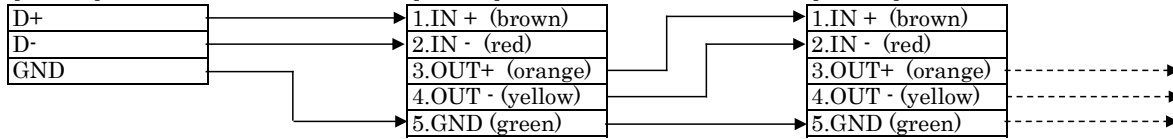


RS-485 Communication Protocol for PTC-400HD

Ver0.50 2015/12/14

1. Connection

External Control
[RS-485]



2. UART Protocol

Transmission mode	Asynchronous half duplex
Baud rate:	9600
Start bit:	1
Data bit:	8
Parity:	None
Stop bit:	1

3. Command Packet

Every command is composed of six bytes; the packet format is described as below..

Byte 1	Byte 2	Byte 3	Byte 4	Byte5	Byte 6
Receiver ID	Transmitter ID	OP Code	Data 0	Data 1	Check Sum

The first byte is the Receiver or 'Destination' device ID.

The second byte is the Transmitter or 'Source' device ID.

The third byte is the OP code or 'command' byte.

The fourth and fifth bytes are the data byte.

The sixth byte is the check sum of this command packet.

Checksum = Byte1 XOR Byte2 XOR Byte3 XOR Byte4 XOR Byte5

(XOR= exclusive or)

4. Settings the ID-address & the Terminating Resistance

OSD(On Screen Display) MENU

<MAIN CONTROL>

RS-485 ID	1~223 (Factory Settings:1)	[ID-address]
RS-485 END	ON/OFF (Factory Settings:OFF)	[Terminating Resistance]

COMMAND LIST

CommandSet	Command	Packet	Packet Reply	Comments
Zoom	Stop	ID 00 24 04 00 cs	00 ID 24 04 00 cs	pq:Speed parameter 00h(Slow) to 02h(Fast), 3 steps pq:Speed parameter 00h(Slow) to 02h(Fast), 3 steps pq:High Address rs:Low Address (W-0000 T-B980) pq:High Address rs:Low Address (W-0000 T-B980) not used not used
	Tele	ID 00 24 01 00 cs	00 ID 24 01 00 cs	
	Wide	ID 00 24 00 00 cs	00 ID 24 00 00 cs	
	Speed	ID 00 24 03 pq cs	00 ID 24 03 pq cs	
	Speed(Request)	ID 00 24 05 00 cs	00 ID 24 05 pq cs	
	Lens Position	ID 00 27 pq rs cs	00 ID 27 pq rs cs	
	Lens Position(Request)	ID 00 20 01 00 cs	00 ID 20 pq rs cs	
	Electronic Position	ID 00 29 00 pq cs	00 ID 29 00 pq cs	
	Electronic Position(Request)	ID 00 21 01 00 cs	00 ID 21 01 pq cs	
Focus	Stop	ID 00 25 04 00 cs	00 ID 25 04 00 cs	pq:Speed parameter 00h(Slow) 01h(Fast), 2 steps pq:Speed parameter 00h(Slow) 01h(Fast), 2 steps pq:Speed parameter 00h(Slow) 01h(Fast), 2 steps pq:Speed parameter 00h(Slow) 01h(Fast), 2 steps Toggle
	Far	ID 00 25 06 pq cs	00 ID 25 06 pq cs	
	Near	ID 00 25 05 pq cs	00 ID 25 05 pq cs	
	Auto	ID 00 26 03 00 cs	00 ID 26 03 00 cs	
	*1 Far(Manual)	ID 00 25 01 pq cs	00 ID 25 01 pq cs	
	*1 Near(Manual)	ID 00 25 00 pq cs	00 ID 25 00 pq cs	
	*1 Auto / Manual	ID 00 26 00 00 cs	00 ID 26 00 00 cs	
Iris	Close	ID 00 23 03 00 cs	00 ID 23 03 00 cs	
	Open	ID 00 23 02 00 cs	00 ID 23 02 00 cs	
	Normal(standard)	ID 00 23 04 00 cs	00 ID 23 04 00 cs	
Pan-tiltDrive (Manual)	Right	ID 00 18 00 pq cs	00 ID 18 00 pq cs	pq:Speed parameter 01h(Slow)to 07h(Fast), 7 steps 10h(Auto Speed)
	Left	ID 00 18 01 pq cs	00 ID 18 01 pq cs	
	Pan Stop	ID 00 13 00 00 cs	00 ID 13 00 00 cs	
	Up	ID 00 18 02 pq cs	00 ID 18 02 pq cs	
	Down	ID 00 18 03 pq cs	00 ID 18 03 pq cs	
	Tilt Stop	ID 00 14 00 00 cs	00 ID 14 00 00 cs	
Pan-tiltDrive (Step)	Right	ID 00 4E 00 pq cs	00 ID 4E 00 pq cs	pq:Degree parameter 01h~0Fh 15 steps 1step=1.11°
	Left	ID 00 4E 01 pq cs	00 ID 4E 01 pq cs	
	Up	ID 00 4E 02 pq cs	00 ID 4E 02 pq cs	
	Down	ID 00 4E 03 pq cs	00 ID 4E 03 pq cs	
Pan-tiltDrive (Absolute)	Pan	ID 00 07 pq rs cs	00 ID 07 pq rs cs	pq:High Address rs:Low Address (Absolute Position) 6Ah = 1°, 9510h=360° 0212h(-175°) ~ 4A88h(0°)~92FEh(175°) Dome-off:1F0Dh(-15°) ~2544h(0°) 7603h(195°) Dome-on:2544h(0°) ~ 6FCDh(180°)
	Tilt	ID 00 08 pq rs cs	00 ID 08 pq rs cs	
	Pan(Request)	ID 00 09 00 00 cs	00 ID 09 pq rs cs	
	Tilt(Request)	ID 00 0A 00 00 cs	00 ID 0A pq rs cs	
Preset	Go to Preset N	ID 00 11 pq rs cs	00 ID 11 pq rs cs	pq: 00h,03h:Go to Preset rs: Preset number 00h(Position1) to 0Fh(Position16) 16Position Home/OSD Both Reset Origin
	Memory N	ID 00 1D pq rs cs	00 ID 1D pq rs cs	
	Home/OSD	ID 00 49 02 00 cs	00 ID 49 02 00 cs	
	Reset	ID 00 15 AA 55 cs	00 ID 15 AA 55 cs	
OSD Control	Up	ID 00 28 00 00 cs	00 ID 28 00 00 cs	Up key push Down key push Left key push Right key push key pull MENU key push
	Down	ID 00 28 01 00 cs	00 ID 28 01 00 cs	
	Left	ID 00 28 02 00 cs	00 ID 28 02 00 cs	
	Right	ID 00 28 03 00 cs	00 ID 28 03 00 cs	
	Stop	ID 00 28 FF 00 cs	00 ID 28 FF 00 cs	
	MENU	ID 00 28 04 00 cs	00 ID 28 04 00 cs	
System Device	(Request)	ID 00 00 00 00 cs	00 ID 00 pq rs cs	pq:00h=Camera,01h=Multiplexer rs=60h:PTC-400C
Communication	Acknowledge	ID 00 84 pq 00 cs	00 ID 84 pq 00 cs	pq: 00h:Enable, 01h:Disable
Device Capability	(Request)	ID 00 4A 00 00 cs	00 ID 4A pq 00 cs	pq:bit0=Cruise(1:supported),bit1=Pan/Tilt(0:supported) bit2=Zoom(0:supported), bit3=OSDmenu(0:supported) bit4=DeviceLock(1:supported),bit5=Home(1:supported) bit6=0,bit7=0 PTC-400C=30h(defalut)
Camera Status	(Request)	ID 00 01 00 00 cs	00 ID 01 60 pq cs	pq: bit0=OSDmenu(0:off,1:on), bit1=AF(0:manu,1:auto) bit2=OSDoperation(0:pan/tilt,1:OSDoperation)
Camera Version	(Request)	ID 00 02 00 00 cs	00 ID 02 pq rs cs	pq:elmo FW Major version rs:elmo FW Minor version
Camera Version	(Request)	ID 00 02 00 01 cs	00 ID 02 pq rs cs	pqrs:elmo FW revision number
MAIN CPU Version	(Request)	ID 00 02 01 00 cs	00 ID 02 pq rs cs	pqrs:Version (0300=ver3.00)
MAIN FPGA Version	(Request)	ID 00 02 02 00 cs	00 ID 02 pq rs cs	pqrs:Version (0300=ver3.00)

*1 = Private Command

cs=Checksum(Byte1~5:XOR)