

HPC168Counter RS485, RS232 Communication Protocol

1. Interface Type: standard RS-485\RS232 interface.
2. Data Format: baud rate 2400-115200bps, 1 start bit, 8 data bits, 1 stop bit, no parity.
Protocol format

3 Protocol Format

Except STX and ETX, all data are transmitted in hexadecimal ASCII format.

4. Protocol Explanation:

Name	Length	Meaning	Explanation and Demonstration
STX	1	Start symbol	Corresponding hexadecimal is 0x02
ID	4	485ID address	
CM	2		11 (corresponding hexadecimal 0x31 0x31) 22 (corresponding hexadecimal 0x32 0x32)
LEN	2	data length	01 (corresponding hexadecimal 0x31 0x31) DATA1data length is 1 02 (corresponding hexadecimal 0x32 0x32) DATA1data length is 2
DATA1	LEN	Data 1	01 (0x30 0x31) corresponding LEN is 1 0102 (0x30 0x31 0x30 0x32) corresponding LEN is 2
DATA2	LEN	Data 2	System reservation
CHK	2	Checksum	No-carry accumulative sum of all data after STX and before ETX. Transform to ASCII code, if checksum is 0x12, then checksum ASCII code is 0x31 0x32
ETX	1	End symbol	correspondinghexadecimal is 0x03

5. Command Set

5.1 Data Reset

CM: 0x12

LEN: 0x00

Upon receiving data reset command, HPC168 counter clears internal counter, and returns to response frame.

e.g. Send data reset command to HPC168 counter with address 0x0001.

STX	ID	CM	LEN	DATA1	DATA2	CHK	ETX
0x02	0x30 0x300x30 0x31	0x31 0x32	0x30 0x30	无	无	0x31 0x33	0x03

Response:

Correct response means passenger flow sensor has already executed and completed command contents.

STX	ID	CM	LEN	DATA1	DATA2	CHK	ETX
0x02	0x30 0x300x30 0x31	0x39 0x32	0x30 0x31	0x30 0x36	无	0x39 0x41	0x03

Error response: (e.g. ID=0002)

STX	ID	CM	LEN	DATA1	DATA2	CHK	ETX
0x02	0x30 0x300x30 0x32	0x39 0x32	0x30 0x31	0x31 0x35	无	0x41 0x41	0x03

Error response means HPC168counter cannot recognize the instruction (packet loss issue) or algorithm internal conflict which leads to inability to complete processing instruction content.

If HPC168counter displays error response, it requests the host computer to resend data, up to 3 times, with interval no less than 1s.

5.2 Passenger Flow Data Query

CM: 0x13

LEN: 0x00

Passenger flow data query is initiated by the host computer. Upon receiving command, HPC168 counter returns present accumulative passenger flow data.

e.g. Send passenger flow data query command to HPC168 counter with address 0x0001.

STX	ID	CM	LEN	DATA1	DATA2	CHK	ETX
0x02	0x30 0x300x30 0x31	0x31 0x33	0x30 0x30	无	无	0x31 0x34	0x03

Response:

CM: 0x93

LEN: 0x10

HPC168 counter returns present accumulative passenger flow data.

DATA1: Divided into in, out, 8 bytes, unsigned integer.

DATA2: No effect, padded with 0.

among which: corresponding passenger flow sensor for in and out are accumulative number of guests coming in and number of guests coming out (hexadecimal).

e.g. ID=0001 HPC168 counter has number of guests coming in of 34 and number of guests coming out of 35, then returns:

STX	ID	CM	LEN	DATA	DATE	CHK	ETX
0x02	0x30 0x300x30 0x31	0x39 0x33	0x31 0x30	0x30 0x300x300x30 0x30 0x30 0x32 0x32 0x30 0x300x300x30 0x30 0x30 0x32 0x33	0x30 0x300x300x30 0x30 0x300x300x30 0x30 0x300x300x30 0x30 0x300x300x30	0x45 0x39	0x03