

Product: IC-KP2-2HBx; IQH1-...-V1; IQC21-...
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Description

This document describes the commissioning of the function block FB3321 inside the Siemens Step-7 environment. With the FB3321 it is possible to read or write large data volumes from the IQC21 RFID tag without complicated command parameterisations.

The function block is able to read and write the whole memory of the IQC21 (112 Byte) with 2 command cycles. The start address is W#16#0, but can be changed by the user. The function block is able to read and write memory areas with a size of 60 Bytes per command cycle.

Requirements:

Evaluation unit: IC-KP2-2HBx
RFID head: IQH1-...-V1
RFID tag: IQC21-
Software: Function block FB33 (IDENTControl) for commissioning the IC-KP2-2HBx

Inside the function block FB3321, the FB33 is used for the command execution. In the first step, you have to configure the FB3321 with the correct values for the input and output addresses. After this, you trigger the initialisation routine with the input #SetRestart at the FB3321. This routine is successfully finished if the output #InitFinish switch to the high signal.

Configuration of the FB 3321 "Command_HeadX":

☐ **Netzwerk 2 : Call FB3321 for read/write IQC21 completely**

```
CALL "Command_HeadX" , "DB_Command"    FB3321 / DB3321
Input_Address      :=W#16#200
Output_Address     :=W#16#200
HeadNumber         := "HeadNumber"      MB726
CommandCycles      := "CommandCycles"    MB708
StartAddress       := "StartAddress"     MW724
CommandLength      :=B#16#3C
NumberReadDBHead1  :=331
NumberWriteDBHead1:=332
NumberReadDBHead2  :=333
NumberWriteDBHead2:=334
NumberInstDB       :=33
Read               := "ReadCommand"      M700.2
Write              := "WriteCommand"     M700.3
End_Command        := "EndCommand"      M700.1
Error              := "ErrorCommand"     M700.5
Busy               := "BusyCommand"      M700.4
NoDataCarrier      := "NoDataCarrier"    M700.6
StartCommand       := "StartCommand"     M700.0
InitFinish         := "InitFinish"       M0.0
SetRestart         := "SetRestart"       M0.1
```



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The function block FB3321 "Command_HeadX" need to call together with the according instanz data block "DB_Command" inside the application program.

Example:

CALL FB3321; DB3321

It is possible to rename the function and the data block. The internal variables used as local variables. No global variables used inside the FB3321.

Input parameter:

Input_Address: [Word]	defines the start address of the input data field of the process data; configuration done in hexadecimal format; the belonging address value is visible in the hardware configuration in step 7 Address 512 := W#16#200
Output_Address: [Word]	defines the start address of the output data field of the process data; configuration done in hexadecimal format; the belonging address value is visible in the hardware configuration in step 7 Address 512 := W#16#200
HeadNumber: [Byte]	defines the channel on which the command should executed; Channel 1: HeadNumber := B#16#1 Channel 2: HeadNumber := B#16#2 This variable should connected to a byte variable of the customer specific application program
CommandCycles: [Byte]	defines the number of executed command cycles inside the read or writes routine of the FB3321. The configuration is in decimal format. The maximal number is 2. The first command Read/write 60 Bytes of user data. The second command read/write 52 Bytes. To read or write a specific data quantity following configuration is necessary: 60 Bytes: CommandCycles := 1 112 Bytes: CommandCycles := 2
CommandLength: [Byte]	defines the length of the user data which are inside one telegram; by using the IQC21 RFID tag the length is fixed at 60 Bytes 60 Bytes: CommandLength := B#16#3C It is possible to configure this variable permanently with this value.
NumberReadDBHead1/2:[INT]	defines the number of the data block in which the read in data of head 1/2 are copied while read command execution. The length of the data block should be 112 Bytes (mirror of the complete memory of the IQC21) or it should have the same length like the read in data NumberReadDBHead1 := 331 NumberReadDBHead2 := 333
NumberWriteDBHead1/2:[INT]	defines the number of the data block in which the write data for head 1/2 are copied before starting command execution. The length of the data block should be 112 Bytes (mirror of the complete memory of the IQC21) or it should have the same length like the data that should written NumberWriteDBHead1 := 332 NumberWriteDBHead2 := 334
NumberInstDB: [INT]	defines the number of the according instanz data block of the according function block for the IDENTControl NumberInstDB := 33
Read: [Bool]	defines that a reading cycle will executed (start of the execution triggered by input "StartCommand")
Write: [Bool]	defines that a writing cycle will executed (start of the execution triggered by input "StartCommand")



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In/Out parameter:

StartCommand: [Bool]	defines the start of a command routine by setting to true
SetRestart: [Bool]	start of the initialisation routine to reset the internal function block and configure the tag type; should set after the power up of the device
InitFinish: [Bool]	Initialisation routine successfully finished

Out parameter:

End_Command: [Bool]	signalize with a positive edge the end of a command routine; this output will reset to false if a command routine starts
Error: [Bool]	signalize that an error occurs while execution of a command routine
Busy: [Bool]	signalize that the execution of a command routine is still active; after the start this bit is set to true until the command routine is finished
NoDataCarrier: [Bool]	signalize that a RFID tag leaves the detection range of the head while execution of the command routine