Serial Port Loopback

Command Manual

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TABLE OF CONTENTS

Chapter 1 Connection Method

A cable connection is established for a serial port loopback test in the following way: Connect the PC to the device with the loopback communication cable that comes with the device and then connect the Android device serial ports with a 3.5 mm serial cable to verify loopback communication. The test requires at least one PC and one controlled screen. See **Figure 1-1** for an illustration of the cable connection method.
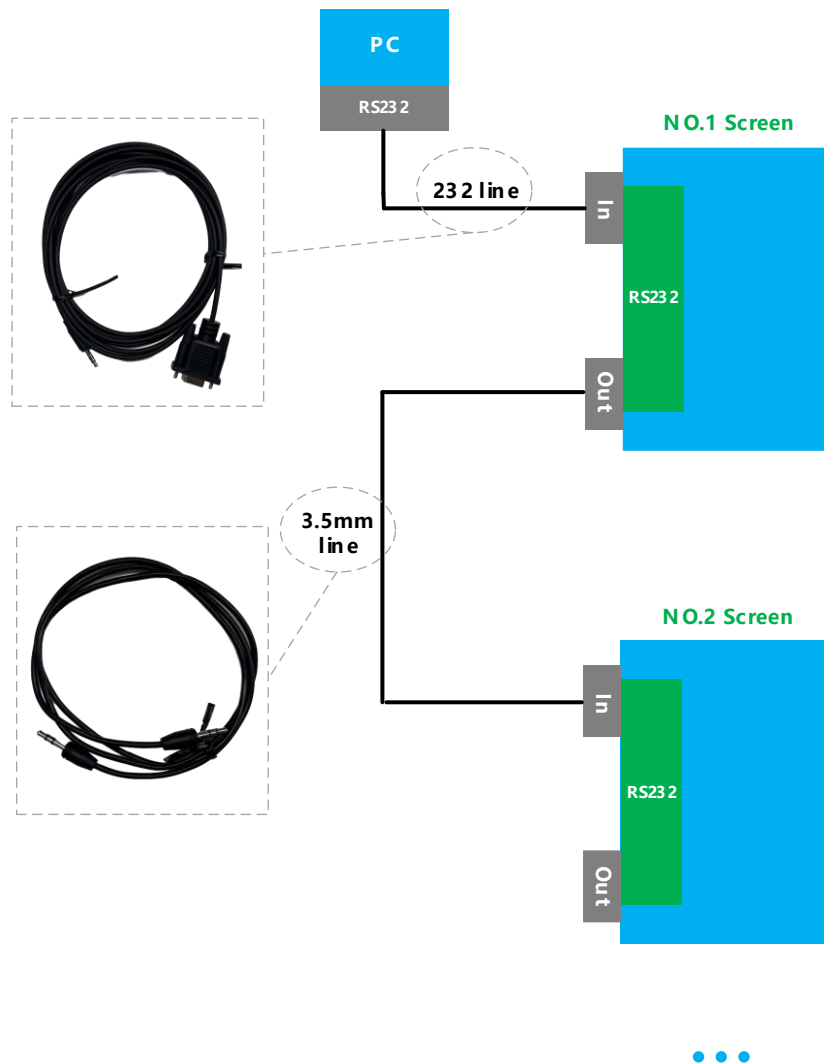

Figure 1-1 Cable Connection

Chapter 2 Command Description

2.1 Serial Port Protocol

Serial port loopback commands are transmitted in bytes within the program. The following table describes the structure of the serial port protocol.

Table 2-1 Structure of Serial Port Protocol

Data	Description	Length (Bytes)
Packet header	The packet header 0xcaca is used for serial port loopback.	2
Packet length	The total length of a command (in bytes).	2
Reserve	0x00000101ffff	6
Command code	The device is instructed to perform a specific operation (details provided in the next section).	2
Version No.	Default value: 0x01	1
Reserve	0x11	1
Parameter set	For example, some commands require parameters. (length: N)	N≥0
Checksum	The calculation method will be explained in the next section.	1

2.2 Command Code

Table 2-2 Command Code

Command Code	Description
0x012E	Instruct Android to perform a shutdown operation.
0x0130	Instruct Android to perform a restart operation.
0x013A	Switch the signal source.
0x0045	Set mute or cancel mute.
0x0135	Set the volume (value must be within the range of 0 to 100).
0x000D	Execute the corresponding remote control according to the key value received.
0x0130	Instruct Android to perform a restart operation.
0x013A	Switch the signal source.

2.3 Key Values

Table 2-3 Key Values

Up	19
down	20
left	21
right	22
Home	3
OK	23
Back	4
down	20

2.4 Checksum

Reference code:

```c
/**
 *   buff: Start address of the serial port protocol packet
 *   len: Packet length excluding the checksum
 */
unsigned char checkSumChar(const uint8_t *buff, int len)
{
    unsigned long cksum = 0;
    while (len)
    {
        cksum += *buff++;
        len -= sizeof(unsigned char);
    }
    while (cksum >> 8)
    {
        cksum = (cksum >> 8) + (cksum & 0xffU);
    }
    return (unsigned char)(~cksum);
}
```

2.5 Serial Port Wake-up

A **Wake from Serial Port** switch is available in **Advanced Settings**, as shown in *Figure 2-1*. When the **Wake from Serial Port** switch is turned on, sending 0x20205343 through the serial port wakes up the device.
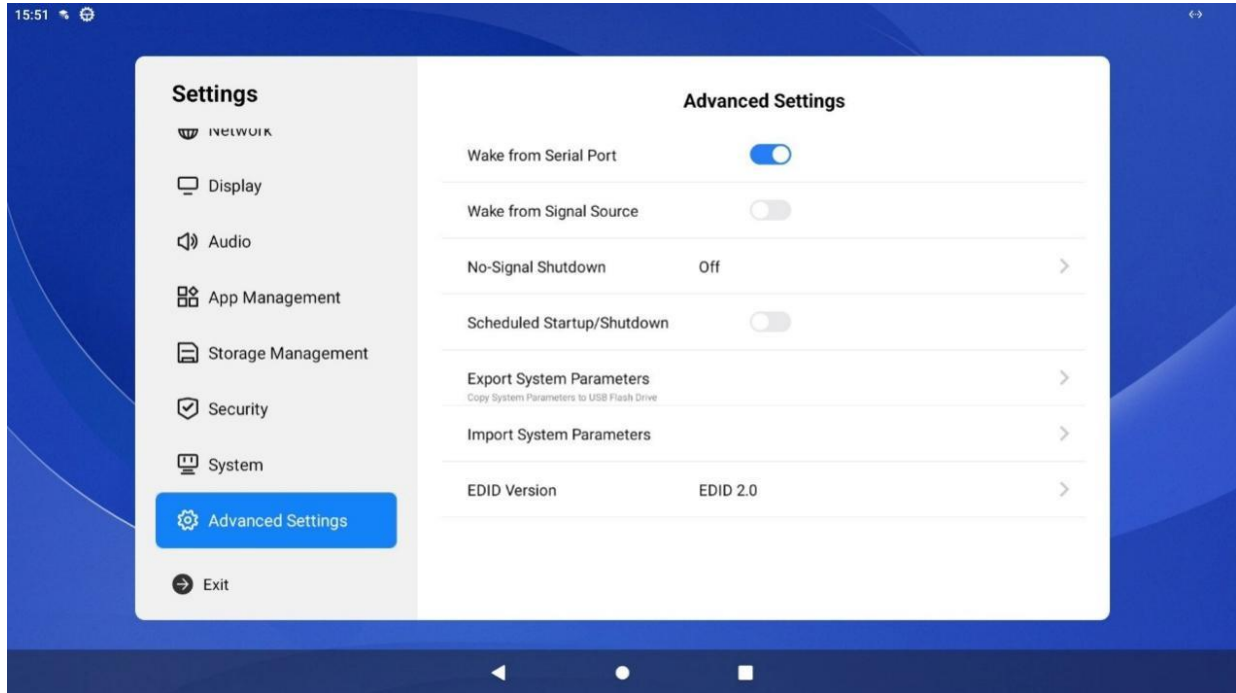

Figure 2-1 **Wake from Serial Port** Switch

Appendix A Examples of Serial Port Protocol Packets

Table A Examples of Serial Port Protocol Packets

Shutdown	caca000f00000101ffff012e011118
Reboot	caca000f00000101ffff0130011116
setVoice	caca001000000101ffff013501110f01 (Volume: 0x0f)
BTN_Mute	caca000f00000101ffff0045011102
BTN_Up	caca001000000101ffff000d01111326
BTN_Down	caca001000000101ffff000d01111425
BTN_Left	caca001000000101ffff000d01111524
BTN_Right	caca001000000101ffff000d01111623
BTN_RETURN	caca001000000101ffff000d01110435
BTN_OK	caca001000000101ffff000d01111722
BTN_HOME	caca001000000101ffff000d01110336
returnOS	caca001000000101ffff013a0111000b
returnHDMI1	caca001000000101ffff013a0111010a
returnHDMI2	caca001000000101ffff013a01110209
returnHDMI3	caca001000000101ffff013a01110308
returnDP	caca001000000101ffff013a01110407

⌊ⁱ⌋**Note**

The data packets in the table are for reference only. Specific data packets should be designed as needed in accordance with the instructions provided in this document.

Appendix B Serial Port Debugging Assistant

Please use a serial port debugging assistant that supports HEX transmission. The basic configuration is as follows:
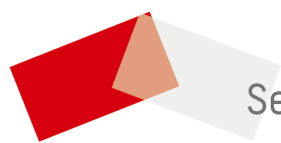
Baud rate: 9600

Data bits: 8

Stop bits: 1

Parity: None

Flow control: None

Note

Use HEX (hexadecimal) for transmission.

See Far, Go Further