



Camera Housing Series

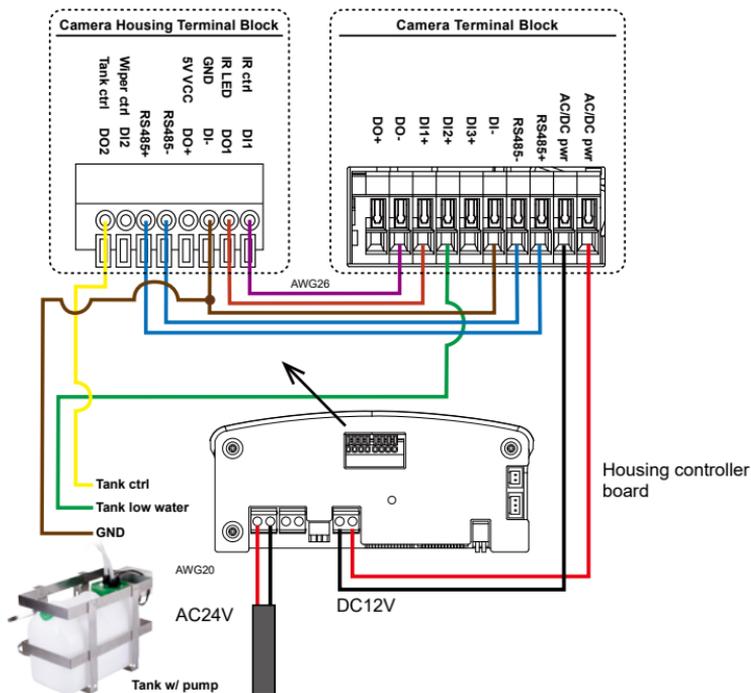
RS485 Configuration Document



Rev. 1.1

RS485 connection diagram

A sample use RS485 connection diagram consisting of a housing with IR illuminators and camera is shown below. Please refer to your camera's documentation if your camera comes with different pinouts.



AC/DC 24V IN
Draws power from AC24V or PoE 95W enclosure

1. Water tank EN
2. Water low level
3. NIC
4. GND

4. Pump motor ON/OFF
3. GND
2. Water level detector Low/high
1. GND

See drawing on the right for the washer kit control board pinouts.

RS485 Commands

For camera housings that come with IR illuminators, wiper, and washer, commands can be delivered via the RS485 protocol. The RS485 connection uses the Pelco D protocol.

Configuration parameters:

Baud rate	2400
Data bits	8
Parity	None
Stop bit	1

Command format:

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Sync	Addr	CMND1	CMND2	DATA1	DATA2	CKSM

Addr range: 0x00 ~ 0xFE. CKSM: check sum is the last 8 bits of the sum of Byte2 through Byte6.

Command Group 1:

Command Description	Command (hexadecimal, "ox" is omitted)	Note
ValR Lens Stop	FF 01 00 00 00 00 01	Pelco D - Zoom Stop
VAIR Lens Wide	FF 01 00 40 00 00 41	Pelco D - Zoom Wide
ValR Lens Tele	FF 01 00 20 00 00 21	Pelco D - Zoom Tele
Wiper On	FF 01 00 09 00 01 0B	Pelco D – Aux 1 On
Wiper Off	FF 01 00 0B 00 01 0D	Pelco D – Aux 1 Off
Wiper and Washer On	FF 01 00 09 00 02 0C	Pelco D – Aux 2 On
Wiper and Washer Off	FF 01 00 0B 00 02 0E	Pelco D – Aux 2 Off
IR Led Force On	FF 01 00 09 00 03 0D	Pelco D – Aux 3 On
IR Led Force Off	FF 01 00 0B 00 03 0F	Pelco D – Aux 3 Off

Command Group 2:

Command Name	Command (hexadecimal, ox is omitted)	Note
Addr configuration	FF 01 00 18 01 dd CKSM	dd: 0x00 ~ 0xFE; for example, when addr is 2, the command looks like FF 01 00 18 01 02 1C
IRMode	FF 01 00 18 02 mm CKSM	mm: IR mode mm=0x02: Light Sensor Auto (Default) mm=0x03: DI Trigger mm=0x04: via RS485 Command (When receiving IR Led Force On / IR Led Force Off command, will switch to using the IR Mode -RS485 Command)

		For example, IRmode_Auto FF 01 00 18 02 02 1D IRmode_DI FF 01 00 18 02 03 1E IRmode_CMD FF 01 00 18 02 04 1F
LightSensorGate	FF 01 00 18 03 LL CKSM	When the IR Mode Light Sensor Auto, the Lux value to turn IR LED can be configured. LL: Lux, changes is made by every10Lux For example: LightSensorGate = 100 FF 01 00 18 03 0A 26 LightSensorGate = 200 FF 01 00 18 03 14 30

The parameters of IR illuminator can be controlled via the RS485 connection. You can enable the connection in **Configuration > PTZ > Mechanical** window. Select the defaults for the IR illuminator: Pelco D, baud rate - 2400, Data bits - 8, Stop bit - 1, Parity - none.

The screenshot shows the 'PTZ > PTZ settings' window with the 'Mechanical' tab selected. The 'RS485 settings' section is expanded, showing the following configuration:

- Disable
- PTZ camera
- Transparent HTTP tunnel
- Camera ID: 1
- PTZ driver: None
- Port settings:
 - Baud rate: 38400
 - Data bits: 8
 - Stop bits: 1
 - Parity bits: none

Buttons at the bottom include 'Preset position', 'Custom command', and 'Save'. A callout box on the right lists the defaults for IR: Pelco D, 2400, 8, 1, none. Another callout box points to the PTZ driver dropdown menu, labeled 'Customizable IR control'.

You can create custom command buttons by entering the Button name and the command itself:

>Custom command

Custom command

Leaving the "Button name" field empty means the command button will not be displayed in the homepage.

	Button name	Command
Command 1:	TH10%	FF012101B00003D6
Command 2:	TH20%	FF012101B00005D8
Command 3:	TH50%	FF012101B00007DA
Command 4:	DIMMING100%	FF012101BF0009EB
Command 5:	DIMMING00%	FF012101B00007DA

Save Close

ValR: The VAIR control include those on the IR Led and ValR Lens.

There are 3 IR mode commands

- IRMode = Light Sensor Auto (Default)
 - sensor lux reading < LightSensorGate - LED On
 - sensor lux reading >= (LightSensorGate + 10 Lux) - LED Off
- IRMode = DI_1 Trigger (IR triggered on by DI)
 - DI_1 shorted DI -(Low) - LED On
 - DI_1 open (High) - LED Off
- IRMode = controlled by RS485 Command (Pelco D – Aux 3 On/Off)
 - IR Led Force On - LED On
 - IR Led Force Off - LED Off
- DO_1 as IR Status Feedback
 - LED On, DO_1 is grounded via MOSFET (DI- connected)
 - LED Off, DO_1 no input

ValR Lens Zoom control

Dip Switch

4 configurations using the Dip Switch on the distribution board.

When Lens stops, its last position will be memoried,and when powered on again, lens will move to the previous position. When powered on for the first time, Lens will follow the DIP switch configuration.

Wiper & Wahser control)

DI_2 Trigger:

When DI_2 connected to DI- (Low), wiper and washer operate for 3 times and then stop.

Using RS485 Command –Wiper Only (Pelco D – Aux 1 On/Off)

Wiper On, wiper takes action

Wiper Off, wiper starts one operation and then stops.

RS485 Command –Wiper & Washer (Pelco D – Aux2 On/Off)

Wiper and Washer On, pumps and spray water with wiper action.

Wiper and Washer Off, spraying and wiping starts one operation and then stops.

DO2 used for spraying control

DO_2 connected to DI- via MOSFET - starts spraying.

Spraying stops, and the LED turns Off when DO_2 is not triggered.

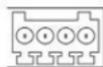
AETEK Camera Housing w/ Axis Q1604 Camera

AXIS Q1604_DIDO-port

Connectors

I/O Connector

4-pin terminal block

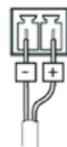


For an example diagram, see *Connection Diagrams* on page 67.

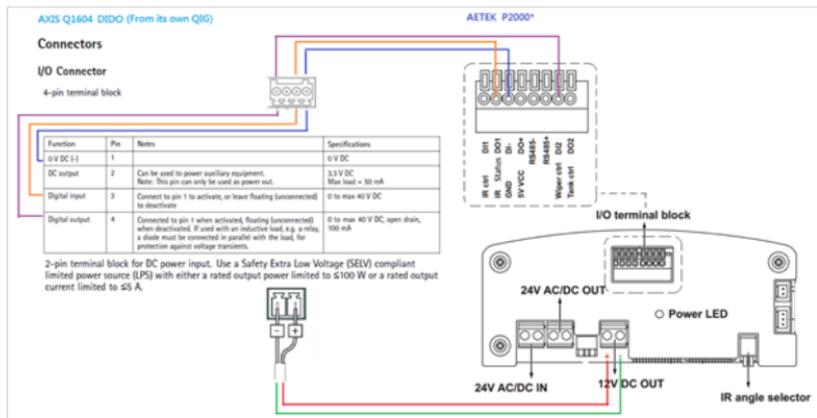
Function	Pin	Notes	Specifications
0 V DC (-)	1		
DC output	2	Can be used to power auxiliary equipment. Note: This pin can only be used as power out.	3.3 V DC Max load = 50 mA
Digital input	3	Connect to pin 1 to activate, or leave floating (unconnected) to deactivate	0 to max 40 V DC
Digital output	4	Connected to pin 1 when activated, floating (unconnected) when deactivated. If used with an inductive load, e.g. a relay, a diode must be connected in parallel with the load, for protection against voltage transients.	0 to max 40 V DC, open drain, 100 mA

Power Connector

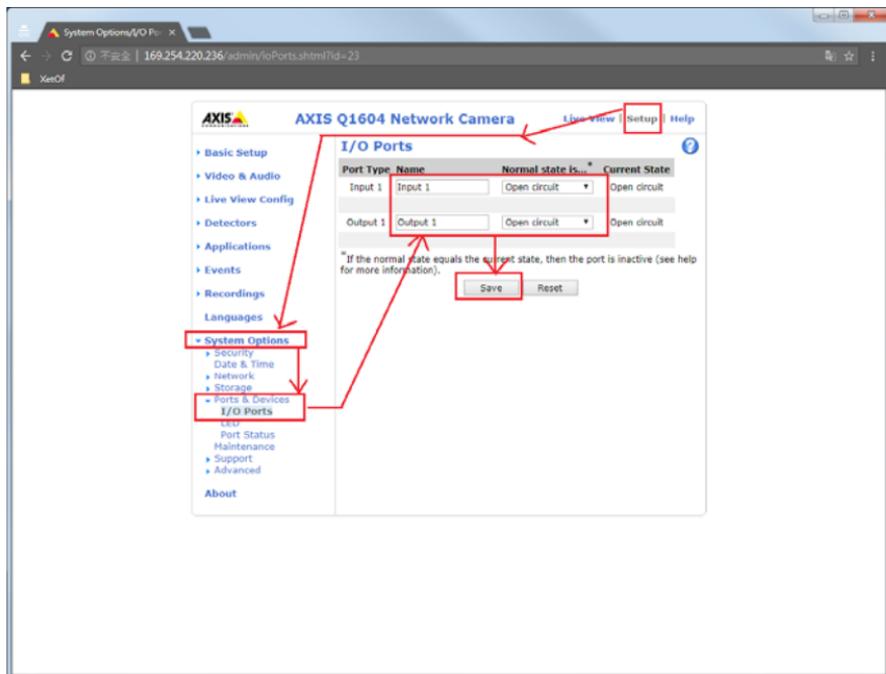
2-pin terminal block for DC power input. Use a Safety Extra Low Voltage (SELV) compliant limited power source (LPS) with either a rated output power limited to ≤ 100 W or a rated output current limited to ≤ 5 A.



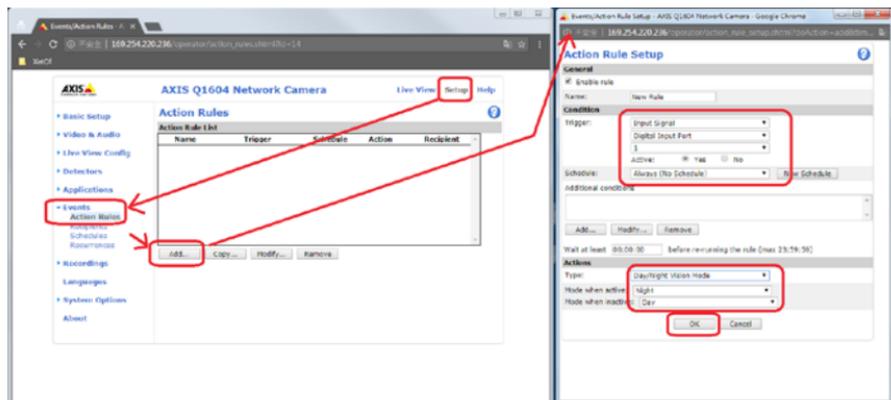
AXIS Q1604 DIDO port to _AETEK Camera housing



AXIS Q1604_DIDO_Setting



AXIS Q1604_IRStatus-TriggerDayNight(ICR)



AXIS Q1604_IRStatus-TriggerDayNight(ICR)_2

The screenshot shows the 'Action Rules' configuration page in the AXIS Q1604 Network Camera web interface. The page title is 'AXIS Q1604 Network Camera' and the sub-header is 'Action Rules'. On the left, there is a navigation menu with options: Basic Setup, Video & Audio, Live View Config, Detectors, Applications, Events (Action Rules, Recipients, Schedules, Recurrences), Recordings, Languages, System Options, and About. The main content area is titled 'Action Rule List' and contains a table with the following data:

Name	Trigger	Schedule	Action	Recipient
<input checked="" type="checkbox"/> New Rule	Input Signal - Digital Input Port	-	Day/Night Vision Mode	-

Below the table are buttons for 'Add...', 'Copy...', 'Modify...', and 'Remove'.

AXIS Q1604_IRStatus-TriggerDayNight(ICR)_3

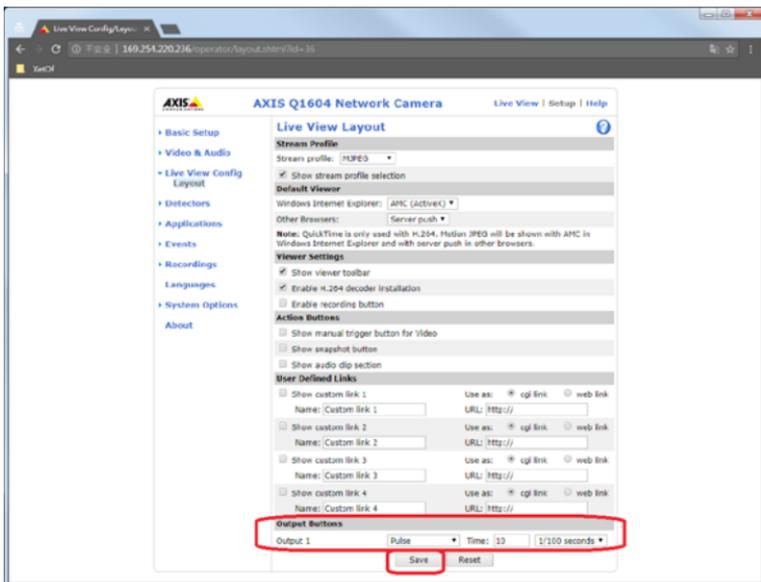
The screenshot shows the 'Live View Layout' configuration page in the AXIS Q1604 Network Camera web interface. The page title is 'AXIS Q1604 Network Camera' and the sub-header is 'Live View Layout'. The left navigation menu is the same as in the previous screenshot. The main content area is titled 'Live View Layout' and contains several sections:

- Stream Profile:** Stream profile: H265, Show stream profile selection (checked).
- Default Viewer:** Windows Internet Explorer: APC (ActiveX), Other Browsers: Server push.
- Viewer Settings:** Show viewer toolbar (checked), Enable H.264 decoder installation (checked), Enable recording button (unchecked).
- Action Buttons:** Show manual trigger button for Video (unchecked), Show snapshot button (unchecked), Show audio dip section (unchecked).
- User Defined Links:** Four custom links, each with a name field (e.g., 'Custom link 1'), a URL field (e.g., 'http://'), and a 'Use as' dropdown (e.g., 'cgi link').
- Snapshot Buttons:** A table with one row:

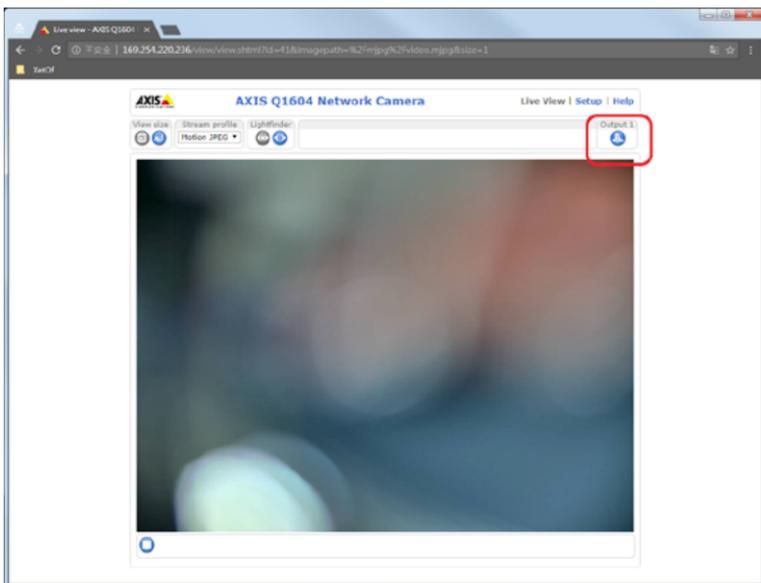
Output	Rule	Time
Output 1	Rule	Time: 10 1/100 seconds

 Below this table are 'Save' and 'Reset' buttons.

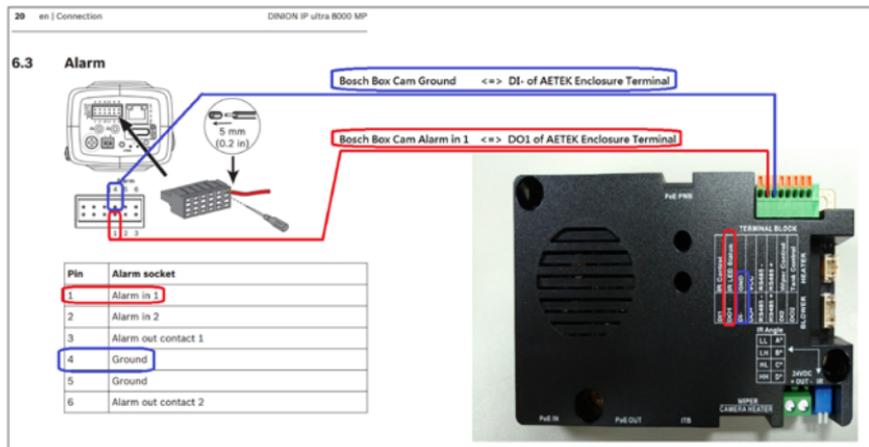
AXIS Q1604_DO_CtrlWiper_01



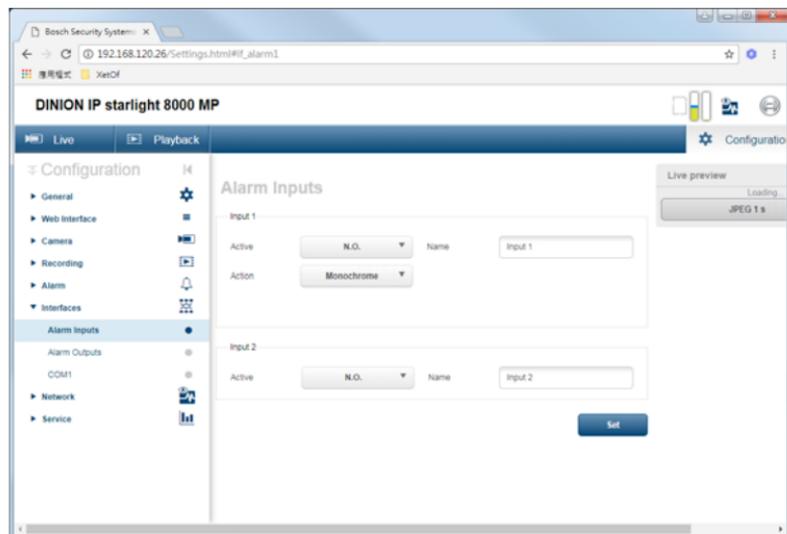
AXIS Q1604_DO_CtrlWiper_02



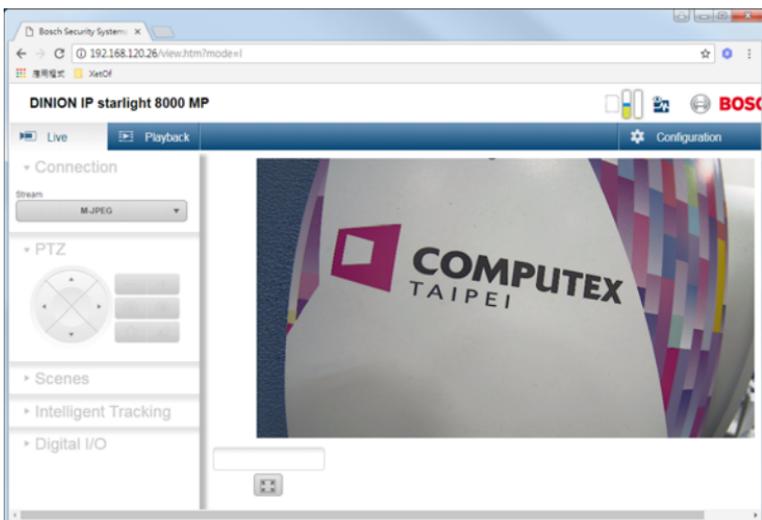
BOSCH DINION IP starlight 8000MP_AlarmIn01_DN_0



BOSCH DINION IP starlight 8000MP_AlarmIn01_DN_1



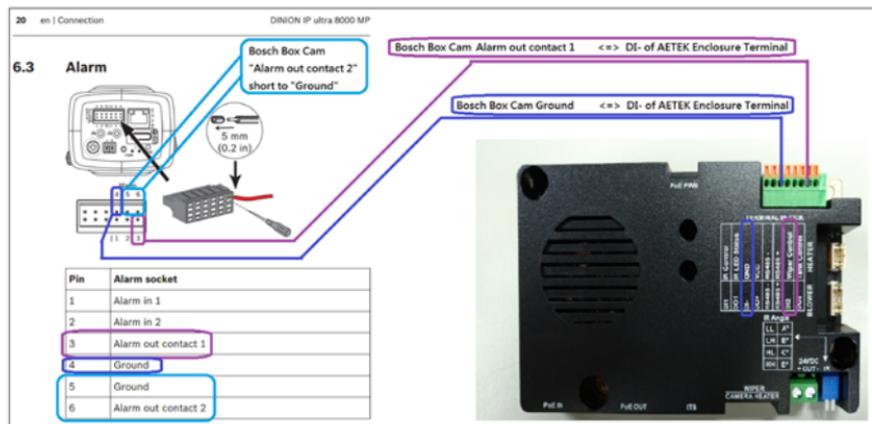
BOSCH DINION IP starlight 8000MP_AlarmIn01_DN_2



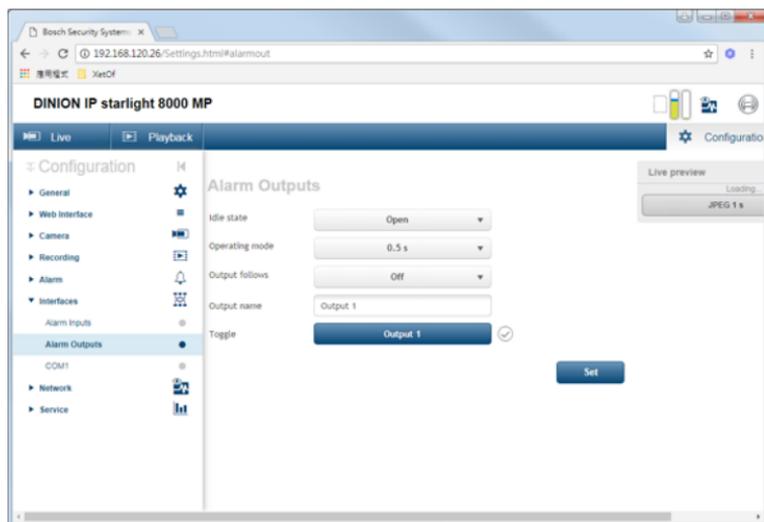
BOSCH DINION IP starlight 8000MP_AlarmIn01_DN_3



BOSCH DINION IP starlight 8000MP_AlarmOut_Wiper_0



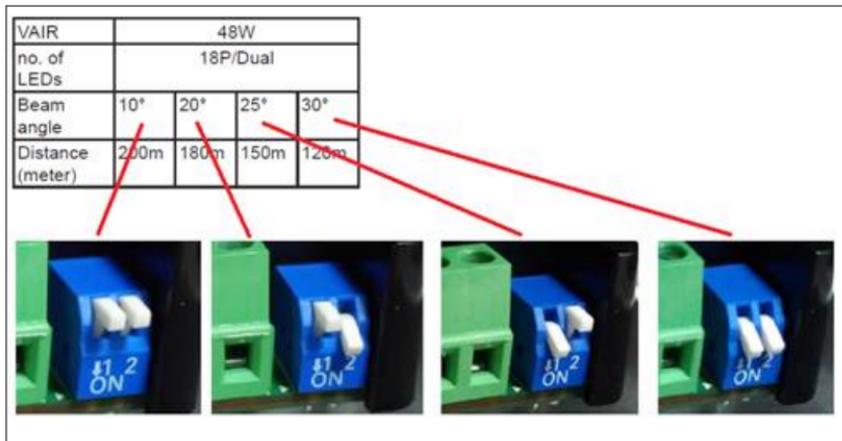
BOSCH DINION IP starlight 8000MP_AlarmOut_Wiper_1



BOSCH DINION IP starlight 8000MP_AlarmOut_Wiper_2



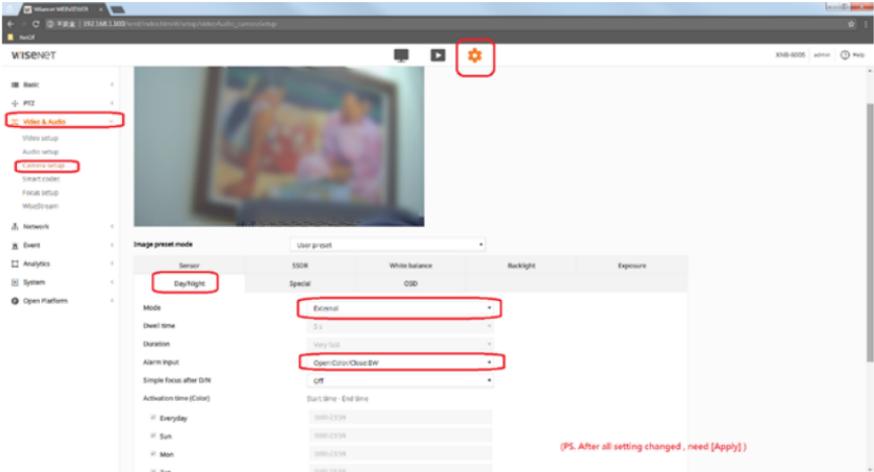
BOSCH DINION VaIR-ZoombyDIP-switch



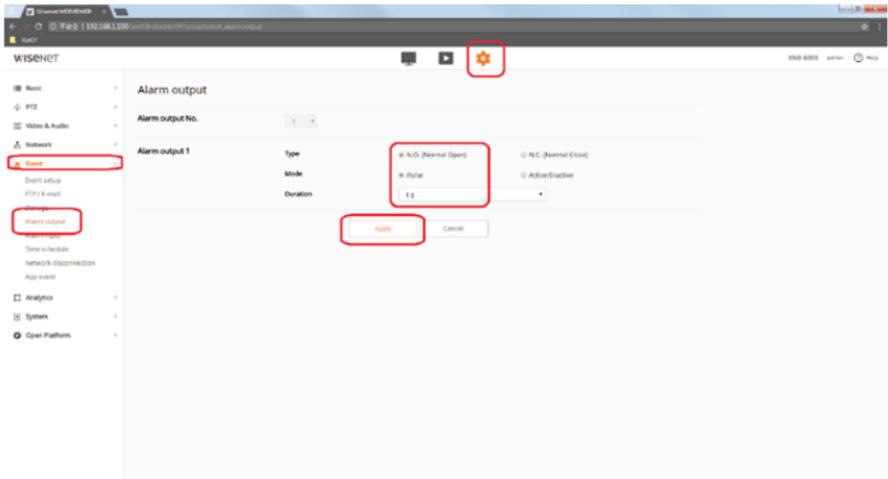


AETEK Camera Housing w/ Hanwha Box Camera

Hanwha Box Camera_DayNight_Setting



Hanwha Box Camera_DoToWiperTank_Setting_1



Hanwha Box Camera_DoToWiperTank_Setting_2

The screenshot shows the WISENET web interface for a camera. At the top, there's a navigation bar with the WISENET logo and some icons. Below that is a large video feed area, currently showing a blurred image. A red box highlights a gear icon in the top right corner of the video feed. A red arrow points from this gear icon to a red text box on the right that says: "Click this to trigger Alarm Out (DO) Then Wiper will act. (Optional Tank will also act)". Below the video feed is a settings panel with various tabs and sliders.

Profile	Resolution	Code	Frame rate	Target frame
ALTIMA	1920x1080	1024	25	1980 Kbps 30FPS

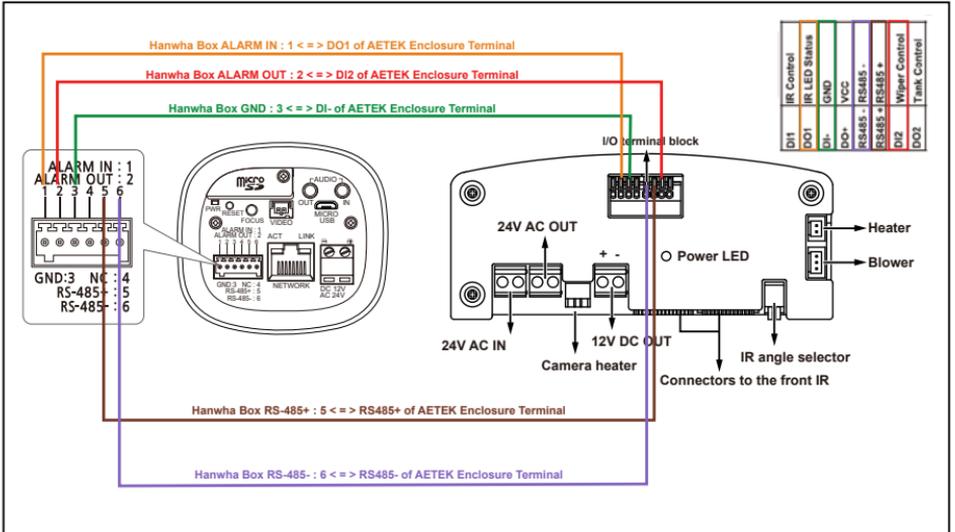
Display	Contrast	Brightness	Sharpness	Color Temp.
	100	100	100	50

Hanwha Box Camera_VaiR-Zoom byRs485_Setting_1

The screenshot shows the WISENET web interface for a camera, specifically the 'Serial port setup' configuration page. On the left, there's a sidebar with various menu items. A red box highlights the 'PTZ' option, which is expanded to show 'Pico-D'. In the main content area, there's a 'Serial port setup' section with several dropdown menus. A red box highlights the 'Protocol' dropdown menu, which is set to 'Pico-D'. A red text box next to it says: "PS.After all setting be changed , need [Apply]".

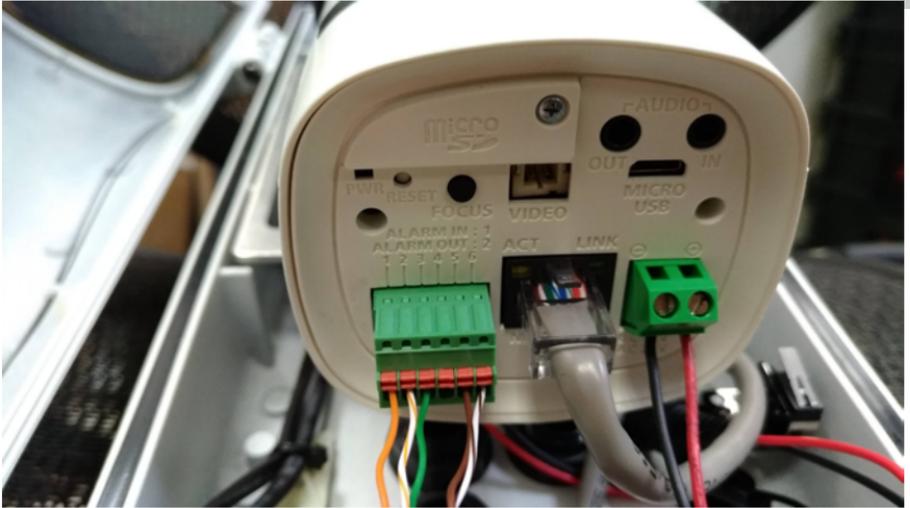
Serial port setup	Protocol	Camera ID	Baud rate	Data bit	Parity bit	Stop bit	ON/OFF Focus move
	Pico-D	1	2400	8	None	1	OFF

Hanwha Box Camera_Wiring_0

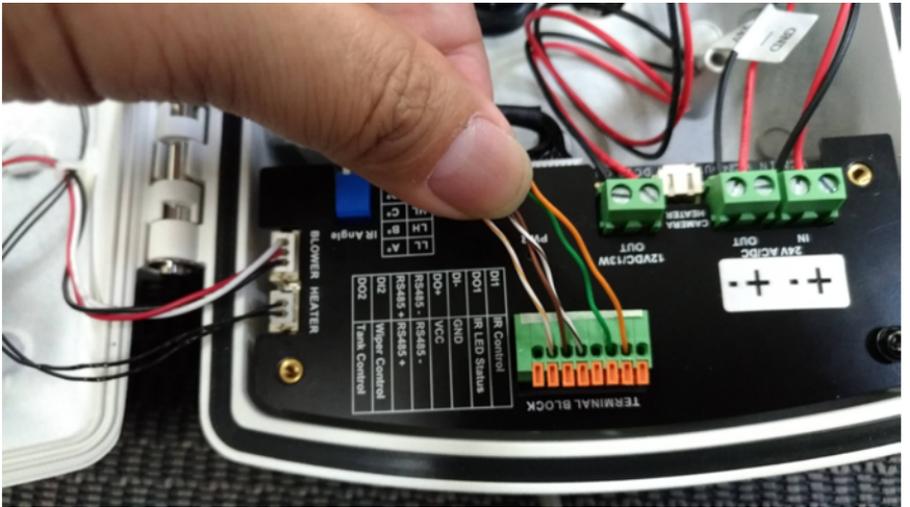


Hanwha Box Camera_Wiring_1





Hanwha Box Camera_Wiring_3



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