A17 – Algorithm
EM4305 Password Function
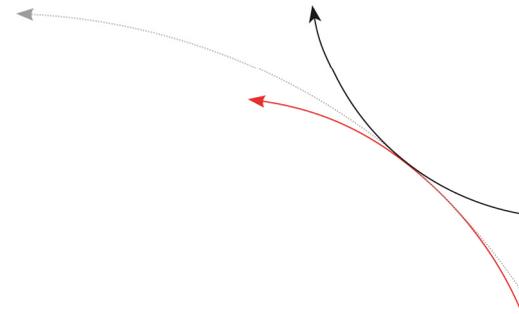
1 Password Function

The A17 version of the ARE i2 supports with an additional command set the password function of the EM4305.

2 Transponder Configuration for the Password Mode

The configuration of the transponder for the password mode is done via the contents of the configuration page. The configuration page for the EM4305 is its page 4. The current configuration can be read with the command RD. With the WD command a new configuration is written.

Bit Nr.18, "Read Log" (CO18), of the configuration sets the password-control for read access to the transponder. Valid for the read command (RD), set this bit to 1 make it necessary to send a password to the transponder before reading. Value 0 of this bit makes the writing of individual pages without password possible.

Bit Nr.20, "Read Log" (CO20), of the configuration sets the password-control for write access to the transponder. Valid for the write command (WD), set this bit to 1 make it necessary to send a password to the transponder before writing user-data. Value 0 of this bit makes the writing of individual pages without password possible.

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Example how to enable the password login function for selective reading and writing:

Send to reader: „WD" <SP> 4 <SP> „0016008F" <CR>

Response of reader: „ACK" <CR>

Example how to disable the password login function for selective reading and writing:

Send to reader: „WD" <SP> 4 <SP> „0002008F" <CR>

Response of reader: „ACK" <CR>

Example how to enable the password login function only for selective reading:

Send to reader: „WD" <SP> 4 <SP> „0006008F" <CR>

Response of reader: „ACK" <CR>

3   Set of Commands

3.1   PWD

The command PWD changes the password of the transponder currently in the of the antenna area. To change the password, it is necessary that the LOG command was previously executed and the transponder was not removed from the antenna area.

The new password is valid immediately after successful transmission. Factory setting for the password is: „00000000".

Send to reader: „PWD" <SP> P7 ... P0 <CR>

P7 ... P0   is the ASCII representation of the hexadecimal password.

Password representation e.g. P7 ... P0:

Binary	1	0	1	0	1	1	1	1	0	0	1	0	1	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	1	0	1	1
Hexadecimal	AF								2C								51								4B							
	P7				P6				P5				P4				P3				P2				P1				P0			
ASCII-Characters	"A"				"F"				"2"				"C"				"5"				"1"				"4"				"B"			
ASCII- Hexadecimal	41				46				32				43				35				31				34				42			

Response of reader:

Three different responses are possible

- „ACK" <CR>

     Command was successful.

- „NAK" <CR>

     Command fails.

- „NOT" <CR>

     It could not be verified whether the command was executed successfully or not. The command was executed by the reader but no answer was received from the transponder. There is a possibility that the password in the data carrier has been changed yet.

Example:

Send to reader: „PWD" <SP> „AF2C514B" <CR>

Response of reader: „ACK" <CR>

3.2 LOG

Note: ⚠ With the setting of the automatic antenna control "HF 2", the antenna-field is switched off after each access to the transponder. This mode of operation does not work with the "LOG" command, for this purpose the antenna-field control must be set to "HF 0".

The command LOG transmits the password provided to the transponder currently in the antenna are. After a successful transmission of the LOG command read and write access to password-protected pages will be possible. The condition after the command LOG lasts until antenna field is shutdown by another command like ''HF 0'' or the transponder leaves the antenna area.

The Command „RST" also deactivates the antenna field and therefor stops the password access.

Factory default of the password is „00000000".

Send to reader: „LOG" <SP> P7 ... P0 <CR>

Password representation e.g. P7 ... P0:

Binary	1 0 1 0 1 1 1 1		0 0 1 0 1 1 0 0		0 1 0 1 0 0 0 1		0 1 0 0 1 0 1 1	
Hexadecimal	AF		2C		51		4B	
	P7	P6	P5	P4	P3	P2	P1	P0
ASCII-Characters	"A"	"F"	"2"	"C"	"5"	"1"	"4"	"B"
ASCII- Hexadecimal	41	46	32	43	35	31	34	42

Response of reader:

Three different responses are possible

- „ACK" <CR>

    Command was successful.

    - „NAK" <CR>

        Command fails.

    - „NOT" <CR>

        It could not be verified whether the command was executed successfully or not. The command was executed by the reader but no answer was received from the transponder. There is a possibility that the password in the data carrier has been changed yet.

Example:

Example:

Send to reader: „LOG" <SP> 'AF2C514B' <CR>

Response of reader: „ACK" <CR>

3.3   HF

The command "HF" sets the control of the antenna field to manually or automatic.

Send to reader: 'HF' <SP> parameter <CR>
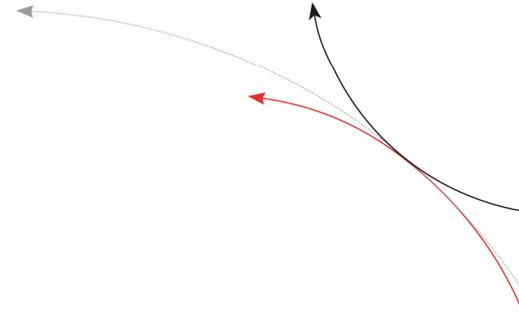
Valid parameters are:

1	Manually switch on the antenna field (stops automatic mode)
0	Manually switch off the antenna field (stops automatic mode)
2	Automatic antenna control, the antenna field is controlled by the reader software, this mode is not compatible with the password access.

The reader's response is the new set mode.

Example:

Send to reader: 'HF' <SP> '2' <CR>

Response of reader: '2' <CR>

4 Revisions history

18.11.15

Revision 00:   Initial Issue