

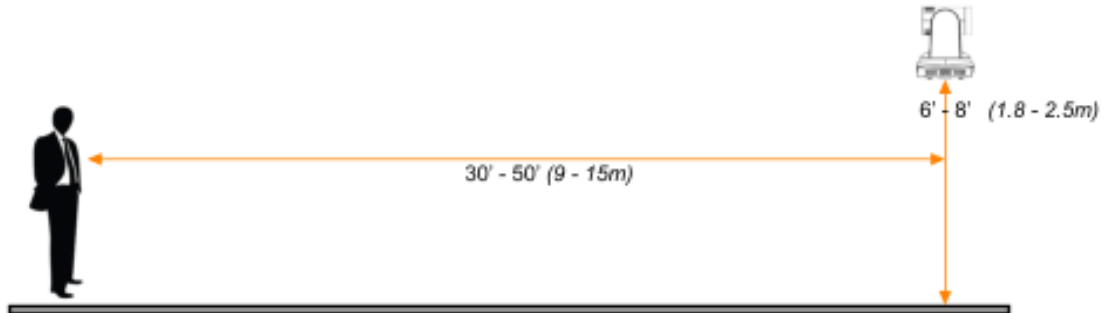


# Configuring RUSHWORKS 3n1 for tracking using the Setup Utility



## System Operation

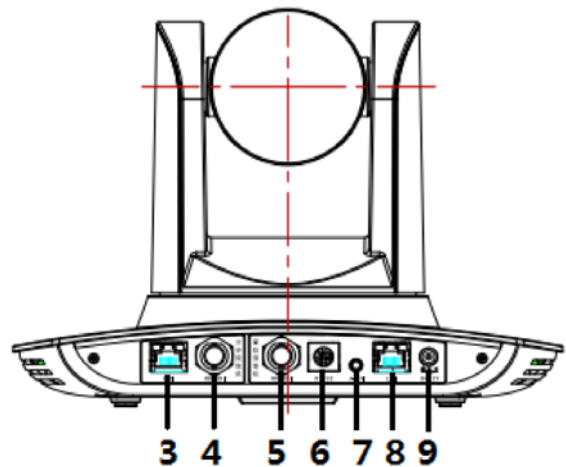
For best results, the camera should be positioned in the rear center of the room, between 30' and 50' from the front coverage area, and between 6' and 8' from the base of the fixture to the floor.



## System Connections

This diagram indicates the physical connections available on the 3N1:

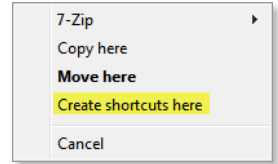
3. LAN network port for wide angle lens
4. SDI output 1 (wide angle lens output)
5. SDI output 2 (PTZ lens output)
6. RS-232 control port
7. Audio input port
8. LAN network port for PTZ lens
9. Power supply port (DC12V)



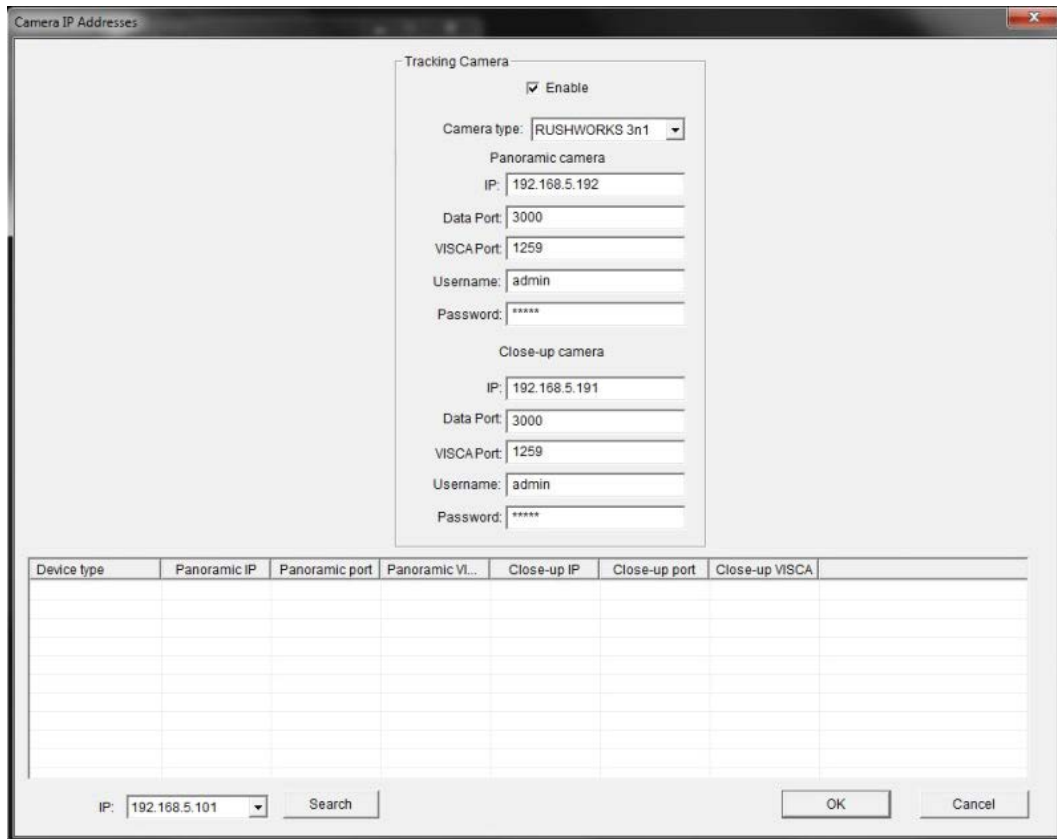
## Configuring the Camera



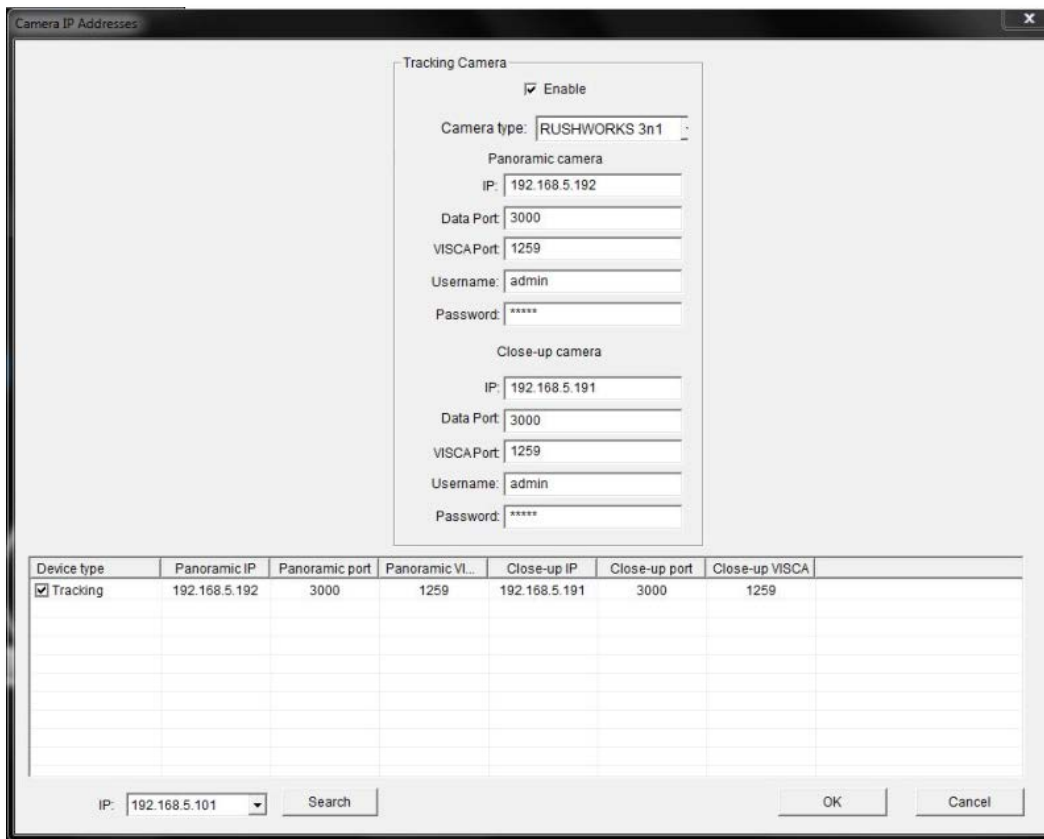
Create a folder called **RUSHWORKS 3n1** on your hard drive. Then copy the [3n1 Setup.zip](#) file into that folder. Unzip the contents into that folder, then double-click the 3n1 Setup.exe icon to open the utility. *Note: If you want to create a shortcut on your desktop, right-click and drag the icon to the desktop. Release the mouse, and choose [Create shortcuts here](#).*



When you launch the utility, the **3n1 Setup** window will appear. Click the **Setup** dropdown menu and click **Camera IP Addresses...**



Click the **Search** button ... and the system will locate your 3n1 camera, indicated in the first line under Device type.

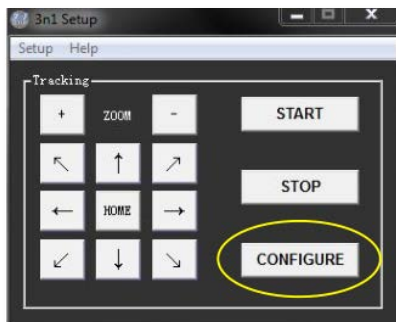


Device type	Panoramic IP	Panoramic port	Panoramic VI...	Close-up IP	Close-up port	Close-up VISCA
<input checked="" type="checkbox"/> Tracking	192.168.5.192	3000	1259	192.168.5.191	3000	1259

Click the checkbox to the left of the camera name and click **OK**.

Now that you've identified the camera on the network, you're ready to configure the tracking parameters.

Click the **CONFIGURE** button and the **Configure 3n1 Tracking** window will appear.



## Configure Tracking

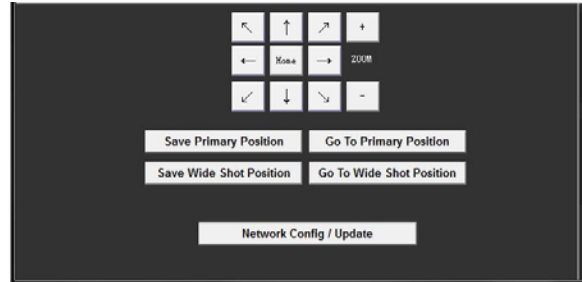
You'll need to set values for each of the tracking parameters in order to optimize tracking behavior. When the setup window opens, the output of the PTZ camera appears in the PTZ Camera window on the left. The output of the Wide Angle Camera is visible in the right window.

The on-screen touchpad arrow buttons are active for panning, tilting and zooming the PTZ camera.

Here are the steps you use to set up tracking:

### PTZ Tracking Presets

1) Use the touchpad arrow buttons to frame the shot you'll use for **PTZ tracking**. The best practice is to have the subject stand in the middle of the tracking area while you frame your shot. Then click the **Save Primary Position** button.



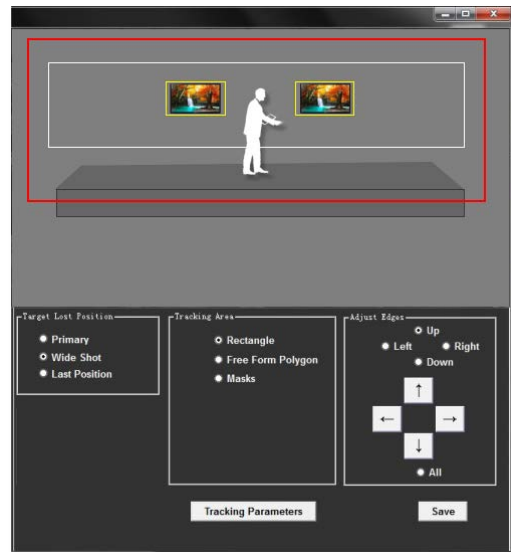
2) Use the touchpad arrow buttons to frame the shot you'll use for a **Wide Shot** that may be used if the tracking algorithm loses the subject. Again, the best practice is to have the subject stand in the middle of the tracking area while you frame your shot. Then click the **Save Wide Shot Position** button.

**Note:** Click the **GoTo** buttons beside the respective presets to confirm your shot framing. If you want to change the framing, use the touchpad arrow buttons then click **Save**, and it will overwrite the previous framing.

### Tracking Area

There are three settings you'll define in this area: **Rectangle**, **Free Form Polygon** and **Masks**. These functions are color-coded, with the text matching the color of its associated shape and function. Click the appropriate radio button to use that function.

When you're defining these elements, and to modify them at any time, use the **Adjust Edges** radio buttons and arrows to modify your bounding selections. First select the edge you want to adjust using the radio buttons, then click the directional arrow buttons to make the adjustments (Top, Bottom, Left, Right). Click the **All** radio button and use the arrows to move the entire selected rectangle in the direction of the arrow.



1) Click the **Rectangle** radio button ... then use the mouse to drag a white rectangular border on top of the image from the Wide Angle camera. This defines the maximum area in which the subject will be moving, e.g. a stage or presentation area at the front of a room.

2) Click the **Free Form Polygon** radio button ... and use the mouse to draw red connecting lines to define areas where you want to follow your subject. Click once to set the location of the first point, then click the next point to draw the first line segment. Continue click points until you've defined a closed polygon.

3) Click the **Masks** radio button ... and use the mouse to drag yellow rectangles over areas of motion, such as TV monitors and other 'busy' areas that may interfere with focusing on the motion of the primary subject. You can create up to 10 individual masks per camera. To create Masks, first check the Mask number checkbox, then drag the bounding mask rectangle over the object(s).

## Tracking Parameters

Click the **Tracking Parameters** button to open the entry window. Experiment with these settings to obtain optimal results in your production environment.

**Motion Sensitivity:** In tracking mode, this is the action range required to trigger tracking when the tracking subject changes from stationary to in-motion. The higher the action sensitivity, the smaller the amount of motion is necessary to trigger auto tracking.

**Horizontal Speed:** The speed used by the camera for horizontal motion tracking

**Vertical Speed:** The speed used by the camera for vertical motion tracking

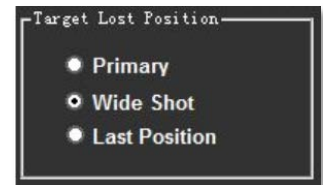
**Zoom range:** The larger the range, the more amount of camera zoom is used when the subject steps down from a stage or platform

**Lost Timeout:** The time required (5s by default) for the tracking camera to perform the “subject lost” action when the subject is outside the defined range of action.

**Under Sensitivity:** This is used to define the action if the subject steps down from a stage or platform. The lower the sensitivity, the farther the subject’s distance from the defined area is used to trigger the down platform action.

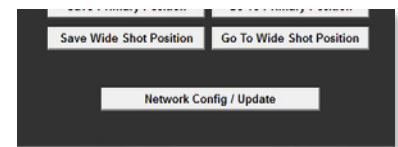
Click **Ok** when you’re happy with the results of your settings. Click the **X** in the menu bar to close the window.

**Target Lost Position** – select which PTZ Preset you prefer if the tracked subject moves out of the defined Tracking Area/Boundary. The default is **Wide Shot Preset**.



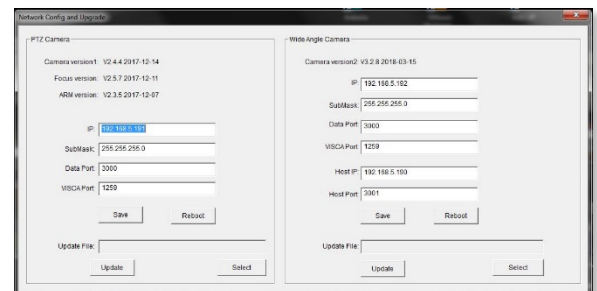
## Network Update

If there is a need to update the camera firmware (RUSHWORKS will advise), you’ll need to use the 3n1 configuration tools. Click **Configure -> Network Config/Update** to enter update the interface.

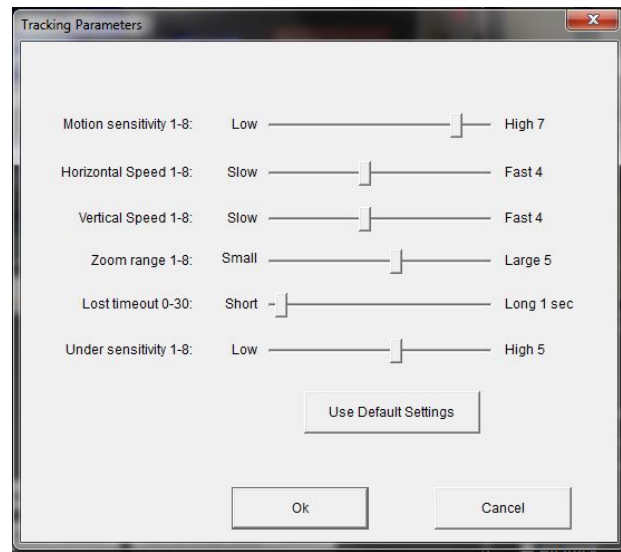
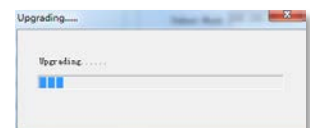


When updating the firmware, be sure to note whether the camera to be upgraded is the PTZ camera or Wide Angle camera, then click the appropriate **Select File** button, followed by the Update button. A progress prompt indicates the status of the file upgrade.

After the firmware upgrade is complete, the camera will perform a self-inspection.



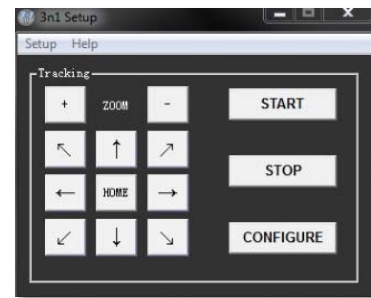
**Note:** After upgrading, you can restore the factory settings by using the combination of keys **[\*] [#] [6]** on the remote control, or by the remote control menu.



## Turning Tracking On and Off

Click the **START** button to begin tracking.

Click the **STOP** button to turn tracking off



## Description of the Remote Control

### 1. Standby key

Long press standby key for 3s, camera enters standby mode, long press this key again for 3s, camera will perform self-inspection again and return to HOME position. When setting #0 as preset, when there is no action within 12s, the holder will return to #0 preset.

### 2. Select camera

Select address number of camera to be controlled.

### 3. Number key

Set or call #0-9 preset.

### 4. \*key and #key

### 5. Focus control key: adjust focus.

[Auto focus]: Enter auto focus mode

[Manual focus]: shift camera focusing mode to manual; adjust focus via [Focus +] or [Focus -]

### 6. Zoom key

[Zoom +]: zoom out lens; [Zoom -]: zoom in lens

### 7. Set and clear preset key

**Set preset:** Save a preset, set preset + number key (0-9), that is set preset of corresponding number key

**Cancel preset:** Cancel a preset, cancel preset + number key (0-9), that is cancel preset of corresponding number key

### 8. Pan and Tilt control key

UDLR (Up, Down, Left, Right) arrows control the pan and tilt of the PTZ head.

[HOME] key: The head returns to center position or enters the next level menu.

### 9. Backlight compensation control key

**Backlight on/off:** Turn on or off backlight.

**10. Menu key:** Enter/exit OSD menu or return to previous level menu.

### 11. Set infrared remote control address of camera

[\*] + [#] + [F1] : # 1 address [\*] + [#] + [F2] : # 2 address

[\*] + [#] + [F3] : #3 address [\*] + [#] + [F4] : #4 address

### 12. Combination key functions

[#] + [#] + [#] : Cancel all presets

[\*] + [#] + [6] : Restore factory settings

[\*] + [#] + [9] : Shift between front and upside down installation

[\*] + [#] + manual: Restore default IP, user name, password

[#] + [#] + [0] : Select 1080p60

[#] + [#] + [1] : Select 1080p50

[#] + [#] + [2] : Select 1080i60

[#] + [#] + [3] : Select 1080i50





- [#] + [#] + [4] : Select 720p60
- [#] + [#] + [5] : Select 720p50
- [#] + [#] + [6] : Select 1080p30
- [#] + [#] + [7] : Select 1080p25
- [#] + [#] + [8] : Select 720p30
- [#] + [#] + [9] : Select 720p25

## Using the Remote Control

After a normal startup of the camera, it receives infrared commands. Press down a remote control key, and the key flashes while sending the command to the camera. You can set and recall presets, and control pan, tilt and zoom position with the control.

### Description of keys

1. "Key press" means press and release the key on remote control. For example, "press [HOME] key" means press down [HOME] key and release. If long press is needed, it will be indicated.
2. Operation of the combination keys requires pressing the keys in the order specified. For example, "press [\*] + [#] + [F1]" means press [\*] first, then [#], and [F1] last.

<p><b>Select Camera</b></p> 	<p>Select address number of camera to be controlled.</p>
<p><b>2) Control holder</b></p> 	<p><b>Tilt up:</b> Press [↑];  <b>Tilt down:</b> Press [↓];  <b>Pan left:</b> Press [←];  <b>Pan right:</b> Press [→];  <b>Center position:</b> Press [HOME]</p> <p>Pressing and <u>holding</u> the pan and tilt keys changes from low speed to high speed as long as the button continued to be held down.</p>
<p><b>3) SET, CLEAR preset</b></p> 	<p><b>SET PRESET:</b> Press this corner of the button then press any number key from 0 to 9, it will reset a preset corresponding to the number key.  <i>Note: with remote control, it can set 10 presets at most.</i></p> <p><b>CLEAR PRESET:</b> Press this corner of the button then press any number from 0 to 9, it will cancel the preset corresponding to the number.  <i>Note: Press [#] three times in a row, it will cancel all presets.</i></p>
<p><b>4) Zoom control</b></p> 	<p><b>Zoom in:</b> Press [ZOOM +]  <b>Zoom out:</b> Press [ZOOM -]</p> <p>Holding down these keys enables continuous zoom in/zoom out</p>
<p><b>5) Focus control</b></p>	<p><b>FOCUS in:</b> Press FOCUS + key (only valid in manual focus mode)  <b>FOCUS out:</b> Press FOCUS - key (only valid in manual focus mode)</p> <p>Holding down these keys enables continuous focus in/focus out</p>



Auto focus: support Manual focus: support ????

6) Set infrared remote control address of camera



- [\*] + [#] + [F1] : Set up #1 address
- [\*] + [#] + [F2] : Set up #2 address
- [\*] + [#] + [F3] : Set up #3 address
- [\*] + [#] + [F4] : Set up #4 address

Menu Functions

<p><b>Main Menu</b> =====</p> <p>Language            English (Setup) (Camera) (P/T/Z) (Video Format) (Version) (Restore Default)</p> <p>[↑ ↓] Select    [←→] Change Value [Menu]Back        [Home]OK</p>	<p><b>Language:</b> Select menu language <b>Settings:</b> Enter submenu of system parameter settings <b>Camera parameters:</b> Enter submenu of camera parameter settings <b>P/T/Z:</b> Enter submenu item of holder parameter settings <b>Version:</b> Enter submenu of Version <b>Restore default:</b> Enter restore default, select “yes” or “no” [↑ ↓] Select: Press [↑ ↓] to select menu item [←→]Change value: Press [←→] to change value [Menu] return: Press menu key to return [Home] OK: Press [Home] key to confirm</p>
<p><b>System Parameters</b> =====</p> <p>Protocol            Auto Visca Address        1 Visca Address Fix    OFF PELCO-P Address    1 PELCO-D Address    1 Baudrate            9600</p> <p>[↑ ↓]Select    [←→]Change Value [Menu]Back</p>	<p><b>Protocol:</b> VISCA/PELCO-P/PELCO-D/Auto <b>VISCA Address:</b> 1-7 <b>VISCA address fix:</b> ON/OFF <b>PELCO-P Address:</b> 1-64 <b>PELCO-D Address:</b> 1-64 <b>Baudrate:</b> 2400/4800/9600/115200</p>
<p><b>Camera Parameters</b> =====</p> <p>(Exposure) (Color) (Image) (Focus) (Noise Reduction) Style                Default</p> <p>[↑ ↓]Select    [←→]Change Value [Menu]Back        [Home]OK</p>	<p><b>Exposure:</b> Enter exposure submenu <b>Color:</b> Enter color submenu <b>Image:</b> Enter image submenu <b>Focus:</b> Enter focus submenu <b>Noise reduction:</b> Enter noise reduction submenu <b>Style:</b> Default, Standard, Clear, Bright, Gentle</p>
<p><b>Exposure</b> =====</p> <p>Mode                Auto EV                    OFF BLC                  OFF Flicker             50Hz G.Limit             3 DRC                  2</p> <p>[↑ ↓]Select    [←→]Change Value [Menu]Back</p>	<p><b>Mode:</b> Auto, Manual, Shutter Priority, Aperture Priority, Brightness Priority <b>EV:</b> ON/OFF (only valid in Auto mode) <b>Exposure Comp:</b> -7~7 (only valid in Auto mode when “EV” is on) <b>BLC:</b> ON/OFF (only valid in Auto mode) <b>DRC:</b> 1~8, OFF <b>Flicker:</b> Off, 50Hz, 60Hz (valid in auto, shutter priority and brightness priority modes) <b>G. Limit:</b> 0~15 (valid in auto, shutter priority and brightness priority modes)</p>



	<p><b>Shutter priority:</b> 1/25, 1/30, 1/50, 1/60, 1/90, 1/100, 1/120, 1/180, 1/250, 1/350, 1/500, 1/1,000, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 (valid in manual and shutter priority modes)</p> <p><b>Aperture priority:</b> Off, F11.0, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0, F1.8 (valid in manual and aperture priority modes)</p> <p><b>Brightness:</b> 0~23 (only valid in brightness priority mode)</p>																		
<p><b>Color</b></p> <p>=====</p> <table border="0"> <tr><td>WB Mode</td><td>Auto</td></tr> <tr><td>RG Tuning</td><td>0</td></tr> <tr><td>BG Tuning</td><td>0</td></tr> <tr><td>Saturation</td><td>100%</td></tr> <tr><td>Hue</td><td>7</td></tr> <tr><td>AWB Sensitivity</td><td>Low</td></tr> </table> <p>[↑↓]Select [←→]Change Value [Menu]Back</p>	WB Mode	Auto	RG Tuning	0	BG Tuning	0	Saturation	100%	Hue	7	AWB Sensitivity	Low	<p><b>WB Mode:</b> Options: auto, 3000K, 4000K, 5000K, 6500K, manual, one-key white balance.</p> <p><b>RG Tuning:</b> Options: -10~10 (only valid in auto mode)</p> <p><b>BG Tuning:</b> Options: -10~10 (only valid in auto mode)</p> <p><b>Red gain:</b> Options: 0~255 (only valid in manual mode)</p> <p><b>Blue gain:</b> Options: 0~255 (only valid in manual mode)</p> <p><b>Saturation:</b> Options: 60%, 70%, 80%, 90%, 100%, 110%, 120%, 130%, 140%, 150%, 160%, 170%, 180%, 190%, 200%</p> <p><b>Hue:</b> 0~14</p> <p><b>AWB Sensitivity:</b> high, medium, low (only valid in auto mode)</p>						
WB Mode	Auto																		
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BG Tuning	0																		
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Hue	7																		
AWB Sensitivity	Low																		
<p><b>Image</b></p> <p>=====</p> <table border="0"> <tr><td>Brightness</td><td>7</td></tr> <tr><td>Contrast</td><td>7</td></tr> <tr><td>Sharpness</td><td>4</td></tr> <tr><td>Flip-H</td><td>OFF</td></tr> <tr><td>Flip-V</td><td>OFF</td></tr> <tr><td>B&amp;W-Mode</td><td>Color</td></tr> <tr><td>Gamma</td><td>Default</td></tr> <tr><td>DZoom</td><td>OFF</td></tr> <tr><td>DCI</td><td>OFF</td></tr> </table> <p>[↑↓]Select [←→]Change Value [Menu]Back</p>	Brightness	7	Contrast	7	Sharpness	4	Flip-H	OFF	Flip-V	OFF	B&W-Mode	Color	Gamma	Default	DZoom	OFF	DCI	OFF	<p><b>Brightness:</b> Options: 0~14</p> <p><b>Contrast:</b> Options: 0~14</p> <p><b>Sharpness:</b> Options: 0~15</p> <p><b>Flip-H:</b> Options: on/off</p> <p><b>Flip-V:</b> Options: on/off</p> <p><b>B&amp;W-Mode:</b> Options: color, black&amp;white</p> <p><b>Gamma:</b> default, 0.45, 0.50, 0.55, 0.63</p> <p><b>Dzoom:</b> on/off</p> <p><b>DCI (dynamic contrast):</b> OFF, 1~8</p>
Brightness	7																		
Contrast	7																		
Sharpness	4																		
Flip-H	OFF																		
Flip-V	OFF																		
B&W-Mode	Color																		
Gamma	Default																		
DZoom	OFF																		
DCI	OFF																		
<p><b>Focus</b></p> <p>=====</p> <table border="0"> <tr><td>Focus Mode</td><td>Auto</td></tr> <tr><td>AF-Area</td><td>Center</td></tr> <tr><td>AF-Sensitivity</td><td>Low</td></tr> </table> <p>[↑↓]Select [←→]Change Value [Menu]Back</p>	Focus Mode	Auto	AF-Area	Center	AF-Sensitivity	Low	<p><b>Focus mode:</b> Auto/Manual</p> <p><b>AF-Area:</b> Up/Center/Low</p> <p><b>AF-Sensitivity:</b> High/Medium/Low</p>												
Focus Mode	Auto																		
AF-Area	Center																		
AF-Sensitivity	Low																		
<p><b>Noise Reduction</b></p> <p>=====</p> <table border="0"> <tr><td>NR-2D</td><td>3</td></tr> <tr><td>NR-3D</td><td>3</td></tr> <tr><td>Dynamic Hot Pixel</td><td>OFF</td></tr> </table> <p>[↑↓]Select [←→]Change Value [Menu]Back</p>	NR-2D	3	NR-3D	3	Dynamic Hot Pixel	OFF	<p><b>NR-2D:</b> Auto, OFF, 1~7</p> <p><b>NR-3D:</b> OFF, 1~8</p> <p><b>Dynamic Hot Pixel:</b> OFF, 1~5</p>												
NR-2D	3																		
NR-3D	3																		
Dynamic Hot Pixel	OFF																		
<p><b>PTZ</b></p> <p>=====</p> <table border="0"> <tr><td>Speed by zoom</td><td>ON</td></tr> <tr><td>Zoom speed</td><td>8</td></tr> <tr><td>Image Freezing</td><td>OFF</td></tr> <tr><td>Acc Curve</td><td>Slow</td></tr> </table> <p>[↑↓]Select [←→]Change Value [Menu]Back</p>	Speed by zoom	ON	Zoom speed	8	Image Freezing	OFF	Acc Curve	Slow	<p><b>Speed by zoom:</b> It only works on remote control, on, off; when camera zooms in, remote control will make holder rotate at lower speed.</p> <p><b>Zoom speed:</b> Set speed for remote control camera zoom, 1~8</p> <p><b>Image Freezing:</b> Options: On/off</p> <p><b>Acc Curve:</b> Options: Quick/slow</p>										
Speed by zoom	ON																		
Zoom speed	8																		
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<p><b>Video Format</b></p> <p>=====</p> <table border="0"> <tr><td>1080P60</td><td>1080P50</td></tr> <tr><td>1080I60</td><td>1080I50</td></tr> <tr><td>1080P30</td><td>1080P25</td></tr> <tr><td>720P60</td><td>720P50</td></tr> <tr><td>720P30</td><td>720P25</td></tr> <tr><td>1080P59.94</td><td>1080I59.94</td></tr> <tr><td>1080P29.97</td><td>720P59.94</td></tr> <tr><td>720P29.97</td><td></td></tr> </table> <p>[ ↑ ↓ ] Select [Menu]Back [Home]OK</p>	1080P60	1080P50	1080I60	1080I50	1080P30	1080P25	720P60	720P50	720P30	720P25	1080P59.94	1080I59.94	1080P29.97	720P59.94	720P29.97		<p><b>Note:</b> only when rotation dial-up is at F will ST model menu show this item.</p> <p><b>S version:</b> 1080p60 downward compatibility <b>M version:</b> 1080p30 downward compatibility</p> <p>Change parameter value in the menu. To save a value when power is turned off, exit menu.</p>
1080P60	1080P50																
1080I60	1080I50																
1080P30	1080P25																
720P60	720P50																
720P30	720P25																
1080P59.94	1080I59.94																
1080P29.97	720P59.94																
720P29.97																	
<p><b>Firmware Version</b></p>	<p>On the main menu, move the cursor to (Version), press [HOME] key to enter Version page. Version information varies from product model and date of production. Version information contains version number and version upgrade time.</p> <p><b>MCU version:</b> It displays MCU version information. <b>Camera version:</b> It displays camera version information. <b>Focus version:</b> It displays focus version information.</p>																
<p><b>Restore Default</b></p> <p>=====</p> <p>Restore Default? NO</p> <p>[ ↑ ↓ ] Select [←→]Change Vali [Menu]Back [Home]OK</p>	<p><b>Note:</b> If remote address used before is not 1, but any one from 2, 3 and 4, after restoring all parameters or system parameters, device address corresponding to the remote control will be reset to 1. At this moment, it is needed to change remote control address to 1, that is, press Camera and select [1], control will function.</p>																



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