



Control Your Video...

VIDEO WALLS VIDEO PROCESSORS
VIDEO MATRIX SWITCHES
EXTENDERS SPLITTERS WIRELESS
CABLES & ACCESSORIES

Control Commands



Model #: HDM2-SPLITPRO-T4K

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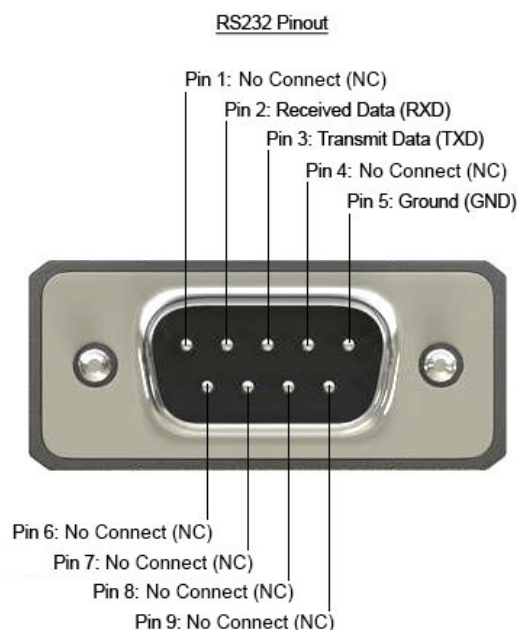
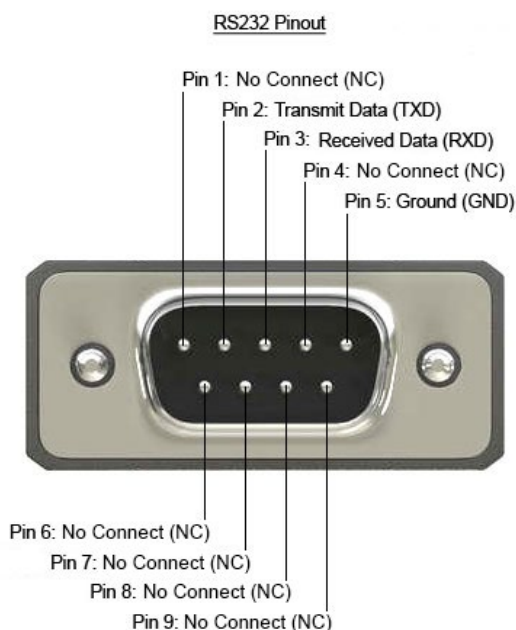
SECTION I: COMMAND PROTOCOL FORMAT (RS-232 SERIAL PORT)

I. SERIAL PORT SETTING

- Baud Rate: 115200 bps
- Data Bit: 8 bits
- Parity: None
- Flow Control: None
- Stop Bit: 1

RS-232 Wiring (Straight Cable Connection)

HDM-SPLITPRO-4K		Remote Controller(PC)	
PIN	Assignment	PIN	De finition
1	NC	1	NC
2	TxD	2	RxD
3	RxD	3	TxD
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC



2. GENERAL & CONNECTION

To begin using the RS232 commands listed below with the Avenview HDM2-SPLITPRO-T4K, the user should have the following tools available:

Hardware

PC Requirements-Windows® XP/Windows Vista®/Windows® 7/Windows® 10

PC with RS232 port or USB 1.0 or later

Cable -RS232 Male to Female Straight or RS232 to USB (Prolific Brand)

Device-HDM2-SPLITPRO-T4K

Software

Terminal Program (Xshell or UART)

RS232 Connection

STEP1.- Please connect the RS232 cable to the PC that is designated to be used for testing or controlling the unit. The RS232 is located on the rear panel of the HDM2-SPLITPRO-T4K as shown in the picture below.



Software Connection

STEP2.- Once the serial cable is securely connected to the PC and to the HDM2-SPLITPRO-T4K, the user can launch the desired Terminal program or 3rd Party control program to begin issuing the commands desired.

Example UART Terminal Program

Check List-

Com Port Number (Can be found in Device Manager under COM Ports)

Baud Rate 115200

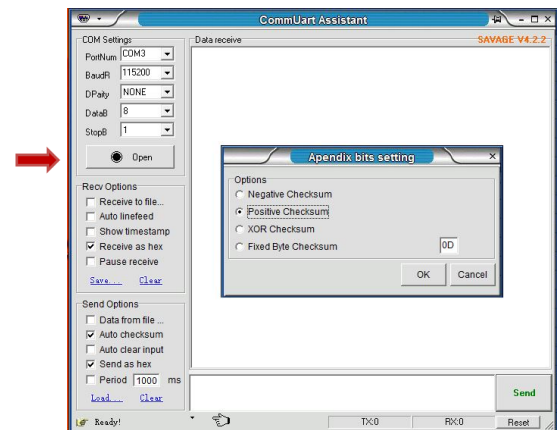
Ensure three feature are checked when using UART

Receive as HEX

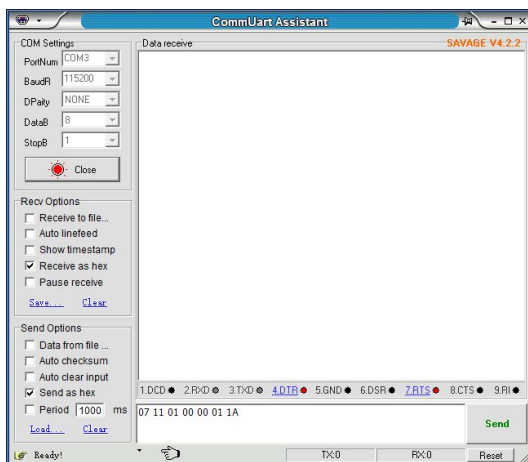
Send as HEX

Auto Checksum as the picture shown (select Positive checksum)

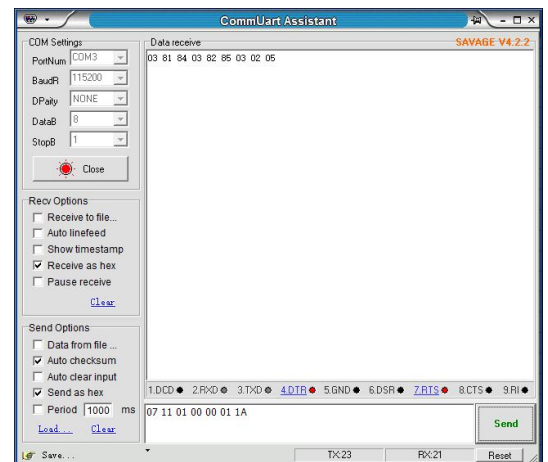
Then **Press Open** to connect to **START** communication



Example of Code Typed to be Sent



Example of
Code Sent with
Feedback
Example



2. UNDERSTANDING THE RS-232 COMMANDS

Before you start issuing the commands, let's walk you through the structure of the commands.

Understanding the structure of the commands will allow the user to create further commands that are stated in this document. To create their own special commands for each situation or project.

General Command Structure

Example: **0x06** **0x11 0x00 0x01 0x02** **checksum**

Length of the command Function Sum of the total bytes of the command

The first byte of command is length of commands.

Define byte: 0x0 0x1 0x2 0x3 0x4 0x5 0x6 0x7

Checksum is total sum of command number.

Checksum = 0x06 + 0x11 + 0x00 + 0x01 + 0x02 = 0x1A

Example:

Command: **0x07** **0x11 0x01 0x00** **para1** **para2** **checksum**

Length of the command Function: Quick Layout Para1: Focus window Para2: Layout type Total

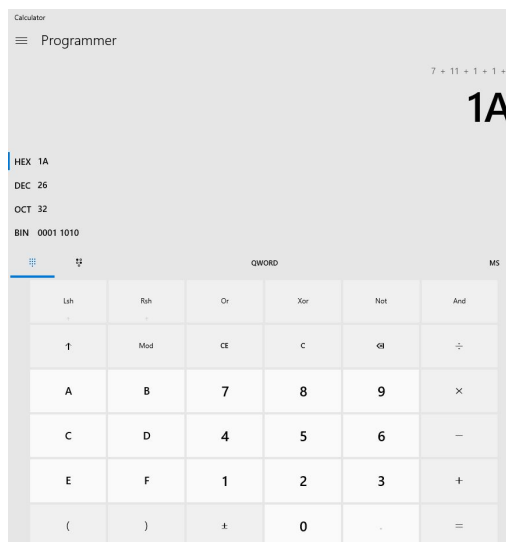
para1: Focus window (suggest which window should be priority) window1 = 00, win2 = 01, win3 = 02, win4 = 03.

para2: Layout type WHERE Cross = 01, Focus top = 02, Focus Bottom = 03, Focus Left = 04, Focus Right = 05.

NOTE: Please note the checksum value has to be calculated correctly in order for the command to be executed. Simple tool can be used such as the Windows Calculator in Programmer mode or Hex table as shown below.

Dec	Hex	Oct	Bin	Dec	Hex	Oct	Bin	Dec	Hex	Oct	Bin	Dec	Hex	Oct	Bin
0	0	000	0000000	16	10	020	00010000	32	20	040	00100000	48	30	060	00110000
1	1	001	00000001	17	11	021	00010001	33	21	041	00100001	49	31	061	00110001
2	2	002	00000010	18	12	022	00010010	34	22	042	00100010	50	32	062	00110010
3	3	003	00000011	19	13	023	00010011	35	23	043	00100011	51	33	063	00110011
4	4	004	00000100	20	14	024	00010100	36	24	044	00100100	52	34	064	00110100
5	5	005	00000101	21	15	025	00010101	37	25	045	00100101	53	35	065	00110101
6	6	006	00000110	22	16	026	00010110	38	26	046	00100110	54	36	066	00110110
7	7	007	00000111	23	17	027	00010111	39	27	047	00100111	55	37	067	00110111
8	8	010	00001000	24	18	030	00011000	40	28	050	00011000	56	38	070	00011100
9	9	011	00001001	25	19	031	00011001	41	29	051	00011001	57	39	071	00011001
10	A	012	00001010	26	1A	032	00011010	42	2A	052	00011010	58	3A	072	00011010
11	B	013	00001011	27	1B	033	00011011	43	2B	053	00011011	59	3B	073	00011011
12	C	014	00001100	28	1C	034	00011100	44	2C	054	00011100	60	3C	074	00011100
13	D	015	00001101	29	1D	035	00011101	45	2D	055	00011101	61	3D	075	00011101
14	E	016	00001110	30	1E	036	00011110	46	2E	056	00011110	62	3E	076	00011110
15	F	017	00001111	31	1F	037	00011111	47	2F	057	00011111	63	3F	077	00011111

Dec	Hex	Oct	Bin	Dec	Hex	Oct	Bin	Dec	Hex	Oct	Bin	Dec	Hex	Oct	Bin
64	40	100	01000000	80	50	120	01010000	96	60	140	01100000	112	70	160	01110000
65	41	101	01000001	81	51	121	01010001	97	61	141	01100001	113	71	161	01110001
66	42	102	01000010	82	52	122	01010010	98	62	142	01100010	114	72	162	01110010
67	43	103	01000011	83	53	123	01010011	99	63	143	01100011	115	73	163	01110011
68	44	104	01000100	84	54	124	01010100	100	64	144	01100100	116	74	164	01110100
69	45	105	01000101	85	55	125	01010101	101	65	145	01100101	117	75	165	01110101
70	46	106	01000110	86	56	126	01010110	102	66	146	01100110	118	76	166	01110110
71	47	107	01000111	87	57	127	01010111	103	67	147	01100111	119	77	167	01110111
72	48	110	01001000	88	58	130	01011000	104	68	150	01101000	120	78	170	01111000
73	49	111	01001001	89	59	131	01011001	105	69	151	01101001	121	79	171	01111001
74	4A	112	01001010	90	5A	132	01011010	106	6A	152	01101010	122	7A	172	01111010
75	4B	113	01001011	91	5B	133	01011011	107	6B	153	01101011	123	7B	173	01111011
76	4C	114	01001100	92	5C	134	01011100	108	6C	154	01101100	124	7C	174	01111100
77	4D	115	01001101	93	5D	135	01011101	109	6D	155	01101101	125	7D	175	01111101
78	4E	116	01001110	94	5E	136	01011110	110	6E	156	01101110	126	7E	176	01111110
79	4F	117	01001111	95	5F	137	01011111	111	6F	157	01101111	127	7F	177	01111111



3. RS232 CONTROL COMMANDS

1. Quick layout setting

Command:0x07 0x11 0x01 0x00 para1 para2 checksum

para1: Focus window index -> window1=00, win2=01, win3=02, win4=03.

para2: Layout type -> Cross=01, Focus top02, Focus Bottom=03, Focus Left=04, Focus Right=05. **Feedback:**03 81 84 03 82 85

LAYOUT	WINDOW1	WINDOW2	WINDOW3	WINDOW4
CROSS	07 11 01 00 00 01 1A	07 11 01 00 01 01 1B	07 11 01 00 02 01 1C	07 11 01 00 03 01 1D
FOCUS TOP	07 11 01 00 00 02 1B	07 11 01 00 01 02 1C	07 11 01 00 02 02 1D	07 11 01 00 03 02 1E
FOCUS BOTTOM	07 11 01 00 00 03 1C	07 11 01 00 01 03 1D	07 11 01 00 02 03 1E	07 11 01 00 03 03 1F
FOCUS LEFT	07 11 01 00 00 04 1D	07 11 01 00 01 04 1E	07 11 01 00 02 04 1F	07 11 01 00 03 04 20
FOCUS RIGHT	07 11 01 00 00 05 1E	07 11 01 00 01 05 1F	07 11 01 00 02 05 20	07 11 01 00 03 05 21

2. Full Screen setting

Command:0x06 0x11 0x05 0x00 para1 checksum

para1: Full Screen window index -> window1=00, window2=01, window3=02, window4=03

Feedback:03 81 84 03 82 85

WINDOW1	06 11 05 00 00 1C
WINDOW2	06 11 05 00 01 1D
WINDOW3	06 11 05 00 02 1E
WINDOW4	06 11 05 00 03 1F

3. Source selection

Command:0x06 0x11 0x07 para1 para2 checksum

para1: window index -> win1=00, win2=01, win3=02, win4=03,

para2: Source index -> Input1:0, Input2:1, Input3:2, Input4:3

Feedback:03 81 84 03 82 85

Source	WINDOW1	WINDOW2	WINDOW3	WINDOW4
INPUT1	06 11 07 00 00 1E	06 11 07 01 00 1F	06 11 07 02 00 20	06 11 07 03 00 21
INPUT2	06 11 07 00 01 1F	06 11 07 01 01 20	06 11 07 02 01 21	06 11 07 03 01 22
INPUT3	06 11 07 00 02 20	06 11 07 01 02 21	06 11 07 02 02 22	06 11 07 03 02 23
INPUT4	06 11 07 00 03 21	06 11 07 01 03 22	06 11 07 02 03 23	06 11 07 03 03 24

4. Output Resolution setting

Command:0x06 0x11 0x08 0x00 para1 checksum

para1: Resolution index ->

0x00=1080p, 0x01=720

0x03=1024x768, 0x04=1280x1024

0x05=480p, 0x06=576p

0x07=1920x1200, 0x08=640x480

0x09=800x600, 0x0a=1152x864

0x0b=1280x768, 0x0c=1280x960

0x0d=1366x768, 0x0e=1440x900

0x0f=1600x1200, 0x10=1680x1050

0x11=4k2k30

Feedback:03 81 84 03 82 85



3.1 RS232 CONTROL COMMANDS

VIDEO

RESOLUTION

480p	06 11 08 00 05 24
576p	06 11 08 00 06 25
720p	06 11 08 00 01 20
1080p	06 11 08 00 00 1F
4k2k30	06 11 08 00 11 30

COMMAND

VESA

RESOLUTION

640x480	06 11 08 00 08 27
800x480	06 11 08 00 02 21
800x600	06 11 08 00 09 28
1024x768	06 11 08 00 03 22
1152x864	06 11 08 00 0A 29
1280x768	06 11 08 00 0B 2A
1280x960	06 11 08 00 0C 2B
1280x1024	06 11 08 00 04 23
1366x768	06 11 08 00 0D 2C
1440x900	06 11 08 00 0E 2D
1600x1200	06 11 08 00 0F 2E
1680x1050	06 11 08 00 10 2F
1920x1200	06 11 08 00 07 26

COMMAND

5. Set Custom Layout

Command: 0x05 0x11 0x0c para1 checksum

para1: Custom setting index -> 0-7 (total 8 set)

Feedback: 03 81 84 03 82 85



3.2 RS232 CONTROL COMMANDS

SETTING INDEX	COMMAND
SET1	05 11 0C 00 22
SET2	05 11 0C 01 23
SET3	05 11 0C 02 24
SET4	05 11 0C 03 25
SET5	05 11 0C 04 26
SET6	05 11 0C 05 27
SET7	05 11 0C 06 28
SET8	05 11 0C 07 29

6. Save Custom Layout

Command:0x05 0x11 0x0d para1 checksum

para1: Custom setting index -> 0-7 (total 8 set)

Feedback:03 81 84 03 82 85

SETTING INDEX	COMMAND
SET1	05 11 0D 00 23
SET2	05 11 0D 01 24
SET3	05 11 0D 02 25
SET4	05 11 0D 03 26
SET5	05 11 0D 04 27
SET6	05 11 0D 05 28
SET7	05 11 0D 06 29
SET8	05 11 0D 07 2A

7. Factory Reset

Command:0x04 0x11 0x0e checksum

Feedback:03 81 84 03 82 85

8. Set window position and size

Command:0x0e 0x11 0x00 0x00 para1 para2 para3 para4 para5 para6 para7 para8 para9
checksum para1: Window number win1:0, win2:1, win3:2, win4:3,

para2 para3: Win horizontal start

position para4 para5: Win vertical start

position para6 para7: Win width

para8 para9: Win height

Feedback:03 81 84 03 82 85

Ex: window1 set it 1920x1080

Command:0e 11 00 00 00 00 00 00 07 80 04 38 e2



3.3 RS232 CONTROL COMMANDS

9.Border label Control

Command:0x07 0x11 0x0f para1 para2 para3 checksum

para1: window selected index -> win1=0 win2=1, win3=2, win4=3

para2:

bit4: OSD enable set to 1

bit2:Source label enable set to 1

bit1:Window label enable set to 1

bit0:Border enable set to 1

para3:

bit7: customized source text used set to 1 default set to 0

bit6- bit4:The position of source text

bit3: customized window text used set to 1 default set to 0

bit2- bit0:The position of window text

Feedback:03 81 84 03 82 85

Ex:window 1 enable OSD ,window text ,source text, border and customized text
used Cmd:07 11 0f 00 17 88 c6

10.Window text setting

Command:0x1a 0x11 0x11 para1 para2 para3..... para22 checksum

para1: window selected index -> win1=0, win2=1, win3=2, win4=3

para2:total length of text

para3- para22:text (*max 20 char)

Feedback:03 81 84 03 82 85

Ex:MyWinA (space is 0x00)

Cmd:1a 11 11 00 07 2d 59 37 49 4e 21 00 08 09 0a 0b 0c 0d 0e 0f 10 11 12 13 04 5e

11.Source text setting

Command:0x1a 0x11 0x12 para1 para2 para3..... para22 checksum

para1: window selected index -> win1:0, win2:1, win3:2, win4:3

para2:total length of text

para3- para22:text (*max 20 char)

Feedback:03 81 84 03 82 85

12.PAP window Visible

Command:0x07 0x11 0x14 0x00 para1 para2 checksum

para1: window selected index -> win1:0, win2:1, win3:2, win4:3

para2:set 1 visible ,set0 invisible

Feedback:03 81 84 03 82 85



3.4 RS232 CONTROL COMMANDS

13.Crop setting

Command:0x19 0x11 0x17 para1 para2 para3.... Para21 checksum

para1: window selected index -> win1:0, win2:1, win3:2, win4:3

para2:Crop Control 1

bit0:Crop mode used set to 1

bit1: Divided block used with 1st crop parameter

bit2: Percent of window used with 2nd crop parameter

bit3: Add offset by pixel used with 3rd crop parameter

para3: Control 2

bit4: 3rd crop top parameter used

bit5: 3rd crop bottom parameter used

bit6: 3rd crop left parameter used

bit7: 3rd crop right parameter used

//para4-para9 is 1st crop parameter

para4:Horizontal divided number

para5:Horizontal start block index

para6:Horizontal end block index

para7:Vertical divided number

para8: Vertical start block index

para9: Vertical end block index

//para10-para13 is 2nd crop parameter

para10:Crop percent of top

para11: Crop percent of bottom

para12: Crop percent of left

para13: Crop percent of right

// para14-para21 is 3rd crop parameter

para14 para15:top offset by pixel

para16 para17: bottom offset by pixel

para18 para19: left offset by pixel

para20 para21: right offset by pixel

Feedback:03 81 84 03 82 85

14.Border Blink

Command:0x07 0x11 0x20 0x00 para1 para2 checksum

para1: window index 0-3 correspond to window1-4

para2:0:Disable 1:Enable

Feedback:03 81 84 03 82 85

15.Background Image selection

Command:0x07 0x11 0x80 0x00 para1 para2 checksum

para1: Background image index 0-3

para2: Background image 0x03:Disable 0x83:Enable

Feedback:03 81 84 03 82 85



3.5 RS232 CONTROL COMMANDS

16.Rotation

Command:0x06 0x11 0x1e para1 0xc1 checksum

para1: Rotation mode select None=0x00 Rotate +90=0x80 Rotate -90=0x90

Feedback:03 81 84 03 82 85

17.Learning EDID from default set

Command:0x05 0x06 0x00 para1 checksum

Para1:

Bit0-Bit1: Input select 0-3

Bit4: default EDID index 0:1080p 1:1080i/720p

Feedback:03 81 84 03 82 85

18.Get Firmware version

Command:0x04 0x12 0xf0 0x06

Feedback:03 81 84 length char1.....cahrN 03 82 85

Length: Total length of firmware version information.

char1 - charN are data.

19.Set Ethernet configuration

Command:0x18 0x13 0x01 IP1 IP2 IP3 IP4 mask1 mask2 mask3 mask4 gateway1 gateway2 gateway3 gateway4 DNS1 DNS2 DNS3 DNS4 DNS5 DNS6 DNS7 DNS8 checksum

IP:IP1. IP2. IP3. IP4

Mask: mask1. mask2. mask3. mask4

Gateway: gateway1. gateway2. gateway3. gateway4

Primary DNS: DNS1. DNS2. DNS3. DNS4

Second DNS: DNS5. DNS6. DNS7. DNS8

Feedback:03 81 84 03 82 85

20.Get Ethernet configuration

Command:0x04 0x13 0x00 0x17

Feedback:03 81 84 IP1 IP2 IP3 IP4 mask1 mask2 mask3 mask4 gateway1 gateway2 gateway3 gateway4 DNS1 DNS2 DNS3 DNS4 DNS5 DNS6 DNS7 DNS8 03 82 85

21.Audio channel selection

Command:0x05 0x90 0x00 para checksum

para: channel index 0-3 correspond to channel 1&2 3&4 5&6 7&8 audio channel

Feedback:03 81 84 03 82 85

22.Output Video/Audio Mode select

Command:0x06 0x11 0x22 0x00 outputcontrol checksum

outputcontrol:

bit0- bit1:Audio source select the value 0-3 correspond to source 1-4

bit2:Mute 0:Disable 1:Enable

Feedback:03 81 84 03 82 85



23. Set 1080P to 4k2k

Command: 0x5 0x11 0x15 **outputcontrol checksum**

Bit5: Mute 0: Disable 1: Enable

Feedback: 03 81 84 03 82 85

24. Set 4k2k444 to 4k2k420

Command: 0x5 0x11 0x16 **outputcontrol checksum**

Bit6: Mute 0: Disable 1: Enable

Feedback: 03 81 84 03 82 85

Important 22-24 the parameter outputcontrol is shared.

25. Power On/Off

Power ON

Command: 05 11 24 01 3B

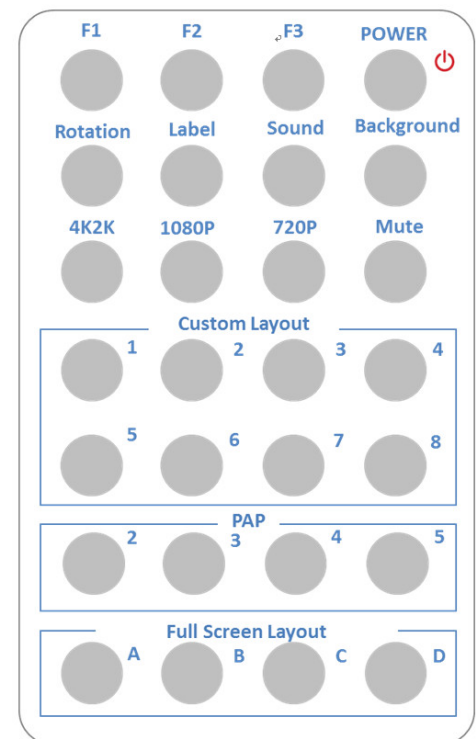
Power OFF

Command: 05 11 24 00 3A

Feedback: 03 81 84 03 82 85

4. IR REMOTE CONTROL

1. **F1:** To Unlock and Lock front panel buttons
2. **F2 RESERVED:** N/A
3. **F3 RESERVED:** N/A
4. **POWER:** To power ON or OFF the unit
5. **ROTATION:** Rotate Window A only +90 or -90.
6. **LABEL:** To toggle window label ON/OFF
7. **SOUND:** Easily switch between input audio source.
8. **BACKGROUND:** To enable and setup background picture.
9. **4K2K:** Enable 4k@60 UHD resolution on the output.
10. **1080p:** Enable 1080p@60 resolution on the output.
11. **720p:** Enable 720p@60 resolution on the output.
12. **MUTE:** To mute the audio on output
13. **CUSTOM LAYOUT 1-8:** Enables the configured user defined layout 1-8
14. **QUAD LAYOUT 1:** Enables the predefined layout 1 
15. **QUAD LAYOUT 2:** Enables the predefined layout 2 
16. **QUAD LAYOUT 3:** Enables the predefined layout 3 
17. **QUAD LAYOUT 4:** Enables the predefined layout 4 
18. **FULL SCREEN LAYOUT 1-4:** Enables the source input to full screen window mode A-D



* Audio function only work under A to D.





Control Your Video

TECHNICAL SUPPORT

CONTACT US



Phone: 1 (866) 508 0269



Email: support@avenview.com



USA Head Office

Office Avenview
Corp. 1100 Military Road
Kenmore, NY 14217
Phone: +1.716.218.4100 ext223
Fax: +1.866.387-8764
Email: info@avenview.com

Canada Sales

Avenview
151 Esna Park drive, Unit 11 & 12
markham, Ontario, L3R 3B1
Phone: 1.905.907.0525
Fax: 1.866.387.8764
Email: info@avenview.com

Avenview Europe Email:

info@avenview.eu

Avenview Hong Kong

Email: wenxi@avenview.com

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