

M5Stack Chain ToF Protocol								All packets start with 0xAA 0x55 and end with 0x55 0xAA				V1 (Version)
												2025/10/22
Instruction set	Byte Instruction format	0	1	2	3	4	5	6	7	8	9	10
		Length_low	Length_high	Index	Cmd	Data1	Data2	Data3	Data4	Data5	Data6	Data7
Set RGB values	Command packet format	0x05+Num*3	0x00	Index_id	0x20	Index	Num	R	G	B	...	CRC
	Response packet format	0x04	0x00	Index_id	0x20	Operation_status	CRC					
	Command Details	(1) Function Description: Sets RGB values. (2) Input Parameters: Index_id (Device ID), Index (RGB light start coordinates), Num (Number of RGB lights to be set), RGB value (3) Return Parameter: Operation_status (4) Instruction Code: 0x20 Note 1: Operation_status Operation status 0: Operation failed 1: Operation successful Note 2: Index is the RGB light start coordinate, starting from 0. The TOF device has only one RGB light, so Index = 0, Num = 1										
Get RGB values	Command packet format	0x05	0x00	Index_id	0x21	Index	Num	CRC				
	Response packet format	0x04 + Num * 3 / 0x04	0x00	Index_id	0x21	Operation_status	R	G	B	...	CRC	
	Command Details	(1) Function Description: Get RGB values. (2) Input Parameters: Index_id (Device ID), Index (RGB light start coordinates), Num (Num of RGB lights to be read) (3) Return Parameters: RGB values (4) Instruction Code: 0x21 Note 1: Operation_status Operation status 0: Operation failed 1: Operation successful Note 2: Index is the RGB light start coordinate, starting from 0. The TOF device has only one RGB light, so Index = 0, Num = 1 Note 3: Operation failure returns a data packet that does not contain RGB values.										
Set RGB light brightness	Command packet format	0x05	0x00	Index_id	0x22	Light	Save_to_flash	CRC				
	Response packet format	0x04	0x00	Index_id	0x22	Operation_status	CRC					
	Command Details	(1) Function description: Set the brightness of RGB lights (2) Input parameters: Index_id (device index ID), Light (RGB brightness, 0~100, default 40), Save_to_flash (whether to save to internal Flash) (3) Return parameters: Operation_status (4) Instruction code: 0x22 Note 1: Operation_status Operation status 0: Operation failed 1: Operation successful Note 2: Save_to_flash Whether to save to internal Flash 0: Do not save 1: Save Note 3: The setting takes effect immediately upon success Note 4: Saving to internal Flash requires erasing the page, which takes a relatively long time (about 20ms). During this process, the serial port interrupt will be turned off, and frequent operation will affect the lifespan of the device. If you need to frequently adjust the brightness, please avoid saving to internal Flash every time.										
Get RGB light brightness	Command packet format	0x03	0x00	Index_id	0x23	CRC						
	Response packet format	0x04	0x00	Index_id	0x23	Light	CRC					
	Command Details	(1) Function Description: Get the brightness of the RGB light. (2) Input Parameter: Index_id (Device Index ID) (3) Return Parameter: Light (RGB brightness) (4) Instruction Code: 0x23										
Obtaining ToF measurement distance	Command packet format	0x03	0x00	Index_id	0x50	CRC						
	Response packet format	0x04	0x00	Index_id	0x50	Measure_distance_low	Measure_distance_high	CRC				
	Command Details	(1) Function Description: Obtain the ToF measurement distance. (2) Input Parameter: Index_id (Device Index ID) (3) Return Parameter: Measure_distance (4) Instruction Code: 0x50 Note 1: Measure_distance = (uint16_t)(Measure_distance_high << 8) Measure_distance_low (Unit: mm)										
Set measurement time	Command packet format	0x04	0x00	Index_id	0x51	Time	CRC					
	Response packet format	0x04	0x00	Index_id	0x51	Operation_status	CRC					
	Command Details	(1) Function description: Set the measurement time. (2) Input parameters: Index_id (device index ID), Time (3) Return parameters: Operation_status (4) Command code: 0x51 Note 1: Operation_status Operation status 0: Operation failed 1: Operation successful Note 2: Time Measurement time (the longer the measurement time, the higher the accuracy) Value: 20~200ms Default: 33ms Note 3: This command requires changing the configuration of VL53L0X, which is time-consuming.										
Acquire measurement time	Command packet format	0x03	0x00	Index_id	0x52	CRC						
	Response packet format	0x04	0x00	Index_id	0x52	Time	CRC					
	Command Details	(1) Function Description: Obtain the measurement mode. (2) Input Parameter: Index_id (Device Index ID) (3) Return Parameter: Mode (4) Command Code: 0x52 Note 1: Time Measurement time (the longer the measurement time, the higher the accuracy) Value: 20~200ms Default: 33ms										
Set measurement mode	Command packet format	0x04	0x00	Index_id	0x53	Mode	CRC					
	Response packet format	0x04	0x00	Index_id	0x53	Operation_status	CRC					
	Command Details	(1) Function Description: Sets the measurement mode. (2) Input Parameters: Index_id (Device ID), Mode (3) Return Parameters: Operation_status (4) Instruction Code: 0x53 Note 1: Operation_status Operation status 0: Operation failed 1: Operation successful Note 2: Mode Measurement mode 0: Stop mode (stops measurement, lowest power consumption) 1: Single mode (default does not actively sample, requires manual triggering, power consumption is proportional to the triggering frequency) 2: Continuous mode (default actively sample, automatic cyclic sampling, maximum power consumption) Default: 2										

