

**A1280H**

**Uncooled Thermal Imaging Module  
Operating Commands User Manual**

**V1.0.0**

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## Historical Versions

Version	Date	Description
V1.0.0	2024-08	Initial release

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# 1 Serial Port Settings

**Table 1 Serial Port Settings**

Baud Rate	Transmission Format			Parity Check
115200bps	Data bit: 8 bit	Start bit: 1 bit	Stop bit: 1 bit	None

**Note:** For each byte of information, the least significant bit (LSB) is transmitted first.

# 2 Module Command Reception Format

**Table 2 Module Command Reception Format for Reading FPA Temperature**

Head	Bytes	Instruction Set	Word	Operation Word	Parameter 1	Parameter 2	...	Parameter n	Parity Bit	Tail	
This section pertains to the command body.											
0xAA	0x04	0x01	0xC3	0x00	None	None	None	None	0x72	0xEB	0xAA

**Notes:**

- (1) The above numbers and letters are in the hexadecimal byte format and this note will not be given again in the following content;
- (2) The number of bytes is the total of the instruction set, command word, operation word, return value, and parity bit bytes;
- (3) The parity bit is the remainder when the sum of all bytes before the command parity bit is divided by 256;
- (4) The command header is fixed at 0xAA, the command tail is fixed at 0xEB, and 0xAA.

# 3 Module Command Return Format

**Table 3 Module Status Information Format for Reading FPA Temperature**

Head	Bytes	Word	Operation Word	Return Value	Return Value	...	Return Value	Parity Bit	Tail		
This section pertains to the command body.											
0x55	0x05	0xC3	0x33	0xCB	0x11	None	None	0x2C	0xEB	0xAA	

**Notes:**

- (1) The module status information reflects the completion status of the commands executed within the module.
- (2) For command words and return values, refer to the Module Command Reception and Status Information Table. The low byte of the return value comes first.

For example, if 4725 corresponds to hexadecimal 0x11CB, the return value will be 0xCB followed by

0x11.

(3) The number of bytes is the total of the command word, operation word, return value, and parity bit bytes.

(4) The operation word in the return information is fixed at 0x33.

(5) The command head in the return information is fixed at 0x55.

(6) The command tail in the return information is fixed at 0xEB and 0xAA.

## Appendix 1 Common Functions

Instruction Description		Module Instruction Reception	Remarks
Setting Serial Port Baud Rate	Receive	Baud rate 9600: AA 06 01 77 02 02 00 2C EB AA Baud rate 19200: AA 06 01 77 02 04 00 2E EB AA Baud rate 38400: AA 06 01 77 02 08 00 32 EB AA Baud rate 115200: AA 06 01 77 02 10 00 3A EB AA Baud rate 921600: AA 06 01 77 02 20 00 4A EB AA Baud rate 57600: AA 06 01 77 02 40 00 6A EB AA Baud rate 230400: AA 06 01 77 02 80 00 AA EB AA	
	Return	55 04 77 33 01 04 EB AA	The module returns two instructions, with one at the original baud rate and the other at the new baud rate.
Non-uniformity Correction	Receive	Automatic: AA 05 01 01 01 01 B3 EB AA Manual: AA 05 01 01 01 00 B2 EB AA	
	Return	55 04 01 33 01 8E EB AA	
Shutter Correction	Receive	Background correction: AA 05 01 02 02 40 F4 EB AA Bistable shutter: AA 05 01 02 02 41 F5 EB AA Monostable shutter: AA 05 01 02 02 44 F8 EB AA	Bistable (default)
	Return	55 04 02 33 01 8F EB AA	
Shutter Closure	Receive	On: AA 05 01 02 04 01 B7 EB AA Off: AA 05 01 02 04 00 B6 EB AA	
	Return	55 04 02 33 01 8F EB AA	

Instruction Description		Module Instruction Reception	Remarks
Image Reading During Shutter Correction	Receive	AA 04 01 E9 00 98 EB AA	Test image for Cameralink/USB digital video and freeze for other interfaces by default
	Return	Blurry screen: 55 04 E9 33 00 75 EB AA Freeze: 55 04 E9 33 01 76 EB AA Test image: 55 04 E9 33 02 77 EB AA	
Image Setting During Shutter Correction	Receive	Blurry screen: AA 05 01 E9 01 00 9A EB AA Freeze: AA 05 01 E9 01 01 9B EB AA Test image: AA 05 01 E9 01 02 9C EB AA	
	Return	55 04 E9 33 01 76 EB AA	
FPA Temperature Query	Receive	AA 04 01 C3 00 72 EB AA	X2 is high bit, X1 low bit, and X3 the parity bit. The returned data divided by 100 is the FPA temperature (°C). For example: X1=0xD9, X2=0x09, and FPA temperature = 0x09D9 / 100 = 25.21°C
	Return	55 05 C3 33 X1 X2 X3 EB AA	
Save Settings	Receive	AA 04 01 7F 02 30 EB AA	
	Return	55 04 7F 33 01 0C EB AA	
Restoration to Factory Defaults	Receive	Reset public parameters: AA 05 01 82 02 00 34 EB AA	
	Return	55 04 82 33 01 0F EB AA	
Halo Calibration Algorithm	Receive	Clear: AA 05 01 A1 01 02 54 EB AA Get: AA 05 01 A1 01 00 52 EB AA Save: AA 05 01 A1 01 01 53 EB AA	It solves image low-pass non-uniformity caused by the uneven distribution of shutter and substrate temperature and the radiation of lens cone and shell after the module works for a long time
	Return	Clear: 55 04 A1 33 01 2E EB AA Get: 55 04 A1 33 01 2E EB AA Save: 55 04 A1 33 01 2E EB AA	
Lens K Value Calibration	Receive	Get low temperature data: AA 0B 01 A0 01 0A E8 07 01 0B 0B 2D 95 EB AA Get high temperature data: AA 0B 01 A0 01 0B E8 07 01 0B 0B 2D 96 EB AA Calculate correction coefficient: AA 0B 01 A0 01 0C E8 07 01 0B 0B 2D 96 EB AA Save correction coefficient: AA 0B 01 A0 01 0D E8 07 01 0B 0B 2D 97 EB AA Reset correction coefficient: AA 0B 01 A0 01 0E E8 07 01 0B 0B 2D 98 EB AA	Send instructions in sequence. The startup time is affected.
	Return	55 04 A0 33 01 2D EB AA	
External	Receive	Self-synchronization: AA 06 01 A3 01	

Instruction Description		Module Instruction Reception	Remarks
Synchronization Mode Setting		00 1E 73 EB AA Internal synchronization: AA 06 01 A3 01 01 1E 74 EB AA External synchronization: AA 06 01 A3 01 02 1E 75 EB AA	
	Return	55 04 A3 33 01 30 EB AA	
Reading in External Synchronization Mode	Receive	Mode read: AA 05 01 A3 00 01 54 EB AA	X1 is the mode and X2 is the checksum
	Return	Mode return: 55 07 A3 33 X1 00 00 00 X2 EB AA	X1 is the frequency and X2 is the checksum
On/Off of Temporal Filtering	Receive	On: AA 08 01 0A 01 00 00 00 02 C0 EB AA Off: AA 08 01 0A 01 00 00 00 00 BE EB AA	
	Return	55 04 0A 33 01 97 EB AA	
High Light Protection	Receive	On: AA 08 01 08 01 01 B0 36 0A AD EB AA Off: AA 08 01 08 01 00 8B 06 58 A5 EB AA	X1 and X2 refer to the high light protection threshold (with the low bit followed by the high bit); X3 refers to the protection time; and X4 refers to the checksum (the recommended high light protection threshold is 14000 and the protection time is 10s)
	Return	55 04 08 33 01 95 EB AA	
Self-checking	Receive	AA 04 01 E6 00 95 EB AA	X1 indicates the self-checking result. 0F indicates that the result is normal, and B0 indicates the DDR self-checking. B1 stands for sensor self-checking; B2 stands for flash self-checking; B3 stands for warm-pass self-checking, and the rest is 0. X2 is the checksum.
	Return	55 04 E6 33 X1 X2 EB AA	
DDE Gear Setting	Receive	Gear 0: AA 05 01 19 01 00 CA EB AA Gear 1: AA 05 01 19 01 01 CB EB AA Gear 2: AA 05 01 19 01 02 CC EB AA Gear 3: AA 05 01 19 01 03 CD EB AA Gear 4: AA 05 01 19 01 04 CE EB AA Gear 5: AA 05 01 19 01 05 CF EB AA Gear 6: AA 05 01 19 01 06 D0 EB AA Gear 7: AA 05 01 19 01 07 D1 EB AA	The Gear 0 is DDE manual adjustment, and the Gear 1 is class0.
	Return	55 04 19 33 01 A6 EB AA	
BF (Spatial Filtering)	Receive	On: AA 05 01 1B 02 01 CE EB AA Off: AA 05 01 1B 02 00 CD EB AA	
	Return	55 04 1B 33 01 A8 EB AA	
Contrast	Receive	AA 05 01 22 01 X1 X2 EB AA	Set the contrast, with X1 as the

Instruction Description		Module Instruction Reception	Remarks
Adjustment	Return	55 04 22 33 01 AF EB AA	setting value and X2 as the checksum.
	Read	AA 04 01 22 00 D1 EB AA	Read the current contrast, with X1 as the setting value, and X2 as the checksum.
	Return	55 04 22 33 X1 X2 EB AA	
Brightness Adjustment	Receive	AA 05 01 23 01 X1 X2 EB AA	Set the brightness, with X1 as the setting value and X2 as the checksum.
	Return	55 04 23 33 01 B0 EB AA	
	Read	AA 04 01 23 00 D2 EB AA	Read the current brightness, with X1 and X2 as the setting values (with the low bit followed by the high bit), and X3 as the checksum.
	Return	55 05 23 33 X1 X2 X3 EB AA	
Digital Video Source	Receive	ORG: AA 05 01 5C 01 00 0D EB AA NUC: AA 05 01 5C 01 01 0E EB AA DRC: AA 05 01 5C 01 02 0F EB AA DNS: AA 05 01 5C 01 05 12 EB AA	ORG: 14-bit original data NUC: 14-bit data after non-uniformity correction DRC: 8-bit data after detail enhancement OSD: 8-bit data supporting zoom
	Return	55 04 5C 33 01 E9 EB AA	
Data Interface Setting	Receive	CMOS parallel 16 bits: AA 06 01 5D 02 02 00 12 EB AA CMOS parallel 8 bits: AA 06 01 5D 02 02 20 32 EB AA BT1120: AA 06 01 5D 02 05 00 15 EB AA Off: AA 06 01 5D 02 00 00 10 EB AA	
	Return	55 04 5D 33 01 EA EB AA	
Digital Zoom	Receive	1.0 ×: AA 0C 01 40 02 00 00 00 00 FF 04 FF 03 FE EB AA 1.1 ×: AA 0C 01 40 02 3A 00 2E 00 C4 04 D0 03 FC EB AA 1.2 ×: AA 0C 01 40 02 6A 00 55 00 94 04 A9 03 FC EB AA 1.3 ×: AA 0C 01 40 02 93 00 76 00 6B 04 88 03 FC EB AA 1.4 ×: AA 0C 01 40 02 B6 00 92 00 48 04 6C 03 FC EB AA 1.5 ×: AA 0C 01 40 02 D5 00 AA 00 29 04 54 03 FC EB AA 1.6 ×: AA 0C 01 40 02 F0 00 C0 00 0F 04 3F 03 FE EB AA 1.7 ×: AA 0C 01 40 02 07 01 D2 00 F7 03 2C 03 FC EB AA 1.8 ×: AA 0C 01 40 02 1C 01 E3 00 E2 03 1B 03 FC EB AA 1.9 ×: AA 0C 01 40 02 2F 01 F2 00 CF	Central zoom



Instruction Description	Module Instruction Reception	Remarks
	03 0C 03 FC EB AA 2.0 ×: AA 0C 01 40 02 40 01 00 01 BF 03 FF 02 FE EB AA 2.1 ×: AA 0C 01 40 02 4F 01 0C 01 AF 03 F2 02 FC EB AA 2.2 ×: AA 0C 01 40 02 5D 01 17 01 A1 03 E7 02 FC EB AA 2.3 ×: AA 0C 01 40 02 69 01 21 01 95 03 DD 02 FC EB AA 2.4 ×: AA 0C 01 40 02 75 01 2A 01 89 03 D4 02 FC EB AA 2.5 ×: AA 0C 01 40 02 80 01 33 01 7F 03 CB 02 FD EB AA 2.6 ×: AA 0C 01 40 02 89 01 3B 01 75 03 C3 02 FC EB AA 2.7 ×: AA 0C 01 40 02 92 01 42 01 6C 03 BC 02 FC EB AA 2.8 ×: AA 0C 01 40 02 9B 01 49 01 63 03 B5 02 FC EB AA 2.9 ×: AA 0C 01 40 02 A3 01 4F 01 5B 03 AF 02 FC EB AA 3.0 ×: AA 0C 01 40 02 AA 01 55 01 54 03 A9 02 FC EB AA 3.1 ×: AA 0C 01 40 02 B1 01 5A 01 4D 03 A4 02 FC EB AA 3.2 ×: AA 0C 01 40 02 B8 01 60 01 47 03 9F 02 FE EB AA 3.3 ×: AA 0C 01 40 02 BE 01 64 01 40 03 9A 02 FC EB AA 3.4 ×: AA 0C 01 40 02 C3 01 69 01 3B 03 95 02 FC EB AA 3.5 ×: AA 0C 01 40 02 C9 01 6D 01 35 03 91 02 FC EB AA 3.6 ×: AA 0C 01 40 02 CE 01 71 01 30 03 8D 02 FC EB AA 3.7 ×: AA 0C 01 40 02 D3 01 75 01 2B 03 89 02 FC EB AA 3.8 ×: AA 0C 01 40 02 D7 01 79 01 27 03 85 02 FC EB AA 3.9 ×: AA 0C 01 40 02 DB 01 7C 01 23 03 82 02 FC EB AA 4.0 ×: AA 0C 01 40 02 E0 01 80 01 1F 03 7F 02 FE EB AA 4.1 ×: AA 0C 01 40 02 E3 01 83 01 1B 03 7B 02 FC EB AA 4.2 ×: AA 0C 01 40 02 E7 01 86 01 17 03 78 02 FC EB AA 4.3 ×: AA 0C 01 40 02 EB 01 88 01 13 03 76 02 FC EB AA	

Instruction Description	Module Instruction Reception	Remarks
	<p>4.4 ×: AA 0C 01 40 02 EE 01 8B 01 10 03 73 02 FC EB AA</p> <p>4.5 ×: AA 0C 01 40 02 F1 01 8E 01 0D 03 70 02 FC EB AA</p> <p>4.6 ×: AA 0C 01 40 02 F4 01 90 01 0A 03 6E 02 FC EB AA</p> <p>4.7 ×: AA 0C 01 40 02 F7 01 93 01 07 03 6B 02 FC EB AA</p> <p>4.8 ×: AA 0C 01 40 02 FA 01 95 01 04 03 69 02 FC EB AA</p> <p>4.9 ×: AA 0C 01 40 02 FD 01 97 01 01 03 67 02 FC EB AA</p> <p>5.0 ×: AA 0C 01 40 02 00 02 99 01 FF 02 65 02 FD EB AA</p> <p>5.1 ×: AA 0C 01 40 02 02 02 9B 01 FC 02 63 02 FC EB AA</p> <p>5.2 ×: AA 0C 01 40 02 04 02 9D 01 FA 02 61 02 FC EB AA</p> <p>5.3 ×: AA 0C 01 40 02 07 02 9F 01 F7 02 5F 02 FC EB AA</p> <p>5.4 ×: AA 0C 01 40 02 09 02 A1 01 F5 02 5D 02 FC EB AA</p> <p>5.5 ×: AA 0C 01 40 02 0B 02 A2 01 F3 02 5C 02 FC EB AA</p> <p>5.6 ×: AA 0C 01 40 02 0D 02 A4 01 F1 02 5A 02 FC EB AA</p> <p>5.7 ×: AA 0C 01 40 02 0F 02 A6 01 EF 02 58 02 FC EB AA</p> <p>5.8 ×: AA 0C 01 40 02 11 02 A7 01 ED 02 57 02 FC EB AA</p> <p>5.9 ×: AA 0C 01 40 02 13 02 A9 01 EB 02 55 02 FC EB AA</p> <p>6.0 ×: AA 0C 01 40 02 15 02 AA 01 E9 02 54 02 FC EB AA</p> <p>6.1 ×: AA 0C 01 40 02 17 02 AC 01 E7 02 52 02 FC EB AA</p> <p>6.2 ×: AA 0C 01 40 02 18 02 AD 01 E6 02 51 02 FC EB AA</p> <p>6.3 ×: AA 0C 01 40 02 1A 02 AE 01 E4 02 50 02 FC EB AA</p> <p>6.4 ×: AA 0C 01 40 02 1C 02 B0 01 E3 02 4F 02 FE EB AA</p> <p>6.5 ×: AA 0C 01 40 02 1D 02 B1 01 E1 02 4D 02 FC EB AA</p> <p>6.6 ×: AA 0C 01 40 02 1F 02 B2 01 DF 02 4C 02 FC EB AA</p> <p>6.7 ×: AA 0C 01 40 02 20 02 B3 01 DE 02 4B 02 FC EB AA</p> <p>6.8 ×: AA 0C 01 40 02 21 02 B4 01 DD</p>	

Instruction Description		Module Instruction Reception	Remarks
		02 4A 02 FC EB AA 6.9 ×: AA 0C 01 40 02 23 02 B5 01 DB 02 49 02 FC EB AA 7.0 ×: AA 0C 01 40 02 24 02 B6 01 DA 02 48 02 FC EB AA 7.1 ×: AA 0C 01 40 02 25 02 B7 01 D9 02 47 02 FC EB AA 7.2 ×: AA 0C 01 40 02 27 02 B8 01 D7 02 46 02 FC EB AA 7.3 ×: AA 0C 01 40 02 28 02 B9 01 D6 02 45 02 FC EB AA 7.4 ×: AA 0C 01 40 02 29 02 BA 01 D5 02 44 02 FC EB AA 7.5 ×: AA 0C 01 40 02 2A 02 BB 01 D4 02 43 02 FC EB AA 7.6 ×: AA 0C 01 40 02 2B 02 BC 01 D3 02 42 02 FC EB AA 7.7 ×: AA 0C 01 40 02 2C 02 BD 01 D2 02 41 02 FC EB AA 7.8 ×: AA 0C 01 40 02 2D 02 BE 01 D1 02 40 02 FC EB AA 7.9 ×: AA 0C 01 40 02 2E 02 BF 01 D0 02 3F 02 FC EB AA 8.0 ×: AA 0C 01 40 02 30 02 C0 01 CF 02 3F 02 FE EB AA	
	Return	55 04 40 33 01 CD EB AA	
Cross Cursor	Receive	On: AA 05 01 43 02 80 75 EB AA Off: AA 05 01 43 02 00 F5 EB AA	
	Return	55 04 43 33 01 D0 EB AA	
Cross Cursor Position	Receive	Set position: AA 09 01 44 02 05 X1 X2 X3 X4 X5 EB AA Move up: AA 09 01 44 02 06 00 00 00 00 00 EB AA Move down: AA 09 01 44 02 07 00 00 00 00 01 EB AA Move left: AA 09 01 44 02 08 00 00 00 00 02 EB AA Move right: AA 09 01 44 02 09 00 00 00 00 03 EB AA	X1, X2, X3, and X4 refer to location information, and X5 is checksum.
	Return	55 04 44 33 01 D1 EB AA	
	Read	AA 04 01 44 00 F3 EB AA	
	Return	55 07 44 33 X1 X2 X3 X4 X5 EB AA	
Polarity Switching	Receive	White-hot: AA 05 01 42 02 00 F4 EB AA	

Instruction Description		Module Instruction Reception	Remarks
		Black-hot: AA 05 01 42 02 01 F5 EB AA Rainbow: AA 05 01 42 02 02 F6 EB AA High-contrast rainbow: AA 05 01 42 02 03 F7 EB AA Iron red: AA 05 01 42 02 04 F8 EB AA Lava: AA 05 01 42 02 05 F9 EB AA Sky: AA 05 01 42 02 06 FA EB AA Medium gray: AA 05 01 42 02 07 FB EB AA Gray red: AA 05 01 42 02 08 FC EB AA Purple orange: AA 05 01 42 02 09 FD EB AA Special: AA 05 01 42 02 0A FE EB AA Warning red: AA 05 01 42 02 0B FF EB AA Ice and fire: AA 05 01 42 02 0C 00 EB AA Cyan red: AA 05 01 42 02 0D 01 EB AA Special II: AA 05 01 42 02 0E 02 EB AA Gradient red: AA 05 01 42 02 0F 03 EB AA Gradient green: AA 05 01 42 02 10 04 EB AA Gradient blue: AA 05 01 42 02 11 05 EB AA Warning green: AA 05 01 42 02 12 06 EB AA Warning blue: AA 05 01 42 02 13 07 EB AA	
	Return	55 04 42 33 01 CF EB AA	
Image Flip	Receive	Not flip: AA 05 01 4C 01 01 FE EB AA Horizontal flip: AA 05 01 4C 01 02 FF EB AA Vertical flip: AA 05 01 4C 01 04 01 EB AA Diagonal flip: AA 05 01 4C 01 08 05 EB AA	
	Return	55 04 4C 33 01 D9 EB AA	
DETE SN	Receive	Read: AA 04 01 6F 00 1E EB AA	The returned DETE SN code is ASCII in decimal. 00 is returned if the number of bits is insufficient. Xn+1 is the checksum.
	Return	55 43 6F 33 X1 X2 X3 X4 X5 X6 ..... Xn (n=0x40) Xn+1 EB AA	
CORE PN	Receive	Read: AA 04 01 70 00 1F EB AA	The returned CORE PN code is ASCII in decimal. 00 is returned if the number of bits is insufficient.
	Return	55 43 70 33 X1 X2 X3 X4 X5 X6 .....	

Instruction Description		Module Instruction Reception	Remarks
		Xn (n=0x40)... Xn+1 EB AA	Xn+1 is the checksum.
CORE SN	Receive	Read: AA 04 01 71 00 20 EB AA	The returned CORE SN code is ASCII in decimal. 00 is returned if the number of bits is insufficient. Xn+1 is the checksum.
	Return	55 43 71 33 X1 X2 X3 X4 X5 X6 ..... Xn (n=0x40) Xn+1 EB AA	
Read Boot Time	Receive	AA 04 01 79 00 28 EB AA	X1-X4 is the return value (X4 is the highest bit, and X1 is the lowest bit), with a unit of ms. X5 is the checksum.
	Return	55 07 79 33 X1 X2 X3 X4 X5 EB AA	
On/Off of Defective Pixel Cursor	Receive	On: AA 05 01 43 02 C1 B6 EB AA Off: AA 05 01 43 02 40 35 EB AA	
	Return	55 04 43 33 01 D0 EB AA	
Defective Pixel Cursor Movement	Receive	Move up: AA 05 01 44 02 01 F7 EB AA Move down: AA 05 01 44 02 02 F8 EB AA Move left: AA 05 01 44 02 03 F9 EB AA Move right: AA 05 01 44 02 04 FA EB AA Center: AA 05 01 44 02 00 F6 EB AA	
	Return	55 04 44 33 01 D1 EB AA	
Defective Pixel Scan	Receive	AA 04 01 93 02 44 EB AA	Defective pixel automatic detection (single shot)
	Return	55 04 93 33 01 20 EB AA	
Defective Pixel Add	Receive	AA 05 01 90 01 01 42 EB AA	Add to defective pixel table
	Return	55 04 90 33 01 1D EB AA	
Defective Pixel Save	Receive	AA 04 01 91 02 42 EB AA	Save defective pixel
	Return	55 04 91 33 01 1E EB AA	
Defective Pixel Automatic Calibration	Receive	AA 09 01 9F 02 01 08 00 14 00 72 EB AA	Defective pixel automatic detection (20 times) X1 is the number of the defective pixel and X2 is the checksum.
	Return	55 07 9F 33 X1 00 00 00 X2 EB AA 55 04 9F 33 01 2C EB AA	
Array Mean Reading	Receive	AA 04 01 C4 00 73 EB AA	X2 is the high bit of the read value, X1 is the low bit of the read value, and X3 is the checksum.
	Return	55 07 C4 33 X1 X2 00 00 X3 EB AA	
Focusing Motor Rotation Direction	Receive	Reverse: AA 05 08 20 01 01 D9 EB AA Not reverse: AA 05 08 20 01 00 D8 EB AA	

Instruction Description		Module Instruction Reception	Remarks
	Return	Success: 55 05 08 20 33 01 B6 EB AA Failure: 55 05 08 20 33 00 B5 EB AA	
Focusing Motor Drive	Receive	Close range: AA 06 08 21 01 <b>01 00</b> DB EB AA Close-range fine-tuning: AA 06 08 21 01 <b>01 01</b> DC EB AA Vision: AA 06 08 21 01 <b>02 00</b> DC EB AA Vision fine-tuning: AA 06 08 21 01 <b>02 01</b> DD EB AA	
	Return	Success: 55 05 08 21 33 <b>01</b> B7 EB AA Failure: 55 05 08 21 33 <b>00</b> B6 EB AA	
Focusing Motor Stopping	Receive	AA 05 08 22 01 <b>00</b> DA EB AA	
	Return	55 05 08 22 33 <b>01</b> B8 EB AA	
Get the Current Position of the Focusing Motor	Receive	AA 05 08 23 00 <b>00</b> DA EB AA	The return value is the current position, marked with two bytes, with the low byte first.
	Return	55 06 08 23 33 <b>01 00</b> BA EB AA	
Set Focusing Motor Speed	Receive	AA 05 08 24 01 <b>0A</b> E6 EB AA	Speed value (0~0x20)
	Return	55 05 08 24 33 <b>01</b> BA EB AA	
Set the Fine Tuning Step Size of the Focusing Motor	Receive	AA 05 08 26 01 XX YY EB AA	XX indicates the set value, and YY indicates the sum check.
	Return	55 05 08 26 33 01 BC EB AA	
Get Focusing Motor Stroke	Receive	AA 05 08 25 00 <b>00</b> DC EB AA	Low 8 bits of the minimum position, byte 1: high 8 bits of the minimum position, byte 2: low 8 bits of the maximum position, byte 3: low 8 bits of the minimum position.
	Return	55 08 08 25 33 <b>00 00 00 00</b> BD EB AA	
Tunning Motor Rotation Direction	Receive	Reverse: AA 05 08 30 01 01 E9 EB AA Not reverse: AA 05 08 30 01 00 E8 EB AA	
	Return	Success: 55 05 08 30 33 <b>01</b> C6 EB AA Failure: 55 05 08 30 33 <b>00</b> C5 EB AA	
Tunning Motor Drive	Receive	Short focus: AA 06 08 31 01 <b>01 00</b> EB EB AA Short focus fine tuning: AA 06 08 31 01 <b>01 01</b> EC EB AA Telephoto: AA 06 08 31 01 <b>02 00</b> EC EB AA Telephoto fine tuning: AA 06 08 31 01 <b>02 01</b> ED EB AA	
	Return	Success: 55 05 08 31 33 <b>01</b> C7 EB AA	

Instruction Description		Module Instruction Reception	Remarks
		Failure: 55 05 08 31 33 <b>00</b> C6 EB AA	
Tunning Motor Stopping	Receive	AA 05 08 32 01 00 EA EB AA	
	Return	55 05 08 32 33 <b>01</b> C8 EB AA	
Get the Current Position of the Tunning Motor	Receive	AA 05 08 33 00 <b>00</b> EA EB AA	The return value is the current position, marked with two bytes, with the low byte first.
	Return	55 06 08 33 33 <b>01 00</b> CA EB AA	
Set Tuning Motor Speed	Receive	AA 05 08 34 01 <b>0A</b> F6 EB AA	Speed value (0~0x20)
	Return	55 05 08 34 33 <b>01</b> CA EB AA	
Set the Fine Tunning Step Size of the Tunning Motor	Receive	AA 05 08 36 01 XX YY EB AA	XX indicates the set value, and YY indicates the sum check.
	Return	55 05 08 36 33 01 CC EB AA	
Get Focusing Motor Stroke	Receive	AA 05 08 35 00 <b>00</b> EC EB AA	Low 8 bits of the minimum position, byte 1: high 8 bits of the minimum position, byte 2: low 8 bits of the maximum position, byte 3: low 8 bits of the minimum position.
	Return	55 08 08 35 33 <b>00 00 00 00</b> CD EB AA	
Preset Writing	Receive	AA 06 08 83 01 <b>00 00</b> 3C EB AA	Command parameter 0: 00 tuning motor, 01 focus motor; command parameter 1: preset point group 0-9; In the example, the 0th group of preset points of the tuning motor is set; up to 10 groups of presets are supported. The specific operation method is: first run the corresponding motor to the specified position, and then send the instruction.
	Return	Success: 55 05 08 83 33 <b>01</b> 19 EB AA Failure: 55 05 08 83 33 <b>00</b> 18 EB AA	
Preset Reading	Receive	AA 06 08 83 00 <b>00 00</b> 3B EB AA	Command parameter 0: 00 tuning motor 01 focusing motor; parameter 1: preset point group 0-9; return value low byte first, high byte last. The example is 0x0E9B
	Return	55 06 08 83 33 <b>9B 0E</b> C2 EB AA	
Preset Calling	Receive	AA 06 08 87 01 <b>00 00</b> 40 EB AA	Command parameter 0: 00 tuning motor, 01 focusing motor; parameter 1: preset point group 0-9; return parameter 0: 00-failure, 01-success.
	Return	Success: 55 05 08 87 33 <b>01</b> 1D EB AA Failure: 55 05 08 87 33 <b>00</b> 1C EB AA	