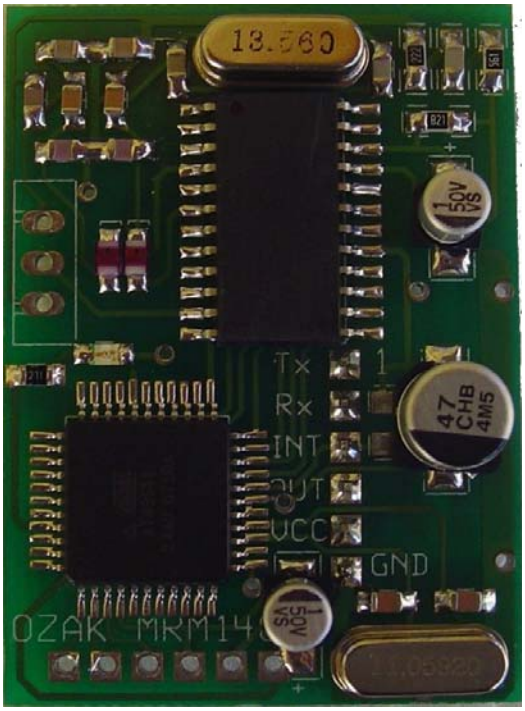
Rev: 15/05/2007

13.56 Mhz Philips Mifare Reader Writer

RFID (Radio-frequency identification **)**



RFID MODULE PROTOCOL (Rs232)

Port Settings is "9600,N,8,1" 9600 baud,No Parity,8 bit,1 Stop
STX from the next character is length.It is says how many bytes come.

STX = 02H
ETX = 03H
NAK = 15H
ACK = 06H
BN = Block Number (00h-2Eh between)
SC = Sector (0 -0FH between)

Request Tag ID (31h):

Send Data:
STX 02h 31h ETX

Module Answer (if Tag is readed):
STX 06h 31h ID0 ID1 ID2 ID3 ETX

Module Answer (if Tag is not readed):
STX 03h 31h 00h ETX

LoadKey (30h):

LoadKey instruction is for data read or write on blocks.If you want to read or write data to block you must send first LoadKey instruction.

KT = KeyType KT = 0 KeyA - KT = 1 KeyB
K0…K5 = Key (6 Byte) Example = ”FF FF FF FF FF FF”

Note: Default Keys
KeyA : “FF FF FF FF FF FF”
KeyB : “FF FF FF FF FF FF”

Send Data :

STX	09h	30h	KT	K0	K1	K2	K3	K4	K5	ETX

Answer (If LoadKey instruction is okey):

STX	03h	30h	ACK	ETX

Answer (If LoadKey instruction is not okey):

STX	03h	30h	NAK	ETX

Change Tag Key - StoreKey (40h):

SC = Sector
KA0…KA5 = KeyA 6 Byte
KB0…KB5 = KeyB 6 Byte
AC0…AC3 = AccsessBit 4 Byte

Send Data :

STX 13h 40h SC KA0 KA1 KA2 KA3 KA4 KA5 KB0
KB1 KB2 KB3 KB4 KB5 AC0 AC1 AC2 AC3 ETX

Answer (New Key is okey):

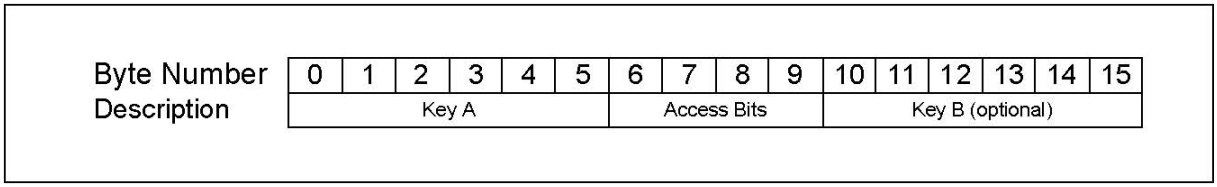
STX 03h 40h ACK ETX

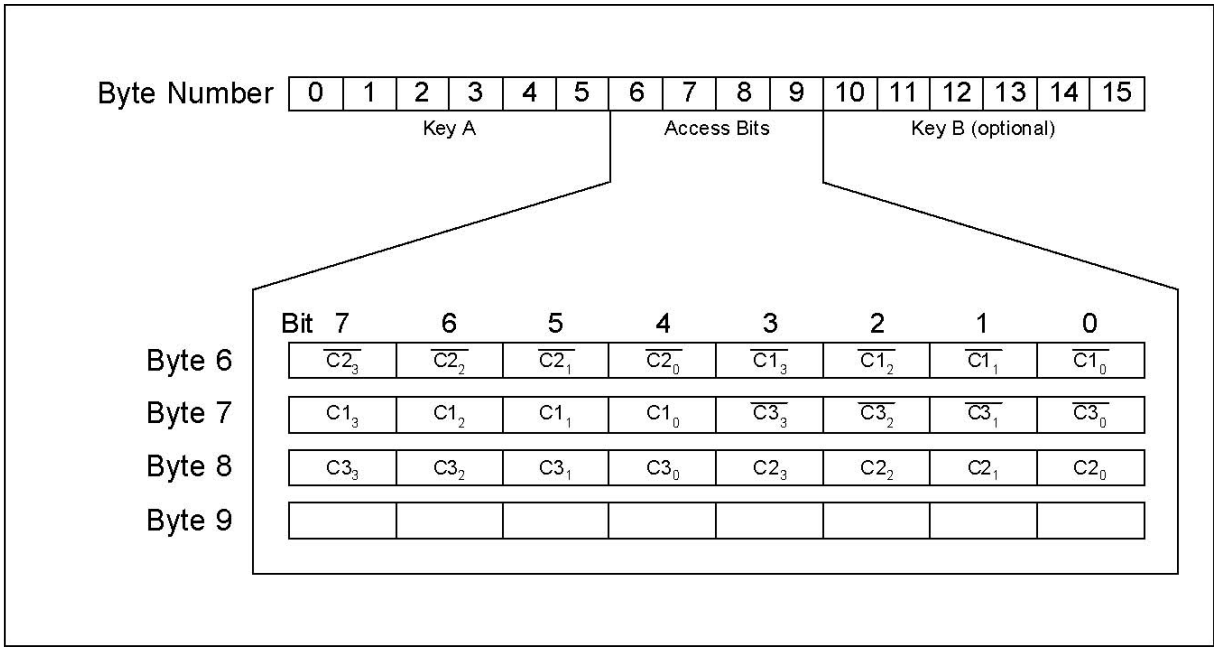
Answer (New Key is not okey):

STX 03h 40h NAK ETX

Note: If you want to change tag key.You must send first LoadKey instruction

Block Number(Decimal)	Sector(Decimal)
0 – 1	0
2 – 3 – 4	1
5 – 6 – 7	2
8 – 9 – 10	3
11 – 12 – 13	4
14 – 15 – 16	5
17 – 18 – 19	6
20 – 21 – 22	7
23 – 24 – 25	8
26 – 27 – 28	9
30 – 31 – 32	10
33 – 34 – 35	11
36 – 37 – 38	12
39 – 40 – 41	13
41 – 42 – 43	14
44 – 45 – 46	15





Access bits			Access condition for						Remark		
			KEYA							Access bits	KEYB
C1	C2	C3	read	write	read	write	read	write			
0	0	0	never	key A	key A	never	key A	key A	Key B may be read		
0	1	0	never	never	key A	never	key A	never	Key B may be read		
1	0	0	never	key B	key A|B	never	never	key B			
1	1	0	never	never	key A|B	never	never	never			
0	0	1	never	key A	key A	key A	key A	key A	Key B may be read, transport configuration		
0	1	1	never	key B	key A|B	key B	never	key B			
1	0	1	never	never	key A|B	key B	never	never			
1	1	1	never	never	key A|B	never	never	never			

Access bits			Access condition for				Application
C1	C2	C3	read	write	increment	decrement, transfer, restore	
0	0	0	key A|B_1	key A|B_1	key A|B_1	key A|B_1	transport configuration
0	1	0	key A|B_1	never	never	never	read/write block
1	0	0	key A|B_1	key B_1	never	never	read/write block
1	1	0	key A|B_1	key B_1	key B_1	key A|B_1	value block
0	0	1	key A|B_1	never	never	key A|B_1	value block
0	1	1	key B_1	key B_1	never	never	read/write block
1	0	1	key B_1	never	never	never	read/write block
1	1	1	never	never	never	never	read/write block

Read Block (32h):

BN=Block Number

Send Data:

STX 03h 32h BN ETX

Answer (Read is okey):

STX 12h 32h D0 D1 D2 D3 D4 D5 D6 D7 D8
D9 D10 D11 D12 D13 D14 D15 ETX

Answer (Read is not okey):

STX 03h 32h NAK ETX

Block Write (33h):

BN=Block Number

Send Data:

STX 13h 33h BN D0 D1 D2 D3 D4 D5 D6 D7
D8 D9 D10 D11 D12 D13 D14 D15 ETX

Answer (Block Write is okey):

STX 03h 33h ACK ETX

Answer (Block Write is not okey):

STX 03h 33h NAK ETX

Output on-off (35h):

RK = 1 Out is on
RK =01 Out is off

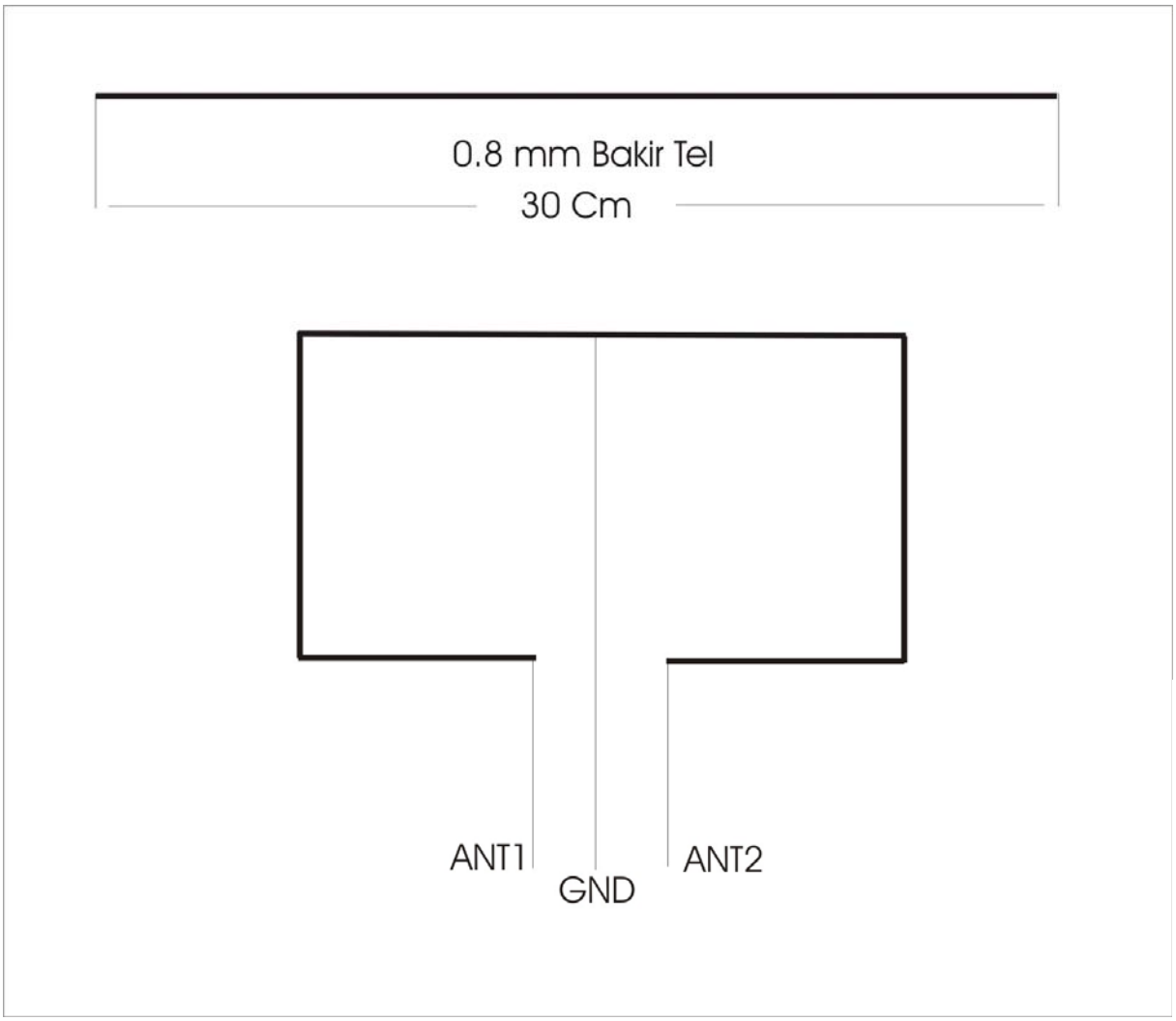
Send Data:

STX 03 35h RK ETX

Answer:

STX 04h 35h RK ACK ETX

Note: Output control is open collector.



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