Operating instructions

Function block Expert Mode RFID device IQT1-xx-IO-V1 on Siemens TIA Portal

HF RFID Device IQT1-xx-IO-V1

Project Name:	**HF RFID-Station IQT1-xx-IO-V1;** **Expert Mode function block**
Date:	**19.03.2024**
Creator:	**Karsten Reinhardt**

Version history

Version	Release date	Comment
1	**01.12.2023**	Initial Version
2	**19.03.2024**	Adaptation of the documentation; update function block to V2.1; change of the edge counter for the input telegrams; add variable "O_b_Finish" in variable overview

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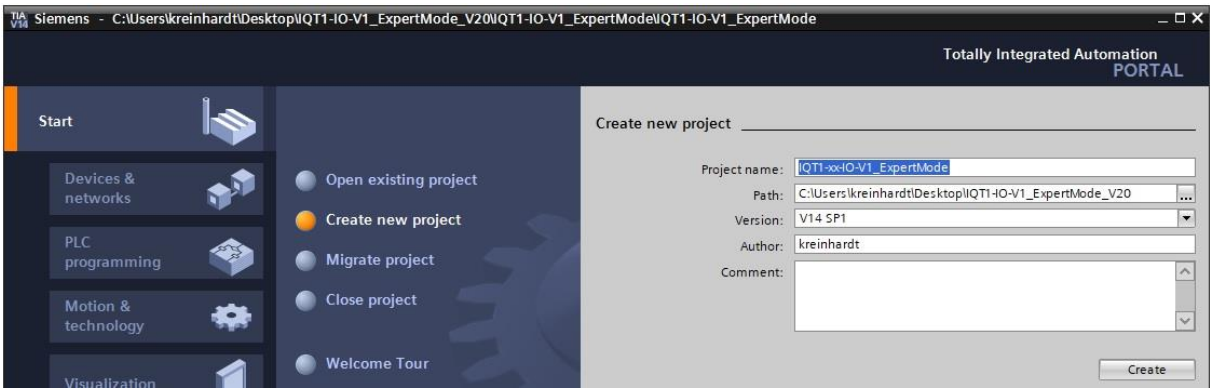
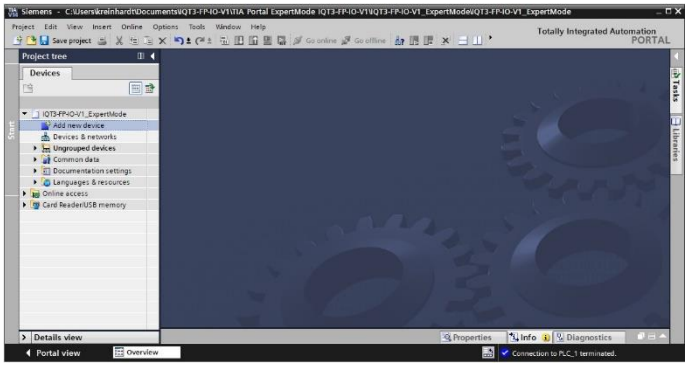
1. Basic PLC configuration

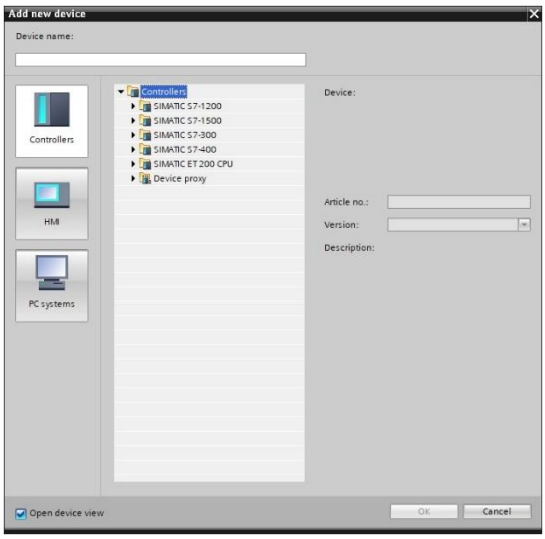
The first step is to create a new PLC project. For this purpose, a project name (e.g., "IQT1-xx-IO-V1_ExpertMode") and a storage path of the project must be entered or selected.

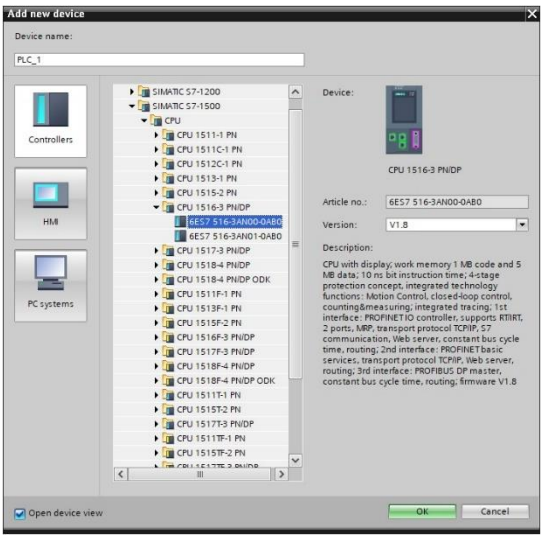


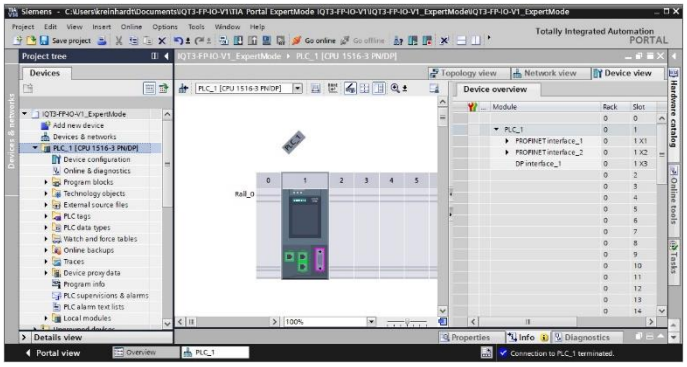
After creating the empty PLC project, switch to the project view. A selection window is called up by "Add new device" in the project navigation on the left.



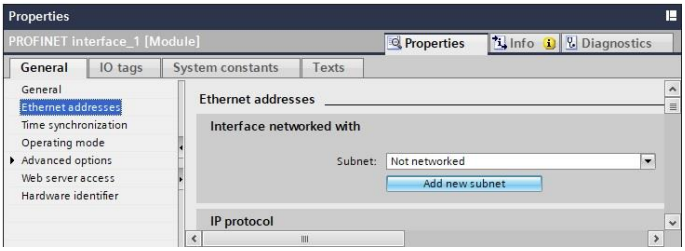
In this selection window, the appropriate PLC must be selected.



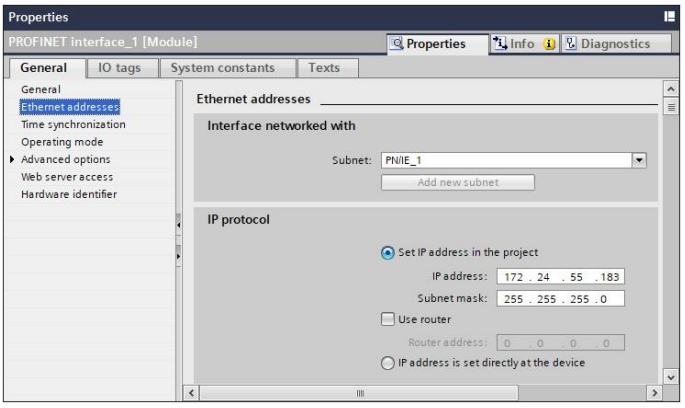




After assigning the CPU, the project view switches to the setting of the PLC parameters.

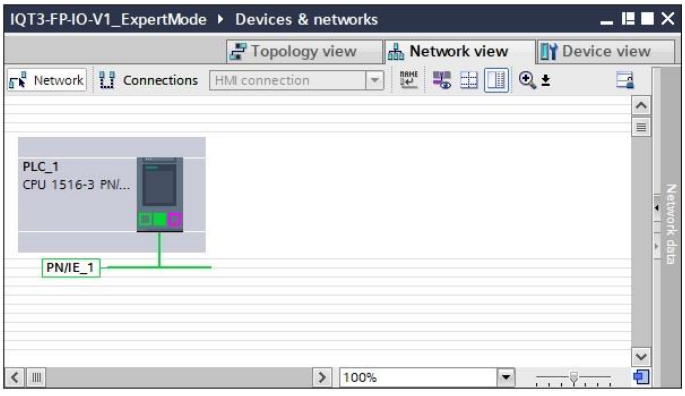


For the Profinet interface X1, a Profinet subnet must be added under the selection "Ethernet addresses" via the selection "Add new subnet". A subnet with the designation "PN/IE_1" is created.

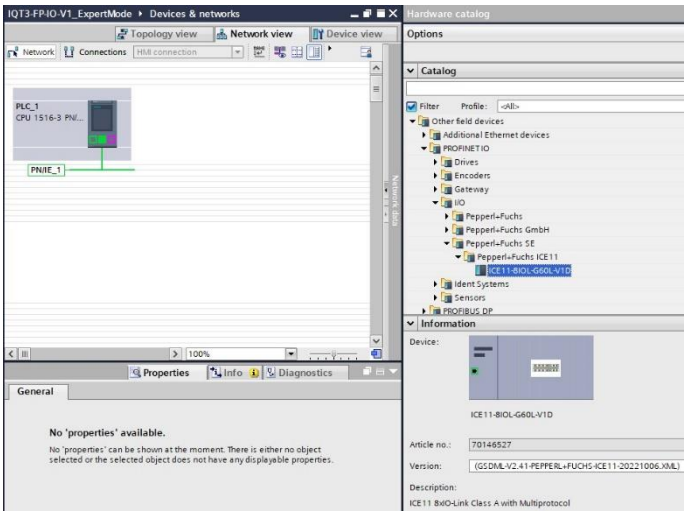


Then set the network parameters (IP address, subnet mask) of the PLC.

IP address: 172.24.55.183
Subnet mask: 255.255.255.0



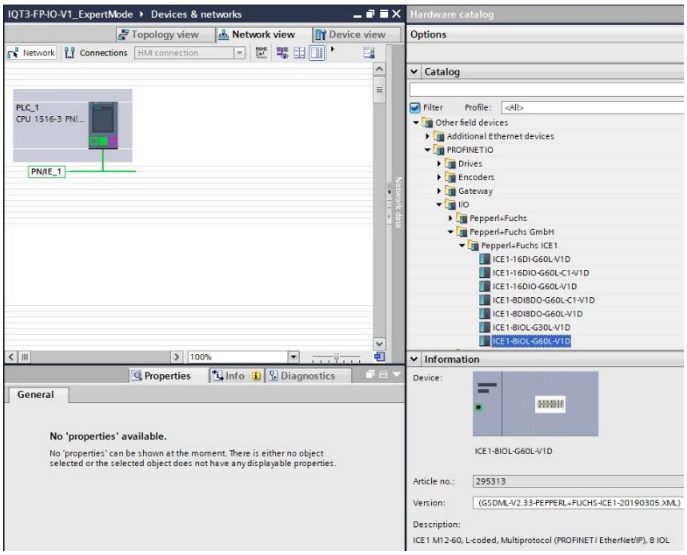
The network view symbolically shows the configured PLC. Starting from the CPU, the subnet "PN/IE_1" is located.



ICE11-8IOL-G60-V1D IO-Link Master:

On the right-hand side, call up the hardware catalog and select the GSDML file of the ICE11-8IOL-G60-V1D:
"Other field devices" → "Profinet IO" → "I/O" → "Pepperl+Fuchs SE" → "Pepperl+Fuchs ICE11" → "ICE11-8IOL-G60-V1D".

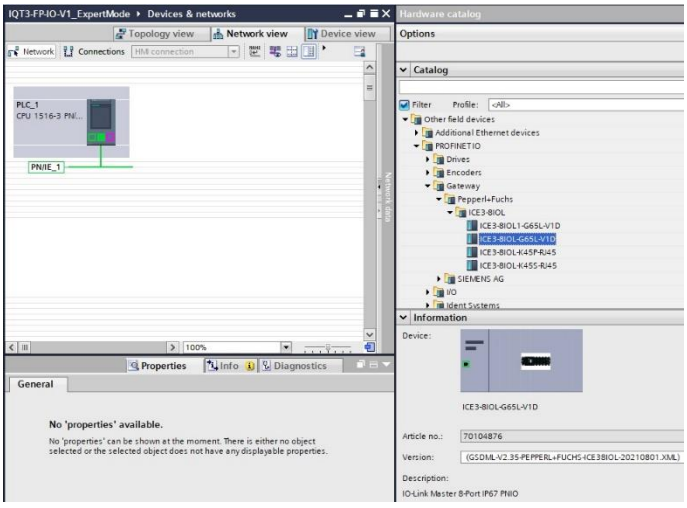
If the GSDML file is not in the catalog, it must be imported beforehand.



ICE1-8IOL-G60-V1D resp. ICE1-8IOL-G30-V1D IO-Link Master:

On the right side the hardware catalog has to be called and the GSDML file of the ICE1-8IOL-G60-V1D or ICE1-8IOL-G30-V1D has to be selected:
"Other field devices" → "Profinet IO" → "I/O" → "Pepperl+Fuchs GmbH" → "Pepperl+Fuchs ICE1" → "ICE1-8IOL-G60-V1D" resp. "ICE1-8IOL-G30-V1D"

If the GSDML file is not in the catalog, it must be imported beforehand.



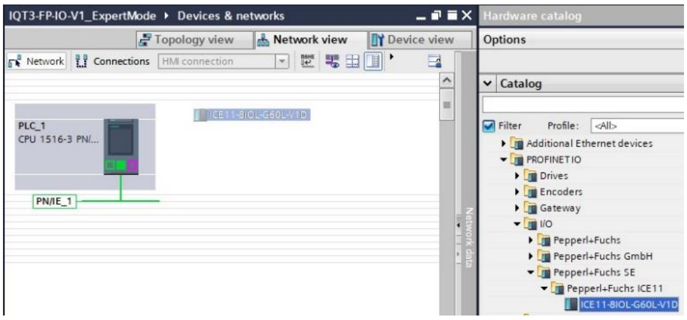
ICE3-8IOL-G65L-V1D resp. ICE3-8IOL1-G65L-V1D IO-Link Master:

On the right side the hardware catalog has to be called and the GSDML file of the ICE3-8IOL-G65L-V1D or ICE3-8IOL1-G65L-V1D has to be selected:
"Other field devices" → "Profinet IO" → "Gateway" → "Pepperl+Fuchs" → "ICE3-8IOL" → "ICE3-8IOL-G65L-V1D" or "ICE3-8IOL1-G65L-V1D".

If the GSDML file is not in the catalog, it must be imported beforehand.

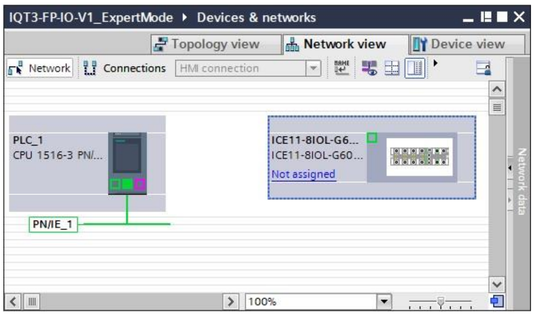
2. Hardware configuration IO-Link Master

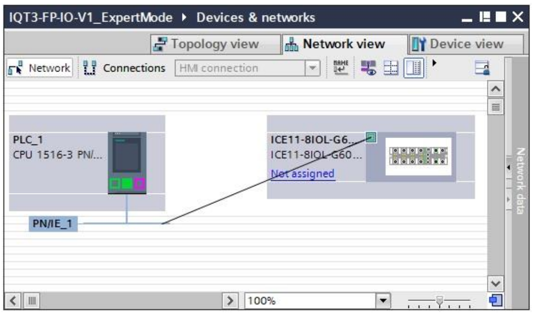
2.1 ICE11-8IOL-G60-V1D

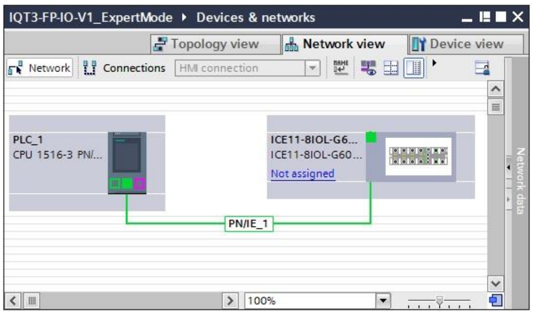


The GSDML for the IO-Link master ICE11-8IOL-G60-V1D is to be dragged over from the hardware catalog into the center window of the device view.

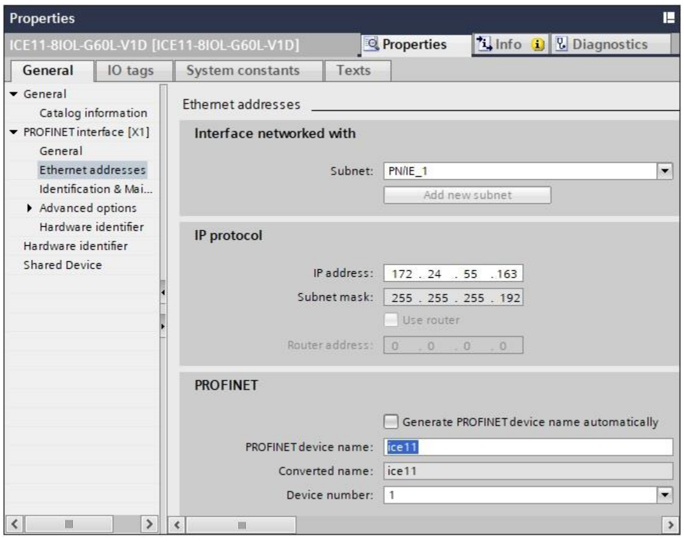
Other field devices → "Profinet IO" → "I/O" → "Pepperl+Fuchs SE" → "Pepperl+Fuchs ICE11" → "ICE11-8IOL-G60-V1D".





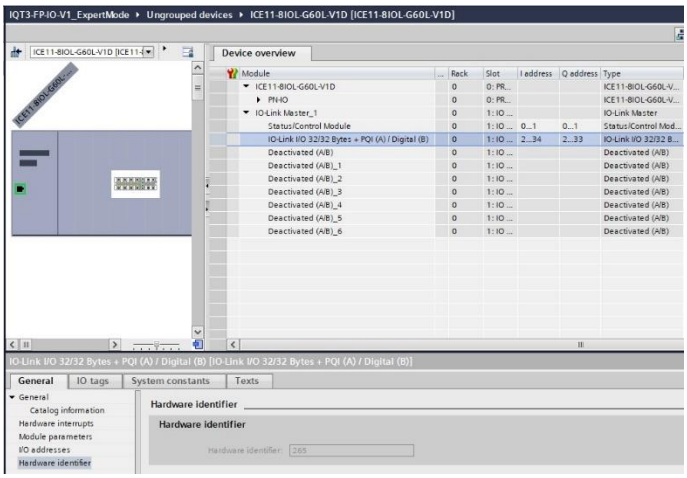


Connection IO-Link master to Profinet network PN/IE_1
The Profinet connection between ICE11-8IOL and PLC is connected manually in the network view via the mouse indicator. The IO-Link master is thus connected to the "PN/IE_1" subnet. The correct Profinet connection is displayed in green. The assignment to the CPU is visible on the ICE11-8IOL (PLC_1).



Then set the network parameters (IP address, subnet mask) and the Profinet name of the ICE11-8IOL.

IP address:	172.24.55.163
Subnet mask:	255.255.255.192
Profinet Name:	ice11

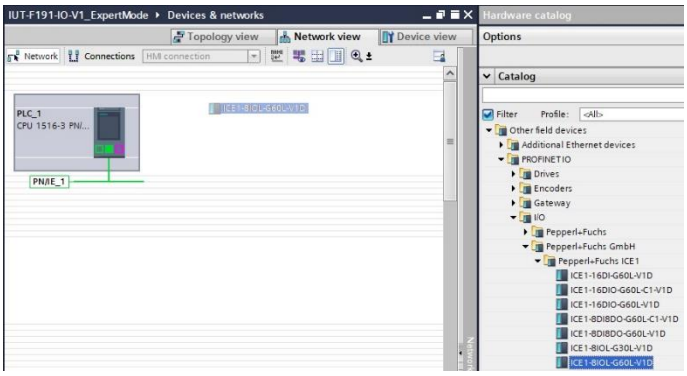


Double-click on the ICE11-8IOL icon to open the device view. The corresponding communication modules for the individual ports of the IO-Link master are to be integrated from the hardware catalog. The " IO-Link I/O 32/32 Bytes + PQI (A) / Digital (B)" module must be assigned for the port to which the IQT1-xx-IO-V1 RFID station is connected. Ports that are not used must be set to inactive.

The added communication module has a hardware identifier. This identifier serves as input parameter "I_HWIO_Hardware_ID" of the function block. A symbolic addressing is possible.

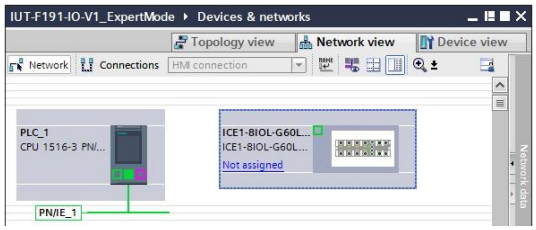
“IO-Link I/O 32/32 Bytes + PQI (A) / Digital (B)“ = 265

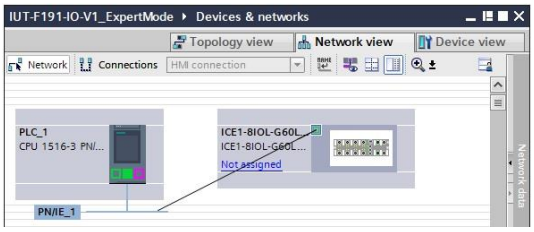
2.2 ICE1-8IOL-G60-V1D resp. ICE1-8IOL-G30-V1D

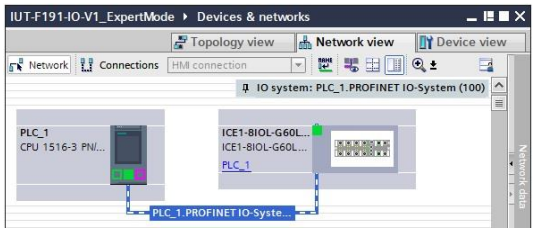


The GSDML for the IO-Link master ICE1-8IOL-G60-V1D is to be dragged over from the hardware catalog into the center window of the device view.

Other field devices → "Profinet IO" → "I/O" → "Pepperl+Fuchs GmbH" → "Pepperl+Fuchs ICE1" → "ICE1-8IOL-G60-V1D" or “ICE1-8IOL-G30-V1D”.

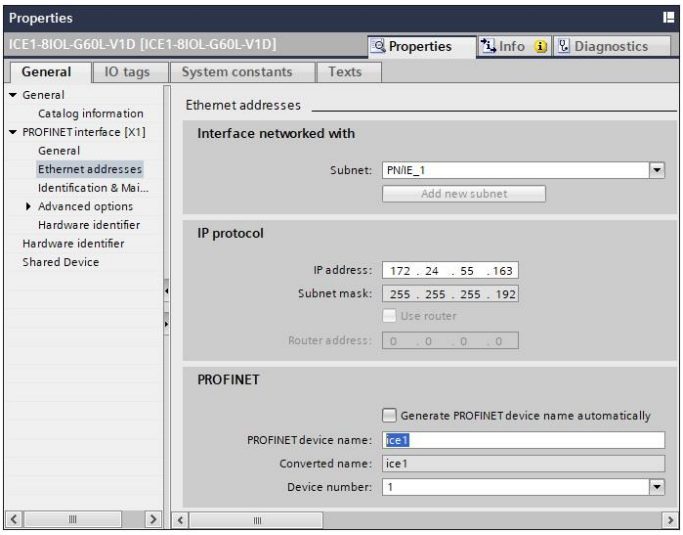






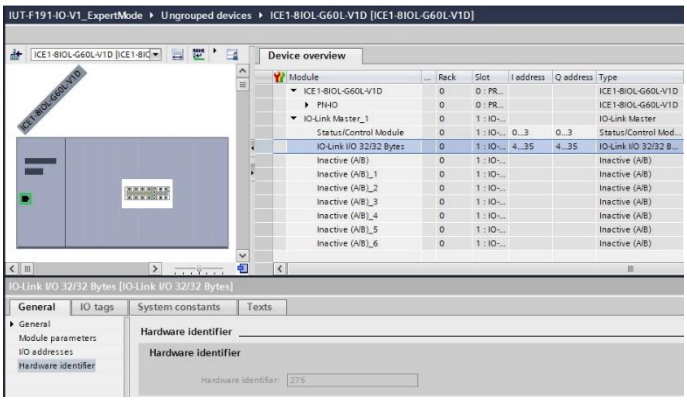
Connection of IO-Link master to Profinet network PN/IE_1

The Profinet connection between ICE1-8IOL and controller is connected manually in the network view via the mouse indicator. The IO-Link master is thereby connected to the "PN/IE_1" subnet. The correct Profinet connection is displayed in green. The assignment to the CPU is visible on the ICE1-8IOL (PLC_1).



Then set the network parameters (IP address, subnet mask) and the Profinet name of the ICE1-8IOL.

IP address: 172.24.55.163
Subnet mask: 255.255.255.192
Profinet Name: ice1

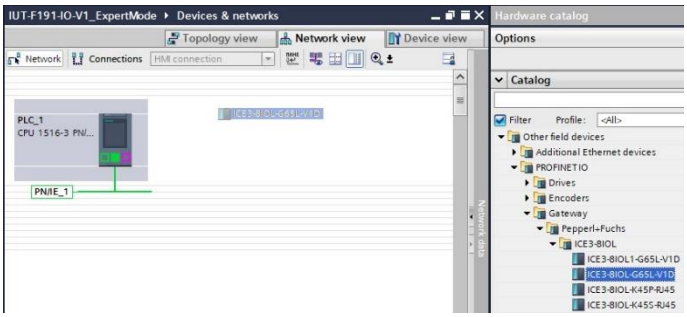


Double-click on the ICE1-8IOL icon to open the device view. The corresponding communication modules for the individual ports of the IO-Link master are to be integrated from the hardware catalog. The "IO-Link I/O 32/32 bytes" module must be assigned for the port to which the IQT1-xx-IO-V1 RFID station is connected. Ports that are not used must be set to inactive.

The added communication module has a hardware identifier. This identifier serves as input parameter "I_HWIO_Hardware_ID" of the function block. A symbolic addressing is possible.

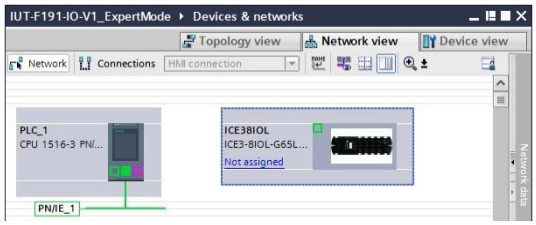
“IO-Link I/O 32/32 Bytes“ = 275

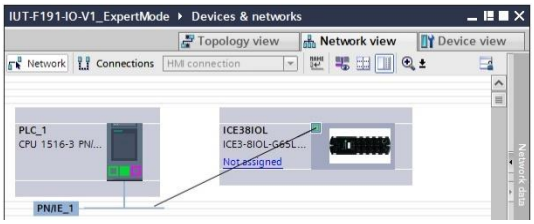
2.3 ICE3-8IOL-G65L-V1D resp. ICE3-8IOL1-G65L-V1D

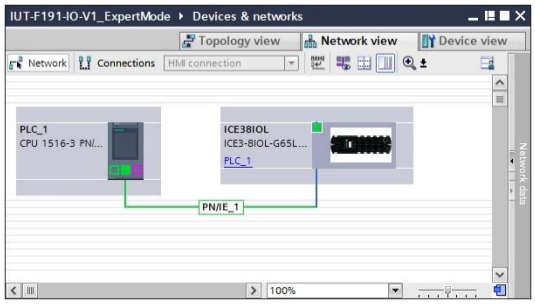


The GSDML for the IO-Link master ICE3-8IOL-G65L-V1D is to be dragged over from the hardware catalog into the center window of the device view.

Other field devices → "Profinet IO" → "Gateway" → "Pepperl+Fuchs" → "ICE3-8IOL" → "ICE3-8IOL-G65L-V1D" or "ICE3-8IOL1-G65L-V1D".

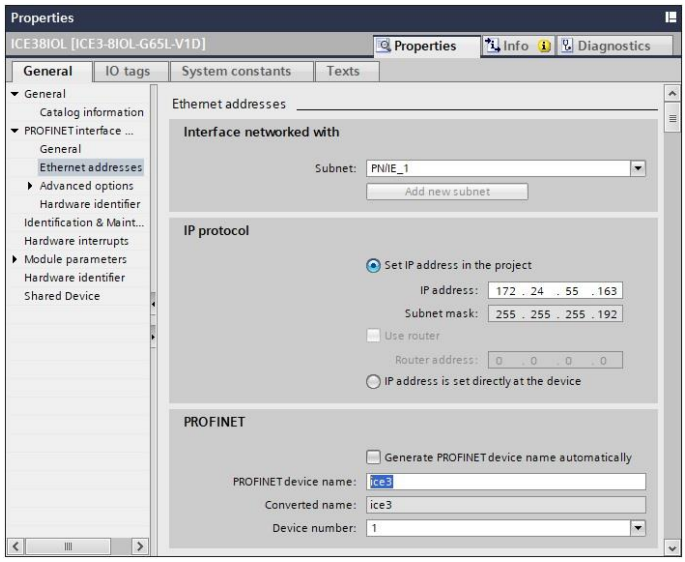






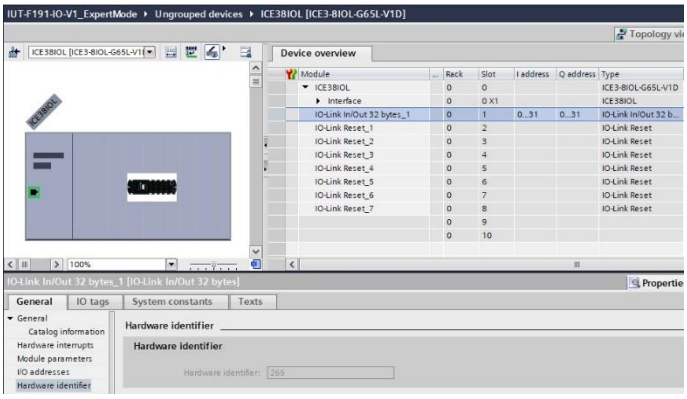
Connection of IO-Link master to Profinet network PN/IE_1

The Profinet connection between ICE3-8IOL and controller is connected manually in the network view via the mouse indicator. The IO-Link master is thus connected to the "PN/IE_1" subnet. The correct Profinet connection is displayed in green. The assignment to the CPU is visible on the ICE3-8IOL (PLC_1).



Then set the network parameters (IP address, subnet mask) and the Profinet name of the ICE3-8IOL.

IP address:	172.24.55.163
Subnet mask:	255.255.255.192
Profinet Name:	ice3



Double-click on the ICE3-8IOL icon to open the device view. The corresponding communication modules for the individual ports of the IO-Link master are to be integrated from the hardware catalog. The "IO-Link In/Out 32 Bytes" module must be assigned for the port to which the IQT1-xx-IO-V1 RFID station is connected. Ports that are not used must be set to inactive.

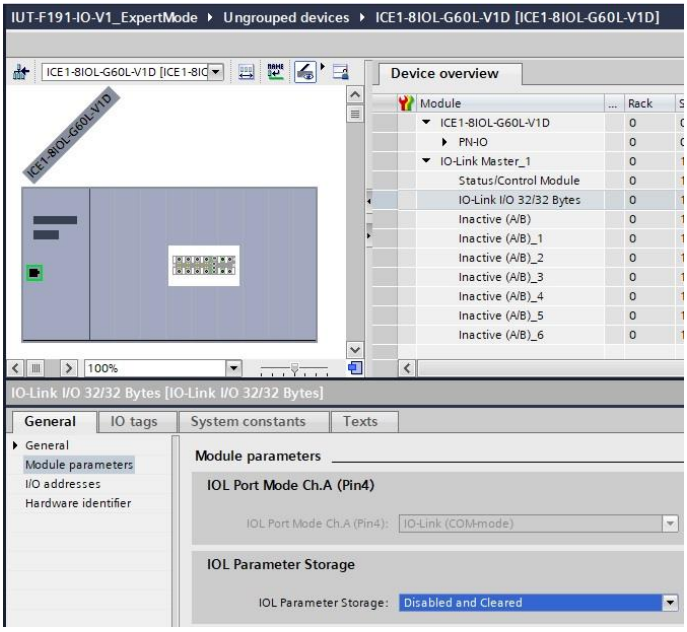
The added communication module has a hardware identifier. This identifier serves as input parameter "I_HWIO_Hardware_ID" of the function block. A symbolic addressing is possible.

“IO-Link In/Out 32 Bytes” = 265

2.4 Set up IO-Link Parameter Storage ICE1-8IOL-G60-V1D

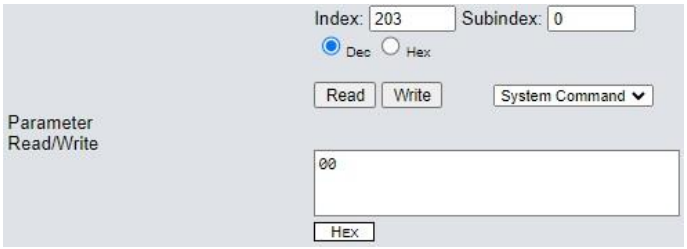
The "IO-Link Parameter Storage" function offers the option of additionally storing the IO-Link parameters of the connected device within the IO-Link master. This makes it possible to automatically transfer the previously set parameter set of the device to a replacement device. Additional parameterization is therefore no longer necessary.

During initial commissioning, the "IOL parameter storage" module parameter is set to "Disable and Cleared". After this setting has been loaded to the controller, any parameter set already stored within the IO-Link master is deleted and the storage function is deactivated.



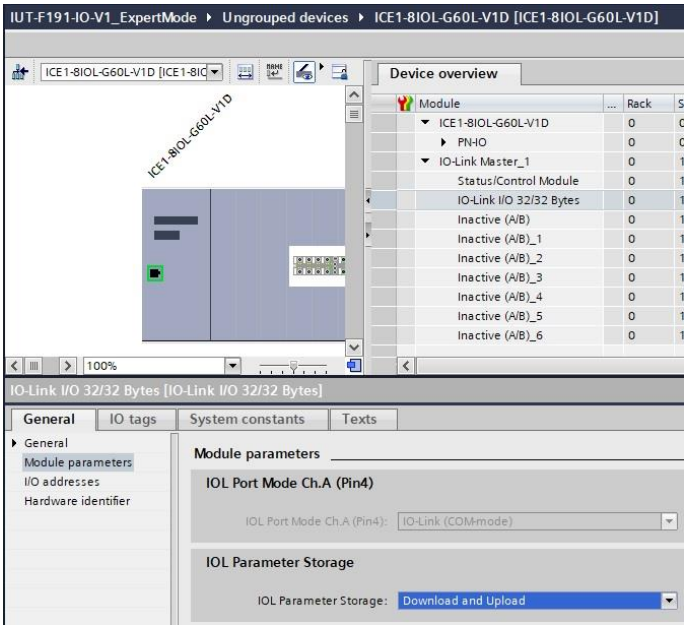
Setting the "IOL Parameter Storage" module parameter of the "IO-Link I/O 32/32 bytes" module to "Disable and Cleared".

Subsequently, the IO-Link parameters can be set via the web page.



Setting Parameter 203 „Operation Mode“
16#00 → Expert Mode

After the IO-Link parameters have been set via the web page, the "IOL Parameter Storage" module parameter must be changed to "Download and Upload". The new configuration must be transferred to the controller.

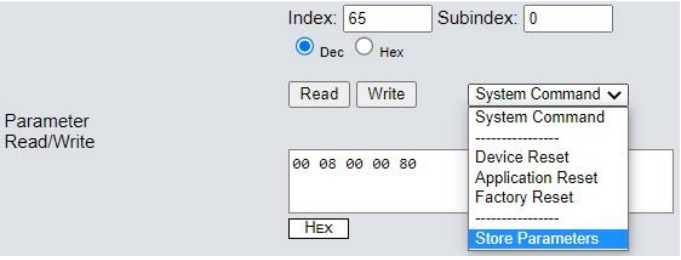


Setting the "IOL Parameter Storage" module parameter of the "IO-Link I/O 32/32 bytes" module to "Download and Upload"

The parameters are now stored both in the RFID Station IQT1-xx-IO-V1 and within the IO-Link Master ICE1-8IOL. If a new replacement device is connected to the corresponding port, the stored IO-Link

Parameters are automatically transferred to the device by the master (Download). The same applies when the IO-Link Master is replaced. Here, the IO-Link Device transfers the parameter data to the new IO-Link Master (Upload).

If an IO-Link parameter is to be subsequently changed and saved, this is possible via the "Store Parameters" command on the web page of the IO-Link master. First the parameter is changed and then the "Store Parameters" command is executed.



Store Parameters command
Saving the new IO-Link parameter configuration within the device and the IO-Link master

Following execution of the "Store Parameters" command, the parameter sets are updated within the IO-Link Master. The new parameter values are thus stored in the IO-Link Master.

3. Parameter IQT1-xx-IO-V1

When using Expert Mode, the IQT1-xx-IO-V1 RFID station has two module parameters for setting the device properties. The most important parameters are stored in the IODD file and can therefore be set during initial commissioning of the device.

The device parameters are set via the IODD either using the web server integrated in the IO-Link master or using another IO-Link master-specific setting program (e.g., PCT Tool).

Another possibility for accessing the device parameters is to use the "IQT1-xx-IO-V1_ExpertMode_ Param" function block from the library. This function block can be used to read out all the parameters stored in the IODD file by activating it once. A change of the parameters by this block is also possible.

In addition, it is possible to access the device parameters via the "Special Command" function. This also allows access to parameters that are not stored in the IODD. With the help of the "Special Command" function, all available commands (e.g., read and write parameters) of the RFID station can be executed.

Name	Index Dez	Index Hex	Sub-index	Length	Access	Value range	Factory setting
Operation Mode	203	16#CB	0	1 Byte	Read / Write	0 = Expert Mode 128 = Easy Mode	128 = Easy Mode
Tag Type - CT	201	16#C9	0	1 Byte	Read / Write	20 → Automatic (ISO/IEC 15693) 21 → ICODE SLI (NXP) 22 → Tag-it HF-I Plus (TI) 23 → my-D SRF55V02P (Infineon) 24 → my-D SRF55V10P (Infineon) 27 → EM4135 (EM Microelectronic) 31 → Tag-it HF-I Standard (TI) 32 → Tag-it HF-I Pro (TI) 33 → FRAM MB89R118 (Fujitsu) 34 → FRAM MB89R119 (Fujitsu) 35 → ICODE SLI-S (NXP) 36 → ICODE SLI-L (NXP) 37 → FRAM MB89R112 (Fujitsu)	20

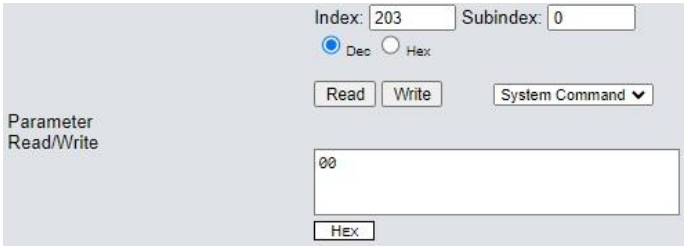
3.1 IO-Link Parameter 203 (16#CB) “Operation Mode”

The "Operation Mode" parameter can be used to switch between Easy and Expert mode. The Easy mode is preset at the factory and allows simplified data access to the data carrier. This means that no additional function block is required for data transfer. The “Expert mode" allows access to large amounts of data using a handshake procedure. This requires the use of a function block for data transfer. Expert mode must be set to use the "IQT1-xx-IO-V1_ExpertMode_Basic" function block.

Structure Parameter 203 (16#CB) “Operation Mode”

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
203	16#CB	0	1 Byte	128	16#80	Read / Write	Operation Mode = Easy Mode

							Easy Mode active; factory setting; allows simplified data access to a maximum of 28 bytes of data
203	16#CB	0	1 Byte	0	16#00	Read / Write	Operation Mode = Expert Mode Expert Mode active; setting for transferring large amounts of data via handshake procedure; use of a function block required



Parameter 203 (16#CB) “Operation Mode”: Changeover to Expert Mode; 0 (16#00) = Expert Mode activated;

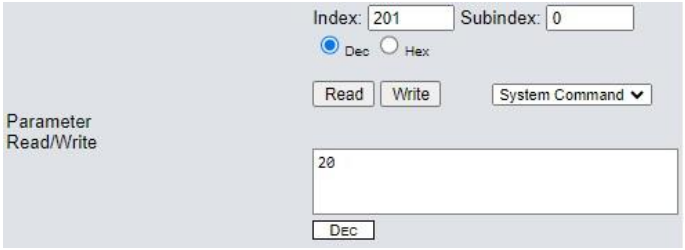
3.2 IO-Link Parameter 201 (16#C9) “Tag Type – CT”

The "TagType" parameter sets the data carrier type of the RFID device. The data carrier type 20 is set in the factory setting. This means that at the start of an access attempt to a data carrier, an inventory is executed to detect the existing data carrier type. If the data carrier type was recognized correctly, the system automatically adjusts to this data carrier type. However, the execution of an inventory process means an extension of the execution time for a read/write process. Therefore, it is recommended to set the appropriate data carrier type.

Structure Parameter 201 (16#C9) “Tag Type”

Index Dec	Index Hex	Sub-index	Length	Value (Dec)	Value (Hex)	Access	Meaning
201	16#C9	0	1 Byte	20…50	16#14 … 16#32	Read / Write	Configured data carrier type 20 → Automatic (ISO/IEC 15693) 21 → ICODE SLI (NXP) 22 → Tag-it HF-I Plus (TI) 23 → my-D SRF55V02P (Infineon) 24 → my-D SRF55V10P (Infineon) 27 → EM4135 (EM Microelectronic) 31 → Tag-it HF-I Standard (TI) 32 → Tag-it HF-I Pro (TI) 33 → FRAM MB89R118 (Fujitsu) 34 → FRAM MB89R119 (Fujitsu) 35 → ICODE SLI-S (NXP) 36 → ICODE SLI-L (NXP) 37 → FRAM MB89R112 (Fujitsu) Factory setting: 20

When using Expert Mode, the data carrier type can also be set using the "Change Tag" command.



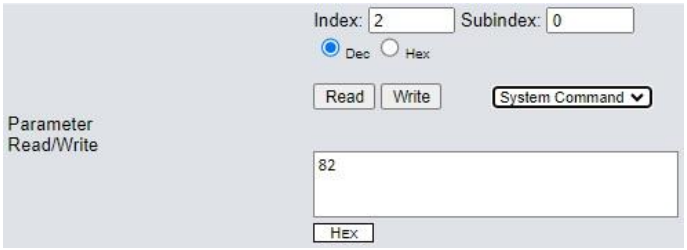
Parameter 201 (16#C9) “Tag Type”: Readout parameter in factory setting;
20 → Tag Type 20 (automatic)

3.3 IO-Link Parameter 2 (16#02) “System Command”

The "System Command" parameter offers the option of resetting the IO-Link parameters to the factory setting. It must be ensured that access to the IO-Link parameters is enabled (device access locks not activated). The factory setting is only active after a manual power interruption.

Structure Parameter 2 (16#02) “System Command”

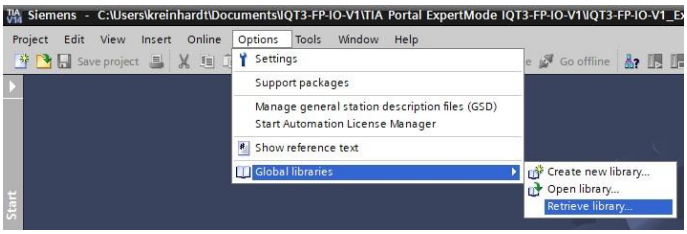
Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
2	16#02	0	1 Byte	130	16#82	Write	Factory reset; parameters are reset; reset of the supply voltage required



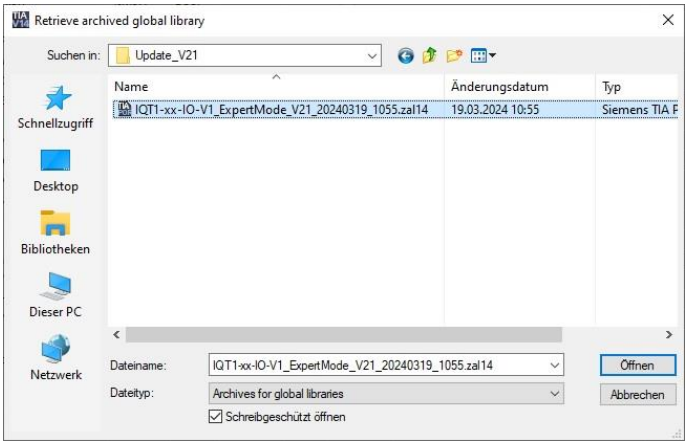
Parameter 2 (16#02) “System Command”:
16#82 → Factory Reset

4. Import library “IQT1-xx-IO-V1_ExpertMode”

The "IQT1-xx-IO-V1_ExpertMode" library contains a function block for using the Expert Mode. This library must first be unpacked.



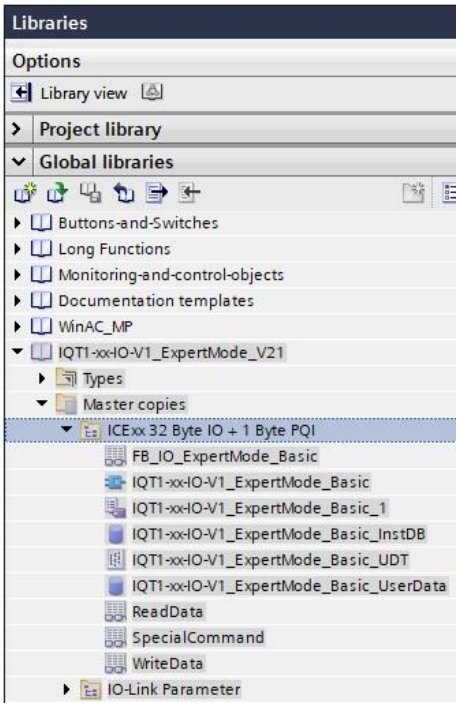
Retrieve Library:
Options → Global Libraries → Retrieve Library



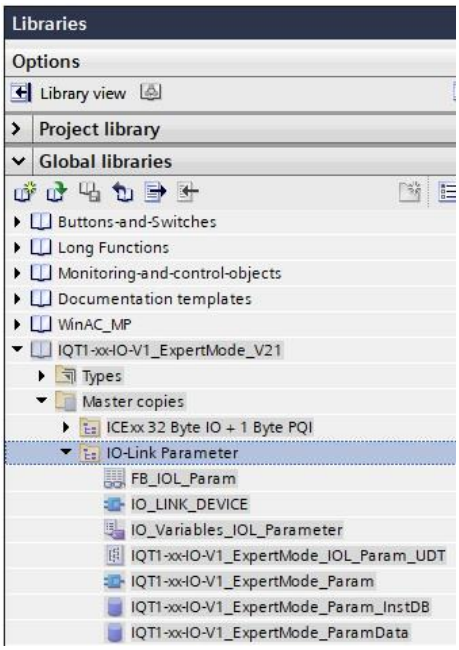
Select library

Here: IQT1-xx-IO-V1_ExpertMode……zal14

The "Master copies" folder contains two different function blocks. The "ICExx 32 Byte IO + 1 Byte PQI" folder contains a function block for executing read and write operations with the RFID device. This function block can be used both for IO-Link masters with a telegram length of 32 bytes (ICE1 or ICE3) and with a telegram length of 33 bytes (ICE11). The function block in the "IO-Link parameters" folder can be used to access the IO-Link parameters for device settings.



ICExx 32 Byte IO + 1 Byte PQI:
Basic version of the function block for Expert Mode with a telegram length of 32 bytes and 33 bytes. Read and write commands can be executed. The successful read and write accesses are counted during command execution. Valid when using the IO-Link masters ICE1, ICE3 and ICE11 or IO-Link masters with a telegram length of 32 or 33 bytes per IO-Link port. This module supports the transmission of the PQI byte.

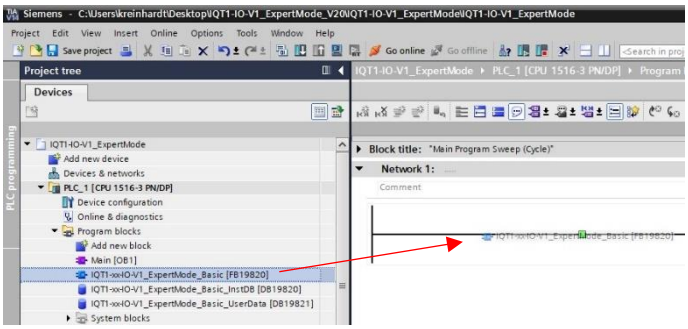


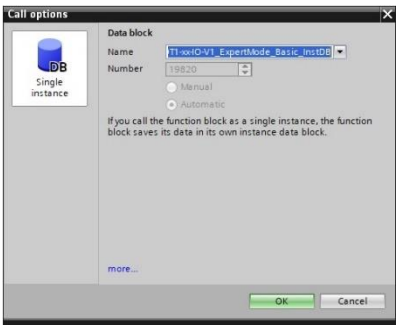
IO-Link Parameter:
Function block for optional access to the IO-Link parameters. Standard IO-Link parameters and device-specific IO-Link parameters can be read out. It is also possible to write device-specific IO-Link parameters.

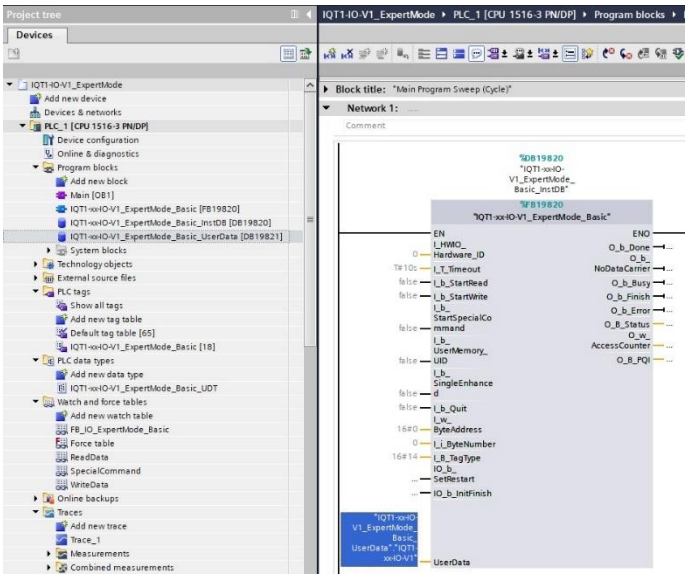
5. Function block FB19820 “IQT1-xx-IO-V1_ExpertMode_Basic”

Functional description “IQT1-xx-IO-V1_ExpertMode_Basic”:
Basic version of a function block for using the Expert mode. Write and read commands can be executed. When executing the read/write commands, a maximum of one data carrier may be located in the detection zone. Up to 192 bytes of data can be read from the user memory. Write access is limited to a number of 20 bytes per command. With the start of a new write or read command, all internal data and the outputs are reset. The read and write data are located within the "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" data block.

Implementation of function block “IQT1-xx-IO-V1_ExpertMode_Basic”:
Drag the function block "IQT1-xx-IO-V1_ExpertMode_Basic" (FB19820) from the project tree into OB1. Then select the corresponding instance data block. The library contains the data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB" (DB19820) which can be used as instance data block. The instance data block can also be regenerated.

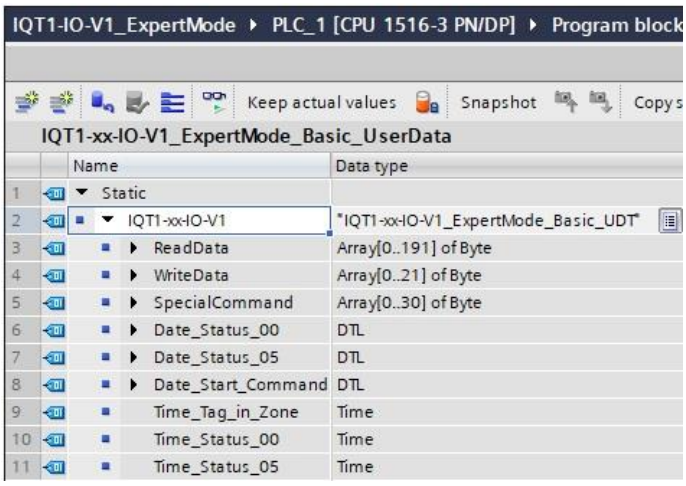






The read/write data of the function block are located in a separate data block. This is parameterized at the “UserData” input. The “IQT1-xx-IO-V1_ExpertMode_Basic_UserData” data block (DB19821) is contained in the library and can be used for this purpose.

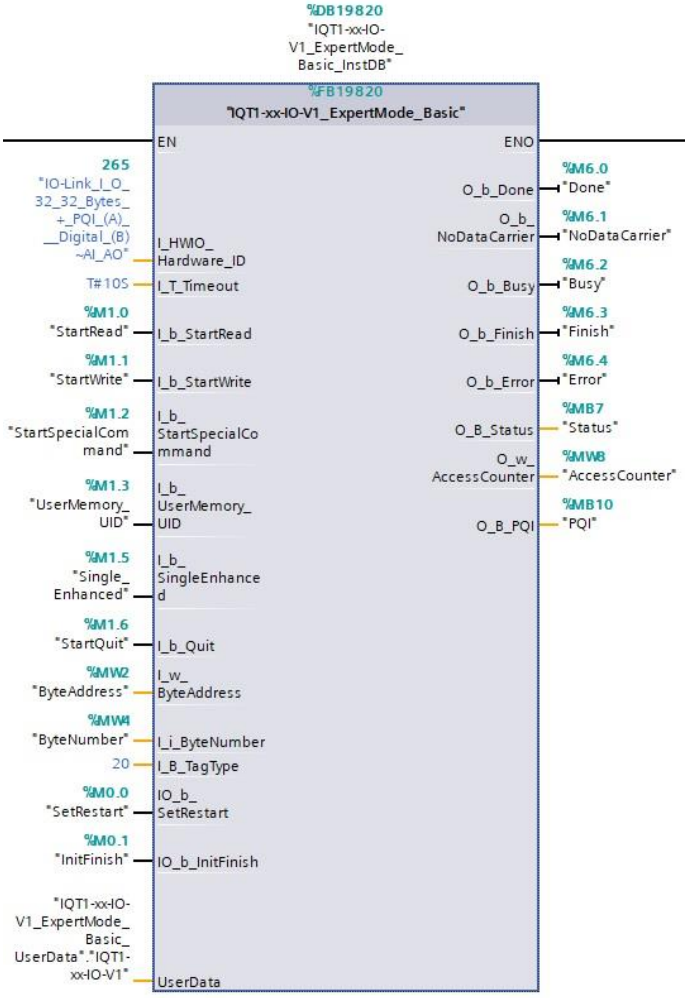
The data block can be generated by the user. The internal data structure is generated from the library via the "IQT1-xx-IO-V1_ExpertMode_Basic_UDT" data type.



	Name	Data type
1	Static	
2	IQT1-xx-IO-V1	"IQT1-xx-IO-V1_ExpertMode_Basic_UDT"
3	ReadData	Array[0..191] of Byte
4	WriteData	Array[0..21] of Byte
5	SpecialCommand	Array[0..30] of Byte
6	Date_Status_00	DTL
7	Date_Status_05	DTL
8	Date_Start_Command	DTL
9	Time_Tag_in_Zone	Time
10	Time_Status_00	Time
11	Time_Status_05	Time

The data block "IQT1-xx-IO-V1_Expert-Mode_Basic_ UserData" consists of the structure "IQT1-xx-IO-V1". This is divided into the following fields:

ReadData → Read data from data carrier
WriteData → Write data for the data carrier
SpecialCommand → Data field for parameterization of a "SpecialCommand"
Date_Status_00 → Date and time transmission status 16#00 telegram
Date_Status_05 → Date and time transmission status 16#05 telegram
Date_Start_Command → Date and time start command
Time_Tag_in_Zone → Duration Presence of the data carrier in the detection zone when executing an Enhanced command
Time_Status_00 → Duration between start command and receipt of status 16#00 Telegram
Time_Status_05 → Duration between start command and receipt of status 16#05 Telegram



Complete wiring of the "IQT1-xx-IO-V1_Expert-Mode_Basic" function block:

The input parameter "I_HWIO_Hardware_ID" corresponds to the identifier of the communication module from the hardware configuration.

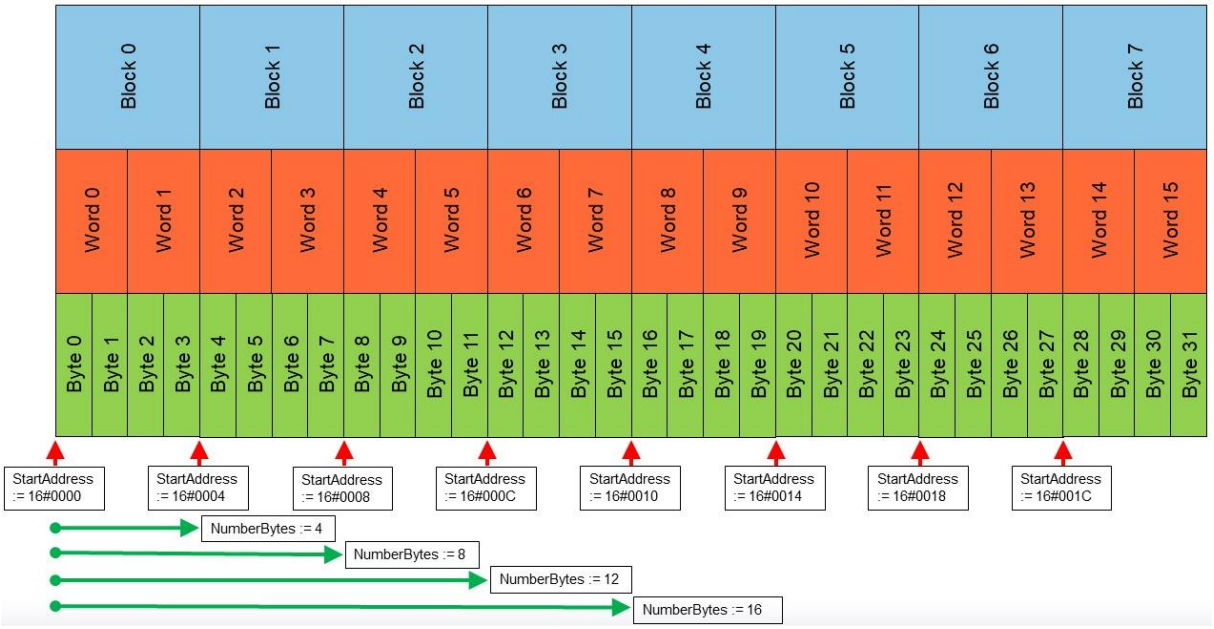
The following table shows the meaning of the input and output variables:

Name	Input / Output	Data type	Meaning
I_HWIO_Hard-ware_ID	Input	HW_IO	Hardware identifier of the communication module from the hardware configura-tion
I_T_Timeout	Input	Time	Timer for monitoring the communication; default 10 s (T#10s)
I_b_StartRead	Input	Bool	Start read command; With edge change from 0 → 1; starts execution of the configured read command; reset before starting another command
I_b_StartWrite	Input	Bool	Start write command; With edge change from 0 → 1; starts execution of the configured write command; reset before starting another command
I_b_SpecialCom-mand	Input	Bool	Start execution "SpecialCommand" (manually configured command). Definition of the required command parameters within the "IQT1-xx-IO-V1_Ex-pertMode_Basic_UserData" data block in the "SpecialCommand" data structure With edge change from 0 → 1; transmission of the command from the Special-Command data field through the function block to the RFID station; reset before starting another command
I_b_Us-erMemory_UID	Input	Bool	Definition of read/write access to memory bank 0 → Access to user memory → Read and write 1 → Access to UID (Fixcode) → Read
I_b_SingleEn-hanced	Input	Bool	Definition of execution type Write/read command 0 → one-time execution (read/write command is only activated for a short time) 1 → permanent execution (read/write command is permanently activated until aborted by another command)
I_w_ByteAddress	Input	Word	Start address for accessing the user memory Value must be a multiple of 4; 16#0000 addresses the start of the memory area; value range depends on the size of the user memory
I_i_ByteNumber	Input	Integer	Number of bytes to be read or written. Value must be a multiple of 4; the smallest amount of data is 4 bytes ("4")
I_B_TagType	Input	Byte	Data carrier type: 20 = autodetect (ISO15693); 21 = IQC21; 22 = IQC22; 33 = IQC33
I_b_Quit	Input	Bool	Start Quit command (command abort); With edge change from 0 → 1; execution of the Quit command to abort an acti-vated Enhanced command; reset before starting another command.
IO_b_SetRestart	InOut	Bool	Start Execution Initialization: With edge change from 0 → 1; Reset of IO_b_SetRestart by function block. After a device startup or in error state, the initialization routine is to be executed; through the initialization, the internal memory of the RFID station is deleted and the Quit command is sent to cancel activated commands; after successful execu-tion, I_b_InitFinish is set to TRUE
IO_b_InitFinish	InOut	Bool	End of initialization: With edge change from 0 → 1; initialization successfully executed; RFID station is ready for command execution
UserData	InOut	DB	Data block "UserData → IQT1-xx-IO-V1_ExpertMode_Basic.IQT1-xx-IO-V1
O_b_Done	Output	Bool	Data successfully read or written 1 → Data carrier present; data read or written
O_b_NoDataCar-rier	Output	Bool	No data carrier in the detection zone or a data carrier has left the detection zone. 1 → No data carrier present; no data could be read or written; a data carrier has left the detection zone
O_b_Busy	Output	Bool	Execution write/read command active 1 → Execution write/read command activated
O_b_Finish	Output	Bool	Execution write/read command finished 1 → Execution write/read command finished
O_b_Error	Output	Bool	Error condition 1 → an error has occurred during the execution of a write/read command
O_B_Status	Output	Byte	Status value of the response from the RFID station 16#00 → Data read or data written 16#04 → Parameter error 16#05 → Data carrier has left detection zone
O_w_Ac-cessCounter	Output	Word	Number of successful data carrier accesses Counter for the number of successful data carrier accesses within one command execution.
O_B_PQI	Output	Byte	PQI Byte: Port Qualifier Information; additional information about the state of the connected device.

5.1 SR - Single Read 4-Byte Blocks (User Memory)

The "Single Read 4-Byte Blocks" command executes a single read access to the user memory. The inputs "I_b_UserMemory_UID and "I_b_SingleEnhanced" are set to FALSE. Before starting the command, the number of bytes to be read (I_i_ByteNumber) and the start address (I_w_ByteAddress) must be parameterized. The Single Read 4-Byte Blocks command reads memory blocks with a size of 4 bytes each from the user memory. This means that the values of the command parameters "I_i_ByteNumber" and "I_w_ByteAddress" are always a multiple of 4. A maximum of 192 bytes can be read from the user memory per read command.

Parameterization "I_i_ByteNumber" and "I_w_ByteAddress" for access to the user memory:



Command execution is started by a positive edge at the "I_b_StartRead" input. Within the function block, the signal change from FALSE to TRUE is evaluated. The input can either be set to FALSE again in the next PLC cycle or remain TRUE. The command execution is triggered exactly once by the one-time signal change. Before starting a new command execution, the "I_b_StartRead" input must be set to 0 again for at least one cycle. The "I_b_StartRead" input must be set to FALSE before other commands (write; quit) can be triggered.

The data read from the data carrier during execution of the command are stored within the "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" data block in the "ReadData" data structure.

Single Read 4-Byte Blocks with a data carrier within the detection zone:

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	60	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (access to user memory)
I_b_SingleEnhanced := FALSE (single command execution)
I_w_ByteAddress := 16#0000 (start address on data carrier)
I_i_ByteNumber := 60 (60 bytes of user memory is read)

The command is started as soon as input "I_b_StartRead" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	60	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; a data carrier is read in;
O_b_Done = TRUE (changes to TRUE with the reception of the read data)
O_b_NoDataCarrier = FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy = FALSE (changes to FALSE with the end of the command execution).
O_b_Finish = TRUE (changes to TRUE at the end of command execution)
O_b_Error = FALSE (changes to TRUE if an error occurred)
O_B_Status = 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter = 1 (number of data carriers read during the execution of the command.)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	FALSE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	60	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_StartRead" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monit...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#01
ReadData[1]	Byte	16#0	16#02
ReadData[2]	Byte	16#0	16#03
ReadData[3]	Byte	16#0	16#04
ReadData[4]	Byte	16#0	16#05
ReadData[5]	Byte	16#0	16#06
ReadData[6]	Byte	16#0	16#07
ReadData[7]	Byte	16#0	16#08
ReadData[8]	Byte	16#0	16#09

Read data within data block "IQT1-xx-IO-V1_Expert-Mode_Basic_User Data" in data structure "ReadData"

ReadData[0...59]: read-in user memory data
Length depends on the setting "I_b_ByteNumber"; read partial area of the user memory

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monit...
ReadData[51]	Byte	16#0	16#34
ReadData[52]	Byte	16#0	16#35
ReadData[53]	Byte	16#0	16#36
ReadData[54]	Byte	16#0	16#37
ReadData[55]	Byte	16#0	16#38
ReadData[56]	Byte	16#0	16#39
ReadData[57]	Byte	16#0	16#3A
ReadData[58]	Byte	16#0	16#3B
ReadData[59]	Byte	16#0	16#3C
ReadData[60]	Byte	16#0	16#00

ReadData[0...59]: read-in user memory data
Length depends on the setting "I_b_ByteNumber"; read partial area of the user memory

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-08:53:05.059672093
Date_Status_05	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-08:53:04.941432848
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#118MS
Time_Status_05	Time	T#0ms	T#0MS

Timing behavior:
Receipt of status 16#00 telegram → after T#118ms (the data was successfully read in after 118ms)

Single Read 4-Byte Blocks without data carrier in the detection zone or no data carrier detected:

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	60	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; no data carrier detected or read in.

O_b_Done	= TRUE (changes to TRUE with the receipt of the read-in data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 0 (no data carrier read)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monitor value
Date_Status_00	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-10:47:55.663073013
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-10:47:55.621361075
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#0MS
Time_Status_05	Time	T#0ms	T#41MS

Timing behavior:
Receive status 16#05 telegram → after T#41ms (after 41ms it was recognized that there is no data carrier in the detection zone)

Command Single Read 4-Byte Blocks:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ...	Monitor...
OutData	Arra...		
OutData[0]	Byte	16#0	16#40
OutData[1]	Byte	16#0	16#0A
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#07
OutData[5]	Byte	16#0	16#10
OutData[6]	Byte	16#0	16#00
OutData[7]	Byte	16#0	16#00
OutData[8]	Byte	16#0	16#00
OutData[9]	Byte	16#0	16#3C
OutData[10]	Byte	16#0	16#00

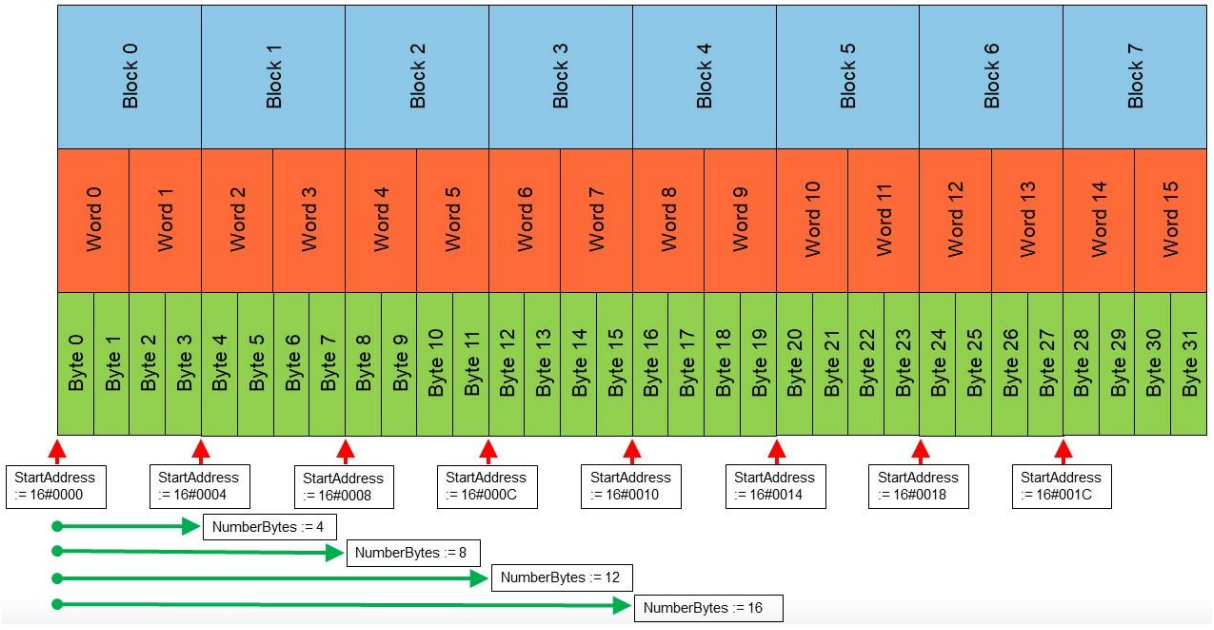
Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#0A
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0007
OutData[5]:	Command	16#10
OutData[6…7]:	Byte Address	16#0000
OutData[8…9]:	Byte Number	16#003C

5.2 ER - Enhanced Read 4-Byte Blocks (User Memory)

The "Enhanced Read 4-Byte Blocks" command executes a permanent read access to the user memory. The "I_b_SingleEnhanced" input must be set to TRUE to execute the Enhanced command. The "I_b_UserMemory_UID" input is set to FALSE. Before starting the command, the number of bytes to be read (I_i_ByteNumber) and the start address (I_w_ByteAddress) must be parameterized. The Enhanced Read 4-Byte Blocks command reads memory words with a size of 4 bytes each from the user memory. This means that the values of the command parameters "I_i_ByteNumber" and "I_w_ByteAddress" are always a multiple of 4. A maximum of 192 bytes can be read from the user memory per read command.

Parameterization "I_i_ByteNumber" and "I_w_ByteAddress" for access to the user memory:



Command execution is started by a positive edge at the "I_b_StartRead" input. Within the function block, the signal change from FALSE to TRUE is evaluated. The input can either be set to FALSE

again in the next PLC cycle or remain TRUE. The command execution is triggered exactly once by the one-time signal change. Before starting a new command execution, the "I_b_StartRead" input must be set to 0 again for at least one cycle. The "I_b_StartRead" input must be set to FALSE before other commands (write; quit) can be triggered. The data read from the data carrier during execution of the command are stored within the "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" data block in the "ReadData" data structure.

Enhanced Read 4-Byte Blocks:

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (access to user memory)
I_b_SingleEnhanced := TRUE (permanent command execution)
I_w_ByteAddress := 16#0000 (start address on data carrier)
I_i_ByteNumber := 60 (60 bytes of user memory is read)

The command is started as soon as the input "I_b_StartRead" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	FALSE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

After the start of the command execution; no data carrier.

O_b_Done	= FALSE (changes to TRUE with the reception of the read data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 0 (number of data carriers read during the execution of the command)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the start of the command execution; 1 data carrier read.

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers read during the execution of the command)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monit...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#01
ReadData[1]	Byte	16#0	16#02
ReadData[2]	Byte	16#0	16#03
ReadData[3]	Byte	16#0	16#04
ReadData[4]	Byte	16#0	16#05
ReadData[5]	Byte	16#0	16#06
ReadData[6]	Byte	16#0	16#07
ReadData[7]	Byte	16#0	16#08
ReadData[8]	Byte	16#0	16#09

Read data within data block "IQT1-xx-IO-V1_Expert-Mode_Basic_User Data" in data structure "ReadData"

ReadData[0...59]: read-in user memory data
Length depends on the setting "I_b_ByteNumber"; read partial area of the user memory

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monit...
ReadData[51]	Byte	16#0	16#34
ReadData[52]	Byte	16#0	16#35
ReadData[53]	Byte	16#0	16#36
ReadData[54]	Byte	16#0	16#37
ReadData[55]	Byte	16#0	16#38
ReadData[56]	Byte	16#0	16#39
ReadData[57]	Byte	16#0	16#3A
ReadData[58]	Byte	16#0	16#3B
ReadData[59]	Byte	16#0	16#3C
ReadData[60]	Byte	16#0	16#00

ReadData[0...59]: read-in user memory data
Length depends on the setting "I_b_ByteNumber"; read partial area of the user memory

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-09:05:18.947509782
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-09:04:23.013550768
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-09:04:22.975606751
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#55S_971MS
Time_Status_05	Time	T#0ms	T#37MS

Timing behavior:
Receive status 16#00 Telegram → after T#55S_971MS (the data carrier was read in 55s after the start of the read process)
Receive status 16#05 Telegram → after T#37MS (37ms after the start of the read process it was recognized that there is no data carrier in the detection zone)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	FALSE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

Command active; data carrier has left detection zone

O_b_Done	= FALSE (changes to TRUE with the reception of the read-in data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers read during the execution of the command)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-09:05:18.947509782
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-09:09:02.358057653
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-09:04:22.975606751
Time_Tag_in_Zone	Time	T#0ms	T#3M_43S_410MS
Time_Status_00	Time	T#0ms	T#55S_971MS
Time_Status_05	Time	T#0ms	T#4M_39S_382MS

Timing behavior:
Time_Tag_in_Zone → T#3M_43S_410MS (the data carrier has been in the detection zone for 3 minutes and 43 seconds)
Receive status 16#00 Telegram → after T#55_971ms (the data carrier was read in 55s after the start of the read process)
Received status 16#05 Telegram → after T#4M_39S_382MS (4 minutes and 39 seconds after the start of the read process, it was detected that there is no data carrier in the detection zone)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Command execution active; second data carrier read in

O_b_Done	= TRUE (changes to TRUE with the receipt of the read-in data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 2 (number of data carriers read during command execution)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-09:11:57.517858142
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-09:09:02.358057653
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-09:04:22.975606751
Time_Tag_in_Zone	Time	T#0ms	T#3M_43S_410MS
Time_Status_00	Time	T#0ms	T#7M_34S_542MS
Time_Status_05	Time	T#0ms	T#4M_39S_382MS

Timing behavior:
Receipt of status 16#00 telegram → after T#7M_34S_542MS (the data carrier was read in 7 minutes and 34 seconds after the start of the read process)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	FALSE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Reset input "I_b_StartRead" to FALSE

Before executing further commands, the input must be set back to FALSE.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	TRUE	TRUE
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	60	60
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Terminate command execution by Quit
The activated Enhanced command is terminated when the "I_b_Quit" input is set to TRUE. The "I_b_StartRead" input must be set back to FALSE beforehand.

O_b_Done	= TRUE (changes to TRUE with the reception of the read-in data)
O_b_NoDataCarrier	= not relevant
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 2 (number of data carriers read during the execution of the command)

Command Enhanced Read 4-Byte Blocks:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ..	Monitor..
OutData	Arra...		
OutData[0]	Byte	16#0	16#C0
OutData[1]	Byte	16#0	16#0A
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#07
OutData[5]	Byte	16#0	16#19
OutData[6]	Byte	16#0	16#00
OutData[7]	Byte	16#0	16#00
OutData[8]	Byte	16#0	16#00
OutData[9]	Byte	16#0	16#3C
OutData[10]	Byte	16#0	16#00

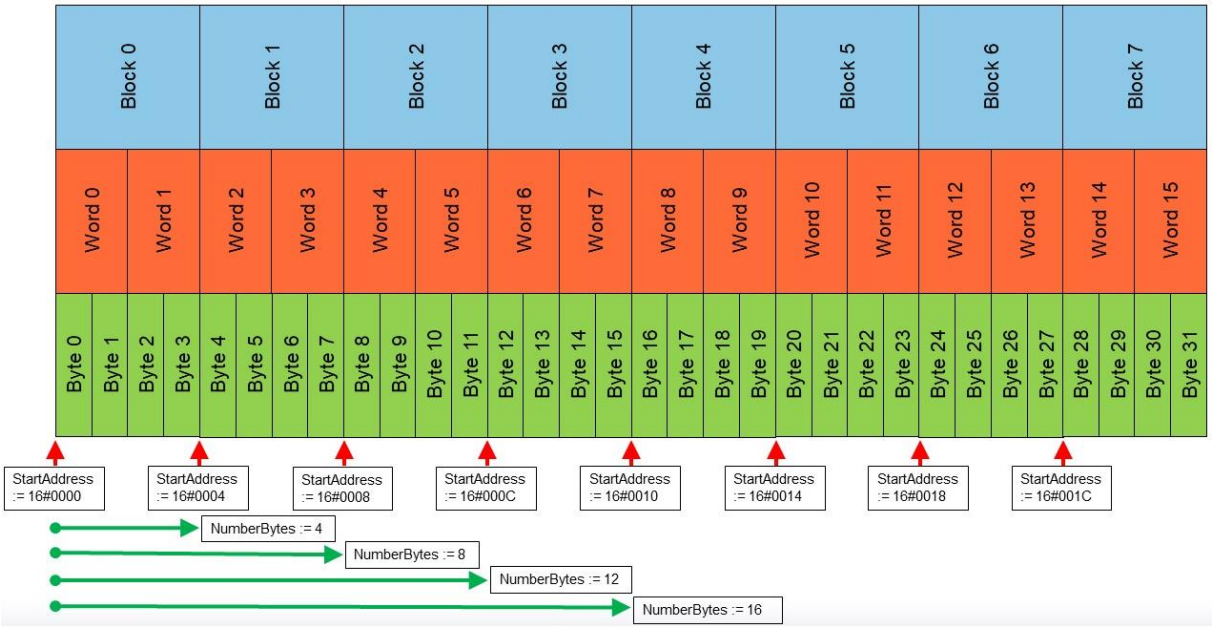
Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#0A
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0007
OutData[5]:	Command	16#19
OutData[6…7]:	Byte Address	16#0000
OutData[8…9]:	Byte Number	16#003C

5.3 SW - Single Write 4-Byte Blocks (User Memory)

The "Single Write 4-Byte Blocks" command executes a single write access to the user memory. The inputs "I_b_UserMemory_UID" and "I_b_SingleEnhanced" are set to FALSE. Before starting the command, the number of bytes to be written (I_i_ByteNumber) and the start address (I_w_ByteAddress) must be parameterized. The information to be programmed on the data carrier must be specified in the "WriteData" data structure before the command is executed. The Single Write 4-Byte Blocks command is used to program memory blocks with a size of 4 bytes each into the user memory. This means that the values of the command parameters "I_i_ByteNumber" and "I_w_ByteAddress" are always a multiple of 4. A maximum of 20 bytes can be programmed into the user memory per write command.

Parameterization "I_i_ByteNumber" and "I_w_ByteAddress" for access to the user memory:



The command execution is started by a positive edge at the "I_b_StartWrite" input. Within the function block, the signal change from FALSE to TRUE is evaluated. The input can either be set to FALSE again in the next cycle of the PLC or remain TRUE. The command execution is triggered exactly once by the one-time signal change. Before starting a new command execution, the "I_b_StartWrite" input must be set to 0 again for at least one cycle. Before other commands (read; write; quit) can be controlled, the "I_b_StartWrite" input must be set to FALSE.

Single Write 4-Byte Blocks with a data carrier within the detection zone:

Assignment of write data in the "WriteData" data structure

Name	...	Di...	Monit...	Modif...
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[0]		Hex	16#01	16#01
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[1]		Hex	16#02	16#02
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[2]		Hex	16#03	16#03
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[3]		Hex	16#04	16#04
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[4]		Hex	16#05	16#05
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[5]		Hex	16#06	16#06
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[6]		Hex	16#07	16#07
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[7]		Hex	16#08	16#08
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[8]		Hex	16#00	

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monito...
WriteData	Arra...		
WriteData[0]	Byte	16#0	16#01
WriteData[1]	Byte	16#0	16#02
WriteData[2]	Byte	16#0	16#03
WriteData[3]	Byte	16#0	16#04
WriteData[4]	Byte	16#0	16#05
WriteData[5]	Byte	16#0	16#06
WriteData[6]	Byte	16#0	16#07
WriteData[7]	Byte	16#0	16#08
WriteData[8]	Byte	16#0	16#00

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution

I_b_UserMemory_UID	:= FALSE (access to user memory)
I_b_SingleEnhanced	:= FALSE (single command execution)
I_w_ByteAddress	:= 16#0000 (start address on data carrier)
I_i_ByteNumber	:= 8 (8 bytes of user memory is written)

The command is started as soon as input "I_b_StartWrite" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	TRUE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; a data carrier programmed

O_b_Done	= TRUE (changes to TRUE if the data successfully written)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers programmed during command execution)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	FALSE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_StartWrite" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-10:41:05.020639022
Date_Status_05	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-10:41:04.958852915
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#61MS
Time_Status_05	Time	T#0ms	T#0MS

Timing behavior:
Receipt of status 16#00 telegram → after T#61ms (after 61ms the data was successfully written)

Single Write 4-Byte Blocks without data carrier in the detection zone or no data carrier detected:

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	TRUE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; no data carrier detected or written.

O_b_Done	= TRUE (changes to TRUE if the data are successfully written)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 0 (no data carrier detected)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-10:41:05.020639022
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-10:44:30.933932022
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-10:44:30.822237626
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#0MS
Time_Status_05	Time	T#0ms	T#111MS

Timing behavior:
Receive status 16#05 telegram → after T#111ms (after 111ms it was recognized that there is no data carrier in the detection zone)

Command Single Write 4-Byte Blocks:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ...	Monitor..
OutData	Arra...		
OutData[0]	Byte	16#0	16#20
OutData[1]	Byte	16#0	16#12
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#0F
OutData[5]	Byte	16#0	16#40
OutData[6]	Byte	16#0	16#00
OutData[7]	Byte	16#0	16#00
OutData[8]	Byte	16#0	16#00
OutData[9]	Byte	16#0	16#08
OutData[10]	Byte	16#0	16#01
OutData[11]	Byte	16#0	16#02
OutData[12]	Byte	16#0	16#03
OutData[13]	Byte	16#0	16#04
OutData[14]	Byte	16#0	16#05
OutData[15]	Byte	16#0	16#06
OutData[16]	Byte	16#0	16#07
OutData[17]	Byte	16#0	16#08
OutData[18]	Byte	16#0	16#00

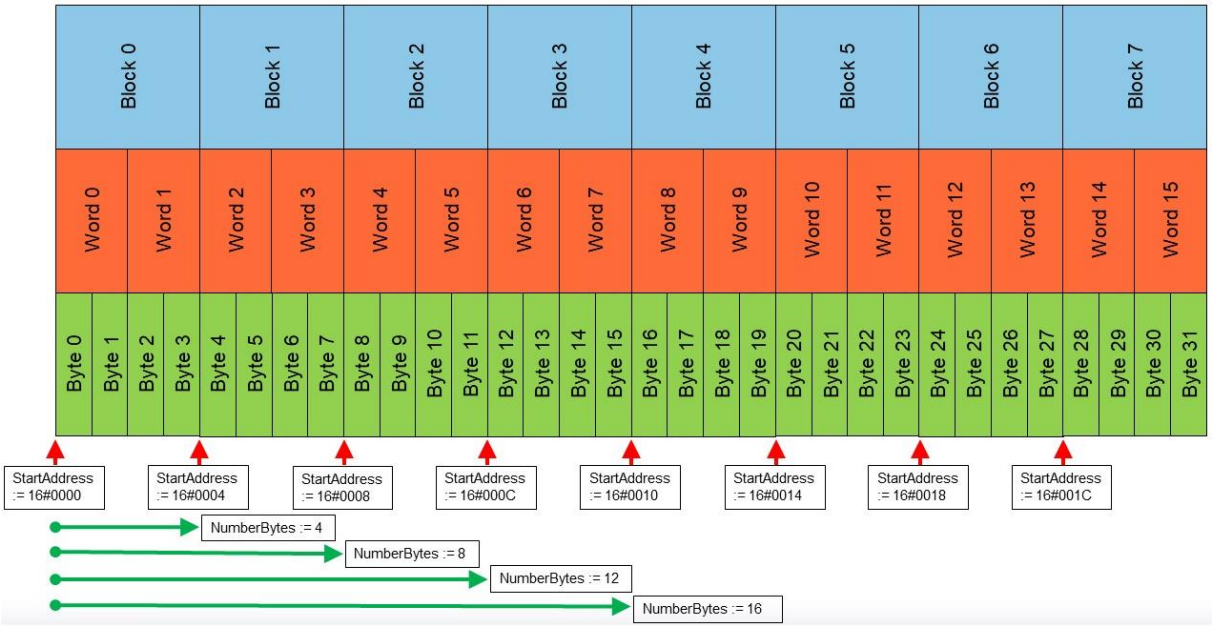
Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#12
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#000F
OutData[5]:	Command	16#40
OutData[6…7]:	Byte Address	16#0000
OutData[8…9]:	Byte Number	16#0008
OutData[10]:	Write data Byte 1	16#01
OutData[11]:	Write data Byte 2	16#02
OutData[12]:	Write data Byte 3	16#03
OutData[13]:	Write data Byte 4	16#04
OutData[14]:	Write data Byte 5	16#05
OutData[15]:	Write data Byte 6	16#06
OutData[16]:	Write data Byte 7	16#07
OutData[17]:	Write data Byte 8	16#08

5.4 EW - Enhanced Write 4-Byte Blocks (User Memory)

The "Enhanced Write 4-Byte Blocks" command executes a permanent write access to the user memory. The "I_b_SingleEnhanced" input must be set to TRUE to execute the Enhanced command. The "I_b_UserMemory_UID" input is set to FALSE. Before starting the command, the number of bytes to be programmed on the data carrier (I_i_ByteNumber) and the start address (I_w_ByteAddress) must be parameterized. The information to be programmed on the data carrier must be specified in the "WriteData" data structure before the command is executed. The Enhanced Write 4-Byte Blocks command is used to program memory blocks with a size of 4 bytes each into the user memory. This means that the values of the command parameters "I_i_ByteNumber" and "I_w_ByteAddress" are always a multiple of 4. A maximum of 20 bytes can be programmed into the user memory per write command.

Parameterization "I_i_ByteNumber" and "I_w_ByteAddress" for access to the user memory:



Command execution is started by a positive edge at the "I_b_StartWrite" input. The signal change from FALSE to TRUE is evaluated within the function block. The input can either be set to FALSE again in the next PLC cycle or remain TRUE. The command execution is triggered exactly once by the single signal change. Before starting a new command execution, the "I_b_StartWrite" input must be set to 0 again for at least one cycle. Before other commands (read; write; quit) can be triggered, the "I_b_StartWrite" input must be set to FALSE.

Enhanced Write 4-Byte Blocks:

Assignment of write data in the "WriteData" data structure

Name	...	Di...	Monit...	Modif...
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[0]		Hex	16#01	16#01
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[1]		Hex	16#02	16#02
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[2]		Hex	16#03	16#03
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[3]		Hex	16#04	16#04
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[4]		Hex	16#05	16#05
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[5]		Hex	16#06	16#06
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[6]		Hex	16#07	16#07
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[7]		Hex	16#08	16#08
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".WriteData[8]		Hex	16#00	

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monito...
WriteData	Arra...		
WriteData[0]	Byte	16#0	16#01
WriteData[1]	Byte	16#0	16#02
WriteData[2]	Byte	16#0	16#03
WriteData[3]	Byte	16#0	16#04
WriteData[4]	Byte	16#0	16#05
WriteData[5]	Byte	16#0	16#06
WriteData[6]	Byte	16#0	16#07
WriteData[7]	Byte	16#0	16#08
WriteData[8]	Byte	16#0	16#00

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (access to user memory)
I_b_SingleEnhanced := TRUE (permanent command execution)
I_w_ByteAddress := 16#0000 (start address on data carrier)
I_i_ByteNumber := 8 (8 bytes of user memory is written)

The command is started as soon as input "I_b_StartWrite" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	TRUE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	FALSE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

After the start of the command execution; no data carrier.
O_b_Done = FALSE (changes to TRUE with the reception of the read data)
O_b_NoDataCarrier = TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy = TRUE (changes to FALSE with the end of the command execution)
O_b_Finish = FALSE (changes with the end of the command execution to TRUE)
O_b_Error = FALSE (changes to TRUE if an error occurred)
O_B_Status = 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter = 0 (number of data carriers programmed during command execution)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-11:28:07.843059902
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-11:28:07.796955146
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#0MS
Time_Status_05	Time	T#0ms	T#46MS

Timing behavior:
Receipt of status 16#05 telegram → after T#46ms (after 46ms it was recognized that there is no data carrier in the detection zone)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	TRUE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the start of the command execution; 1 data carrier programmed.

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers programmed during command execution)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-11:30:13.412556928
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-11:28:07.843059902
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-11:28:07.796955146
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#2M_5S_615MS
Time_Status_05	Time	T#0ms	T#46MS

Timing behavior:
Receipt of status 16#00 telegram → after T#2M_5S_615MS (the tag was successfully programmed 2 minutes and 5 seconds after the start of the write process)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	TRUE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	FALSE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

Command active; data carrier has left the detection zone

O_b_Done	= FALSE (changes to TRUE with the reception of the read-in data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers programmed during command execution)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-11:30:13.412556928
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-11:32:31.641774435
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-11:28:07.796955146
Time_Tag_in_Zone	Time	T#0ms	T#2M_18S_229MS
Time_Status_00	Time	T#0ms	T#2M_5S_615MS
Time_Status_05	Time	T#0ms	T#4M_23S_844MS

Timing behavior:
Time_Tag_in_Zone → T#2M_18S_229MS (the data carrier has been in the detection zone for 2 minutes and 18 seconds)
Receipt status 16#05 Telegram → after T#4M_23S_844MS (the data carrier has left the detection zone again after 4 minutes and 23 seconds after the start of the write process)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	TRUE	TRUE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Command execution active; second data carrier programmed

O_b_Done	= TRUE (changes to TRUE with the receipt of the read-in data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 2 (number of data carriers programmed during command execution)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-11:34:51.564728035
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-11:32:31.641774435
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-11:28:07.796955146
Time_Tag_in_Zone	Time	T#0ms	T#2M_18S_229MS
Time_Status_00	Time	T#0ms	T#6M_43S_767MS
Time_Status_05	Time	T#0ms	T#4M_23S_844MS

Timing behavior:
Receipt of status 16#00 telegram → after T#6M_43S_767MS (the tag was successfully programmed 6 minutes and 43 seconds after the start of the write process)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	FALSE
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Reset input "I_b_StartWrite" to FALSE

The input must be set back to FALSE before further commands are executed.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	TRUE	TRUE
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	0
"ByteNumber"	%MW4	DEC	8	8
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

End command execution by Quit
The activated Enhanced command is terminated when the "I_b_Quit" input is set to TRUE. The "I_b_StartWrite" input must be set back to FALSE beforehand.

O_b_Done	= TRUE (changes to TRUE with the receipt of the read-in data)
O_b_NoDataCarrier	= not relevant
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 2 (number of data carriers programmed during command execution)

Command Enhanced Write 4-Byte Blocks:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ..	Monitor..
OutData	Arra...		
OutData[0]	Byte	16#0	16#00
OutData[1]	Byte	16#0	16#12
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#0F
OutData[5]	Byte	16#0	16#1A
OutData[6]	Byte	16#0	16#00
OutData[7]	Byte	16#0	16#00
OutData[8]	Byte	16#0	16#00
OutData[9]	Byte	16#0	16#08
OutData[10]	Byte	16#0	16#01
OutData[11]	Byte	16#0	16#02
OutData[12]	Byte	16#0	16#03
OutData[13]	Byte	16#0	16#04
OutData[14]	Byte	16#0	16#05
OutData[15]	Byte	16#0	16#06
OutData[16]	Byte	16#0	16#07
OutData[17]	Byte	16#0	16#08
OutData[18]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#12
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#000F
OutData[5]:	Command	16#1A
OutData[6…7]:	Byte Address	16#0000
OutData[8…9]:	Byte Number	16#0008
OutData[10]:	Write data Byte 1	16#01
OutData[11]:	Write data Byte 2	16#02
OutData[12]:	Write data Byte 3	16#03
OutData[13]:	Write data Byte 4	16#04
OutData[14]:	Write data Byte 5	16#05
OutData[15]:	Write data Byte 6	16#06
OutData[16]:	Write data Byte 7	16#07
OutData[17]:	Write data Byte 8	16#08

5.5 SF - Single Read Fixcode (UID)

The "Single Read Fixcode" command executes a single read access to the UID (Fixcode). The "I_b_UserMemory_UID" input must be set to TRUE before the command execution is started. The "I_b_SingleEnhanced" input must be set to FALSE.

Command execution is started by a positive edge at the "I_b_StartRead" input. The signal change from FALSE to TRUE is evaluated within the function block. The input can either be set to FALSE again in the next PLC cycle or remain TRUE. The command execution is triggered exactly once by the single signal change. Before starting a new command execution, the "I_b_StartRead" input must be set to 0 again for at least one cycle. Before other commands (read; write; quit) can be triggered, the "I_b_StartRead" input must be set to FALSE.

The data read from the data carrier during the execution of the command is stored within the data block "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" in the data structure "ReadData".

Single Read Fixcode with one data carrier within the detection zone:

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := TRUE (access to the UID)
I_b_SingleEnhanced := FALSE (single command execution)
I_w_ByteAddress := 16#0000 (not relevant)
I_i_ByteNumber := 0 (not relevant)

The command is started as soon as the input "I_b_StartRead" is set to TRUE.

All outputs are initially reset to FALSE. Active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; a data carrier read in

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers read during the execution of the command)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	FALSE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_StartRead" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monito...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#E0
ReadData[1]	Byte	16#0	16#04
ReadData[2]	Byte	16#0	16#01
ReadData[3]	Byte	16#0	16#50
ReadData[4]	Byte	16#0	16#E4
ReadData[5]	Byte	16#0	16#FB
ReadData[6]	Byte	16#0	16#C9
ReadData[7]	Byte	16#0	16#A3
ReadData[8]	Byte	16#0	16#00

Data read in within data block "IQT1-xx-IO-V1_ExpertMode_Basic _UserData" in the data structure "ReadData"

ReadData[0...7]: UID read in
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identifier of a data carrier

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-12:55:01.758572693
Date_Status_05	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-12:55:01.722788462
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#35MS
Time_Status_05	Time	T#0ms	T#0MS

Timing behavior:
Receipt of status 16#00 telegram → after T#35ms (the data was successfully read in after 35ms)

Single Read Fixcode without data carrier in the detection zone or no data carrier detected:

Name	Address	Displ...	Monitor ...	Mod...
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; no data carrier detected or read in.

O_b_Done	= TRUE (changes to TRUE with the receipt of the read-in data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 0 (no data carrier read)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start ...	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-01-12:55:01.758572693
Date_Status_05	DTL	DTL#19	DTL#2023-12-01-13:04:11.543772848
Date_Start_Command	DTL	DTL#19	DTL#2023-12-01-13:04:11.434999782
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#0MS
Time_Status_05	Time	T#0ms	T#108MS

Timing behavior:
Receive status 16#05 telegram → after T#108ms (after 108ms it was recognized that there is no data carrier in the detection zone)

Command Single Read Fixcode:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ..	Monitor..
OutData	Arra...		
OutData[0]	Byte	16#0	16#60
OutData[1]	Byte	16#0	16#06
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#03
OutData[5]	Byte	16#0	16#01
OutData[6]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#06
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0003
OutData[5]:	Command	16#01

5.6 EF - Enhanced Read Fixcode (UID)

The "Enhanced Read Fixcode" command performs a permanent read access to the UID (Fixcode). The inputs "I_b_UserMemory_UID" and "I_b_SingleEnhanced" must be set to TRUE before starting the command execution.

Command execution is started by a positive edge at the "I_b_StartRead" input. The signal change from FALSE to TRUE is evaluated within the function block. The input can either be set to FALSE again in the next PLC cycle or remain TRUE. The command execution is triggered exactly once by the single signal change. Before starting a new command execution, the "I_b_StartRead" input must be set to 0 again for at least one cycle. Before other commands (write; quit) can be triggered, the "I_b_StartRead" input must be set to FALSE.

The data read from the data carrier during the execution of the command is stored within the data block "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" in the data structure "ReadData".

Enhanced Read Fixcode:

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	TRUE
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#80	

Before starting the command execution

I_b_UserMemory_UID	:= TRUE (access to UID)
I_b_SingleEnhanced	:= TRUE (permanent command execution)
I_w_ByteAddress	:= 16#0000 (not relevant)
I_i_ByteNumber	:= 0 (not relevant)

The command is started as soon as the input "I_b_StartRead" is set to TRUE.

All outputs are initially reset to FALSE. Active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	TRUE
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	FALSE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

After the start of the command execution; no data carrier

O_b_Done	= FALSE (changes to TRUE with the reception of the read data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 0 (number of data carriers read during the execution of the command)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data t...	Start ..	Monitor value
Date_Status_00	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Status_05	DTL	DTL#19	DTL#2023-12-04-07:40:52.989615004
Date_Start_Command	DTL	DTL#19	DTL#2023-12-04-07:40:52.949120822
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#0MS
Time_Status_05	Time	T#0ms	T#40MS

Timing behavior:
Receive status 16#05 telegram → after T#40ms (after 40ms it was recognized that there is no data carrier in the detection zone)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	TRUE
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the start of the command execution; 1 data carrier read

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carriers read during the execution of the command)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monito..
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#E0
ReadData[1]	Byte	16#0	16#04
ReadData[2]	Byte	16#0	16#01
ReadData[3]	Byte	16#0	16#50
ReadData[4]	Byte	16#0	16#E4
ReadData[5]	Byte	16#0	16#FB
ReadData[6]	Byte	16#0	16#C9
ReadData[7]	Byte	16#0	16#A3
ReadData[8]	Byte	16#0	16#00

Data read in within data block "IQT1-xx-IO-V1_ExpertMode_Basic _UserData" in the data structure "ReadData"

ReadData[0...7]: UID read in
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identifier of a data carrier

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data t...	Start ...	Monitor value
Date_Status_00	DTL	DTL#19	DTL#2023-12-04-07:43:31.976081017
Date_Status_05	DTL	DTL#19	DTL#2023-12-04-07:40:52.989615004
Date_Start_Command	DTL	DTL#19	DTL#2023-12-04-07:40:52.949120822
Time_Tag_in_Zone	Time	T#0ms	T#0MS
Time_Status_00	Time	T#0ms	T#2M_39S_26MS
Time_Status_05	Time	T#0ms	T#40MS

Timing behavior:
Receipt of status 16#00 telegram → after T#2M_39S_26MS (the tag was read 2 minutes and 39 seconds after the start of the read process)

Name	Address	Displ...	Monitor ...	Mod...
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	TRUE
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	FALSE	
"NoDataCarrier"	%M6.1	Bool	TRUE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#05	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

Command active; data carrier has left detection zone

O_b_Done	= FALSE (changes to TRUE with the reception of the read-in data)
O_b_NoDataCarrier	= TRUE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#05 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 1 (number of data carrier read during the execution of the command)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta...	Monitor value
Date_Status_00	DTL	DTL#	DTL#2023-12-04-07:43:31.976081017
Date_Status_05	DTL	DTL#	DTL#2023-12-04-07:49:11.843029973
Date_Start_Command	DTL	DTL#	DTL#2023-12-04-07:40:52.949120822
Time_Tag_in_Zone	Time	T#0m	T#5M_39S_866MS
Time_Status_00	Time	T#0m	T#2M_39S_26MS
Time_Status_05	Time	T#0m	T#8M_18S_893MS

Timing behavior:
Time_Tag_in_Zone → T#5M_39S_866MS (the data carrier has been in the detection zone for 5 minutes and 39 seconds)
Receipt status 16#05 Telegram → after T#8M_18S_893MS (the data carrier has left the detection zone again after 8 minutes and 18 seconds after the start of the read process)

Name	Address	Displ...	Monitor ...	Mod...
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	TRUE	TRUE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	TRUE
"Single_Enhanced"	%M1.5	Bool	TRUE	TRUE
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Command execution active; second data carrier read in

O_b_Done	= TRUE (changes to TRUE with the receipt of the read-in data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= TRUE (changes to FALSE with the end of the command execution)
O_b_Finish	= FALSE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 2 (number of data carriers read during command execution)

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monitor value
Date_Status_00	DTL	DTL#	DTL#2023-12-04-07:51:29.676049964
Date_Status_05	DTL	DTL#	DTL#2023-12-04-07:49:11.843029973
Date_Start_Command	DTL	DTL#	DTL#2023-12-04-07:40:52.949120822
Time_Tag_in_Zone	Time	T#0m	T#5M_39S_866MS
Time_Status_00	Time	T#0m	T#10M_36S_726MS
Time_Status_05	Time	T#0m	T#8M_18S_893MS

Timing behavior:
Received status 16#00 telegram → after T#10M_36S_726MS (the data carrier was read 10 minutes and 36 seconds after the start of the read process)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	FALSE
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	
"Single_Enhanced"	%M1.5	Bool	TRUE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	TRUE	
"Finish"	%M6.3	Bool	FALSE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

Reset input "I_b_StartRead" to FALSE

Before executing further commands, the input must be set back to FALSE.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	TRUE	TRUE
"StartSpecialCommand"	%M1.2	Bool	FALSE	
"UserMemory_UID"	%M1.3	Bool	TRUE	
"Single_Enhanced"	%M1.5	Bool	TRUE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	2	
"PQI"	%MB10	Hex	16#B0	

End command execution by Quit
The activated Enhanced command is terminated when the "I_b_Quit" input is set to TRUE. The "I_b_StartRead" input must be set back to FALSE beforehand.

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= not relevant
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the instruction execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)
O_i_AccessCounter	= 2 (number of data carrier read during the execution of the command)

Command Enhanced Read Fixcode:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Data..	Start ...	Monito..
OutData	Arra...		
OutData[0]	Byte	16#0	16#80
OutData[1]	Byte	16#0	16#06
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#03
OutData[5]	Byte	16#0	16#1D
OutData[6]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#06
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0003
OutData[5]:	Command	16#1D

5.7 Special Command

The "Special Command" function can be used to execute all commands that cannot be executed via the input parameters of the function block. These include, for example, the "Single Get Configuration" and "Single Write Configuration" commands, which can be used to read or change the settings of data carriers.

Before executing a "Special Command", the command telegram must be transferred to the "Special-Command" data field of the "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" data block. Command execution is started by a positive edge at the "I_b_SpecialCommand" input. The signal change from FALSE to TRUE is evaluated within the function block. The input can either be set to FALSE again in the next PLC cycle or remain TRUE. The command execution is triggered exactly once by the single signal change. Before starting a new command execution, the "I_b_SpecialCommand" input must be set to 0 again for at least one cycle. Before other commands (read; write; quit) can be triggered, the "I_b_SpecialCommand" input must be set to FALSE.

The inputs "I_b_UserMemory_UID" and "I_b_SingleEnhanced" are not relevant for the execution of a "SpecialCommand" and can be set to FALSE. The input parameters "I_i_ByteNumber" and "I_w_ByteAddress" also have no significance for the execution of the command and must be set to 0.

5.7.1 Read data carrier setting (“Single Get Configuration”)

Assignment of command telegram in "SpecialCommand" data structure

Name	A...	Dis...	Monit...	Modify ...
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[0]		Hex	16#07	16#07
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[3]		Hex	16#04	16#04
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[4]		Hex	16#61	16#61
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[5]		Hex	16#30	16#30
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[6]		Hex	16#00	16#00

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monit...
SpecialCommand	Arra...		
SpecialCommand[0]	Byte	16#0	16#07
SpecialCommand[1]	Byte	16#0	16#00
SpecialCommand[2]	Byte	16#0	16#00
SpecialCommand[3]	Byte	16#0	16#04
SpecialCommand[4]	Byte	16#0	16#61
SpecialCommand[5]	Byte	16#0	16#30
SpecialCommand[6]	Byte	16#0	16#00

SpecialCommand[0]:	Frame Length	16#07
SpecialCommand[1]:	Fragmentation Counter	16#00
SpecialCommand[2…3]:	Telegram Length	16#0004
SpecialCommand[4]:	Command	16#61
SpecialCommand[5]:	Config Address	16#30

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (not relevant)
I_b_SingleEnhanced := FALSE (not relevant))
I_w_ByteAddress := 16#0000 (not relevant))
I_i_ByteNumber := 0 (not relevant))

The command is started as soon as the input "I_b_SpecialCommand" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	TRUE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; command successfully executed

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	FALSE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_SpecialCommand" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta...	Monit...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#0F
ReadData[1]	Byte	16#0	16#A3
ReadData[2]	Byte	16#0	16#C9
ReadData[3]	Byte	16#0	16#FB
ReadData[4]	Byte	16#0	16#E4
ReadData[5]	Byte	16#0	16#50
ReadData[6]	Byte	16#0	16#01
ReadData[7]	Byte	16#0	16#04
ReadData[8]	Byte	16#0	16#E0
ReadData[9]	Byte	16#0	16#00
ReadData[10]	Byte	16#0	16#00
ReadData[11]	Byte	16#0	16#1B
ReadData[12]	Byte	16#0	16#03
ReadData[13]	Byte	16#0	16#01
ReadData[14]	Byte	16#0	16#00

Data read in within data block "IQT1-xx-IO-V1_ExpertMode_Basic_UserData" in the "ReadData" data structure

ReadData[0]: Info Flag
Additional information
ReadData[1]…[8]: UID (Fixcode)
Transmission of the UID with the least significant byte (LSB) first
ReadData[9]: DSFID
DSFID Byte
ReadData[10]: AFI
AFI Byte
ReadData[11]: VICC Memory size (number of blocks)
Number of blocks - 1
ReadData[12]: VICC Memory size (block size)
Blocksize in Bytes - 1
ReadData[13]: IC Reference
IC Referencing

Command Single Get Configuration:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Data...	Start ...	Monito...
OutData	Arra...		
OutData[0]	Byte	16#0	16#E0
OutData[1]	Byte	16#0	16#07
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#04
OutData[5]	Byte	16#0	16#61
OutData[6]	Byte	16#0	16#30
OutData[7]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB"

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#07
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0004
OutData[5]:	Command	16#61
OutData[6]:	Config Address	16#30

5.7.2 Write data carrier setting (“Single Write Configuration”)

Assignment of command telegram in "SpecialCommand" data structure

Name	A...	Dis...	Monit...	Modify ...
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[0]		Hex	16#0B	16#0B
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[3]		Hex	16#08	16#08
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[4]		Hex	16#12	16#12
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[5]		Hex	16#30	16#30
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[6]		Hex	16#30	16#30
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[7]		Hex	16#39	16#39
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[9]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[10]		Hex	16#00	16#00

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monit...
SpecialCommand	Arra...		
SpecialCommand[0]	Byte	16#0	16#0B
SpecialCommand[1]	Byte	16#0	16#00
SpecialCommand[2]	Byte	16#0	16#00
SpecialCommand[3]	Byte	16#0	16#08
SpecialCommand[4]	Byte	16#0	16#12
SpecialCommand[5]	Byte	16#0	16#30
SpecialCommand[6]	Byte	16#0	16#30
SpecialCommand[7]	Byte	16#0	16#39
SpecialCommand[8]	Byte	16#0	16#00
SpecialCommand[9]	Byte	16#0	16#00
SpecialCommand[10]	Byte	16#0	16#00

SpecialCommand[0]: Frame Length 16#0B
SpecialCommand[1]: Fragmentation Counter 16#00
SpecialCommand[2…3]: Telegram Length 16#0008
SpecialCommand[4]: Command 16#12
SpecialCommand[5]: Config Address 16#30 (16#30 = AFI)
SpecialCommand[6]: Write with lock 16#30 (16#30 = no lock)
SpecialCommand[7]: value AFI 16#39
SpecialCommand[8]: don't care 16#00
SpecialCommand[9]: don't care 16#00

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (not relevant)
I_b_SingleEnhanced := FALSE (not relevant))
I_w_ByteAddress := 16#0000 (not relevant))
I_i_ByteNumber := 0 (not relevant))

The command is started as soon as the input "I_b_SpecialCommand" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	TRUE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; command successfully executed
O_b_Done = TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier = FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy = FALSE (changes to FALSE with the end of the command execution)
O_b_Finish = TRUE (changes with the end of the command execution to TRUE)
O_b_Error = FALSE (changes to TRUE if an error occurred)
O_B_Status = 16#00 (status value of the last telegram received from the RFID station)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	FALSE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_Special-Command" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monit...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#00
ReadData[2]	Byte	16#0	16#00
ReadData[3]	Byte	16#0	16#00
ReadData[4]	Byte	16#0	16#00

Data read in within data block "IQT1-xx-IO-V1_Expert-Mode_Basic_UserData" in the "ReadData" data structure

No data is transferred when the "Single Write Configuration" command is executed

Command "Single Write Configuration" for setting the AFI without lock to the value 16#39:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Data..	Start ...	Monito..
OutData	Arra...		
OutData[0]	Byte	16#0	16#00
OutData[1]	Byte	16#0	16#0B
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#08
OutData[5]	Byte	16#0	16#12
OutData[6]	Byte	16#0	16#30
OutData[7]	Byte	16#0	16#30
OutData[8]	Byte	16#0	16#39
OutData[9]	Byte	16#0	16#00
OutData[10]	Byte	16#0	16#00
OutData[11]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#0B
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0008
OutData[5]:	Command	16#12
OutData[6]:	Config Address	16#30
OutData[7]:	Write with lock	16#30
OutData[8]:	value AFI	16#39
OutData[9]:	don't care	16#00
OutData[10]:	don't care	16#00

5.7.3 Writing with write protection (“Single Write with lock”)

Assignment of command telegram in "SpecialCommand" data structure

Name	A...	Dis...	Monit...	Modify ...
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[0]		Hex	16#0E	16#0E
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[3]		Hex	16#0B	16#0B
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[4]		Hex	16#47	16#47
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[5]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[6]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[7]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[8]		Hex	16#04	16#04
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[9]		Hex	16#01	16#01
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[10]		Hex	16#02	16#02
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[11]		Hex	16#03	16#03
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[12]		Hex	16#04	16#04
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[13]		Hex	16#00	16#00

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monit...
SpecialCommand	Arra...		
SpecialCommand[0]	Byte	16#0	16#0E
SpecialCommand[1]	Byte	16#0	16#00
SpecialCommand[2]	Byte	16#0	16#00
SpecialCommand[3]	Byte	16#0	16#0B
SpecialCommand[4]	Byte	16#0	16#47
SpecialCommand[5]	Byte	16#0	16#00
SpecialCommand[6]	Byte	16#0	16#00
SpecialCommand[7]	Byte	16#0	16#00
SpecialCommand[8]	Byte	16#0	16#04
SpecialCommand[9]	Byte	16#0	16#01
SpecialCommand[10]	Byte	16#0	16#02
SpecialCommand[11]	Byte	16#0	16#03
SpecialCommand[12]	Byte	16#0	16#04
SpecialCommand[13]	Byte	16#0	16#00

SpecialCommand[0]:	Frame Length	16#0E
SpecialCommand[1]:	Fragmentation Counter	16#00
SpecialCommand[2…3]:	Telegram Length	16#000B
SpecialCommand[4]:	Command	16#47
SpecialCommand[5]…[6]:	Byte Address	16#0000
SpecialCommand[7]…[8]:	Byte Number	16#0004
SpecialCommand[9]:	Write Data Byte 1	16#01
SpecialCommand[10]:	Write Data Byte 2	16#02
SpecialCommand[11]:	Write Data Byte 3	16#03
SpecialCommand[12]:	Write Data Byte 4	16#04

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (not relevant)
I_b_SingleEnhanced := FALSE (not relevant))
I_w_ByteAddress := 16#0000 (not relevant))
I_i_ByteNumber := 0 (not relevant))

The command is started as soon as the input "I_b_SpecialCommand" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	TRUE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; command successfully executed

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	FALSE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_Special-Command" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monit...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#00
ReadData[2]	Byte	16#0	16#00
ReadData[3]	Byte	16#0	16#00
ReadData[4]	Byte	16#0	16#00

Data read in within data block "IQT1-xx-IO-V1_ExpertMode_Basic _UserData" in the "ReadData" data structure

No data is transferred when the "Single Write with lock" command is executed

Command Single Write with lock:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Data..	Start ...	Monito..
OutData	Arra...		
OutData[0]	Byte	16#0	16#00
OutData[1]	Byte	16#0	16#0E
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#0B
OutData[5]	Byte	16#0	16#47
OutData[6]	Byte	16#0	16#00
OutData[7]	Byte	16#0	16#00
OutData[8]	Byte	16#0	16#00
OutData[9]	Byte	16#0	16#04
OutData[10]	Byte	16#0	16#01
OutData[11]	Byte	16#0	16#02
OutData[12]	Byte	16#0	16#03
OutData[13]	Byte	16#0	16#04
OutData[14]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#0E
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#000B
OutData[5]:	Command	16#47
OutData[6]…[7]:	Byte Address	16#0000
OutData[8]…[9]:	Number Bytes	16#0004
OutData[10]:	Write Data Byte 1	16#01
OutData[11]:	Write Data Byte 2	16#02
OutData[12]:	Write Data Byte 3	16#03
OutData[13]:	Write Data Byte 4	16#04

5.7.4 Format data carrier (“fill datacarrier”)

Assignment of command telegram in "SpecialCommand" data structure

Name	A...	Dis...	Monit...	Modify ...
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[0]		Hex	16#0B	16#0B
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[3]		Hex	16#08	16#08
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[4]		Hex	16#AA	16#AA
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[5]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[6]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[7]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[9]		Hex	16#FF	16#FF
"IQT1-xx-IO-V1_ExpertMode_Basic_UserData"."IQT1-xx-IO-V1".SpecialCommand[10]		Hex	16#00	16#00

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data ..	Start ..	Monito...
SpecialCommand	Arra...		
SpecialCommand[0]	Byte	16#0	16#0B
SpecialCommand[1]	Byte	16#0	16#00
SpecialCommand[2]	Byte	16#0	16#00
SpecialCommand[3]	Byte	16#0	16#08
SpecialCommand[4]	Byte	16#0	16#AA
SpecialCommand[5]	Byte	16#0	16#00
SpecialCommand[6]	Byte	16#0	16#00
SpecialCommand[7]	Byte	16#0	16#00
SpecialCommand[8]	Byte	16#0	16#00
SpecialCommand[9]	Byte	16#0	16#FF
SpecialCommand[10]	Byte	16#0	16#00

SpecialCommand[0]:	Frame Length	16#0B
SpecialCommand[1]:	Fragmentation Counter	16#00
SpecialCommand[2…3]:	Telegram Length	16#0008
SpecialCommand[4]:	Command	16#AA
SpecialCommand[5]…[6]:	Start Address	16#0000
SpecialCommand[7]…[8]:	Number Bytes (Complete data carrier)	16#0000
SpecialCommand[9]:	fill sign	16#FF

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#B0	

Before starting the command execution
I_b_UserMemory_UID := FALSE (not relevant)
I_b_SingleEnhanced := FALSE (not relevant))
I_w_ByteAddress := 16#0000 (not relevant))
I_i_ByteNumber := 0 (not relevant))

The command is started as soon as the input "I_b_SpecialCommand" is set to TRUE.

All outputs are initially reset to FALSE. The active execution of the command is signaled by TRUE at the "O_b_Busy" output.

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	TRUE	TRUE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; command successfully executed

O_b_Done	= TRUE (changes to TRUE with the receipt of the read data)
O_b_NoDataCarrier	= FALSE (changes to TRUE if no data carrier could be identified)
O_b_Busy	= FALSE (changes to FALSE with the end of the command execution)
O_b_Finish	= TRUE (changes with the end of the command execution to TRUE)
O_b_Error	= FALSE (changes to TRUE if an error occurred)
O_B_Status	= 16#00 (status value of the last telegram received from the RFID station)

Name	Address	Displ...	Monitor ..	Mod..
"SetRestart"	%M0.0	Bool	FALSE	
"InitFinish"	%M0.1	Bool	TRUE	
"StartRead"	%M1.0	Bool	FALSE	
"StartWrite"	%M1.1	Bool	FALSE	
"StartQuit"	%M1.6	Bool	FALSE	
"StartSpecialCommand"	%M1.2	Bool	FALSE	FALSE
"UserMemory_UID"	%M1.3	Bool	FALSE	
"Single_Enhanced"	%M1.5	Bool	FALSE	
"ByteAddress"	%MW2	DEC	0	
"ByteNumber"	%MW4	DEC	0	
"Done"	%M6.0	Bool	TRUE	
"NoDataCarrier"	%M6.1	Bool	FALSE	
"Busy"	%M6.2	Bool	FALSE	
"Finish"	%M6.3	Bool	TRUE	
"Error"	%M6.4	Bool	FALSE	
"Status"	%MB7	Hex	16#00	
"AccessCounter"	%MW8	DEC+/-	1	
"PQI"	%MB10	Hex	16#B0	

After the end of the command execution; reset input "I_b_SpecialCommand" to FALSE

Before executing further commands, the input must be set back to FALSE.

IQT1-xx-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Sta..	Monit...
Static			
IQT1-xx-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#00
ReadData[2]	Byte	16#0	16#00
ReadData[3]	Byte	16#0	16#00
ReadData[4]	Byte	16#0	16#00

Data read in within data block "IQT1-xx-IO-V1_Expert-Mode_Basic_UserData" in the "ReadData" data structure

No data is transferred when the "Fill Datacarrier" command is executed.

Command Fill Data carrier:

IQT1-xx-IO-V1_ExpertMode_Basic_InstDB

Name	Data...	Start..	Monito...
OutData	Arra...		
OutData[0]	Byte	16#0	16#E0
OutData[1]	Byte	16#0	16#0B
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#08
OutData[5]	Byte	16#0	16#AA
OutData[6]	Byte	16#0	16#00
OutData[7]	Byte	16#0	16#00
OutData[8]	Byte	16#0	16#00
OutData[9]	Byte	16#0	16#00
OutData[10]	Byte	16#0	16#FF
OutData[11]	Byte	16#0	16#00

Command telegram within instance data block "IQT1-xx-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#0B
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0008
OutData[5]:	Command	16#AA
OutData[6]…[7]:	Start Address	16#0000
OutData[8]…[9]:	Number Bytes	16#0000
OutData[10]:	Fill Sign	16#FF

6. Function block FB19817 “IQT1-xx-IO-V1_ExpertMode_Param”

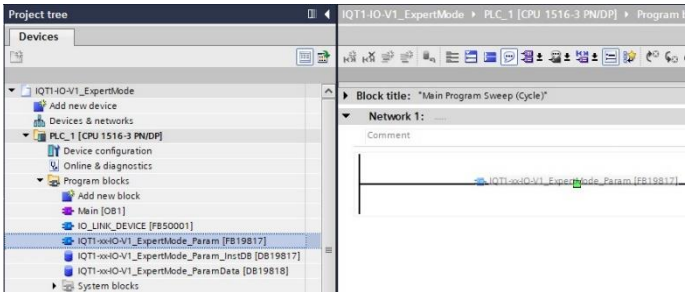
Functional description „IQT1-xx-IO-V1_ExpertMode_Param“:
Function block for reading and changing the IO-Link parameters of the IQT1-xx-IO-V1 RFID station. Read access is made to the IO-Link standard parameters (e.g., vendor name) on the one hand and to the device-specific IO-Link parameters on the other. Write access for a parameter change, on the other hand, is only carried out on the device-specific IO-Link parameters.

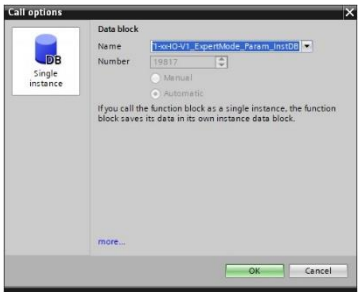
When performing write access to the device-specific IO-Link parameters, it should be noted that the number of possible write operations is limited by the storage of the parameter data in an EEPROM. It is therefore recommended that write access is only carried out when a device has been newly installed. The device-specific IO-Link parameters are stored in non-volatile memory.

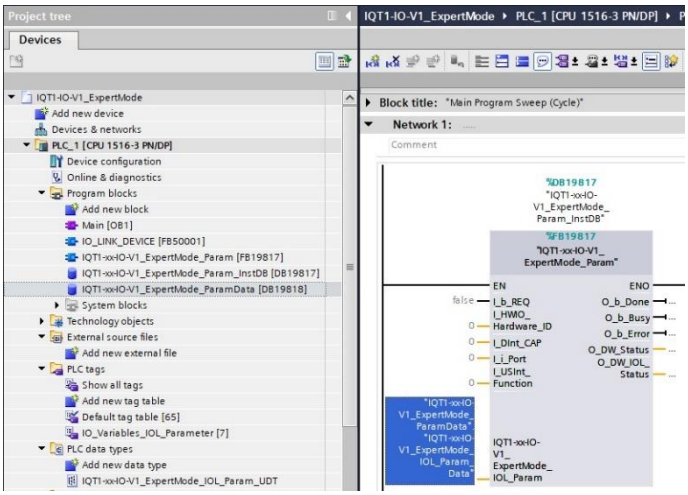
The data structures for the read-in IO-Link parameters are located within the data block DB19818 "IQT1-xx-IO-V1_ParamData". The data structures for changing the IO-Link parameters are pre-assigned with values identical to the factory setting of the RFID station.

The standard function block FB50001 "IO_LINK_DEVICE" is called within the function block FB19817 "IQT1-xx-IO-V1_ExpertMode_Param". This function block carries out the actual transfer of the parameter data. This function block must also be copied into the project.

Implementation of function block "IQT1-xx-IO-V1_ExpertMode_Param":
Drag function block "IQT1-xx-IO-V1_ExpertMode_Param" (FB19817) from the project tree into OB1. Then select the corresponding instance data block. The library contains the data block "IQT1-xx-IO-V1_ExpertMode_Param_InstDB" (DB19817) which can be used as an instance data block. The instance data block can also be regenerated.

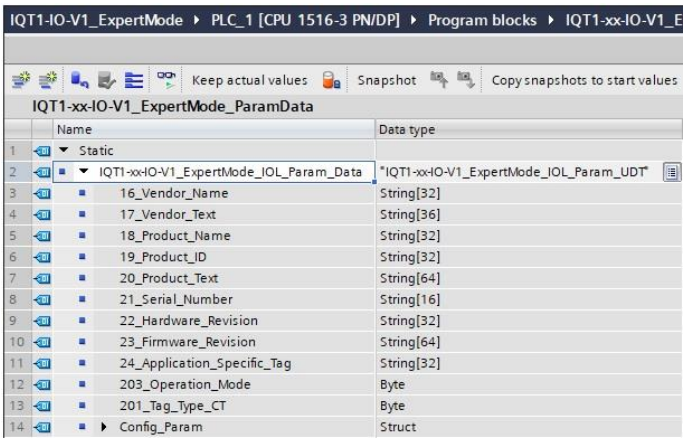






The IO-Link parameters read in are located in a separate data block. This is parameterized at the "IQT1-xx-IO-V1_ExpertMode_IOL_Param" input. The library contains the data block DB19818 "IQT1-xx-IO-V1_Expert-Mode_ParamData" which can be used for this purpose.

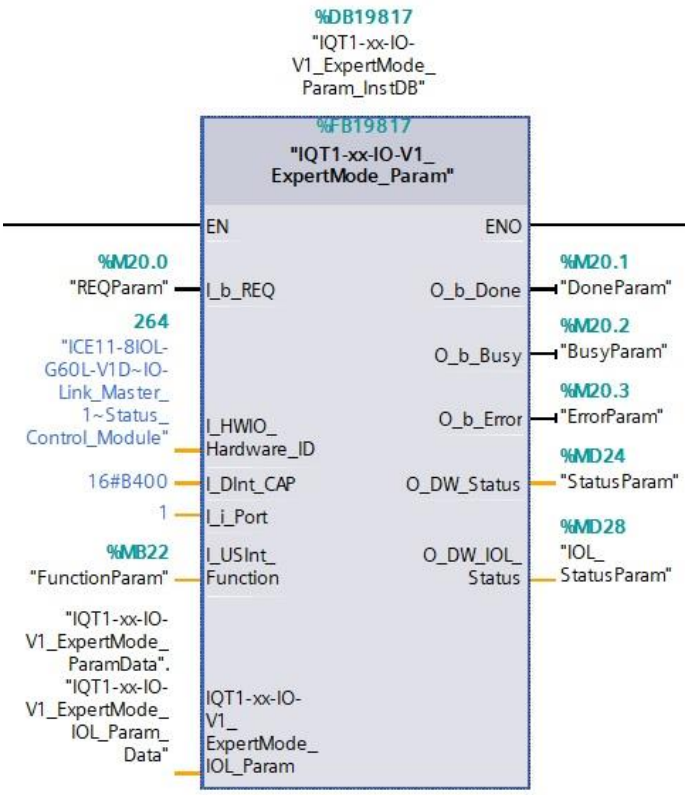
The data block can be generated by the user. The internal data structure is generated from the library using the data type "IQT1-xx-IO-V1_ExpertMode_IOL_Param_UDT".



The "IQT1-xx-IO-V1_ExpertMode_ParamData" data block consists of the "IQT1-xx-IO-V1_ExpertMode _IOL_Param_Data" structure. This structure is formed from the "IQT1-xx-IO-V1_ExpertMode _IOL_Param_UDT" UDT.

Overview IO-Link Parameter

Name	Index Dec	Length	Access	Value range	Default setting
16_Venor_Name	16	String[32]	Read		'Pepperl+Fuchs'
17_Venor_Name	17	String[36]	Read		'http://www.pepperl-fuchs.com/io-link'
18_Product_Name	18	String[32]	Read		'IQT1-F61-IO-V1'
19_Product_ID	19	String[32]	Read		'299928'
20_Product_Text	20	String[64]	Read		'RFID read/write station (HF, ISO 15693)'
21_Serial_Number	21	String[16]	Read		'4000006940896 5'
22_Hardware_Revision	22	String[32]	Read		'HW01.01'
23_Firmware_Revision	23	String[64]	Read		'1833298: 14.06.18/183327 8: 14.06'
24_Application_Specific_Tag	24	String[32]	Read		'Your automation, our passion.'
203_Operation_Mode	203	Byte	Read / Write	0 (16#00) = Expert Mode; 128 (16#80) = Easy Mode	128 (16#80) = Easy Mode
201_Tag_Type_CT	201	Byte	Read / Write	20; 21; 22; 24; 33; 35	20 (16#14)



Complete wiring of the function block FB19817 "IQT1-xx-IO-V1_ExpertMode_Param":

The input parameter "I_HWIO_Hardware_ID" corresponds to the identifier of the status control module from the hardware configuration.

The following table shows the meaning of the input and output variables:

Name	Input / Output	Data type	Meaning
I_b_REQ	Input	Bool	Start reading or writing the IO-Link parameters
I_Hardware_ID	Input	HW_IO	Hardware identification of the status control module from the hardware configuration
I_DInt_CAP	Input	DInt	CAP (Client Access Point); always 16#B400 (ICE11)
I_i_Port	Input	Integer	Number of the port to which the RFID device is connected to the IO-Link master
I_USInt_Function	Input	USInt	Definition whether parameters are read (16#00) or written (16#01)
IQT1-xx-IO-V1_Expert-Mode_IOL_Param	InOut	DB	Data area for the IO-Link parameters → “IQT1-xx-IO-V1_Parameter“.“IQT1-xx-IO-V1_IOL_Param_Data“
O_b_Done	Output	Bool	Access to IO-Link parameters completed
O_b_Busy	Output	Bool	Access to IO-Link parameters active
O_b_Error	Output	Bool	Error when accessing the IO-Link parameters
O_DW_Status	Output	Double Word	Status
O_DW_IOL_Status	Output	Double Word	IO-Link Status

6.1 Read IO-Link Parameter

When executing the read access, all IO-Link parameters listed in the table above are read out one after the other.

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	FALSE	TRUE
"FunctionParam"	%MB22	DEC	0	0
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Initial state before the start of the read request:
REQ = False
Function = 0 (Read access)
Done = True (depending on previous state)
Busy = False
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000
The read task starts as soon as "REQ" is set to True.

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	TRUE	TRUE
"FunctionParam"	%MB22	D...	0	0
"DoneParam"	%M20.1	Bool	FALSE	
"BusyParam"	%M20.2	Bool	TRUE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Execution Read access to IO-Link parameters enabled:
REQ = True
Function = 0 (Read access)
Done = False
Busy = True (Read access active)
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	TRUE	TRUE
"FunctionParam"	%MB22	DEC	0	0
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Execution Read access to IO-Link parameters finished
REQ = True
Function = 0 (Read access)
Done = True
Busy = False
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	FALSE	FALSE
"FunctionParam"	%MB22	DEC	0	0
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Trigger for execution read access reset
REQ = False
Function = 0 (Read access)
Done = True
Busy = False
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000

The IO-Link parameters read in are saved within the data block DB19818 "IQT1-xx-IO-V1_ExpertMode_ParamData" in the data structure "IQT1-xx-IO-V1_ExpertMode_IOL_Param_Data".

IQT1-xx-IO-V1_ExpertMode_ParamData

Name	Data type	S...	Monitor value
Static			
IQT1-xx-IO-V1_ExpertMode_IOL_Param_Data	"IQT1-...		
16_Vendor_Name	String[32]	''	'Pepperl+Fuchs'
17_Vendor_Text	String[36]	''	'http://www.pepperl-fuchs.com/io-link'
18_Product_Name	String[32]	''	'IQT1-F61-IO-V1'
19_Product_ID	String[32]	''	'299928'
20_Product_Text	String[64]	''	'RFID read/write station (HF, ISO 15693)'
21_Serial_Number	String[16]	''	'40000069408965'
22_Hardware_Revision	String[32]	''	'HW01.01'
23_Firmware_Revision	String[64]	''	'1833298: 14.06.18/1833278: 14.06'
24_Application_Specific_Tag	String[32]	''	'Your automation, our passion.'
203_Operation_Mode	Byte	16#	16#00
201_Tag_Type_CT	Byte	16#	16#14
Config_Param	Struct		

Standard and device-specific IO-Link parameters read in

6.2 Write IO-Link Parameter

Before starting write access to the IO-Link parameters, the new parameter values must be transferred via a variable table to the data block DB19818 "IQT1-xx-IO-V1_ExpertMode_ParamData" in the data structure "Config_Param".

Name	Ad...	Displ...	Monitor...	Modify ...
"IQT1-xx-IO-V1_ExpertMode_ParamData"."IQT1-xx-IO-V1_ExpertMode_IOL_Param_Data"."203_Operation_Mode"		Hex	16#00	
"IQT1-xx-IO-V1_ExpertMode_ParamData"."IQT1-xx-IO-V1_ExpertMode_IOL_Param_Data"."201_Tag_Type_CT"		Hex	16#14	
"IQT1-xx-IO-V1_ExpertMode_ParamData"."IQT1-xx-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."203_Operation_Mode".Operation_Mode		Hex	16#00	
"IQT1-xx-IO-V1_ExpertMode_ParamData"."IQT1-xx-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."201_Tag_Type_CT".TagType		Hex	16#15	16#15

IQT1-xx-IO-V1_ExpertMode_ParamData

Name	Data type	S...	Monitor val..
Config_Param	Struct		
203_Operation_Mode	Struct		
Length	Int	1	1
Operation_Mode	Byte	16#	16#00
201_Tag_Type_CT	Struct		
Length	Int	1	1
TagType	Byte	16#	16#15

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	FALSE	TRUE
"FunctionParam"	%MB22	DEC	1	1
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Initial state before the start of the write access:
REQ = False
Function = 1 (Write access)
Done = True (depending on previous state)
Busy = False
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000
The write access starts as soon as "REQ" is set to True.

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	TRUE	TRUE
"FunctionParam"	%MB22	DEC	1	1
"DoneParam"	%M20.1	Bool	FALSE	
"BusyParam"	%M20.2	Bool	TRUE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Execution Write access to IO-Link parameters enabled:
REQ = True
Function = 1 (Write access)
Done = False
Busy = True (Write access active)
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	TRUE	TRUE
"FunctionParam"	%MB22	DEC	1	1
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Execution Write access to IO-Link parameters finished
REQ = True
Function = 1 (Write access)
Done = True
Busy = False
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000

Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	FALSE	FALSE
"FunctionParam"	%MB22	DEC	1	1
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

Trigger for execution write access reset
REQ = False
Function = 1 (Write access)
Done = True
Busy = False
ErrorParam = False
Status = 16#0000_0000
IOL_Status = 16#0000_0000

7. Expert-Mode – Structure process data

The process data fields are used to transfer the process data between the IQT1-xx-IO-V1 RFID station and a controller. There is a process data field for input data, i.e., from the direction of the station to the controller, and a process data field for output data, i.e., from the direction of the controller to the RFID station. Both process data fields have a fixed length of 32 bytes. This length is constant and is permanently set in the hardware configuration of the control.

Structure Output data:

Byte	Content				
0	Delete_Slave	Update_Master	Update_Slave	0	Frame Length
1	Frame Length				
2	Fragmentation Counter				
3	Telegram Length (High Byte)				
4	Telegram Length (Low Byte)				
5	Command				
6	Data / Parameter				
….	Data / Parameter				
31	Data / Parameter				

Structure Input data:

Byte	Content				
0	Delete_Slave	Update_Master	Update_Slave	0	Frame Length
1	Frame Length				
2	Fragmentation Counter				
3	Telegram Length (High Byte)				
4	Telegram Length (Low Byte)				
5	Command				
6	Status				
7	Data / Parameter				
…	Data / Parameter				
31	Data / Parameter				

<Delete_Slave>: 1 Bit
Inverting the bit deletes all data present in the FIFO memory of the IQT1-xx-IO-V1.

<Update_Master>: 1 Bit
By inverting the bit, the controller signals the validity of a new command or telegram in the output data field. The RFID station reflects this bit back in inverted form and thus confirms receipt. Only then can the PLC send a new command or telegram.

<Update_Slave>: 1 Bit
Inverting the bit by the RFID station signals that a new telegram is present in the input data field of the PLC. The PLC reflects the bit back in inverted form and thus confirms receipt of the telegram. Only then can the RFID station send a new telegram to the PLC.

<Frame Length>: 12 Bit
Number of valid bytes within a fragment. The length specification starts at byte 0 and ends with the last byte which still contains information from the RFID station.

<Fragmentation Counter>: 1 Byte
Number of telegram fragments still to be transmitted. If the command or response telegram is smaller than the Profinet telegram length, no subdivision into fragments (i.e., fragmentation) takes place. The value of the "Fragmentation Counter" is therefore always 16#00.

<Telegram Length>: 2 Byte

Length of the complete telegram over all fragments. If the command or response telegram can be transmitted within a fragment, the value of "TelegramLength" is 3 less than the value of "FrameLength"

<Command>: 1 Byte
Command code of the command to be executed. The response following the command contains the identical command code. This allows the response to be assigned to the original command

<Data/Parameter>: x Byte
Area for optionally required data or parameters for the command execution. The number and the meaning depend on the command to be executed

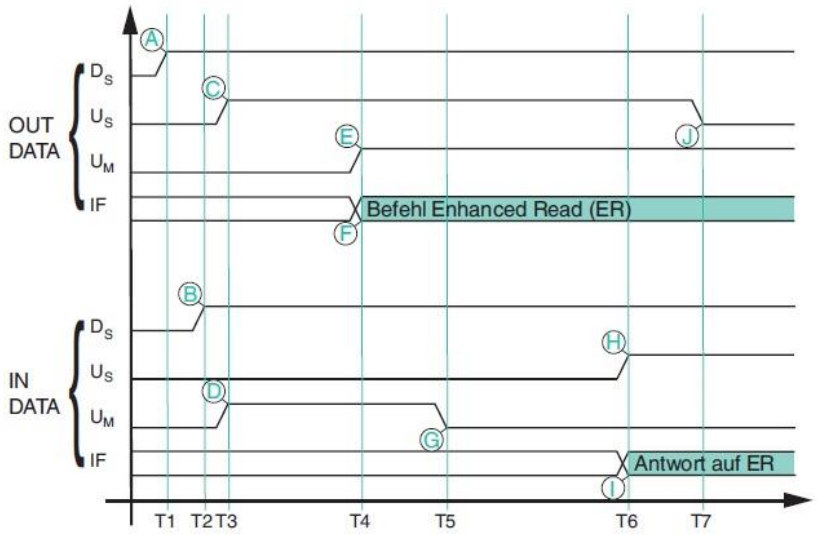
<Status>: 1 Byte
The status in the response signals the result or the outcome of the command. This is used, for example, to output error states in the execution of the command

The data flow between the controller and the RFID station IQT1-xx-IO-V1 is synchronized via a handshake procedure. For the execution of the handshake procedure, 3 control bits each are available in the input and output data fields

D → Delete bit (Delete_Slave); when inverting the bit, all data accumulated in the FIFO memory of the IQT1-xx-IO-V1are deleted.

UM → Updatebit - Master (Update_Master); if the master inverts this bit, it signals the validity of a new telegram in the output data field. The slave mirrors back this bit inverted and confirms the reception. Only then the control may send new data

US → Updatebit - Slave (Update_Slave); If the IQT1-xx-IO-V1inverts this bit, the head thus signals the validity of a new telegram in the input data field. The master mirrors this bit back inverted and thus confirms the reception. Only then the slave may send new data



Index	Description	
T1	The PLC inverts the delete bit to 1 in the output data field of the controller (A). This deletes the internal memory of the IQT1-xx-IO-V1. This procedure must be executed after device startup or in the event of an error condition.	
T2	The RFID station IQT1-xx-IO-V1 changes the delete bit to 1 in the input data field of the controller (B) in response to event T1.	
T3	The controller changes the update bit - slave in the output data field to 1 (D). This is the inverted signal state of the update bit slave from the input data field of the controller. The IQT1-xx-IO-V1 station changes the update bit - master in the input data field of the controller to 1 (D). This is the inverted signal state of the update bit master from the output data field of the controller. Thus, both communication participants signal the readiness to receive telegrams or to execute commands.	

T4	The PLC places the command parameters in the output data field of the controller (F). At the same time, the control inverts the signal state of the update bit master of the input data field (0) and sets the update bit master in the output data field to 1 (E). This signals the validity of the command telegram to the IQT1-xx-IO-V1 station.	
T5	The IQT1-xx-IO-V1 station mirrors the inverted signal state of the update bit master from the output data field (1) and sets the update bit master in the input data field of the PLC to 0 (G). In this way, the IQT1-xx-IO-V1 signals the receipt of the command telegram to the PLC.	
T6	The IQT1-xx-IO-V1 station has processed the command and enters the response telegram into the input data field of the controller (I). At the same time the head mirrors the signal state of the update bit - slave of the output data field (1) into the update bit - slave of the input data field of the control (H).	
T7	The controller has received the changed update bit - slave in the input data field (1) and mirrors the inverted signal state in the update bit - slave (0) of the output data field (J). Afterwards the station IQT1-xx-IO-V1 can send a new telegram.	

7.1 Example 1: SR - Single Read 4-Byte Blocks (User Memory)

The Single Read 4-Byte Blocks command performs a single read access to a definable number of 4-byte long data blocks on the data carrier. The command code is 16#10.

Output data field: read 4-byte data blocks once; 16 (16#10) bytes are read in 4-byte data blocks starting from memory address 0

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0A	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#07	
5	Command					16#10	
6	ByteAddress (High Byte)					16#00	
7	ByteAddress (Low Byte)					16#00	
8	Number of Bytes (High Byte)					16#00	
9	Number of Bytes (Low Byte)					16#10	
10	Not relevant					16#00	
…	Not relevant					16#00	
31	Not relevant					16#00	

Input data field: Response telegram data read; user memory read; length of the read sub-area of the user memory is 16 bytes

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#17	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#14	
5	Command					16#10	
6	Status					16#00	
7	User Memory Byte 1					16#01	
8	User Memory Byte 2					16#02	
9	User Memory Byte 3					16#03	
…	…					…	
21	User Memory Byte 15					16#0F	
22	User Memory Byte 16					16#10	
23	Not relevant					16#00	
24	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram no data carrier detected or no data carrier in the detection zone

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0

1	Frame Length	16#07
2	Fragmentation Counter	16#00
3	Telegram Length (High Byte)	16#00
4	Telegram Length (Low Byte)	16#04
5	Command	16#10
6	Status	16#05
7	Not relevant	16#00
…	…	…
31	Not relevant	16#00

7.2 Example 2: SW - Single Write 4-Byte Blocks (User Memory)

The Single Write 4-Byte Blocks command performs a single write access to a definable number of 4-byte long data blocks on the data carrier. The command code is 16#40.

Output data field: write 4-byte data blocks once; 4 (16#04) bytes are written in 4-byte data blocks starting from memory address 0

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0E	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#0B	
5	Command					16#40	
6	ByteAddress (High Byte)					16#00	
7	ByteAddress (Low Byte)					16#00	
8	Number of Bytes (High Byte)					16#00	
9	Number of Bytes (Low Byte)					16#04	
10	Write Data Byte 1					16#01	
11	Write Data Byte 2					16#02	
12	Write Data Byte 3					16#03	
13	Write Data Byte 4					16#04	
14	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram write successful; user memory programmed

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#07	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#04	
5	Command					16#40	
6	Status					16#00	
7	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram write not successful; no data carrier in the detection zone

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#07	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#04	
5	Command					16#40	
6	Status					16#05	

7	Not relevant	16#00
…	…	…
31	Not relevant	16#00

7.3 Example 3: ER - Enhanced Read 4-Byte Blocks (User Memory)

The Enhanced Read 4-Byte Blocks command performs a permanent read access to a definable number of 4-byte long data blocks on the data carrier. The command code is 16#19.

Output data field: permanent reading of 4-byte data blocks; 8 (16#08) bytes are read out in 4-byte data blocks starting from memory address 0

Byte	Content					Enhanced Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	0
1	Frame Length					16#0A	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#07	
5	Command					16#19	
6	ByteAddress (High Byte)					16#00	
7	ByteAddress (Low Byte)					16#00	
8	Number of Bytes (High Byte)					16#00	
9	Number of Bytes (Low Byte)					16#08	
10	Not relevant					16#00	
…	Not relevant					16#00	
31	Not relevant					16#00	

Input data field: Response telegram data read; user memory read; length of the read sub-area of the user memory is 8 bytes

Byte	Content					Enhanced Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0F	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#0C	
5	Command					16#19	
6	Status					16#00	
7	User Memory Byte 1					16#01	
8	User Memory Byte 2					16#02	
…	…					…	
13	User Memory Byte 7					16#07	
14	User Memory Byte 8					16#08	
15	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram no data carrier; data carrier has left the detection range

Byte	Content					Enhanced Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#07	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#04	
5	Command					16#19	
6	Status					16#05	
7	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

8. Trouble shooting

Index	Description	Fixing
1	Profinet communication does not work	1. Check whether the setting of the Profinet name in the device and in the PLC are identical 2. Check whether the rotary switch "X100" on the front of the device is in the "P" position (P = Profinet)
2	All data within the DBs for Expert Mode are 16#00	1. Control of the initialization by "IO_b_SetRestart" → check if input data have a change 2. Check if input parameter "I_HWIO_Hardware_ID" is parameterized with the same submodule from hardware configuration
3	The AccessCounter constantly increased when the presence of a data carrier remains unchanged (standstill)	1. The counters for successful reading or writing are incremented for each access to a data carrier 2. Data carrier is constantly re-read → unstable communication between RFID station and data carrier 3. Check whether there are sources of interference in the vicinity of the RFID station; adjust positioning
4	An error message with the status value 16#0A appears.	1. Access to the parameterized data area is not possible 2. The amount of data to be read is greater than the available memory within the data carrier 3. Or the number of bytes does not match the block size of the data carrier 4. IQC33 → Block size 8 bytes → Number and address must be multiples of 8 5. Remaining IQCxx → Block size 4 bytes → Number and address must be multiples of 4
5	Read command is active (blue LED on), but the data carrier can only be read at a small distance	1. Check the mounting requirements of the data carrier (on metal or plastic or non-conductive surface)
6	Writing the UID is not possible	1. The UID cannot be changed; it has a length of 8 bytes and is specified during production; it is a unique number
7	Reset to factory setting	1. Write the value 16#82 "Factory Reset" via IO-Link parameter 2 "System Command" 2. Via website with direct access to the IO-Link parameters 3. Subsequently reset the supply voltage