

iMatrix H44HAW/ H88HAW

RS232 ASCII Protocol

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1 Serial communication protocol format

Baud Rate: 9600

Data bits: 8

Parity: None

Stop bits: 1

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (N bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET/GET	Space	The target that handles this command.	Space	Command type	[Parameter1] [Parameter2]	↵ This is ASCII carriage return 0x0d

Notes:

Space is the ASCII character 0x20

↵ Represents the ASCII character 0x0d

All Return messages are always terminated by CR/LF, the ASCII characters 0x0d 0x0a

All items shown in square brackets, [], are optional.

Any SET command that contains leading zeroes should not include the leading zeros in any response message.

The value ranges for certain commands are not given, please state and minimum and maximum values for each command that uses a numerical value range.

2 Software Version (Read only)

Get the software version of input/output channels:

Send: GET IN1 VERSION↵ Receive: GET IN1 VERSION 2019/01/01-12:00:00
 Send: GET OUT1 VERSION↵ Receive: OUT1 VERSION 2019/01/01-12:00:00
 Send: GET SYS VERSION↵ Receive: SYS VERSION 2019/01/01-12:00:00

3 Input Channel Command

3.1 Input Signal format (Read only)

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (N bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET	Space	INx x is the input port number	Space	IN-SIGNAL	Send: Null (0 byte)	↵

GET input signal format of input channel:

Send: GET IN1 IN-SIGNAL↵ Receive: IN1 IN-SIGNAL UHD@3840x2160p60

3.2 Input Channel Audio Select:

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type	Command parameters (0 or 1/2/3 bytes)	Command tail (1 byte)
SET/GET	Space	INx	Space	AUDIO-SRC	L/R EMBEDDED	↵

Send: GET IN1 AUDIO-SRC↵ Receive: IN1 AUDIO-SRC EMBEDDED↵
 Send: SET IN1 AUDIO-SRC L/R↵ Receive: IN1 AUDIO-SRC L/R↵

4 Output Channel Command

4.1 Output Type

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (N bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET/SET	Space	OUTx x is the output port number	Space	OUT-TYPE		↵

A. GET output type of output channel:

Send: GET OUT1 OUT-TYPE↵

Receive: OUT1 OUT-TYPE UHD-HDMI↵

Send: GET OUT2 OUT-TYPE↵

Receive: OUT2 OUT-TYPE UHD-DVI↵

B. SET output type of output channel:

Send: SET OUT1 OUT-TYPE UHD-HDMI↵

Receive: OUT1 OUT-TYPE UHD-HDMI↵

Send: SET OUT2 OUT-TYPE UHD-DVI↵

Receive: OUT01 OUT-TYPE UHD-DVI↵

NOTE:

Support Types:

UHD-HDMI: HDMI without HDCP

UHD-DVI: DVI without HDCP

UHD-HDMI-1.4: HDMI, HDCP1.4

UHD-HDMI-2.2: HDMI, HDCP2.2

4.2 Output Signal format

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (N bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET/SET	Space	OUTx	Space	OUT-SIGNAL		↵

A. GET output signal format of output channel:

Send: GET OUT1 OUT-SIGNAL↵

Receive: OUT1 OUT-SIGNAL UHD-HDMI@4K2Kp60↵

B. SET output signal format of output channel:

Send: SET OUT1 OUT-SIGNAL 1920x1080p60↵

Receive: OUT1 OUT-SIGNAL UHD-HDMI @1920x1080p60↵

NOTE:

1. Supported output resolution:

3840x2160p60, 3840x2160p50, 3840x2160p30, 1920x1200p60, 1920x1080p60,
1920x1080p50, 1600x1200p60, 1400x1050p60, 1366x768p60, 1360x768p60,
1280x1024p60, 1280x768p60, 1280x720p50, 1280x720p60, 1024x768p60

4.3 Brightness Setting

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
SET/GET	Space	OUTx	Space	BRIGHTNESS		↵

A. GET brightness of output channel:

Send: GET OUT1 BRIGHTNESS↵

Receive: OUT1 BRIGHTNESS 50

B. SET brightness of output channel:

Send: SET OUT1 BRIGHTNESS 50↵

Receive: OUT1 BRIGHTNESS 50

4.4 Contrast Setting

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
SET/GET	Space	OUTx	Space	CONTRAST		↵

A. GET contrast of output channel:

Send: GET OUT1 CONTRAST↵

Receive: OUT1 CONTRAST 50

B. SET contrast of input channel:

Send: SET OUT1 CONTRAST 50↵

Receive: OUT1 CONTRAST 50

4.5 Saturation Setting

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or 1/2/3 bytes)	Command tail (1 byte)
SET/GET	Space	OUTx	Space	SATURATION		↵

A. GET saturation of output channel:

Send: GET OUT1 SATURATION↵

Receive: OUT1 SATURATION 50

B. SET saturation of output channel:

Send: SET OUT1 SATURATION 50↵

Receive: OUT1 SATURATION 50

4.6 Sharpness Setting

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
SET/GET	Space	OUTx	Space	SHARPNESS		↵

A. GET sharpness of output channel:

Send: GET OUT1 SHARPNESS↵

Receive: OUT1 SHARPNESS 50↵

B. SET sharpness of output channel:

Send: SET OUT1 SHARPNESS 50↵

Receive: OUT1 SHARPNESS 50↵

4.7 Picture Quality Reset

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
SET	Space	OUTx	Space	PQ-RESET	Null (0 byte)	↵

A. Reset the picture quality of output channel:

Send: SET OUT1 PQ-RESET↵

Receive: OUT1 PQ-RESET↵

4.8 Test Pattern

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET/SET	Space	OUTx	Space	TSP		↵

Send: GET OUT1 TSP↵

Receive: OUT1 TSP ON↵

Send: SET OUT1 TSP OFF↵

Receive: OUT1 TSP OFF↵

4.9 Mirror

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET/SET	Space	OUTx	Space	MIRROR		↵

Send: GET OUT1 MIRROR↵

Receive: OUT1 MIRROR ON↵

Send: SET OUT1 MIRROR OFF↵

Receive: OUT1 MIRROR OFF↵

6 TV-WALL

6.1 Set TV-WALL:

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET	Space	OUTx	Space	TVWALL	Line, Column, P,Q, Margin-Left, Margin-Right, Margin-Top, Margin-Bottom, Input:	↵

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Picture-1 for example: The entire TV wall consists of 16 screens, placed in 4 rows and 4 columns. Screens 6/7/10/11 make up a 2x2 splice.

The parameter of the splice which make up by Screens 6/7/10/11:

Line : How many rows of the Digital Information Display, picture-1 for example, 2

Column : How many columns of the Digital Information Display left picture for example, 2

P: The row number of the current output connected: Screen 6: 1, Screen 7: 1, Screen 10: 2, Screen 11: 2

Q: The column number of the current output connected: Screen 6: 1, Screen 7: 2, Screen 10: 1, Screen 11: 2

The border of each screen is 20 pixels for example:

Margin-Left: The width of the left margin (pixels): Screen 6: 0, Screen 7: 20, Screen 10: 0, Screen 11: 20

Margin-Right: The width of the right margin (pixels): Screen 6: 20, Screen 7: 0, Screen 10: 20, Screen 11: 0

Margin-Top: The width of the top margin (pixels): Screen 6: 0, Screen 7: 0, Screen 10: 20, Screen 11: 20

Margin-Bottom: The width of the bottom margin (pixels): Screen 6: 20, Screen 7: 20, Screen 10: 0, Screen 11: 0

Input: Which input route to the current panel

A. SET TV-WALL mode of one output port

Picture-1 Screen 6/7/10/11, and the source input is input 1 For example:

Send: SET OUT6 TVWALL 2 2 1 1 0 20 0 20 1↵	Receive: OUT6 TVWALL 2 2 1 1 0 20 0 20 1
Send: SET OUT7 TVWALL 2 2 1 2 20 0 0 20 1↵	Receive: OUT7 TVWALL 2 2 1 2 20 0 0 20 1
Send: SET OUT10 TVWALL 2 2 2 1 0 20 20 0 1↵	Receive: OUT10 TVWALL 2 2 2 1 0 20 20 0 1
Send: SET OUT11 TVWALL 2 2 2 2 20 0 20 0 1↵	Receive: OUT11 TVWALL 2 2 2 2 20 0 20 0 1

Sending these four commands will create a 2x2 splice

B. How to Exit TV wall mode:

For example Exit TV-WALL combination of output port 6,7,10,11

Send: SET OUT6 TVWALL 1 1 1 1 0 00 0 00 1↵	Receive: OUT6 TVWALL 1 1 1 1 0 00 0 00 1↵
Send: SET OUT7 TVWALL 1 1 1 1 0 00 0 00 1↵	Receive: OUT7 TVWALL 1 1 1 1 0 00 0 00 1↵
Send: SET OUT10 TVWALL 1 1 1 1 0 00 0 00 1↵	Receive: OUT10 TVWALL 1 1 1 1 0 00 0 00 1↵
Send: SET OUT11 TVWALL 1 1 1 1 0 00 0 00 1↵	Receive: OUT11 TVWALL 1 1 1 1 0 00 0 00 1↵

7 System command

7.1 Device IP

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET/GET	Space	SYS	Space	IP	AT+WANN=mode,address, mask,gateway	↵

A. GET the device size:

For example, GET the device IP (MAC: D8B04CB947DF)

Send: `GET SYS IP↵` Receive: `SYS IP D8B04CB947DF DHCP,192.168.0.119,255.255.255.0,192.168.0.1↵`

Send: `GET SYS IP↵` Receive: `SYS IP D8B04CB947DF STATIC,192.168.0.222,255.255.255.0,192.168.0.24↵`

B. SET the device IP:

For example, Set the device IP to STATIC 192.168.1.1

Send: `SET SYS IP STATIC,192.168.0.222,255.255.255.0,192.168.0.1↵`

Receive: `SYS IP STATIC,192.168.0.222,255.255.255.0,192.168.0.1↵`

For example, Set the device IP to HDCCP (auto obtain)

Send: `SET SYS IP DHCP↵`

Receive: `SYS IP DHCP↵`

7.2 System Reset

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET	Space	SYS	Space	RESET	ALL	↵

A. SET (Reset) the device :

For example, Set (Reset) the device

Send: `SET SYS RESET ALL↵` Receive: `SYS RESET ALL↵`

7.3 Panel Lock

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0orN bytes)	Command tail (1 byte)
GET/SET	Space	SYS	Space	PANEL-LOCK	ON,OFF	↵

Send: `SET SYS PANEL-LOCK ON↵` Receive: `SYS PANEL-LOCK ON↵`

Send: `SET SYS PANEL-LOCK OFF↵` Receive: `SYS PANEL-LOCK OFF↵`

Send: `GET SYS PANEL-LOCK↵` Receive: `SYS PANEL-LOCK ON↵`

7.4 Input Lock

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET/SET	Space	SYS	Space	INPUT-LOCK		↵

Send: SET SYS INPUT-LOCK 1-3-5---↵ Receive: SYS INPUT-LOCK 1-3-5---↵ //lock the input 1 3 5
 Send: SET SYS INPUT-LOCK 12345678↵ Receive: SYS INPUT-LOCK 12345678↵ //lock the input 1 2 3 4 5 6 7 8
 Send: SET SYS INPUT-LOCK -----↵ Receive: SYS INPUT-LOCK -----↵ //all inputs lock off
 Send: GET SYS INPUT-LOCK↵ Receive: SYS INPUT-LOCK 1-3-5---↵

7.6 Output Lock

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (0 or N bytes)	Command tail (1 byte)
GET/SET	Space	SYS	Space	OUTPUT-LOCK		↵

Send: SET SYS OUTPUT-LOCK 1-3-5---↵ Receive: SYS OUTPUT-LOCK 1-3-5---↵ //lock outputs 1 3 5
 Send: SET SYS OUTPUT-LOCK -----↵ Receive: SYS OUTPUT-LOCK -----↵ //all outputs lock off
 Send: GET SYS OUTPUT-LOCK↵ Receive: SYS OUTPUT-LOCK 1-3-5---↵

7.7 Audio Only

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET/GET	Space	SYS	Space	AUDIO-ONLY	ON,OFF	↵

Send: SET SYS AUDIO-ONLY ON↵ Receive: SYS AUDIO-ONLY ON↵
 Send: GET SYS AUDIO-ONLY↵ Receive: SYS AUDIO-ONLY ON↵

7.8 Audio Switch Mode (SMS44 only)

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET/GET	Space	SYS	Space	AUDIO-SWMODE	MANUAL,AUTO	↵

MANUAL mode: User can switch the audio route separately

AUTO mode: The audio route is bonded video route

For example:

Send: SET SYS AUDIO-SWMODE MANUAL↵ Receive: SYS AUDIO-SWMODE MANUAL
 Send: GET SYS AUDIO-SWMODE↵ Receive: SYS AUDIO-SWMODE MANUAL↵

8 CEC commands

8.1 Auto Power on by CEC

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET/GET	Space	SYS	Space	AUTO-POWERON	ON, OFF	↵

This command to Enable/Disable Auto Power function to control sources and displays by CEC

Send: SET SYS AUTO-POWERON ON↵ Receive: SYS AUTO-POWERON ON↵

Send: GET SYS AUTO-POWERON↵ Receive: SYS AUTO-POWERON ON↵

8.2 Power On/Off Source by CEC

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET	Space	INx	Space	POWER	ON/OFF	↵

Send: SET IN1 POWER ON↵ Receive: IN1 POWER ON↵

8.3 Power on/Off Displayer by CEC

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET	Space	OUTx	Space	POWER	ON/OFF	↵

Send: SET OUT1 POWER ON↵ Receive: OUT1 POWER ON↵

8.3 Volume +/Volume-/Mute/Unmute with Displayer

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET	Space	OUTx	Space	AUDIO	VOLUME+, VOLUME-, MUTE	↵

For example:

Send: SET OUT1 AUDIO VOLUME+↵ Receive: OUT1 AUDIO VOLUME+↵

Send: SET OUT1 AUDIO VOLUME-↵ Receive: OUT1 AUDIO VOLUME-↵

Send: SET OUT1 AUDIO MUTE↵ Receive: OUT1 AUDIO MUTE//This command will toggle mute/unmuted↵