



# HWg-Juno 404 Manual

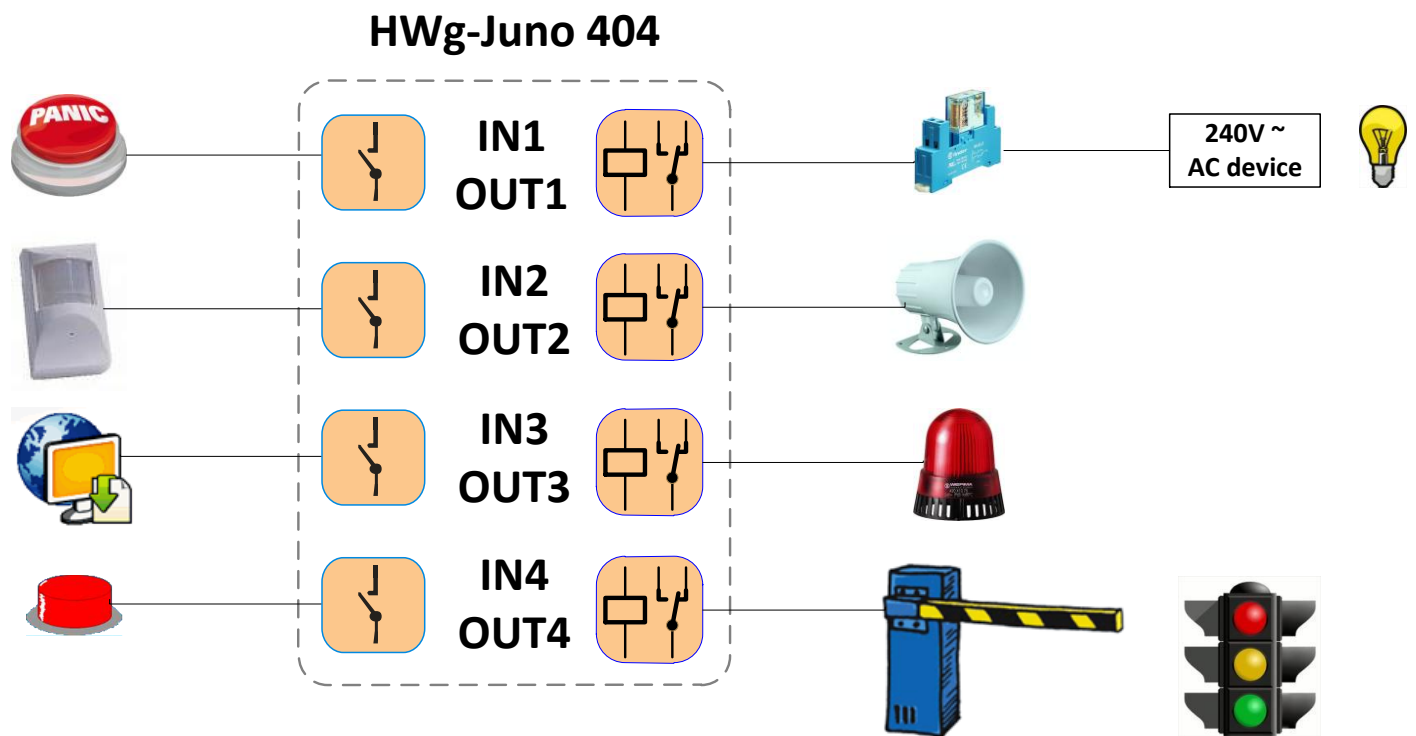
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## General

HWg-Juno is HWg-Juno is I/O device for IP CCTV integration. You can simply connect Digital Inputs & Relay outputs to your current central IP video management system. HWg-Juno allows system integrator to design system with unlimited number of dry inputs and relay outputs. HWg-Juno solves location, quantity and quality limitation of I/O ports available on video encoder or IP camera.

HWg-Juno is used for connection of the sensors and security systems to IP surveillance system.

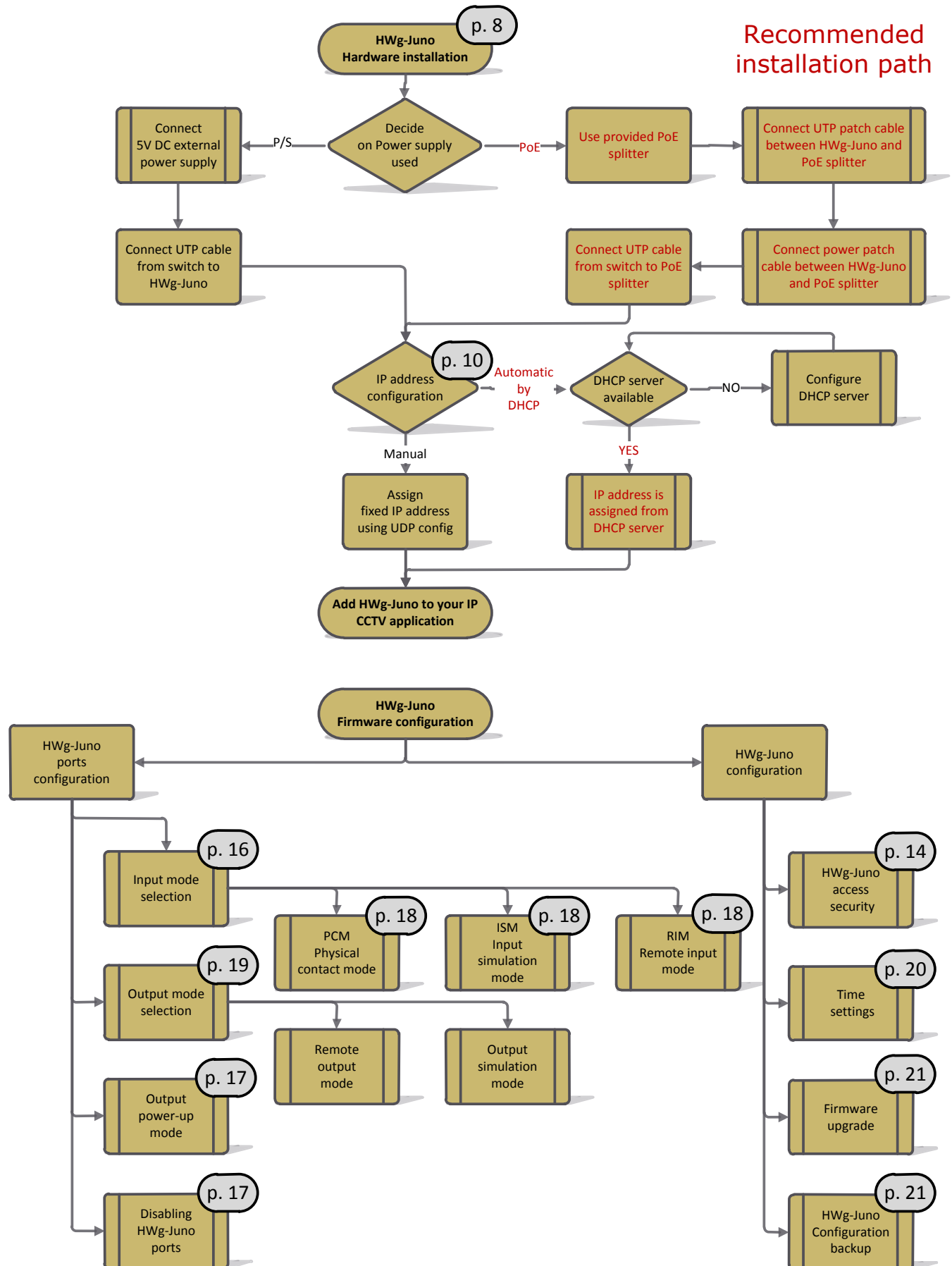
Typical usage of HWg-Juno:



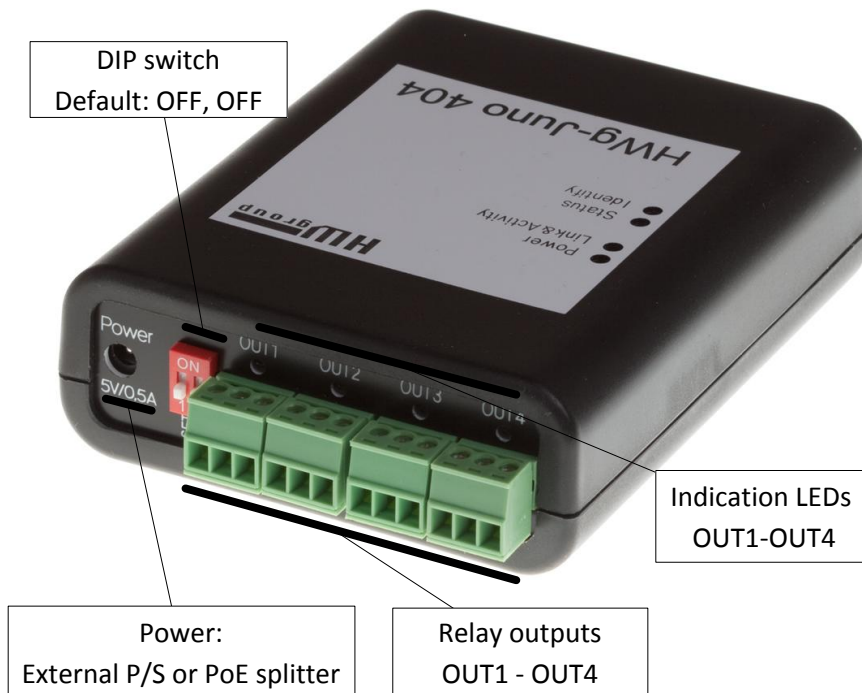
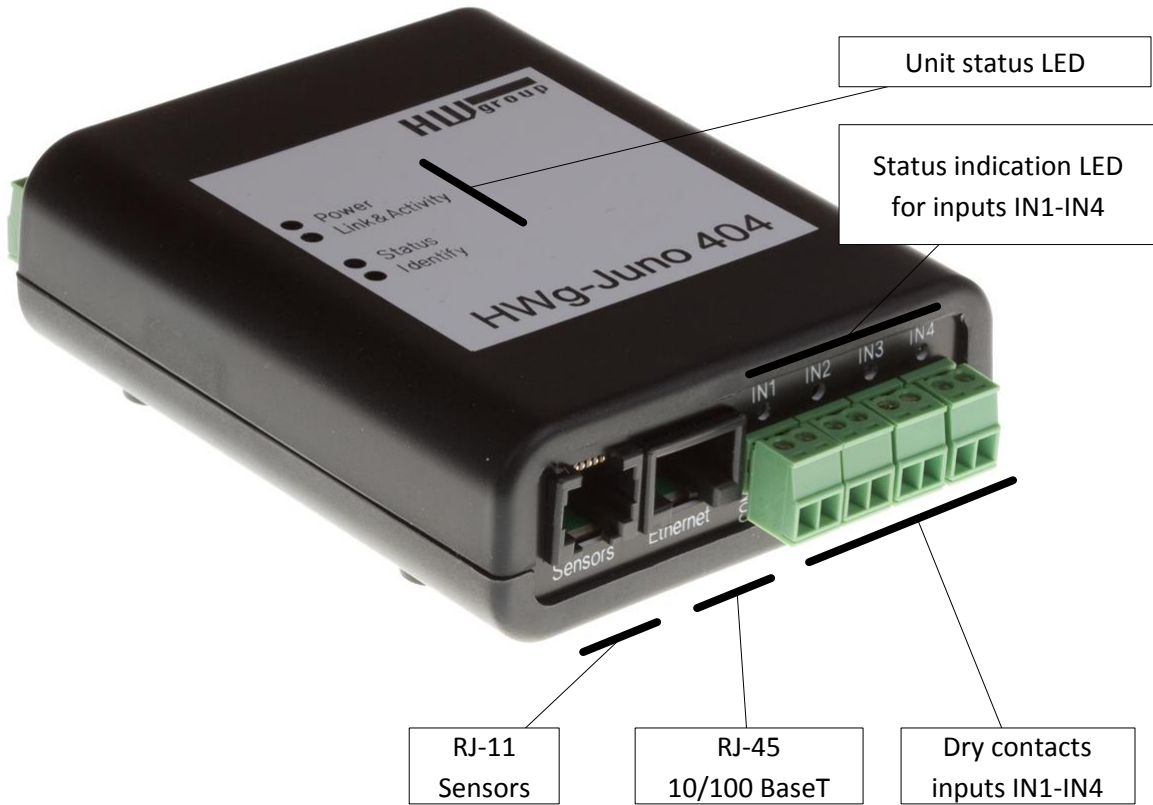
HWg-Juno is supported in IP video management systems:

- Genetec Omnicast 4.6 and newer
- Genetec Security Center 5.0 (available Q1/2011)
- Milestone xProtect – all versions
- Griffid Monitoring Station (available Q4/2010)
- SeeTec 5 (available Q4/2010)
- Avigilon Control Center(available Q1/2011)
- ARTEC MultiEye (available Q1/2011)
- Koukaam IP Corder (Available Q4/2010)

# Quick navigation



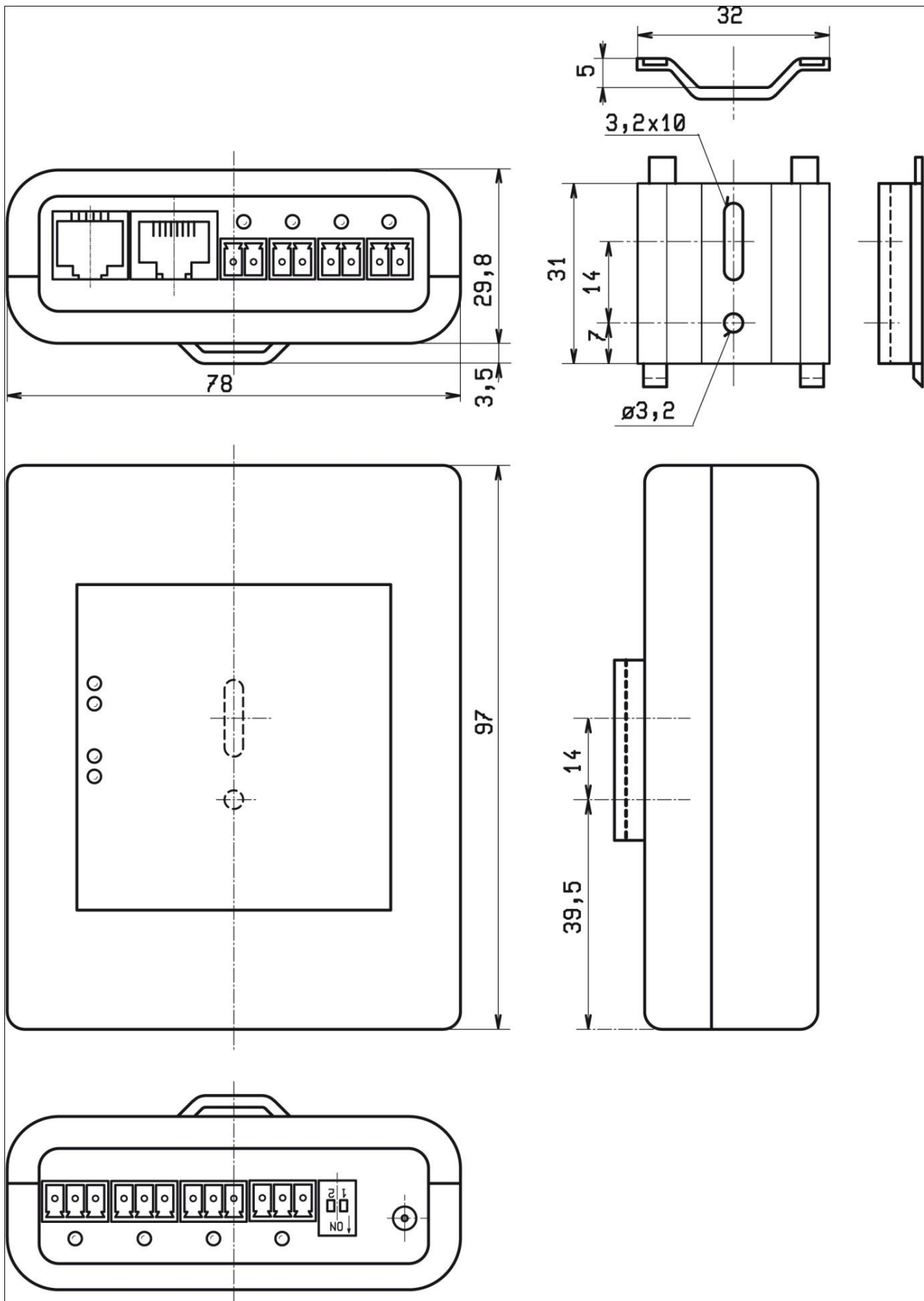
# Physical



## Technical specification

<b>ETHERNET</b>	
Interface	RJ45 (10BASE-T / 100BASE-Tx) – 10 Mbps or 100 Mbps network compatible
Supported protocols	IP: ARP, TCP/IP (HTTP, NTP), UDP (ZeroConfig, HWg config)
+ IP CCTV protocols	Genetec 1.4a, PSIA
<b>SENSORS</b>	
Type	HWg original accessories: 1-Wire or 1-Wire UNI (RJ11)
Limitations	Max 2 sensors / max 10m
<b>Inputs (DI for Dry Contact)</b>	
Type	Digital Input
Sensitivity	1 (On) = 0-100 $\Omega$ , 0 (Off) = > 47k $\Omega$
Indication	State 1 (On) is indicated by LED for each input
+ ISM mode	ISM (Input Simulation Mode) support, Input controlled over the WEB interface
+ RIM mode	RIM (Remote Input Mode) support, Input controlled remotely over HTTP API
<b>Outputs</b>	
Type	Relay contacts, Type C (NC/COM/NO)
Max. load	1A / 30V DC
State Indication	State 1 (On) is indicated by LED for each output
+ OSM mode	OSM (Output State Memory) – set last output state after device power-up
<b>POWER input</b>	
Device power	5V DC / 0.3A (max 1.5 W) - Jack $\varnothing$ 3.5 x 1.35 / 10 [mm]
PoE (Power over Ethernet)	RJ45 - IEEE 802.3af - require included PoE Splitter Adaptor
<b>Security</b>	
Password protection	Basic Authorization
<b>LED Status indicators</b>	
POWER / status	Green - power OK (status = DHCP/ Identify)
LINK & Activity	Yellow - Ethernet connectivity
Status	Green – Device status
Identify	Yellow – Remote unit identification
<b>DIP SWITCH</b>	
DIP1: Load defaults	<b>Load defaults:</b> Set DIP1=ON, Restart power, change default settings, Set DIP1=OFF
DIP2:	Reserved
<b>Other parameters</b>	
Temperature range	Operating: -10 to +65 °C (5-95 % RH) / Storage: -25 to +85 °C
MTBF	> 100 000 hours
Dimensions / Weight	29 x 97 x 77 [mm] / 350 g
Warranty	2 Years as standard (extension possible up to 6 years)

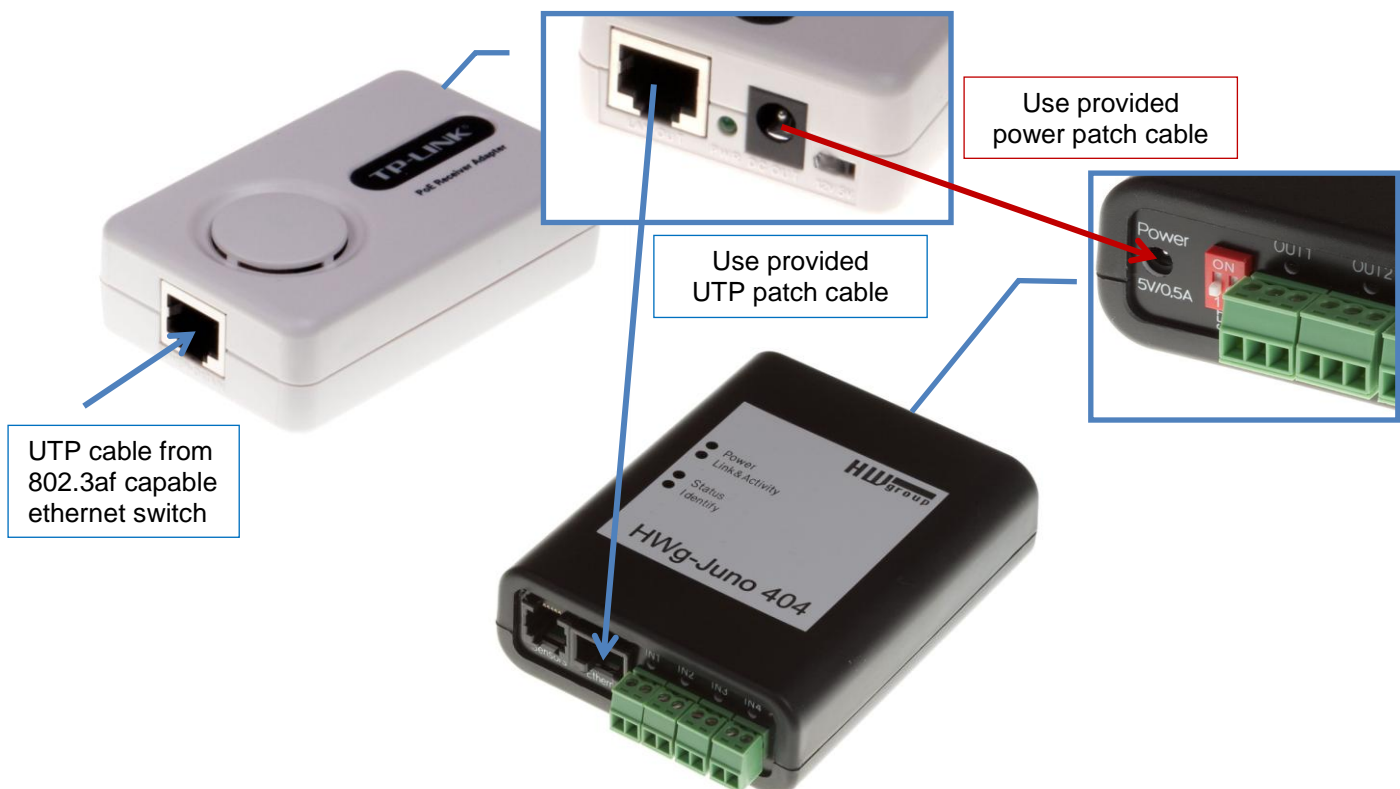
# Mechanical dimensions



# Hardware installation

## Network and power

- Plug the optional power adapter in to a power outlet and connect it to the HWg-Juno power connector.
- Connect the HWg-Juno unit to the Ethernet (UTP patch cable to a switch, or a cross-over cable to a PC). If provided PoE splitter is used, connect UTP cable from switch to PoE splitter and use short UTP patch cord cable to connect HWg-Juno and PoE splitter.
- If power is supplied over ethernet connect PoE splitter and HWg-Juno with provided power cable.



- The green **Power** LED lights up on the top of cover.
- If the Ethernet connection works properly, the **LINK** (yellow) LED lights up after a short while, and then flashes whenever data transfer takes place (activity indication).
- After power up, the **LINK** LED flashes rapidly to indicate IP address negotiation over DHCP.

## Load defaults

Reset the device to factory defaults (clear all the passwords):

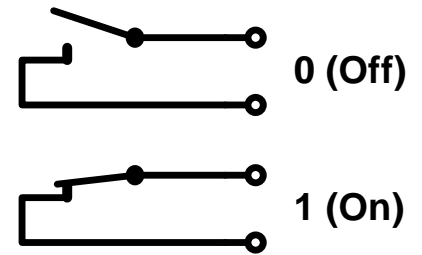
- 1) Switch off the device
- 2) Set DIP1 to ON
- 3) Power on the device
- 4) Toggle DIP1 several times within 5 seconds after power-up.



## Inputs

HWg-Juno 404 has 4 dry contact inputs.

- Each input has independent plug-in terminal block.
- Each input has indication LED for signaling ON status
- Connect sensor to two pin screw-in terminal block. COM/IN
- Unused input ports could be disabled in unit configuration.



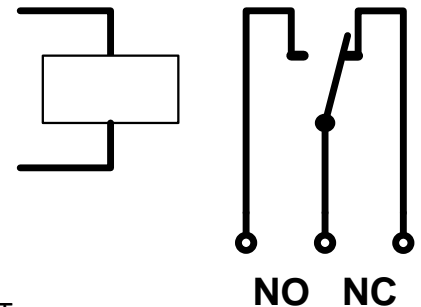
Inputs specification:

- Supported sensors: Any contact without external voltage (dry contact)
- Activated inputs read as **"1 (On)"**
- Unconnected inputs read as **"0 (Off)"**
- Disconnected sensor detection: None, disconnected sensor reads as **"0 (Off)"**.
- Maximum wiring length: 100m
- Input cable wiring: Cable with solid or stranded core, diameter range 0,5-2,5mm<sup>2</sup> (24 to 10AWG)
- Polling frequency: 100ms

## Outputs

HWg-Juno 404 has 4 relay outputs

- Each input has independent plug-in terminal block.
- Each input has indication LED for signaling ON status
- Connect each sensor to three pin screw-in terminal block.
- Unused input ports could be disabled in unit configuration.



Output specification:

- HWg-Juno 404 is equipped with Type C change-over type relay; SPDT
- NO and NC labels apply to Off (0) state, or device turned off
- When the output is On (1), a **"Normally Open" (NO)** relay contact is closed
- **Indication:** Contact state (closed / open) is indicated by a LED
- **Isolation:** The double-throw contact is electrically isolated from the rest of the device
- **Maximum output load:** 36V DC max. 1A
- **Wiring:** Cable with solid or stranded core, diameter range 0,5-2,5mm<sup>2</sup> (24 to 10AWG)
- **Never connect 110-250V AC load to units relay outputs.**  
**This action voids warranty and may destroy your unit.**

If you need to control 110 to 250V AC load use PowerEgg module or external relay with AC rating.



## IP address configuration

Before you add HWg-Juno to your IP video surveillance system you have to assign it IP address.

### DHCP config

HWg-Juno **factory default** is to use **Dynamic IP address assignment from DHCP** server.

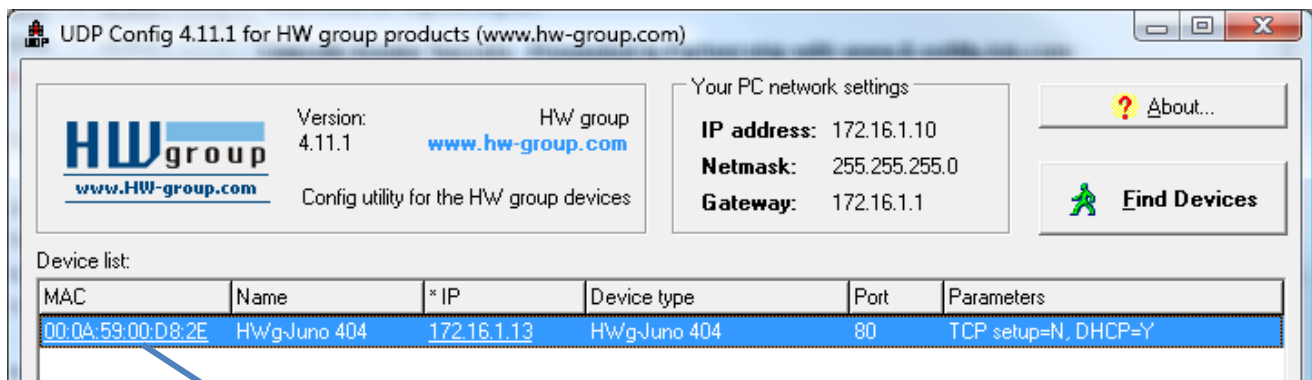
Recommended configuration method using DHCP server is to use static IP address configuration.

This will assure automatic assignment and management of IP addresses for all network units and removes the unnecessary step of static IP configuration of each unit.

### UDP config

UDP Config utility – Is utility for discovery and IP configuration of all HW group hardware units. UDP config is available as installation package in root directory of the supplied CD (Windows and Linux versions).

Alternatively it could be downloaded from: [www.HW-group.com](http://www.HW-group.com) > **Software** > **UDP Config**.



**Double-Click**

Click the icon to launch **UDP Config**. The program automatically looks for connected devices.

To search for devices, click the **Find Devices** icon.

The program looks for devices on your local network. Double-click a MAC address to open a basic device configuration dialog.

#### Configure network parameters

- IP address / HTTP port (80 by default)
- Network mask
- Gateway IP address for your network
- Device name (optional)

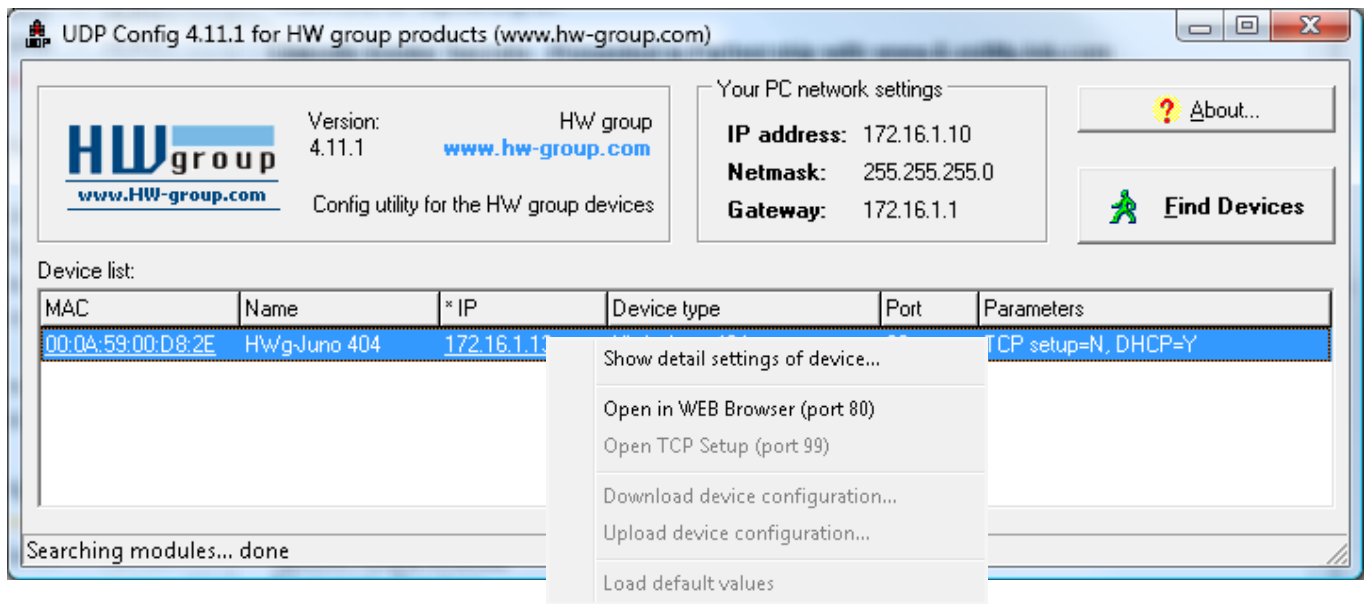
Click the **Apply Changes** button to save the settings.

You may also use IP CCTV Configuration tool to configure the IP address:

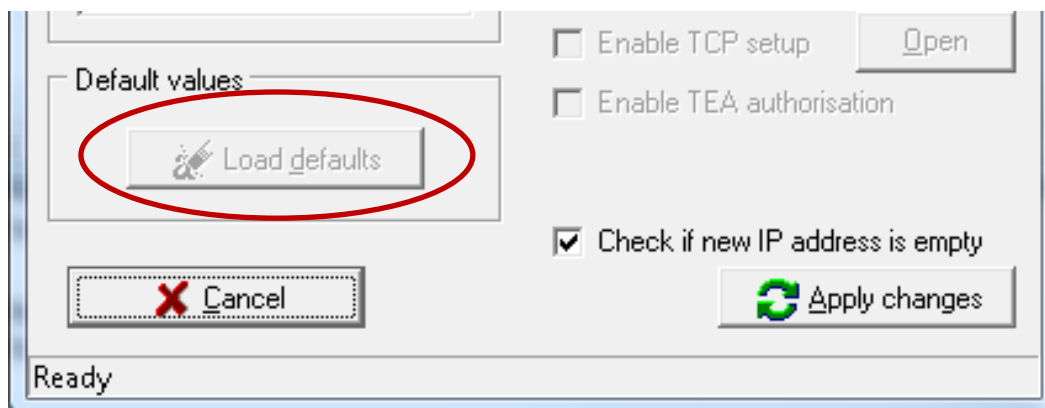


## Restoring software factory defaults

UDP config could be used for restoring default settings:



- Reboot your unit
- Click “Find devices” in UDP config utility
- Open detail setting by double clicking on units entry.
- Click the button “Load defaults”. This option is enabled only 30 seconds after unit reboot.
- Click “Apply changes” button to restore factory defaults settings.



## Using of HWg-Juno 404 in your IP CCTV system

Once the HWg-Juno unit has assigned IP address next step is to use administration tool of your IP videosurveillance management software to add HWg-Juno to your system as device.

HWg-Juno is supported in IP video management systems:

- Genetec Omnicast 4.6 and newer
- Genetec Security Center 5.0 (available Q1/2011)
- Milestone xProtect – all versions
- Griffid Monitoring Station (available Q4/2010)
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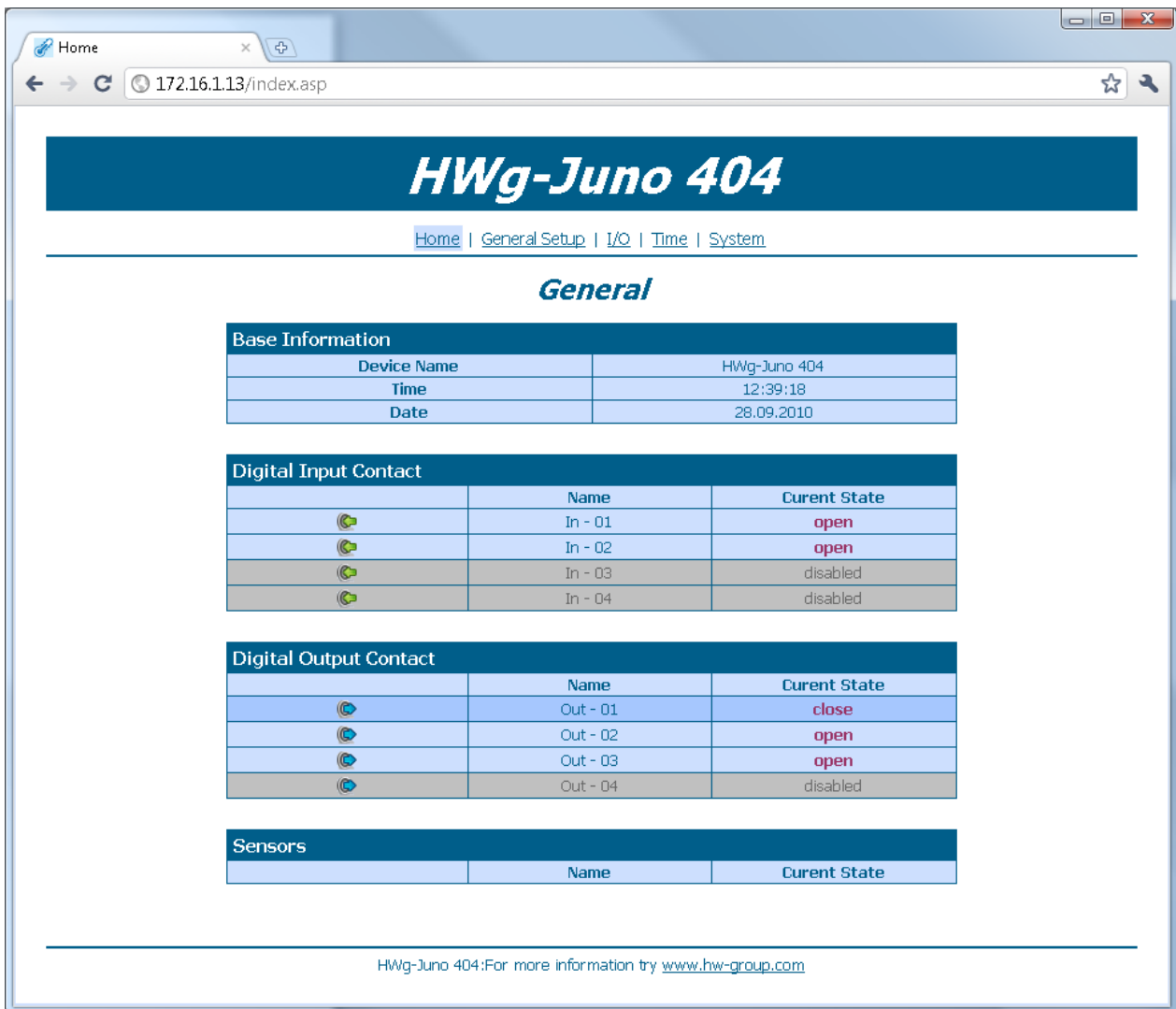
More information on specific HWg-Juno integration could be found in IP surveillance software application manuals. Manuals are available in technical support section of HWg-Juno web site.

# HWg-Juno configuration

## HWg-Juno - Home

HWg-Juno Home page displays unit status and show real-time status of inputs and outputs. Home page is automatically updated so port status is live.





Home page displays currently active and disabled ports.







The screenshot shows the HWg-Juno 404 Home page. The browser window title is 'Home' and the address bar shows '172.16.1.13/index.asp'. The page features a dark blue header with the text 'HWg-Juno 404' and a navigation menu with links for 'Home', 'General Setup', 'I/O', 'Time', and 'System'. The main content is organized into sections:

- General**
  - Base Information**

Base Information	
Device Name	HWg-Juno 404
Time	12:39:18
Date	28.09.2010
  - Digital Input Contact**

	Name	Curent State
	In - 01	open
	In - 02	open
	In - 03	disabled
	In - 04	disabled
  - Digital Output Contact**

	Name	Curent State
	Out - 01	close
	Out - 02	open
	Out - 03	open
	Out - 04	disabled
  - Sensors**

	Name	Curent State
--	------	--------------

At the bottom of the page, there is a footer: HWg-Juno 404:For more information try [www.hw-group.com](http://www.hw-group.com)

Sensor section is reserved for future use.

## General setup

The screenshot shows the 'General Setup' page for the HWg-Juno 404. The page is divided into three main sections: Base, Network, and Security: Device Admin. Each section contains a table of configuration options with 'Name', 'Value', and 'Description' columns. A 'Save' button is located at the bottom of each section. A footer at the bottom of the page provides a link to the manufacturer's website.

**Base**

Name	Value	Description
Device Name	HWg-Juno 404	0 to 16 characters
WWW Info Text	HWg-Juno 404:For more information try <a href="http://www.hw-group.com">www.hw-group.com</a>	

**Network**

Name	Value	Description
DHCP	<input checked="" type="checkbox"/>	DHCP Enable/Disable
IP Address	172.16.1.13	A.B.C.D
Network Mask	255.255.255.0	A.B.C.D
Gateway	172.16.1.1	A.B.C.D
DNS Primary	213.46.172.36	A.B.C.D
DNS Secondary	213.46.172.37	A.B.C.D
HTTP Port	80	Default 80

**Security: Device Admin**

Name	Value	Description
Username	<input type="text"/>	Admin username/password for device configuration changes [0 to 16 characters]
Password	<input type="password"/>	

HWg-Juno 404:For more information try [www.hw-group.com](http://www.hw-group.com)

HWg-Juno admin page footnote. Note is displayed on all pages

Device name is transferred to your IP security application and is used for device identification.

DNS is necessary only if NTP server is configured in HWg-Juno > Time

Enter **User name** and **Password** to secure access to unit configuration. Unit **reboot** is necessary to apply new settings

If unit access security is used then user name and password has to be used when adding HWg-Juno unit into your IP CCTV application.

## I/O configuration

**HWg-Juno 404**

Home | [General Setup](#) | [I/O](#) | Time | System

### I/O Setup

I/O Setup		
Name	Value	Description
Number of inputs in use	3	Values range 0 .. 4
Number of outputs in use	3	Values range 0 .. 4

Digital Input Contact			
Name	Value	Port mode	Simulation control
In - 01	open	Physical input	Open Close
In - 02	close	Remote	Open Close
In - 03	open	Simulation	Open Close
In - 04	disabled	disabled	Open Close

Digital Output Contact			
Name	Value	Port mode	Simulation control
Out - 01	close	Remote	Open Close
Out - 02	open	Remote	Open Close
Out - 03	open	Remote	Open Close
Out - 04	disabled	disabled	Open Close

Output Relay Power up state	
Name	Value
Mode	Auto by protocol

Save

HWg-Juno 404:For more information try [www.hw-group.com](http://www.hw-group.com)

HWg-Juno inputs and outputs tab supports port configuration.

HWg-Juno Input ports supports 3 port input port modes

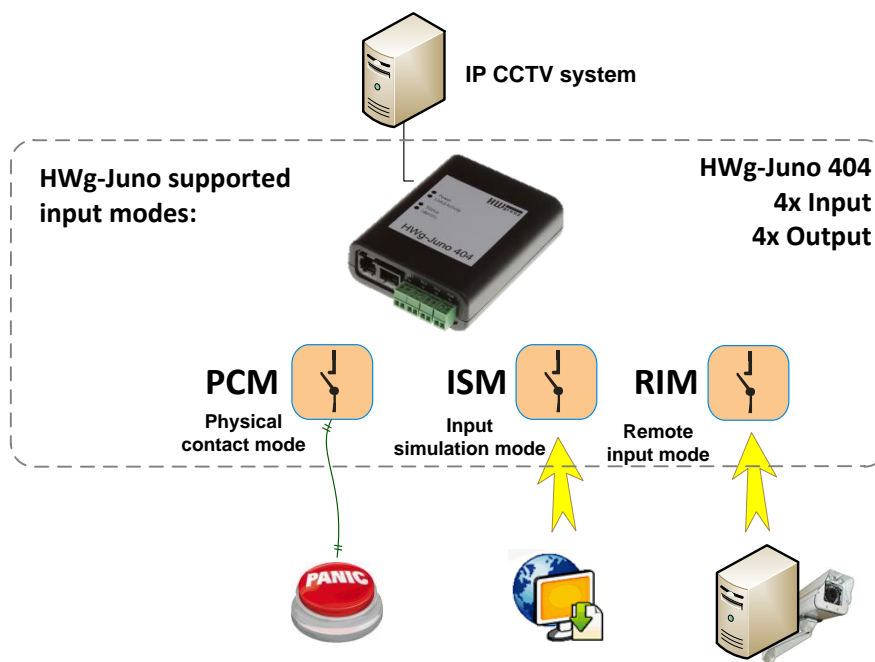
- *Remote – API*
- *Simulation*
- *Physical contact.*

**Default input mode is Physical contact mode - PCM.**

HWg-Juno outputs support two port modes:

- *Remote*
- *Simulation.*

**Default output mode is Remote with OSM – Output state memory.**



## HWg-Juno input modes

**Physical contact mode – PCM** is basic input mode. It supports logic levels **High** and **Low**.

**Input simulation mode – ISM** is feature for testing Genetec integration with dry contacts and balanced inputs. When you switch port into simulation mode you are able to get remote control over the input state from web browser. Control buttons on HWg-Juno web interface are used to control tested inputs. Feature is used mostly for integration and site acceptance testing. ISM is also basis of scenario based simulation systems used for performance testing of security operators.

**Remote input mode – RIM** is HWg-Juno feature which allow using HWg-Juno as event gateway for any IP surveillance systems. This simple to use feature allow third-party system to send events into processing in IP surveillance management system. HWg-Juno inputs could be configured for remote input mode – RIM on port by port basis. HWg-Juno support mix or remote and physical port on unit.

## Disabling HWg-Juno ports

HWg-Juno supports disabling unused input and outputs ports. This feature is useful for application with license model based on connected ports (like cameras, inputs, outputs). Genetec Omnicast and Genetec Security Center is example of application with such license policy. To save cost of SW licenses you could disable unused ports in **HWg-Juno > I/O** admin menu.

If you want to disable 2 input ports you have to disable ports IN3 and IN4. Ports could be disabled only the last not used.

To disable units ports:

- Select number of ports you want to keep on the unit. Inputs and outputs dedicated.
- Click **Save** to apply new settings.
- Disabled inputs are listed and status of port is *Disabled*.

[Home](#) | [General Setup](#) | [I/O](#) | [Time](#) | [System](#)

### *I/O Setup*

I/O Setup		
Name	Value	Description
Number of inputs in use	<input type="text" value="2"/>	Values range 0 .. 4
Number of outputs in use	<input type="text" value="3"/>	Values range 0 .. 4

## Output Relay Power-up state

Relay output power-up mode is selected automatically by protocol used.

If you connect to HWg-Juno using Genetec protocol then OSM – Output state memory mode will be used. If you connect to HWg-Juno using PSIA protocol then NO/NC power-up status configured by PSIA will be used.

OSM mode is used for reducing the delay created from application to HWg-Juno communication.

To configure relay power-up mode:

- Go to **HWg-Juno > I/O > Output Relay Power up state**
- Select desired port mode. *Auto by protocol* is defaults settings.
- Optionally you could engage OSM mode by selection *Last state before power down*.
- Optionally you could engage PSIA protocol defined power up mode by selecting *State by PSIA protocol parameter*.

Output Relay Power up state	
Name	Value
Mode	<input type="text" value="Auto by protocol"/> <ul style="list-style-type: none"> <li>Auto by protocol</li> <li style="background-color: #e0e0e0;">Last state before power down</li> <li>State by PSIA protocol parameter</li> </ul>
<input type="button" value="Save"/>	

## Input ports configuration

**Physical input mode – PCM** mode has to be enabled on port by port basis in I/O tab of HWg-Juno admin interface. PCM is inputs specific feature. **PCM mode is default.**

To configure **Physical mode** for selected port:

- Open the admin interface of HWg-Juno unit
- Go to **HWg-Juno > I/O** tab of admin interface
- Go to **input port** selected port and from Port mode drop down menu select Physical input
- You have to **Save** the new settings to apply new configuration.

Digital Input Contact			
Name	Value	Port mode	Simulation control
In - 01	open	Physical input ▼	Open Close
In - 02	close	Remote ▼	Open Close
In - 03	open	Simulation ▼	Open Close
In - 04	disabled	disabled	Open Close

**Remote input mode – RIM** mode has to be enabled on port by port basis in I/O tab of HWg-Juno admin interface. RIM is inputs specific feature.

To configure **Remote mode** for selected port:

- Open the admin interface of HWg-Juno unit
- Go to **HWg-Juno > I/O** tab of admin interface
- Go to **input port** selected port and from Port mode drop down menu select Remote
- You have to **Save** the new settings to apply new configuration.

**Input simulation mode – ISM** mode has to be enabled on port by port basis in I/O tab of HWg-Juno admin interface. ISM could be used for all inputs and outputs.

To configure **Simulation mode** for selected port:

- Open the admin interface of HWg-Juno unit
- Go to **HWg-Juno > I/O** tab of admin interface
- Select the input port for testing.
- From Port mode drop down menu select Simulation
- You have to **Save** the new settings to apply new configuration.
- Once new setting is applied **Simulation buttons** become available for testing.

## Output ports configuration for Remote and Simulation mode

Relay outputs could be configured to two modes:

- **Remote** – control of relay output ports is done using from software using Genetec or PSIA protocol. Remote mode is **Defaults** settings
- **Simulation** – is used for manual output port control. This mode is used for testing and troubleshooting.

Digital Output Contact			
Name	Value	Port mode	Simulation control
Out - 01	close	Remote ▼	Open Close
Out - 02	open	Simulation ▼	Open Close
Out - 03	open	Remote ▼	Open Close
Out - 04	disabled	disabled	Open Close

To configure **Remote mode** for selected port:

- Open the admin interface of HWg-Juno unit
- Go to **HWg-Juno > I/O tab** of admin interface
- Select the output port for testing.
- From Port mode drop down menu select Remote
- You have to **Save** the new settings to apply new configuration.

To configure **Simulation mode** for selected port:

- Open the admin interface of HWg-Juno unit
- Go to **HWg-Juno > I/O tab** of admin interface
- Select the output port for testing.
- From Port mode drop down menu select Simulation
- You have to **Save** the new settings to apply new configuration.
- Once new setting is applied **Simulation buttons** become available for testing.

# Time

Time configuration is optional for future use. Genetec protocol did not use internal unit clock.

**Time configuration using NTP server.**

**Enter domain name only if you configured DNS server address in HWg-Juno > Home**

**Manual configuration of the time and date**

**SNTP Setup**

Name	Value	Description
SNTP Server	tk.cesnet.cz	IP Address or DNS Name
Time Zone	+1	Number -12 ... +13
Summertime	<input checked="" type="checkbox"/>	last Sun Mar 2:00 - last Sun Oct 2:00
Interval	1h	Sync period: Off/1h/24h

Save

**SNTP synchronize**

Sync

**Time Setup**

Name	Value	Description
Time	12 : 38 : 17	hh:mm
Date	28 . 09 . 2010	DD.MM.YYYY

Save

HWg-Juno 404: For more information try [www.hw-group.com](http://www.hw-group.com)

# System

The screenshot shows the 'System' configuration page for the HWg-Juno 404. The page title is 'HWg-Juno 404' and the URL is '172.16.1.13/cgi-bin/sys/system.asp'. The page contains several sections:

- Download:** A table with columns 'Description' and 'File'. It lists 'Backup configuration' (file: HWg\_Juno\_Config.bin) and 'Online values in XML' (file: values.xml).
- System:** A table with columns 'Name' and 'Value'. It lists system information such as version (1.0.8), compile time (Oct 05 2010, 10:14:11), build (1278), and up time (2:37). Below this table are buttons for 'Vybrat soubor' (Select file), 'Soubor nevybrán' (File not selected), and 'Upload'.
- Device Identify:** A section with an 'Identify' button.
- Factory Default:** A section with a 'Default' button.
- System Restart:** A section with a 'Reboot' button.

Callouts from the image:

- 'Download unit's configuration backup' points to the 'Backup configuration' row in the Download table.
- 'Upload unit's configuration backup or unit's firmware file.' points to the 'Upload' button.
- 'LED identification LED is illuminated after pressing the button.' points to the 'Identify' button.
- 'Restore factory defaults' points to the 'Default' button.
- 'Unit reboot' points to the 'Reboot' button.

## Appendix A:

### RIM API

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The remote control input – RIM has simple WEB based API. To control the HWg-Juno input port you have to set port into remote mode.

State of the input is controlled by sending HTTP command to device:

#### Single port control:

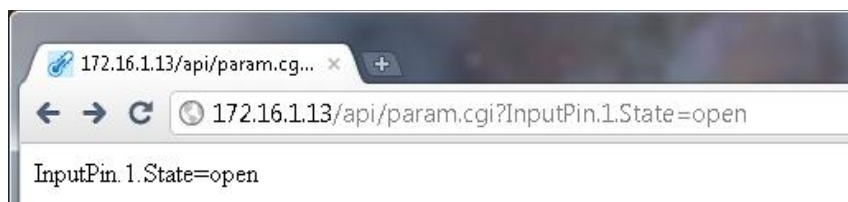
To **set port to CLOSED** send request to the unit:

<http://device IP address/api/param.cgi?InputPin.1.State=close>

To **set port to OPEN** send request to the unit:

<http://device IP address/api/param.cgi?InputPin.1.State=open>

Unit will answer with real state of the input:



If the port is not set to remote mode, units will answer:

404 Non existing page

#### Multiple port control:

Commands to multiple ports could be sent all in once:

Example: <http://192.168.10.20/api/param.cgi?InputPin.1.State=open&InputPin.2.State=close>



## RIM Security

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Remote input mode support unit security features. HWg-Juno unit supports Basic authentication. Access to unit is protected with user name and password.

To configure protected access for RIM

- Enter user name and password in units admin interface **HWg-Juno > General setup**
- Reboot the unit to apply the security settings.

All access to unit will now require authentication with user name and password.

Remote input port control HTTP API commands must be used with integrated authentication.

### Single port control:

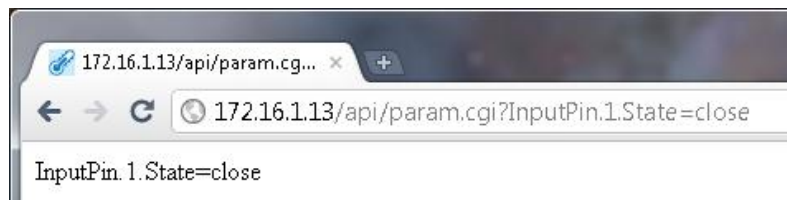
To **set port to CLOSED** send request to the unit:

<http://user name:password@device IP address/api/param.cgi?InputPin.1.State=close>

To **set port to OPEN** send request to the unit:

<http://user name:password@device IP address/api/param.cgi?InputPin.1.State=open>

Unit will answer with real state of the input:



Wrong or missing authentication will provide answer:



Note: Microsoft Internet Explorer does not support integrated authentication from version 8 and newer. For testing and development you have to use Firefox or Google Chrome web browsers.