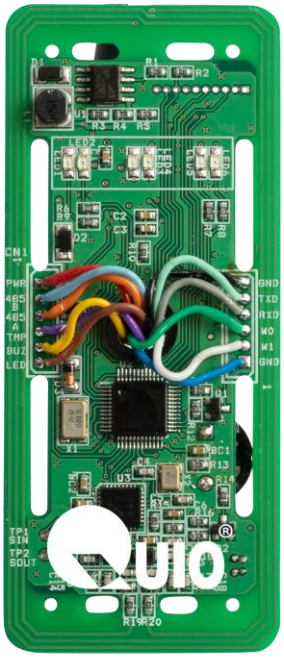
User Manual

Contactless Card Reader (Type-A)

QM-950-4-HF-2.0	*Mifare® & ISO-14443A*



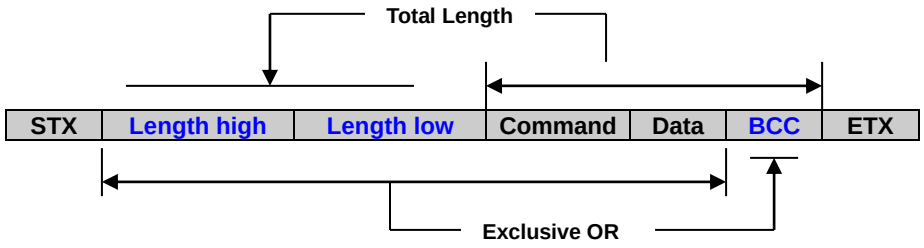
Quick Ohm Küpper & Co. GmbH

RS232C Communication

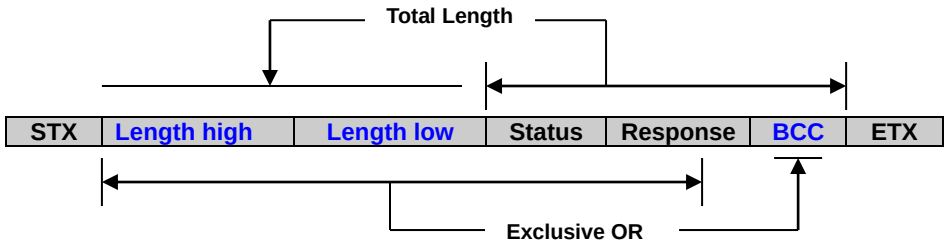
QM-950-4-HF-2.0 initialization value is set using RS232C communication port.

Communication basic frame format

HOST ⟶ ***QM-950-4-HF-2.0***



QM-950-4-HF-2.0 ⟶ **HOST**



Response LIST

Status	Result	Remark
0x00	Command operating success	
0x01	Command operating error	
0x10	Command Undefined	
0x11	TimeOut	

Command LIST

Command	Hex		Remark
CmdGetVersion	0x30		
CmdSetDeviceAddress	0x31		
CmdSetRS485	0x32		
CmdCardDataHoldTime	0x33		
CmdGetInitValue	0x34		

1-1. CmdGetVersion

Host

STX	LEN HIGH	LEN low	0x30	BCC	ETX
1	1	1	1	1	1

Response

STX	LEN HIGH	LEN low	Status	KEC4500 Version	BCC	ETX
1	1	1	1	16Bytes	1	1

1-2. CmdSetDeviceAddress

Host

STX	LEN HIGH	LEN low	0x31	DeviceAddress	BCC	ETX
1	1	1	1	1Bytes	1	1

Response

STX	LEN HIGH	LEN low	Status	BCC	ETX
1	1	1	1	1	1

1-3. CmdSetRS485

Host

STX	LEN HIGH	LEN low	0x32	ModBusCommSpeed	BCC	ETX
1	1	1	1		1	1

RS484 CommSpeed	Speed	
0x00	2400bps	
0x01	4800bps	
0x02	9600bps	
0x03	19200bps	
0x04	38400bps	
0x05	115200bps	

Response

STX	LEN HIGH	LEN low	Status	BCC	ETX
1	1	1	1	1	1

1-4. CmdCardDataHoldTime

Host

STX	LEN HIGH	Length low	0x33	CardDataHoldTime	BCC	ETX
1	1	1	1	2Bytes	1	1

Response

STX	LEN HIGH	Length low	Status	BCC	ETX
1	1	1	1	1	1

((CardDataHoldTime[0]*256) + CardDataHoldTime[1])*10msec

1-5. CmdGetInitValue

Host

STX	LEN HIGH	Length low	0x34	BCC	ETX
1	1	1	1	1	1

Response

STX	LEN HIGH	Length low	Status	ModBusInitalValue	BCC	ETX
1	1	1	1	4bytes	1	1

ModBusInitalValue

DeviceAddress	RS485 Speed	CardDataHoldTime
1bytes	1bytes	2bytes

1. QM-950-4-HF-2.0 ModBus

2-1. ReadCardData (Read Input Register 0X04)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	StartAddressHi	StartAddressLo	QuantityHi	QuantityLo	CRC
0x01	0x04	0x00	0x00	0x00	0x0a	0x70,0x0d

Ex) ** DeviceAddress= 0x01,

StartAddress= (StartAddressHi *256)+ StartAddressLo = 0x0000,

Quantity= (QuantityHi *256)+ QuantityLo = 0x000A

QM-950-4-HF-2.0 ⟶ Host

DeviceAddress	FunctionCode	ByteCount	Data	CRC
0x01	0x04	0x14	0x76,0x40,0x9b,0xf0,0x00,0x00,0x00,0x00,0x00,0x00, 0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00,0x00	0x58, 0x2b

ByteCount= ((QuantityHi*256)+ QuantityLo)*2

Ex) ** ** DeviceAddress= 0x01, Card UID 4Byte = 0x76,0x40,0x9b,0xf0

PosSize= (((StartAddressHi*256)+ StartAddressLo)*2) + (((QuantityHi*256)+ QuantityLo) *2)

if(PosSize >= 101){

// error handling

DeviceAddress	FunctionCode	ByteCount	CRC
0x01	0x84	0x02	0Xc1, 0xc2

}

else{

// normal processing

ByteCount= (((QuantityHi*256) + QuantityLo) *2);

ModBusBufPos= (((StartAddressHi*256) + StartAddressLo)*2); //ModBus Buffer Position

DeviceAddress	FunctionCode	ByteCount	Data	CRC
0x01	0x04	ByteCount	ModBusBuf[ModBusBufPos]	

}

	0	1	2	3	4	5	6	7	8	9
0	Hex0	Hex1	Hex2	Hex3	Hex4	Hex5	Hex6	0X00	0X00	0X00
1	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
2	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
3	0X00	0X00	0X00	UID LEN	ASCII 0	ASCII 1	ASCII 2	ASCII 3	ASCII 4	ASCII 5
4	ASCII 6	ASCII 7	ASCII 8	ASCII 9	ASCII 10	ASCII 11	ASCII 12	ASCII 13	0X00	0X00
5	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
6	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
7	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
8	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
9	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00

Ex) UID 0X12, 0X34, 0X56,0X76

	0	1	2	3	4	5	6	7	8	9
0	0X12	0X34	0X56	0X78	0X00	0X00	0X00	0X00	0X00	0X00
1	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
2	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
3	0X00	0X00	0X00	0X04	0X31	0X32	0X33	0X34	0X35	0X36
4	0X37	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
5	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
6	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
7	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
8	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00
9	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00	0X00

2-2. LED Red On(Write Single Coil 0X05)

LED Red On/ LED Blue Off

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x01	0xff	0x00	0xdd,0xfa

QM-950-4-HF-2.0 ⟶ Host

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x01	0xff	0x00	0xdd,0xfa

2-2. LED Blue On(Write Single Coil 0X05)

LED Red Off/ LED Blue On

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x01	0x00	0x00	0x9c,0x0a

QM-950-4-HF-2.0 ⟶ Host

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x01	0x00	0x00	0x9c,0x0a

```
Status= (OutValueHi*256)+ OutValueLo;

If(Status!=0){

        RedLED_On_BlueLED_Off();

}

else{

        BlueLED_On_RedLED_Off();

}
```

2-3. Buzzer On(Write Single Coil 0X05)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x00	0xff	0x00	0x8c,0x3a

QM-950-4-HF-2.0 ⟶ Host

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x00	0xff	0x00	0x8c, 0x3a

2-4. Buzzer On(Write Single Coil 0X05)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x00	0x00	0x00	0xcd,0xca

QM-950-4-HF-2.0 ⟶ Host

DeviceAddress	FunctionCode	OutPutAddressHi	OutPutAddressLo	OutValueHi	OutValueLo	CRC
0x01	0x05	0x00	0x00	0x00	0x00	0xcd, 0xca

2-5. Case Sensor On (Read Discrete Input 0X02)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	StartAddressHi	StartAddressLo	OutValueHi	QuantityLo	CRC
0x01	0x02	0x00	0x00	0x00	0x01	0xb9,0xca

QM-950-4-HF-2.0 ⟶ Host

Case Open

DeviceAddress	FunctionCode	ByteCount	Data	CRC
0x01	0x02	0x01	0x01	0x60, 0x48

Case Close

DeviceAddress	FunctionCode	ByteCount	Data	CRC
0x01	0x02	0x01	0x00	0xa1, 0x88

2-6. DeviceAddressSet (Write Single Register 0X06)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	RegisterAddrHi	RegisterAddrLo	OutValueHi	OutValueLo	CRC
0x01	0x06	0x00	0x00	0x00	0x01	0x48,0x0a

DeviceAddress= OutValueLo;

** OutValueHi is always 0x00

QM-950-4-HF-2.0 ⟶ Host

DeviceAddressSet Ok

DeviceAddress	FunctionCode	RegisterAddrHi	RegisterAddrLo	OutValueHi	OutValueLo	CRC
0x01	0x06	0x00	0x00	0x00	0x01	0x48,0x0a

DeviceAddress Fail

DeviceAddress	FunctionCode	ExceptionCode	CRC
0x01	0x86	0x02	0xc3, 0xa1

Changed values take effect immediately

2-7. RS485 Communication Speed (Write Single Register 0X06)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	RegisterAddrHi	RegisterAddrLo	OutValueHi	OutValueLo	CRC
0x01	0x06	0x00	0x01	0x00	0x05	0x18,0x09

Communication Speed= OutValueLo;

** OutValueHi is always 0x00

OutValueLo	Speed	
0x00	2400bps	
0x01	4800bps	
0x02	9600bps	
0x03	19200bps	
0x04	38400bps	
0x05	115200bps	

QM-950-4-HF-2.0 ⟶ Host

DeviceAddressSet Ok

DeviceAddress	FunctionCode	RegisterAddrHi	RegisterAddrLo	OutValueHi	OutValueLo	CRC
0x01	0x06	0x00	0x01	0x00	0x05	0x18,0x09

DeviceAddress Fail

DeviceAddress	FunctionCode	ExceptionCode	CRC
0x01	0x86	0x02	0xc3, 0xa1

Changed values take effect immediately

2-8. Card Data Hold Time (Write Single Register 0X06)

Host ⟶ QM-950-4-HF-2.0

DeviceAddress	FunctionCode	RegisterAddrHi	RegisterAddrLo	OutValueHi	OutValueLo	CRC
0x01	0x06	0x00	0x02	0x00	0x64	0x29,0xe1

CardDataHoldTime= (OutValueHi*256)+OutValueLo;

10msec/unit

Ex) 1 second when CardDataHoldTime=100

QM-950-4-HF-2.0 ⟶ Host

DeviceAddressSet Ok

DeviceAddress	FunctionCode	RegisterAddrHi	RegisterAddrLo	OutValueHi	OutValueLo	CRC
0x01	0x06	0x00	0x02	0x00	0x64	0x29,0xe1

DeviceAddress Fail

DeviceAddress	FunctionCode	ExceptionCode	CRC
0x01	0x86	0x02	0xc3, 0xa1

Changed values take effect immediately

2. Input/Out Signal

3-1. BEEP

Input signal

When Low, Buzzer is On.

3-2. Tamper

Output as LOW when Tamper Sensor is detected.

3-3. LED

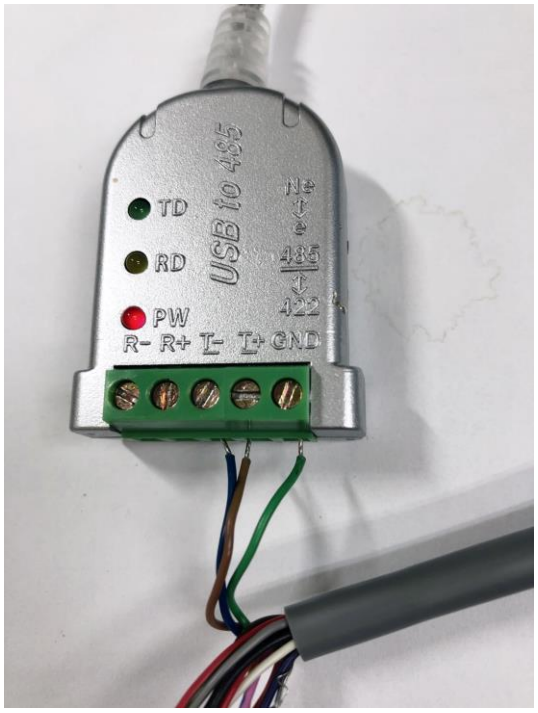
Input signal

When Low, Blue LED/ Red LED Blinking

3. Connection

Color	PIN NO	Description		
Red	1	Power In	7~24VDC	
Black	2	GND		
Grey	3	RS232 RXD		RS232C Communication
White-Green	4	RS232 TXD		
Green	5	WIEGAND DATA0	5VDC HIGH:1mA	Output(no function)
White	6	WIEGAND DATA1	5VDC HIGH:1mA	Output(no function)
Blue	7	GND		
Brown	8	LED		
Yellow	9	BUZZER		
Purple(Violet)	10	TAMPER		
Orange	11	RS485+(A)		RS485 Communication
Sky Blue	12	RS485-(B)		

RS-485 TEST Connection



RS232 Connection