

# Extendend Flowchart TN-UHF-Q300..-CDS

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## 1. Mapping (UHF extended\*)

### 1.1. Input Mapping

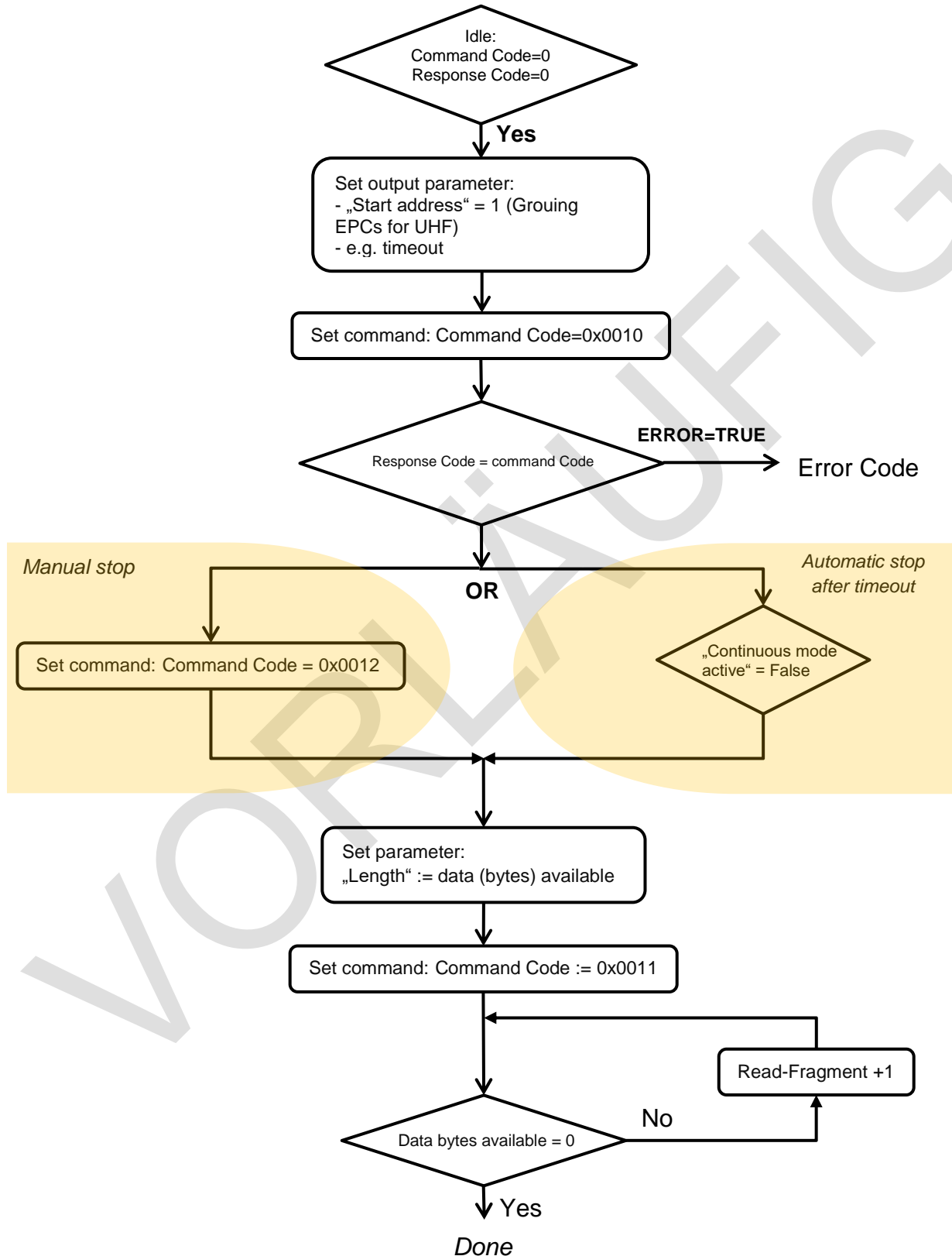
Byte-Nr.		Bit							
PROFINET	Modbus EtherNet/ IP	7	6	5	4	3	2	1	0
0	0	Antwortcode (RESCUHF)							
1	1								
2	2	Schleifenzähler für schnelle Verarbeitung (RCNT)							
3	3	reserviert							
4	4		TRE1	PNS1					TP1
5	5							CMON	
6	6	Länge (LEN)							
7	7								
8	8	Fehlercode (ERRC)							
9	9								
10	10	Datenträger-Zähler (TCNT)							
11	11								
12	12	Daten (Bytes) verfügbar (BYFI)							
13	13								
14	14	Lese-Fragment-Nummer							
15	15	Schreib-Fragment-Nummer							
16	16	reserviert							
17	17	reserviert							
18	18	reserviert							
19	19	reserviert							
20	20	reserviert							
21	21	reserviert							
22	22	reserviert							
23	23	reserviert							
24	24	Lesedaten Byte 0							
25	25	Lesedaten Byte 1							
26	26	Lesedaten Byte 2							
27	27	Lesedaten Byte 3							
28	28	Lesedaten Byte 4							
29	29	Lesedaten Byte 5							
30	30	Lesedaten Byte 6							
31	31	Lesedaten Byte 7							
...	...	...							
151	151	Lesedaten Byte 127							

## 1.2. Output Mapping

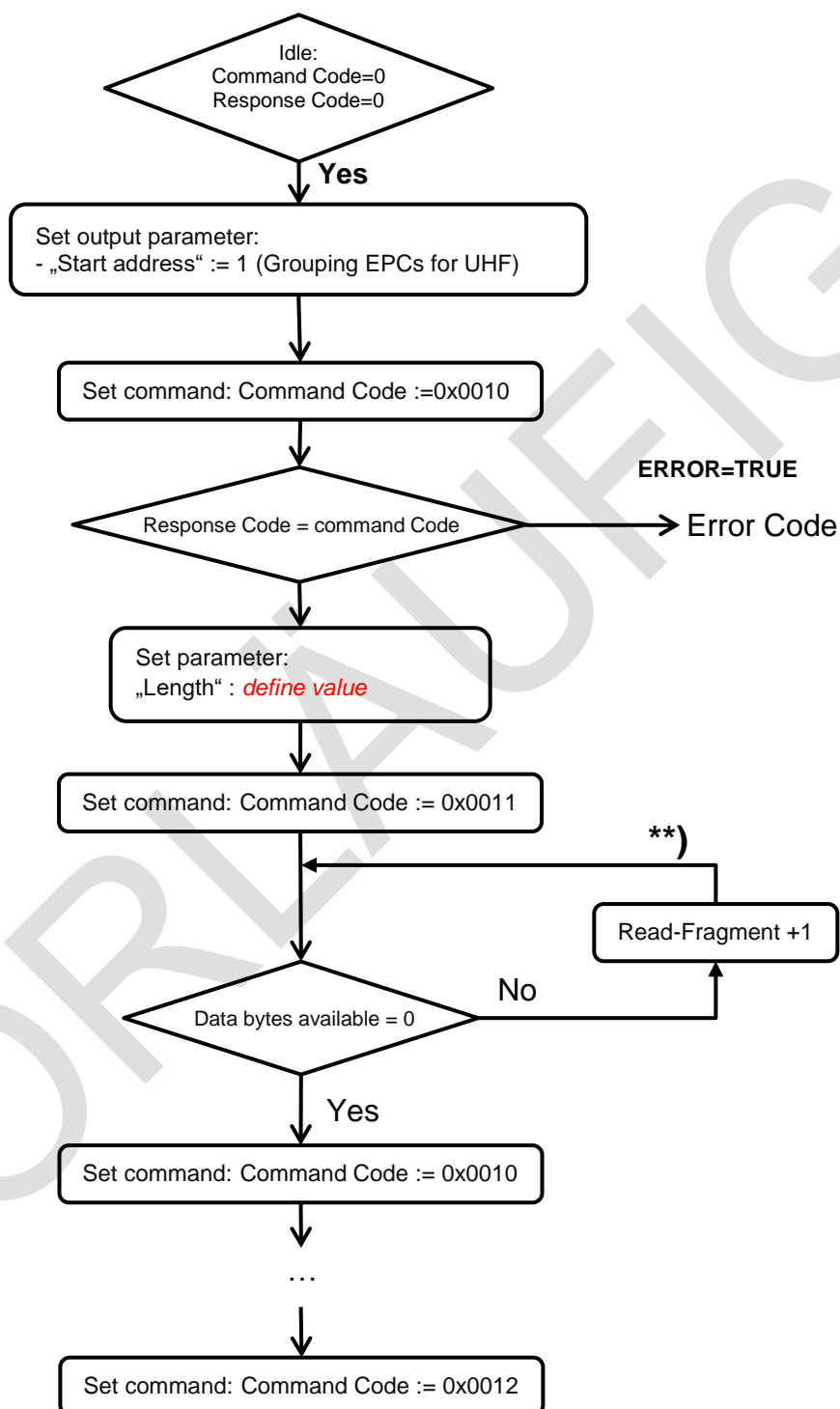
Byte no.		Bit							
PROFINET	Modbus EtherNet/ IP	7	6	5	4	3	2	1	0
0	0	Command code (CMD C)							
1	1								
2	2	Loop counter for rapid processing (RCNT)							
3	3	Memory area (DOM) – only available with UHF applications							
4	4	Start address (ADDR)							
5	5								
6	6								
7	7								
8	8	Length (LEN)							
9	9								
10	10	Length UID/EPC (SOUID)							
11	11	reserved							
12	12	Timeout (TOUT)							
13	13								
14	14	Read fragment number (RFN)							
15	15	Write fragment number (WFN)							
16	16	reserved							
17	17	reserved							
18	18	reserved							
19	19	reserved							
20	24	Write data Byte 0							
21	25	Write data Byte 1							
22	26	Write data Byte 2							
23	27	Write data Byte 3							
24	28	Write data Byte 4							
25	29	Write data Byte 5							
26	30	Write data Byte 6							
27	31	Write data Byte 7							
...	...	...							
139	151	Write data Byte 127							

## 2. Flowcharts

### 2.1. Continuous Mode with Stopping before getting data



## 2.2. Continuous Mode without Stopping before getting data



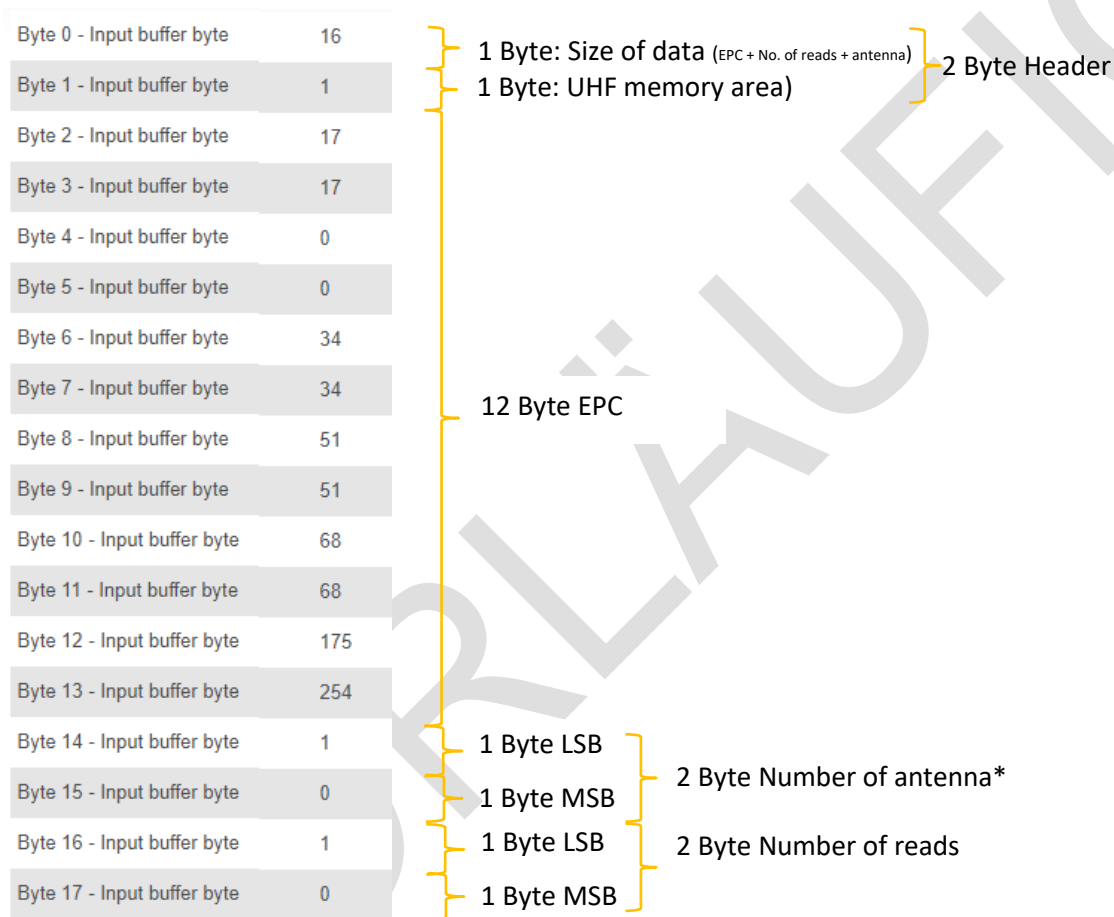
\*\*) After increasing the Read Fragment No., the new data will be shown in the read data input.

### 3. UHF Multitag – understanding the Read data input

Process data output:

- Command Code: Inventory
- Start address: "1" (EPC Grouping active)
- Command Timeout: 500 ms

#### 3.1. Read data input (Grouping active, no RSSI)



\*) "Number of Antenna Byte" (decimal):

Value	information	Value	information	Value	information	Value	information
0	RHCP	2	H	4	Ext. 1	6	Ext. 3
1	LHCP	3	V	5	Ext. 2	7	Ext. 4

*RHCP: right-handed-circular*

*LHCP: left-handed-circular*

*H: horizontal, V: Vertical*

### 3.2. Read data input (Grouping active, with RSSI)

Byte 0 - Input buffer byte	18	1 Byte: Size of data (EPC+ RSSI + No. of reads)	2 Byte Header
Byte 1 - Input buffer byte	1		
Byte 2 - Input buffer byte	17	12 Byte EPC	
Byte 3 - Input buffer byte	17		
Byte 4 - Input buffer byte	0		
Byte 5 - Input buffer byte	0		
Byte 6 - Input buffer byte	34		
Byte 7 - Input buffer byte	34		
Byte 8 - Input buffer byte	51	1 Byte LSB 1 Byte MSB 2 Byte RSSI **)	
Byte 9 - Input buffer byte	51		
Byte 10 - Input buffer byte	68		
Byte 11 - Input buffer byte	68		
Byte 12 - Input buffer byte	175		
Byte 13 - Input buffer byte	254		
Byte 14 - Input buffer byte	220	1 Byte LSB	2 Byte Number of antenna***
Byte 15 - Input buffer byte	253	1 Byte MSB	
Byte 16 - Input buffer byte	0	1 Byte LSB	2 Byte Number of reads
Byte 17 - Input buffer byte	0	1 Byte MSB	
Byte 18 - Input buffer byte	1	1 Byte LSB	2 Byte Number of reads
Byte 19 - Input buffer byte	0	1 Byte MSB	

\*\*) Calculation of RSSI:

Format of RSSI: 16 byte integer (MSB → LSB) - Two's Complement

E.g.:

(MSB LSB) – decimal	(MSB LSB) – binary	Two's complement	RSSI (dBm)
252 253	11111100 11111101	-771	-77,1

\*\*\*) "Number of Antenna Byte" (decimal):

Value	information	Value	information	Value	information	Value	information
0	RHCP	2	H	4	Ext. 1	6	Ext. 3
1	LHCP	3	V	5	Ext. 2	7	Ext. 4

*RHCP: right-handed-circular*

*LHCP: left-handed-circular*

*H: horizontal, V: Vertical*



## 4. Error Codes

Error code (hex)	Error code (dec)	Meaning
0x8000	32768	Channel not active
0x8001	32769	Read/write head not connected
0x8002	32770	Memory full
0x8003	32771	Block size of the tag not supported
0x8004	32772	Length larger than the size of the read fragment
0x8005	32773	Length larger than the size of the write fragment
0x8100	33024	Parameter undefined
0x8101	33025	"Operating mode" outside of the permissible range
0x8102	33026	"Tag type" parameter outside of the permissible range
0x8103	33027	"Operating mode" parameter in Continuous mode outside of the permissible range
0x8104	33028	"Length" parameter in Continuous mode outside of the permissible range
0x8105	33029	Size of the write fragment outside of the permissible range
0x8106	33030	Size of the read fragment outside of the permissible range
0x8107	33021	"Bridging time" parameter outside of the permissible range
0x8108	33022	"Address" parameter in Continuous mode outside of the permissible range
0x8109	33023	No read/write head selected
0x8200	33280	Command code unknown
0x8201	33281	Command not supported
0x8202	33282	Command not supported in HF applications
0x8203	33283	Command not supported in UHF applications
0x8204	33284	Command for multitag application with automatic tag detection not supported
0x8205	33285	Command for applications with automatic tag detection not supported
0x8206	33286	Command only supported for applications with automatic tag detection
0x8207	33287	Command not supported for multitag application
0x8208	33288	Command not supported in HF bus mode
0x8209	33289	"Length" parameter outside of the permissible range
0x820A	33290	Address outside of the permissible range
0x820B	33291	Length and address outside of the permissible range
0x820C	33292	No tag found
0x820D	33293	Timeout
0x820E	33294	Next command not supported in multitag mode
0x820F	33295	Length of the UID outside of the permissible range
0x8210	33296	Length outside of the tag specification
0x8211	33297	Address outside of the tag specification

**Note:** More error codes in the manual "Reading Error codes".

## 5. Appendix

Manual:

TN-UHF-Q..-CDS

[https://pdb2.turck.de/repo/media/\\_en/Anlagen/100003065.pdf](https://pdb2.turck.de/repo/media/_en/Anlagen/100003065.pdf)

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