**Vending Machine--- Communication Protocol**

**For Cash or Card Payment Integration**

**The communication method**

UART serial communication, parameter configuration

|  |  |
| --- | --- |
| Baud rate | 9600bps |
| Data bit | 8 bits |
| Stop bit | 1 bit |
| Check digit | none |
| Flow control | none |

VMC communication data frame format:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGTH | DATA | CHK |
| 1 Byte | 1 Byte | 1 Byte | 1 Byte | 1 Byte | n Bytes | 1. Byte |

【Description】

1. vending machine controller
2. [Address] is fixed at 0xFF.
3. 【Frame number】0x00.

[Data Header] When the Android APP is launched, it is 0x55, and when the vending machine device

is launched, it is 0xAA;

1. 【Command】See command details.
2. [Data length] 1 byte, representing the number of bytes occupied by the following data.
3. [Data] low position first, followed by DATA0, DATA1...DATAn;
4. [Verification] The verification mode is accumulation and verification: that is, the entire data frame is

accumulated and all other bytes except [address] [frame number] [CHK], and the result of lower 8-bit data is taken;

**Command details：**

**1. Android APP to get device ID**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEAD ER | CMD | DATA LENGHT | DATA | CHK |
| APP | 0xFF | 0x00 | 0x55 | 0x31 | 0x01 | 0xAD | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0x31 | 0x0F | ID(15Bytes) | CHK |

Note: VMC receives the command and responds

ID: 15 byte string data.

**2. Control command**

2-1 Delivery Command

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| APP | 0xFF | 0x00 | 0x55 | 0x41 | 0x02 | Cargo lane (1Byte)  Delivery Quantity (1Byte) | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0x41 | 0x02 | Cargo lane (1Byte)  delivery Quantity (1Byte) | CHK |

【Note】: VMC receives the instruction and responds, and returns to the original delivery instruction.

2-2 Remove fault command

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| APP | 0xFF | 0x00 | 0x55 | 0xA2 | 0x01 | 0xFF | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xA2 | 0x01 | 0x01 | CHK |

【Note】: VMC receives the command and responds, and VMC returns to the initial state.

2-3 Payment instructions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| APP | 0xFF | 0x00 | 0x55 | 0x11 | 0x06 | payment amount(4Bytes)  payment method(1Byte)  slot(1Byte) | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0x11 | 0x01 | 0x01 | CHK |

【Note】: VMC receives the instruction and responds, VMC waits for payment.

Payment amount: 4 bytes of data, value range 0-4294967295, amount = commodity price × 100

value of 0 means cancel the payment.

value of 1 means offline coin waiting for payment.

value of 2 represents offline cashless waiting for payment.

value of 3 represents offline bill acceptor waiting to be paid.

slot: 1 byte of data, the value range is 1-255, representing the number of the slot waiting to be paid for delivery.

2-4 Coin change order

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| 上位机 | 0xFF | 0x00 | 0x55 | 0xB1 | 0x01 | 0xFF | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xB1 | 0x01 | 0x01 | CHK |

VMC receives the instruction and responds, and VMC returns coins.

2-5 Cashless payment cancellation transaction instruction (applicable to MDB non-cash payment peripherals)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| App | 0xFF | 0x00 | 0x55 | 0xB2 | 0x01 | 0xFF | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xB2 | 0x01 | 0x01 | CHK |

【Note】: VMC receives the instruction and responds, and VMC cancels the transaction.

2-6 Debit instruction (applicable to VMC payment panel)

CHK

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| 上位机  App | 0xFF | 0x00 | 0x55 | 0xB3 | 0x06 | 金额(4Bytes) | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xB3 | 0x01 | 0x01 | CHK |

[Note]: VMC receives the command and responds, and VMC starts deduction:

Amount: 4 bytes of integer data, the value range is 0-4294967295, amount = deducted amount × 100.

2-7 Age recognition open command (applicable to peripherals with age recognition)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| 上位机 | 0xFF | 0x00 | 0x55 | 0x12 | 0x01 | 年龄(1Byte) | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0x12 | 0x01 | 0x01 | CHK |

【Note】: VMC receives the instruction and responds, VMC starts age identification, and waits for the age verification of the certificate.

Age: 1 byte data, the value range is 1-99, representing the restricted age.

1. **Status query**

3-1 Query VMC status

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| App | 0xFF | 0x00 | 0x55 | 0xE1 | 0x02 | slot(1Byte)  Delivery quantity(1Byte) | CHK |

VMC returns status

Delivery completed

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xE1 | 0x01 | 0x01 | CHK |

【Note】: VMC receives the command and responds, and returns the delivery successfully.

Delivery failure

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xE1 | 0x01 | error code(1Byte) | CHK |

【Note】: VMC receives the command and responds, and returns delively failure.

Fault Code: 1 byte of data.

0x02 : Freightway motor failure.

0x03: Device optical eye failure.

Payment completed

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| VMC | 0xFF | 0x00 | 0xAA | 0xE1 | 0x04 | 金额(4Bytes)  Amount (4Bytes) | CHK |

[Note]: VMC receives the instruction and responds, and returns the payment amount:

4-byte integer data, value range 0-4294967295, amount = payment amount × 100.

[Note]: When non-cash payment is used offline, the returned payment amount is equal to the product price × 100.

[Note]: When using coin/note payment offline, the returned payment amount is equal to the VMC balance.

3-2 Query VMC balance

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| App | 0xFF | 0x00 | 0x55 | 0xE1 | 0x04 | 0x00(4Bytes) | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0xE1 | 0x04 | Amount(4Bytes) | CHK |

【Note】: VMC receives the command and responds, and returns the balance.

1. Balance: 4 bytes of integer data, value range 0-4294967295, amount = VMC

3-3 Query the status of the coin change

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| App | 0xFF | 0x00 | 0x55 | 0x07 | 0x01 | 0x01 | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0x07 | 0x01 | 状态(1Byte) | CHK |

【Note】: VMC receives the command and responds, and returns to the status of the coin hopper.

Status 0: Represents that coins can be refunded.

1: Insufficient tokens, unable to refund.

3-4 Query age identification verification status (applicable to peripherals with age identification)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ADDR | FRAME NUMBER | HEADER | CMD | DATA LENGHT | DATA | CHK |
| App | 0xFF | 0x00 | 0x55 | 0x06 | 0x01 | 0x01 | CHK |
| VMC | 0xFF | 0x00 | 0xAA | 0x06 | 0x01 | 状态(1Byte) | CHK |

【Note】: VMC receives the command and responds, and returns to the age verification status.

Status 0: means age verification failed.

1: means the age verification is successful.