
Payload SDK Protocol Specification

Version 0.6

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DJI Innovations

Revisions

Version	Date	Revisions
0.0	Jun 27, 2017	First draft
0.1	Aug 10, 2017	1. Change camera and gimbal command sets. 2. Added a time push command and deleted time acquisition commands in payload state command sets.
0.2	Nov 11, 2017	1. Deleted camera and gimbal command sets 2. Revised other command sets
0.3	Nov 11, 2017	1. Added camera and gimbal command sets
0.4	Dec 18, 2017	1. Change camera and gimbal command sets
0.5	Jan.10, 2018	1. Change app function command sets 2. Camera Command set add zoom and focus.
0.6	Feb 06, 2018	1. Add Camera function switch.

1 PROFILE

This document describes Payload SDK communication protocol (referred to as PSDK protocol), which is applicable for communications between adapter and payload.

2 PSDK PROTOCOL FORMAT

2.1 DATA PACKET FORMAT

Table 2-1 Data Packet Format

Header									Data	Tail
SOF	Length/Ver	Session/ACK	Padding/ENC	RES1	CMD_SET	CMD_ID	SEQ	CRC16	DATA	CRC32

Table 2-2 Data Packet Details

Domain	Offset Location	Size (Byte)	Details
SOF	0	1	Data packet initial byte, fixed as 0xAA
Length/Version	1	2	[0-9] - Data packet length, including all bytes of the whole data packet, from SOF to CRC32 [10-15] - Protocol header version, fixed as 0 Note: LSB is at the front and MSB is at the back
Session/ACK	3	1	[0-4] - Session 0 = Does not need an ACK 1 = Needs an ACK (return an ACK packet after the command execution is completed) [5] - ACK, command type 0 = Command packet 1 = ACK packet [6-7] - Reservation
Padding/ENC	4	1	[0-4] - Padding, data length padded in DATA field; during AES encryption of the protocol, it is necessary to pad data in DATA field for AES encryption; the field represents the data length padded [5-7] - ENC 0 = No encryption 1 = AES encryption
RES1	5	1	Reservation, fixed as 0
CMD SET	6	1	Command set number

CMD ID	7	1	Command ID, for indicating specific operations. Please refer to Command Details in Chapter 3 for more details
SEQ	8	2	Data packet sequence number used as a relatively unique ID of the data packet to distinguish different commands and used for ACK packet matching. The sequence number is generated by a requester; a responder uses the same sequence number as that of the request packet when returning the ACK packet.
CRC16	10	2	CRC16 check values from SOF to SEQ (including SEQ)
DATA	12	N	Frame data
CRC32	12+N	4	CRC32 check values from SOF to DATA (including DATA)

2.2 ACK RETURN CODE

Return code	Specification
0x00	Executed successfully
0x01	Executed unsuccessfully
0x02	Does not support the command

2.3 PROTOCOL ENCRYPTION

ENC field indicates whether the frame is encrypted. If the ENC is 1, the DATA field is subjected to AES encryption. Because the data length for AES encryption has to be an integral multiple of 16, data is padded at the tail part of the DATA field to make the data of the DATA field an integral multiple of 16. PADDING field indicates the number of bytes that are padded. For protocol frame AES encryption, please refer to the source code document psdk_aes.h / psdk_aes.c.

2.4 COMMAND SET AND COMMAND ID

CmdSetId	说明	CmdId	说明
0x01	Payload State Command Set	0x01	ID verification
		0x02	P-SDK version acquisition
		0x03	Communication link hand-shake
		0x04	Payload product information acquisition
		0x05	
		0x06	

0x02	APP Function Command Set	0x01	Transparent data transmission (Mobile To Payload)
		0x02	Transparent data transmission (Payload To Mobile)
		0x03	DJI Pilot Floating Window Message Push
		0x04	Get Widget List Length
		0x05	Get Widget List Data
		0x06	Get Widget Value Group Number
		0x07	Get Widget Value Group Data
		0x08	Set Widget Value
0x03	Data Push Command Set	0x01	Image transmission bandwidth push
		0x02	UAV attitude push
		0x03	Battery Info push
		0x04	GPS data push
		0x05	UAV state push
		0x06	APP time and date push
0x04	Camera Command Set	0x01	Set Camera Work Mode
		0x02	Get Camera Work Mode
		0x03	Shoot Photo
		0x04	Get Shoot Photo State
		0x05	Set Shoot Photo Mode
		0x06	Get Shoot Photo Mode
		0x07	Record Video
		0x08	Get Record Video State
		0x09	Get SD Card Parameter
		0x0A	Format SD Card
		0x20	Set Metering Mode
		0x21	Get Metering Mode
		0x22	Set Spot Metering Zone
		0x23	Get Spot Metering Zone
		0x30	Set Focus Mode
		0x31	Get Focus Mode
		0x32	Set Focus Zone
		0x33	Get Focus Zone
		0x34	Set Digital Zoom Factor

		0x35	Get Digital Zoom Factor
		0x36	Get Optical Zoom specification
		0x37	Set Optical Zoom Focal Length
		0x38	Get Optical Zoom Focal Length
		0x39	Get Optical Zoom Factor
		0x40	Start Continuous Optical Zoom
		0x41	Stop Continuous Optical Zoom
		0x42	Set Focus Assistant Setting
		0x43	Get Focus Assistant Setting
		0x44	Get Focus Ring Value Upper Bound
		0x45	Set Focus Ring Value
		0x46	Get Focus Ring Value
		0xFF	Get Camera Command Set Support State
0x05	Gimbal Command Set	0x01	Get Gimbal State
		0x02	Set Gimbal Mode
		0x03	Gimbal Return Head
		0x04	Control Gimbal Angle Speed
		0x05	
		0x06	
		0xFF	Get Gimbal Command Set Support State

3 COMMAND DETAILS

3.1 PAYLOAD STATE COMMAND SET (0x01)

3.1.1 (0x01) ID Verification

The command is irregularly sent by the adapter to the payload to request ID verification; the load needs to calculate the MD5 value using the payload sdk APP KEY and the received random number character string together, and returns the MD5 value to the adapter board.

Sending end	Data type	Byte	Specification
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Adapter	Command packet	1:16	Random number character string
Payload	ACK packet	1	Return code
		2:17	MD5 value

3.1.2 (0x02) PSDK Version Acquisition

The command is used for acquiring the current PSDK version number.

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:5	Uint32, PSDK version Note: 0xAABBCCDD represents version AA.BB.CC.DD

3.1.3 (0x03) Communication Link Hand-Shake

The communication link hand-shake is used for checking whether the communication link between the adapter and the payload is normal. After the Adapter sends the command to the load, the load should directly return the received DATA field data to the adapter.

Sending end	Data type	Byte	Specification
Adapter	Command packet	N	1<=N<=32,
Payload	ACK packet	1	Return code
		2:(N+1)	Same as the command packet data

3.1.4 (0x04) Payload Product Information Acquisition

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:33	Char, product name 32 byte, with "\0" as the ending character
		34:49	Char, product ID 16 byte
		50:113	Char, developer account 64 byte, with "\0" as the ending character

3.2 APP FUNCTION COMMAND SET (0x02)

3.2.1 (0x01) Transparent Data Transmission (Mobile To Payload)

The command is used for transparently transmitting data from Mobile SDK to the payload end; the command data field pushed from the adapter is the data transparently transmitted.

Sending end	Data type	Byte	Specification
Adapter	Command packet	N	$1 \leq N \leq 256$
Payload	ACK packet	----	Does not provide an ACK

3.2.2 (0x02) Transparent Data Transmission (Payload To Mobile)

The command is used for the payload to transparently transmit to Mobile SDK.

Sending end	Data type	Byte	Specification
Payload	Command packet	N	$1 \leq N \leq 256$
Adapter	ACK packet	----	Does not provide an ACK

3.2.3 (0x03) DJI Pilot Floating Window Message Push

The command is used to push message to DJI Pilot floating window.

Sending end	Data type	Byte	Specification
Payload	Command packet	N	String, UTF8 Coding. The string must end with '\0', the total data length is $1 \sim 256$
Adapter	ACK packet	----	Does not provide an ACK

3.2.4 (0x04) Get Widget List Length

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	----
Payload	ACK packet	1	Return code
		2	UInt8. The length of widget list.

3.2.5 (0x05) Get Widget List Data

Sending end	Data type	Byte	Specification												
Payload	Command packet	1	Uint8. Nth data of the widget list. N starts from 0.												
Adapter	ACK packet	1	Return code.												
		2	Uint8, widget type. 1: Button 2: Switch 3: Range bar 4: Choose list 5: Integer input box												
		3	Uint8, The widget unique index, start from 0. The index value determine the order in DJI Pilot widget box. For example, the index 0 is on the top of widget box.												
		4:35	String. The name of widget.												
		36:N	Additional attributes. If widget is Choose list. <table><tr><th>字节</th><th>说明</th></tr><tr><td>36</td><td>Choose number M</td></tr><tr><td>37:52</td><td>Choose name 1, 16Byte</td></tr><tr><td>53:68</td><td>Choose name2, 16Byte</td></tr><tr><td>...</td><td>...</td></tr><tr><td></td><td>Choose name M, 16Byte</td></tr></table>	字节	说明	36	Choose number M	37:52	Choose name 1, 16Byte	53:68	Choose name2, 16Byte		Choose name M, 16Byte
		字节	说明												
		36	Choose number M												
37:52	Choose name 1, 16Byte														
53:68	Choose name2, 16Byte														
...	...														
	Choose name M, 16Byte														
	If widget is Integer input box. <table><tr><th>字节</th><th>说明</th></tr><tr><td>36:67</td><td>String. The append string for input box, 32Byte</td></tr></table>	字节	说明	36:67	String. The append string for input box, 32Byte										
字节	说明														
36:67	String. The append string for input box, 32Byte														

3.2.6 (0x06) Get Widget Value Group Number

Sending end	Data type	Byte	Specification
Payload	Command packet	----	----

Adapter	ACK packet	1	Return code
		2	UInt8, the total count of widget group number.

3.2.7 (0x07) Get Widget Value Group Data

Sending end	Data type	Byte	Specification
Payload	Command packet	1	UInt8, group number, start with 0.
Adapter	ACK packet	1	Return code
		2	UInt8, widget count of this group.
		3	Widget type.
		4	Widget index.
		5:8	Widget value.
		...	
		6N-3	Widget type.
		6N-2	Widget index.
		6N-1:6N+2	Widget value.

3.2.8 (0x08) Set Widget Value

Sending end	Data type	Byte	Specification
Payload	Command packet	1	Widget type.
		2	Widget index.
		3	Widget value.
Adapter	ACK packet	1	Return code.

3.3 DATA PUSH COMMAND SET (0x03)

3.3.1 (0x01) Image Transmission Bandwidth Push

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, baseband state 0: disconnected, unable to send data 1: connected, able to send data
		2	UInt8, bandwidth size (0-10M)

		3	UInt8, bandwidth percentage available for the payload (0-100)
		4	UInt8, connection state [0]: remote control connection state 0: disconnected; 1: normally connected [1]: downlink image transmission link connection state 0: disconnected; 1: normally connected [2]: downlink data link connection state 0: disconnected; 1: normally connected [3]: App connection state 0: disconnected; 1: normally connected [4:7]: reserved
Payload	ACK packet	----	Does not provide an ACK

3.3.2 (0x02) UAV Attitude Push

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:4	Float, quaternion Q0
		5:8	Float, quaternion Q1
		9:12	Float, quaternion Q2
		13:16	Float, quaternion Q3
Payload	ACK packet	----	Does not provide an ACK

3.3.3 (0x03) Battery Info Push

Sending end	Data type	Byte	Specification
		1	UInt8, battery power percentage
Payload	ACK packet	----	Does not provide an ACK

3.3.4 (0x04) GPS Data Push

All data has LSB at the front and MSB at the back, and is in a little endian mode.

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:8	Double, GPS longitude, unit: radian.
		9:16	Double, GPS latitude, unit: radian.
		17:18	int16, relative takeoff height, unit: 0.1 m
		19	UInt8, number of satellites
		20	UInt8, GPS signal strength 0: no signal at all; 1: GPS signal is very weak; 2: GPS signal is in medium strength; 3: GPS signal is very strong;
Payload	ACK packet	----	Does not provide an ACK

3.3.5 (0x05) UAV State Push

All data has LSB at the front and MSB at the back, and is in a little endian mode.

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, drone function state [0]: compass state 0: normal; 1: abnormal [1]: motor rotation state 0: not rotating; 1: rotating [2:3]: drone landing state 0: unknown; 1: landed; 2: in the sky [4:7] reserved
		2:3	UInt16, flying duration, unit: 0.1 s Timing is started at the last time the motor rotates.
		4	UInt8, drone type 0: unknown 1: M200 2: M210 3: M210RTK
Payload	ACK packet	----	Does not provide an ACK

3.3.6 (0x06) APP Time and Date Push

When the Mobile APP is accessed, Mobile APP time will be pushed by this command.

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:2	Year (LSB is at the front and MSB is the back)
		3	Month
		4	Day
		5	Hour
		6	Minute
		7	Second
Payload	ACK packet	----	Does not provide an ACK

3.4 CAMERA COMMAND SET (0x04)

3.4.1 (0x01) Set Camera Work Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	Uint8, mode setting 0: Shoot photo mode; 1: Record video mode
Payload	ACK packet	1	Return code

3.4.2 (0x01) Get Camera Work Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	Uint8, mode setting 0: Shoot photo mode; 1: Record video mode

3.4.3 (0x03) Shoot Photo

Sending end	Data type	Byte	Specification
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Adapter	Command packet	1	UInt8, shoot photo action 0: Stop Shoot Photo (for Stopping Interval Shooting); 1: Start Shoot Photo;
Payload	ACK packet	1	Return code

Note: only when the camera working mode is shoot photo mode, can the shoot photo command take effect.

3.4.4 (0x04) Get Shoot Photo State

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	UInt8, shoot photo state [0]: Is shooting single photo; [1]: Is shooting interval photo; [2]: Is shooting burst photo; [3]: Is storing photo; [4-7]: Reserved

3.4.5 (0x05) Set Shot Photo Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, Shoot photo type 1: Single shoot; 4: Burst shoot; 6: Interval shoot;
		2	UInt8, number of burst shots (it takes effect when the shoot photo type is burst shot)
		3	UInt8, number of photos under timed shot (it takes effect when the shoot photo type is interval shoot) 0: reserved 1-254: number of interval shoot; when the interval shoot are taken, the camera will automatically stop timed shot;

			255: keeping photographing until the camera receives the command of stopping interval shoot;
		4	Uint8, time interval of interval shoot (it takes effect when the shoot photo type is interval shoot) 0: reserved 1 – 255: the time interval between two shoot (unit: s)
Payload	ACK packet	1	Return code

3.4.6 (0x06) Get Shoot Photo Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	Uint8, Shoot photo type 1: Single shoot; 4: Burst shoot; 6: Interval shoot;
		3	Uint8, number of burst shots (it takes effect when the shoot photo type is burst shot)
		4	Uint8, number of photos under timed shot (it takes effect when the shoot photo type is interval shoot) 0: reserved 1-254: number of interval shoot; when the interval shoot are taken, the camera will automatically stop timed shot; 255: keeping photographing until the camera receives the command of stopping interval shoot;
		5	Uint8, time interval of interval shoot (it takes effect when the shoot photo type is interval shoot) 0: reserved 1 – 255: the time interval between two shoot (unit: s)

3.4.7 (0x07) Record Video

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, video recording action 0: stop video recording; 1: start video recording;
Payload	ACK packet	1	Return code

3.4.8 (0x08) Get Record Video State

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	UInt8, video recording state 0: not under video recording state; 1: recording;
		3:4	UInt16, the duration of currently recorded video, unit s

3.4.9 (0x09) Get SD Card Parameter

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:3	UInt16, SD Card State [0]: Is inserted [1]: Is initializing [2]: Is read only [3]: Is formatted [4]: Is formatting [5]: Is full [6]: Is verified [7]: Is invalid format [8]: Has error [9-15] : Reserved

		4:7	SD card capacity (unit MB, LSB is at the front and MSB is at the back)
		8:11	Remaining SD card capacity (unit MB, LSB is at the front and MSB is at the back)
		12:15	Remaining shots (LSB is at the front and MSB is at the back)
		16:19	Remaining video recording time (unit: second, LSB is at the front and MSB is at the back)

3.4.10 (0x0a) Format SD Card

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	SD Card format percent (0 ~ 100)

3.4.11 (0x20) Set Metering Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, metering mode 0 = center metering 1 = average metering 2 = spot metering
Payload	ACK packet	1	Return code

3.4.12 (0x21) Get Metering Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	UInt8, metering mode 0 = center metering 1 = average metering 2 = spot metering

3.4.13 (0x22) Set Spot Metering Zone

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, spot metering position coordinates [0:3]: column coordinate, 0 - 11 [4:7]: row coordinate, 0 - 7
Payload	ACK packet	1	Return code

3.4.14 (0x23) Get Spot Metering Zone

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	UInt8, spot metering position coordinates [0:3]: column coordinate, 0 - 11 [4:7]: row coordinate, 0 - 7

3.4.15 (0x30) Set Focus Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, focus mode 0 = Manual focus 1 = Auto focus
Payload	ACK packet	1	Return code

3.4.16 (0x31) Get Focus Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	UInt8, focus mode 0 = Manual focus

			1 = Auto focus
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3.4.17 (0x32) Set Focus Zone

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:4	Float, horizontal zone coordinates, range from 0.0 to 1.0. The point [0.0, 0.0] represents the top-left angle of the screen.
		5:8	Float, vertical zone coordinates, rang from 0.0 to 1.0.
Payload	ACK packet	1	Return code

3.4.18 (0x33) Get Focus Zone

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:5	Float, horizontal zone coordinates, range from 0.0 to 1.0. The point [0.0, 0.0] represents the top-left angle of the screen.
		6:9	Float, vertical zone coordinates, rang from 0.0 to 1.0.

3.4.19 (0x34) Set Digital Zoom Factor

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:4	Float, factor. The valid range is from 1.0 to 2.0.
Payload	ACK packet	1	Return code

3.4.20 (0x35) Get Digital Zoom Factor

Sending end	Data type	Byte	Specification
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Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:5	Float, factor. The valid range is from 1.0 to 2.0.

3.4.21 (0x36) Get Optical Zoom specification

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:3	Uint16. The maximum focal length of the lens in units of 0.1mm.
		4:5	Uint16. The minimum focal length of the lens in units of 0.1mm.
		6:7	Uint16. The minimum interval of focal length change in units of 0.1mm.

3.4.22 (0x37) Set Optical Zoom Focal Length

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:2	Float. Focal length of zoom lens in units of 0.1mm.
Payload	ACK packet	1	Return code

3.4.23 (0x38) Get Optical Zoom Focal Length

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		1:2	Float. Focal length of zoom lens in units of 0.1mm.

3.4.24 (0x39) Get Optical Zoom Factor

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:5	Float, factor. The valid range is from 1.0 to 30.0.

3.4.25 (0x40) Start Continuous Optical Zoom

Start changing the focal length of the lens in specified direction with specified speed. Focal length change (zooming) will halt when maximum or minimum focal lengths are reached, or Stop Continuous Optical Zoom is called.

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, Zoom speed. 72: SLOWEST-Lens zooms very in slowest speed. 73: SLOW. Lens zooms in slow speed. 74: MODERATELY_SLOW. Lens zooms in speed slightly slower than normal speed. 75: NORMAL. Lens zooms in normal speed. 76: MODERATELY_FAST. Lens zooms very in speed slightly faster than normal speed. 77: FAST. Lens zooms very in fast speed. 78: FASTEST. Lens zooms very in fastest speed.
		2	UInt8, Zoom Direction. 1: ZOOM_IN. Lens will zoom in. The focal length increases, field of view becomes narrower and magnification is higher. 0: ZOOM_OUT Lens will zoom out. The focal length decreases, field of view becomes wider and magnification is lower.

Payload	ACK packet	1	Return code
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3.4.26 (0x41) Stop Continuous Optical Zoom

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	----
Payload	ACK packet	1	Return code

3.4.27 (0x42) Set Focus Assistant Setting

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	Uint8, Set focus assistant settings. [0] - if the lens focus assistant is enabled for Auto Focusing. [1] - if the lens focus assistant is enabled for Manual Focusing.
Payload	ACK packet	1	Return code

3.4.28 (0x43) Get Focus Assistant Setting

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	Uint8, focus assistant settings. [0] - if the lens focus assistant is enabled for Auto Focusing. [1] - if the lens focus assistant is enabled for Manual Focusing.

3.4.29 (0x44) Get Focus Ring Value Upper Bound

Sending end	Data type	Byte	Specification
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Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:3	Uint16, Gets the lens focusing ring value's max value.

3.4.30 (0x45) Set Focus Ring Value

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:2	Uint16, Set the focal distance by simulating the focus ring adjustment. Value can have a range of 0, Get Focus Ring Value Upper Bound], which represents infinity and the closest possible focal distance.
Payload	ACK packet	1	Return code

3.4.31 (0x46) Get Focus Ring Value

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2:3	Uint16, Gets the lens focus ring value.

3.4.32 (0xFF) Get Camera Command Set Support State

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code
		2	Uint8, camera command set support state. [0]: Is support camera command set. [1]: Is support optical zoom. [2]: Is support digital zoom.

			[3]: Is support focus. [4]: Is support metering. [5-7]: Reserved.
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3.5 GIMBAL COMMAND SET (0x05)

3.5.1 (0x01) Get Gimbal State

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	-----
Payload	ACK packet	1	Return code
		2	Uint8, gimbal mode 0: Free mode 1: Following mode 2: FPV mode
		3	Uint8, gimbal statue [0]: gimbal mounting direction 0: downward mounting; 1: upward mounting [1]: whether YAW reaches limits 0: does not reach limits; 1: reaches limits [2]: whether ROLL reaches limits 0: does not reach limits; 1: reaches limits [3]: whether PITCH reaches limits 0: does not reach limits; 1: reaches limits
		4:5	current PITCH axis angle, unit: 0.1 degree
		6:7	current ROLL axis angle, unit: 0.1 degree
		8:9	current YAW axis angle, unit: 0.1 degree

3.5.2 (0x02) Set Gimbal Mode

Sending end	Data type	Byte	Specification
Adapter	Command packet	1	UInt8, gimbal mode 0: Free mode 1: FPV mode 2: Following mode
Payload	ACK packet	1	Return code

3.5.3 (0x03) Gimbal Return Head

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	
Payload	ACK packet	1	Return code

3.5.4 (0x04) Control Gimbal Angle Speed

Sending end	Data type	Byte	Specification
Adapter	Command packet	1:2	Int16, angular speed of the PITCH axis, unit: 0.1°/s, the range is (-1800+1800)
		3:4	Int16, angular speed of the ROLL axis, unit: 0.1°/s, the range is (-1800+1800)
		5:6	Int16, angular speed of the YAW axis, unit: 0.1°/s, the range is (-1800+1800)
		7	UInt8, gimbal control action. 0: Stop control gimbal. 1: Control gimbal
Payload	ACK packet	1	Return code

3.5.5 (0xFF) Get Gimbal Command Set Support State

Sending end	Data type	Byte	Specification
Adapter	Command packet	----	

Payload	ACK packet	1	Return code
		2	UInt8, gimbal command set support state. [0]: Is support gimbal command set. [1-7]: Reserved.

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