(ACM801A) Reader Communication Protocol

file version： 02

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Part code：

1. Communications frame format introduction

1.1. Command frame format definition

data flow direction: host ————》 reader.

Order frame is the data frame of host machine operating reader, format as follows:

Packet Type	Length	Command Code	Command Data	…	Command Data	Command Data	Checksum
0xA0	n+2	1 byte	Byte 1		Byte n-1	Byte n	cc

- Packet Type is package type domain，Command frame package type fixed for 0xA0。

- Length is package length domain，said bytes number in the frame behind Length domain.

- Command Code is Order code domain.

- Command Data is the parameters domain in frame command.

- Checksum is Checksum domain，regulates the checking scope is from the package type domain to parameters domain until the last byte the checksum of all the bytes. After reader receiving order frame, need to calculate the checksum to check error.

1.2. Reader order complete response frame format definition

1.3. Data flow direction：reader————》 host machine.

Reader order complete the response frame is a kind of Data frame of fixed length, the format is shown as the following table:

Packet Type	Length	Command Code	Status	Checksum
0xE4	0x03	1 byte	1 Byte	cc

- Packet Type is package type domain，command frame package type fixed for 0xE4。

- Length is package length domain，said bytes number in the frame behind Length domain, fixed for 0x03。

- Command Code is Order code domain.

- Status is state domain.

- Checksum is checksum domain，regulates the checking scope is from the package type domain to parameters domain until the last byte the checksum of all the bytes. After reader receiving order frame, need to calculate the checksum to check error.

State domain showed that after reader completes the order of PC machine, the reader state or the results of after the implementation of the order, which provides as follows:

Serial number	Value	name	description
1	0x00	ERR_NONE	order complete successfully
2	0x02	CRC_ERROR	CRC Calibration error
3	0x10	DRF_COMMAND_ERROR	Illegal orders
4	0x01	OTHER_ERROR	other error

1.4. The message frame format definition of reader sends

Data flow direction：reader————》host machine

Information frame is data frame returned to the host, for example, used to send label to the host, the frame format definition as follows:

Packet Type	Length	Response Code	Response Data	…	Response Data	Response Data	Checksum
0xE0	n+2	1 byte	Byte 1		Byte n-1	Byte n	cc

- Packet Type is package type domain，response frame package type fixed for 0xE0.

- Length is package length domain，said the bytes number in the frame behind length domain.

- Response Code is the information key domains, the value said the type of information.

- Response Data is the parameters domain of information frame.

- Checksum is checksum domain，regulates the checking scope is from the package type domain to parameters domain until the last byte the checksum of all the bytes. After PC machine receives order frame, need to calculate the checksum to check error.

2. Communication frame introduction in details

1 ISO18000-6B tag identification

host machine sends：

response	data length	order	card type	checksum
Data0	Data1	Data2	Data3	Data4
A0	03	82	01	checksum

TEST Code: A0,03,82,01,DA;

return from machine：（E0 0B 82 01）head，（ E0 04 00 00 C0 B1 CD 01 ）ID，checksum。

1.1 ACM tag identification

host machine sends：

response	data length	order	card type	checksum
Data0	Data1	Data2	Data3	Data4
A0	03	82	04	checksum

TEST Code: A0,03,82,04,D7;

return from machine：（E0 0F 82）head,（04）antenna number, (12 34 33 B2 DD D9 04 80 35 05 00 00)ID,checksum.

2 ISO18000-6B tag reading

host machine sends：

response	data length	order	card type	address	reading length	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data0
A0	05	80	01	addr	Length	checksum

TEST CODE：A0 05 80 01 00 08 D2；from 0x00 address begins, read 8 BYTE data.

return from machine：（E0 15 80 01 00 08）head，（ E0 04 00 00 C0 B1 CD 01）ID，（ E0 04 00 00 C0 B1 CD 01 ）data reading out，checksum.

2.1 ACM tag reading

host machine sends:

response	data length	order	card type	memory place	address	reading length(word)	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
A0	06	80	04	MemBank	addr	Length	checksum

TEST Code: A0 06 80 04 01 02 01 D2; from 0x02 address begins, read 1 word data.

Remarks：1 word= 2 BYTE；

MemBank：

00_2 Reserved   reservation area

01_2 ACM   ACM

10_2 TID   TID

11_2 User   user area

return from machine：E0 09 80 04 01 02 01，（12 34）ID 49 ，（49 ）checksum.

3 ISO18000-6B tag writes

host machine sends:

response	data length	order	card type	address	writing length	writing data		checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6		Data
A0	05+ Length	81	01	addr	Length	D1		checksum

TEST CODE：A0 06 81 01 16 01 00 C1；to 0x16 write 0x00；

return from machine：（E0 0E 81 01 16 01 E0 04 00 00 C0 B1 CD 01 ）head，Status， checksum.

Status = 00：write in successfully；

Status = other value：write in failed

Addr illustration：from 19 – 255 is effective；

3.1 ACM tag single word write in

host machine sends:

response	data length	order	card type	writing in mode	memory place	address	writing in length(word)	writing in data	writing in data	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7	Data8	Data9	Datan
A0	09	81	04	WriteMode	MemBank	addr	01	D1	D2	checksum

TEST Code1: A0,09,81,04,00,01,02,01,12,34,88;

TEST Code1: A0,09,81,04,00,01,02,01,88,88,BE;

return from machine：（E0 0E 81 02 02 01 08 55 60 20 00 12 34 45 ）head，Status ， checksum.

Remarks：1 word=2 BYTE；

MemBank：

00_2 　　Reserved　reservation area

01_2 　　EPC　　　EPC area

10_2 　　TID　　　TID area

11_2 　　User　　　　user area

WriteMode:

00　single word write

Status = 00：write successfully；

Status = other value：write failed；

Addr illustration：ACM area from 0x02– 0x07 is effective；

3.2 ACM tag multiple words write(block Writing)

host machine sends:

response	data length	order	card type	writing mode	memory place	address	writing length (word)	write data	write data	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7	Data8	Datan-1	Datan

A0	07+ (Length*2)	81	04	WriteMode	MemBank	addr	Length	D1	D（Length）	checksum

TEST Code1: A0,0B,81,04,01,01,02,02,55,55,AA,AA,CC;

return from machine：（E0 0E 81 03 02 02 08 55 60 20 00 12 34 45 ） head，Status ，checksum.

Remarks：1 word=2 BYTE；

    MemBank：

        00_2 Reserved   Reservation area

        01_2 ACM   ACM

        10_2 TID   TID

        11_2 User   user area

    WriteMode:

        01   block writing

Status = 00：write in successfully;

Status = other value：write failed;

Remarks: Most labels do not support.

4　ISO18000-6B tag LOCK

response	data length	order	card type	address	checksum
Data0	Data1	Data2	Data3	Data4	Data5
A0	04	87	01	addr	checksum

Addr illustration：0x13 and aboved.

return from machine：　E4，03，87，status, checksum

Status = 00：write in successfully;

Status = other value：write failed;

4.1　ACM tag LOCK

response	data length	order	card type	LOCK type	checksum
Data0	Data1	Data2	Data3	Data4	Data5
A0	04	87	04	LOCK type value	checksum

LOCK type value illustration:

00：LOCK USER

01：LOCK TID

02：LOCK ACM

03：LOCK　ACCESS

04：LOCK　KILL

05：LOCK　ALL

other value：　not lock

return from machine：　E4，03，87，status, checksum

Status = 00：write in successfully;

Status =other value：write failed;

5　ACM tag KILL

response	data length	order	card type	RFU	password 1	password 2	password 3	password 4	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7	Data8	Data9
A0	08	86	04	00	MM1	MM2	MM3	MM4	checksum

return from machine：E4 03 86 status checksum

Status = 00：write in successfully;

Status =other value：write failed;

6　Initialize ACM tag CODE

response	data length	order	card type	checksum
Data0	Data1	Data2	Data3	Data4
A0	03	99	04	checksum

return from machine：E4 03 99 status checksum

Status = 00：write in successfully;

Status = other value：write failed;

7　Read reader software version number CODE

response	data length	order	checksum
Data0	Data1	Data2	Data4
A0	02	6A	checksum

return from machine：（E0 04 6A）head，（ 01 29 ）version number，（88）checksum

8　reposition reader order frame **CODE**

Packet Type	Length	Command Code	Checksum
0xA0	2	0x65	Checksum

After the reader receives this order frame, return order and complete the frame at first, then reader reposition.

return from machine：（E4 03 65 ）head，（00 ）state bits，（B4）Checksum

state bits　00: success ；other value：failed;

9　Stop reading tag CODE

response	data length	order	checksum
Data0	Data1	Data2	Data4
A0	02	FE	checksum

Host machine sends：　A0，02，FE，60。

return from machine：　E0，04，88，88，88，84

Note: ACM tags operation is with a "word" as a unit; ISO18000-6B label with a "byte" as a unit.

10. Re-identify tags CODE (multi-label mode is effective)

response	data length	order	checksum
Data0	Data1	Data2	Data4
A0	02	FC	checksum

Return successfully：E0，04，88，88，88，CheckSum；

11. Re-get data CODE (multi-label mode is effective)

response	data length	order	checksum
Data0	Data1	Data2	Data4
A0	02	FF	checksum

Return successfully：E0，04，N（ID frame numbers），88，88，CheckSum；then back N pieces ID data frames.

12. Set time CODE（Note: which have clock function device is effective）

response	data length	order	operation function	year high byte	year low byte	month	day	week	hour	minute	second	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data8	Data9	Data10	Data11		Data12
A0	0B	FB	FU	Year-H	Year-L	Mon	Day	Mow	Hour	Min	Sec	checksum

FU：00 Initialize the date and clock

Return successfully：E0，03，FB，Status，CheckSum；

Status = 00：write successfully;

Status = other value: write failed;

FU：01 Read date and clock;

host machine sends：A0，03，FB，01，CheckSum；

return successfully：E0，0A，FB ，Year-H，Year-L，Mon，Day，Mow，Hour，Min，Sec，checksum

return error ：E0，03，FB，01，CheckSum；

Reader Parameters setting communication protocols

1. Communication baud rate settings

response	data length	order	baud rate parameters	checksum
Data0	Data1	Data2	Data3	Data4
A0	03	64	baud rate parameters	checksum

Baud rate parameters illumination：

00 ：9600

01 ：19200

02 ：38400

03 ：57600

04 ：115200

other parameters：9600

host machine sends： A0 03 64 01 F8

return from machine： （E4 03 64）head，（ 00）state bit，（ B5）Checksum

state bit 00: success ； other value： failure

Note：Electric on reader default for 9600

2. Stop working setting

response	data length	order	checksum
Data0	Data1	Data2	Data3
0xA0	0x02	0x50	Checksum(0x0E)

return from machine：(E4 03 50) head，（00 ）state bit，（C9）Checksum

state bit 00: success ； other value： failure

3.　　Enquiry multiple setting parameters of readers at the same time

response	data length	order	enquiry numbers of parameters	enquiry the high bit address of parameters specified	enquiry the low bit address of parameters specified	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data6
0xA0	0x05	0x63	Length	Parameter address(MSB)	Parameter address(LSB)	Checksum

For example：host machine sends：A0 05 63 05 00 20 D3 （product logo enquiry）

return from machine：（E0 0A 63 05 00 20）head，（ FF FF 5E FF FF）parameters value，（34）Checksum

4.　　Enquiry single setting parameters of readers

response	data length	order	enquiry the high bit address of parameters specified	enquiry the low bit address of parameters specified	checksum
Data0	Data1	Data2	Data3	Data4	Data5
0xA0	0x04	0x61	Parameter address(MSB)	Parameter address(LSB)	Checksum

For example：host machine sends：A0 04 61 00 65 96 （enquiry power）

return from machine：（E0 05 61 00 65）head，（ 00 ）parameters value，（55）Checksum。

5.　　Set multiple reader parameters at the same time

response	data length	order	Set numbers of parameters	enquiry the high bit address of parameters specified	enquiry the low bit address of parameters specified	Command Data	Command Data	Command Data	Command Data	checksum
Data0	Data1	Data2	Data3	Data4	Data5	Data5	Data5	Data5	Data N（N-1）	Data N
0xA0	0x05+Length	0x62	Length	Parameter address(MSB)	Parameter address(LSB)	Parameter value	Parameter value	Parameter value	Parameter value	Checksum

For example：host machine sends：A0 0C 62 07 00 92 01 04 10 40 00 01 02 01 (frequency setting)

　　　　return from machine：（E4 03 62）head，（00）state bit，（B7） Checksum。

state bit   00: success ；   other value：   failure

6.   Set single reader parameter

Packet Type	Length	Command Code	Command Data	Command Data	Command Data	Checksum
0xA0	5	0x60	Parameter address(MSB)	Parameter address(LSB)	Parameter value	Checksum

Parameter address(MSB) is high byte of address of parameter in EEPROM.

Parameter address(LSB) is low byte of address of parameter in EEPROM.

Parameter value is parameter value need to set.

After the reader receives this command frame, write the parameters need to set into EEPROM, and return order to complete the frame.

For example：host machine sends：A0 05 60 00 65 96 00   （set power）

return from machine：（E4 03 60）head，   （00 ）state bit，（B9）

state bit   00: set successfully ；   other value：set failed

Attached table 1 ：

the address of the parameters in EEPROM (hexadecimal)	The meaning of the project	Set the RMS of operation (decimal)	interpretation of numerical meaning	**other**
0x64	user set peugeot code	0 - 255	user set peugeot value	
0x65	transmitting power	0 - 150	Power Analog	
0x70	reader reading operation happening mode	1，2，3	1：master-minor operating mode 2：timing operating mode 3：triggering operating mode	**Note: when operate in mode 2,3, master-minor mode is still effective.**

Attached 2 ：

address of the parameters in EEPROM (hexadecimal)	**project meaning**	Set the RMS of operation (decimal)	Numerical meaning interpretation	**other**
0x71	reading time interval	N	value unit is：(N*10)ms that Nis 10 – 100;	When reading operation happening mode of reader is 2，3, it is effective
0x72	the link choosing of that after the reader reads the data, it sends data initiatively	1，2，3	1：RS485 link 2：wiegand link 3：RS232 link	

Attached table 3：

address of the parameters in EEPROM (hexadecimal)	project meaning	Set the RMS of operation (decimal)	Numerical meaning interpretation	other
0x73	Wiegand protocol choice	1，2，3	1：wiegand26 2：wiegand34 3：wiegand32	Effective to wiegand mode
0x74	Wiegand outputting data pulse width	1 - 255	the inside of reader transfers to time，time=this value*10(microsecond)。	
0x75	Wiegand outputting data pulse cycle	1 - 255	the inside of reader transfers to time，time=this value*100(microsecond)。	
0x76	Wiegand output repeating times	1，2，3	not support temporarily	
0x77	interval time of Wiegand repeat outputting	1，2，3，4，5，6，7，8，9，10	the inside of reader transfers to time，time=this value*10microsecond）。（not support temporarily）	

Attached table 5：

address of the parameters in EEPROM (hexadecimal)	Project meaning	Set the RMS of operation (decimal)	the numerical meaning interpretation	other
0x7C	485 links sending data confirmation	0，1	0：no confirmation （not support temporarily） 1：with confirmation（not support temporarily）	effective to 485 way
0x7D	485 links sending way	0，1	0： passive sending （not support temporarily） 1： active sending	

Attached table 6：

address of the parameters in EEPROM (hexadecimal)	Project meaning	Set the RMS of operation (decimal)	the numerical meaning interpretation	other
0x80	Trigger pin use triggering working mode to set	if numerical value is less than 4 bits, then set as 0 or 1, says work without triggering or	Bit0 ： Corresponding triggering pin 0 Bit1 ： Corresponding triggering pin 1（not support temporarily）	effective when reader's reading operation happening mode is 3

		triggering	Bit2 ： Corresponding triggering pin 2 （not support temporarily）	
			Bit3 ： Corresponding triggering pin 3 （not support temporarily）	
0x81	triggering pin triggering mode	if numerical value is less than 4 bits, then set as 0 or 1, says low electrical level triggering or high electrical level triggering	Bit0 ： Corresponding triggering pin 0（support high electrical level triggering） Bit1 ： Corresponding triggering pin 1 （not support temporarily） Bit2 ： Corresponding triggering pin 2 （not support temporarily） Bit3 ： Corresponding triggering pin 3 （not support temporarily）	
0x84	put off close time	0 - 240	the inside of reader transfers to time , time=this value*100(microsecond)。	

Attached table 7：

address of the parameters in EEPROM (hexadecimal)	**Project meaning**	Set the RMS of operation (decimal)	the numerical meaning interpretation	**other**
0x90	Hopping-frequency setting	0 - 50	0 ： Frequency-hopping working mode 1--50 ： fixed frequency working mode，frequency value is decided by this numerical value	
0x92~0x98	hopping frequency-frequency parameter	bit is set as 0 or 1，says not selecting this frequency or selecting this frequency	From BIT0 of 0x92 （the first frequency） – BIT7 （the seventh frequency），and so on, can set 50 frequency to work cycle	

Attached table 8：

address of the parameters in EEPROM	**Project meaning**	Set the RMS of operation (decimal)	the numerical meaning interpretation	**other**

(hexadecimal)				
0xA0	Forward Link Rate	0，1，2	At present, fixed, out of control	
0xA1	Reverse link rate	0，1，2	At present, fixed, out of control	

Attached table 9：

address of the parameters in EEPROM (hexadecimal)	**Project meaning**	Set the RMS of operation (decimal)	the numerical meaning interpretation	**other**
0x87	single tag and multiple tags identification	0，1，2，3	0：ACM single tag identification 1：ACM multiple tags identification 2：18000_6B single tag identification 3：18000_6B not support multiple tags identification temporarily	

Attached table 10：

address of the parameters in EEPROM (hexadecimal)	**Project meaning**	Set the RMS of operation (decimal)	the numerical meaning interpretation	**other**
0x89	antenna working mode	1，4	1：single antenna works 4：multiple antennas cycle work	
0x8A	select working antenna	If the numerical value is lower than 4 bits, set as 0 or 1，says that not select or select corresponding antenna to work	0：not select any antenna to work 1：antenna 1 works 2：antenna 2 works 4：antenna 3 works 8：antenna 4 works 15：all antennas work	

Attached table 11：

address of the parameters in EEPROM (hexadecimal)	**Project meaning**	Set the RMS of operation (decimal)	the numerical meaning interpretation	**other**
0x7B	ID adjacent discrimination	1 , 2	1 ： start ID adjacent discrimination 2：Do not start (sending data real-time is effective)	
0x7A	ID adjacent discrimination time	1 - 255	the inside of the reader transfers to time，time=this value*1（second）	Note ： when start ID adjacent discrimination，time value can not be 0,otherwise automatically transfer to not starting.

the above address in command use two bytes，as the above byte is only one byte range，when use in practical，write high bit bytes in command as 0.

For example：reader reading operation happening mode is timing working mode，fill in practically：

Parameter address(MSB)	Parameter address(LSB)
0x00	0x70

illumination：

1．After the above command is completed，need to make the reader to use new parameters to work, can use one of the below two ways：

（1）Manually reset reader, so that operators need to close to the reader (repower-on);

（2）PC remote operation, in the PC software, through the use of Reset Reader orders to control reader

3. Testing and calculation method （**c language**）

```c
unsigned char   CheckSum(unsigned char *uBuff, unsigned char uBuffLen)
{
    unsigned char i,uSum=0;
    for(i=0;i<uBuffLen;i++)
    {
        uSum = uSum + uBuff[i];
    }
    uSum = (~uSum) + 1;
    return uSum;
}
```

4. Reader setting examples

On-line data combination frame is as follows:
【**Write Data:**】**A0 03 64 01 F8**
【**Read Data:**】**E4 03 64 00 B5**
【**Write Data:**】**A0 02 50 0E**
【**Read Data:**】**E4 03 50 00 C9**
【**Write Data:**】**A0 02 6A F4**
【**Read Data:**】**E0 04 6A 01 29 88**

Fundamental operating parameters set the combination frame as follows:
【**Write Data:**】**A0 05 60 00 65 87 0F**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7E 00 7D**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 91 1E 4C**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 0C 62 07 00 92 01 04 10 40 00 01 02 01**
【**Read Data:**】**E4 03 62 00 B7**
【**Write Data:**】**A0 05 60 00 90 00 6B**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 8A 01 70**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 89 01 71**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 87 00 74**
【**Read Data:**】**E4 03 60 00 B9**

Master-minor working mode set combination frame as follows:
【**Write Data:**】**A0 05 60 00 70 00 8B**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 72 00 89**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 04 61 00 24 D7**
【**Read Data:**】**E0 05 61 00 24 FF 97**
【**Write Data:**】**A0 04 61 00 25 D6**
【**Read Data:**】**E0 05 61 00 25 FF 96**

Timing working mode set combination frames as follows:
【**Write Data:**】**A0 05 60 00 70 02 89**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 71 0A 80**

【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 72 01 88**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7B 00 80**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 79 FF 83**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 64 00 97**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7A 00 81**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7D 00 7E**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7C 00 7F**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 04 61 00 24 D7**
【**Read Data:**】**E0 05 61 00 24 FF 97**
【**Write Data:**】**A0 04 61 00 25 D6**
【**Read Data:**】**E0 05 61 00 25 FF 96**

Trigger working mode set combination frame as follows:
【**Write Data:**】**A0 05 60 00 70 03 88**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 71 0A 80**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 72 01 88**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7B 00 80**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 79 FF 83**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 64 00 97**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7A 00 81**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7D 01 7D**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 7C 00 7F**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 81 01 79**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 80 01 7A**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 05 60 00 84 0A 6D**
【**Read Data:**】**E4 03 60 00 B9**
【**Write Data:**】**A0 04 61 00 24 D7**

【**Read Data:**】**E0 05 61 00 24 FF 97**
【**Write Data:**】**A0 04 61 00 25 D6**
【**Read Data:**】**E0 05 61 00 25 FF 96**

Enquiry working mode combination frame work as follows:

【**Write Data:**】**A0 04 61 00 70 8B**
【**Read Data:**】**E0 05 61 00 70 03 47**
【**Write Data:**】**A0 04 61 00 71 8A**
【**Read Data:**】**E0 05 61 00 71 0A 3F**
【**Write Data:**】**A0 04 61 00 72 89**
【**Read Data:**】**E0 05 61 00 72 01 47**
【**Write Data:**】**A0 04 61 00 7B 80**
【**Read Data:**】**E0 05 61 00 7B 00 3F**
【**Write Data:**】**A0 04 61 00 72 89**
【**Read Data:**】**E0 05 61 00 72 01 47**
【**Write Data:**】**A0 04 61 00 79 82**
【**Read Data:**】**E0 05 61 00 79 FF 42**
【**Write Data:**】**A0 04 61 00 64 97**
【**Read Data:**】**E0 05 61 00 64 00 56**
【**Write Data:**】**A0 04 61 00 7A 81**
【**Read Data:**】**E0 05 61 00 7A 00 40**
【**Write Data:**】**A0 04 61 00 7D 7E**
【**Read Data:**】**E0 05 61 00 7D 01 3C**
【**Write Data:**】**A0 04 61 00 7C 7F**
【**Read Data:**】**E0 05 61 00 7C 00 3E**
【**Write Data:**】**A0 04 61 00 81 7A**
【**Read Data:**】**E0 05 61 00 81 01 38**
【**Write Data:**】**A0 04 61 00 80 7B**
【**Read Data:**】**E0 05 61 00 80 01 39**
【**Write Data:**】**A0 04 61 00 84 77**
【**Read Data:**】**E0 05 61 00 84 0A 2C**

Enquiry working parameters combination frame are as follows:

【**Write Data:**】**A0 04 61 00 65 96**
【**Read Data:**】**E0 05 61 00 65 87 CE**
【**Write Data:**】**A0 04 61 00 7E 7D**
【**Read Data:**】**E0 05 61 00 7E 00 3C**
【**Write Data:**】**A0 04 61 00 91 6A**
【**Read Data:**】**E0 05 61 00 91 1E 0B**
【**Write Data:**】**A0 04 61 00 90 6B**
【**Read Data:**】**E0 05 61 00 90 00 2A**
【**Write Data:**】**A0 05 63 07 00 92 5F**
【**Read Data:**】**E0 0C 63 07 00 92 01 04 10 40 00 01 02 C0**
【**Write Data:**】**A0 04 61 00 87 74**
【**Read Data:**】**E0 05 61 00 87 00 33**
【**Write Data:**】**A0 04 61 00 8A 71**
【**Read Data:**】**E0 05 61 00 8A 01 2F**

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Updating working parameters combination frame are as follows:

【**Write Data:**】**A0 03 64 00 F9**

【**Read Data:**】**E4 03 64 00 B5**

【**Write Data:**】**A0 02 65 F9**

【**Read Data:**】**E4 03 65 00 B4**

5. Automatically identifying data outputting format examples

5.1. ISO18000-6B tag outputting format is as follows：

Data frame uses information frame format to send，thereinto Response Code region is 0x58，Response Data region is totally 10 bytes.

The following is an example：

A tag data is totally 14 bytes：（the below numerical value are all hexadecimal）

E0 0C 58 00 01 E0 04 00 00 41 C2 30 01 A3

thereinto：

E0：head sign，this one is fixed

0C：length，this one is also fixed

58：news sign，this one is also fixed

00：users code sign

01：antenna number，this identification comes from which antenna   note：（integrated antenna is fixed）

E0 04 00 00 41 C2 30 01：ID number

A3 ：checksum，calculation：From the first byte to reciprocal the second byte, totally 13 bytes.

Every time the reader returns a label data.

5.2. ACM G2 tag outputting format is as follows：

The below is a example：

A label data is totally 17 bytes: (the following numerical value are all hexadecimal)

00 FF E3 00 60 19 D2 6D 1C E9 AA BB CC DD 01 52 FF

Thereinto：

00：head sign，this one is fixed

FF：users code sign

E3 00 60 19 D2 6D 1C E9 AA BB CC DD：ID number

01： antenna number，this identification comes from which antenna   note：（integrated antenna is fixed）

52：checksum，calculation：from the first byte to reciprocal the third byte, totally 15 bytes.

FF：sign，this one is fixed

Every time the reader returns a label data.

5.3. ACM G2 tag with clock function outputting format is as follows：

The below is a example：

A tag data is totally 20 bytes：（the below numerical value are all hexadecimal）

beginning：E4 03 00 00 19 E4 04 05 00 01 12

ID

FF FF 12 34 56 78 9A BC DE F0 11 22 33 44 06 03 0C 00 0A 01

Thereinto：

FF   FF：head sign，this one is fixed

FF：users code sign

12 34 56 78 9A BC DE F0 11 22 33 44：ID number

06 03 0C 00 0A：date（month，date），time（hour，minute，second）

01：checksum，calculation：from the first byte to reciprocal the second byte, totally 19 bytes.

5.4. ACM G2 tag reading TID outputting format is as follows：

The below is a example：

A tag data is totally 25 bytes：（the below numerical value are all hexadecimal）

00 FF E3 00 60 19 D2 6D 1C E9 AA BB CC DD 01 E3 00 60 19 D2 6D 1C E9 ** FF

Thereinto：

00：head sign，this one is fixed

FF：users code sign

E3 00 60 19 D2 6D 1C E9 AA BB CC DD：EPC-ID number

E3 00 60 19 D2 6D 1C E9：TID-ID number

01：antenna number，this identification comes from which antenna   note：（integrated antenna is fixed）

**：checksum，calculation：from the first byte to reciprocal the third byte, totally 23 bytes.

FF：sign，this one is fixed

Every time the reader returns a label data.