

# Readme

For sample project: DEMO\_S7Vxx\_1x00\_RFID-HF\_U-INT\_FB-IOMapp \_V1.0.0

## Content

1.	General information .....	2
1.1	Revision history and changes .....	2
1.2	Instructions for use.....	2
1.3	Range of validity .....	2
2.	Reference Material.....	3
2.1	Hardware .....	3
2.2	Software .....	3
3.	Application Setup .....	3
3.1	Configuration.....	4
3.2	Description of the function .....	6
4.	Operation Manual .....	14
4.1	Error description.....	14
5.	Appendix.....	<b>Fehler! Textmarke nicht definiert.</b>

# 1. General information

## 1.1 Revision history and changes

Revision	Date	Author	Changes
0.10	08.07.2019	A.Bäker	Initial version
0.20			
1.00	10.07.2019	A.Bäker	The revision should be changed to version 1.00 with the technical release. Revision below 1.00 are unreleased preliminary revisions.

## 1.2 Project information

Topics	Data
Name of the sample project :	DEMO_S7Vxx_1x00_RFID-HF_U-INT_FB-IOMapp_V1.0.0
Short description / Target definition :	
Category :	
Department / Company / Author ID :	Hans Turck GmbH&Co.KG Mülheim an der Ruhr

## 1.3 Instructions for use

This sample project has been created with great care and is available to the USER free of charge. TURCK does not guarantee faultlessness, excludes all liability and warranty claims, which can be excluded by law and has no obligation to correct any errors. This example project has been tested to a limited extent and has been tested only for its functionality as described. Compliance with the applicable standards, regulations and guidelines as well as the responsibility for safety considerations and use of the sample project is subject to the USER.

## 1.4 Range of validity

This sample project is based on the hardware and software of the respective manufacturers as well as on the associated documentation. Therefore, this example project only applies to the described installation. New hardware and software versions may require modified handling. Please see the detailed description in the respective manuals.

## 2. Reference Material

### 2.1 Hardware

List of used Hardware and their firmware versions.

Vendor	Part no.	Type	Revision	Comment	Quantity
Siemens	6ES7 513-1AL00-0AB0	CPU 1513-1 PN	FW v1.8		
Siemens	6ES7 215-1AF40-0XB0	CPU 1215FC DC/DC/DC	V4.2.1		
Turck	6814029	TBEN-S2-2RFID-4DXP	SWV 1.4.8		

### 2.2 Software

Operating system information

Used programming software and configuration tools (e.g. Programming environment, libraries, device files, etc.)

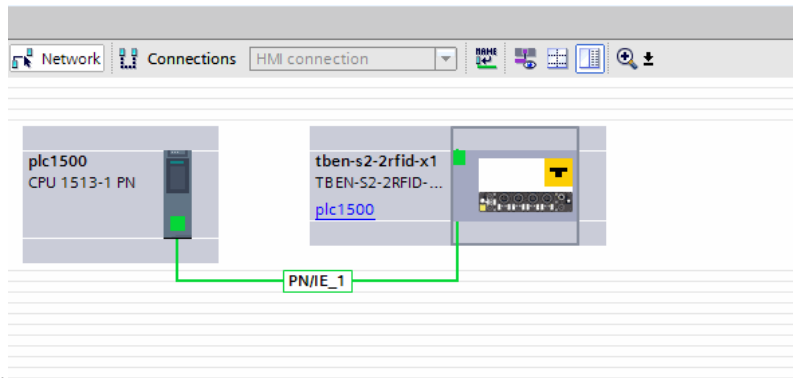
Vendor	Type	Revision	Comment
Siemens	TIA-Portal V14	Version V14 SP1 Update 7	
Siemens	TIA-Portal V15	Version V15 Update 4	

## 3. Example Application (Demo)

This is an example program to show the RFID compact mode and the RFID extended mode of the TBEN-S2-2RFID-4DXP module on a Siemens PLC.

## 3.1 Configuration (TIA-Portal V14 with the PLC 1513-1 PN)

### 3.1.1. Overview of the devices



### 3.1.2. IP settings of the Siemens PLC

The screenshot shows the 'Properties' window for the 'plc1500 [CPU 1513-1 PN]' device. The 'General' tab is selected, and the 'Ethernet addresses' section is expanded. The 'Interface networked with' is set to 'PNIE\_1'. The 'IP protocol' section shows the 'Set IP address in the project' option selected, with the IP address set to '192.168.1.4' and the subnet mask set to '255.255.255.0'. The 'PROFINET' section shows the 'Generate PROFINET device name automatically' option selected, with the device name set to 'plc1500'.

Module	Rack	Slot	I address	Q address	Type	Artic...
plc1500	0	0			CPU 1513-1 PN	6ES7...
PROFINET-Schnittstelle_1	0	1 X1			PROFINET interface	

### 3.1.3. PN settings of the TBEN-S2-2RFID-4DXP

The screenshot shows the SIMATIC Manager interface. On the left, a rack diagram displays the TBEN-S2-2RFID-4DXP module. The 'Device overview' table on the right lists the module and its sub-modules. The 'Properties' window is open, showing the 'General' tab. The 'Ethernet addresses' section shows the 'Interface networked with' set to 'PN1IE\_1'. The 'IP protocol' section shows 'Set IP address in the project' selected, with IP address '192.168.1.10' and subnet mask '255.255.255.0'. The 'PROFINET' section shows 'Generate PROFINET device name automatically' checked, with device name 'tben-s2-2rfid-x1', converted name 'tben-s2-2rfid-x1', and device number '1'.

Module	Rack	Slot	I address	Q address	Type	Article no.
tben-s2-2rfid-x1	0	0			TBEN-S2-2RFID-4DXP	6814029
PN-IO	0	0 X1			turck-tben-s2-2rfid...	
HF kompakt_1	0	RFID c...	0...11	0...11	HF compact	
016 Byte lesen_1	0	RFID r...	12...27		016 Byte read	
016 Byte schreiben_1	0	RFID r...	28...47		016 Byte write	
HF erweitert_1	0	RFID c...	48...175		HF extended	
128 Byte lesen_1	0	RFID r...	176...247		128 Byte read	
128 Byte schreiben_1	0	RFID r...	248...251		128 Byte write	
RFID-Diagnosen_1	0	RFID d...	250...251		RFID diagnostics	
DXP_1	0	DXP	250...251		DXP	
DXP Diagnosen_1	0	DXP d...	250...251		DXP diagnostics	

### 3.1.4. HW identification of the SUB modules

The screenshot shows the SIMATIC Manager interface. On the left, a rack diagram displays the TBEN-S2-2RFID-4DXP module. The 'Device overview' table on the right lists the module and its sub-modules. The 'Properties' window is open, showing the 'General' tab. The 'Hardware identification' table is displayed, showing the hardware identifier for the 'HF kompakt\_1' module.

Name	Type	Hardware identi.	Used by	Comment
tben-s2-2rfid-x1-HF_compact_1	Hw_SubModule	264	plc1500	

- Each SUB module has its own HW identifier  
For the demo program the following identifiers are given:
  - HF kompakt\_1 = "264"; 016 Byte read\_1 = "266"; 016Byte write\_1 = "267"
  - HF extended\_1 = "268"; 128 Byte read\_1 = "269"; 128 Byte write\_1 = "270"
- The HW identification of the individual SUB modules is required for the function blocks in the program.

## 3.2 Description of the function

### 3.2.1. RFID compact mode

#### 3.2.1.1 General overview

Project tree

Devices

- S7V14\_RFID-HF\_U-INTERFACE\_FB-IOMapping\_Extended\_V0.0.5
  - Add new device
  - Devices & networks
    - plc1500 [CPU 1513-1 PN]
      - Device configuration
      - Online & diagnostics
      - Program blocks
        - Add new block
        - Main [OB1]
          - RFID\_COMPACT\_Mode
            - fcRFID\_COMPACT\_Mode\_Manual [FC10]
            - fcRFID\_U\_COMPACT\_COMMANDS [FC20]
            - fcRFID\_U\_COMPACT\_ERROR\_MESSAGES [FC21]
            - fbRFID\_U\_COMPACT\_IOM\_RW\_16B [FB10]
            - DB\_RfidU\_Compact16B\_CH0 [DB10]
            - IDB\_RFID\_U\_COMPACT\_IOM\_RW\_16B [DB20]
          - RFID\_EXTENDED\_Mode
          - System blocks
          - Technology objects
          - External source files
          - PLC tags
          - PLC data types
          - Watch and force tables
            - Add new watch table
            - Forcetabelle
              - RFID\_COMMPACT\_Mode
                - Watchtable\_RfidU\_Compact\_Ch0
              - RFID\_EXTENDED\_Mode
            - Online backups
            - Traces
            - Device proxy data
            - Program info
            - PLC supervisions & alarms
            - PLC alarm text lists
            - Local modules
            - Distributed I/O

Functions (FC's), function blocks (FB's) and data blocks (DB's) for RFID compact mode

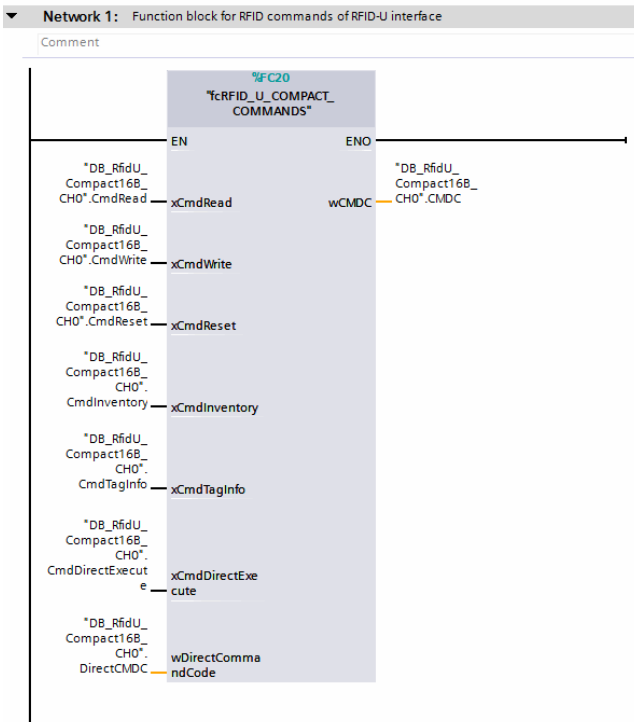
Watchtable for the RFID compact mode

3.2.1.2 Short description of the blocks

3.2.1.2.1 fcRFID\_COMPACT\_Mode\_Manual (FC10)

The FC10 is the main machining module. The other modules are called from this block.

Network1: Call “fcRFID\_U\_COMPACT\_COMMANDS (FC20)”

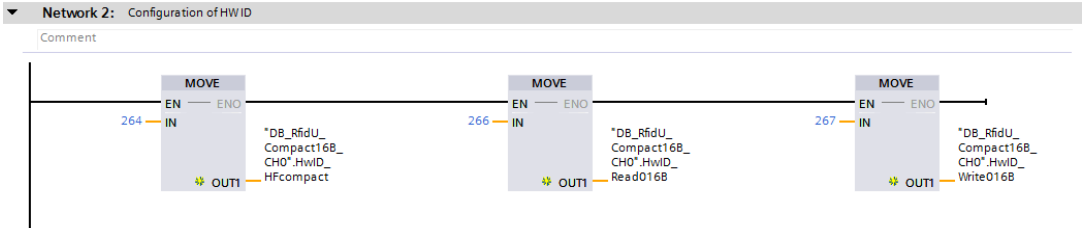


The FC 20 is the function block for the RFID commands. In this module the commands are handled.

Detail of the FC20

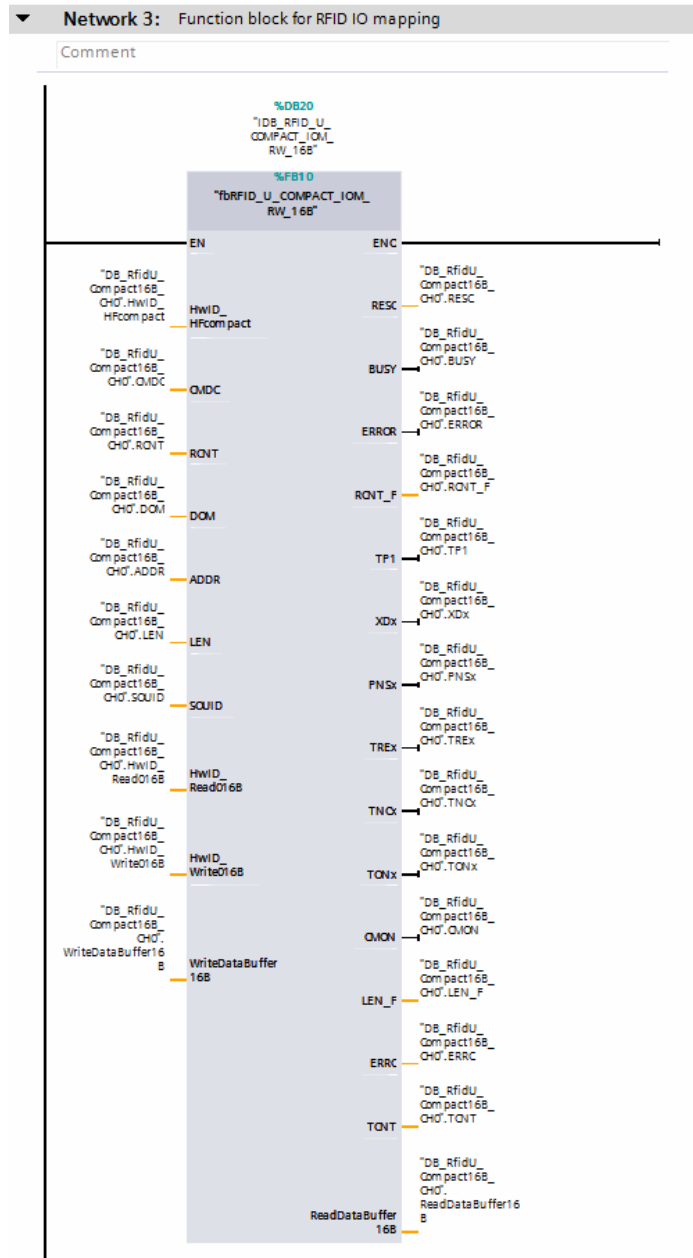
```
// Program:
IF #xCmdRead AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0002; //command read
ELSIF #xCmdWrite AND NOT #xCmdRead AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0004; //command write
ELSIF #xCmdInventory AND NOT #xCmdWrite AND NOT #xCmdRead AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0001; //command inventory
ELSIF #xCmdTagInfo AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdRead AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0050; //command taginfo
ELSIF #xCmdReset AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdRead AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#8000; //command reset
ELSIF #xCmdDirectExecute AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdRead THEN
    #wCMDC := #wDirectCommandCode; //command directcommandcode
END_IF;
```

Network2: Configuration of HW identifier



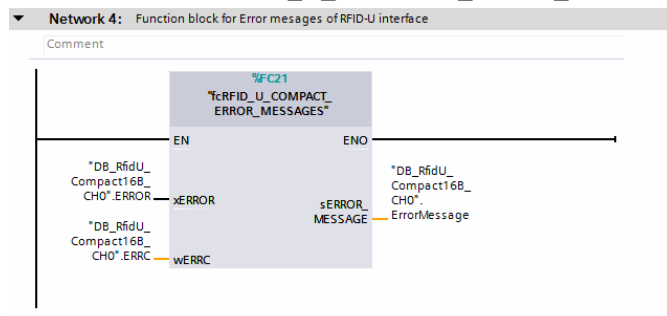
In this network the HW ID's are assigned to the block. The HW ID's are to be taken from the hardware configuration, see under point 3.1.4.

### Network 3: Call "fbRFID\_U\_COMPACT\_IOM\_RW\_16B (FB10)"



In the block FB10 takes place the data exchange to the TBEN-S2-2RFID-4DXP module.

### Network 4: Call "fcRFID\_U\_COMPACT\_ERROR\_MESSAGES (FC21)"



The FC21 convert the error code in to text message.



### 3.2.1.3 Overview of watchtable “RfidU\_Compact\_Ch0”

#### Configuration the HW identifier

// RFID-U interface - Configuration with HWID - Channel 0					
*DB_RfidU_Compact16B_CH0*.HwID_HFCompact	DEC	264		<input type="checkbox"/>	Hardware ID of compact module
*DB_RfidU_Compact16B_CH0*.HwID_Read016B	DEC	266		<input type="checkbox"/>	Hardware ID of 16 byte read module (possible variants 8, 16, 32, 64, 128 byte)
*DB_RfidU_Compact16B_CH0*.HwID_Write016B	DEC	267		<input type="checkbox"/>	Hardware ID of 16 byte write module (possible variants 8, 16, 32, 64, 128 byte)

#### Manual commands from the function block “fcRFID\_U\_COMPACT\_COMMANDS (FC20)”

// RFID-U interface - Manual commands with function block					
*DB_RfidU_Compact16B_CH0*.CmdInventory	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.CmdRead	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.CmdWrite	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.CmdTagInfo	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.CmdDirectExecute	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.DirectCMDC	Hex	16#0000	16#0000	<input checked="" type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.CmdReset	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	

#### RFID-U interface - HF compact - IO mapping - Control and Status - Output

// RFID-U interface - Function block for IO mapping - Channel 0 - Status and Controls					
*DB_RfidU_Compact16B_CH0*.CMDC	Hex	16#0000		<input type="checkbox"/>	Command code (CMDC)
*DB_RfidU_Compact16B_CH0*.TREx	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Transceiver Error (Address error (Busmode))
*DB_RfidU_Compact16B_CH0*.CMON	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Continuous Mode / 0 = not aktive / 1 = aktive
*DB_RfidU_Compact16B_CH0*.RCNT	DEC	0		<input type="checkbox"/>	Loop counter for rapid processing (RCNT)
*DB_RfidU_Compact16B_CH0*.DOM	DEC	0		<input type="checkbox"/>	Memory area (DOM) - only available with UHF applications
*DB_RfidU_Compact16B_CH0*.ADDR	DEC	0	0	<input checked="" type="checkbox"/>	Start address (ADDR)
*DB_RfidU_Compact16B_CH0*.LEN	DEC	0	8	<input checked="" type="checkbox"/>	Length (LEN) Input
*DB_RfidU_Compact16B_CH0*.SQUID	DEC	0		<input type="checkbox"/>	Length UID/EPC (SQUID)

#### RFID-U interface - HF compact - IO mapping - Control and Status - Input

// RFID-U interface - Function block for IO mapping - Channel 0 - Feedback					
*DB_RfidU_Compact16B_CH0*.RESC	Hex	16#0000		<input type="checkbox"/>	Response code (RESC)
*DB_RfidU_Compact16B_CH0*.BUSY	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Busy
*DB_RfidU_Compact16B_CH0*.TP1	Bool	<input checked="" type="checkbox"/> TRUE		<input type="checkbox"/>	TAG present
*DB_RfidU_Compact16B_CH0*.TNCx	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Transceiver connected / 0 = connected / 1 = disconnected
*DB_RfidU_Compact16B_CH0*.TONx	Bool	<input checked="" type="checkbox"/> TRUE		<input type="checkbox"/>	Transceiver on / 1 = ON / 0 = OFF
*DB_RfidU_Compact16B_CH0*.RCNT_F	DEC	0		<input type="checkbox"/>	Loop counter for rapid processing (RCNT)
*DB_RfidU_Compact16B_CH0*.LEN_F	DEC	8	0	<input type="checkbox"/>	Length (LEN) Output
*DB_RfidU_Compact16B_CH0*.ERROR	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Error
*DB_RfidU_Compact16B_CH0*.ERRC	Hex	16#0000		<input type="checkbox"/>	Error code (ERRC)
*DB_RfidU_Compact16B_CH0*.ErrorMessage	String	'No RFID error'		<input type="checkbox"/>	
*DB_RfidU_Compact16B_CH0*.TCNT	DEC	1		<input type="checkbox"/>	TAG counter (TCNT)

#### RFID-U interface - HF compact - IO mapping – Write data (16B)

// RFID-U interface - Function block for IO mapping - Channel 0 - Write data (TX data)					
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[0]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[1]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[2]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[3]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[4]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[5]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[6]	DEC	0	44	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[7]	DEC	0	8	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[8]	DEC	0	9	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[9]	DEC	0	10	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[10]	DEC	0	11	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[11]	DEC	0	12	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[12]	DEC	0	13	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[13]	DEC	0	14	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[14]	DEC	0	1	<input checked="" type="checkbox"/>	Buffer for write data 16 byte
*DB_RfidU_Compact16B_CH0*.WriteDataBuffer16B[15]	DEC	0	11	<input checked="" type="checkbox"/>	Buffer for write data 16 byte

#### RFID-U interface - HF compact - IO mapping – Read data (16B)

// RFID-U interface - Function block for IO mapping - Channel 0 - Read Data (RX data)					
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[0]	DEC	224		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[1]	DEC	4		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[2]	DEC	1		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[3]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[4]	DEC	11		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[5]	DEC	174		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[6]	DEC	30		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[7]	DEC	137		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[8]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[9]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[10]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[11]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[12]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[13]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[14]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte
*DB_RfidU_Compact16B_CH0*.ReadDataBuffer16B[15]	DEC	0		<input type="checkbox"/>	Buffer for read data 16 byte

## 3.2.2. RFID extended mode

### 3.2.2.1 General overview

The screenshot displays the 'Project tree' window in SIMATIC Manager. The tree structure is as follows:

- Devices
  - S7V14\_RFID-HF\_U-INTERFACE\_FB-IOMapping\_Extended\_V0.0.5
    - Add new device
    - Devices & networks
    - plc1500 [CPU 1513-1 PN]
      - Device configuration
      - Online & diagnostics
      - Program blocks
        - Add new block
        - Main [OB1]
        - RFID\_COMPACT\_Mode
        - RFID\_EXTENDED\_Mode**
          - fcRFID\_EXTENDED\_Mode\_Manual [FC11]
          - fcRFID\_U\_EXTENDED\_COMMANDS [FC30]
          - fcRFID\_U\_EXTENDED\_ERROR\_MESSAGES [FC31]
          - fbRFID\_U\_EXTENDED\_IOM\_RW\_128B [FB11]
          - DB\_RfidU\_Extended128B\_CH1 [DB11]
          - IDB\_RFID\_U\_EXTENDED\_IOM\_RW\_128B [DB30]
        - System blocks
      - Technology objects
      - External source files
      - PLC tags
      - PLC data types
      - Watch and force tables
        - Add new watch table
        - Forcetabelle
        - RFID\_COMPACT\_Mode
        - RFID\_EXTENDED\_Mode**
          - Watchtable\_RfidU\_Extended\_Ch1**
      - Online backups
      - Traces
      - Device proxy data
      - Program info
      - PLC supervisions & alarms
      - PLC alarm text lists

Two callout boxes provide additional context:

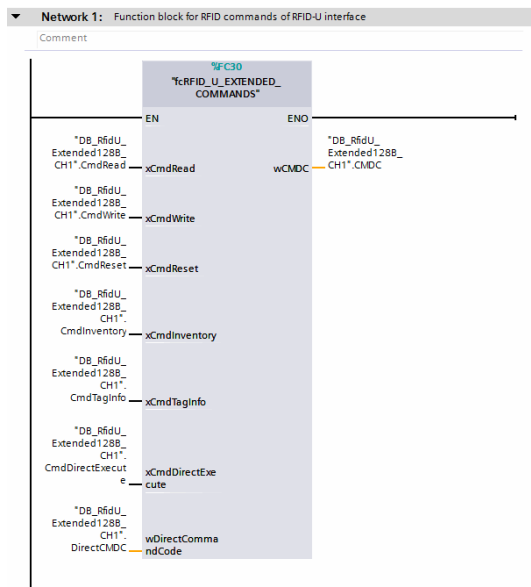
- The first callout box points to the **RFID\_EXTENDED\_Mode** folder and its contents, stating: "Functions (FC's), function blocks (FB's) and data blocks (DB's) for RFID extended mode".
- The second callout box points to the **Watchtable\_RfidU\_Extended\_Ch1** entry, stating: "Watchtable for the RFID extended mode".

### 3.2.2.2 Short description of the blocks

#### 3.2.2.2.1 fcRFID\_EXTENDED\_Mode\_Manual (FC11)

The FC11 is the main machining module. The other modules are called from this block.

Network1: Call "fcRFID\_U\_EXTENDED\_COMMANDS (FC30)"

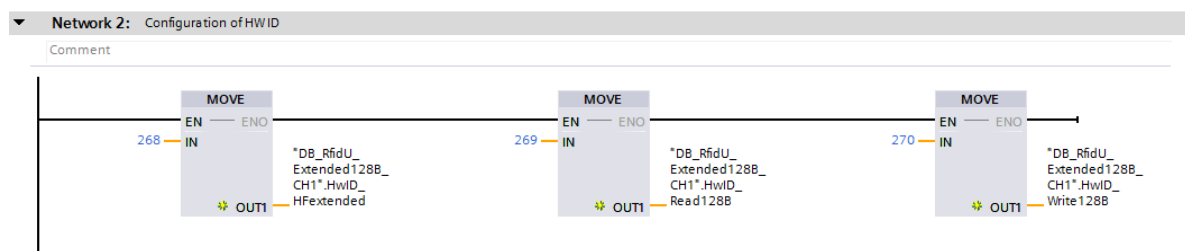


The FC 30 is the function block for the RFID commands. In this module the commands are handled.

Detail of the FC30

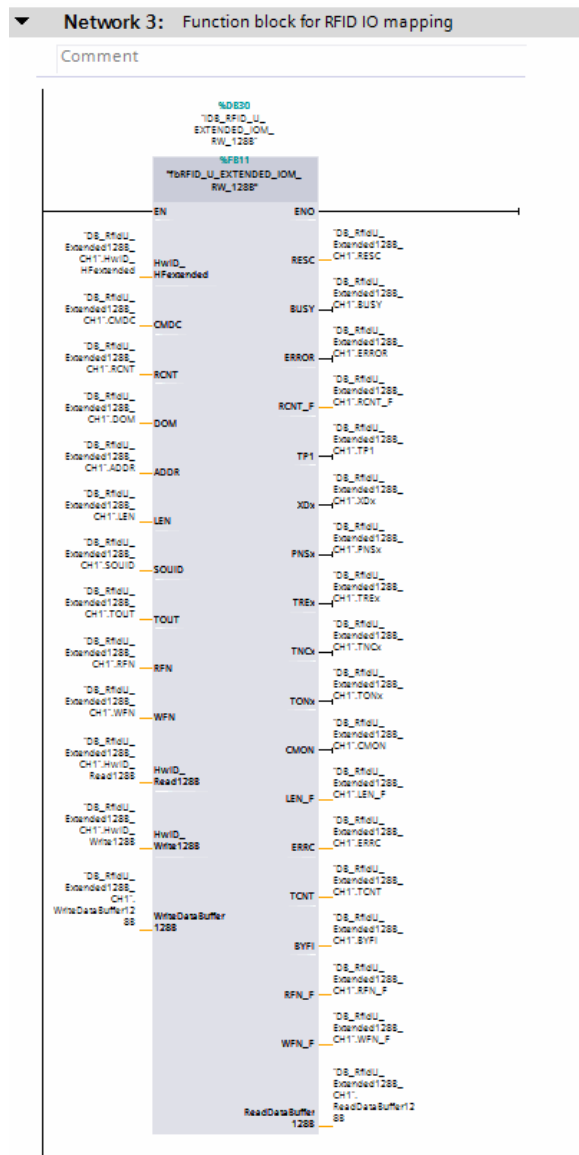
```
// Program:
IF #xCmdRead AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0002; //command read
ELSIF #xCmdWrite AND NOT #xCmdRead AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0004; //command write
ELSIF #xCmdInventory AND NOT #xCmdWrite AND NOT #xCmdRead AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0001; //command inventory
ELSIF #xCmdTagInfo AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdRead AND NOT #xCmdReset AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0050; //command taginfo
ELSIF #xCmdReset AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdRead AND NOT #xCmdDirectExecute THEN
    #wCMDC := 16#0000; //command reset
ELSIF #xCmdDirectExecute AND NOT #xCmdWrite AND NOT #xCmdInventory AND NOT #xCmdTagInfo AND NOT #xCmdReset AND NOT #xCmdRead THEN
    #wCMDC := #wDirectCommandCode; //command directcommandcode
END_IF;
```

Network2: Configuration of HW identifier

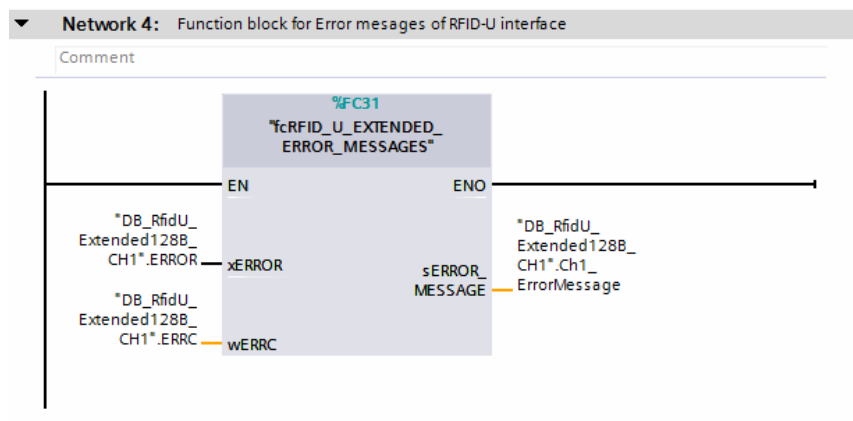


In this network the HW ID's are assigned to the block. The HW ID's are to be taken from the hardware configuration, see under point 3.1.4.

### Network 3: Call "fbRFID\_U\_extended\_IOM\_RW\_128B (FB11)"



In the block FB11 takes place the data exchange to the TBEN-S2-2RFID-4DXP module. Network 4: Call "fcRFID\_U\_EXTENDED\_ERROR\_MESSAGES (FC31)"



The FC31 convert the error code in to text message.

### 3.2.2.3 Overview of watchtable “RfidU\_Compact\_Ch0”

#### Configuration the HW identifier

// RFID-U interface - Configuration with HWID - Channel 0					
"DB_RfidU_Extended128B_CH1".HwID_HFExtended	DEC	268	<input type="checkbox"/>		Hardware ID of compact module
"DB_RfidU_Extended128B_CH1".HwID_Read128B	DEC	269	<input type="checkbox"/>		Hardware ID of 128 byte read module (possible variants 8, 16, 32, 64, 128 byte)
"DB_RfidU_Extended128B_CH1".HwID_Write128B	DEC	270	<input type="checkbox"/>		Hardware ID of 128 byte write module (possible variants 8, 16, 32, 64, 128 byte)

#### Manual commands from the function block “fcRFID\_U\_COMPACT\_COMMANDS (FC30)”

// RFID-U interface - Manual commands with function block					
"DB_RfidU_Extended128B_CH1".CmdInventory	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".CmdRead	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".CmdWrite	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".CmdTagInfo	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".CmdDirectExecute	Bool	<input type="checkbox"/> FALSE	FALSE	<input checked="" type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".DirectCMD	Hex	16#0000	16#0000	<input checked="" type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".CmdReset	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	

#### RFID-U interface - HF compact - IO mapping - Control and Status - Output

// RFID-U interface - Function block for IO mapping - Channel 0 - Status and Controls					
"DB_RfidU_Extended128B_CH1".CMD	Hex	16#0000		<input type="checkbox"/>	Command code (CMD)
"DB_RfidU_Extended128B_CH1".TREx	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Transceiver Error (Address error (Busmode))
"DB_RfidU_Extended128B_CH1".CMON	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Continuous Mode / 0 = not aktive / 1 = aktive
"DB_RfidU_Extended128B_CH1".RCNT	DEC	0		<input type="checkbox"/>	Loop counter for rapid processing (RCNT)
"DB_RfidU_Extended128B_CH1".DOM	DEC	0		<input type="checkbox"/>	Memory area (DOM) - only available with UHF applications
"DB_RfidU_Extended128B_CH1".ADDR	DEC	0	0	<input checked="" type="checkbox"/>	Start address (ADDR)
"DB_RfidU_Extended128B_CH1".LEN	DEC	0	128	<input checked="" type="checkbox"/>	Length (LEN) Input
"DB_RfidU_Extended128B_CH1".SOUID	DEC	0		<input type="checkbox"/>	Length UID/EPC (SOUID)
"DB_RfidU_Extended128B_CH1".TOUT	DEC	0		<input type="checkbox"/>	Timeout (TOUT)
"DB_RfidU_Extended128B_CH1".RFN	DEC	0		<input type="checkbox"/>	Read fragment number (RFN)
"DB_RfidU_Extended128B_CH1".WFN	DEC	0		<input type="checkbox"/>	Write fragment number (WFN)

#### RFID-U interface - HF compact - IO mapping - Control and Status – Input

// RFID-U interface - Function block for IO mapping - Channel 0 - Feedback					
"DB_RfidU_Extended128B_CH1".RESC	Hex	16#0000		<input type="checkbox"/>	Response code (RESC)
"DB_RfidU_Extended128B_CH1".BUSY	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Busy
"DB_RfidU_Extended128B_CH1".TP1	Bool	<input checked="" type="checkbox"/> TRUE		<input type="checkbox"/>	TAG present
"DB_RfidU_Extended128B_CH1".TNCx	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Transceiver connected / 0 = connected / 1 = disconnected
"DB_RfidU_Extended128B_CH1".TONx	Bool	<input checked="" type="checkbox"/> TRUE		<input type="checkbox"/>	Transceiver on / 1 = ON / 0 = OFF
"DB_RfidU_Extended128B_CH1".RCNT_F	DEC	0		<input type="checkbox"/>	Loop counter for rapid processing (RCNT)
"DB_RfidU_Extended128B_CH1".LEN_F	DEC	8		<input type="checkbox"/>	Length (LEN) Output
"DB_RfidU_Extended128B_CH1".ERROR	Bool	<input type="checkbox"/> FALSE		<input type="checkbox"/>	Error
"DB_RfidU_Extended128B_CH1".ERRC	Hex	16#0000		<input type="checkbox"/>	Error code (ERRC)
"DB_RfidU_Extended128B_CH1".Ch1_ErrorMessage	String	"No RFID error"		<input type="checkbox"/>	
"DB_RfidU_Extended128B_CH1".TCNT	DEC	1		<input type="checkbox"/>	TAG counter (TCNT)
"DB_RfidU_Extended128B_CH1".BYFI	DEC	0		<input type="checkbox"/>	Data available (BYFI)
"DB_RfidU_Extended128B_CH1".RFN_F	DEC	128		<input type="checkbox"/>	Read fragment number (RFN)
"DB_RfidU_Extended128B_CH1".WFN_F	DEC	128		<input type="checkbox"/>	Write fragment number (WFN)

#### RFID-U interface - HF compact - IO mapping – Write data (128B)

// RFID-U interface - Function block for IO mapping - Channel 0 - Write data (TX data)					
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[0]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[1]	DEC	0	101	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[2]	DEC	0	102	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[3]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[4]	DEC	0	101	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[5]	DEC	0	102	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[6]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[7]	DEC	0	101	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[8]	DEC	0	102	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[9]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[10]	DEC	0	101	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[11]	DEC	0	102	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[12]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[13]	DEC	0	101	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[14]	DEC	0	102	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[15]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[16]	DEC	0	101	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[17]	DEC	0	102	<input checked="" type="checkbox"/>	Buffer for write data 128 byte
"DB_RfidU_Extended128B_CH1".WriteDataBuffer128B[18]	DEC	0	100	<input checked="" type="checkbox"/>	Buffer for write data 128 byte

#### RFID-U interface - HF compact - IO mapping – Read data (128B)

// RFID-U interface - Function block for IO mapping - Channel 0 - Read data (RX data)					
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[0]	DEC	224		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[1]	DEC	8		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[2]	DEC	1		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[3]	DEC	72		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[4]	DEC	96		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[5]	DEC	228		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[6]	DEC	83		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[7]	DEC	189		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[8]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[9]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[10]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[11]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[12]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[13]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[14]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[15]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[16]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[17]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte
"DB_RfidU_Extended128B_CH1".ReadDataBuffer128B[18]	DEC	0		<input type="checkbox"/>	Buffer for read data 128 byte

### **3.3 Operation Manual**

See [http://pdb2.turck.de/repo/media/\\_en/Anlagen/d500064.pdf](http://pdb2.turck.de/repo/media/_en/Anlagen/d500064.pdf)

### **3.4 Error description**

See [http://pdb2.turck.de/repo/media/\\_en/Anlagen/d500064.pdf](http://pdb2.turck.de/repo/media/_en/Anlagen/d500064.pdf)