

13.56MHz Reader/Writer

D-Think M30

DataSheet

Version 1.2

Augu 2013



Note: Please module and antenna "RX TX1 GND TX2" correspondence connected; attention, cables not too small, too long, otherwise it will affect the reading and writing results.

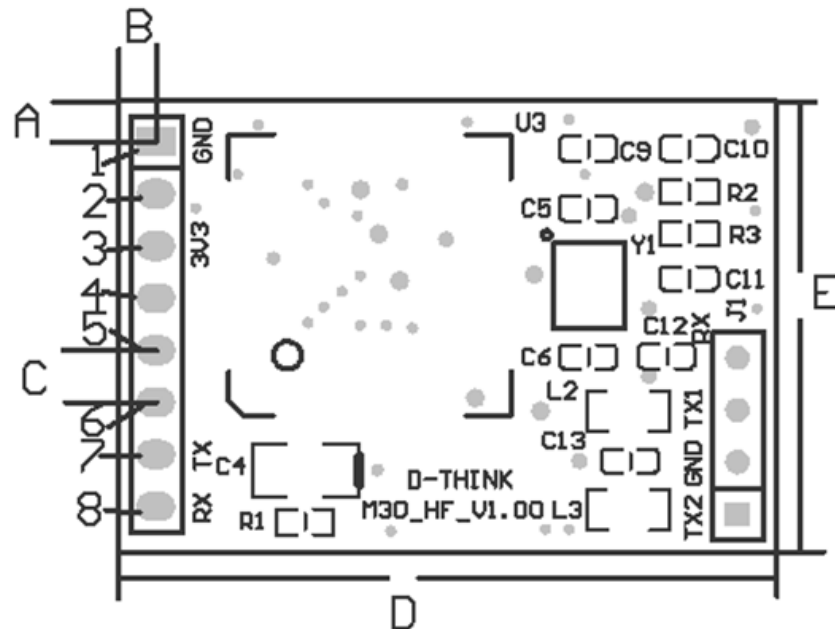
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1. GENERAL INFORMATION

- ◇ Protocols: ISO15693
- ◇ DC3.3V VDD Operating
- ◇ Maximum 230MA Working Current
- ◇ Size: 50 x 50 x3.6 mm
- ◇ Operating frequency: 13.56MHz
- ◇ Operating distance: Reach 60mm Depending on the label and different
- ◇ Operating Temperature Range: -20°C ~ +50°C
- ◇ Storage Temperature Range: -25°C ~ +60°C

2. Hardware dimensions and pin Information



A=2.00mm B=1.86mm C=2.54mm
D=32.01mm E=22.00mm

1--GND 3--3.3VDC 7--TTL_TX
8--TTL_RX 2,4,5,6NC

Number	Name	Type	Explanation
1	GND	Power	Power ground
2	NC	NC	NC
3	VCC	Power	Power supply (DC3.3V)
4	NC	NC	NC
5	NC	NC	NC
6	NC	NC	NC
7	UART_TX	I/O	UART TX
8	UART_RX	I/O	UART RX

3. Communication Protocol

3.1 Receives the command format (PC to send)

Header + Length + Device identifier code + Command + Parameters + Checksum

Header: 2BYTE, 0xAABB

Length: 2BYTE, Identification from the device identifier code to check word, The first byte is valid, Second byte is reserved 0

device identifier code:

2BYTE, device identification module responds only consistent with its own device ID or device ID is 0x0000 (Broadcast) command

Command: 2BYTE, Identifies the coding command functions

Parameters: Command packets (can be empty)

Checksum: 1BYTE, Device identification to the parameter byte by byte XOR

Note: In addition to the command header and checksum word outside, if the data in a byte 0xAA, and thereafter shall be followed by a 0x00, length word unchanged.

3.2 Back Command Format (PC receives)

Header + Length + Device identifier code + Command + Status + Parameters +

Checksum

Header: 2BYTE, 0xAABB

Length: 2BYTE, Identification from the device identifier code to check word, The first byte is valid, Second byte is reserved 0

device identifier code:

2BYTE, Module device identifier code

Command: 2BYTE, Identifies the coding command functions

Status : 1BYTE, 00 = Command OK, Nonzero = Command failure

Parameters: Command packets (can be empty)

Checksum: 1BYTE, Device identification to the parameter byte by byte XOR

Note: In addition to the command header and checksum word outside, if the data in a byte 0xAA, and thereafter shall be followed by a 0x00, length word unchanged.

4. Detailed command

4.1 Command List

Type	No.	Code	Explanation
S Y S T E M	1	0101	Initialize Serial Port
	2	0201	Specify device identifier
	3	0301	Read device identifier
	4	0401	Get RF_READER type and product snr
	5	0801	Manage Protocol
	6	0C01	Manage RF Transmittal
I S O 1 5 6 9 3	1	0010	ISO15693_Inventory(multiple cards)
	2	0110	ISO15693_Inventory(Single card)
	3	0210	ISO15693_Stay_Quiet
	4	0310	ISO15693_Select
	5	0410	ISO15693_Reset_To_Ready
	6	0510	ISO15693_Read
	7	0610	ISO15693_Write
	8	0710	ISO15693_Lock_Block
	9	0810	ISO15693_Write_AFI
	10	0910	ISO15693_Lock_AFI
	11	0A10	ISO15693_Write_DSFI
	12	0B10	ISO15693_Lock_DSFI
	13	0C10	ISO15693_Get_System_Information
	14	0D10	ISO15693_Get_Block_Security

4.2 System command

1. Initialize Serial Port

Command code: 0x0101

Parameters: 00=4800

01=9600

02=14400

03=19200

04=28800

05=38400

06=57600

07=115200

Remarks: After the initial power-on module default baud rate 19200

Answer data: NONE

2. Specify device identifier

Command code: 0x0201

Parameters: 2 BYTE device identification

Remarks: Module responds only consistent with its own device ID or device ID is 0x0000 (Broadcast) command

Answer data: NONE

3. Read device identifier

Command code: 0x0301

Parameters: NONE

Answer data: 2 BYTE device identification

Remarks: So the command is generally used broadcast mode (0x0000), so use this command should ensure that the system does not have the same two or more device identification modules in parallel, otherwise the reading device identifier may be wrong.

4. Get RF_READER type and product snr

Command code: 0x0401

Parameters: NONE

Answer data: F_READER type and product snr

5. Manage Protocol

Command code: 0x0801

Parameters: 1 BYTE

type = 'A': Set as TYPE_A mode
type = 'B': Set as TYPE_B mode
type = 'r': Set as AT88RF020 card mode
type = 's': Set as ST card mode
type = 'l': Set as ISO15693 mode

Answer data:NONE

6. Manage RF Transmittal

Command code: 0x0C01

Parameters: 00 = off

Nonzero = ON

Remarks: After the antenna module power is off, do the " Manage Protocol "
command antenna automatically.

Answer data:NONE

4.3 ISO15693 command

1. ISO15693_Inventory(multiple cards)

Command: 0x0010

Parameters:NONE

Answer data: 9 Byte as a group, each structure: 1 Byte DSFID + 8 Byte UID

2. ISO15693_Inventory(Single card)

Command: 0x0110

Parameters:NONE

Answer data:9 Byte : 1 Byte DSFID + 8 Byte UID

3.StayQuiet (ISO15693_Stay_Quiet)

Command: 0x0210

Parameters: 8 Byte UID

Answer data: NONE

4.Select (ISO15693_Select)

Command: 0x0310

Parameters: 8 Byte UID

Answer data: NONE

5.ResetToReady (ISO15693_Reset_To_Ready)

Command: 0x0410

Parameters: 1 Byte model + 8 Byte UID

Answer data: NONE

6.Read (ISO15693_Read)

Command: 0x0510

Parameters: 1 Byte model + 8 Byte UID + 1 Byte starting block number + 1 Byte blocks

Answer data: Data read

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7.Write (ISO15693_Write)

Command: 0x0610

Parameters: 1 Byte model + 8 Byte UID + 1 Byte block number + 4 Byte write data

Answer data: NONE

8.LockBlock (ISO15693_Lock_Block)

Command: 0x0710

Parameters: 1 Byte model + 8 Byte UID + 1 Byte block number

Answer data: NONE

9.WriteAFI (ISO15693_Write_AFI)

Command: 0x0810

Parameters: 1 Byte model + 8 Byte UID + 1 Byte write data

Answer data: NONE

10.LockAFI (ISO15693_Lock_AFI)

Command: 0x0910

Parameters: 1 Byte model + 8 Byte UID

Answer data: NONE

11.WriteDSFID (ISO15693_Write_DSFIID)

Command: 0x0A10

Parameters: 1 Byte model + 8 Byte UID + 1 Byte write data

Answer data: NONE

12.LockDSFID (ISO15693_Lock_DSFIID)

Command: 0x0B02

Parameters: 1 Byte model + 8 Byte UID

Answer data: NONE

13.GetSysInfo (ISO15693_Get_System_Information)

Command: 0x0C10

Parameters: 1 Byte model + 8 Byte UID

Answer data: 1 Byte ? (0x0F) + 8 Byte UID + 1 Byte DSFID + 1 Byte AFI + 3 Byte ? (0x1B 0x03 0x01)

14.GetBlockSecurity (ISO15693_Get_Block_Security)

Command: 0x0D10

Parameters: 1 Byte model + 8 Byte UID + 1 Byte starting block number + 1 Byte blocks

Answer data: N Byte locked state, each corresponding to a 1 byte, zero is not locked, the lock nonzero

4.4 Command Example

Host send command: Get RF_READER type and product snr

Header	Length	Identifier	Command	Parameters	Checksum
AABB	0500H	0000H	0401H	NONE	05H

Command operation successful return

Header	Length	Identifier	Command	Status	Parameters	Checksum
AABB	1A00H	1112H	0401H	00H	See table below	1D

Parameters

HEX	44 2D 54 68 69 6E 6B 20 4D 33 30 20 52 46 49 44 20 50 44 41
ASCII	“D-Think M30 RFID PDA”

Command fails to return

Header	Length	Identifier	Command	Status	Parameters	Checksum
AABB	0600H	1112H	0401H	0A	NONE	0C

Revision history

Version	Date	Author	Modify description
V1.2	2013-8-6	jin	Create