

## Table of contents

- [Table of contents](#)
- [Version history](#)
- [MAVLINK Messages](#)
  - [Set camera running mode](#)
  - [Set camera record source](#)
  - [Set camera view source](#)
  - [Set EO camera zoom mode](#)
  - [Set EO camera zoom - Super Resolution](#)
  - [Set EO camera index zoom - Combine](#)
  - [Set camera zoom type](#)
  - [Set camera focus type](#)
  - [Set camera IR palette](#)
  - [Set payload camera start capture image](#)
  - [Set payload camera stop capture image](#)
  - [Set payload camera start record video](#)
  - [Set payload camera stop record video](#)
  - [Set camera video flip](#)
  - [Set camera video defog](#)
  - [Set camera video defog level](#)
  - [Set camera video auto exposure](#)
  - [Set camera video shutter speed](#)
  - [Set camera video aperture value](#)
  - [Set camera video bright value](#)
  - [Set camera video white balance](#)
  - [Set gimbal mode](#)
  - [Set gimbal RC mode](#)
  - [Set gimbal move to angle](#)
  - [Set gimbal move by speed](#)
  - [Get payload camera information](#)
  - [Get payload camera streaming information](#)
  - [Get payload storage](#)
  - [Get payload capture status](#)
  - [Get payload camera mode](#)

# Version history

Version	Publish date	Description
1.0.0	06 Jan 2023	Add example to do Connect payload
		Add example to do Load payload settings
		Add example to do Set payload settings
		Add example to do Image capture with the payload
		Add example to do Video record with the payload
		Add example to do Get video streaming from payload
1.0.1	25 May 2023	Included Gremsy gSDK to communicate and control gimbal
		Add examples to move gimbal in Angle mode and Angular rate mode using Mavlink Gimbal Protocol v2
v1.1.0	30 July 2024	Add some examples
		Get LRF status for VIO
		Payload define
v2.0.0	16 Aug 2024	Replace gSDK by MAVLINK interface
		Provide MAVLINK command list
		Publish resource

MAVLINK Messages

Encode a command_long struct	Values	Description
target_system	1	
target_component	191	MAV_COMP_ID_ONBOARD_COMPUTER
chan	0	MAVLink channel

Set camera running mode

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_SET_CAMERA_MODE (530)	MAV_CMD
confirmation	uint8_t	1	
param2	float	0	Photo mode
		1	Video mode

Set camera record source

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_REC"	
param_value	char[128]	"0"	Record both
		"1"	Record EO
		"2"	Record IR
		"5"	Record OSD
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera view source

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_SOURCE"	
param_value	char[128]	"0"	EO/IR
		"1"	Only EO
		"2"	Only IR
		"3"	IR/EO
		"4"	Sync
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set EO camera zoom mode

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_ZM_MODE"	
param_value	char[128]	"0"	Combine
		"2"	Super Resolution
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set EO camera zoom - Super Resolution

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_ZM_SR_LV"	

Field Name	Type	Values	Description
param_value	char[128]	"0"	1X
		"1"	2X
		"2"	4X
		"3"	6X
		"4"	8X
		"5"	10X
		"6"	12X
		"7"	14X
		"8"	16X
		"9"	18X
		"10"	20X
		"11"	22X
		"12"	24X
		"13"	26X
		"14"	28X
		"15"	30X
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set EO camera index zoom - Combine

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]		"C_V_ZM_CB_LV"
param_value	char[128]	"0"	1X
		"1"	10X
		"2"	20X
		"3"	40X
		"4"	80X
		"5"	120X
		"6"	240X
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera zoom type

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
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Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_SET_CAMERA_ZOOM (531)	MAV_CMD
confirmation	uint8_t	1	
param1	float	0	ZOOM_TYPE_STEP
		1	ZOOM_TYPE_CONTINUOUS
		2	ZOOM_TYPE_RANGE
param2	float	-1 for wide, 1 for tele	Zoom one step increment
		-1 for wide, 1 for tele, 0 to stop zooming	Continuous zoom up/down until stopped
		A percentage value between 0.0 and 100.0	Zoom value as proportion of full camera range

Set camera focus type

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_SET_CAMERA_FOCUS (532)	MAV_CMD
confirmation	uint8_t	1	
param1	float	1	FOCUS_TYPE_CONTINUOUS
		4	FOCUS_TYPE_AUTO
param2	float	-1: focusing in, 1: focusing out, 0: stop	Continuous focus up/down until stopped

Set camera IR palette

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID

Field Name	Type	Values	Description
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_T_PALETTE"	
param_value	char[128]	"0"	F1: WhiteHot ; G1: WhiteHot
		"1"	F1: BlackHot ; G1: Fulgurite
		"2"	F1: Rainbow ; G1: IronRed
		"3"	F1: RainbowHC ; G1: HotIron
		"4"	F1: Ironbow ; G1: Medical
		"5"	F1: Lava ; G1: Arctic
		"6"	F1: Arctic ; G1: Rainbow1
		"7"	F1: Globow ; G1: Rainbow2
		"8"	F1: Gradedfire ; G1: Tint
		"9"	F1: Hottest ; G1: BlackHot
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set payload camera start capture image

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_IMAGE_START_CAPTURE (2000)	MAV_CMD
confirmation	uint8_t	1	
param2	int	Default, min: 0	Desired elapsed time between two consecutive pictures (in seconds)

Set payload camera stop capture image

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting

Field Name	Type	Values	Description
command	uint16_t	MAV_CMD_IMAGE_STOP_CAPTURE (2001)	MAV_CMD
confirmation	uint8_t		1

Set payload camera start record video

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_VIDEO_START_CAPTURE (2500)	MAV_CMD
confirmation	uint8_t	1	

Set payload camera stop record video

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD	MAV_CMD_VIDEO_STOP_CAPTURE (2501)
confirmation	uint8_t	1	

Set camera video flip

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_FLIP"	



Field Name	Type	Values	Description
param_value	char[128]	"2" "3"	On Off
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video defog

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_DEFOG"	
param_value	char[128]	"0" "1"	Off On
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video defog level

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_DEFOG_LV"	
param_value	char[128]	"0" "1" "2" "3"	Lowest Low Mid High
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video auto exposure

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID

Field Name	Type	Values	Description
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_AE"	
param_value	char[128]	"0"	Auto
		"3"	Manual
		"10"	Shutter
		"11"	Iris
		"13"	Bright
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video shutter speed

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_SP"	
param_value	char[128]	"13"	1/10
		"14"	1/20
		"17"	1/50
		"20"	1/100
		"21"	1/125
		"25"	1/500
		"26"	1/725
		"27"	1/1000
		"28"	1/1500
		"30"	1/2000
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video aperture value

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting

Field Name	Type	Values	Description
param_id	char[16]	"C_V_IrP"	
param_value	char[128]	0	Aperture value can be set from 0 to 25, step 1
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video bright value

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_BrP"	
param_value	char[128]	0	Bright value can be set from 0 to 41, step 1
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set camera video white balance

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"C_V_WB"	
param_value	char[128]	"0"	Auto
		"1"	Indoor
		"2"	Outdoor
		"3"	One push
		"4"	ATW
		"5"	Manual
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set gimbal mode

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"GB_MODE"	
param_value	char[128]	"0"	OFF
		"1"	LOCK
		"2"	FOLLOW
		"3"	MAPPING
		"4"	RESET
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set gimbal RC mode

- Message: PARAM\_EXT\_SET (323)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
param_id	char[16]	"RC_MODE"	
param_value	char[128]	"0"	Gremsy
		"1"	Standard
param_type	uint8_t	UINT32	MAV_PARAM_EXT_TYPE

Set gimbal move to angle

- Message: GIMBAL\_DEVICE\_SET\_ATTITUDE (284)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
q	float[4]	rad/s mavlink_euler_to_quaternion(roll, pitch, yaw, q)	Quaternion components, w, x, y, z
angular_velocity_x	float	rad/s NaN	X component of angular velocity (Roll)

Field Name	Type	Values		Description
angular_velocity_y	float	rad/s	NaN	Y component of angular velocity (Pitch)
angular_velocity_z	float	rad/s	NaN	Z component of angular velocity (Yaw)

Set gimbal move by speed

- Message: GIMBAL\_DEVICE\_SET\_ATTITUDE (284)

Field Name	Type	Values		Description
target_system	uint8_t	1		System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)		MAVLINK Camera Component ID on Web setting
q	float[4]	rad/s	NaN	Quaternion components, w, x, y, z
angular_velocity_x	float	rad/s	Speed roll	X component of angular velocity (Roll)
angular_velocity_y	float	rad/s	Speed pitch	Y component of angular velocity (Pitch)
angular_velocity_z	float	rad/s	Speed yaw	Z component of angular velocity (Yaw)

Get payload camera information

- Message: COMMAND\_LONG (76)

Field Name	Type	Values		Description
target_system	uint8_t	1		System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)		MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_REQUEST_CAMERA_INFORMATION (521)		MAV_CMD
confirmation	uint8_t	1		

Get payload camera streaming information

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_REQUEST_VIDEO_STREAM_INFORMATION (2504)	MAV_CMD
confirmation	uint8_t	1	

Get payload storage

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_REQUEST_STORAGE_INFORMATION (525)	MAV_CMD
confirmation	uint8_t	1	

Get payload capture status

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_REQUEST_CAMERA_CAPTURE_STATUS (527)	MAV_CMD
confirmation	uint8_t	1	

Get payload camera mode

- Message: COMMAND\_LONG (76)

Field Name	Type	Values	Description
target_system	uint8_t	1	System ID
target_component	uint8_t	101 (MAV_COMP_ID_CAMERA2)	MAVLINK Camera Component ID on Web setting
command	uint16_t	MAV_CMD_REQUEST_CAMERA_SETTINGS (522)	MAV_CMD
confirmation	uint8_t	1	