

BLACK WING MK 2019



Command Protocols
R599902

Changes

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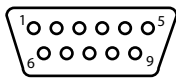
1.2 RS-232C protocol

Serial communication specifications

Control of this unit is possible using a computer or automation device connected with a RS-232 cross cable (female - female D-sub 9 pins cable) or LAN/ RJ-45 cable. Communication specifications for this unit are as follows:

Baud Rate	19200 bps
Data Format	Binary
Mode	Asynchronous
Parity	None
Start Bit	1 bit set to high
Stop Bit	1 bit set to low
X on/off	None
Flow Control	None

RS-232C pin assignment



Pin	Signal	Function	Signal Direction
2	RxD	receive data	PC -> this unit
3	TxD	transmit data	this unit -> PC
5	GND	ground	-
1, 4, 6-9	NC	-	-

Command Format

Header 1	Header 2	Command	Command Data	End of Data
21h	89h 01h	2 bytes	2 to 4 bytes	0Ah

Header 1: fixed to 21h for operating commands or 3Fh for reference command.

Header 2 fixed to 89h 01h

Command: 2-4 bytes length

Command Data: variable length between 1 and 4 bytes

End of Data fixed to 0Ah

Operating commands

Function	Command	Command Data	Description
Connection check	00h 00h	none	Check the connection in standby mode
Power	50h 57h	30h / 31h	Switch Off (Standby mode) / On.
Inputs	49h 50h	36h / 37h	Switch active input to HDMI1 / HDMI2
Initial Setup	53h 55h 52h 43h	30h / 31h	Switch RCU codes to A / B
Picture Mode switch	50h 4Dh 50h 4Dh	30h 30h / 30h 31h	Film / Cinema
		30h 33h / 30h 34h	Natural / HDR10
		31h 34h / 30h 36h	HLG / THX Mode
		30h 37h / 30h 38h	isf-Day / isf-Night
		30h 39h / 30h 41h	THX-Bright / THX Dark
		30h 43h / 30h 44h	User 1 / User 2
		30h 45h / 30h 46	User 3 / User 4
		31h 30h / 31h 31h	User 5 / User 6
Color Profile switch	50h 4Dh 50h 52h	30h 30h	Off
		30h 31h / 30h 32h	Film 1 / Film 2
		30h 33h / 30h 34h	BT.709 / Cinema
		30h 36h / 30h 38h	Anime / Video

Function	Command	Command Data	Description
Color Profile switch	50h 4Dh 50h 52h	30h 41h / 30 42h	HDR / BT.2020
		30h 44h / 32h 31h	THX / DCI
		30h 45h / 30h 46h	Custom1 / Custom2
		31h 30h / 31h 31h	Custom3 / Custom4
		31h 32h / 32h 32h	Custom5 / Custom6
Gamma Table switch	50h 4Dh 47h 54h	30h 30h / 30h 31h	2.2 / Cinema1
		30h 32h / 30h 34h	Cinema2 / Custom1
		30h 35h / 30h 36h	Custom2 / Custom3
		30h 37h / 30h 38h	HDR(HLG) / 2.4
		30h 39h / 30h 41h	2.6 / Film1
		30h 42h / 30h 43h	Film2 / HDR(PQ)
		31h 30h	THX
Contrast adjust	50h 4Dh 43h 4Eh	4 bytes integer	Set contrast to +10 -> 30h 30h 30h 41h +15 -> 30h 30h 30h 46h -1 -> 46h 46h 46h 46h -15 -> 46h 46h 46h 31h
Brightness	50h 4Dh 42h 52h	4 bytes integer	same as Contrast
Color	50h 4Dh 43h 4Fh	4 bytes integer	same as Contrast
Tint	50h 4Dh 54h 49h	4 bytes integer	same as Contrast
Dynamic Iris	50h 4Dh 44h 49h	30h / 31h / 32h	Off / Auto 1 / Auto 2
Lens Aperture setting	50h 4Dh 4Ch 41h	4 bytes integer	same as Contrast (Dyn. Iris must be Off)
Noise Reduction	50h 4Dh 52h 4Eh	4 bytes integer	same as Contrast
Bright Level (white)	50h 4Dh 52h 57h	4 bytes integer	same as Contrast
Dark Level (white)	50h 4Dh 4Bh 57h	4 bytes integer	same as Contrast
Low Latency Mode	50h 4Dh 4Ch 4Ch	30h / 31h	Off / On
CMD 400Hz	50h 4Dh 43h 4Dh	30h / 33h / 34h / 35h	Off / Low / High / Inverse Telecine
Motion Enhance	50h 4Dh 4Dh 45h	30h / 31h / 32h	Off / Low / High
Auto Tone Mapping	50h 4Dh 54h 4Dh	30h / 31h	Off / On (Auto)
Lamp Power	50h 4Dh 4Ch 50h	30h / 31h	Normal / High
8K e-shift	50h 4Dh 55h 53h	30h / 31h	Off / On
Original Resolution	50h 4Dh 52h 50h	30h / 31h	Standard / High-Res
Graphic Mode	50h 4Dh 47h 4Dh	30h / 31h	Standard / High-Res
MPC Enhance	50h 4Dh 45h 4Eh	4 bytes integer	same as Contrast
MPC Smoothing	50h 4Dh 53h 54h	4 bytes integer	same as Contrast
Set User1 name	50h 4Dh 55h 31h	10 ASCII char.	Set custom name to User1 Picture Mode
Set User2 name	50h 4Dh 55h 32h	10 ASCII char.	Set custom name to User2 Picture Mode
Set User3 name	50h 4Dh 55h 33h	10 ASCII char.	Set custom name to User3 Picture Mode
Set User4 name	50h 4Dh 55h 34h	10 ASCII char.	Set custom name to User4 Picture Mode
Set User5 name	50h 4Dh 55h 35h	10 ASCII char.	Set custom name to User5 Picture Mode
Set User6 name	50h 4Dh 55h 36h	10 ASCII char.	Set custom name to User6 Picture Mode
HDMI Input Level	49h 53h 49h 4Ch	30h / 31h / 32h / 33h	Standard / Enhanced / Super White / Auto
HDMI Color Space	49h 53h 48h 53h	30h / 31h / 32h / 33h	Auto / YCbCr(4:4:4) / YCbCr(4:2:2) / RGB
Aspect Ratio switch	49h 53h 41h 53h	32h / 33h / 34h	Zoom / AUTO / Native
Mask switch	49h 53h 4Dh 41h	31h / 32h	On / Off
3D Parallax	49h 53h 4Ch 56h	4 byte integer	same as Contrast
3D Crosstalk Cancel	49h 53h 43h 41h	4 byte integer	same as Contrast
3D Left / Right phase	49h 53h 33h 50h	30h / 31h	Standard / Inverse left right phase

Function	Command	Command Data	Description
HDMI 2D/3D mode	49h 53h 33h 44h	31h	3D mode set to Auto
		33h	3D mode set to Side by Side
		34h	3D mode set to Top & Bottom
		30h	3D mode is disable (force 2D mode)
Anamorphic Modes	49h 4Eh 56h 53h	30h	Turn Off the Anamorphic mode
		31h	Anamorphic mode set to Mode A
		32h	Anamorphic mode set to Mode B
		33h	Anamorphic mode set to Mode C
Trigger switch	46h 55h 54h 52h	30h / 31h / 32h	Off / Power / Anamo
		33h / 34h / 35h / 36h	Inst.1 / Inst.2 / Inst.3 / Inst.4
		37h / 38h / 39h / 41h	Inst.5 / Inst.6 / Inst.7 / Inst.8
		42h / 43h	Inst.9 / Inst.10
Load a specific Installation Mode	49h 4Eh 4Dh 4Ch	30h	Load Installation Mode 1
		31h	Load Installation Mode 2
		...	...
		39h	Load Installation Mode 10
Inst. Mode 1 name	49h 4Eh 4Dh 31h	10 ASCII char.	Set custom name to Installation Mode 1
Inst. Mode 2 name	49h 4Eh 4Dh 32h	10 ASCII char.	Set custom name to Installation Mode 2
	...		...
Inst Mode 9 name	49h 4Eh 4Dh 39h	10 ASCII char.	Set custom name to Installation Mode 9
Inst. Mode 10 name	49h 4Eh 4Dh 41h	10 ASCII char.	Set custom name to Installation Mode 10
Expert Calibration (THX)	52h 43h	37h 33h 43h 36h	THX plus - On and Adjust
		37h 33h 43h 37h	THX plus - Off
		37h 33h 43h 38h	THX plus - On locked
		37h 33h 38h 35h	Switch Picture Mode to THX - Bright
		37h 33h 38h 36h	Switch Picture Mode to THX - Dark
Expert Calibration (ISF)	52h 43h	37h 33h 35h 38h	ISF - On and Adjust
		37h 33h 35h 41h	ISF - Off
		37h 33h 35h 42h	ISF - On locked
		37h 33h 36h 34h	Switch Picture Mode to ISF - Day
		37h 33h 36h 35h	Switch Picture Mode to ISF - Night
Set Calibrator name	50h 4Dh 43h 49h	18 ASCII char.	Set Calibrator name - ISF must be "Adjust"

Examples

You want to...	Command to send
Switch this unit On	send: 21h 89h 01h 50h 57h 31h 0Ah receive: 06h 89h 01h 50h 57h 0Ah
Switch this unit Off	send: 21h 89h 01h 50h 57h 30h 0Ah receive: 06h 89h 01h 50h 57h 0Ah
Change active Input to HDMI2.	send: 21h 89h 01h 49h 50h 37h 0Ah receive: 06h 89h 01h 49h 50h 0Ah
Change Picture Mode to match HDR	send: 21h 89h 01h 50h 4Dh 50h 4Dh 30h 34h 0Ah receive: 06h 89h 01h 50h 4Dh 50h 4Dh 0Ah
Change Aspect Ratio to Anamorphic A	send: 21h 89h 01h 49h 4Eh 56h 53h 31h 0Ah receive: 06h 89h 01h 49h 4Eh 56h 53h 0Ah
Change Lens Memory 1 Name to "Widescreen" (unused character are filled with space = 20h)	send: 21h 89h 01h 49h 4Eh 4Dh 32h 0Ah receive: 06h 89h 01h 49h 4Eh 4Dh 32h 0Ah send: 57h 69h 64h 65h 73h 63h 72h 65h 65h 6Eh receive: 06h 89h 01h 49h 4Eh 4Dh 32h 0Ah

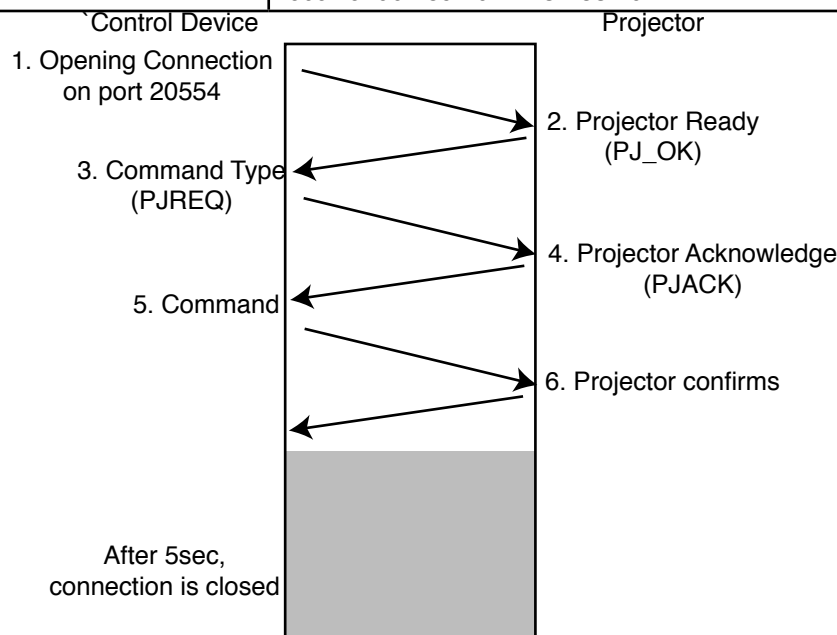
1.3 LAN Control

Sending a LAN Control Command

In order to send a Remote Control compatible command to this unit, you must open a TCP connection on port 20554 and send a command immediately as the connection will be dropped within 5 sec of inactivity. If for any reason you have to change the TCP connection port, you may use the following RS-232c/LAN command.

[4Ch 53 50h 54h] + 4 ASCII chars as new port address in hexa

You want to set TCP port to 10000	Command to send
Send 10000 as new TCP port value: 10000 is 2710h in hexa, converted in ASCII characters: 32h 37h 31h 30h	send: 21h 89h 01h 4Ch 53h 50h 54h 32h 37h 31h 30h 0Ah receive: 06h 89h 01h 4Ch 53h 0Ah
Then, reboot Network module	send: 21h 89h 01h 4Ch 53h 52h 53h 0Ah receive: 06h 89h 01h 4Ch 53h 0Ah



LAN communication protocol and timed out

Examples

You want to...	Command to send
Switch this unit On	1. open TCP connection 2. receive PJ_OK: 50h 4Ah 5Fh 4Fh 4Bh 3. send PJREQ: 50h 4Ah 52h 45h 51h 4. receive PJACK: 50h 4Ah 41h 43h 4Bh 5. send Power On cmd: 21h 89h 01h 50h 57h 31h 0Ah 6. receive confirmation: 06h 89h 01h 50h 57h 0Ah after 5 sec, TCP connection is closed.
Switch Anamorphic to mode A	1. open TCP connection 2. receive PJ_OK: 50h 4Ah 5Fh 4Fh 4Bh 3. send PJREQ: 50h 4Ah 52h 45h 51h 4. receive PJACK: 50h 4Ah 41h 43h 4Bh 5. send Anamo A: 21h 89h 01h 49h 4Eh 56h 53h 31h 0Ah 6. receive confirmation: 06h 89h 01h 49h 4Eh 56h 53h 0Ah after 5 sec, TCP connection is closed.

Default factory IP address for this unit is: 192.168.0.2, default port is 20554.

If you can't open a connection and you receive TCP error 10061 that means that your firewall is blocking the communication, to fix it, try to change the IP address to 192.168.1.xxx; where xxx a valid and free IP address on your network.

If you have a connection time out, please make sure that the projector Mode Eco is set to OFF.

