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TAIDEN[®] RS232/UDP Protocol for HCS-5300M

Version: 03

Date of issue: 2013-Oct-17

This protocol is applicable to HCS-5300 main units with firmware version V2.00.01.01 or higher.

Record of modifications:

Modification Date	Version	Commentary
2013-Jul-30	01	Turn on/off a microphone, inquire and report system status, power control
2013-Aug-01	02	Add: Volume of Line-in 1, Line-in 2 and Loudspeaker setup
2013-Aug-02	02	Add: Down-link bass and treble setup
2013-Aug-02	02	Add: Report and inquire the above-mentioned volume status
2013-Aug-03	02	Add: Operation Mode and Number of active microphone setup
2013-Oct-17	03	Add: Microphone volume control

1 Communication parameters:

1.1 RS232:

Baud rate: 9600bps

Start bit: 1

Data bit: 8

Stop bit: 1

Parity bit:none

1.2 UDP

Port: 5300

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2 Introduction

Central control system can start and end control through “Start control’ and “End control” command.

2.1 Start Control

Central control system -> HCS-5300 Main Unit

Command		
0xe3	0xa1	0x00

Fig. 2.1

When HCS-5300 Main Unit received “Start control” command, it will respond with current status (see 2.6 and 2.7.8 2.7.9), including: a). number of active microphones, operation mode, camera-aiming microphone, channel status. b). Loudspeaker volume, Line In 1 volume, Line In 2 volume, Down-link bass, Down-link treble.c)Microphone low-cut status

Note: HCS-5300 main unit will start receiving any control commands only after it has received “Start control” command.

2.2 End Control

Central control system -> HCS-5300 Main Unit

Command		
0xe3	0xa2	0x00

Fig. 2.2

Note: HCS-5300 main unit will stop receiving any control commands after it has received “End control” command (except “Main Unit Power Control” command).

2.3 Microphone Control

2.3.1 Turn on a microphone

Central control system -> HCS-5300 Main Unit

(Microphone ID is of 2 bytes, high byte comes first)

Command		
0xe6	0xf1	Microphone ID (2 bytes)

Fig. 2.3.1

Example: 0xe6 0xf1 0x00 0x03 -- turn on Microphone No.3

2.3.2 Turn off a microphone

Central control system -> HCS-5300 Main Unit

(Microphone ID is of 2 bytes, high byte comes first)

Command		
0xe6	0xf2	Microphone ID (2 bytes)

Fig. 2.3.2

Example: 0xe6 0xf2 0x00 0x05 -- turn off Microphone No.5

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2.3.3 Turn off all microphones

Central control system -> HCS-5300 Main Unit

Command		
0xe3	0xed	0x00

Fig. 2.3.3

2.4 Video Tracking Control

Central control system -> HCS-5300 Main Unit

2.4.1 Start video tracking

Command		
0xe3	0xe4	0x00

Fig. 2.4.1

2.4.2 Stop video tracking

Command		
0xe3	0xe5	0x00

Fig. 2.4.2

2.5 Read System Status

Central control system -> HCS-5300 Main Unit

Command		
0xe3	0x06	0x00

Fig. 2.5

When HCS-5300 Main Unit received this command, it will report system status to central control system.

2.6 Report System Status

HCS-5300 Main Unit -> Central control system

When a microphone is turned on or turned off, or when the operation mode is changed, HCS-5300 Main Unit will report the status to central control system.

Besides, when central control system sends the command "Read system status", HCS-5300 Main Unit will respond with this command.

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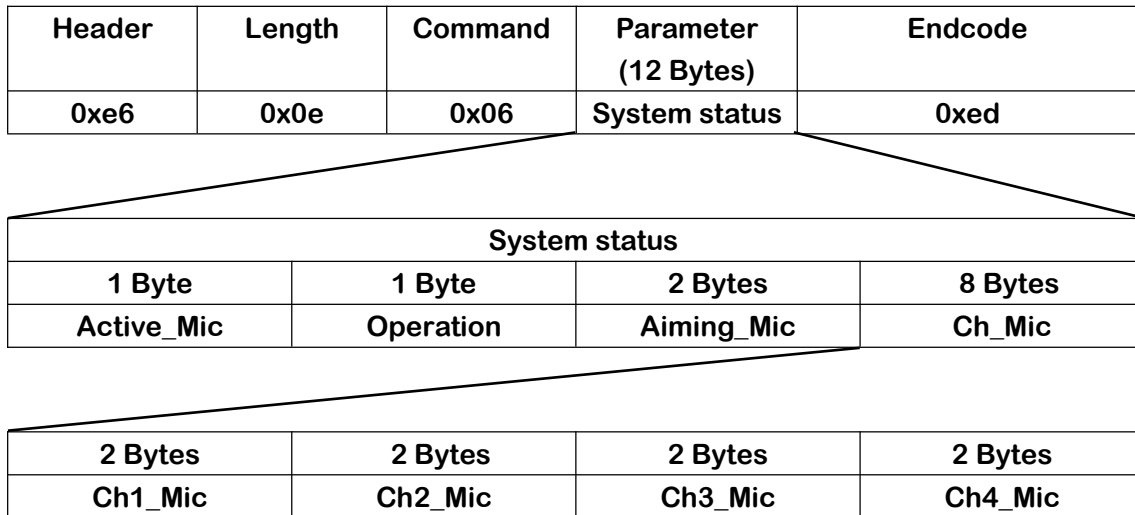


Fig. 2.6.1

Parameter details are described as bellow:

Active_Mic: Number of active microphones

Operation: Operation Mode of the main unit

Aiming_Mic: Current camera-aiming microphone (or panorama)

Ch_Mic: Channel status

Details are shown as bellow:

Active_Mic	Parameter	Max. number of active microphones	Operation	0x00	Open	
	0x01	1		0x01	Override	
	0x02	2				
	0x03	3		Aiming_Mic	0x0000	Panorama ID of the camera-aiming microphone
	0x04	4			other number	

Parameter meaning	0x0000	Other number
CH		
Ch1_Mic	Idle	ID of Mic. using CH1, 4.3M
Ch2_Mic	Idle	ID of Mic. using CH2, 4.8M
Ch3_Mic	Idle	ID of Mic. using CH3, 5.8M
Ch4_Mic	Idle	ID of Mic. using CH4, 6.3M

Fig. 2.6.2

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2.7 Main Unit Status Setup & Inquiry

2.7.1 Operation Mode setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x11	Parameter of Operation Mode	0xed

Fig. 2.7.1-1

Parameter vs. Operation Mode:

Parameter	0x00	0x01
Operation Mode	OPEN	OVERRIDE

Fig. 2.7.1-2

2.7.2. Number of active microphones setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x12	Max.number of active microphones	0xed

Fig. 2.7.2-1

Parameter vs. Max.number of active microphones:

Parameter	0x01	0x02	0x03	0x04
Max.number of active microphones	1	2	3	4

Fig. 2.7.2-2

To inquire operation mode and number of active microphones, use "Read system status" command (see Fig. 2.5).

2.7.3 Loudspeaker volume setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x14	Volume parameter	0xed

Fig. 2.7.3

Note: Loudspeaker volume ranges from 0~30; 0 (0x00) stands for mute, 10 (0x0a) stands for -14dB; 30 (0x1e) stands for 6dB.

2.7.4 Volume of Line-in 1 setup

Central control system -> HCS-5300 Main Unit

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Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x13	Volume parameter	0xed

Fig. 2.7.4

Note: The volume of Line-in 1 ranges from 0~30; 0 (0x00) stands for Mute, 10 (0x0a) stands for -20dB, 30 (0x1e) stands for 0dB.

2.7.5 Volume of Line-in 2 setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x17	Volume parameter	0xed

Fig. 2.7.5

Note: The volume of Line-in 2 ranges from 0~30, 0 (0x00) stands for Mute, 10 (0x0a) stands for -20dB, 30 (0x1e) stands for 0dB.

2.7.6 Bass of Down-link audio setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x15	Volume parameter	0xed

Fig. 2.7.6

Note: Bass ranges from 0~30, 0 (0x00) stands for -15dB, 30 (0x1e) stands for the +15dB, 15 (0x0f) stands for Bass 0dB.

2.7.7 Treble of Down-link audio setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x16	Volume parameter	0xed

Fig. 2.7.7

Note: Treble ranges from 0~30, 0 (0x00) stands for -15dB, 30 (0x1e) stands for +15dB, 15 (0x0f) stands for Treble 0dB.

2.7.8 Inquire volume status

Central control system -> HCS-5300 Main Unit

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Header	Length	Command	Parameter	Endcode
0xae8	0x02	0x21	NONE	0xed

Fig. 2.7.8-1

HCS-5300 Main Unit -> Central control system, the responding command is as below:

Header	Length	Command	Parameter (5 Bytes)	Endcode
0xe6	0x07	0x21	Volume status	0xed

Volume status				
1 Byte	1 Byte	1 Byte	1 Byte	1 Byte
Parameter of Loudspeaker volume	Volume of Line-in 1	Volume of Line-in 2	Bass of Down-link audio	Treble of Down-link audio

Fig. 2.7.8-2

Note: When volume data changed, the 5300 Main Unit will report volume data to Central control system.

2.7.9 Microphone low-cut setup

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (1 Byte)	Endcode
0xae8	0x03	0x18	Parameter	0xed

Fig. 2.7.9

Note: Parameter: 0x00 stands for low-cut off, 0x01 stands for low-cut on.

2.8. Main Unit Power Control

Note: This command is not available in UDP control mode.

2.8.1 Turn off the power of HCS-5300 main unit

Central control system -> HCS-5300 Main Unit

Command			
0xe6	0x01	0xa1	0x88

Fig. 2.8.1

2.8.2 Turn on the power of HCS-5300 main unit

Central control system -> HCS-5300 Main Unit

Command			
0xe6	0x01	0xa3	0x8a

Fig. 2.8.2

2.8.3 Inquire power status of HCS-5300 main unit

Central control system -> HCS-5300 Main Unit

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Command			
0xe6	0x01	0xa2	0x89

Fig. 2.8.3

2.8.4 Report power status of HCS-5300 main unit

HCS-5300 Main Unit -> Central control system

When HCS-5300 Main Unit received the command of “Inquire power status of HCS-5300 main unit”, it will report the power status to central control system as below:

If power is OFF:	0xe6	0x01	0x02	0xe9
If power is ON:	0xe6	0x01	0x01	0xe8

Fig. 2.8.4

2.9 Microphone Parameter Control

2.9.1 Increase Microphone Parameter

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (2Bytes)	Parameter (1Byte)	Endcode
0xae8	0x05	0x19	Microphone ID	Type	0xed

Fig 2.9.1

Note: a) Microphone ID is of 2 bytes, high byte comes first. 0xfffe stands for increasing the parameter of active microphones, 0xffff stands for increasing the parameter of all microphones.

b) Type can be 0x01~0x03, 0x01 stands for gain, 0x02 stands for bass, 0x03 stands for treble .

c). Microphone parameter ranges from -12dB to +12dB, every time the microphone receives this command, its parameter increase 1dB (maximum +12dB).

2.9.2 Decrease Microphone Parameter

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (2Bytes)	Parameter (1Byte)	Endcode
0xae8	0x05	0x20	Microphone ID	Type	0xed

Fig 2.9.2

Note: a) Microphone ID is of 2 bytes, high byte comes first. 0xfffe stands for decreasing the parameter of active microphones, 0xffff stands for decreasing the parameter of all microphones.

b) Type can be 0x01~0x03, 0x01 stands for gain, 0x02 stands for bass, 0x03 stands for treble .

c). Microphone parameter ranges from -12dB to +12dB, every time the microphone receives this command, its parameter decrease 1dB (minimum -12dB).

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-12dB).

2.9.3 Specify Microphone Parameter

Central control system -> HCS-5300 Main Unit

Header	Length	Command	Parameter (2Bytes)	Parameter (1Byte)	Parameter (1Byte)	Endcode
0xae8	0x06	0x22	Microphone ID	Type	Value	0xed

Fig 2.9.3

Note: a). Microphone ID is of 2 bytes, high byte comes first. 0xfffe stands for specify the parameter of active microphones, 0xffff stands for specify the parameter of all microphones.

b). Type can be 0x01~0x03, 0x01 stands for gain, 0x02 stands for bass, 0x03 stands for treble.

c). Microphone parameter ranges from -12dB to +12dB (value 0x01~0x19), 0x01 stands for -12dB, 0x0d stands for 0dB, 0x19 stands for +12dB.