Operating instructions

Function block Expert Mode RFID device IQT3-FP-IO-V1 on Siemens TIA Portal

HF RFID Device IQT3-FP-IO-V1

Project Name:	**HF RFID-Station IQT3-FP-IO-V1;** **Expert Mode function block**
Date:	**07.03.2024**
Creator:	**Karsten Reinhardt**

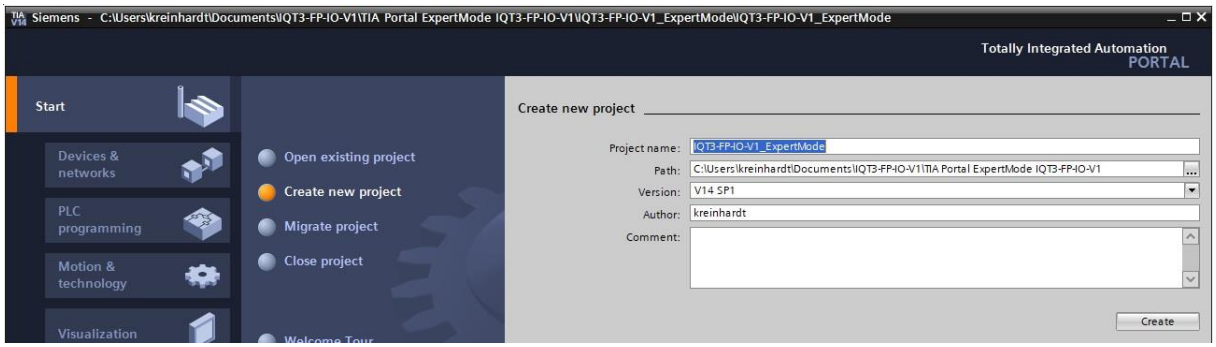
Version history

Version	Release data	Comment
1	**09.11.2023**	Initial Version
2	**07.03.2024**	Library now only contains the 33-byte input block; adaptation of the documentation; update function block to V1.1; change of the edge counter for the input telegrams

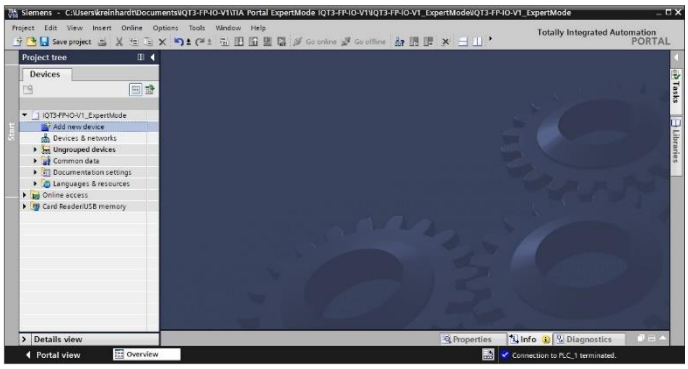
Table of contents

1. Basic PLC configuration

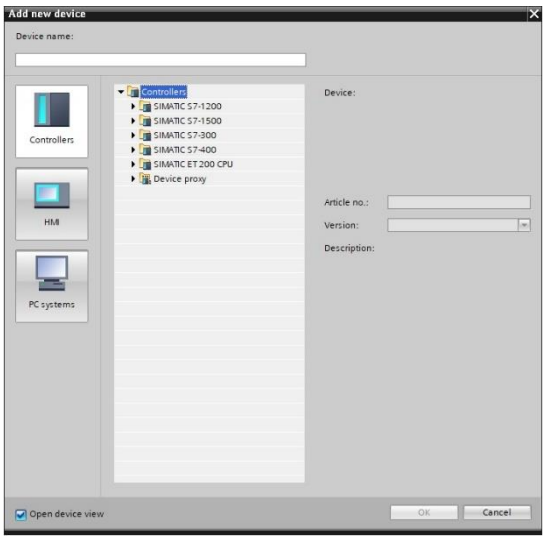
The first step is to create a new PLC project. For this purpose, a project name (e.g., "IQT3-FP-IO-V1_ExpertMode") and a storage path of the project must be entered or selected.

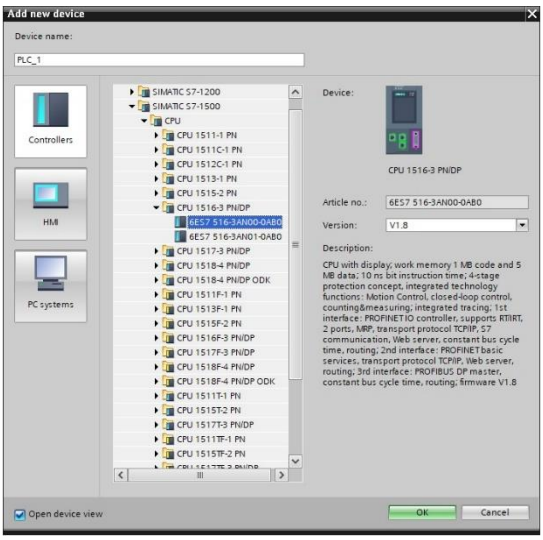


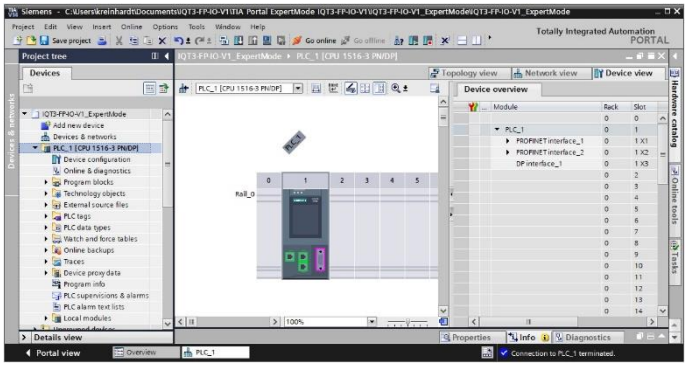
After creating the empty PLC project, switch to the project view. A selection window is called up by "Add new device" in the project navigation on the left.



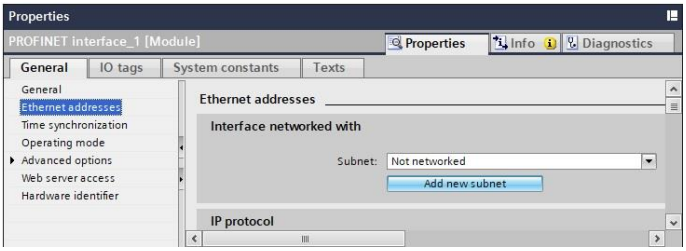
In this selection window, the appropriate PLC must be selected.



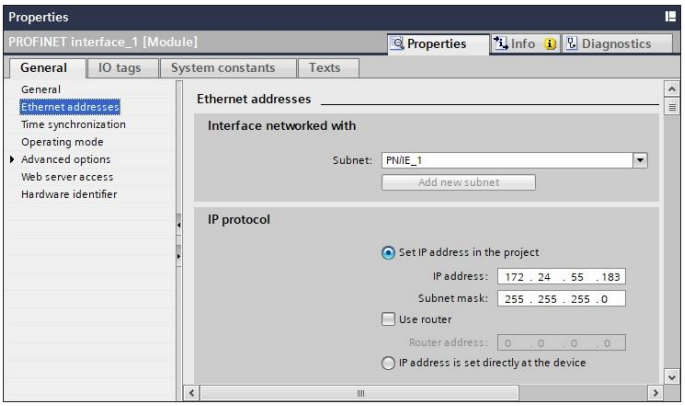




After assigning the CPU, the project view switches to the setting of the PLC parameters.

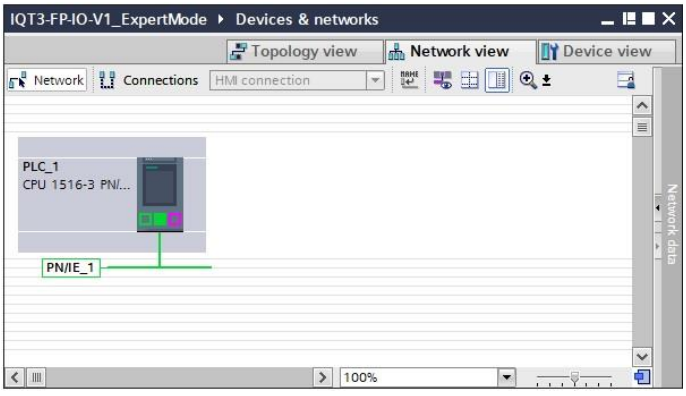


For the Profinet interface X1, a Profinet subnet must be added under the selection "Ethernet addresses" via the selection "Add new subnet". A subnet with the designation "PN/IE_1" is created.

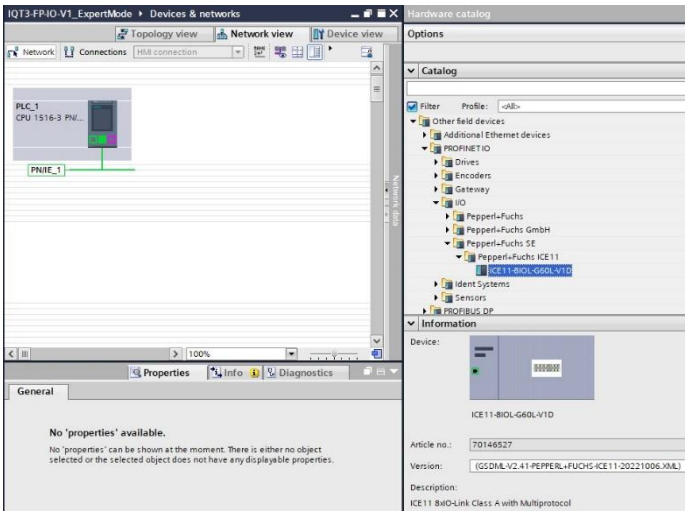


Then set the network parameters (IP address, subnet mask) of the PLC.

IP address: 172.24.55.183
Subnet mask: 255.255.255.0



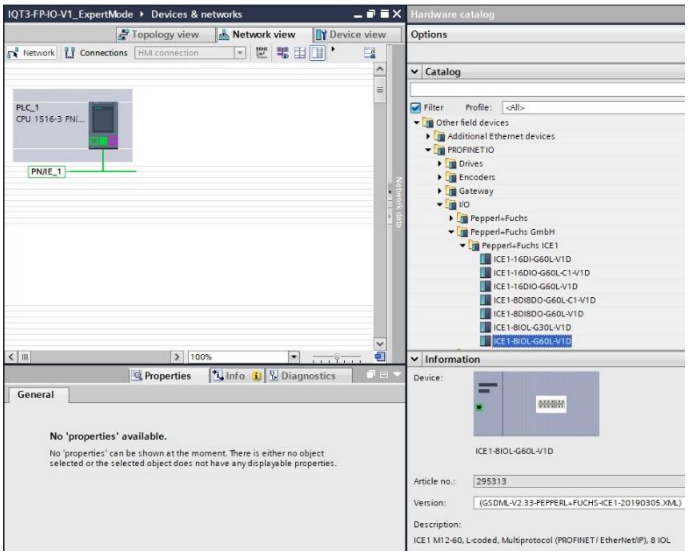
The network view symbolically shows the configured PLC. Starting from the CPU, the subnet "PN/IE_1" is located.



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".

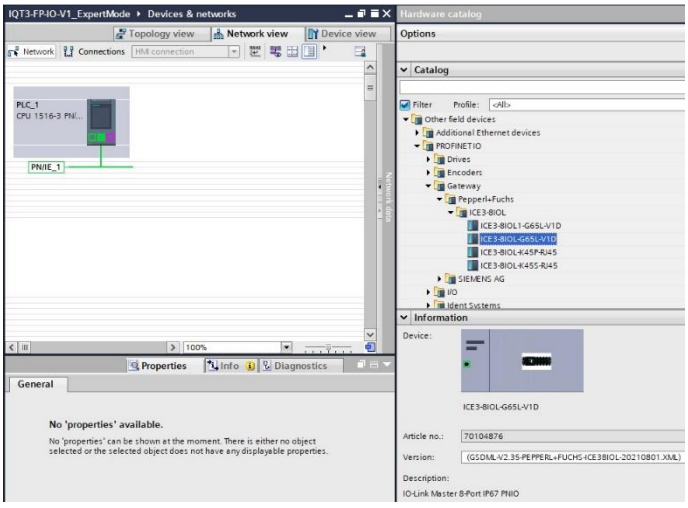
If the GSDML file is not in the catalog, it must be imported beforehand.



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.



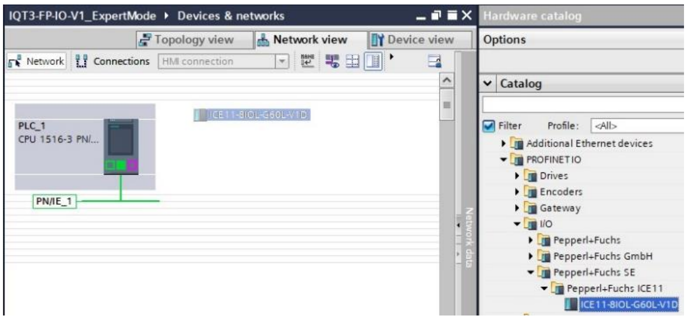
ICE3-8IOL-G65L-V1D resp. ICE3-8IOL1-G65L-V1D IO-Link Master:

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.

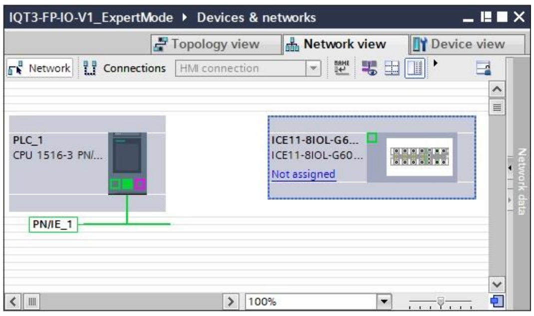
2. Hardware configuration IO-Link Master

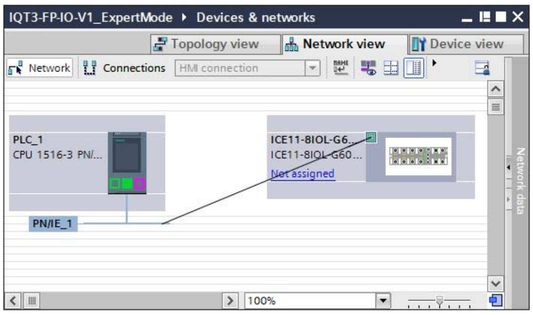
2.1 ICE11-8IOL-G60-V1D

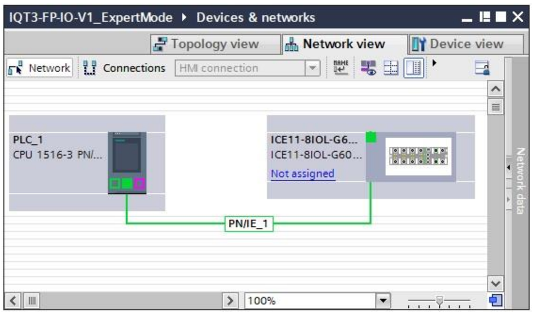


The GSDML for the IO-Link master ICE11-8IOL-G60-V1D is to be dragged over from the hardware catalog into the center window of the device view.

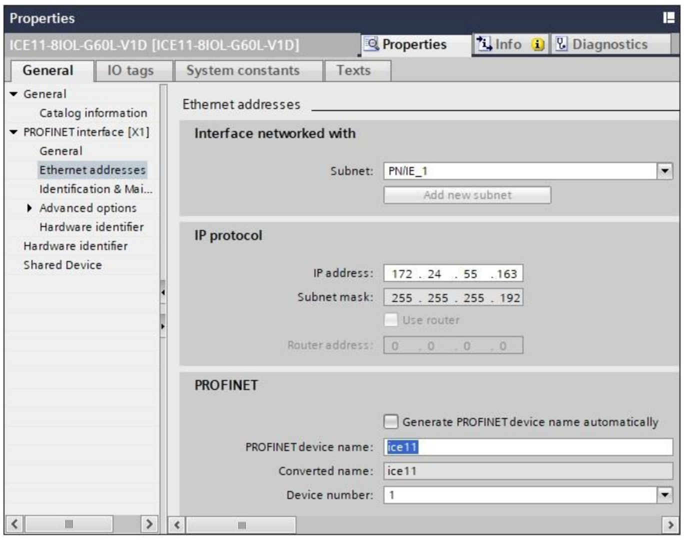
Other field devices → "Profinet IO" → "I/O" → "Pepperl+Fuchs SE" → "Pepperl+Fuchs ICE11" → "ICE11-8IOL-G60-V1D".





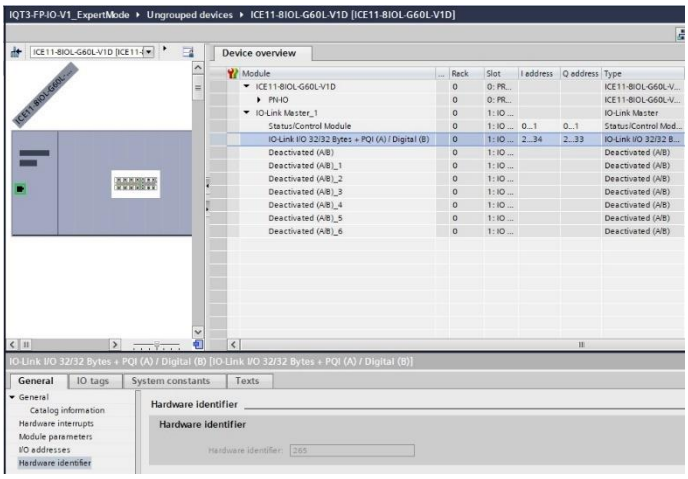


Connection IO-Link master to Profinet network PN/IE_1
The Profinet connection between ICE11-8IOL and PLC is connected manually in the network view via the mouse indicator. The IO-Link master is thus connected to the "PN/IE_1" subnet. The correct Profinet connection is displayed in green. The assignment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

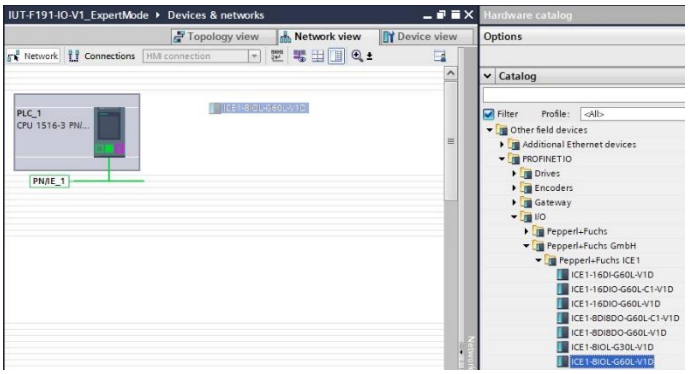


Double-click on the ICE11-8IOL icon to open the device view. The corresponding communication modules for the individual ports of the IO-Link master are to be integrated from the hardware catalog. The " IO-Link I/O 32/32 Bytes + PQI (A) / Digital (B)" module must be assigned for the port to which the IQT3-FP-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.

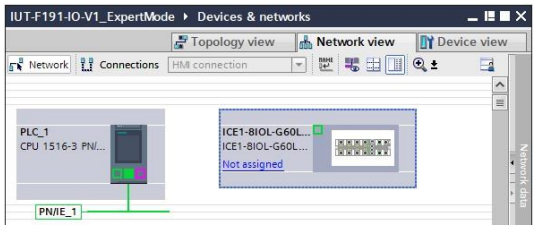
“IO-Link I/O 32/32 Bytes + PQI (A) / Digital (B)“ = 265

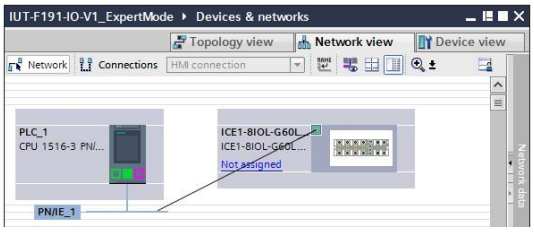
2.2 ICE1-8IOL-G60-V1D resp. ICE1-8IOL-G30-V1D

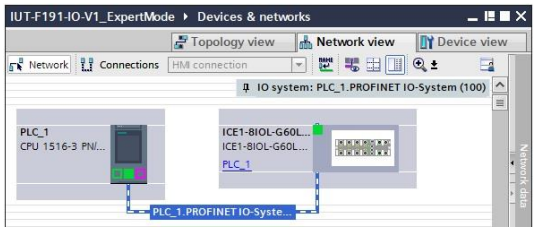


The GSDML for the IO-Link master ICE1-8IOL-G60-V1D is to be dragged over from the hardware catalog into the center window of the device view.

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

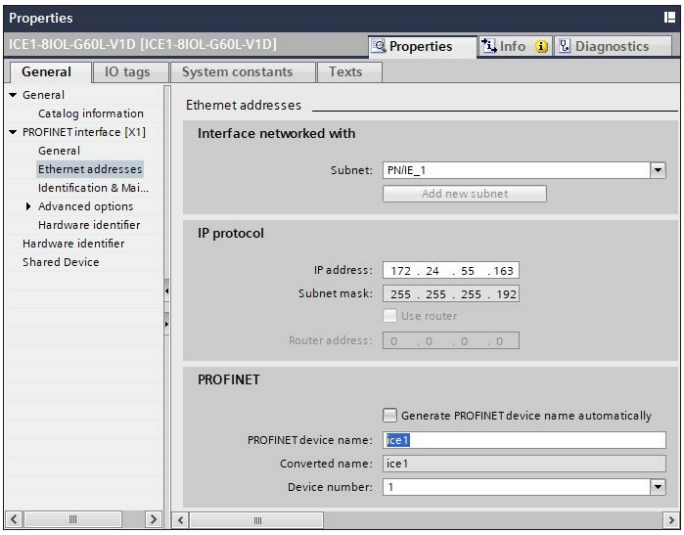






Connection of IO-Link master to Profinet network PN/IE_1

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.

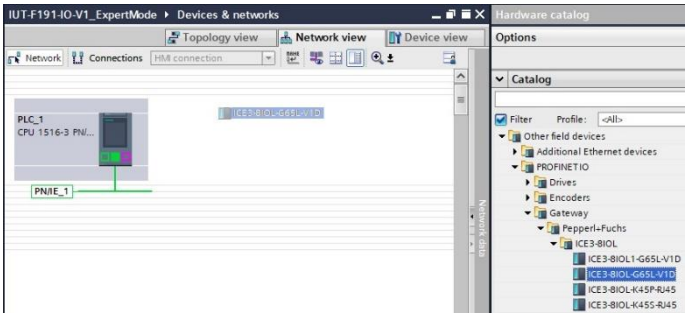
IP address:	172.24.55.163
Subnet mask:	255.255.255.192
Profinet Name:	ice1

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 IQT3-FP-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.

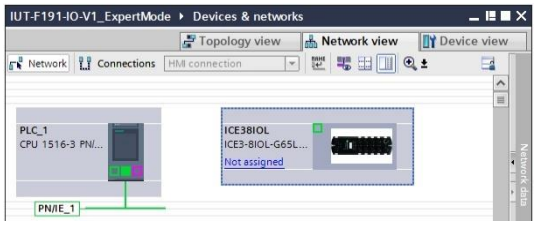
“IO-Link I/O 32/32 Bytes“ = 275

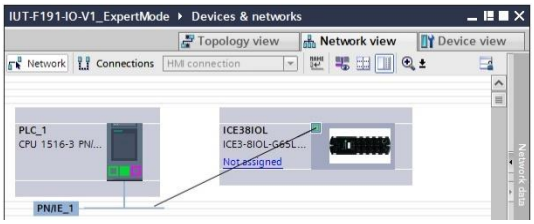
2.3 ICE3-8IOL-G65L-V1D resp. ICE3-8IOL1-G65L-V1D

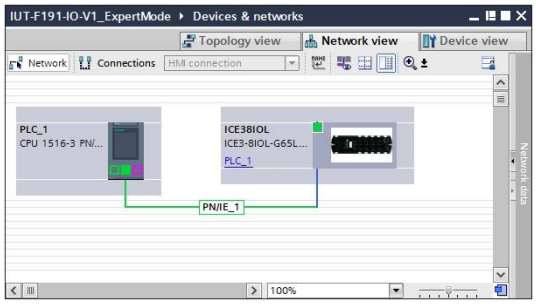


The GSDML for the IO-Link master ICE3-8IOL-G65L-V1D is to be dragged over from the hardware catalog into the center window of the device view.

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

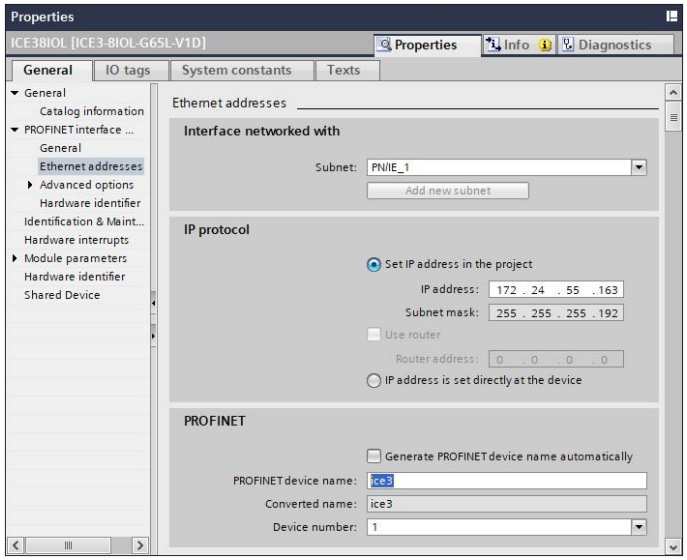






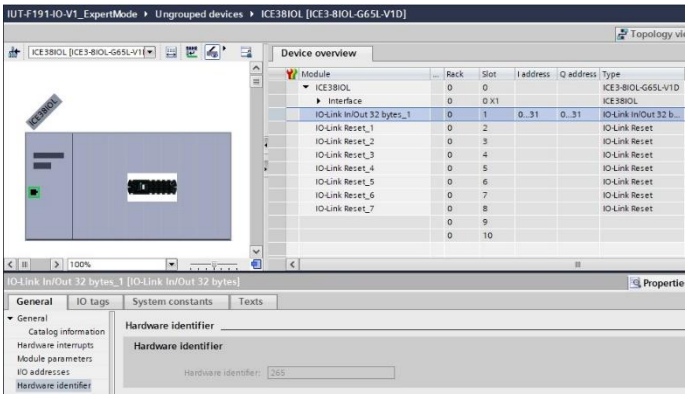
Connection of IO-Link master to Profinet network PN/IE_1

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 IQT3-FP-IO-V1 RFID station is connected. Ports that are not used must be set to inactive.

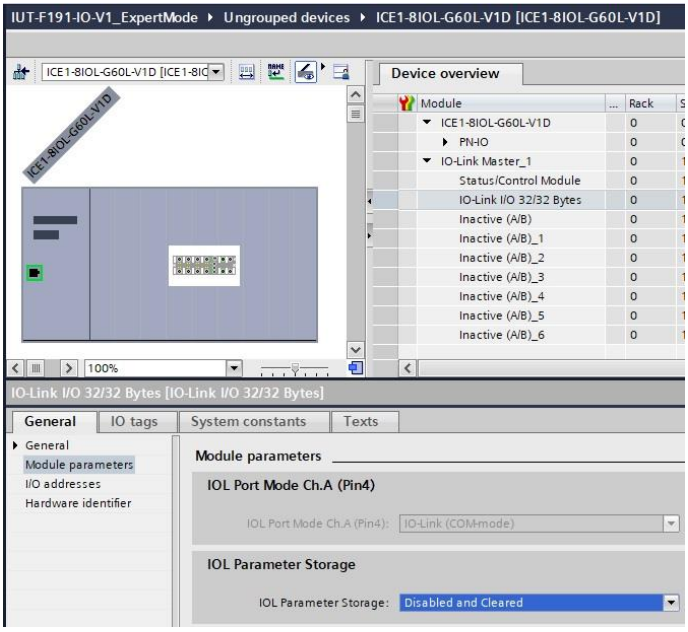
The added communication module has a hardware identifier. This identifier serves as input parameter "I_HWIO_Hardware_ID" of the function block. A symbolic addressing is possible.

“IO-Link In/Out 32 Bytes” = 265

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

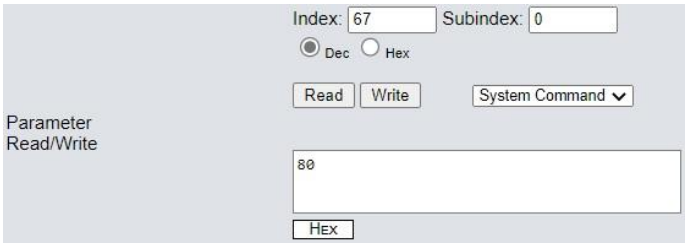
The "IO-Link Parameter Storage" function offers the option of additionally storing the IO-Link parameters of the connected device within the IO-Link master. This makes it possible to automatically transfer the previously set parameter set of the device to a replacement device. Additional parameterization 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.



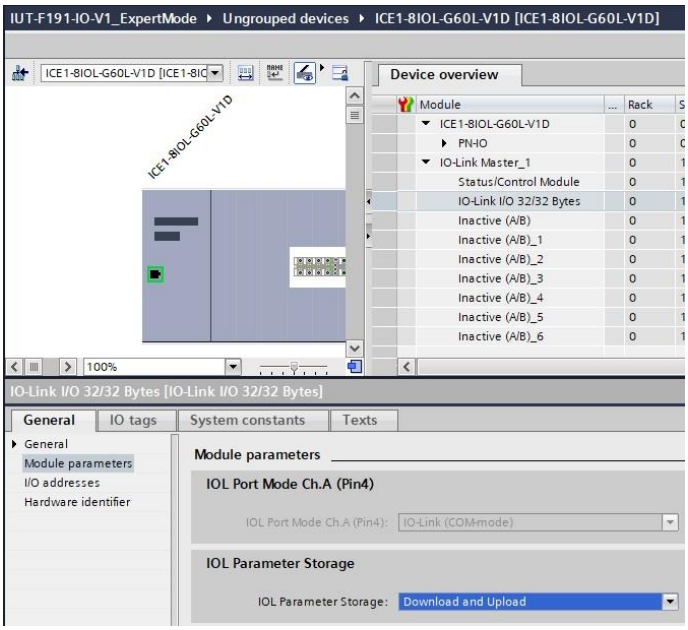
Setting the "IOL Parameter Storage" module parameter of the "IO-Link I/O 32/32 bytes" module to "Disable and Cleared".

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



Setting Parameter 67 “Input Representation”
16#80 → Short Form data format

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.

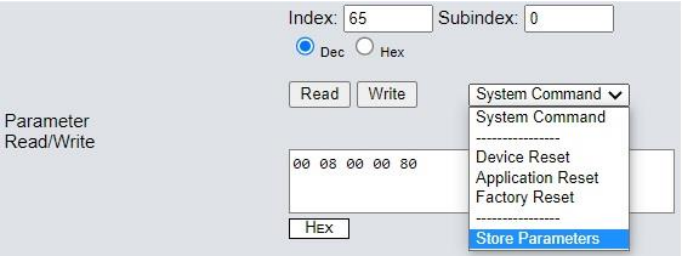


Setting the "IOL Parameter Storage" module parameter of the "IO-Link I/O 32/32 bytes" module to "Download and Upload”

The parameters are now stored both in the RFID Station IQT3-FP-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 IQT3-FP-IO-V1

The RFID station IQT3-FP-IO-V1 has various module parameters for setting the device properties when using the Expert mode. 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 "IQT3-FP-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; filters) of the RFID station can be executed.

Name	Index Dez	Index Hex	Sub-index	Length	Access	Value range	Factory setting
Operation Mode	64	16#40	0	1 Byte	Read / Write	0 = Expert Mode 128 = Easy Mode	128 = Easy Mode
Input Representation	67	16#43	0	1 Byte	Read / Write	0 = Long Form data format 128 = Short Form data format	0 = Short Form data format
Transmission Power - PT	96	16#60	0	1 Word	Read / Write	16#0001 = Minimum 16#0002 = Eco 16#0003 = Normal 16#0004 = Maximum	16#0004 = Maximum
Number of Tags to find - NT	97	16#61	0	1 Byte	Read / Write	1…20 255 = off	255
Tries Allowed - TA	98	16#62	0	1 Byte	Read / Write	1…10	2
Expected Number of Tags - QW	99	16#63	0	1 Byte	Read / Write	0 = 1 data carrier 1 = 2 data carriers 2 = 4 data carriers 3 = 8 data carriers 4 = 16 data carriers	0
Tag Lost Smoothing – E5	100	16#64	0	1 Byte	Read / Write	0…10	5
Tag Type - CT	106	16#6A	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) 25 → LRI512 (STMicroelectronics) 27 → EM4135 (EM Microelectronic) 28 → EM4034 (EM Microelectronic) 29 → EM4035 (EM Microelectronic) 30 → LRI2K (STMicroelectronics) 31 → Tag-it HF-I Standard (TI) 32 → Tag-it HF-I Pro (TI)	20

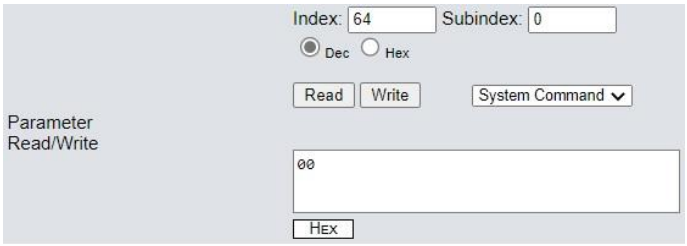
						33 → FRAM MB89R118 (Fujitsu) 34 → FRAM MB89R119 (Fujitsu) 35 → ICODE SLI-S (NXP) 36 → ICODE SLI-L (NXP) 37 → FRAM MB89R112 (Fujitsu) 38 → EM4233 (EM Microelectronic) 50 → ICODE SLIX2 (NXP)	
Overtemperature Handling – TO	107	16#6B	0	1 Byte	Read / Write	0 → switch off carrier 1 → reduce power 2 → reduce duty cycle	0
Operating hours	224	16#E0	0	4 Byte	Read	0…2^32-1	-
Temperature Indicator	225	16#E1	0	1 Byte	Read	0 = Operating condition OK 1 = Close to upper limit 2 = Upper limit exceeded 3 = Close to lower limit 4 = Lower limit exceeded	-
Temperature Monitor – Overtemperature Operating Hours	226	16#E2	1	4 Byte	Read	0…2^32-1	-
Temperature Monitor – Overtemperature Exceeded Counter	226	16#E2	2	2 Byte	Read	0…65535	-
Temperature Monitor – Maximum Operating Temperature	226	16#E2	3	1 Byte	Read	-40…+125	-
Temperature Monitor – Minimum Operating Temperature	226	16#E2	4	1 Byte	Read	-40…+125	-
Temperature Monitor – Device Operating Temperature	226	16#E2	5	1 Byte	Read	-40…+125	-
Power Monitor – Power Cycles Counter	227	16#E3	1	4 Byte	Read	0…2^32-1	-
Power Monitor – Maximum Uptime	227	16#E3	2	4 Byte	Read	0…2^32-1	-
Power Monitor – Average Uptime	227	16#E3	3	4 Byte	Read	0…2^32-1	-
Power Monitor –Uptime	227	16#E3	4	4 Byte	Read	0…2^32-1	-
RFID Device Monitor – Carrier Operating Hours	230	16#E6	1	4 Byte	Read	0…2^32-1	-
RFID Device Monitor – Power Amplifier Temperature	230	16#E6	2	1 Byte	Read	-40…+125	-
RFID Device Status – Power Amplifier Overtemperature Error	231	16#E7	1	1 Bit	Read	True = temperature of the power amplifier has exceeded the upper limit	-
RFID Device Status – Power Amplifier Overtemperature Warning	231	16#E7	2	1 Bit	Read	True = temperature of the power amplifier is close to the upper limit	-
RFID Device Status – Tune Limit	231	16#E7	3	1 Bit	Read	True = RFID-Station is interfered by surrounding metal	-
RFID Device Status – Disturbed	231	16#E7	4	1 Bit	Read	True = RFID-Station is currently disturbed	-

3.1 IO-Link Parameter 64 (16#40) “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 "IQT3-FP-IO-V1_ExpertMode_Basic" function block.

Structure Parameter 64 (16#40) “Operation Mode”

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
64	16#40	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
64	16#40	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



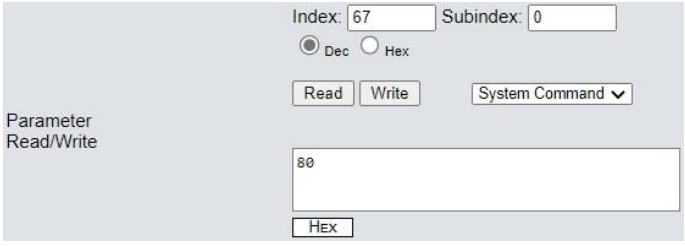
Parameter 64 (16#40) "Operation Mode": Changeover to Expert Mode; 0 (16#00) = Expert Mode activated;

3.2 IO-Link Parameter 67 (16#43) “Input Representation”

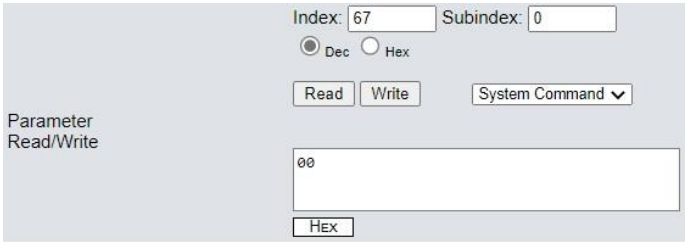
The "Input Representation" parameter can be used to influence the data format of the transmitted data. The "Short Form" data format is used in the factory setting. This means that no additional length information and the UID of the associated data carrier are prefixed to the data read in. The "Short Form" data format can only be used for single tag applications. When using the "Long Form" data format, additional length information and the UID of the associated data carrier are prefixed to the read-in data. This is necessary in order to be able to clearly assign the read data record to a data carrier in multi-tag applications. However, this occupies part of the process data that is no longer available for the read-in data.

Structure Parameter 67 (16#43) “Input Representation”

Index Dec	Index Hex	Sub-index	Length	Value (Dec)	Value (Hex)	Access	Meaning
67	16#43	0	1 Byte	0	16#00	Read / Write	Input Representation: Long Form Long form data format; input data prefixed with UID and length specifications; multi-tag applications possible;
67	16#43	0	1 Byte	128	16#80	Read / Write	Input Representation: Short Form Short form data format; input data without prefixed UID and length specifications; single tag applications only; factory setting



Parameter 67 (16#43) “Input Representation”: 16#80 resp. 128 → Short Form data format



Parameter 67 (16#43) “Input Representation”:
16#00 resp. 0 → Long Form data format

Telegram structure Process input data "Short Form" data format:

Byte	Content				
0	Delete Slave	Update Master	Update Slave	0	Frame Length
1	Frame Length → Length between “Control Byte” and “Information Byte Y”				
2	Fragmentation Counter				
3	Telegram Length (High Byte)				
4	Telegram Length (Low Byte) → Length between “Telegram Length High Byte” and “Information Byte Y”				
5	Command				
6	Status				
7	Information Byte 1				
8	Information Byte 2				
…	…				
…	Information Byte Y				
…	16#00				
…	16#00				
…	…				
31	16#00				

Telegram structure Process input data "Long Form" data format:

Byte	Content				
0	Delete Slave	Update Master	Update Slave	0	Frame Length
1	Frame Length → Length between “Control Byte” and “Information Byte Y”				
2	Fragmentation Counter				
3	Telegram Length (High Byte)				
4	Telegram Length (Low Byte) → Length between “Telegram Length High Byte” and “Information Byte Y”				
5	Command				
6	Status				
7	Length UID (High Byte); 16#00				
8	Length UID (Low Byte); 16#08				
9	UID Byte 1				
10	UID Byte 2				
11	UID Byte 3				
12	UID Byte 4				
…	UID Byte 5				
…	UID Byte 6				
	UID Byte 7				
	UID Byte 8				
…	Length Information (High Byte)				
…	Length Information (Low Byte)				
…	Information Byte 1				
…	Information Byte 2				
…	…				
…	Information Byte Y				
…	16#00				
…	16#00				
…	…				
31	16#00				

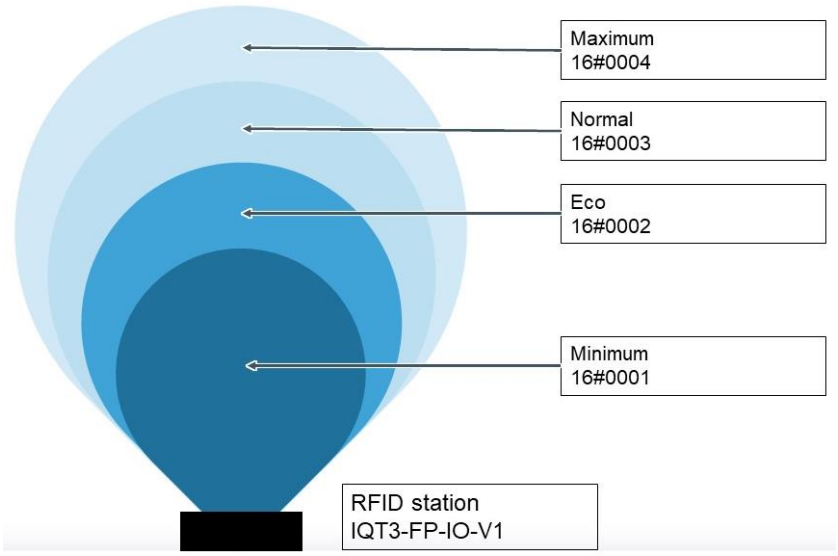
3.3 IO-Link Parameter 96 (16#60) “Transmission Powers – PT”

The "Transmission Power" parameter sets the transmission power of the IQT3-FP-IO-V1 RFID device. The transmission power can be set in the range between 1 (minimum) and 4 (maximum). Only one power level can be set at a time. The factory setting is the transmit power level 4 (maximum)

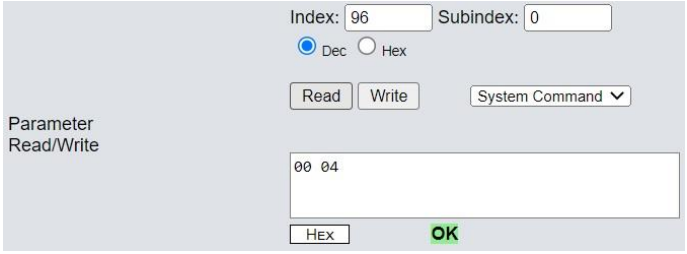
Structure Parameter 96 (16#60) “Transmission Powers“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
96	16#60	0	2 Byte / 1 Word	1…4	16#0001 … 16#0004	Read / Write	Transmission power level Transmission Power PT 1; power level 1; factory setting PT 1 = 4 (maximum)

The following power values can be set:
16#0001 → Minimum
16#0002 → Eco
16#0003 → Normal
16#0004 → Maximum



The detection range and the diameter of the detection zone can be influenced via the different power levels of the IQT3-FP-IO-V1 RFID device.



Parameter 96 (16#60) “Transmission Power“:
Readout parameters with the factory setting;
16#0004 → Level 4 (Maximum)

3.4 IO-Link Parameter 97 (16#61) “Number of Tags to Find – NT”

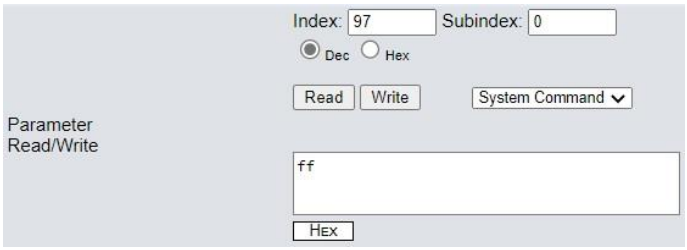
The "Number of tags to find" parameter allows the definition of an abort criterion for the automatic abort of an activated single write or read command as soon as the set number of tags has been detected. In the factory setting, the parameter has the value 255 (16#FF) and there is no premature termination regardless of the number of identified tags.

Structure Parameter 97 (16#61) “Number of Tags to find“

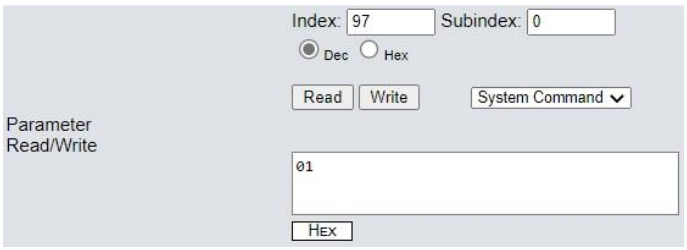
Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning

97	16#61	0	1 Byte	1…20 255	16#00 … 16#14 16#FF	Read / Write	Termination criterion; 1 = termination after identification of a data carrier; 255 = no premature termination; factory setting = 255

This parameter can be used in connection with a Single command when using the Expert mode. If the parameterized number of data carriers is detected during the execution of the command, the Single command is automatically aborted.



Parameter 97 (16#61) “Number of Tags to find”:
16#FF resp. 255 → Abort criterion switched off



Parameter 97 (16#61) “Number of Tags to find”:
16#01 resp. 1→ Abort criterion = 1; single command is aborted after identification of the first data carrier

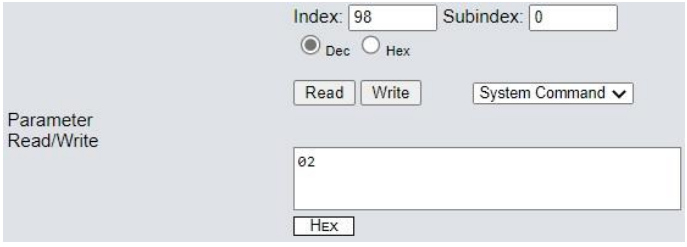
3.5 IO-Link Parameter 98 (16#62) “Tries Allowed – TA”

The "Tries allowed" parameter can be used to set the number of attempts to access a data carrier that are made when a read or write operation is executed. In the factory setting, the parameter has the value 2.

Structure Parameter 98 (16#62) “Tries allowed“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
98	16#62	0	1 Byte	1…10	16#00 … 16#0A	Read / Write	Number of repetitions; factory setting = 2

This parameter can be used when using the Expert mode in conjunction with a Single command. By increasing the number of access attempts, more scans are performed during the execution of the Single command. Increasing the number of scan attempts will increase the execution time for a Single command.



Parameter 98 (16#62) “Tries allowed”:
16#02 resp. 2 → Number of access attempts = 2; two access attempts are executed

3.6 IO-Link Parameter 99 (16#63) “Expected Number of Tags – QW”

During the identification of one or more data carriers via the air interface, each data carrier is assigned a defined time slot for data transmission by the IQT3-FP-IO-V1 RFID device. The greater the number of data carriers expected for identification, the greater the number of time slots available on the air interface must be. The number of time slots should correspond to the number of tags to be identified.

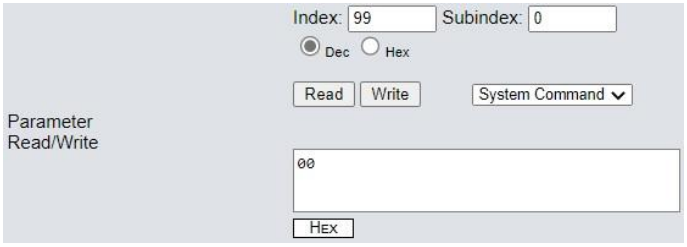
In the factory setting, the parameter has the value 0, which means that exactly 1 time slot is used for the identification of exactly one tag.

Structure Parameter 99 (16#63) “Expected Number of Tags“

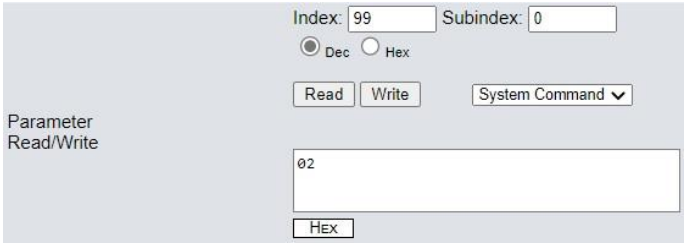
Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
99	16#63	0	1 Byte	0…4	16#00 … 16#04	Read / Write	Number of expected data carriers 0 → exactly 1 data carrier 1 → about 2 data carriers 2 → about 4 data carriers 3 → about 8 data carriers 4 → 16about 16 data carriers Factory setting = 1

In case of an intended identification of only one data carrier, the parameter "Expected Number of Tags" can be used with the value 0 (factory setting).

With set values for "Expected Number of Tags" greater than 0, 16 time slots are always used. With larger values, however, collisions in the responses of the data carriers can be resolved.



Parameter 99 (16#63) “Expected Number of Tags”:
16#00 resp. 0 → Number of time slots = 1; 2^0



Parameter 99 (16#63) “Expected Number of Tags”:
16#02 resp. 2 → Number of time slots = 4; 2^2

3.7 IO-Link Parameter 100 (16#64) “Tag Lost Smoothing – E5”

If a tag leaves the detection zone while an Enhanced command is being executed, the IQT3-FP-IO-V1 RFID station continues to attempt to access this tag. The "Tag Lost Smoothing" parameter can be used to set how many unsuccessful access attempts are to be carried out before the exit of the tag from the detection zone is reported to the controller. In the factory setting, the parameter has the value 5.

Structure Parameter 100 (16#64) “Tag Lost Smoothing“

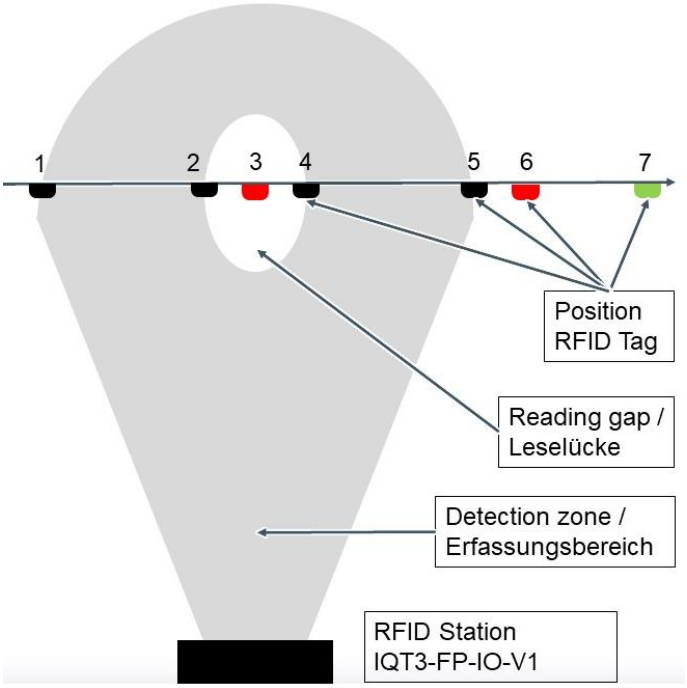
Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
100	16#64	0	1 Byte	0…10	16#00 … 16#0A	Read / Write	Number of unsuccessful read accesses before the exit of the data carrier from the detection zone is reported; factory setting = 5

Via the parameter "Tag Lost Smoothing" (E5) one has an influence on how fast the loss of a data carrier is reported to the PLC. The IQT3-FP-IO-V1 RFID device uses an inductive field to identify tags. Due to environmental influences, areas can arise in which no stable communication with the tags is possible (read gap). If a tag enters such an area, a message is sent to the controller that the tag can no longer be read. The "Tag Lost Smoothing" parameter can be used to delay this message until the tag leaves this area again and enters an area in which it can be stably recognized again.

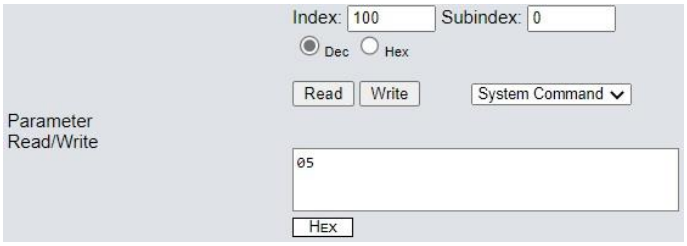
By increasing the value of the "Tag Lost Smoothing", read gaps can be bridged for moving data carriers. This means that the tags can be identified without interruption in the entire detection zone. If a tag finally leaves the detection zone, the message about the tag leaving the detection zone is delayed. The system becomes slower with respect to these messages. The message about the exit of a tag from the detection zone is omitted completely if the read/write task was completed beforehand.

With a smaller value for the "Tag Lost Smoothing", the unsuccessful access to a known data carrier is reported more quickly. The system reacts more quickly when a tag leaves the detection zone. However, this increases the sensitivity to read gaps in the detection zone.

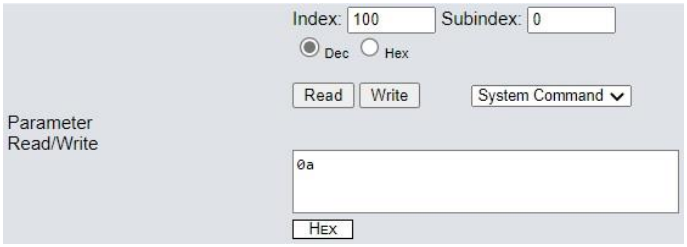
If a tag causes multiple changes between "read" and "not read" when passing through the detection zone, there are read gaps in the detection zone. In this case, the value of the "Tag Lost Smoothing" parameter should be increased.



1: Data carrier enters the detection zone; successful read access is immediately reported to the PLC (status 16#00 telegram with read data + status 16#0B telegram with access information)
2: Data carrier leaves detection zone and reaches the area of a read gap; no message to the PLC
3: Small value of the "Tag-Lost-Smoothing" → Exit of the data carrier from the detection zone is reported to the PLC (status 16#05 telegram)
4: Data carrier re-enters the detection zone from the read gap; successful read access (status 16#00 telegram with read data + status 16#0B telegram with access information) is reported to the PLC
5: Data carrier finally leaves the detection zone; no message to the PLC
6: Small value of the "Tag-Lost-Smoothing" → Exit of the data carrier from the detection zone is reported to the PLC (status 16#05 telegram)
7: high value of "Tag-Lost-Smoothing" → The data carrier leaves the detection zone and is reported to the PLC (status 16#05 telegram)



Parameter 100 (16#64) “Tag Lost Smoothing”: 16#05 resp. 5 → 5 unsuccessful access attempts



Parameter 100 (16#64) “Tag Lost Smoothing”: 16#0A resp. 10 → 10 unsuccessful access attempts

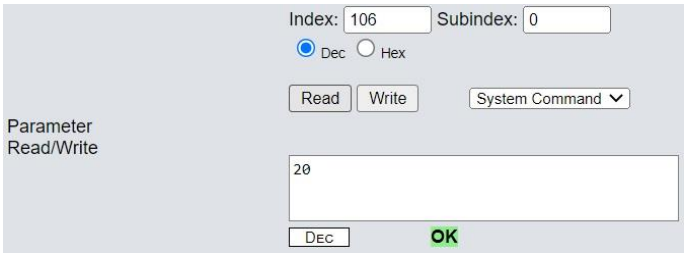
3.8 IO-Link Parameter 106 (16#6A) “Tag Type – CT”

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 106 (16#6A) “Tag Type“

Index Dec	Index Hex	Sub-index	Length	Value (Dec)	Value (Hex)	Access	Meaning
106	16#6A	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) 25 → LRI512 (STMicroelectronics) 27 → EM4135 (EM Microelectronic) 28 → EM4034 (EM Microelectronic) 29 → EM4035 (EM Microelectronic) 30 → LRI2K (STMicroelectronics) 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) 38 → EM4233 (EM Microelectronic) 50 → ICODE SLIX2 (NXP) Factory setting: 20

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



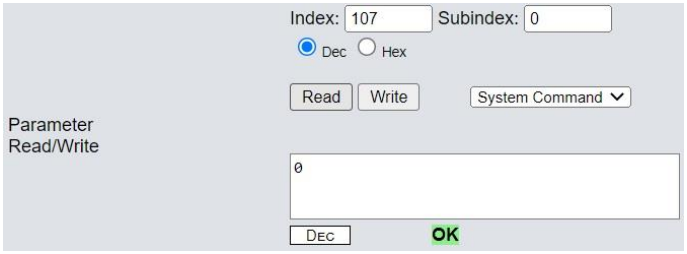
Parameter 106 (16#6A) “Tag Type”: Readout parameter in factory setting;
20 → Tag Type 20 (automatic)

3.9 IO-Link Parameter 107 (16#6B) “Overtemperature Handling – OH”

The "Overtemperature Handling" parameter sets the behavior of the IQT3-FP-IO-V1 RFID device in the event of overtemperature.

Structure Parameter 107 (16#6B) “Overtemperature Handling“

Index Dec	Index Hex	Sub-index	Length	Value (Dec)	Value (Hex)	Access	Meaning
107	16#6B	0	1 Byte	0…2	16#00 … 16#02	Read / Write	Setting behavior of IQT3-FP-IO-V1 RFID device in case of overtemperature 0 → Switch off transmitting mode 1 → Reduce transmit power 2 → Reduce number of access attempts



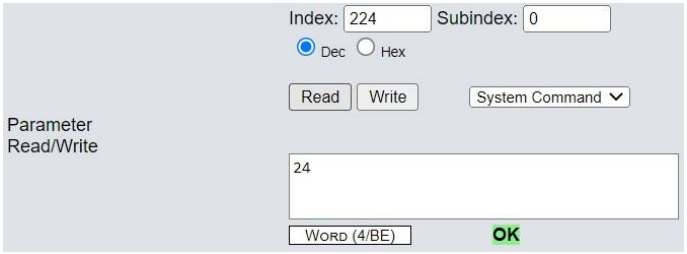
Parameter 107 (16#6B) “Overtemperature Handling”: Readout parameter with factory setting;
0 → Switch off transmitting mode

3.10 IO-Link Parameter 224 (16#E0) “Operating hours”

The parameter "Operating hours" can be used to read out the total operating time since the initial start-up.

Structure Parameter 224 (16#E0) “Operating hours“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
224	16#E0	0	4 Byte / 1 Double Word	0…2^ 32-1		Read	Operating time



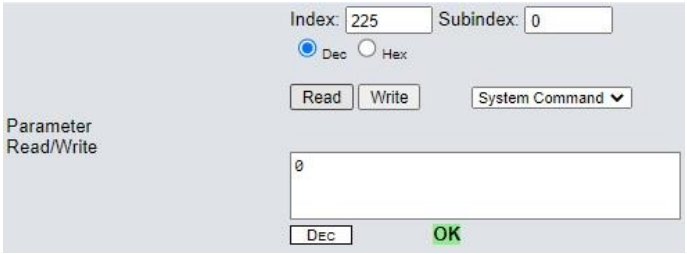
Parameter 224 (16#E0) “Operating hours”:
24 → 24 hours

3.11 IO-Link Parameter 225 (16#E1) “Temperature indicator”

The "Temperature indicator" parameter can be used to read out whether the RFID device is operating within or outside the specified ambient temperature.

Structure Parameter 225 (16#E1) “Temperature indicator“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
225	16#E1	0	1 Byte	0; 1; 2; 3; 4	16#00; 16#01; 16#02; 16#03; 16#04	Read	Temperature indicator 0 → Operating conditions OK 1 → near upper temperature limit 2 → upper temperature limit exceeded 3 → near lower temperature limit 4 → lower temperature limit exceeded



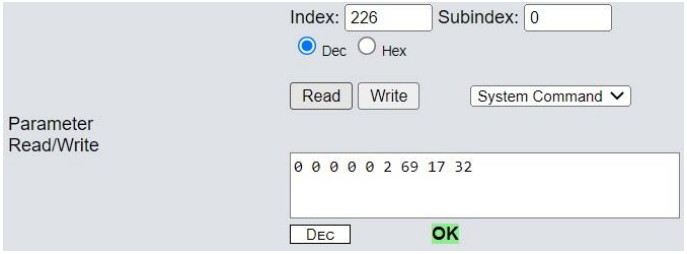
Parameter 225 (16#E1) “Temperature indicator”:
0 → Operating conditions OK

3.12 IO-Link Parameter 226 (16#E2) “Temperature monitor”

The "Temperature monitor" parameter can be used to read out information about the current temperature within the device. In addition, further information about the operation outside the temperature specification is transmitted.

Structure Parameter 226 (16#E2) “Temperature monitor“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
226	16#E2	1	4 Byte / 1 Double Word	0…2^32 -1		Read	Display of the operating time of the device outside the permissible temperature specification
226	16#E2	2	2 Byte / 1 Word	0… 65535	16#0000 … 16#FFFF	Read	Display of the number of transitions from an operation within the permissible temperature specification to an operation outside the specification
226	16#E2	3	1 Byte	-40… +125°C		Read	Display of the maximum operating temperature reached since initial startup
226	16#E2	4	1 Byte	-40… +125°C		Read	Display of the minimum operating temperature reached since initial startup
226	16#E2	5	1 Byte	-40… +125°C		Read	Display of the current operating temperature of the device



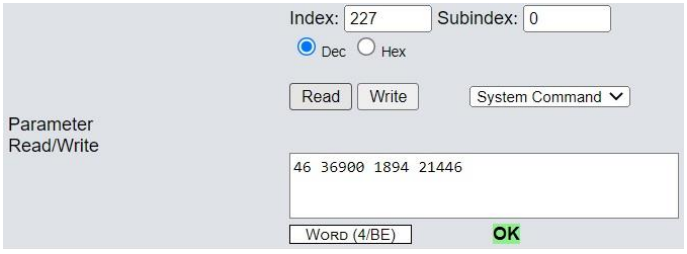
Parameter 226 (16#E2) „Temperature monitor“:
0 0 0 0 → 0 hours operation out of specification
0 2 → 2 transitions
69 → 69°C Maximum temperature
17 → 17°C Minimum temperature
32 → 32°C Current temperature

3.13 IO-Link Parameter 227 (16#E3) “Power monitor”

The parameter "Power monitor" displays additional information about the operating time and interruptions of the operating time.

Structure Parameter 227 (16#E3) “Power monitor“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
227	16#E3	1	4 Byte / 1 Double Word	0…2^32-1		Read	Display of the restarts of the device since the initial commissioning
227	16#E3	2	4 Byte / 1 Double Word	0…2^32-1		Read	Maximum operating time between two interruptions since the initial startup of the device; specification in seconds.
227	16#E3	3	4 Byte / 1 Double Word	0…2^32-1		Read	Average operating time between two interruptions since the initial startup of the device; specification in seconds.
227	16#E3	4	4 Byte / 1 Double Word	0…2^32-1		Read	Current operating time since last restart; specified in seconds



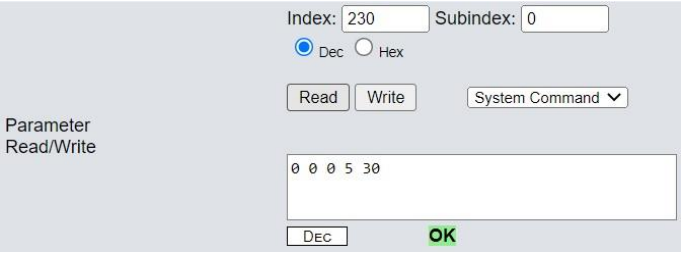
Parameter 227 (16#E3) “Power monitor”:
46 → 46 Restarts
36900 → 36900 seconds between two interrupts
1894 → 1894 seconds between two interrupts
21446 → 21446 seconds operating time

3.14 IO-Link Parameter 230 (16#E6) “RFID Device Monitor”

The "RFID Device Monitor" parameter contains information about the current and past state of the RFID device since initial startup.

Structure Parameter 230 (16#E6) “RFID Device Monitor“

Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
230	16#E6	1	4 Byte / 1 Double Word	0…2^32-1		Read	Operating time on the air interface since initial startup in hours
230	16#E6	2	1 Byte	-40… +125°C		Read	Display of the current operating temperature of the amplifier



Parameter 230 (16#E6) “RFID Device Monitor”:
0 0 0 5 → 5 hours operating time on the radio interface
30 → 30°C operating temperature of the amplifier

3.15 IO-Link Parameter 231 (16#E7) “RFID Device Status”

The "RFID Device Status" parameter contains information about the current status of the IQT3-FP-IO-V1 RFID device.

Structure Parameter 231 (16#E7) “RFID Device Monitor“

Index Dec	Index Hex	Sub-index	Length	Value (Dec)	Value (Hex)	Access	Meaning
231	16#E7	1	1 Bit (Bit offset = 3)			Read	True = Operating temperature of the amplifier has exceeded the upper limit
231	16#E7	2	1 Bit (Bit offset = 2)			Read	True = Operating temperature of the amplifier is near the upper limit
231	16#E7	3	1 Bit (Bit offset = 1)			Read	True = RFID device is detuned by surrounding metal
231	16#E7	4	1 Bit (Bit offset = 0)			Read	True = RFID device is disturbed

Parameter 231 (16#E7) “RFID Device Status”:
0000_0000 → no fault

3.16 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“

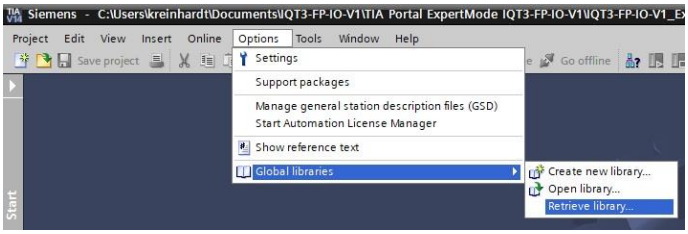
Index Dec	Index Hex	Sub index	Length	Value (Dec)	Value (Hex)	Access	Meaning
2	16#02	0	1 Byte	126	16#7E	Write	Start location indicator (double flashing of all green and yellow LEDs)
2	16#02	0	1 Byte	127	16#7F	Write	End Location Indicator

2	16#02	0	1 Byte	129	16#81	Write	Application reset; the technology-specific parameters are reset; no reset of the supply voltage required
2	16#02	0	1 Byte	131	16#83	Write	Back-to-box; Reset of all parameters to factory settings; reset of supply voltage required

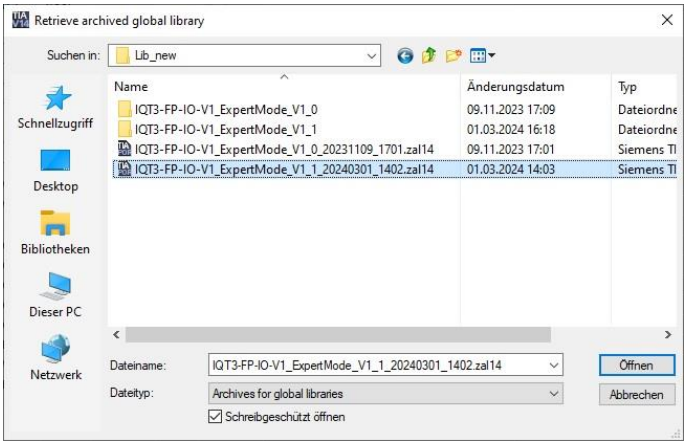
Parameter 2 (16#02) “System Command“:
129 → Reset Application

4. Import library “IQT3-FP-IO-V1_ExpertMode”

The "IQT3-FP-IO-V1_ExpertMode" library contains a function block for using the Expert Mode. This library must first be unpacked.



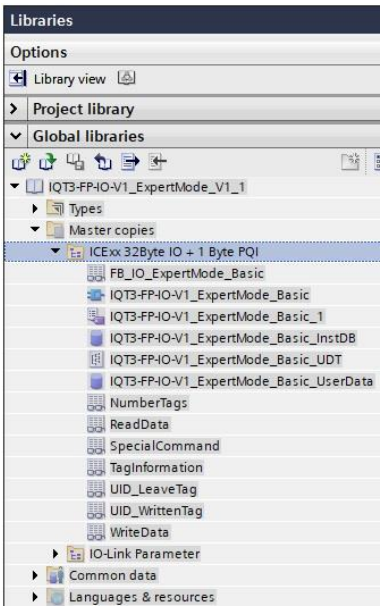
Retrieve Library:
Options → Global Libraries → Retrieve Library



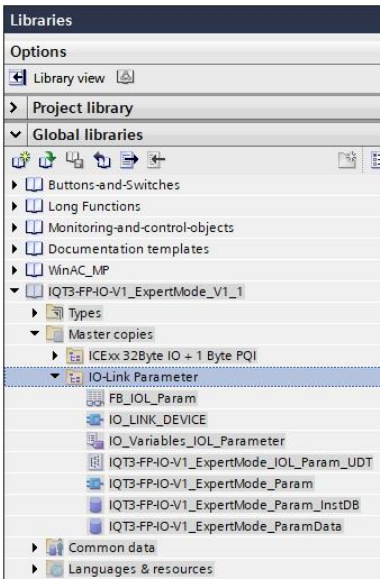
Select library

Here: IQT3-FP-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 connecting the RFID device to perform read and write operations. IO-Link masters with a telegram length of 32 or 33 bytes are supported. 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 33 bytes and 32 bytes. Write and read commands can be executed. The successful read and write accesses are counted during command execution. Valid when using the IO-Link master ICExx or IO-Link master with a telegram length of 32 or 33 bytes per IO-Link port. This module supports the transmission of the PQI byte.

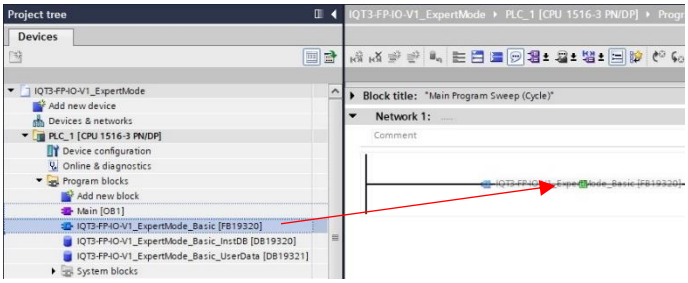


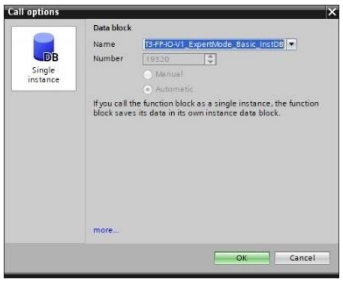
IO-Link Parameter:
Function block for optional access to the IO-Link parameters. Standard IO-Link parameters and device-specific IO-Link parameters can be read. It is also possible to write device-specific IO-Link parameters.

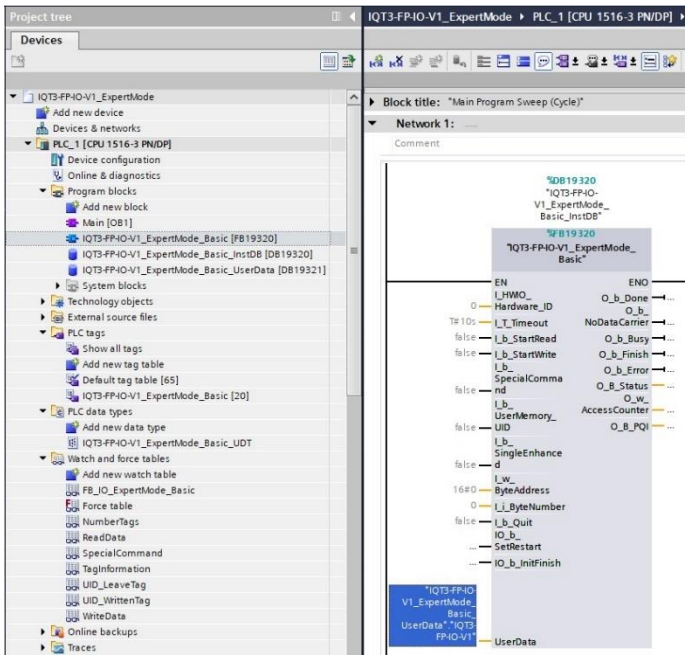
5. Function block FB19320 “IQT3-FP-IO-V1_ExpertMode_Basic”

Functional description “IQT3-FP-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 22 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 "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" data block.

Implementation of function block “IQT3-FP-IO-V1_ExpertMode_Basic”:
Drag the function block "IQT3-FP-IO-V1_ExpertMode_Basic" (FB19320) from the project tree into OB1. Then select the corresponding instance data block. The library contains the data block "IQT3-FP-IO-V1_ExpertMode_Basic_InstDB" (DB19320) which can be used as instance data block. The instance data block can also be regenerated.

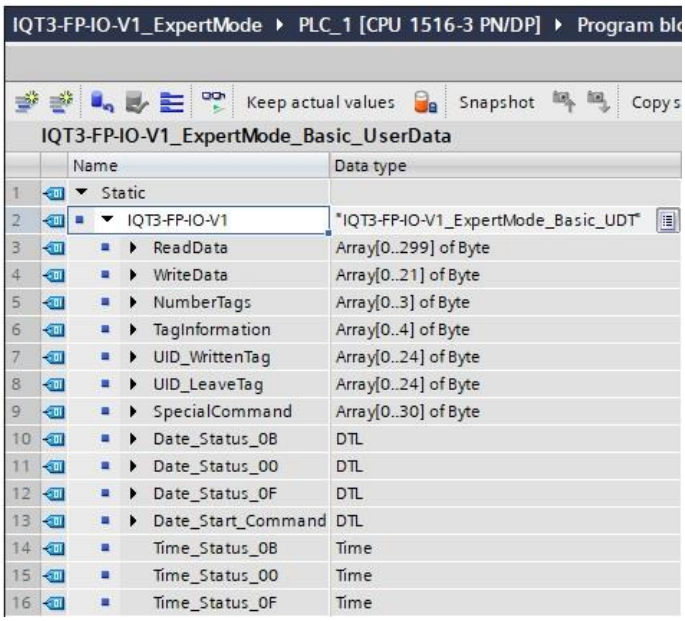






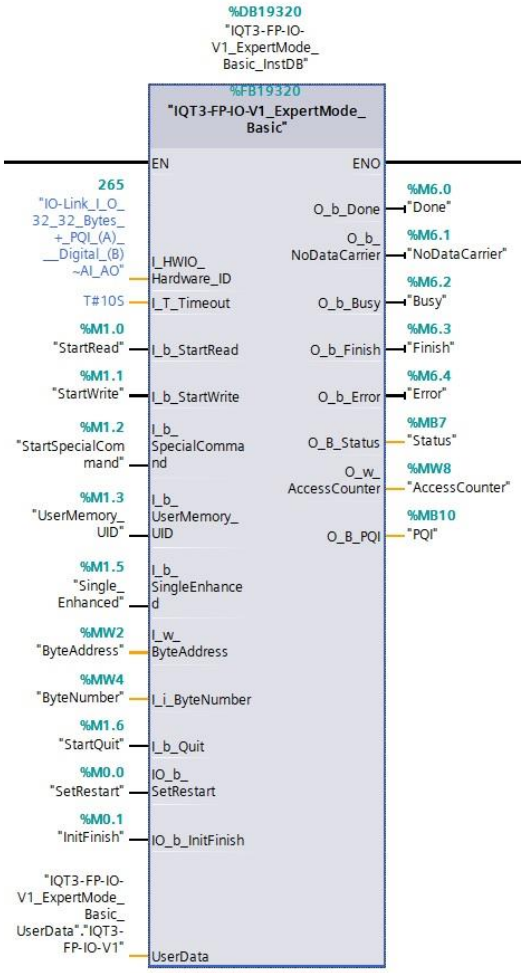
The read/write data of the function block are located in a separate data block. This is parameterized at the “UserData” input. The “IQT3-FP-IO-V1_ExpertMode_Basic_UserData” data block (DB19321) is contained in the library and can be used for this purpose.

The data block can be generated by the user. The internal data structure is generated from the library via the "IQT3-FP-IO-V1_ExpertMode_Basic_UDT" data type.



The data block "IQT3-FP-IO-V1_Expert-Mode_Basic_ UserData" consists of the structure "IQT3-FP-IO-V1". This is divided into the following fields:

ReadData → Read data from data carrier
WriteData → Write data for data carrier
NumberTags → Number of recognized data carriers when executing Single command
TagInformation → Additional information about the data carrier access (e.g., RSSI value)
UID_WrittenTag → UID information of the successfully written data carrier
UID_LeaveTag → UID information of a data carrier left out of the detection zone during the execution of an enhanced command
SpecialCommand → Data field for parameterization of a "SpecialCommand" (e.g., change of transmission power)
Date_Status_0B → Date and time transmission status 16#0B telegram
Date_Status_00 → Date and time transmission status 16#00 telegram
Date_Status_0F → Date and time transmission status 16#0F telegram
Time_Status_0B → Time between start command and reception Status 16#0B telegram
Time_Status_00 → Time duration between start command and reception Status 16#00 Telegram
Time_Status_0F → Time duration between start command and receive status 16#0F telegram



Complete wiring of the "IQT3-FP-IO-V1_ExpertMode_Basic" function block:

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

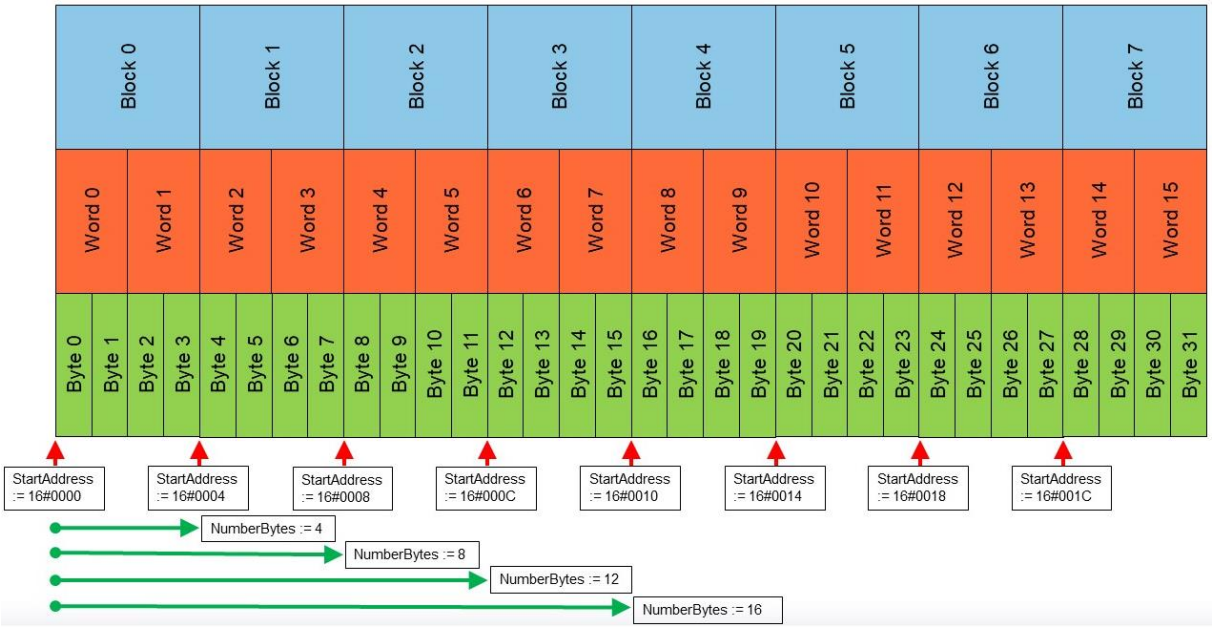
The following table shows the meaning of the input and output variables:

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 "IQT3-FP-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_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 → IQT3-FP-IO-V1_ExpertMode_Basic.IQT3-FP-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_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 16#0A → Error; several data carriers detected (Short Form data format) 16#0B → Telegram with additional information (e.g., RSSI value) 16#0F → End telegram single command; contains the number of identified data carriers
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 "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" data block in the "ReadData" data structure. The additional information (e.g., RSSI value) about the data carrier access is stored in the "TagInformation" data structure. The number of data carriers identified during the command execution are located in the "NumberTags" 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	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 := 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	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#0F	
"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#0F (status value of the last telegram received from the RFID station)
O_w_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	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#0F	
"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.

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
Static			
IQT3-FP-IO-V1	"...		
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 "IQT3-FP-IO-V1_Expert-Mode_Basic_User Data" in data structure "ReadData"; Short Form Data Format

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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
Static			
IQT3-FP-IO-V1	"...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#08
ReadData[2]	Byte	16#0	16#E0
ReadData[3]	Byte	16#0	16#04
ReadData[4]	Byte	16#0	16#01
ReadData[5]	Byte	16#0	16#50
ReadData[6]	Byte	16#0	16#D3
ReadData[7]	Byte	16#0	16#23
ReadData[8]	Byte	16#0	16#66
ReadData[9]	Byte	16#0	16#EC
ReadData[10]	Byte	16#0	16#00
ReadData[11]	Byte	16#0	16#3C
ReadData[12]	Byte	16#0	16#01
ReadData[13]	Byte	16#0	16#02
ReadData[14]	Byte	16#0	16#03
ReadData[15]	Byte	16#0	16#04
ReadData[16]	Byte	16#0	16#05
ReadData[17]	Byte	16#0	16#06
ReadData[18]	Byte	16#0	16#07
ReadData[19]	Byte	16#0	16#08
ReadData[20]	Byte	16#0	16#09

Read data within data block "IQT3-FP-IO-V1_ExpertMode_Basic _UserData" in data structure "ReadData"; Long Form data format

ReadData[0...1]: Length UID Information
Length 2 Byte; UID Information = Fixcode; 16#0008 = 8 Byte; 8 Byte UID resp. Fixcode

ReadData[2…9]: UID Information
Length always 8 Byte; Length and data content cannot be changed; UID always starts with 16#E0; unique identifier of a data carrier

ReadData[10…11]: Length of user memory data read in
Length 2 bytes; corresponds to input parameter "I_b_ByteNumber"; 16#003C = 60 bytes

ReadData[12…71]: User memory data read in
Length depends on the "I_b_ByteNumber" setting; partial area of the user memory read out

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
ReadData[63]	Byte	16#0	16#34
ReadData[64]	Byte	16#0	16#35
ReadData[65]	Byte	16#0	16#36
ReadData[66]	Byte	16#0	16#37
ReadData[67]	Byte	16#0	16#38
ReadData[68]	Byte	16#0	16#39
ReadData[69]	Byte	16#0	16#3A
ReadData[70]	Byte	16#0	16#3B
ReadData[71]	Byte	16#0	16#3C
ReadData[72]	Byte	16#0	16#00

ReadData[12…71]: User memory data read in
Length depends on the "I_b_ByteNumber" setting; partial area of the user memory read out

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
TagInformation	Arra...		
TagInformation[0]	Byte	16#0	16#01
TagInformation[1]	Byte	16#0	16#50
TagInformation[2]	Byte	16#0	16#00
TagInformation[3]	Byte	16#0	16#00
TagInformation[4]	Byte	16#0	16#00
UID_WrittenTag	Arra...		

Additional information within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "TagInformation" data structure

TagInformation[0]: Information type
Length 1 byte; always 16#01
TagInformation[1]: RSSI value
Length 1 byte; value range between 16#00 and 16#64
TagInformation[2...4]: 16#00 (not used)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
NumberTags	Arra...		
NumberTags[0]	Byte	16#0	16#30
NumberTags[1]	Byte	16#0	16#30
NumberTags[2]	Byte	16#0	16#30
NumberTags[3]	Byte	16#0	16#31
TagInformation	Arra...		

Number of identified data carriers within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "Number-Tags"

NumberTags[0...3]: Number of identified data carriers
Length 4 bytes; 16#30303031 = "0001" = 1 data carrier

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monitor value
Date_Status_0B	DTL	DTL#19	DTL#2023-11-10-07:50:35.583509613
Date_Status_00	DTL	DTL#19	DTL#2023-11-10-07:50:35.533711333
Date_Status_0F	DTL	DTL#19	DTL#2023-11-10-07:50:35.601909493
Date_Start_Command	DTL	DTL#19	DTL#2023-11-10-07:50:35.425966568
Time_Status_0B	Time	T#0ms	T#157MS
Time_Status_00	Time	T#0ms	T#107MS
Time_Status_0F	Time	T#0ms	T#175MS

Timing behavior:
Receipt of status 16#00 telegram → after 107ms
Receive status 16#0B Telegram → after 157ms
Receive status 16#0F Telegram → after 175ms

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	0
"ByteNumber"	%MW4	DEC	60	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#0F	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#80	

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#0F (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 0 (no data carrier read)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
NumberTags	Arra...		
NumberTags[0]	Byte	16#0	16#30
NumberTags[1]	Byte	16#0	16#30
NumberTags[2]	Byte	16#0	16#30
NumberTags[3]	Byte	16#0	16#30
TagInformation	Arra...		

Number of identified data carriers within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in data structure "NumberTags

NumberTags[0...3]: Number of identified data carriers
Length 4 bytes; 16#303030 = "0000" = 0 (no) data carrier

Command Single Read 4-Byte Blocks:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ...	Monit...
OutData	Arra...		
OutData[0]	Byte	16#0	16#00
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

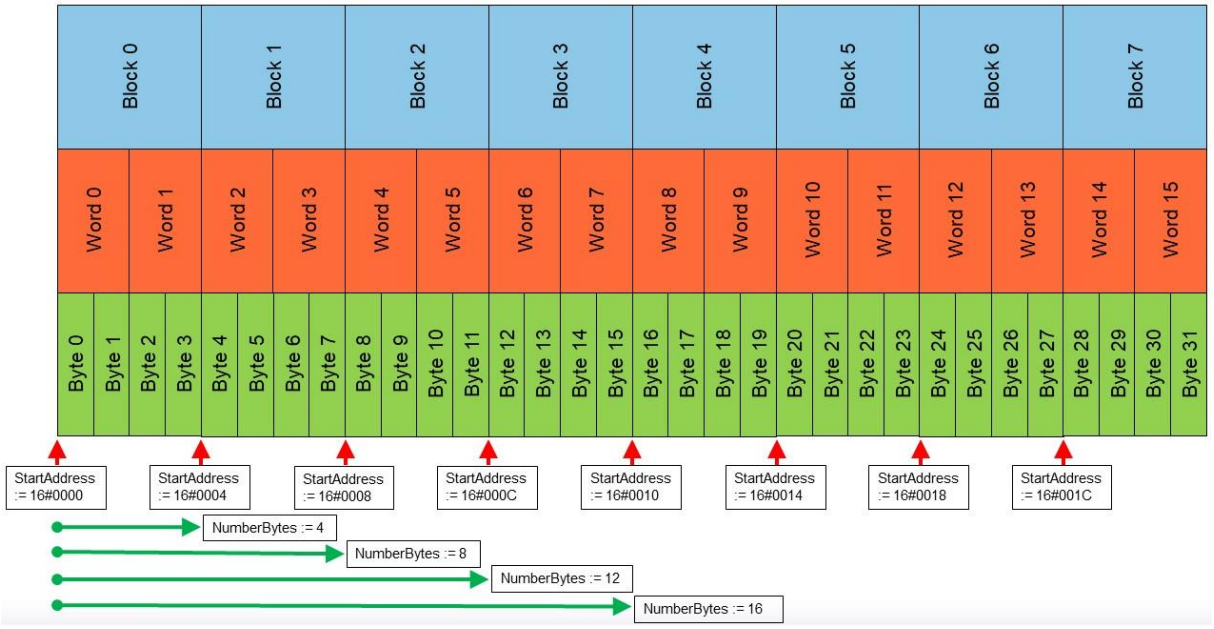
Command telegram within instance data block "IQT3-FP-IO-V1_ExpertMode_Basic_InstDB".

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 "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" data block in the "ReadData" data structure. The additional information (e.g., RSSI value) about the data carrier access is stored in the "TagInformation" data structure. If a tag leaves the detection zone during command execution and can no longer be detected by the RFID station, the "UID_LeaveTag" data structure contains the UID information for this tag.

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_w_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#0B	
"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#0B (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 1 (number of data carriers read during the execution of the command)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
Static			
IQT3-FP-IO-V1	"...		
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 "IQT3-FP-IO-V1_Expert-Mode_Basic_User Data" in data structure "ReadData"; Short Form Data Format

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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
Static			
IQT3-FP-IO-V1	"...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#08
ReadData[2]	Byte	16#0	16#E0
ReadData[3]	Byte	16#0	16#04
ReadData[4]	Byte	16#0	16#01
ReadData[5]	Byte	16#0	16#50
ReadData[6]	Byte	16#0	16#D3
ReadData[7]	Byte	16#0	16#23
ReadData[8]	Byte	16#0	16#66
ReadData[9]	Byte	16#0	16#EC
ReadData[10]	Byte	16#0	16#00
ReadData[11]	Byte	16#0	16#3C
ReadData[12]	Byte	16#0	16#01
ReadData[13]	Byte	16#0	16#02
ReadData[14]	Byte	16#0	16#03
ReadData[15]	Byte	16#0	16#04
ReadData[16]	Byte	16#0	16#05
ReadData[17]	Byte	16#0	16#06
ReadData[18]	Byte	16#0	16#07
ReadData[19]	Byte	16#0	16#08
ReadData[20]	Byte	16#0	16#09

Read data within data block "IQT3-FP-IO-V1_ExpertMode_Basic _UserData" in data structure "ReadData"; Long Form data format

ReadData[0...1]: Length UID Information
Length 2 Byte; UID Information = Fixcode; 16#0008 = 8 Byte; 8 Byte UID resp. Fixcode

ReadData[2…9]: UID Information
Length always 8 Byte; Length and data content cannot be changed; UID always starts with 16#E0; unique identifier of a data carrier

ReadData[10…11]: Length of user memory data read in
Length 2 bytes; corresponds to input parameter "I_b_ByteNumber"; 16#003C = 60 bytes

ReadData[12…71]: User memory data read in
Length depends on the "I_b_ByteNumber" setting; partial area of the user memory read out

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
ReadData[63]	Byte	16#0	16#34
ReadData[64]	Byte	16#0	16#35
ReadData[65]	Byte	16#0	16#36
ReadData[66]	Byte	16#0	16#37
ReadData[67]	Byte	16#0	16#38
ReadData[68]	Byte	16#0	16#39
ReadData[69]	Byte	16#0	16#3A
ReadData[70]	Byte	16#0	16#3B
ReadData[71]	Byte	16#0	16#3C
ReadData[72]	Byte	16#0	16#00

ReadData[12…71]: User memory data read in
Length depends on the "I_b_ByteNumber" setting; partial area of the user memory read out

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
TagInformation[0]	Byte	16#0	16#01
TagInformation[1]	Byte	16#0	16#14
TagInformation[2]	Byte	16#0	16#00
TagInformation[3]	Byte	16#0	16#00
TagInformation[4]	Byte	16#0	16#00
UID_WrittenTag	Arra...		

Additional information within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "TagInformation" data structure
TagInformation[0]: Information type
Length 1 byte; always 16#01
TagInformation[1]: RSSI value
Length 1 byte; value range between 16#00 and 16#64
TagInformation[2...4]: 16#00 (not used)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monitor value
Date_Status_0B	DTL	DTL#19	DTL#2023-11-10-09:27:22.000123955
Date_Status_00	DTL	DTL#19	DTL#2023-11-10-09:27:21.946883404
Date_Status_0F	DTL	DTL#19	DTL#1970-01-01-00:00:00
Date_Start_Command	DTL	DTL#19	DTL#2023-11-10-09:26:12.670983706
Time_Status_0B	Time	T#0ms	T#1M_9S_329MS
Time_Status_00	Time	T#0ms	T#1M_9S_275MS
Time_Status_0F	Time	T#0ms	T#0MS

Timing behavior:
Receive status 16#00 Telegram → after T#1M_9S_275ms
Receive status 16#0B Telegram → after T#1M_9S_329ms

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_w_AccessCounter	= 1 (number of data carriers read during the execution of the command)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
UID_LeaveTag	Arra...		
UID_LeaveTag[0]	Byte	16#0	16#00
UID_LeaveTag[1]	Byte	16#0	16#08
UID_LeaveTag[2]	Byte	16#0	16#E0
UID_LeaveTag[3]	Byte	16#0	16#04
UID_LeaveTag[4]	Byte	16#0	16#01
UID_LeaveTag[5]	Byte	16#0	16#50
UID_LeaveTag[6]	Byte	16#0	16#D3
UID_LeaveTag[7]	Byte	16#0	16#23
UID_LeaveTag[8]	Byte	16#0	16#66
UID_LeaveTag[9]	Byte	16#0	16#EC
UID_LeaveTag[10]	Byte	16#0	16#00

UID information of the data carrier deregistered from the RFID station

UID_LeaveTag[0...1]: Length of UID information
Length 2 bytes; UID information = fixed code; 16#0008 = 8 bytes; 8 bytes UID or fixed code

UID_LeaveTag[2...9]: UID information
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identification of a data carrier

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#0B	
"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#0B (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 2 (number of data carriers read during command execution)

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#0B	
"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_w_AccessCounter	= 2 (number of data carriers read during the execution of the command)

Command Enhanced Read 4-Byte Blocks:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ..	Monit...
OutData	Arra...		
OutData[0]	Byte	16#0	16#80
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

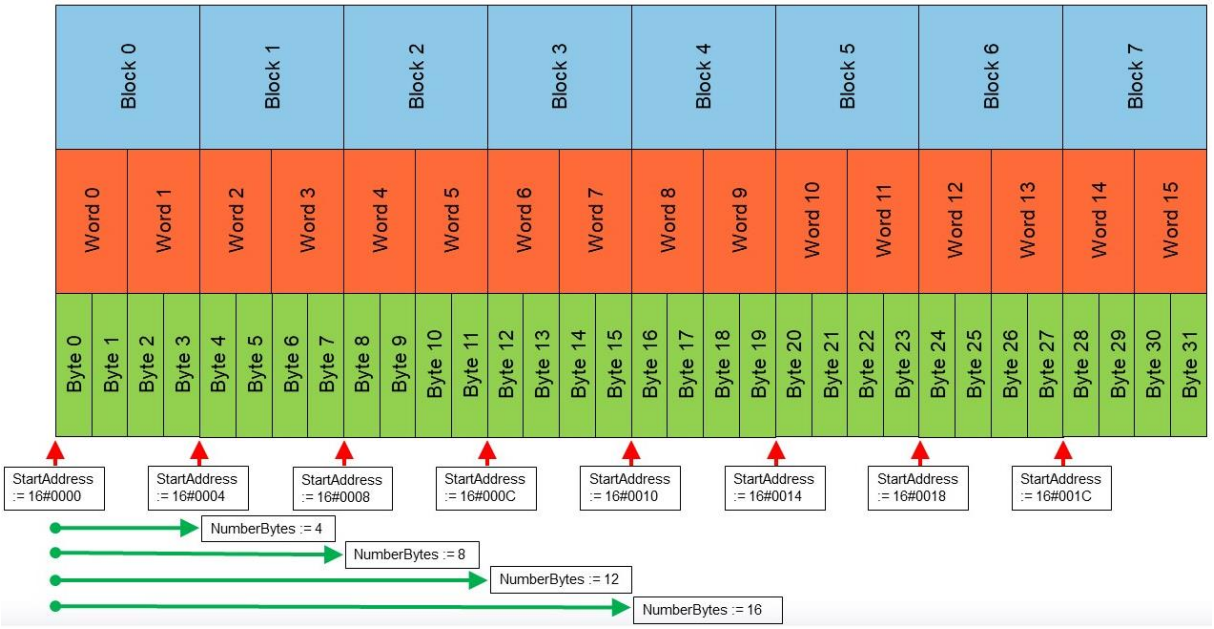
Command telegram within instance data block "IQT3-FP-IO-V1_ExpertMode_Basic_InstDB".

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.

If a data carrier was successfully written during the execution of a command, the UID information of the corresponding data carrier is stored within the "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" data block in the "UID_WrittenTag" data structure. The additional information (e.g., RSSI value) about the data carrier access is stored in the "TagInformation" data structure. At the end of the command execution, the number of data carriers successfully written during the command execution is transferred. This information is located in the "NumberTags" data structure.

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

Assignment of write data in the "WriteData" data structure

Name	...	Di...	Moni..	Modif...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[0]		Hex	16#01	16#01
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[1]		Hex	16#02	16#02
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[2]		Hex	16#03	16#03
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[3]		Hex	16#04	16#04
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[4]		Hex	16#05	16#05
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[5]		Hex	16#06	16#06
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[6]		Hex	16#07	16#07
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[7]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[8]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	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#0F	
"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 with the reception of the UID information)
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#0F (status value of the last telegram received from the RFID station)
O_w_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#0F	
"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.

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monito..
UID_WrittenTag	Arra...		
UID_WrittenTag[0]	Byte	16#0	16#E0
UID_WrittenTag[1]	Byte	16#0	16#04
UID_WrittenTag[2]	Byte	16#0	16#01
UID_WrittenTag[3]	Byte	16#0	16#50
UID_WrittenTag[4]	Byte	16#0	16#D3
UID_WrittenTag[5]	Byte	16#0	16#23
UID_WrittenTag[6]	Byte	16#0	16#66
UID_WrittenTag[7]	Byte	16#0	16#EC
UID_WrittenTag[8]	Byte	16#0	16#00

UID information of the successfully programmed data carrier within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "UID_WrittenTag"; short form data format

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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
UID_WrittenTag	Arra...		
UID_WrittenTag[0]	Byte	16#0	16#00
UID_WrittenTag[1]	Byte	16#0	16#08
UID_WrittenTag[2]	Byte	16#0	16#E0
UID_WrittenTag[3]	Byte	16#0	16#04
UID_WrittenTag[4]	Byte	16#0	16#01
UID_WrittenTag[5]	Byte	16#0	16#50
UID_WrittenTag[6]	Byte	16#0	16#D3
UID_WrittenTag[7]	Byte	16#0	16#23
UID_WrittenTag[8]	Byte	16#0	16#66
UID_WrittenTag[9]	Byte	16#0	16#EC
UID_WrittenTag[10]	Byte	16#0	16#00

UID information of the successfully programmed data carrier within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "UID_WrittenTag"; long form data format

UID_WrittenTag[0...1]: Length UID information
Length 2 bytes; UID information = Fixcode; 16#0008 = 8 bytes; 8 bytes UID or Fixcode

UID_WrittenTag[2...9]: UID information
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identifier of a data carrier

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monito..
TagInformation	Arra...		
TagInformation[0]	Byte	16#0	16#01
TagInformation[1]	Byte	16#0	16#4F
TagInformation[2]	Byte	16#0	16#00
TagInformation[3]	Byte	16#0	16#00
TagInformation[4]	Byte	16#0	16#00
UID_WrittenTag	Arra...		

Additional information within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "TagInformation" data structure
TagInformation[0]: Information type
Length 1 byte; always 16#01
TagInformation[1]: RSSI value
Length 1 byte; value range between 16#00 and 16#64
TagInformation[2...4]: 16#00 (not used)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
NumberTags	Arra...		
NumberTags[0]	Byte	16#0	16#30
NumberTags[1]	Byte	16#0	16#30
NumberTags[2]	Byte	16#0	16#30
NumberTags[3]	Byte	16#0	16#31
TagInformation	Arra...		

Number of identified data carriers within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "Number-Tags"

NumberTags[0...3]: Number of identified data carriers
Length 4 bytes; 16#30303031 = "0001" = 1 data carrier

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

	Name	Dat...	Start ...	Monitor value
	Date_Status_0B	DTL	DTL#19	DTL#2023-11-10-11:37:12.575579746
	Date_Status_00	DTL	DTL#19	DTL#2023-11-10-11:37:12.555845573
	Date_Status_0F	DTL	DTL#19	DTL#2023-11-10-11:37:12.595304959
	Date_Start_Command	DTL	DTL#19	DTL#2023-11-10-11:37:12.501708013
	Time_Status_0B	Time	T#0ms	T#73MS
	Time_Status_00	Time	T#0ms	T#54MS
	Time_Status_0F	Time	T#0ms	T#93MS

Timing behavior:
Receive status 16#00 Telegram → after T#54MS
Receive status 16#0B Telegram → after T#73MS
Receive status 16#0F Telegram → after T#93MS

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#0F	
"AccessCounter"	%MW8	DEC+/-	0	
"PQI"	%MB10	Hex	16#80	

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

O_b_Done	= TRUE (changes to TRUE with the receipt of the UID information)
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#0F (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 0 (no data carrier detected)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

	Name	Dat...	Start ...	Monit...
	NumberTags	Arra...		
	NumberTags[0]	Byte	16#0	16#30
	NumberTags[1]	Byte	16#0	16#30
	NumberTags[2]	Byte	16#0	16#30
	NumberTags[3]	Byte	16#0	16#30
	TagInformation	Arra...		

Number of identified data carriers within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in data structure "NumberTags

NumberTags[0...3]: Number of identified data carriers
Length 4 bytes; 16#303030 = "0000" = 0 (no) data carrier

Command Single Write 4-Byte Blocks:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ...	Monit...
OutData	Arra...		
OutData[0]	Byte	16#0	16#40
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

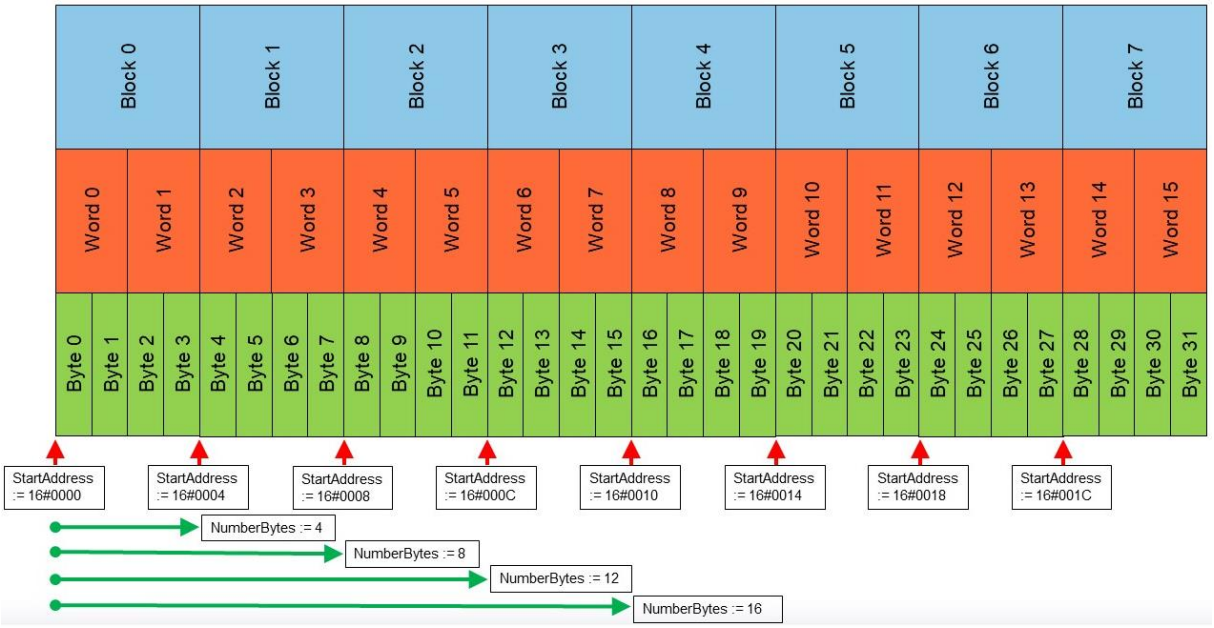
Command telegram within instance data block "IQT3-FP-IO-V1_ExpertMode_Basic_InstDB".

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.

Within the data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "UID_WrittenTag", the UID information of the data carriers successfully programmed during command execution is saved. The additional information (e.g., RSSI value) about the data carrier access is stored in the "TagInformation" data structure. If a tag leaves the detection zone during command execution and can no longer be recognized by the RFID station, the "UID_LeaveTag" data structure contains the UID information of this tag.

Enhanced Write 4-Byte Blocks:

Assignment of write data in the "WriteData" data structure

Name	...	Di...	Moni..	Modif...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[0]		Hex	16#01	16#01
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[1]		Hex	16#02	16#02
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[2]		Hex	16#03	16#03
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[3]		Hex	16#04	16#04
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[4]		Hex	16#05	16#05
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[5]		Hex	16#06	16#06
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[6]		Hex	16#07	16#07
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[7]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".WriteData[8]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	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_w_AccessCounter	= 0 (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	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#0B	
"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#0B (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 1 (number of data carriers programmed during command execution)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monito..
UID_WrittenTag	Arra...		
UID_WrittenTag[0]	Byte	16#0	16#E0
UID_WrittenTag[1]	Byte	16#0	16#04
UID_WrittenTag[2]	Byte	16#0	16#01
UID_WrittenTag[3]	Byte	16#0	16#50
UID_WrittenTag[4]	Byte	16#0	16#D3
UID_WrittenTag[5]	Byte	16#0	16#23
UID_WrittenTag[6]	Byte	16#0	16#66
UID_WrittenTag[7]	Byte	16#0	16#EC
UID_WrittenTag[8]	Byte	16#0	16#00

UID information of the successfully programmed data carrier within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "UID_WrittenTag"; short form data format

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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
UID_WrittenTag	Arra...		
UID_WrittenTag[0]	Byte	16#0	16#00
UID_WrittenTag[1]	Byte	16#0	16#08
UID_WrittenTag[2]	Byte	16#0	16#E0
UID_WrittenTag[3]	Byte	16#0	16#04
UID_WrittenTag[4]	Byte	16#0	16#01
UID_WrittenTag[5]	Byte	16#0	16#50
UID_WrittenTag[6]	Byte	16#0	16#D3
UID_WrittenTag[7]	Byte	16#0	16#23
UID_WrittenTag[8]	Byte	16#0	16#66
UID_WrittenTag[9]	Byte	16#0	16#EC
UID_WrittenTag[10]	Byte	16#0	16#00

UID information of the successfully programmed data carrier within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "UID_WrittenTag"; long form data format

UID_WrittenTag[0...1]: Length UID information
Length 2 bytes; UID information = Fixcode; 16#0008 = 8 bytes; 8 bytes UID or Fixcode

UID_WrittenTag[2...9]: UID information
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identifier of a data carrier

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Sta...	Monit...
TagInformation	Arr...		
TagInformation[0]	Byte	16#0	16#01
TagInformation[1]	Byte	16#0	16#13
TagInformation[2]	Byte	16#0	16#00
TagInformation[3]	Byte	16#0	16#00
TagInformation[4]	Byte	16#0	16#00
UID_WrittenTag	Arr...		

Additional information within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "TagInformation" data structure
TagInformation[0]: Information type
Length 1 byte; always 16#01
TagInformation[1]: RSSI value
Length 1 byte; value range between 16#00 and 16#64
TagInformation[2...4]: 16#00 (not used)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Sta...	Monitor value
Date_Status_0B	DTL	DTL#	DTL#2023-11-10-20:12:46.862952373
Date_Status_00	DTL	DTL#	DTL#2023-11-10-20:12:46.841636359
Date_Status_0F	DTL	DTL#	DTL#1970-01-01-00:00:00
Date_Start_Command	DTL	DTL#	DTL#2023-11-10-20:12:23.148977893
Time_Status_0B	Time	T#0m	T#23S_713MS
Time_Status_00	Time	T#0m	T#23S_692MS
Time_Status_0F	Time	T#0m	T#0MS

Timing behavior:
Receive status 16#00 Telegram → after T#23S_692ms
Receive status 16#0B Telegram → after T#23S_713ms

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_w_AccessCounter	= 1 (number of data carriers programmed during command execution)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ...	Monit...
UID_LeaveTag	Arra...		
UID_LeaveTag[0]	Byte	16#0	16#00
UID_LeaveTag[1]	Byte	16#0	16#08
UID_LeaveTag[2]	Byte	16#0	16#E0
UID_LeaveTag[3]	Byte	16#0	16#04
UID_LeaveTag[4]	Byte	16#0	16#01
UID_LeaveTag[5]	Byte	16#0	16#50
UID_LeaveTag[6]	Byte	16#0	16#D3
UID_LeaveTag[7]	Byte	16#0	16#23
UID_LeaveTag[8]	Byte	16#0	16#66
UID_LeaveTag[9]	Byte	16#0	16#EC
UID_LeaveTag[10]	Byte	16#0	16#00

UID information of the data carrier deregistered from the RFID station

UID_LeaveTag[0...1]: Length of UID information
Length 2 bytes; UID information = fixed code; 16#0008 = 8 bytes; 8 bytes UID or fixed code

UID_LeaveTag[2...9]: UID information
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identification of a data carrier

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#0B	
"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#0B (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 2 (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	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#0B	
"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_w_AccessCounter	= 2 (number of data carriers programmed during command execution)

Command Enhanced Write 4-Byte Blocks:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Data..	Star...	Monit...
OutData	Arra...		
OutData[0]	Byte	16#0	16#A0
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 "IQT3-FP-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 "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "ReadData". The additional

information (e.g., RSSI value) about the data carrier access is stored in the "TagInformation" data structure. The number of data carriers identified during command execution is stored in the "Number-Tags" structure.

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#0F	
"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#0F (status value of the last telegram received from the RFID station)
O_w_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#0F	
"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.

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
Static			
IQT3-FP-IO-V1	"...		
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#D3
ReadData[5]	Byte	16#0	16#23
ReadData[6]	Byte	16#0	16#66
ReadData[7]	Byte	16#0	16#EC
ReadData[8]	Byte	16#0	16#00

Data read in within data block "IQT3-FP-IO-V1_ExpertMode_Basic _UserData" in the data structure "ReadData"; short form data format

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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
Static			
IQT3-FP-IO-V1	"...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#08
ReadData[2]	Byte	16#0	16#E0
ReadData[3]	Byte	16#0	16#04
ReadData[4]	Byte	16#0	16#01
ReadData[5]	Byte	16#0	16#50
ReadData[6]	Byte	16#0	16#D3
ReadData[7]	Byte	16#0	16#23
ReadData[8]	Byte	16#0	16#66
ReadData[9]	Byte	16#0	16#EC
ReadData[10]	Byte	16#0	16#00

Data read in within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the data structure "ReadData"; Long Form data format

ReadData[0...1]: Length UID information
Length 2 bytes; UID information = Fixcode; 16#0008 = 8 bytes; 8 bytes UID or Fixcode

ReadData[2...9]: 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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
TagInformation	Arra...		
TagInformation[0]	Byte	16#0	16#01
TagInformation[1]	Byte	16#0	16#4F
TagInformation[2]	Byte	16#0	16#00
TagInformation[3]	Byte	16#0	16#00
TagInformation[4]	Byte	16#0	16#00
UID_WrittenTag	Arra...		

Additional information within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "TagInformation" data structure
TagInformation[0]: Information type
Length 1 byte; always 16#01
TagInformation[1]: RSSI value
Length 1 byte; value range between 16#00 and 16#64
TagInformation[2...4]: 16#00 (not used)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
NumberTags	Arra...		
NumberTags[0]	Byte	16#0	16#30
NumberTags[1]	Byte	16#0	16#30
NumberTags[2]	Byte	16#0	16#30
NumberTags[3]	Byte	16#0	16#31
TagInformation	Arra...		

Number of identified data carriers within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "Number-Tags"

NumberTags[0...3]: Number of identified data carriers
Length 4 bytes; 16#30303031 = "0001" = 1 data carrier

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monitor value
Date_Status_0B	DTL	DTL#19	DTL#2023-11-10-10:04:56.113907355
Date_Status_00	DTL	DTL#19	DTL#2023-11-10-10:04:56.097640253
Date_Status_0F	DTL	DTL#19	DTL#2023-11-10-10:04:56.131717062
Date_Start_Command	DTL	DTL#19	DTL#2023-11-10-10:04:56.058087848
Time_Status_0B	Time	T#0ms	T#55MS
Time_Status_00	Time	T#0ms	T#39MS
Time_Status_0F	Time	T#0ms	T#73MS

Timing behavior:
Receive status 16#00 Telegram → after T#39MS
Receive status 16#0B Telegram → after T#55MS
Receive status 16#0F Telegram → after T#73MS

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#0F	
"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#0F (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 0 (no data carrier read)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
NumberTags	Arra...		
NumberTags[0]	Byte	16#0	16#30
NumberTags[1]	Byte	16#0	16#30
NumberTags[2]	Byte	16#0	16#30
NumberTags[3]	Byte	16#0	16#30
TagInformation	Arra...		

Number of identified data carriers within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in data structure "NumberTags

NumberTags[0...3]: Number of identified data carriers
Length 4 bytes; 16#303030 = "0000" = 0 (no) data carrier

Command Single Read Fixcode:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ..	Monit...
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 "IQT3-FP-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 "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the data structure "ReadData". The additional information (e.g., RSSI value) about the data carrier access is stored in the "TagInformation" data structure. If a tag leaves the detection zone during command execution and can no longer be recognized by the RFID station, the "UID_LeaveTag" data structure contains the UID information of this tag.

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	
"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+/-	0	
"PQI"	%MB10	Hex	16#B0	

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	
"Single_Enhanced"	%M1.5	Bool	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_w_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	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#0B	
"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#0B (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 1 (number of data carriers read during the execution of the command)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
Static			
IQT3-FP-IO-V1	"...		
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#D3
ReadData[5]	Byte	16#0	16#23
ReadData[6]	Byte	16#0	16#66
ReadData[7]	Byte	16#0	16#EC
ReadData[8]	Byte	16#0	16#00

Data read in within data block "IQT3-FP-IO-V1_ExpertMode_Basic _UserData" in the data structure "ReadData"; short form data format

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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
Static			
IQT3-FP-IO-V1	"...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#00
ReadData[1]	Byte	16#0	16#08
ReadData[2]	Byte	16#0	16#E0
ReadData[3]	Byte	16#0	16#04
ReadData[4]	Byte	16#0	16#01
ReadData[5]	Byte	16#0	16#50
ReadData[6]	Byte	16#0	16#D3
ReadData[7]	Byte	16#0	16#23
ReadData[8]	Byte	16#0	16#66
ReadData[9]	Byte	16#0	16#EC
ReadData[10]	Byte	16#0	16#00

Data read in within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the data structure "ReadData"; Long Form data format

ReadData[0...1]: Length UID information
Length 2 bytes; UID information = Fixcode; 16#0008 = 8 bytes; 8 bytes UID or Fixcode

ReadData[2...9]: 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

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Dat...	Start ..	Monit...
TagInformation	Arra...		
TagInformation[0]	Byte	16#0	16#01
TagInformation[1]	Byte	16#0	16#03
TagInformation[2]	Byte	16#0	16#00
TagInformation[3]	Byte	16#0	16#00
TagInformation[4]	Byte	16#0	16#00
UID_WrittenTag	Arra...		

Additional information within data block "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "TagInformation" data structure
TagInformation[0]: Information type
Length 1 byte; always 16#01
TagInformation[1]: RSSI value
Length 1 byte; value range between 16#00 and 16#64
TagInformation[2...4]: 16#00 (not used)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

	Name	Dat...	Start ...	Monitor value
	Date_Status_0B	DTL	DTL#19	DTL#2023-11-10-10:49:25.995589013
	Date_Status_00	DTL	DTL#19	DTL#2023-11-10-10:49:25.976973697
	Date_Status_0F	DTL	DTL#19	DTL#1970-01-01-00:00:00
	Date_Start_Command	DTL	DTL#19	DTL#2023-11-10-10:48:27.633474395
	Time_Status_0B	Time	T#0ms	T#58S_362MS
	Time_Status_00	Time	T#0ms	T#58S_343MS
	Time_Status_0F	Time	T#0ms	T#0MS

Timing behavior:
Receive status 16#00 Telegram → after T#58S_343ms
Receive status 16#0B Telegram → after T#58S_362ms

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	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_w_AccessCounter	= 1 (number of data carrier read during the execution of the command)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

	Name	Dat...	Start ...	Monit...
	UID_LeaveTag	Arra...		
	UID_LeaveTag[0]	Byte	16#0	16#00
	UID_LeaveTag[1]	Byte	16#0	16#08
	UID_LeaveTag[2]	Byte	16#0	16#E0
	UID_LeaveTag[3]	Byte	16#0	16#04
	UID_LeaveTag[4]	Byte	16#0	16#01
	UID_LeaveTag[5]	Byte	16#0	16#50
	UID_LeaveTag[6]	Byte	16#0	16#D3
	UID_LeaveTag[7]	Byte	16#0	16#23
	UID_LeaveTag[8]	Byte	16#0	16#66
	UID_LeaveTag[9]	Byte	16#0	16#EC
	UID_LeaveTag[10]	Byte	16#0	16#00

UID information of the data carrier deregistered from the RFID station

UID_LeaveTag[0...1]: Length of UID information
Length 2 bytes; UID information = fixed code; 16#0008 = 8 bytes; 8 bytes UID or fixed code

UID_LeaveTag[2...9]: UID information
Length always 8 bytes; length and data content cannot be changed; UID always starts with 16#E0; unique identification of a data carrier

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	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#0B	
"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#0B (status value of the last telegram received from the RFID station)
O_w_AccessCounter	= 2 (number of data carriers read during command execution)

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#0B	
"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_w_AccessCounter	= 2 (number of data carrier read during the execution of the command)

Command Enhanced Read Fixcode:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start ..	Monit...
OutData	Arra...		
OutData[0]	Byte	16#0	16#A0
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 "IQT3-FP-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 "Read Parameter" and "Write Parameter" commands, which can be used to read or change the HF parameters via the process data. The "Special Command" function can be used to execute all permitted commands of the RFID station.

Before executing a "Special Command", the command telegram must be transferred to the "Special Command" data field of the "IQT3-FP-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 Parameter DR (“Data Rate”)

Assignment of command telegram in "SpecialCommand" data structure

Name	A...	Dis...	Monit...	Modify ...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[0]		Hex	16#0B	16#0B
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[3]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[4]		Hex	16#BE	16#BE
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[5]		Cha...	'Q'	'Q'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[6]		Cha...	'D'	'D'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[7]		Cha...	'R'	'R'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[9]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[10]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	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#BE
SpecialCommand[5]	Byte	16#0	16#51
SpecialCommand[6]	Byte	16#0	16#44
SpecialCommand[7]	Byte	16#0	16#52
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#BE
SpecialCommand[5]:	SystemCode “Q”	16#51
SpecialCommand[6]:	Parameter High Byte “D”	16#44
SpecialCommand[7]:	Parameter Low Byte “R”	16#52
SpecialCommand[8]:	Parameter Length High	16#00
SpecialCommand[9]:	Parameter Length Low	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+/-	0	
"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+/-	0	
"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.

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito..
Static			
IQT3-FP-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 "IQT3-FP-IO-V1_ExpertMode_Basic _UserData" in the "ReadData" data structure

ReadData[0]: read-in value Parameter DR
Length depends on the parameter read in; 16#00 = normal data rate

Command Read Parameter for access to parameter DR (Data Rate):

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start..	Monit...
OutData	Arr...		
OutData[0]	Byte	16#0	16#A0
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#BE
OutData[6]	Byte	16#0	16#51
OutData[7]	Byte	16#0	16#44
OutData[8]	Byte	16#0	16#52
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 "IQT3-FP-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#BE
OutData[6]:	SystemCode “Q”	16#51
OutData[7]:	Parameter High Byte “D”	16#44
OutData[8]:	Parameter Low Byte “R”	16#52
OutData[9]:	Length High Byte	16#00
OutData[10]:	Length Low Byte	16#00

5.7.2 Write Parameter DR (“Data Rate”)

Example: Change parameter DR ("Data Rate") to the value 16#01 (fast read mode)

Name	A...	Dis...	Monit...	Modify ...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[0]		Hex	16#0C	16#0C
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[3]		Hex	16#09	16#09
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[4]		Hex	16#BF	16#BF
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[5]		Cha...	'Q'	'Q'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[6]		Cha...	'D'	'D'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[7]		Cha...	'R'	'R'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[9]		Hex	16#01	16#01
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[10]		Hex	16#01	16#01
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[11]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito..
SpecialCommand	Arra...		
SpecialCommand[0]	Byte	16#0	16#0C
SpecialCommand[1]	Byte	16#0	16#00
SpecialCommand[2]	Byte	16#0	16#00
SpecialCommand[3]	Byte	16#0	16#09
SpecialCommand[4]	Byte	16#0	16#BF
SpecialCommand[5]	Byte	16#0	16#51
SpecialCommand[6]	Byte	16#0	16#44
SpecialCommand[7]	Byte	16#0	16#52
SpecialCommand[8]	Byte	16#0	16#00
SpecialCommand[9]	Byte	16#0	16#01
SpecialCommand[10]	Byte	16#0	16#01
SpecialCommand[11]	Byte	16#0	16#00

SpecialCommand[0]:	Frame Length	16#0C
SpecialCommand[1]:	Fragmentation Counter	16#00
SpecialCommand[2…3]:	Telegram Length	16#0009
SpecialCommand[4]:	Command	16#BF
SpecialCommand[5]:	SystemCode “Q”	16#51
SpecialCommand[6]:	Parameter High Byte “D”	16#44
SpecialCommand[7]:	Parameter Low Byte “R”	16#52
SpecialCommand[8]:	Parameter Length High	16#00
SpecialCommand[9]:	Parameter Length Low	16#01
SpecialCommand[10]:	Parameter Value	16#01

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+/-	0	
"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+/-	0	
"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.

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito...
Static			
IQT3-FP-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 "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "ReadData" data structure

No data is transferred when the "Write Parameter" command is executed.

Command Write Parameter to change the DR (Data Rate) parameter to the value 16#01:

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start...	Monit...
OutData	Arr...		
OutData[0]	Byte	16#0	16#C0
OutData[1]	Byte	16#0	16#0C
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#09
OutData[5]	Byte	16#0	16#BF
OutData[6]	Byte	16#0	16#51
OutData[7]	Byte	16#0	16#44
OutData[8]	Byte	16#0	16#52
OutData[9]	Byte	16#0	16#00
OutData[10]	Byte	16#0	16#01
OutData[11]	Byte	16#0	16#01
OutData[12]	Byte	16#0	16#00

Command telegram within instance data block "IQT3-FP-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#0C
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0009
OutData[5]:	Command	16#BF
OutData[6]:	SystemCode “Q”	16#51
OutData[7]:	Parameter High Byte “D”	16#44
OutData[8]:	Parameter Low Byte “R”	16#52
OutData[9]:	Length High Byte	16#00
OutData[10]:	Length Low Byte	16#01
OutData[11]:	Parameter Value	16#01

Read out parameter DR (Data Rate) to check the changed parameter value:

Name	A...	Dis...	Monit...	Modify ...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[0]		Hex	16#0B	16#0B
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[3]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[4]		Hex	16#BE	16#BE
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[5]		Cha...	'Q'	'Q'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[6]		Cha...	'D'	'D'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[7]		Cha...	'R'	'R'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[9]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[10]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[11]		Hex	16#00	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	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+/-	0	
"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)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito..
Static			
IQT3-FP-IO-V1	"I...		
ReadData	Arra...		
ReadData[0]	Byte	16#0	16#01
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 "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the "ReadData" data structure

ReadData[0]: read-in value Parameter DR
Length depends on the parameter read; 16#01 = fast read mode (fast data rate)

5.7.3 Write Parameter TI (“Tag ID filtering”)

Assignment of command telegram in data structure "SpecialCommand"

Name	A...	Dis...	Monit...	Modify ...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[0]		Hex	16#13	16#13
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[3]		Hex	16#10	16#10
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[4]		Hex	16#BF	16#BF
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[5]		Cha...	'Q'	'Q'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[6]		Cha...	'T'	'T'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[7]		Cha...	'I'	'I'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[9]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[10]		Hex	16#E0	16#E0
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[11]		Hex	16#04	16#04
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[12]		Hex	16#01	16#01
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[13]		Hex	16#50	16#50
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[14]		Hex	16#D3	16#D3
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[15]		Hex	16#23	16#23
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[16]		Hex	16#66	16#66
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[17]		Hex	16#EC	16#EC
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[18]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito..
SpecialCommand	Arra...		
SpecialCommand[0]	Byte	16#0	16#13
SpecialCommand[1]	Byte	16#0	16#00
SpecialCommand[2]	Byte	16#0	16#00
SpecialCommand[3]	Byte	16#0	16#10
SpecialCommand[4]	Byte	16#0	16#BF
SpecialCommand[5]	Byte	16#0	16#51
SpecialCommand[6]	Byte	16#0	16#54
SpecialCommand[7]	Byte	16#0	16#49
SpecialCommand[8]	Byte	16#0	16#00
SpecialCommand[9]	Byte	16#0	16#08
SpecialCommand[10]	Byte	16#0	16#E0
SpecialCommand[11]	Byte	16#0	16#04
SpecialCommand[12]	Byte	16#0	16#01
SpecialCommand[13]	Byte	16#0	16#50
SpecialCommand[14]	Byte	16#0	16#D3
SpecialCommand[15]	Byte	16#0	16#23
SpecialCommand[16]	Byte	16#0	16#66
SpecialCommand[17]	Byte	16#0	16#EC
SpecialCommand[18]	Byte	16#0	16#00

SpecialCommand[0]: Frame Length 16#13
SpecialCommand[1]: Fragmentation Counter 16#00
SpecialCommand[2…3]: Telegram Length 16#0010
SpecialCommand[4]: Command 16#BF
SpecialCommand[5]: SystemCode „Q“ 16#51
SpecialCommand[6]: Parameter High Byte „T“ 16#54
SpecialCommand[7]: Parameter Low Byte „I“ 16#49
SpecialCommand[8]: Parameter Length High 16#00
SpecialCommand[9]: Parameter Length Low 16#08
SpecialCommand[10]: UID Byte 1 16#E0
SpecialCommand[11]: UID Byte 2 16#04
SpecialCommand[12]: UID Byte 3 16#01
SpecialCommand[13]: UID Byte 4 16#50
SpecialCommand[14]: UID Byte 5 16#D3
SpecialCommand[15]: UID Byte 6 16#23
SpecialCommand[16]: UID Byte 7 16#66
SpecialCommand[17]: UID Byte 8 16#EC

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+/-	0	
"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+/-	0	
"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.

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito..
Static			
IQT3-FP-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 "IQT3-FP-IO-V1_Expert-Mode_Basic_UserData" in the "ReadData" data structure

No data is transferred when the "Write Parameter" command is executed.

Command Write Parameter for access to parameter TI (Tag ID filtering):

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start..	Monit...
OutData	Arr...		
OutData[0]	Byte	16#0	16#40
OutData[1]	Byte	16#0	16#13
OutData[2]	Byte	16#0	16#00
OutData[3]	Byte	16#0	16#00
OutData[4]	Byte	16#0	16#10
OutData[5]	Byte	16#0	16#BF
OutData[6]	Byte	16#0	16#51
OutData[7]	Byte	16#0	16#54
OutData[8]	Byte	16#0	16#49
OutData[9]	Byte	16#0	16#00
OutData[10]	Byte	16#0	16#08
OutData[11]	Byte	16#0	16#E0
OutData[12]	Byte	16#0	16#04
OutData[13]	Byte	16#0	16#01
OutData[14]	Byte	16#0	16#50
OutData[15]	Byte	16#0	16#D3
OutData[16]	Byte	16#0	16#23
OutData[17]	Byte	16#0	16#66
OutData[18]	Byte	16#0	16#EC
OutData[19]	Byte	16#0	16#00

Command telegram within instance data block "IQT3-FP-IO-V1_ExpertMode_Basic_InstDB".

OutData[0]:	Control byte	
OutData[1]:	Frame Length	16#13
OutData[2]:	Fragmentation Counter	16#00
OutData[3…4]:	Telegram Length	16#0010
OutData[5]:	Command	16#BF
OutData[6]:	SystemCode „Q“	16#51
OutData[7]:	Parameter High Byte „T“	16#54
OutData[8]:	Parameter Low Byte „I“	16#49
OutData[9]:	Length High Byte	16#00
OutData[10]:	Length Low Byte	16#08
OutData[11]:	UID Byte 1	16#E0
OutData[12]:	UID Byte 2	16#04
OutData[13]:	UID Byte 3	16#01
OutData[14]:	UID Byte 4	16#50
OutData[15]:	UID Byte 5	16#D3
OutData[16]:	UID Byte 6	16#23
OutData[17]:	UID Byte 7	16#66
OutData[18]:	UID Byte 8	16#EC

Assignment of command telegram in data structure "SpecialCommand" to delete the filter setting:

Name	A...	Dis...	Monit...	Modify ...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[0]		Hex	16#0B	16#0B
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[3]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[4]		Hex	16#BF	16#BF
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[5]		Cha...	'Q'	'Q'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[6]		Cha...	'T'	'T'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[7]		Cha...	'I'	'I'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[9]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[10]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[11]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	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#BF
SpecialCommand[5]	Byte	16#0	16#51
SpecialCommand[6]	Byte	16#0	16#54
SpecialCommand[7]	Byte	16#0	16#49
SpecialCommand[8]	Byte	16#0	16#00
SpecialCommand[9]	Byte	16#0	16#00
SpecialCommand[10]	Byte	16#0	16#00
SpecialCommand[11]	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#BF
SpecialCommand[5]:	SystemCode „Q“	16#51
SpecialCommand[6]:	Parameter High Byte „T“	16#54
SpecialCommand[7]:	Parameter Low Byte „I“	16#49
SpecialCommand[8]:	Parameter Length High	16#00
SpecialCommand[9]:	Parameter Length Low	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	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+/-	0	
"PQI"	%MB10	Hex	16#80	

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)

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start..	Monit...
OutData	Arr...		
OutData[0]	Byte	16#0	16#C0
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#BF
OutData[6]	Byte	16#0	16#51
OutData[7]	Byte	16#0	16#54
OutData[8]	Byte	16#0	16#49
OutData[9]	Byte	16#0	16#00
OutData[10]	Byte	16#0	16#00
OutData[11]	Byte	16#0	16#00
OutData[12]	Byte	16#0	16#00

Command telegram within instance data block "IQT3-FP-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#BF
OutData[6]:	SystemCode „Q“	16#51
OutData[7]:	Parameter High Byte „T“	16#54
OutData[8]:	Parameter Low Byte „I“	16#49
OutData[9]:	Length High Byte	16#00
OutData[10]:	Length Low Byte	16#00

5.7.4 Read Parameter TI (“Tag ID filtering”)

Assignment of command telegram in data structure "SpecialCommand"

Name	A...	Dis...	Monit...	Modify ...
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[0]		Hex	16#0B	16#0B
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[1]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[2]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[3]		Hex	16#08	16#08
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[4]		Hex	16#BE	16#BE
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[5]		Cha...	'Q'	'Q'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[6]		Cha...	'T'	'T'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[7]		Cha...	'I'	'I'
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[8]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[9]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[10]		Hex	16#00	16#00
"IQT3-FP-IO-V1_ExpertMode_Basic_UserData"."IQT3-FP-IO-V1".SpecialCommand[11]		Hex	16#00	16#00

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	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#BE
SpecialCommand[5]	Byte	16#0	16#51
SpecialCommand[6]	Byte	16#0	16#54
SpecialCommand[7]	Byte	16#0	16#49
SpecialCommand[8]	Byte	16#0	16#00
SpecialCommand[9]	Byte	16#0	16#00
SpecialCommand[10]	Byte	16#0	16#00
SpecialCommand[11]	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#BF
SpecialCommand[5]:	SystemCode „Q“	16#51
SpecialCommand[6]:	Parameter High Byte „T“	16#54
SpecialCommand[7]:	Parameter Low Byte „I“	16#49
SpecialCommand[8]:	Parameter Length High	16#00
SpecialCommand[9]:	Parameter Length Low	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	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+/-	0	
"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)

IQT3-FP-IO-V1_ExpertMode_Basic_UserData

Name	Data...	Start v...	Monito..
Static			
IQT3-FP-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#D3
ReadData[5]	Byte	16#0	16#23
ReadData[6]	Byte	16#0	16#66
ReadData[7]	Byte	16#0	16#EC
ReadData[8]	Byte	16#0	16#00

Data read in within data block "IQT3-FP-IO-V1_ExpertMode_Basic_UserData" in the "ReadData" data structure

ReadData[0]:	UID Byte 1
ReadData[1]:	UID Byte 2
ReadData[2]:	UID Byte 3
ReadData[3]:	UID Byte 4
ReadData[4]:	UID Byte 5
ReadData[5]:	UID Byte 6
ReadData[6]:	UID Byte 7
ReadData[7]:	UID Byte 8

Read Parameter command for access to parameter TI (Tag ID filtering):

IQT3-FP-IO-V1_ExpertMode_Basic_InstDB

Name	Dat...	Start..	Monit...
OutData	Arr...		
OutData[0]	Byte	16#0	16#A0
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#BE
OutData[6]	Byte	16#0	16#51
OutData[7]	Byte	16#0	16#54
OutData[8]	Byte	16#0	16#49
OutData[9]	Byte	16#0	16#00
OutData[10]	Byte	16#0	16#00
OutData[11]	Byte	16#0	16#00
OutData[12]	Byte	16#0	16#00

Command telegram within instance data block "IQT3-FP-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#BE
OutData[6]:	SystemCode „Q“	16#51
OutData[7]:	Parameter High Byte „T“	16#54
OutData[8]:	Parameter Low Byte „I“	16#49
OutData[9]:	Length High Byte	16#00
OutData[10]:	Length Low Byte	16#00

6. Function block FB19317 “IQT3-FP-IO-V1_ExpertMode_Param”

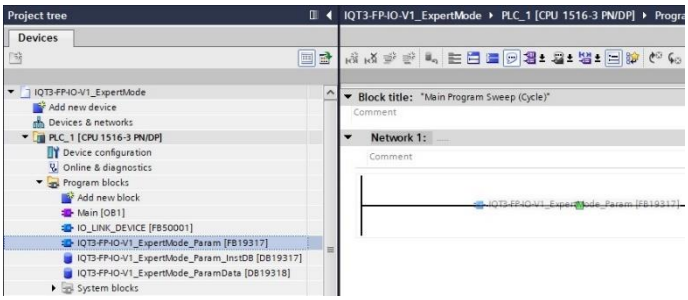
Functional description “IQT3-FP-IO-V1_ExpertMode_Param”:
Function block for reading and changing the IO-Link parameters of the IQT3-FP-IO-V1 RFID station. Read access is made to the IO-Link standard parameters (e.g., vendor name) on the one hand and to the device-specific IO-Link parameters on the other. Write access for a parameter change, on the other hand, is only carried out on the device-specific IO-Link parameters.

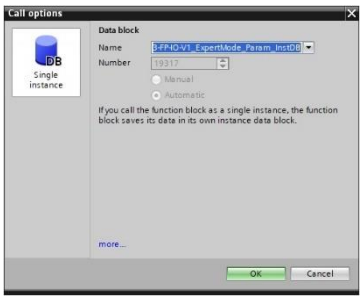
When executing write access to the device-specific IO-Link parameters, it should be noted that the number of possible write operations is limited by the storage of the parameter data in an EEPROM. It is therefore recommended that write access is only carried out when a device has been newly installed.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

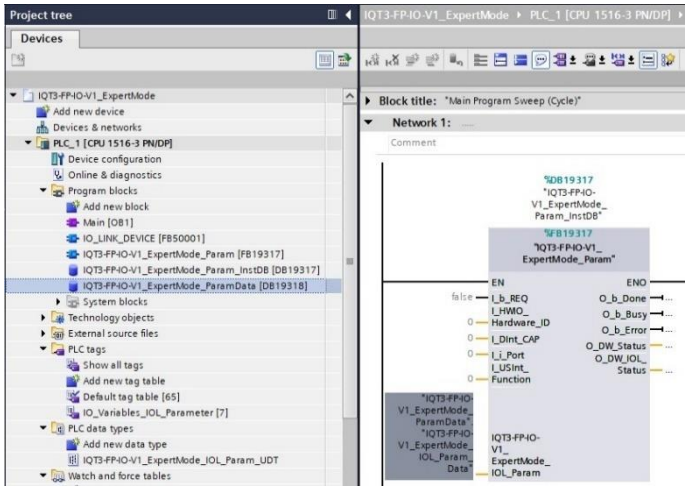
The data structures for the read-in IO-Link parameters are located within the data block DB19318 "IQT3-FP-IO-V1_ParamData". The data structures for changing the IO-Link parameters are pre-assigned with values identical to the factory setting of the RFID station.

The standard function block FB50001 "IO_LINK_DEVICE" is called within the function block FB19317 "IQT3-FP-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 “IQT3-FP-IO-V1_ExpertMode_Param”:
Drag the function block "IQT3-FP-IO-V1_ExpertMode_Param" (FB19317) from the project tree into OB1. The associated instance data block must then be selected. The library contains the data block "IQT3-FP-IO-V1_ExpertMode_Param_InstDB" (DB19317) which can be used as an instance data block. The instance data block can also be regenerated.

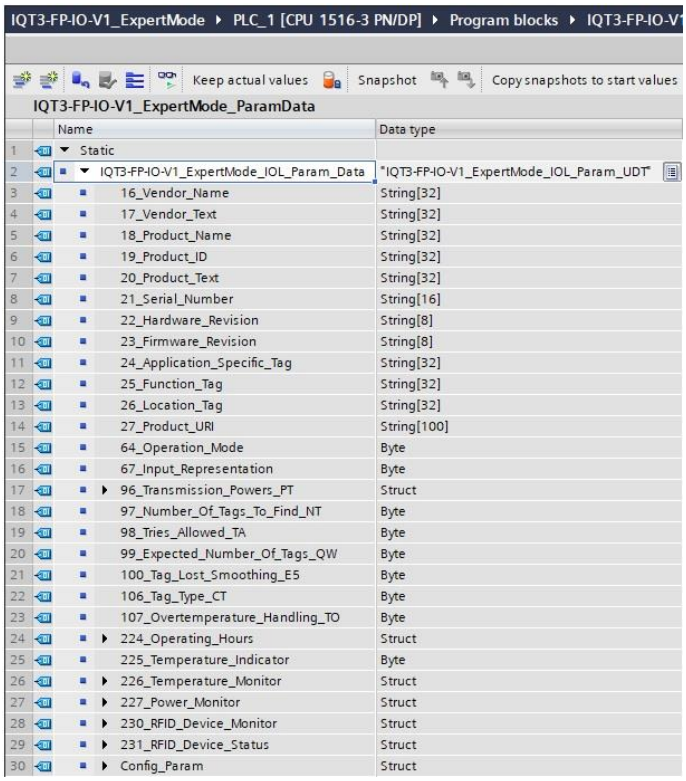






The IO-Link parameters read in are located in a separate data block. This is parameterized at the "IQT3-FP-IO-V1_ExpertMode_IOL_Param" input. The library contains the data block DB19318 "IQT3-FP-IO-V1_ExpertMode_ParamData" which can be used for this purpose.

The data block can be generated by the user. The internal data structure is generated from the library using the data type "IQT3-FP-IO-V1_ExpertMode_IOL_Param_UDT".

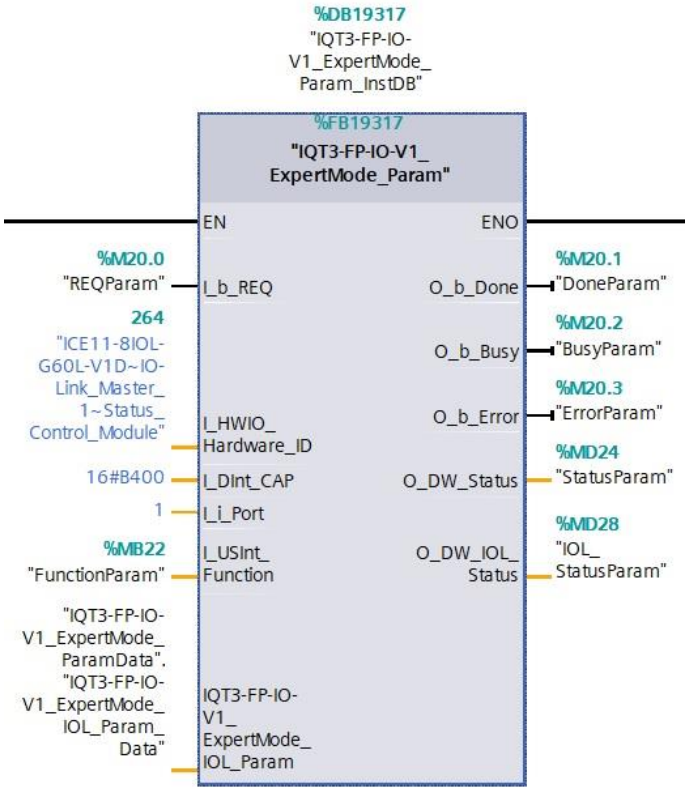


The "IQT3-FP-IO-V1_Expert-Mode_ParamData" data block consists of the "IQT3-FP-IO-V1_ExpertMode _IOL_Param_Data" structure. This structure is formed from the "IQT3-FP-IO-V1_ExpertMode _IOL_Param_UDT" UDT.

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[32]	Read		'www.pepperl-fuchs.com/io-link'
18_Product_Name	18	String[32]	Read		'IQT3-FP-IO-V1'
19_Product_ID	19	String[32]	Read		'70134031'
20_Product_Text	20	String[32]	Read		'RFID read/write station'
21_Serial_Number	21	String[16]	Read		'4000013733944 5'
22_Hardware_Revision	22	String[8]	Read		'HW01.00'
23_Firmware_Revision	23	String[8]	Read		'FW01.01'
24_Application_Specific_Tag	24	String[32]	Read		'Your automa-tion, our pas-sion.'
25_Function_Tag	25	String[32]	Read		'***'
26_Location_Tag	26	String[32]	Read		'***'
27_Product_URI	27	String[10 0]	Read		'https://pefu.de/4 0000137339445'
64_Operation_Mode	64	Byte	Read / Write	0 (16#00) = Expert Mode; 128 (16#80) = Easy Mode	128 (16#80) = Easy Mode
67_Input_Representation	67	Byte	Read / Write	0 = Long Form data format; 128 = Short Form data format	128 (16#80) = Short Form data format
96_Transmission_Powers_PT	96	Struct	Read / Write		
96_Transmission_Powers_PT. 1_Power_1	96	Int	Read / Write	1; 2; 3; 4	4 (Maximum)
97_Number_Of_Tags_To_Find_NT	97	Byte	Read / Write	1…20; 255 = off	255 (16#FF)
98_Tries Allowed_TA	98	Byte	Read / Write	1…10	2 (16#02)
99_Expected_Number_Of_Tags_QW	99	Byte	Read / Write	0…4	0 (16#00)
100_Tag_Lost_Smoothing_E5	100	Byte	Read / Write	0…10	5 (16#05)
106_Tag_Type_CT	106	Byte	Read / Write	20; 21; 22;50	20 (16#14)
107_Overtemperature_Handling_TO	107	Byte	Read / Write	0; 1; 2	0 (16#00)

224_Operating_Hours	224	Struct	Read		
224_Operating_Hours.Operating_Hours	224	DInt	Read	0…2^32-1	
225_Temperature_Indicator	225	Byte	Read	0 = Operating condition OK; 1 = Close to upper limit; 2 = Upper limit exceeded; 3 = Close to lower limit; 4 = Lower limit exceeded	
226_Temperature_Monitor	226	Struct	Read		
226_Temperature_Monitor. 1_Overtemperature_Operating_Hours	226	DInt	Read	0…2^32-1	
226_Temperature_Monitor. 2_Overtemperature_Exceeded_Counter	226	Int	Read	0…65535	
226_Temperature_Monitor. 3_Maximum_Operating_Temperature	226	Byte	Read	-40…+125	
226_Temperature_Monitor. 4_Minimum_Operating_Temperature	226	Byte	Read	-40…+125	
226_Temperature_Monitor. 5_Device_Operating_Temperature	226	Byte	Read	-40…+125	
227_Power_Monitor	227	Struct	Read		
227_Power_Monitor.1_Power_Cycles	227	DInt	Read	0…2^32-1	
227_Power_Monitor.2_Maximum_Uptime_s	227	DInt	Read	0…2^32-1	
227_Power_Monitor.3_Average_Uptime_s	227	DInt	Read	0…2^32-1	
227_Power_Monitor.4_Uptime_s	227	DInt	Read	0…2^32-1	
230_RFID_Device_Monitor	230	Struct	Read		
230_RFID_Device_Monitor.1_CarrierOperatingHours	230	DInt	Read	0…2^32-1	
230_RFID_Device_Monitor.2_PowerAmplifierTemperature	230	Byte	Read	-40…+125	
231_RFID_Device_Status	231	Struct	Read		
231_RFID_Device_Status.1_DeviceStatus	231	Byte	Read	x.0 = Disturbed; x.1 = TuneLimit; x.2 = PowerAmplifierOvertemperatureWarning; x.3 = PowerAmplifierOvertemperatureError	



Complete wiring of the function block FB19317 "IQT3-FP-IO-V1_ExpertMode_Param":

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

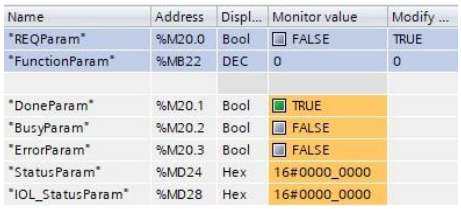
The following table shows the meaning of the input and output variables:

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 255
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)
IQT3-FP-IO-V1_Expert-Mode_IOL_Param	InOut	DB	Data area for the IO-Link parameters → "IQT3-FP-IO-V1_Parameter"."IQT3-FP-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

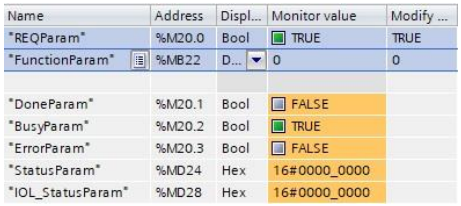
6.1 Read IO-Link Parameter

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



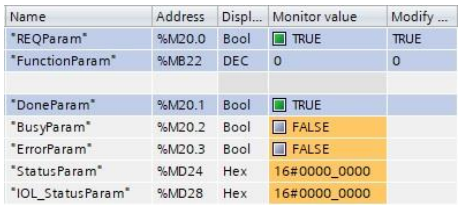
Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	FALSE	TRUE
"FunctionParam"	%MB22	DEC	0	0
"DoneParam"	%M20.1	Bool	TRUE	
"BusyParam"	%M20.2	Bool	FALSE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

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.



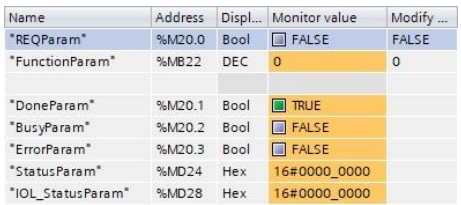
Name	Address	Displ...	Monitor value	Modify ...
"REQParam"	%M20.0	Bool	TRUE	TRUE
"FunctionParam"	%MB22	D...	0	0
"DoneParam"	%M20.1	Bool	FALSE	
"BusyParam"	%M20.2	Bool	TRUE	
"ErrorParam"	%M20.3	Bool	FALSE	
"StatusParam"	%MD24	Hex	16#0000_0000	
"IOL_StatusParam"	%MD28	Hex	16#0000_0000	

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 DB19318 "IQT3-FP-IO-V1_Expert-Mode_ParamData" in the data structure "IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".

IQT3-FP-IO-V1_ExpertMode_ParamData

Name	Data type	Start ..	Monitor value
Static			
IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data	"IQT3-FP-IO-...		
16_Vendor_Name	String[32]	''	'Pepperl+Fuchs'
17_Vendor_Text	String[32]	''	'www.pepperl-fuchs.com/io-link'
18_Product_Name	String[32]	''	'IQT3-FP-IO-V1'
19_Product_ID	String[32]	''	'70134031'
20_Product_Text	String[32]	''	'RFID read/write station'
21_Serial_Number	String[16]	''	'40000137339445'
22_Hardware_Revision	String[8]	''	'HW01.00'
23_Firmware_Revision	String[8]	''	'FW01.01'
24_Application_Specific_Tag	String[32]	''	'Your automation, our passion.'
25_Function_Tag	String[32]	''	'***'
26_Location_Tag	String[32]	''	'***'
27_Product_URI	String[100]	''	'https://pefu.de/40000137339445'

Read-in standard IO-Link parameters

IQT3-FP-IO-V1_ExpertMode_ParamData

Name	Data type	Start ..	Monitor value
64_Operation_Mode	Byte	16#0	16#00
67_Input_Representation	Byte	16#0	16#80
96_Transmission_Powers_PT	Struct		
1_Power_1	Int	0	4
97_Number_Of_Tags_To_Find_NT	Byte	16#0	16#FF
98_Tries_Allowed_TA	Byte	16#0	16#02
99_Expected_Number_Of_Tags_QW	Byte	16#0	16#00
100_Tag_Lost_Smoothing_E5	Byte	16#0	16#05
106_Tag_Type_CT	Byte	16#0	16#14
107_Overtemperature_Handling_TO	Byte	16#0	16#00

Read-in device-specific IO-Link parameters for setting the read/write functionality and the HF interface

IQT3-FP-IO-V1_ExpertMode_ParamData

Name	Data type	Start ..	Monitor value
224_Operating_Hours	Struct		
Operating_Hours	DInt	0	54
Operating_Days	DInt	0	2
225_Temperature_Indicator	Byte	16#0	16#00
226_Temperature_Monitor	Struct		
1_Overtemperature_Operating_Hours	DInt	0	0
2_Overtemperature_Exceeded_Counter	Int	0	1
3_Maximum_Operating_Temperature	Byte	16#0	16#4F
4_Minimum_Operating_Temperature	Byte	16#0	16#11
5_Device_Operating_Temperature	Byte	16#0	16#33
Max_Op_Temp_°C	Int	0	79
Min_Op_Temp_°C	Int	0	17
Device_Op_Temp_°C	Int	0	51
227_Power_Monitor	Struct		
1_Power_Cycles	DInt	0	84
2_Maximum_Uptime_s	DInt	0	29700
3_Average_Uptime_s	DInt	0	2318
4_Uptime_s	DInt	0	21873
Max_Uptime_min	DInt	0	495
Max_Uptime_h	DInt	0	8
Max_Uptime_d	DInt	0	0
Ave_Uptime_min	DInt	0	38
Ave_Uptime_h	DInt	0	0
Ave_Uptime_d	DInt	0	0
Uptime_min	DInt	0	364
Uptime_h	DInt	0	6
Uptime_d	DInt	0	0
230_RFID_Device_Monitor	Struct		
1_CarrierOperatingHours	DInt	0	8
2_PowerAmplifierTemperature	Byte	16#0	16#32
CarrierOperating_d	DInt	0	1
PowerAmplifierTemperature_°C	Int	0	50
231_RFID_Device_Status	Struct		
1_DeviceStatus	Byte	16#0	16#00
PowerAmplifierOvertemperatureError	Bool	false	FALSE
PowerAmplifierOvertemperatureWarning	Bool	false	FALSE
TuneLimit	Bool	false	FALSE
Disturbed	Bool	false	FALSE

Read-in IO-Link parameters with additional device information

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 DB19318 "IQT3-FP-IO-V1_ExpertMode_ParamData" in the data structure "Config_Param".

Name	...	Displ...	Monitor value	Modify ...
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."64_Operation_Mode".Operation_Mode		Hex	16#00	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."67_Input_Representation".Input_Representation		Hex	16#80	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."96_Transmission_Powers_PT"."1_Power_1"		DEC+/-	2	2
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."97_Number_Of_Tags_To_Find_NT".Number_Of_Tags_To_Find		Hex	16#FF	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."98_Tries_Allowed_TA".Tries_Allowed		Hex	16#02	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."99_Expected_Number_Of_Tags_QW".Expected_Number_Of_Tags		Hex	16#00	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."100_Tag_Lost_Smoothing_E5".Tag_Lost_Smoothing		Hex	16#05	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."106_Tag_Type_CT".TagType		Hex	16#14	
"IQT3-FP-IO-V1_ExpertMode_ParamData"."IQT3-FP-IO-V1_ExpertMode_IOL_Param_Data".Config_Param."107_Overtemperature__Handling_TO".Overtemperature_Handling		Hex	16#00	

IQT3-FP-IO-V1_ExpertMode_ParamData

Name	Data type	Start ...	Monitor...
Config_Param	Struct		
64_Operation_Mode	Struct		
67_Input_Representation	Struct		
96_Transmission_Powers_PT	Struct		
Length	Int	2	2
1_Power_1	Int	4	2
97_Number_Of_Tags_To_Find_NT	Struct		
98_Tries_Allowed_TA	Struct		
99_Expected_Number_Of_Tags_QW	Struct		
100_Tag_Lost_Smoothing_E5	Struct		
106_Tag_Type_CT	Struct		
107_Overtemperature__Handling_TO	Struct		

96_Transmission_Powers_PT
96_Transmission_Powers_PT.Length := 2
96_Transmission_Powers_PT.1_Power_1 := 2

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 IQT3-FP-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 IQT3-FP-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

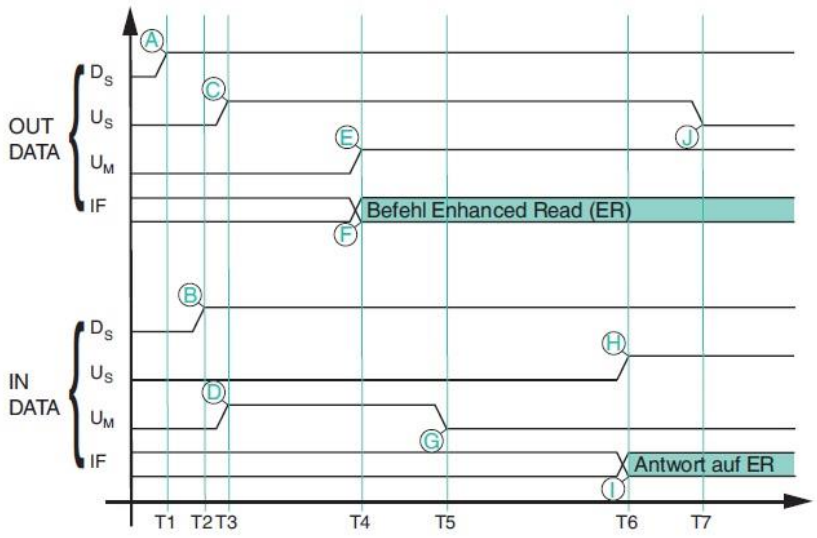
<Status>: 1 Byte
The status in the response signals the result or the outcome of the command. This is used, for example, to output error states in the execution of the command

The data flow between the controller and the RFID station IQT3-FP-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 IQT3-FP-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 IQT3-FP-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 IQT3-FP-IO-V1. This procedure must be executed after device startup or in the event of an error condition.
T2	The RFID station IQT3-FP-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 IQT3-FP-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 IQT3-FP-IO-V1 station.
T5	The IQT3-FP-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 IQT3-FP-IO-V1 signals the receipt of the command telegram to the PLC.
T6	The IQT3-FP-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 IQT3-FP-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.

Long Form data format:

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 1; fragment 1; UID (Fixcode) and user memory sub-area read in; UID always has a length of 8 bytes; length of the user memory sub-area read out 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#20	
2	Fragmentation Counter					16#01	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#20	
5	Command					16#10	
6	Status					16#00	
7	Length UID Information (High Byte)					16#00	
8	Length UID Information (Low Byte)					16#08	
9	UID Byte 1					16#E0	
10	UID Byte 2					16#04	
11	UID Byte 3					16#01	
12	UID Byte 4					16#50	
13	UID Byte 5					16#D3	
14	UID Byte 6					16#23	
15	UID Byte 7					16#66	
16	UID Byte 8					16#EC	
17	Length User Memory Information (High Byte)					16#00	
18	Length User Memory Information (Low Byte)					16#10	
19	User Memory Byte 1					16#01	

20	User Memory Byte 2	16#02
…	…	…
30	User Memory Byte 12	16#0C
31	User Memory Byte 13	16#0D

Input data field: Response telegram 2; fragment 2; UID and user memory sub-area read in; UID always has a length of 8 bytes; length of the user memory sub-area read out 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#06	
2	Fragmentation Counter					16#00	
3	User Memory Byte 14					16#0E	
4	User Memory Byte 15					16#0F	
5	User Memory Byte 16					16#10	
6	Not relevant					16#00	
7	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 3; RSSI value = 16#50 (80%)

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#09	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#06	
5	Command					16#10	
6	Status					16#0B	
7	Information Type					16#01	
8	RSSI					16#50	
9	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 4; exactly 1 data carrier was identified during the execution of the single command

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0B	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#08	
5	Command					16#10	
6	Status					16#0F	
7	Number of Tags Byte 1					16#30	
8	Number of Tags Byte 2					16#30	
9	Number of Tags Byte 3					16#30	
10	Number of Tags Byte 4					16#31	
11	Not relevant					16#00	
…	Not relevant					16#00	
31	Not relevant					16#00	

Short Form data format

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 1; user memory read; UID (Fixcode) and length information are not transmitted; length of the read partial 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 2; RSSI value = 16#50 (80%)

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#09	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#06	
5	Command					16#10	
6	Status					16#0B	
7	Information Type					16#01	
8	RSSI					16#50	
9	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 3; exactly 1 data carrier was identified during the execution of the single command

Byte	Content					Single Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0B	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#08	
5	Command					16#10	

6	Status	16#0F
7	Number of Tags Byte 1	16#30
8	Number of Tags Byte 2	16#30
9	Number of Tags Byte 3	16#30
10	Number of Tags Byte 4	16#31
11	Not relevant	16#00
…	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.

Long Form data format

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 1; user memory programmed; UID (Fixcode) has a length of 8 bytes

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#11	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#0E	
5	Command					16#40	
6	Status					16#00	
7	Length UID Information (High Byte)					16#00	
8	Length UID Information (Low Byte)					16#08	
9	UID Byte 1					16#E0	
10	UID Byte 2					16#04	
11	UID Byte 3					16#01	
12	UID Byte 4					16#50	
13	UID Byte 5					16#D3	
14	UID Byte 6					16#23	
15	UID Byte 7					16#66	
16	UID Byte 8					16#EC	
17	Not relevant					16#00	

…	…	…
31	Not relevant	16#00

Input data field: Response telegram 2; RSSI value = 16#50 (80%)

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#09	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#06	
5	Command					16#40	
6	Status					16#0B	
7	Information Type					16#01	
8	RSSI					16#50	
9	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 3; exactly 1 data carrier was identified during the execution of the single command

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0B	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#08	
5	Command					16#40	
6	Status					16#0F	
7	Number of Tags Byte 1					16#30	
8	Number of Tags Byte 2					16#30	
9	Number of Tags Byte 3					16#30	
10	Number of Tags Byte 4					16#31	
11	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Short Form data format

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 1; user memory programmed; UID (Fixcode) has a length of 8 bytes

Byte	Content					Single Write 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#40	
6	Status					16#00	
7	UID Byte 1					16#E0	
8	UID Byte 2					16#04	
9	UID Byte 3					16#01	
10	UID Byte 4					16#50	
11	UID Byte 5					16#D3	
12	UID Byte 6					16#23	
13	UID Byte 7					16#66	
14	UID Byte 8					16#EC	
15	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 2; RSSI value = 16#51 (81%)

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#09	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#06	
5	Command					16#40	
6	Status					16#0B	
7	Information Type					16#01	
8	RSSI					16#51	
9	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 3; exactly 1 data carrier was identified during the execution of the single command

Byte	Content					Single Write 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0B	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#08	
5	Command					16#40	
6	Status					16#0F	
7	Number of Tags Byte 1					16#30	
8	Number of Tags Byte 2					16#30	
9	Number of Tags Byte 3					16#30	
10	Number of Tags Byte 4					16#31	
11	Not relevant					16#00	
…	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.

Long Form data format

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 1; UID (Fixcode) and user memory sub-area read in; UID (Fixcode) has a length of 8 bytes; length of the user memory sub-area read out 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#1B	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#18	
5	Command					16#19	
6	Status					16#00	
7	Length UID Information (High Byte)					16#00	
8	Length UID Information (Low Byte)					16#08	
9	UID Byte 1					16#E0	
10	UID Byte 2					16#04	
11	UID Byte 3					16#01	
12	UID Byte 4					16#50	
13	UID Byte 5					16#D3	
14	UID Byte 6					16#23	
15	UID Byte 7					16#66	
16	UID Byte 8					16#EC	
17	Length User Memory Information (High Byte)					16#00	
18	Length User Memory Information (Low Byte)					16#08	
19	User Memory Byte 1					16#01	
20	User Memory Byte 2					16#02	
…	…					…	
25	User Memory Byte 7					16#06	
26	User Memory Byte 8					16#07	
27	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 2; RSSI value = 16#51 (81%)

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

1	Frame Length	16#09
2	Fragmentation Counter	16#00
3	Telegram Length (High Byte)	16#00
4	Telegram Length (Low Byte)	16#06
5	Command	16#19
6	Status	16#0B
7	Information Type	16#01
8	RSSI	16#51
9	Not relevant	16#00
…	…	…
31	Not relevant	16#00

Input data field: Response telegram 3; 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#11	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#0E	
5	Command					16#19	
6	Status					16#05	
7	Length UID Information (High Byte)					16#00	
8	Length UID Information (Low Byte)					16#08	
9	UID Byte 1					16#E0	
10	UID Byte 2					16#04	
11	UID Byte 3					16#01	
12	UID Byte 4					16#50	
13	UID Byte 5					16#D3	
14	UID Byte 6					16#23	
15	UID Byte 7					16#66	
16	UID Byte 8					16#EC	
17	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Short Form data format

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 1; user memory read; UID (Fixcode) and length information are not transmitted; length of the read partial 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 7	16#08
15	Not relevant	16#00
…	…	…
31	Not relevant	16#00

Input data field: Response telegram 2; RSSI value = 16#50 (80%)

Byte	Content					Enhanced Read 4-Byte Blocks	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#09	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#06	
5	Command					16#19	
6	Status					16#0B	
7	Information Type					16#01	
8	RSSI					16#0D	
9	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

Input data field: Response telegram 4; 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#11	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#0E	
5	Command					16#19	
6	Status					16#05	
7	Length UID Information (High Byte)					16#00	
8	Length UID Information (Low Byte)					16#08	
9	UID Byte 1					16#E0	
10	UID Byte 2					16#04	
11	UID Byte 3					16#01	
12	UID Byte 4					16#50	
13	UID Byte 5					16#D3	
14	UID Byte 6					16#23	
15	UID Byte 7					16#66	
16	UID Byte 8					16#EC	
17	Not relevant					16#00	
…	…					…	
31	Not relevant					16#00	

7.4 Example 4: Read Parameter

This command is used to read out a device parameter of the RFID station. The command requires several parameters for this, such as the system code ("Q" for System IQ) and the identification of the antenna parameter to be read (e.g., "PT" for the transmission power). If additional data needs to be transferred when reading a parameter, length information must be set.

Output data field with command to read out the PT parameter:

Byte	Content					Read Parameter	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0B	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#08	
5	Command					16#BE	
6	SystemCode					16#51 “Q”	
7	HF Parameter (High Byte)					16#50 “P”	
8	HF Parameter (Low Byte)					16#54 “T”	
9	Length Parameter (High Byte)					16#00	
10	Length Parameter (Low Byte)					16#00	
11	Not relevant					16#00	
…	Not relevant					16#00	
31	Not relevant					16#00	

Input data field with status 16#00 Response → Antenna parameters read in

Byte	Content					Read Parameter	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#09	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#06	
5	Command					16#BE	
6	Status					16#00	
7	Parameter Byte 1 → PT1 High Byte					16#00	
8	Parameter Byte 2 → PT1 Low Byte					16#04	
9	Not relevant					16#00	
…	Not relevant					16#00	
31	Not relevant					16#00	

7.5 Example 5: Write Parameter

This command is used to set or change a device parameter of the RFID station. The command requires several parameters such as the system code ("Q" for System IQ) and the identification of the antenna parameter to be read out (e.g., "PT" for the transmission power). With a write access to the parameter, a length specification and a data record with the new parameter setting are also transferred.

Output data field with command to write the parameter PT:

Byte	Content					Write Parameter	
0	D	UM	US	0	Frame Length	D,UM,US	16#0
1	Frame Length					16#0D	
2	Fragmentation Counter					16#00	
3	Telegram Length (High Byte)					16#00	
4	Telegram Length (Low Byte)					16#0A	
5	Command					16#BF	
6	SystemCode					16#51 “Q”	
7	HF Parameter (High Byte)					16#50 “P”	
8	HF Parameter (Low Byte)					16#54 “T”	

9	Length Parameter (High Byte)	16#00
10	Length Parameter (Low Byte)	16#02
11	Parameter Byte 1 → PT1 High Byte	16#00
12	Parameter Byte 2 → PT1 Low Byte	16#03
13	Not relevant	16#00
…	Not relevant	16#00
31	Not relevant	16#00

Input data field with status 16#00 Response → Antenna parameters changed

Byte	Content					Write Parameter	
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#BF	
6	Status					16#00	
7	Not relevant					16#00	
…	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 UID (Fixcode) before the data read from the user memory is not required or desired	1. When using the long form data format, the UID and length information is prefixed to the read-in data → Allocation of the data record to a specific data carrier is possible 2. The transmission of the UID and length information can be suppressed by switching to short form data format 3. Conversion to short form data format
4	The AccessCounter constantly increased when the presence of a data carrier remains unchanged (standstill)	1. The counter 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. Increase of parameter E5 (tag loss smoothing). As a result, the logoff of the data carrier from the RFID station is delayed.
5	An error message with the status value 16#0A appears.	1. Check whether "Long Form" or "Short Form" data format is activated (Input Representation parameter in the IODD) 2. Short form: there are at least 2 data carriers in the detection zone → not permitted; only one data carrier can be in the detection zone
6	An error message with the status value 16#04 appears when a data carrier enters the detection zone.	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
7	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) 2. Increase the transmission power using the PT parameter in the IODD file
8	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
9	A fault message is reported about an overtemperature of the RFID device	1. Fault message is possible if the ambient temperature is too high for the set transmitting power. 2. Reduction of the transmitting power to a lower value 3. Avoidance of execution of permanent executed operations 4. Adjustment of the setting of the "Overtemperature Handling - OH" parameter
10	Red LED on the RFID device flashes	1. Red LED flashing on the RFID device indicates that the RFID device is being too strongly influenced by surrounding metal. 2. IO-Link parameter 231 "RFID Device Status".TuneLimit is set 3. removal of the metal from the environment
11	Red LED on the device lights up constantly	1. Red LED constantly lit on the RFID device signals a fault in the RFID device. 2. IO-Link parameter 231 "RFID Device Status".disturbed is set 3. check which interference is caused by the environment
12	Reset to factory setting	1. write the value 16#83 "Back to Box" via IO-Link parameter 2 "System Command" 2. via web page with direct access to the IO-Link parameters 3. reset the supply voltage afterwards