

Camera control command list

VISCA

Instruction format

| Command | Format | Reply | Comments |
|------------------------|-------------------|----------------------|---|
| Control Command | 8x 01 04 38 02 FF | y0 41 FF y0 51 FF | Returns ACK when a command has been accepted, and Completion when a command has been executed |
| Inquiry Command | 8x 09 04 38 FF | y0 50 02 FF | ACK is not returned for the inquiry command |

x: device address

y: device address +8

Reply

| Type | Format | Comments |
|-------------------|-------------|---|
| ACK | Z0 4y FF | Returned when the command is accepted |
| Completion | Z0 5y FF | |
| Error | Z0 60 02 FF | Returned when the command format is different or when a command with illegal command parameters is accepted |

Z= device address +8

control command:

| Type | Function | Command Packet | Comments |
|----------------|------------------|----------------------------|--------------------|
| Address | Address Set | 88 30 0p FF | p: device address |
| | Address Clear | 88 01 00 01 FF | |
| CAM_Power | On | 8x 01 04 00 02 FF | |
| | Off | 8x 01 04 00 03 FF | |
| CAM_Initialize | Lens | 8x 01 04 19 01 FF | |
| CAM_Zoom | Stop | 8x 01 04 07 00 FF | |
| | Tele(Standard) | 8x 01 04 07 02 FF | |
| | Wide(standard) | 8x 01 04 07 03 FF | |
| | Tele(Variable) | 8x 01 04 07 2p FF | P=0(Low)~7(High) |
| | Tele(Variable) | 8x 01 04 07 3p FF | |
| | Direct | 8x 01 04 47 0p 0q 0r 0s FF | pqrs:Zoom Position |
| CAM_DZoom | On | 8x 01 04 06 02 FF | |
| | Off | 8x 01 04 06 03 FF | |
| CAM_Focus | Auto Focus | 8x 01 04 38 02 FF | |
| | Manual Focus | 8x 01 04 38 03 FF | |
| | Stop | 8x 01 04 08 00 FF | |

| | | | |
|----------------|------------------|----------------------------|--------------------------|
| | Far(Standard) | 8x 01 04 08 02 FF | |
| | Near(Standard) | 8x 01 04 08 03 FF | |
| | Far(Variable) | 8x 01 04 08 2p FF | P=0(Low)~7(High) |
| | Near(Variable) | 8x 01 04 08 3p FF | |
| | Direct | 8x 01 04 48 0p 0q 0r 0s FF | pqrs:Focus Position |
| AF Sensitivity | Normal | 8x 01 04 58 02 FF | |
| | Low | 8x 01 04 58 03 FF | |
| CAM_WB | Auto | 8x 01 04 35 00 FF | |
| | Indoor | 8x 01 04 35 01 FF | |
| | Outdoor | 8x 01 04 35 02 FF | |
| | One Push WB | 8x 01 04 35 03 FF | |
| | ATW | 8x 01 04 35 04 FF | |
| | Manual | 8x 01 04 35 05 FF | |
| | One Push Trigger | 8x 01 04 10 05 FF | One Push WB Trigger |
| | | | |
| CAM_RGain | Reset | 8x 01 04 03 00 FF | Manual Control of R Gain |
| | Up | 8x 01 04 03 02 FF | |
| | Down | 8x 01 04 03 03 FF | |
| | Direct | 8x 01 04 43 00 00 0p 0q FF | pq:R Gain |
| CAM_BGain | Reset | 8x 01 04 04 00 FF | Manual Control of B Gain |
| | Up | 8x 01 04 04 02 FF | |
| | Down | 8x 01 04 04 03 FF | |
| | Direct | 8x 01 04 44 00 00 0p 0q FF | pq:B Gain |
| CAM_AE | Full Auto | 8x 01 04 39 00 FF | |
| | Manual | 8x 01 04 39 03 FF | |
| | Shutter Priority | 8x 01 04 39 0A FF | |
| | Iris Priority | 8x 01 04 39 0B FF | |
| | Bright | 8x 01 04 39 0D FF | |
| CAM_Shutter | Reset | 8x 01 04 0A 00 FF | |
| | Up | 8x 01 04 0A 02 FF | |
| | Down | 8x 01 04 0A 03 FF | |
| | Direct | 8x 01 04 4A 00 00 0p 0q FF | pq:Shutter Position |
| CAM_Iris | Reset | 8x 01 04 0B 00 FF | |
| | Up | 8x 01 04 0B 02 FF | |
| | Down | 8x 01 04 0B 03 FF | |
| | Direct | 8x 01 04 4b 00 00 0p 0q FF | pq:Iris Position |
| CAM_Gain | Reset | 8x 01 04 0C 00 FF | |
| | Up | 8x 01 04 0C 02 FF | |
| | Down | 8x 01 04 0C 03 FF | |
| | Direct | 8x 01 04 4C 00 00 0p 0q FF | pq:Gain Position |
| CAM_Bright | Reset | 8x 01 04 0D 00 FF | |
| | Up | 8x 01 04 0D 02 FF | |
| | Down | 8x 01 04 0D 03 FF | |
| | Direct | 8x 01 04 4D 00 00 0p 0q FF | pq: Bright Position |
| CAM_ExpComp | On | 8x 01 04 3E 02 FF | |

| | | | |
|--------------------|--------------------|--|--|
| | Off | 8x 01 04 3E 03 FF | |
| | Up | 8x 01 04 0E 02 FF | |
| | Down | 8x 01 04 0E 03 FF | |
| | Direct | 8x 01 04 4E 00 00 0p 0q FF | pq:ExpComp Position |
| CAM_Bcaklight | On | 8x 01 04 33 02 FF | |
| | Off | 8x 01 04 33 03 FF | |
| CAM_NR | 3D Noise Reduction | 8x 01 04 53 0p FF | p:0:off ,1:Auto,2~5:level |
| CAM_Aperture | Reset | 8x 01 04 02 00 FF | pq:Aperture Position |
| | Up | 8x 01 04 02 02 FF | |
| | Down | 8x 01 04 02 03 FF | |
| | Direct | 8x 01 04 42 00 00 0p 0q FF | |
| CAM_Gamma | Type | 8x 01 04 5B 0p FF | p:0~4 |
| | Offset | 8x 01 04 1E 00 00 00 0s 0t 0u FF | s:0 plus,1minus tu:00h~40h |
| CAM_ColorGain | Direct | 8x 01 04 49 00 00 00 0p FF | p:0h~Eh |
| CAM_ColorHue | Direct | 8x 01 04 4F 00 00 00 0p FF | P:0h~Eh |
| CAM_Defog | On | 8x 01 04 37 02 0p FF | p:0h~Fh |
| | Off | 8x 01 04 37 03 00 FF | |
| CAM_PictureFlip | On | 8x 01 04 66 02 FF | |
| | Off | 8x 01 04 66 03 FF | |
| CAM_LR_Reverse | On | 8x 01 04 61 02 FF | |
| | Off | 8x 01 04 61 03 FF | |
| CAM_Mute | On | 8x 01 04 75 02 FF | |
| | Off | 8x 01 04 75 03 FF | |
| CAM_Freeze | On | 8x 01 04 62 02 FF | |
| | Off | 8x 01 04 62 03 FF | |
| CAM_Display | On | 8x 01 04 15 02 FF | |
| | Off | 8x 01 04 15 03 FF | |
| CAM_Memory | Reset | 8x 01 04 3F 00 pq FF | pq:0h~7Fh |
| | Set | 8x 01 04 3F 01 pq FF | |
| | Recall | 8x 01 04 3F 02 pq FF | |
| CAM_Register Value | | 8x 01 04 24 mm 0p 0p FF | mm: Register NO.(00h~7fh) pp: Register Value(00h~ffh) |
| Pan_Tilt Driver | Up | 8x 01 06 01 vw ww 03 01 FF | vw:Pan Speed 01~18h |
| | Down | 8x 01 06 01 vw ww 03 02 FF | ww:Tilt Speed01~18h |
| | Left | 8x 01 06 01 vw ww 01 03 FF | yyyy:Pan Position |
| | Right | 8x 01 06 01 vw ww 02 03 FF | zzzz:Tilt Position |
| | Absolute Position | 8x 01 06 02 vw ww 0y 0y 0y 0y 0z 0z 0z 0z FF | |
| | Relative Position | 8x 01 06 03 vw ww 0y 0y 0y 0y 0z 0z 0z 0z FF | |
| | Home | 8x 01 06 04 FF | |
| | Reset | 8x 01 06 05 FF | |
| Menu | Open | 8x 01 06 06 02 FF | |
| | Exit | 8x 01 06 06 03 FF | |
| | Open/Back | 8x 01 06 06 10 FF | |
| | Enter | 81 01 7E 01 02 00 01 FF | |

| | | | |
|-----------------|------------|---|---------------------------|
| Display Battery | On | 8x 01 07 11 02 FF | |
| | Off | 8x 01 07 11 03 FF | |
| Pan Reverse | On | 8x 01 07 21 02 FF | |
| | Off | 8x 01 07 21 03 FF | |
| Tilt Reverse | On | 8x 01 07 22 02 FF | |
| | Off | 8x 01 07 22 03 FF | |
| DHCP | On | 8x 01 07 23 00 02 FF | |
| | Off | 8x 01 07 23 00 03 FF | |
| IP | IP Address | 8x 01 07 23 01 0p 0q 0r 0t 0u 0v 0w 0x FF | pq rt uv wx : IP Address/ |
| | Mask | 8x 01 07 23 02 0p 0q 0r 0t 0u 0v 0w 0x FF | Mask/Gateway |
| | Gateway | 8x 01 07 23 03 0p 0q 0r 0t 0u 0v 0w 0x FF | |

Inquiry Command

| Function | Command | Reply | Comments |
|---------------------|----------------|----------------------|-----------------------|
| CAM_PowerInq | 8x 09 04 00 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_ZoomPosInq | 8x 09 04 47 FF | y0 50 0p 0q 0r 0s FF | pqrs:Zoom Position |
| CAM_DZoomModelInq | 8x 09 04 06 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_FocusModelInq | 8x 09 04 38 FF | y0 50 02 FF | Auto Focus |
| | | y0 50 03 FF | Manual Focus |
| AF SensitivityInq | 8x 09 04 58 FF | y0 50 02 FF | AF Sensitivity Normal |
| | | y0 50 03 FF | AF Sensitivity Low |
| CAM_WBModelInq | 8x 09 04 35 FF | y0 50 00 FF | Auto |
| | | y0 50 01 FF | Indoor |
| | | y0 50 02 FF | Outdoor |
| | | y0 50 03 FF | One Push WB |
| | | y0 50 04 FF | ATW |
| | | y0 50 05 FF | Manual |
| CAM_RGainInq | 8x 09 04 43 FF | y0 50 00 00 0p 0q FF | pq: R Gain |
| CAM_BGainInq | 8x 09 04 44 FF | y0 50 00 00 0p 0q FF | pq:B Gain |
| CAM_AEModelInq | 8x 09 04 39 FF | y0 50 00 FF | Full Auto |
| | | y0 50 03 FF | Manual |
| | | y0 50 0A FF | Shutter Priority |
| | | y0 50 0B FF | Iris Priority |
| | | y0 50 0D FF | Bright |
| CAM_ShutterPosInq | 8x 09 04 4A FF | y0 50 00 00 0p 0q FF | pq:Shutter Position |
| CAM_IrisPosInq | 8x 09 04 4B FF | y0 50 00 00 0p 0q FF | pq:Iris Position |
| CAM_GainPosInq | 8x 09 04 4C FF | y0 50 00 00 0p 0q FF | pq:Gain Position |
| CAM_BrightPosInq | 8x 09 04 4D FF | y0 50 00 00 0p 0q FF | pq:Bright Position |
| CAM_ApertureInq | 8x 09 04 42 FF | y0 50 00 00 0p 0q FF | pq:Aperture Gain |
| CAM_ExpCompModelInq | 8x 09 04 3E FF | y0 50 02 FF | On |

| | | | |
|-------------------------|-------------------|----------------------------------|---|
| | | y0 50 03 FF | Off |
| CAM_ExpCompPosInq | 8x 09 04 4E FF | y0 50 00 00 0p 0q FF | pq:ExpComp Position |
| CAM_BackLightModelInq | 8x 09 04 33 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_GammaInq | 8x 09 04 5B FF | y0 50 0p FF | p:0~4 |
| CAM_GammaOffsetInq | 8x 09 04 1E FF | y0 50 00 00 00 0s 0t 0u FF | s:0 plus,1minus tu:00h~40h |
| CAM_ColorGainInq | 8x 09 04 49 FF | y0 50 00 00 00 0p FF | p:0h~Eh |
| CAM_ColorHueInq | 8x 09 04 4F FF | y0 50 00 00 00 0p FF | P:0h~Eh |
| CAM_NRInq | 8x 09 04 53 FF | y0 50 0p FF | p: 00h~05h,7fh |
| CAM_DefogInq | 8x 09 04 37 FF | y0 50 02 0p FF | p:0~4 |
| | | y0 50 03 00 FF | |
| CAM_PictureFlipModelInq | 8x 09 04 66FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_LR_ReverseModelInq | 8x 09 04 61 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_MuteModelInq | 8x 09 04 75 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CMA_FreezeModelInq | 8x 09 04 62 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_DisplayModelInq | 8x 09 04 15 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_MemoryInq | 8x 09 04 3F FF | y0 50 pq FF | pp:Memory Number recalled last |
| CAM_RegisterValueInq | 8x 09 04 24 mm FF | y0 50 0p 0q FF | mm:Register NO.(00h~7Fh) pq: RegisterValue(00h~FFh) |
| Pan_TiltPosInq | 8x 09 06 12 FF | y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF | www:Pan Position zzzz:Tilt Position |
| Menu | 8x 09 06 06 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_VersionInq | 8x 09 07 00 FF | y0 50 pq rs FF | pqrs:Version |
| Power_Battery | 8x 09 07 10 FF | y0 50 0p 0q FF | pq:00h-64h |
| Display Battery | 8x 09 07 11 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| CAM_MemoryUsed | 8x 09 07 20 FF | y0 50 0p(0) 0p(1) ...0p(31) FF | p:0h-Fh when NO.n 0p was selected p:1 the Memory Number 0+4*n was used p:2 the MN 1+4*n was used p:4 the MN 2+4*n was used p:8 the MN 3+4*n was used |
| Tilt Reverse | 8x 09 07 21 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |
| Pan Reverse | 8x 09 07 22 FF | y0 50 02 FF | On |
| | | y0 50 03 FF | Off |

Appendix

| Register NO. | Value | Video Format |
|--------------|-------|---------------|
| 72 | 0x11 | 1280x720 25p |
| | 0x0E | 1280x720 29p |
| | 0x0F | 1280x720 30p |
| | 0x0C | 1280x720 50p |
| | 0x09 | 1280x720 59p |
| | 0x0A | 1280x720 60p |
| | 0x08 | 1920x1080 25p |
| | 0x06 | 1920x1080 29p |
| | 0x07 | 1920x1080 30p |
| | 0x14 | 1920x1080 50p |
| | 0x13 | 1920x1080 59p |
| | 0x15 | 1920x1080 60p |
| | 0x04 | 1920x1080 50i |
| | 0x01 | 1920x1080 59i |
| | 0x02 | 1920x1080 60i |
| | 0x1E | 3840x2160 25p |
| | 0x1D | 3840x2160 30p |

The NO.72 register is used to adjust the resolution, and the register value corresponds to the blank above,

Pelco-D

Instruction format

| Byte1 | Byte2 | Byte3 | Byte4 | Byte5 | Byte6 | Byte7 |
|------------|---------|-----------|-----------|--------|--------|-------|
| Synch Byte | Address | Command 1 | Command 2 | Data 1 | Data 2 | Check |

1. Synch Byte:FF
- 2.Address:camera logical address number, address range: 00H - FFH
3. The instruction code shows different actions
4. The data code table indicates the corresponding parameters
- 5.Check Code = (Byte2+Byte3+Byte4+Byte5+Byte6) /100H

Control Instruction

| Type | Function | Instruction | Comments |
|----------------|----------|----------------------|------------------------|
| PanTilt Driver | Up | FF 01 00 08 00 yy cc | xx:Pan Speed(00h-3fh) |
| | Down | FF 01 00 10 00 yy cc | yy:Tilt Speed(00h-3fh) |
| | Left | FF 01 00 04 xx 00 cc | |
| | Right | FF 01 00 02 xx 00 cc | |
| CAM_Zoom | Wide | FF 01 00 40 00 00 41 | |
| | Tele | FF 01 00 20 00 00 21 | |
| CAM_Focus | Near | FF 01 01 00 00 00 02 | |
| | Far | FF 01 00 80 00 00 81 | |
| CAM_Iris | Down | FF 01 04 00 00 00 03 | |
| | Up | FF 01 02 00 00 00 05 | |
| CAM_Memory | Recall | FF 01 00 07 00 pq cc | pq:position |
| | Set | FF 01 00 03 00 pq cc | |
| | Reset | FF 01 00 05 00 pq cc | |
| Stop | Stop | FF 01 00 00 00 00 01 | |
| CAM_Power | Open | FF 01 88 00 00 00 89 | |
| | Close | FF 01 08 00 00 00 09 | |

Pelco-P

Instruction format

| Byte1 | Byte2 | Byte3 | Byte4 | Byte5 | Byte6 | Byte7 | Byte8 |
|-------|---------|-----------|-----------|--------|--------|-------|-------|
| Start | Address | Command 1 | Command 2 | Data 1 | Data 2 | Stop | Check |

- 1.Start:A0
2. Address:camera logical address number, address range: 00H - 1FH
3. The instruction code shows different actions
4. The data code table indicates the corresponding parameters
- 5.Stop:AF
- 6.Check(XOR of Bytes 2~6)= Byte2 ^ Byte3 ^ Byte4 ^ Byte5 ^ Byte6
- 7.Byte2(Address) is the value of the device address -1.

Control Instruction

| Type | Function | Instruction | Comments |
|-----------------|----------|-------------------------|------------------------|
| Pan_Tilt Driver | Up | A0 0x 00 08 00 yy AF cc | xx:Pan Speed(00h-3fh) |
| | Down | A0 0x 00 10 00 yy AF cc | yy:Tilt Speed(00h-3fh) |
| | Left | A0 0x 00 04 xx 00 AF cc | |
| | Right | A0 0x 00 02 xx 00 AF cc | |
| CAM_Zoom | Wide | A0 0x 00 40 00 00 AF 41 | |
| | Tele | A0 0x 00 20 00 00 AF 21 | |
| CAM_Focus | Near | A0 0x 02 00 00 00 AF 03 | |
| | Far | A0 0x 01 00 00 00 AF 00 | |
| CAM_Iris | Down | A0 0x 08 00 00 00 AF 09 | |
| | Up | A0 0x 04 00 00 00 AF 05 | |
| CAM_Memory | Recall | A0 0x 00 07 00 pp AF cc | pp:position |
| | Set | A0 0x 00 03 00 pp AF cc | |
| | Reset | A0 0x 00 05 00 pp AF cc | |
| Stop | Stop | A0 0x 00 00 00 00 AF 07 | |
| CAM_Power | Open | A0 0x 88 00 00 00 AF 89 | |
| | Close | A0 0x 08 00 00 00 AF 09 | |

Such as the device address is 1,

| Type | Function | Instruction | Comments |
|----------------|----------|-------------------------|------------------------|
| Pan_tiltDriver | Up | A0 01 00 08 00 yy AF cc | xx:Pan Speed(00h-3fh) |
| | Down | A0 01 00 10 00 yy AF cc | yy:Tilt Speed(00h-3fh) |
| | Left | A0 01 00 04 xx 00 AF cc | |
| | Right | A0 01 00 02 xx 00 AF cc | |
| CAM_Zoom | Wide | A0 01 00 40 00 00 AF 41 | |
| | Tele | A0 01 00 20 00 00 AF 21 | |
| CAM_Focus | Near | A0 01 02 00 00 00 AF 03 | |
| | Far | A0 01 01 00 00 00 AF 00 | |
| CAM_Iris | Down | A0 01 08 00 00 00 AF 09 | |
| | Up | A0 01 04 00 00 00 AF 05 | |
| CAM_Memory | Recall | A0 01 00 07 00 pp AF cc | pq:position |
| | Set | A0 01 00 03 00 pp AF cc | |
| | Reset | A0 01 00 05 00 pp AF cc | |
| Stop | Stop | A0 01 00 00 00 00 AF 07 | |
| CAM_Power | Open | A0 01 88 00 00 00 AF 89 | |
| | Close | A0 01 08 00 00 00 AF 09 | |