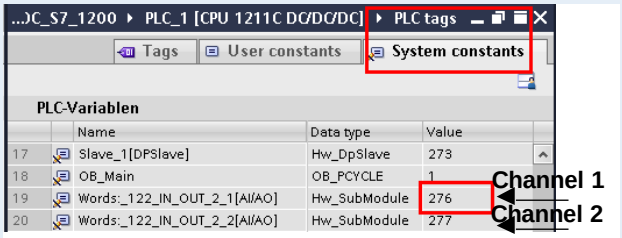
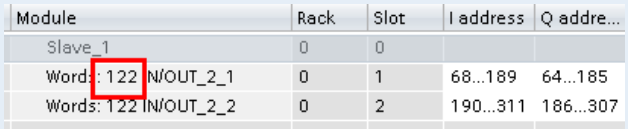


Table 2-4

Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[5]. 
EXECUTE	BOOL	• Activates the reset job • Reacts to a positive edge
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.
BUSY	BOOL	TRUE if the RF160C_RESET block is active. FALSE if the job was stopped or if an error occurred.
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE
STATUS	WORD	Status if ERROR=TRUE Takes on the value DW#16#00 as soon as a new command is started.
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

[5] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.

2.2.4 FB RF160C_INIT (FB5)

The RF160C_INIT library block initializes a transponder. The following figure and table show the call interface of the FB RF160C_INIT (FB5) library block.

Figure 2-6

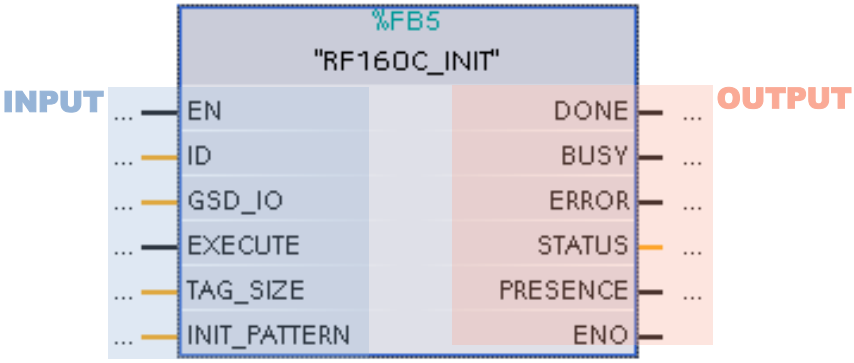
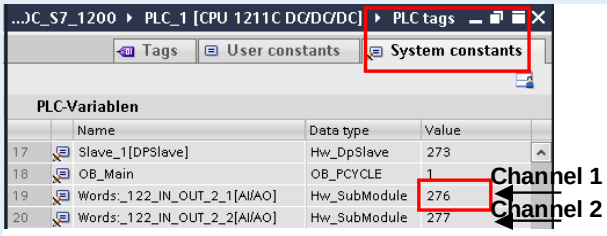
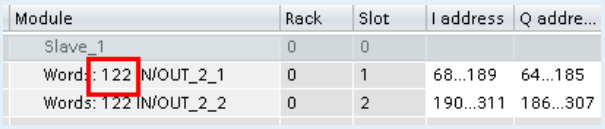


Table 2-5

Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[6]. 
EXECUTE	BOOL	• Activates the init job • Reacts to a positive edge
TAG_SIZE	WORD	Memory size of the transponder to be initialized (see Table 2-6).
INIT_PATTERN	BYTE	The transponder is completely written to with the content of this byte (00 to FF hex value).
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.
BUSY	BOOL	TRUE if the RF160C_INIT block is active. FALSE if the job was stopped or if an error occurred.

[6] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.

Symbol	Data type	Explanation
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE
STATUS	WORD	Status if ERROR=TRUE Takes on the value DW#16#00 as soon as a new command is started.
PRESENCE	BOOL	Presence bit. This bit is only set if a transponder is in the field of the reader.
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

Table 2-6 Memory size depending on the transponder_type

Transponder_type			TAG_SIZE
2 Kbytes	MOBY U:	RAM*	W#16#08 00
32 Kbytes	MOBY U:	RAM*	W#16#80 00
44 bytes	MOBY D:	I-Code 1	W#16#00 2C
112 bytes	MOBY D:	ISO I-Code SLI	W#16#00 70
256 bytes	MOBY D:	ISO Tag-it HF-I ISO	W#16#01 00
992 bytes	MOBY D:	my-d	W#16#03 E0
2000 bytes	MOBY D	FRAM	W#16#07 0D
20 bytes	RF300:	EEPROM	W#16#00 14
8 Kbytes	RF300:	FRAM*	W#16#20 00
32 Kbytes	RF300:	FRAM*	W#16#80 00
64 Kbytes	RF300:	FRAM*	W#16#FF 00

*) This command does not initialize the OTP memory.

2.2.5 FB RF160C_ANT_300 (FB6)

The RF160C_ANT_300 library block turns the antenna of an RF300 reader on or off.

In normal mode, this command is not required as the antenna is always turned on after a reader has been switched on with RESET.

The following figure and table show the call interface of the FB RF160C_ANT_300 (FB6) library block.

Figure 2-7

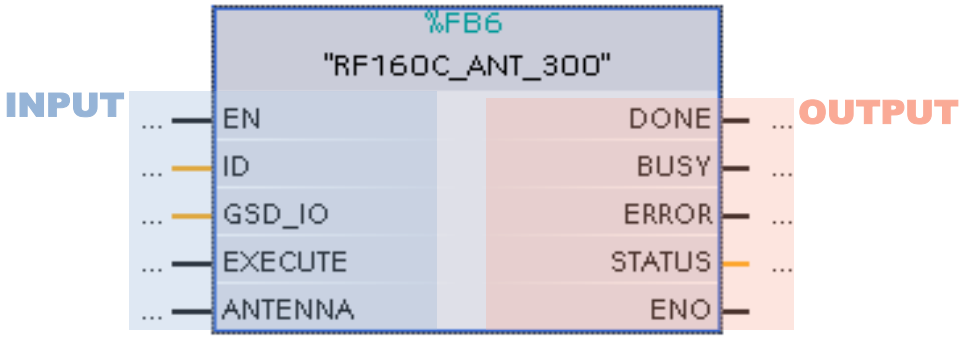
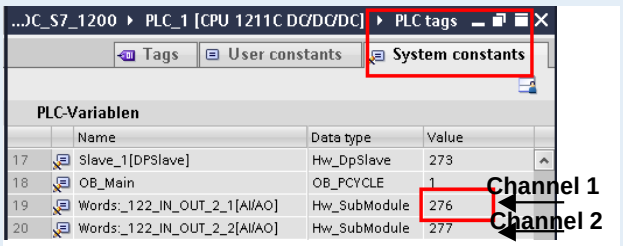
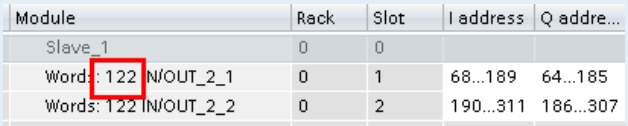


Table 2-7

Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[7]. 
EXECUTE	BOOL	• Activates the on/off function command • Reacts to a positive edge
ANTENNA	BOOL	RF300, MOBY D/U: FALSE: Turn off antenna. TRUE: Turn on antenna.
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.

[7] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.

Symbol	Data type	Explanation
BUSY	BOOL	TRUE if the RF160C_ANT_300 block is active. FALSE if the job was stopped or if an error occurred.
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE
STATUS	WORD	Status if ERROR=TRUE Takes on the value DW#16#00 as soon as a new command is started.
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

2.2.6 FB RF160C_ANT_600 (FB8)

The RF160C_ANT_600 library block turns the antenna of an RF600 reader on or off.

In normal mode, this command is not required as the antenna is always turned on after a reader has been switched on with RESET.

The following figure and table show the call interface of the FB RF160C_ANT_600 (FB8) library block.

Figure 2-8

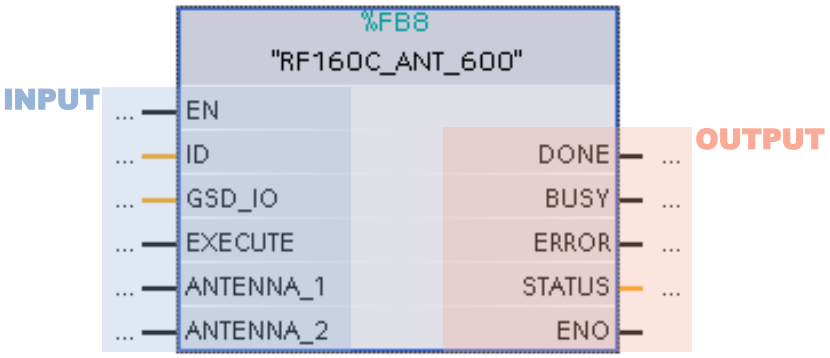
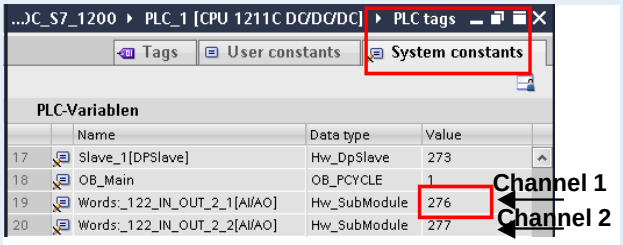
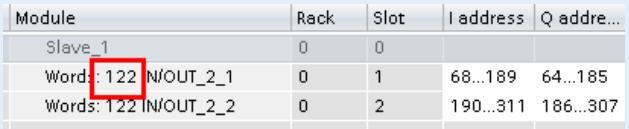


Table 2-8

Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 

Symbol	Data type	Explanation
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[8]. 
EXECUTE	BOOL	• Activates the on/off function command • Reacts to a positive edge
ANTENNA_1	BOOL	FALSE: Turn off antenna_1. TRUE: Turn on antenna_1
ANTENNA_2	BOOL	FALSE: Turn off antenna_2. TRUE: Turn on antenna_2.
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.
BUSY	BOOL	TRUE if the RF160C_ANT_600 block is active. FALSE if the job was stopped or if an error occurred.
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE
STATUS	WORD	Status if ERROR=TRUE Takes on the value DW#16#00 as soon as a new command is started.
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

[8] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.

2.2.7 FB RF160C_STATUS (FB7)

The RF160C_STATUS library block provides the status of the RF160C.

The following figure and table show the call interface of the FB RF160C_STATUS (FB7) library block.

Figure 2-9

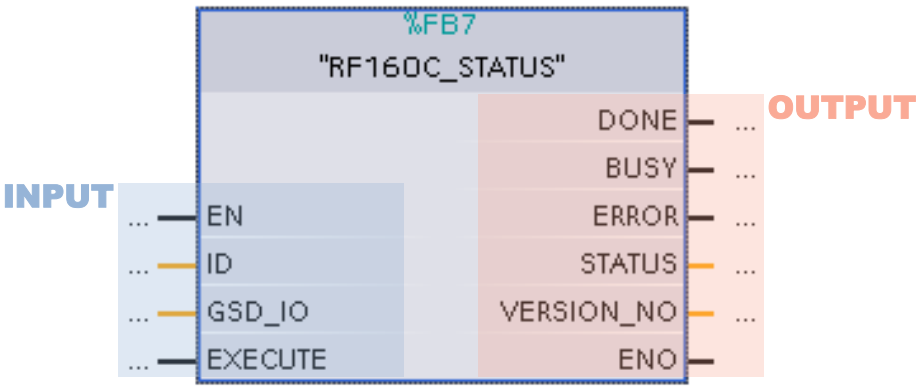
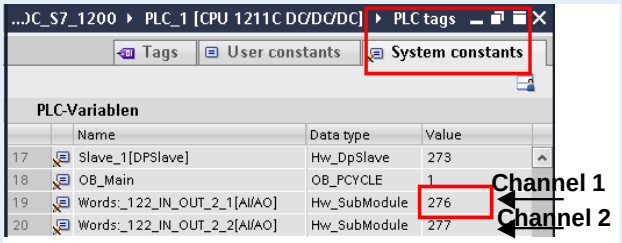
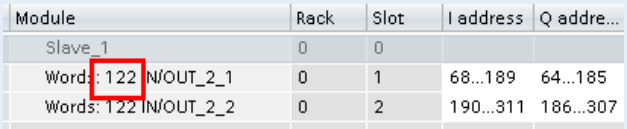
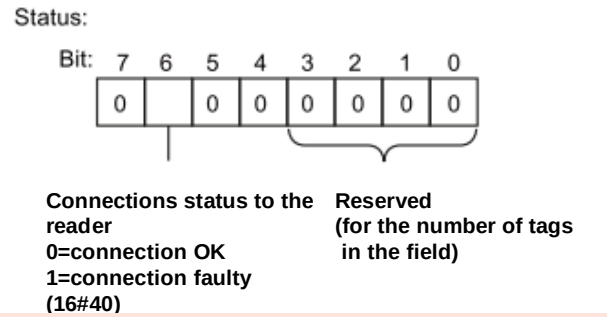


Table 2-9

Symbol	Data type	Explanation
EN	BOOL	Enable input. Relevant only in FBD and LAD representation.
ID	INT	Start address of the input and output ranges of the RF160C. 
GSD_IO	INT	Size of the input and output range of the entire RF160C as selected in the GSD file[9]. 
EXECUTE	BOOL	• Activates the check status job • Reacts to a positive edge
DONE	BOOL	TRUE if the last job was completed without errors. FALSE if a new command is started.
BUSY	BOOL	TRUE if the RF160C_STATUS block is active. FALSE if the job was stopped or if an error occurred.
ERROR	BOOL	TRUE if an error occurs when executing the routine. FALSE if a new command is started. Default value: FALSE

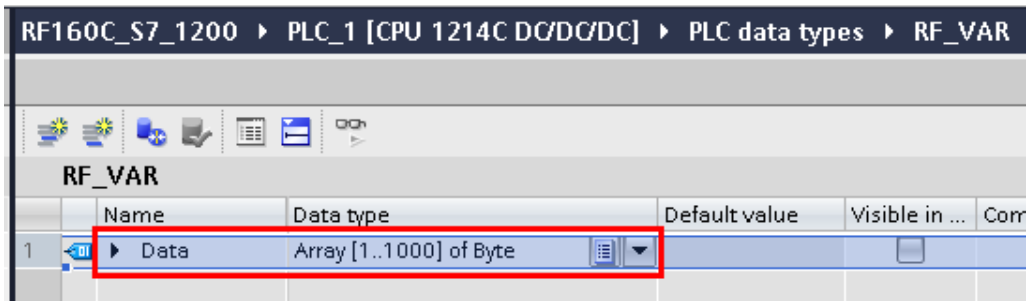
[9] Input in words and corresponds to the value of the GSD setting in HW Config. GSD_IO defines the maximum data that can be transferred in one block run.

Symbol	Data type	Explanation
STATUS	WORD	Block-specific error numbers (see chapter 2.4) or current status of the RF160C **Byte 0:** current status of the RF160C (16#00 or 16#40) **Byte 1:** RF160C error number (chapter 2.4.2) 
VERSION_NO	WORD	Displays the firmware version of the RF160C [10].
ENO	BOOL	Enable output. Relevant only in FBD and LAD representation.

2.2.8 RF_VAR structure

The following figure shows the structure of the RFID data read from or written to a transponder.

Figure 2-10 PLC data type: RF_VAR



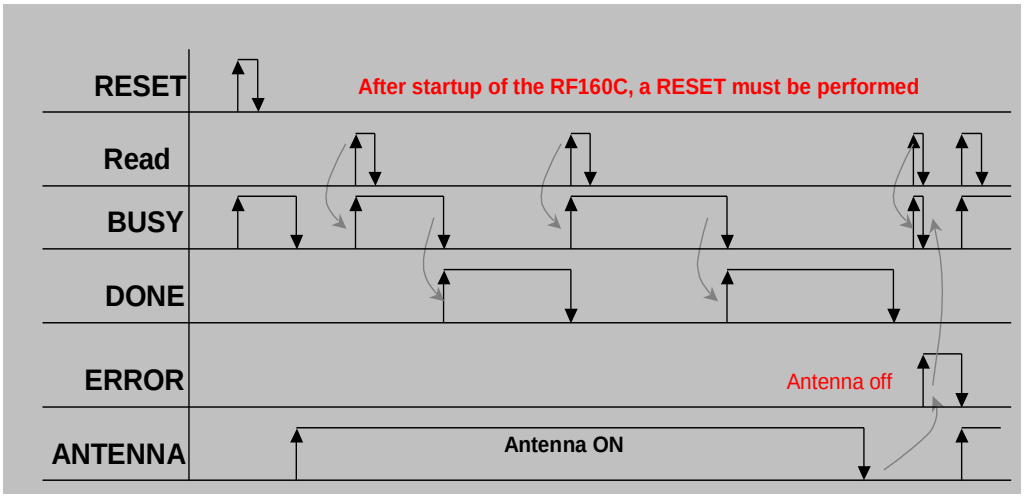
If you want to change the length of the “DATA” UDT variable, follow the steps of Table 3-5.

[10] Firmware version on the RF160C (ASCII-coded), e.g. “3130” corresponds to version 1.0.

2.3 Function chart

The following chart shows the time sequences of the READ function. The sequences of the other functions are basically identical.

Figure 2-6



2.4 Error and status display

For error diagnostics, all function blocks of the library have a STATUS output. Read the STATUS output of the function blocks to be provided with information on error messages of library blocks and error messages of the RF160C or connected readers.

2.4.1 Error messages of the library's function blocks

Table 2-10

Status	Meaning	Remedy
16#8101	The length of the data block (LEN_DATA) is outside the range of the "Data" variable in the RF_VAR data structure.	Customize the length of the "Data" variable (see Chapter 3.5) or assign a value to LEN_DATA, that is inside the valid range.
16#8102	The previous job has not yet been completed.	• Wait until BUSY=FALSE • Restart process
16#80xy 16#87xy 16#85xy 16#8xyy	Error messages of the DPRD_DAT and DPWR_DAT extended instructions.	Online help in STEP 7
16#0500	After startup of the RF160C, no RESET has been performed (see also \3\, chapter 6.4.2).	Start the RESET command
16#25xy	Error messages of the GetErrorID operation.	Online help in STEP 7

2.4.2 Error messages of the RF160C or connected readers

The reported errors (STATUS, 16#xx00) can be generated either directly by the RF160C or they are provided by the connected reader and transferred by the RF160C.

In the first case, the ERR_LED of the RF160C indicates an error; in the other case, the ERR_LED of the reader is activated.

For a more detailed overview of these errors, please refer to the following manual: "SIMATIC Sensors RF160C with FC44" (see \3\, Chapter 6.4.2).

3 Working with the Library

This chapter consists of instructions for integrating the library into STEP 7 and instructions for integrating the library blocks into a STEP 7 project.

3.1 Preparation

Before you start integrating the library, the following steps are necessary to commission the RF160C communication module.

Table 3-1

No.	Action	Note
1	The PROFIBUS address of the RF160C must match the one of your configuration.	Permitted PROFIBUS DP addresses: 1 to 126
2	The GSD file must be installed in order to parameterize and configure the RF160C for PROFIBUS using the configuration software.	The GSD file can be found • on the "RFID Systems Software & Documentation" CD in the "Daten\PROFI_GSD\RF160C" directory or • on the Internet on the comdec Web site (Downloads - ComDeC - Siemens) > GSD Files.
3	The RF160C communication module must be integrated in HW Config.	For the TIA Portal, HW Config is used for the configuration. There the module can be moved from the catalog to the desired location of the PROFIBUS system using drag and drop.
4	The data exchange address range must be defined.	Using the catalog, a predefined module can be dragged to the slots of the RF160C or defined manually via the universal module. The size of the data area to be selected depends on the size of the max. data of the application to be transferred.
5	The additional parameters required for the MOBY D/U RF300/600 identification systems must be set via the GSD file.	In the GSD file, the values have to be entered in decimal format using the TIA Portal.

Note For more information, please refer to the “SIMATIC Sensors RF160C with FC44” manual (see \3\).

3.2 Integrating the library into STEP 7 V14

In order to use the previously described functions of the RF160C_S71200_1500_V12_Library, they must first be integrated into the configuration software. The necessary steps are listed in the following table.

Table 3-2

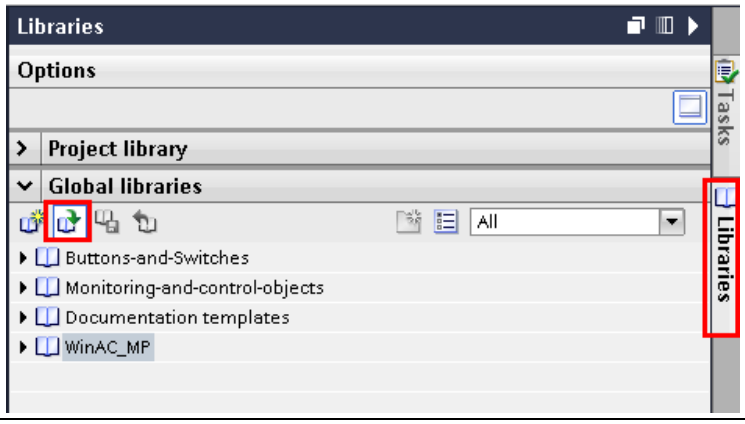
Step	Procedure
1	The library is available on the HTML page from which you downloaded this document. Save the **63969277_RF160C_S71200_1500_V14_LIB.zip** library to your hard drive.
2	Unzip the library.

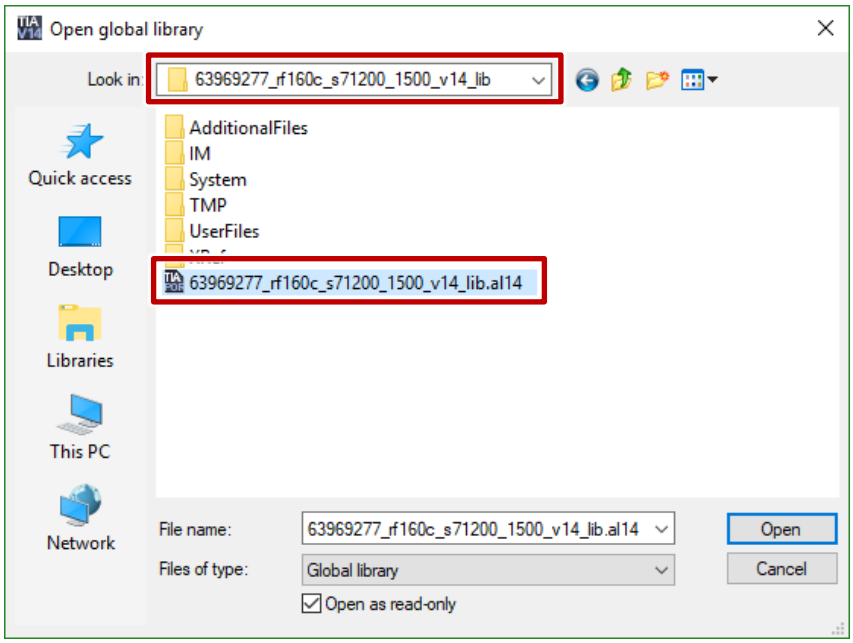
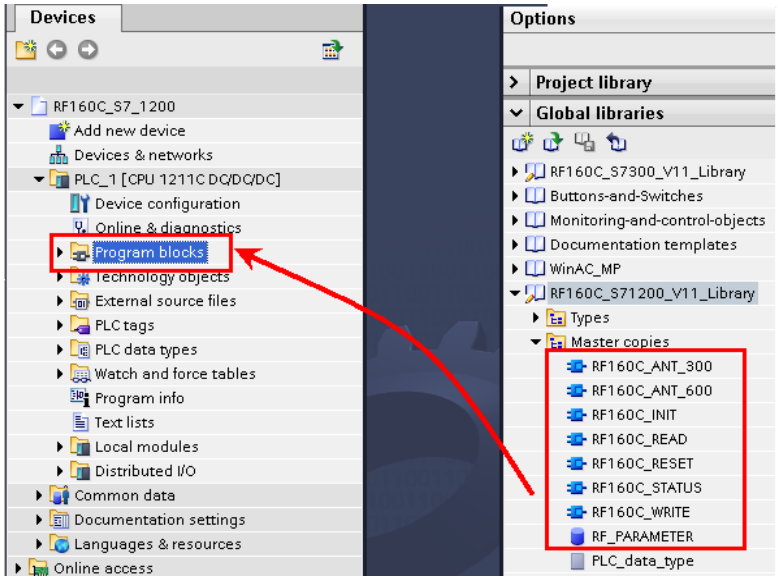
3.3 Integrating the library blocks into the STEP 7 V14 project

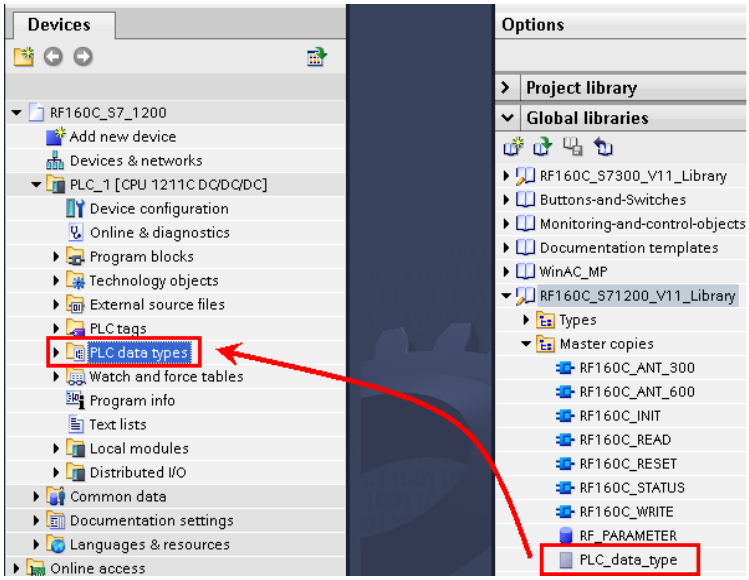
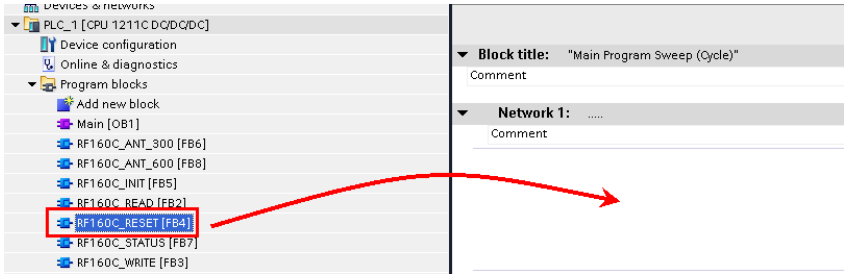
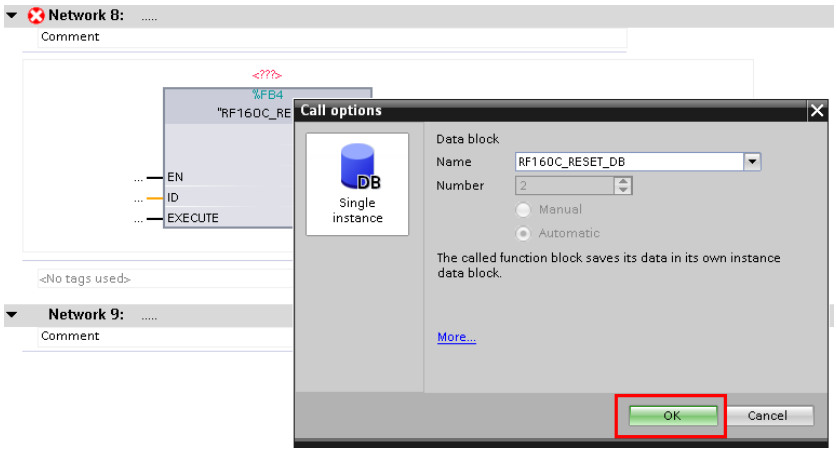
Note The following section assumes that a STEP 7 project exists.

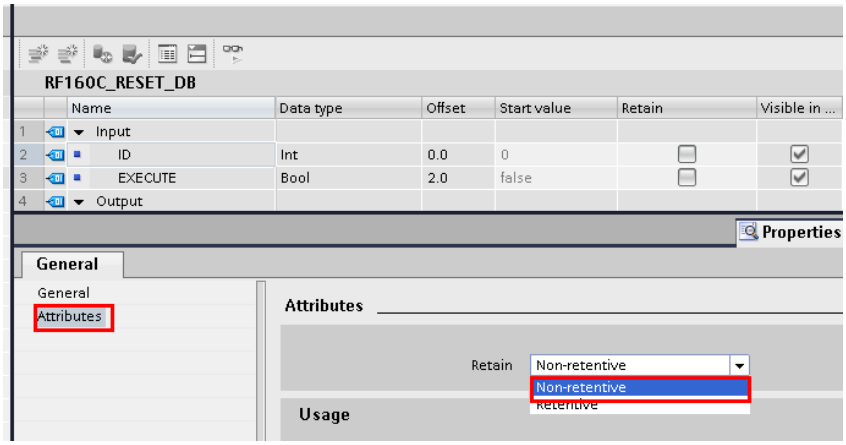
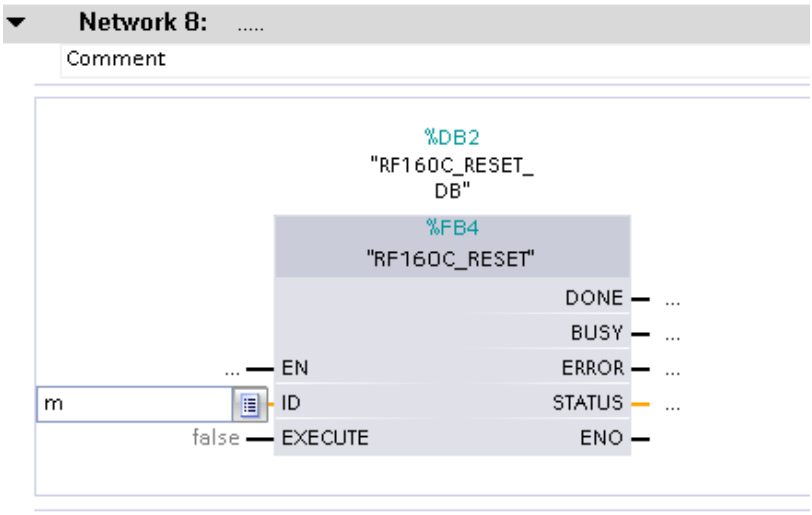
The table below lists the steps for integrating the blocks of the RF160C_S71200_1500_ V14_LIB into your STEP 7 project.

Table 3-3

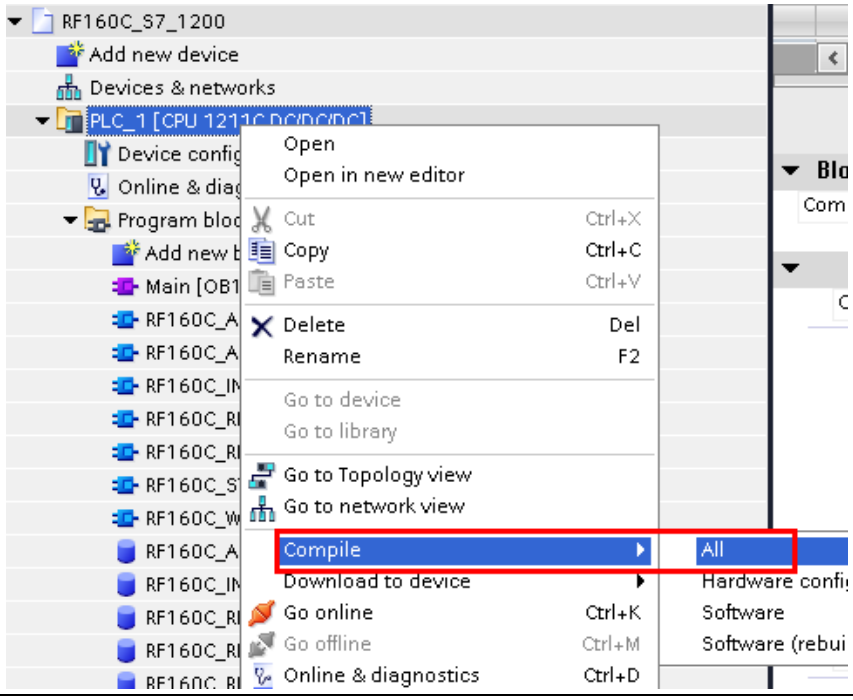
Step	Procedure
1	Open an already existing STEP 7 V14 project.
2	In the “Global libraries” palette in the toolbar, click on “Open global library” or in the “Options” menu, select the “Global libraries > Open library” command. The “Open global library” dialog box opens. 

Step	Procedure
3	Select the following global library: RF160C_S71200_1500_V14_Library.al14.  Click on the “Open” button.
4	Use drag and drop to move all function blocks and the global data block to the “Program blocks” folder of your device. 

Step	Procedure
5	Use drag and drop to move PLC_data_type to the “PLC data types” folder of your device. 
6	In the “Program blocks” folder of your device, open the organization block OB1 and now use drag and drop to move the function blocks to any networks. 
7	Enter the name and number of the associated instance data block. Exit the dialog box with “OK”. 

Step	Procedure
8	Open the regenerated instance data block and set it to “Non-retentive” [11] 
9	Assign values to all necessary formal parameters.  Save the project.

[11] The recompiled instance data blocks are set to “Non-retentive” to ensure that they are overwritten with the initial values when restarting the CPU.

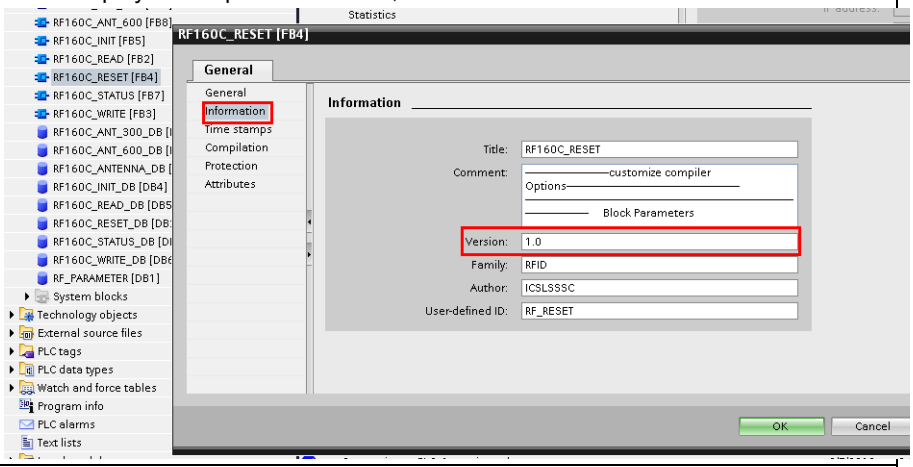
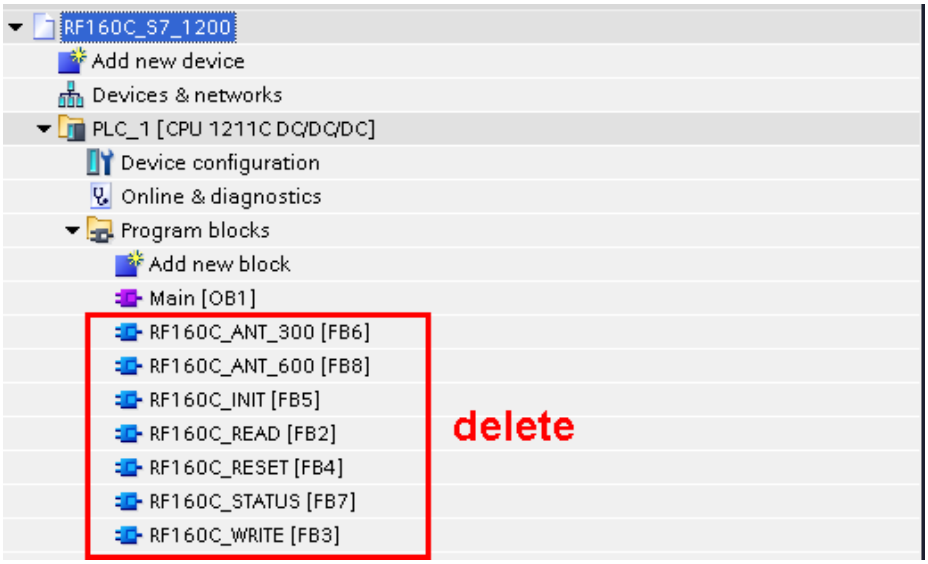
Step	Procedure
10	Compile the hardware and software of the S7-1200/1500 station: In the Project tree, right-click on the device and select the “Compile > All” menu. 

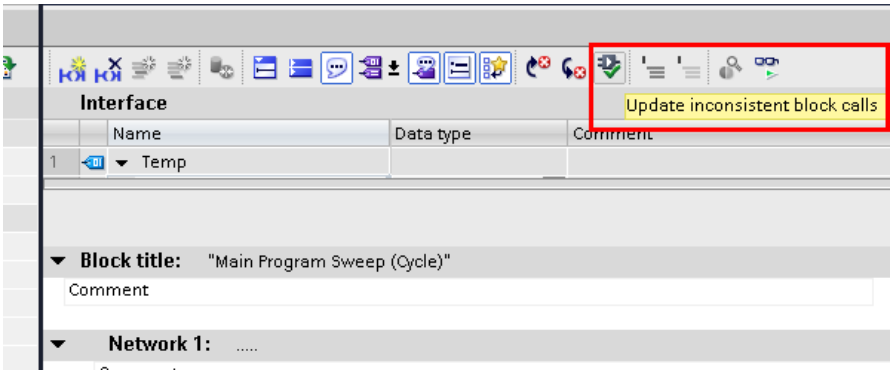
3.4 Checking and updating the library

The following instructions show you

- how to check whether the library is up to date and
- how to integrate a newer version of the RF160C_S71200_1500_V14_LIB into your STEP 7 project.

Table 3-4

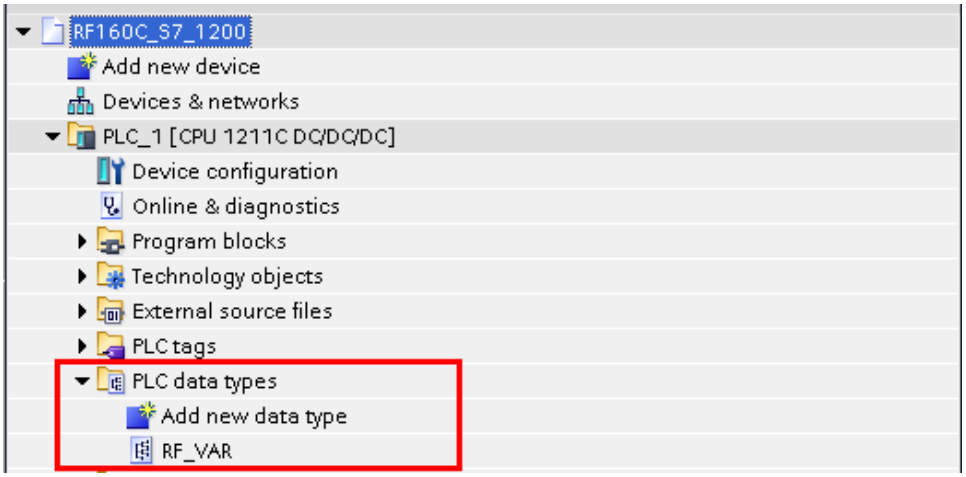
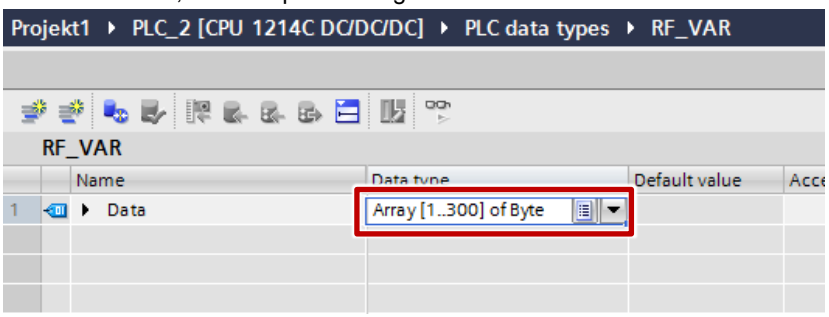
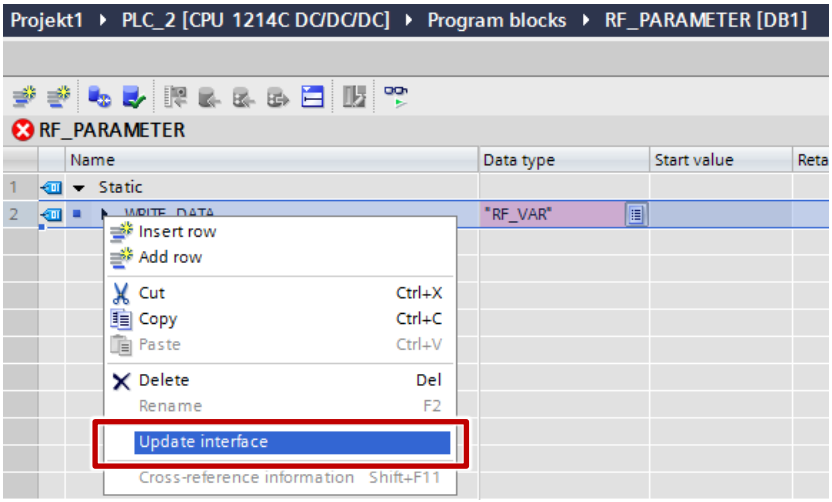
No.	Procedure
1	Open TIA Portal and compare the current version number of each element of the library with the latest version from the Service&Support portal. • In the Project tree, right-click on the blocks of the library. In the context menu, select the “Properties” option. • In the displayed “Properties” window, select the “Information” tab. • 
2	If you want to update the library, integrate the latest library as described in chapter 3.2.
3	In your STEP 7 project, delete the blocks of the old library in the “Program blocks” folder. Do not delete the function block call in OB1. 
4	Insert the elements of the new library as described in Chapter 3.3, steps 1-4.
5	The updated blocks have now been inserted. In the toolbar, click on “Update

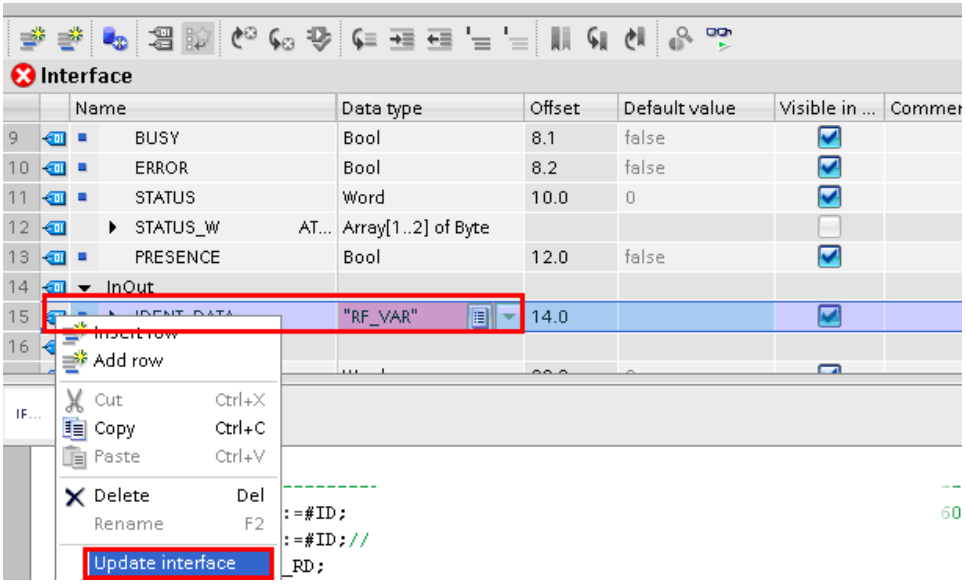
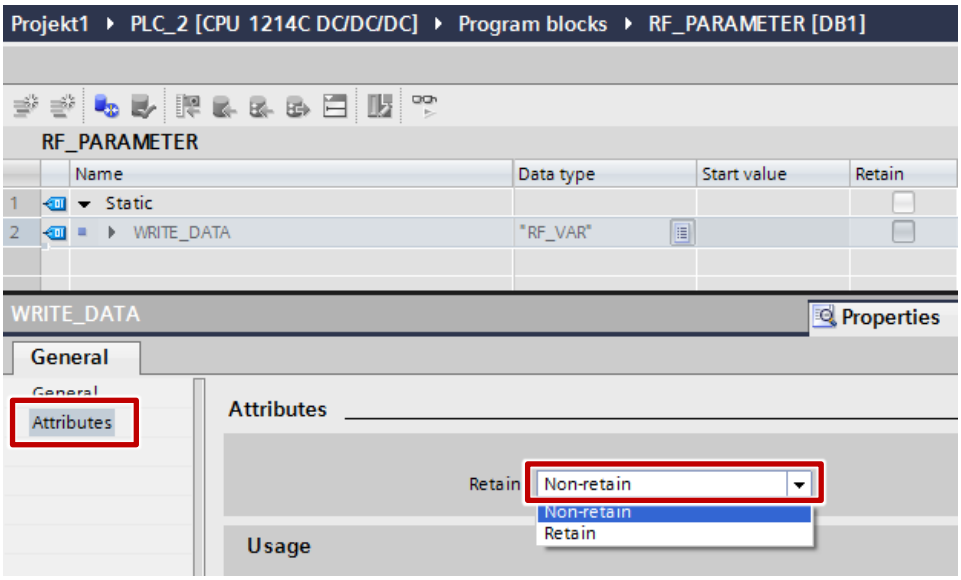
No.	Procedure
	inconsistent block calls" to update or regenerate the instance DBs. 
6	Once you have inserted the updated blocks into your STEP 7 project, compile the software and save the project.
7	The library update is now complete.

3.5 Modifications to the RF_VAR structure

If you want to edit variables, for example the length of the “DATA” field, proceed as follows.

Table 3-5

No.	Procedure
1	Open RF_VAR. 
2	Edit the variable, for example the length of the “DATA” field.  Save the data type.
3	Open DB RF_PARAMETER in which the PLC data type is declared and update the interface (RF_VAR>right-click>Update interface). 

No.	Procedure
4	Update the interfaces in all SCL sources.  Save the sources.
5	Open the recompiled instance data blocks and set them to “Non-retentive”. 
6	Compile and download the changes to your controller.

4 References

4.1 References

This list is by no means complete and only presents a selection of related references.

Table 4-1

	Topic	Title
/1/	STEP7 SIMATIC S7-1200	Automatisieren mit SIMATIC S7-1200 Autor: Hans Berger Publicis MCD Verlag ISBN: 978-3-89578-355-5
/2/	STEP7 SIMATIC S7-1500	Automatisieren mit SIMATIC S7-1500 Autor: Hans Berger VDE Verlag ISBN: 978-3895784033

4.2 Internet links

This list is by no means complete and only provides a selection of useful information.

Table 4-2

	Topic	Title
\1\	Reference to the document	http://support.automation.siemens.com/WW/view/en/63969277
\2\	Siemens Industry Online Support	http://support.automation.siemens.com
\3\	SIMATIC Sensors RF160C with FC44	http://support.automation.siemens.com/WW/view/en/42788808
\4\	SIMATIC Ident RFID systems SIMATIC RF600 System Manual	http://support.automation.siemens.com/WW/view/en/22437600
\5\	SIMATIC Sensors RFID systems SIMATIC RF300	http://support.automation.siemens.com/WW/view/en/21738946

5 History

Table 5-1

Version	Date	Modification
V1.0	11/2012	First edition