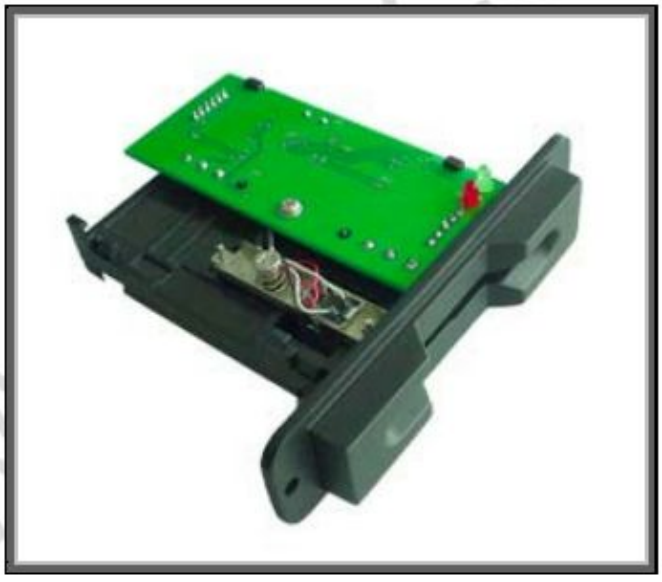
WBM-1300 SERIES

HALF-INSERTION MAGNETIC CARD READER



WBM-1300 SERIES

HALF-INSERTION MAGNETIC CARD READER

Half-Insert Magnetic Card Reader

Model WBM-1300 Series SPECIFICATION

Date 2009/03/18 Rev.

CONTENTS

CONTENTS

1. OVERVIEW

WBM-1300 series is the manual half-insertion magnetic card reader with RS-232 interface, port powered, can read track 1, 2 and 3 (accordance with ISO7811Standard).
It can read approximately 60% of the magnetic stripe. (Approximately 52 characters on track 1; 25 characters on track 2; and 73 characters on track 3)

2. MODEL TABEL

MODEL	Dimensions (mm)			ISO STANDARD		
	W	L	H	I (IATA)	II (ABA)	III (MINTS)
WBM-1320	101.5 x 93.0 x 25.5				R	
WBM-1330						R
WBM-1350				R	R	
WBM-1360					R	R
WBM-1370				R	R	R

3. ENVIRONMENTAL REQUIREMENTS

Operation temperature and humidity	-20℃ ~ 70℃, 20 ~ 90% RH
Storage temperature and humidity	-30℃ ~ 70℃,Less than 95% RH

4. TECHNICAL PARAMETERS

Standard	ISO 7811/2		
Track	ISO1 (IATA),	ISO 2 (ABA),	ISO 3 (MINTS)
Recording density	210 BPI	75 BPI	210 BPI
Record characters (half-insertion)	52 Characters	25 Characters	73 Characters
Power	+5V DC ±5%		
Current	65mA(max.)		
Head function	Read track width: 1.5mm		
Thickness	PVC 0.76 ± 0.08mm		
Operating speed	10 ~ 150cm/sec		
Error rate	Under 0.5%(JSE test card)		
Operating position	Indoor		
Head life	500,000 times (1 time: slot card at a time)		

1. OVERVIEW

WBM-1300 series is the manual half-insertion magnetic card reader with RS-232 interface, port powered, can read track 1, 2 and 3 (accordance with ISO7811Standard). It can read approximately 60% of the magnetic stripe. (Approximately 52 characters on track 1; 25 characters on track 2; and 73 characters on track 3)

2. MODEL TABEL

MODEL

Dimensions (mm) ISO STANDARD W L H I (IATA) II (ABA) III (MINTS) WBM-1320 R WBM-1330 R WBM-1350 R R WBM-1360 R R WBM-1370

101.5 x 93.0 x 25.5

R R R

3. ENVIRONMENTAL REQUIREMENTS

Operation temperature and humidity -20°C ~ 70°C, 20 ~ 90% RH

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4. TECHNICAL PARAMETERS

Standard ISO 7811/2

Track ISO1 (IATA), ISO 2 (ABA), ISO 3 (MINTS)

Recording density 210 BPI 75 BPI 210 BPI

Record characters (half-insertion) 52 Characters 25 Characters 73 Characters

Power +5V DC ±5%

Current 65mA(max.)

Head function Read track width: 1.5mm

Thickness PVC 0.76 ± 0.08mm

Operating speed 10 ~ 150cm/sec

Error rate Under 0.5%(JSE test card)

Operating position Indoor

Head life 500,000 times (1 time: slot card at a time)

5. INTERFACE

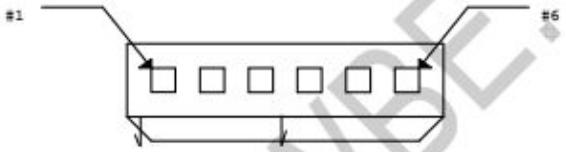
5.1 Physical connection

5.1.1 RS232 connection

RS-232C Signal	Host machine (9 pin)	Card machine (6 pin)	Functions
TXD	2	4	Transmitting Data
RXD	3	5	Receiving Data
GOUND	5	6	Signal Ground

5.1.2 Card machine interface pin description

Pin No.	Signal Name	Functions
1	GND	Ground
2	VCC	Power +5VDC
3	GND	Ground
4	TXD	Transmitting Data
5	RXD	Receiving Data
6	GND	Ground



5.2 Software connection

5.2.1 Factory default

(1) Communication type	: Asynchronous half-duplex
(2) Baud rate	: 9600 bps (can be set)
(3) Data length	: 8 bit no parity
(4) Startup bit :	: 1 bit
(5) Stop bit	: 1 bit

5. INTERFACE

5.1 Physical connection

5.1.1 RS232 connection

RS-232C Signal Host machine (9 pin) Card machine (6 pin) Functions

TXD 2 4 Transmitting Data RXD 3 5 Receiving Data GOUND 5 6 Signal Ground

5.1.2 Card machine interface pin description

Pin No. Signal Name Functions 1 GND Ground 2 VCC Power +5VDC 3 GND Ground 4 TXD Transmitting Data 5 RXD Receiving Data 6 GND Ground

#1 #6

5.2 Software connection

5.2.1 Factory default

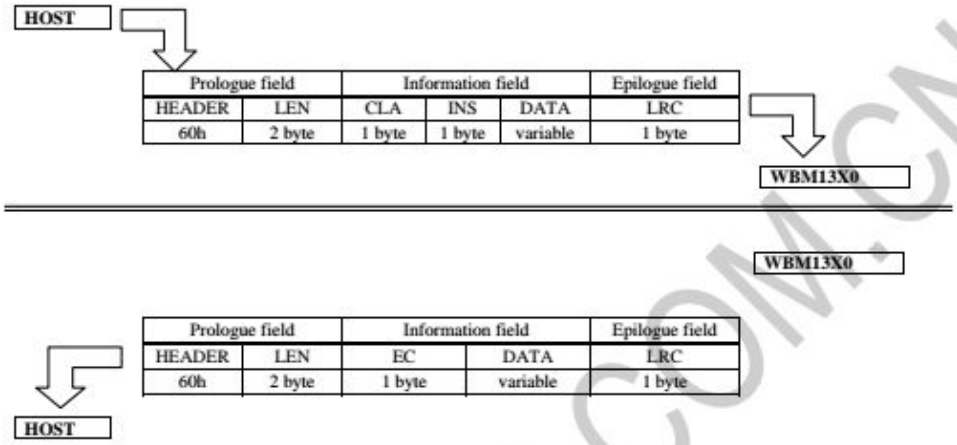
(1) Communication type : Asynchronous half-duplex

(2) Baud rate : 9600 bps (can be set)

(3) Data length : 8 bit no parity

(4) Startup bit : : 1 bit (5) Stop bit : 1 bit

6. COMMUNICATION PROTOCOL



6.1 Communication Frame Description

Boot Sector (mandatory) -- Frame initiation region, contains the length of information area.
Information Zone (optional) -- Contains the application data.
Check Area (mandatory) -- LRC checksum.

Prologue field		Information field	Epilogue field
HEADER	LEN	INF	LRC
60h	2 byte	1 to 255bytes	1 byte

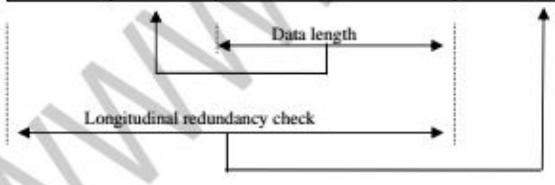


Chart 1 - Block structure

6. COMMUNICATION PROTOCOL

HOST

Prologue field Information field Epilogue field HEADER LEN CLA INS DATA LRC

60h 2 byte 1 byte 1 byte variable 1 byte

WBM13X0

WBM13X0

Prologue field Information field Epilogue field HEADER LEN EC DATA LRC

60h 2 byte 1 byte variable 1 byte

HOST

6.1 Communication Frame Description

Boot Sector (mandatory) -- Frame initiation region, contains the length of information area. Information Zone (optional) -- Contains the application data. Check Area (mandatory) -- LRC checksum.

Prologue field Information field Epilogue field

HEADER LEN INF LRC

60h 2 byte 1 to 255bytes 1 byte

Data length

Longitudinal redundancy check

Chart 1 - Block structure

6.2 Frame Elements

6.2.1 Boot Sector (mandatory)

This area is necessary, which consists of two parts: header and length.
(1) Header
Header composed by one byte, used to indicate the start of the frame.
Default header is 0x60h.

(2) Length
Length used to indicate the bytes need to send in the message area.
As chart 1

'00' to 'FF'	Indicate the data length of information area is 0 – 255
'100' –'FFFF	Reserved for future use.

6.2.2 Information Area

Information Area is optional, when exist it contains the application date and non-application of control and status. The transmitted bytes in the header were indicated by length.

(1) Composition of Information Area
Information Area must consists of a command area of two-byte length and an optional variable–length data zone.

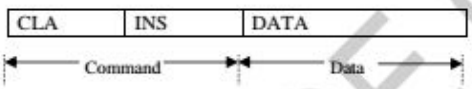


Chart 2 Composition of Information Area

Code	Description	Length
CLA	Command Type	1 bit
INS	Instruction Code	1bit
DATA	Transmitted parameters	Multi bits

Chart 1 - - Composition of Information Area

(2) Response of Information Area
The Response of Information Area consists of one-bit header and variable-length subject.

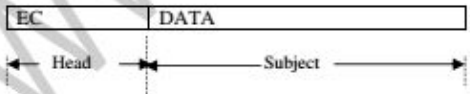


Chart 3-Response of Information Area

Code	Description	Length
EC	Error Code	1bit
DATA	Receiving Data	Multi bits

Chart 2 Response of Information Area

6.2.3 Check Area (mandatory)

The length of LRC Check is one-bit, the LRC Checksum contain the XOR from the head to all bytes of information zone.

6.2 Frame Elements

6.2.1 Boot Sector (mandatory)

This area is necessary, which consists of two parts: header and length. (1) Header Header composed by one byte, used to indicate the start of the frame. Default header is 0x60h.

(2) Length Length used to indicate the bytes need to send in the message area. As chart 1

'00' to 'FF' Indicate the data length of information area is 0 ~ 255 ‘100’ ~'FFFF Reserved for future use.

6.2.2 Information Area

Information Area is optional, when exist it contains the application date and non-application of control and status. The transmitted bytes in the header were indicated by length.

(1) Composition of Information Area Information Area must consists of a command area of two-byte length and an optional variable–length data zone.

CLA INS DATA

Command Data

Chart 2 Composition of Information Area

Code Description Length CLA Command Type 1 bit INS Instruction Code 1bit DATA Transmitted parameters Multi bits

Chart 1 - - Composition of Information Area

(2) Response of Information Area

The Response of Information Area consists of one-bit header and variable-length subject.

EC DATA

Head Subjectr

Chart 3-Response of Information Area

Code Description Length EC Error Code 1bit DATA Receiving Data Multi bits

Chart 2 Response of Information Area

6.2.3 Check Area (mandatory)

The length of LRC Check is one-bit, the LRC Checksum contain the XOR from the head to all bytes of information zone.

7. COMMAND FORMAT

7.1 Communication code list

Command	CLA	INS	Descriptions
Settings	'C' (43h)	'0' (30h)	Restore Factory Settings
		'1' (31h)	The first track switch
		'2' (32h)	The second track switch
		'3'(33h)	The third track switch
		'4'(34h)	Set the baud rate
		'5'(35h)	The prefix characters of the third track";"、"+"selector switch
		'6' (36h)	Whether to allow framework characters
		'7' (37h)	Whether to plus the Enter
		'8' (38h)	Read device configuration
		'9' (39h)	Version NO. of read device
		':' (3Ah)	Read device status

7.2 Error Code List

Error Code	Descriptions
'0' (30h)	Normal execution
'1' (31h)	LRC error in communication
'2' (32h)	Command Error
'3' (33h)	Data error

7.3 Control Commands

7.3.1 Restore factory settings

HOST ⇩

Prologue field		Information field		Epilogue field
HEADER	LEN	CLA	INS	LRC
60h	0002h	'C'(43h)	'0'(30h)	11h
1 byte	2 byte	1 byte	1 byte	1 byte

⇩ **WBM13X0**

- Information field (CLA,INS): See section 6.1. for the Command code list .

WBM13X0 ⇩

Prologue field		Information field	Epilogue field
HEADER	LEN	EC	LRC
60h	0001h	??	??
1 byte	2 byte	1 byte	1 byte

⇩ **HOST**

- Error code byte (EC): See section 6.2. for the Error code list .
- Factory default settings:

7. COMMAND FORMAT

7.1 Communication code list

Command CLA INS Descriptions

Settings ‘C’ (43h) ‘0’ (30h) Restore Factory Settings

‘1’ (31h) The first track switch ‘2’ (32h) The second track switch ‘3’(33h) The third track switch ‘4’(34h) Set the baud rate ‘5’(35h) The prefix characters of the third track“;”、“+”selector switch ‘6’ (36h) Whether to allow framework characters ‘7’ (37h) Whether to plus the Enter ‘8’ (38h) Read device configuration ‘9’ (39h) Version NO. of read device ‘:’ (3Ah) Read device status

7.2 Error Code List

Error Code Descriptions

‘0’ (30h) Normal execution ‘1’ (31h) LRC error in communication ‘2’ (32h) Command Error ‘3’ (33h) Data error

7.3 Control Commands

7.3.1 Restore factory settings

HOST

Prologue field Information field Epilogue field HEADER LEN CLA INS LRC

60h 0002h ‘C’(43h) ‘0’(30h) 11h 1 byte 2 byte 1 byte 1 byte 1 byte

WBM13X0

● Information field (CLA,INS): See section 6.1. for the Command code list .

WBM13X0

Prologue field Information field Epilogue field HEADER LEN EC LRC

60h 0001h ?? ?? 1 byte 2 byte 1 byte 1 byte

HOST

● Error code byte (EC): See section 6.2. for the Error code list .

● Factory default settings:

Baud Rate:	9600 bps
Data length:	8-bit no parity
Startup bit:	1 bit
Stop bit:	1 bit
The first track switch:	ON(1)
The second track switch:	ON(1)
The third track switch:	ON(1)
The prefix characters of the third track selector switch:	"+" (1)
Whether to allow framework characters:	Allow(1)
Whether allow to plus the carriage returns:	Allow(1)

7.3.2 The first track switch

HOST

Prologue field		Information field			Epilogue field
HEADER	LEN	CLA	INS	DATA	LRC
60h	0003h	'C'(43h)	'1'(31h)	01/00	10h/11 h
1 byte	2 byte	1 byte	1 byte	1 byte	1 byte

WBM13X0

- Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

HOST

Prologue field		Information field	Epilogue field
HEADER	LEN	EC	LRC
60h	0001h	??	??
1 byte	2 byte	1 byte	1 byte

* Error code byte (EC): See section 6.2. for the Error code list .

7.3.3 The second track switch

HOST

Prologue field		Information field			Epilogue field
HEADER	LEN	CLA	INS	DATA	LRC

Baud Rate: 9600 bps Data length: 8-bit no parity Startup bit: 1 bit Stop bit: 1 bit The first track switch: ON(1) The

second track switch: ON(1) The third track switch: ON(1) The prefix characters of the third track selector switch: “+” (1) Whether to allow framework characters: Allow(1) Whether allow to plus the carriage returns: Allow(1)

7.3.2 The first track switch

HOST

Prologue field Information field Epilogue field HEADER LEN CLA INS DATA LRC

60h 0003h ‘C’(43h) ‘1’(31h) 01/00 10h/11 h 1 byte 2 byte 1 byte 1 byte 1 byte 1 byte

WBM13X0

● Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

Prologue field Information field Epilogue field

HEADER LEN EC LRC

60h 0001h ?? ?? 1 byte 2 byte 1 byte 1 byte HOST

* Error code byte (EC): See section 6.2. for the Error code list .

7.3.3 The second track switch

HOST

Prologue field Information field Epilogue field HEADER LEN CLA INS DATA LRC

60h	0003h	'C'(43h)	'2'(32h)	01/00	13h/12 h
1 byte	2 byte	1 byte	1 byte	1 byte	1 byte

WBM13X0

- Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

Prologue field		Information field	Epilogue field
HEADER	LEN	EC	LRC
60h	0001h	??	??
1 byte	2 byte	1 byte	1 byte

HOST

* Error code byte (EC): See section 6.2. for the Error code list .

7.3.4 The third track switch

HOST

Prologue field		Information field			Epilogue field
HEADER	LEN	CLA	INS	DATA	LRC
60h	0003h	'C'(43h)	'3'(33h)	01/00	12h/13 h
1 byte	2 byte	1 byte	1 byte	1 byte	1 byte

WBM13X0

- Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

Prologue field		Information field	Epilogue field
HEADER	LEN	EC	LRC
60h	0001h	??	??
1 byte	2 byte	1 byte	1 byte

HOST

* Error code byte (EC): See section 6.2. for the Error code list .

60h 0003h 'C'(43h) '2'(32h) 01/00 13h/12 h 1 byte 2 byte 1 byte 1 byte 1 byte 1 byte

WBM13X0

● Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

Prologue field Information field Epilogue field

HEADER LEN EC LRC

60h 0001h ?? ?? 1 byte 2 byte 1 byte 1 byte HOST

* Error code byte (EC): See section 6.2. for the Error code list .

7.3.4 The third track switch

HOST

Prologue field Information field Epilogue field HEADER LEN CLA INS DATA LRC

60h 0003h ‘C’(43h) ‘3’(33h) 01/00 12h/13 h 1 byte 2 byte 1 byte 1 byte 1 byte 1 byte

WBM13X0

● Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

Prologue field Information field Epilogue field

HEADER LEN EC LRC

60h 0001h ?? ?? 1 byte 2 byte 1 byte 1 byte HOST

* Error code byte (EC): See section 6.2. for the Error code list .

7.3.5 Set the baud rate

HOST

Prologue field		Information field			Epilogue field
HEADER	LEN	CLA	INS	DATA	LRC
60h	0003h	'C'(43h)	'4'(34h)	? ?	? ?
1 byte	2 byte	1 byte	1 byte	1 byte	1 byte

WBM13X0

- Information field (CLA, INS): See section 6.1. for the Command code list .

WBM13X0

HOST

Prologue field		Information field	Epilogue field
HEADER	LEN	EC	LRC
60h	0001h	??	??
1 byte	2 byte	1 byte	1 byte

* Error code byte (EC): See section 6.2. for the Error code list .

*Data : setting baud rate

Data	Baud rate
31	4800
32	9600
33	19200
34	38400
35	57600
36	115200

7.3.5 Set the baud rate

HOST

Prologue field Information field Epilogue field HEADER LEN CLA INS DATA LRC 60h 0003h ‘C’(43h) ‘4’(34h) ?? ?? 1 byte 2 byte 1 byte 1 byte 1 byte 1 byte

WBM13X0

● Information field (CLA, INS): See section 6.1. for the Command code list .

Prologue field Information field Epilogue field

WBM13X0

HEADER LEN EC LRC

60h 0001h ?? ?? 1 byte 2 byte 1 byte 1 byte HOST

* Error code byte (EC): See section 6.2. for the Error code list .

*Data : setting baud rate

Data Baud rate

31 4800 32 9600 33 19200 34 38400 35 57600 36 115200