

1. Serial Port Settings

- Baud Rate: 115200
- Parity: None

2. Servo Platform -> Tracker

1) Image Control

No.	Name	Range Value	Command Description
0	Sync Code	0x7e	
1		0x7e	
2	Function Code	0x00	Image Control
3	Image Display Mode	0x00: Keep previous state 0x01: Visible light 0x02: Infrared 0x03: Large visible + small infrared 0x04: Large infrared + small visible	
4	Infrared Display Mode	0x00: Default (Keep previous state) 0x01: White hot 0x02: Black hot	External infrared, pass through this module's protocol (e.g., IRay)
5	Infrared Zoom	Electronic zoom: 0x01: X1 0x02: X2 0x03: X3 0x04: X4	
6	Visible Light Zoom	Electronic zoom: 0x01: X1 0x02: X2 0x03: X3 0x04: X4 0x05: X5	Sony optical zoom, pass through VISCA protocol, do not use this command
7-15	Reserved	0x00	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

2) Tracking and Recognition Functions

No.	Name	Range Value	Command Description
0	Sync Code	0x7e	
1		0x7e	
2	Function Code	0x01	Tracking and Recognition
3	Command Mode	0x00: Exit tracking mode (crosshair hidden) 0x01: Point tracking 0x02: Track crosshair position 0x03: Move crosshair 0x04: Start recognition 0x05: Recognition to tracking (only effective when recognition is on) 0x06: Stop recognition Default on power-on: 0x00 Exit tracking mode	
4	Coordinate X	int16: low 8 bits,	for point tracking, represents the target center, top-left as (0,0); for crosshair movement, represents the number of pixels moved, positive: right/down, negative: left/up
5		int16: high 8 bits	
6	Coordinate Y	int16: low 8 bits	
7		int16: high 8 bits	
8	Tracking Gate Size	0x01-0x05, five models, small to large	
9	Recognition Model Selection	0x00: Default (Keep previous state) 0x01: Human 0x02: Vehicle 0xff: All open, Human + Vehicle	Effective only in "Start Recognition" and "Recognition to Tracking". Default on power-on: Recognize Human + Vehicle
10	Tracking Target Selection	0x01: Target 1 (highest confidence) 0x02: Target 2 (second highest confidence)	Effective only in "Recognition to Tracking"
11	Return Target Position Mode	0x00: Image coordinate system, top-left (0,0) 0x01: Deviation, image center (0,0)	
12	Tracking Information Return Mode	0x00: Return only when tracking is on, return one frame when tracking is off 0x01: Always return tracking status regardless of whether tracking is on	
13	Mode Information Return Mode	0x00: Return only when recognition is on, return one frame when recognition is off 0x01: Always return recognition status regardless of whether recognition is on	
14-15	Reserved	0x00	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

3) SD Card Storage Functions

No.	Name	Range Value	Command Description
0	Sync Code	0x7e	
1		0x7e	
2	Function Code	0x02	SD Card Storage
3	Command Mode	0x01: Format SD card 0x02: Start recording 0x03: Stop recording 0x04: Main screen snapshot (display saved as image) 0x05: Infrared snapshot (infrared source image saved)	
4-15	Reserved	0x00	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

4) OSD Display Control

No.	Name	Range Value	Command Description
0	Sync Code	0x7e	
1		0x7e	
2	Function Code	0x03	OSD Display Control
3	Save Current Display State	0x01	
4	SD Card State	0x00: Hidden 0x01: Display	all open by default
5	Center Crosshair		
6	Attitude Angle		
7	Deviation		
8	GPS		
9	Date		
10	Time		
11	Zoom Level		
12	GPS Display Mode	0x00: Degrees, minutes, seconds 0x01: Decimal,	default is degrees, minutes, seconds
13	Version Number	0x01: Display for 30s	
14-15	Reserved	0x00	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

5) Time Synchronization Function

No.	Name	Range Value	Command Description
0	Sync Code	0x7e	
1		0x7e	
2	Function Code	0x04	Time Synchronization
3-4	Year	U16	low byte first
5	Month	U8	

6	Day	U8	
7	Hour	U8	
8	Minute	U8	
9	Second	U8	
10-15	Reserved	0x00	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

6) Attitude Angle Refresh

No.	Name	Range Value	Command Description
1	Sync Code	0x7e	
2		0x7e	
3	Function Code	0x05	Attitude Angle Refresh
4-7	Heading Angle	Float	low byte first
8-11	Pitch Angle	Float	
12-15	Roll Angle	Float	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

7) GPS Refresh

No.	Name	Range Value	Command Description
1	Sync Code	0x7e	
2		0x7e	
3	Function Code	0x06	GPS Refresh
4-7	GPS X	Float,	low byte first
8-11	GPS Y	Float	
12-15	GPS Z	Float	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5a	

3. Tracker -> Servo Platform

1) Return Tracking Status

No.	Name	Range Value	Command Description
0	Sync Code	0x7f	
1		0x7f	
2	Return Status Code	0x00	Return Tracking Status
3	Tracking Status	0x00: Tracking 0x11: Target temporarily lost (1s anti-lost capability) 0x22: Exit tracking	
4	Tracking Signal Source	0x01: Visible light 0x02: Infrared	
5	Tracking Target Center X	int16: low 8 bits	Target position in two modes: 1. Image coordinate system, top-left (0,0) 2. Deviation, image center (0,0) (related to "Return Target Position Mode Setting")
6		int16: high 8 bits	
7	Tracking Target Center Y	int16: low 8 bits	
8		int16: high 8 bits	
9	Tracking Target Width	int16: low 8 bits	
10		int16: high 8 bits	
11	Tracking Target Height	int16: low 8 bits	
12		int16: high 8 bits	
13	Accumulated Frame Number	0-255 cycle	
14-15	Reserved	0x00	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5e	

2) Return Recognition Status (Only returns detailed information of the top two targets with the highest confidence)

No.	Name	Range Value	Command Description
0	Sync Code	0x7f	
1		0x7f	
2	Return Status Code	0x01	Return Recognition Status
3	Recognition Status	0x00: Recognition off 0x11: Recognition on	
4	Recognition Signal Source	0x01: Visible light 0x02: Infrared	

5	Number of Recognized Targets	uint8: 0-20	
6	Confidence of Target 1	uint8: 0-100	
7	Target 1 Center X	int16: low 8 bits	Target position in two modes: 1. Image coordinate system, top-left (0,0) 2. Deviation, image center (0,0) (related to "Return Target Position Mode Setting")
8		int16: high 8 bits	
9	Target 1 Center Y	int16: low 8 bits	
10		int16: high 8 bits	
11	Confidence of Target 2	uint8: 0-100	
12	Target 2 Center X	int16: low 8 bits	Target position in two modes: 1. Image coordinate system, top-left (0,0) 2. Deviation, image center (0,0) (related to "Return Target Position Mode Setting")
13		int16: high 8 bits	
14	Target 2 Center Y	int16: low 8 bits	
15		int16: high 8 bits	
16	Checksum	Sum of bytes from No. 2-15, then take the lower 8 bits	
17	Frame Tail	0x5e	