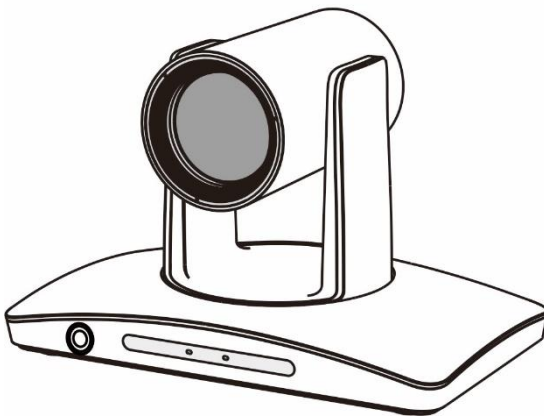


Lecturer Tracking Camera

User Manual V1.0

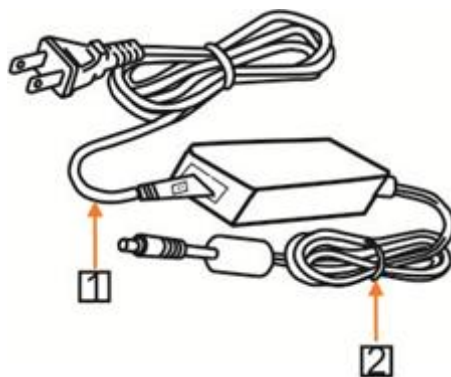


SAFETY NOTICE-IMPORTANT!!!

- The following important notes must be followed carefully to run the camera and respective accessories in total safety. The camera and relative accessories are called video system in this section.
- Before installing the camera, please read this manual carefully. Please follow installation instructions indicated in this manual during installation. Please keep this manual for future use.
- The installation should be performed by qualified service personnel or system installers in accordance with all local rules.
- Before powering on the camera, please check the power voltage carefully. Make sure that you are using the correct power source.
- Please put the power cable, video cable and control cable in safe place.
- Do not operate the camera beyond the specified temperature and humidity. Working temperature range of the camera is between 0°C and +40°C. The ambient humidity range is less than 95 % .
- During transporting, avoid violent shake or force to the camera.
- To prevent electric shock, do not remove screws or housing of the camera. There are no self-serviceable parts inside. Refer to qualified service personnel for servicing.
- Video cable and RS485/RS232 cable should be kept far away from other cables. Shielded and independent wiring is necessary for video and control cables.
- Never aim the lens of the camera at the sun or other extremely bright objects. Otherwise, it may cause damage.
- When cleaning the camera, please use soft cloth. If the camera is very dirty, wipe it off gently with a soft cloth moistened with a weak solution of water and a neutral kitchen detergent. Wring all liquid from the cloth before wiping the camera, then wipe off all remaining dirt with a soft, dry cloth. Use lens cleaning paper to clean the lens.

Do not move the camera head manually. In doing so would result in malfunction of the camera. Do not hold the camera head when carrying the video camera.

- Make sure the camera is not directly exposed to rain and water.
- Make sure the camera is far away from area where radiation, X-rays, strong electric waves, or magnetism is generated.



Attention



If you need to extend the power cable, please extend the power cable from the part 1 on below picture (220V/110V), do not extend from part 2 on below picture (DC12V), otherwise it will cause unexpected damage to the device.

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ABOUT THE PRODUCT

Quick Guide

LTC can be accessed and controlled via the following ways:

- Client software RoomTracker: tracking setting, camera search and control, network setting etc;
- RTSP: view of main stream and sub video stream;
- RTMP: view of main stream video stream;
- Internet Explorer: view of main stream video stream, camera control, network setting;
- Onvif: version 2.1 supported.

RoomTracker Software

1. Make sure PC and LTC in the same LAN;
2. Setup and open RoomTracker to find and display ETC devices online in cam list;
3. In CONFIGURE menu, set camera IP and port;
4. Click CONFIGURE to set tracking parameters.

Rtsp

1. Make sure PC and LTC in the same LAN;
2. Open VLC software and input the following URL for each stream;
3. Main stream: `rtsp://IP:port/main.h264;`

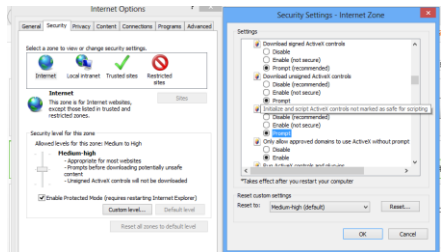
4. Sub stream: `rtsp://IP:port/sub.h264;`
5. The IP and port number can be checked with RoomTracker software.

Rtmp

1. Make sure PC and LTC in the same LAN;
2. Setup rtmp server, such as FMS;
3. Enable rtmp from Setting->Network in RoomTracker. Set rtmp stream ID such as EST0, and input rtmp server IP (default port is 1935);
4. Open VLC and input the following:
`rtmp://IP/live/TEST0.`

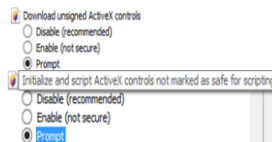
Internet Explorer

1. Make sure PC and LTC in the same LAN;
2. Open Internet Explorer and Enter Internet Options for Security Setting;

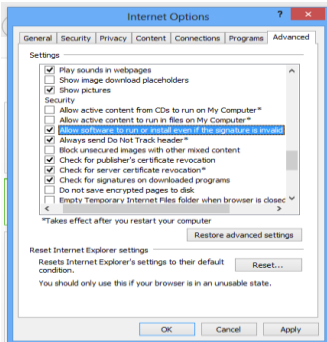


Mainly setting over the following two

options:



Meanwhile make sure the following setting options are checked;



3. Input IP address+ port number 88 (default is 88) in the IE address bar:

http://IP:88, such as:

http://192.168.18.229:88;

4. Install plugin;

5. Name: admin Password: NULL.

FEATURES

The lecturer tracking camera adopts the most advanced face and motion detection technology, it can lock and track moving target; it can realize smooth tracking performance automatically; it can precisely lock the moving target in the center of the image.

With its stability, easy-to-use and excellent performance, it is widely used in electronic classroom, distance learning, technical training and video conferencing room, etc.

Characteristics & Functions

Featured Advantages

- Advanced face and motion detection technology;
- Integrated Full HD full view camera and Full HD tracking camera;
- The camera can track lecturer all around the classroom, even if lecturer walks into students area;
- The camera can adjust automatically as per the height of lecturer;
- Excellent locking and anti-interference: the camera keeps tracking on the object even the object is still for a long period. Other moving objects and video from projectors do not interfere the tracking performance;

- Precisely and stably track a specific target, free from any light & moving interference;
- Smart AE: keeps the same exposure with considerable lighting variability;

Intelligent Tracking

- Smooth tracking performance, free from interference of other moving objects, also even if the target turns around, stands still for a long time or his / her other small gestures will not affect the tracking effect;
- Auto zoom performance during tracking.;
- Suits all kinds of classroom with different size, shape and type;

IP (Network)

- H.264 video compression;
- Support dual stream to output tracking image;

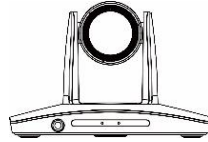
Simple Configuration

- 1 priority zone, and 8 blocking zones can be easily set through control software installed on PC;
- User-friendly interface, simple parameter settings, parameters can be set via network.

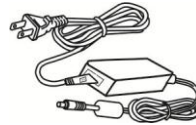
List Of Parts & Accessories

When you open the box, check all accessories according to the packing list.

Camera (1)



Power Adapter (1)



Remote Controller (1)



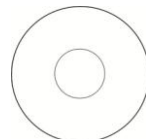
Cable Package (1)



USB Cable (1)



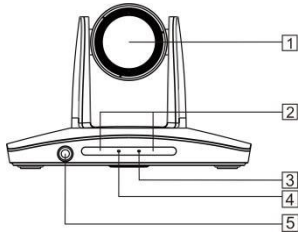
Software Disc (1)



Main Parts & Interfaces

Camera

Front View



1 Camera Module

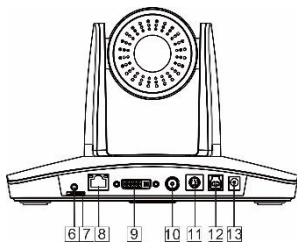
2 Remote Controller Indicator

3 Power Indicator

4 Communication Indicator

5 Full-view camera

Rear View



6 Audio

7 TF Card Slot

8 RJ45 (Network)

9 DVI Video Output

4

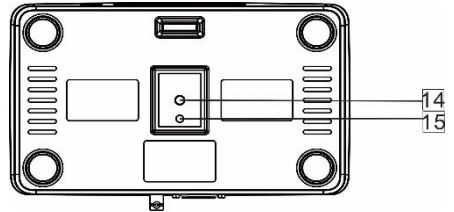
10 3G-SDI

11 RS-232 / RS-485

12 USB

13 Power (DC12V)

Bottom View



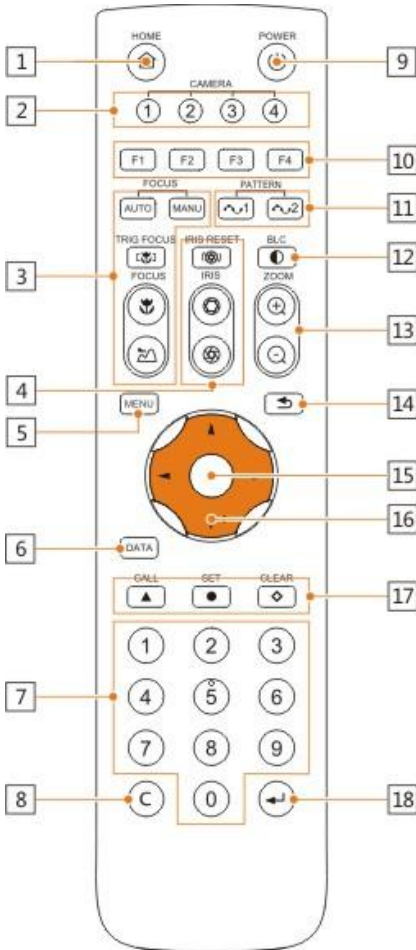
14 Mounting Hole

1/4"inch screw thread for fixing camera.

15 Locating Hole

To define installation direction of camera.

Remote Controller



1 HOME


Press **HOME** button, camera moves to initial position where both pan and tilt angle is zero.


2 Camera Selection Button


Used to switch among 4 cameras, press 1-4 number buttons to control cameras with 1-4 addresses respectively. For example, press button 1 to control the camera with address 1.

3 Focus



Press "AUTO" button to switch to Auto Focus, press "MANU" button to switch to Manual Focus mode.


"" button to Focus Near

"" button to Focus Far

"" button to Auto Focus once every time it is pressed, then switch back to Manual Focus mode.

4 Iris

Press "" button to reset iris value to default. "" button to Iris Open

"" button to Iris Close.

5 Menu

Press **MENU** button to enter / exit menu.

6 Data

Press **DATA** button to set on / off the display of pan tilt angle, zoom times and other prompt message.

7 Number Keys

Used to input numbers, for example, preset number.

8 Cancel

To cancel numbers input

9 Power

After the camera has been connected to power source, in none-menu status, press this button to turn on / off the camera.

10 Reserved buttons (F1, F2, F3, F4)

These buttons are reserved for future use.

11 Pattern


Used to activate Pattern Scan 1 and Pattern Scan 2.


12 BLC

Used to open / close back light compensation.


13 Zoom

Used to adjust zooming times.

“” button to zoom in

“” button to zoom out.

14 Back

Press “” button to go back to previous menu.





15 OK

In None-menu status: press this button to switch among pan / tilt control speeds.


In Menu status: get into relative menu option after it has been selected.

16 Direction / Menu Operation


In None-menu status, press these four buttons to pan left/right and tilt up/down.

In Menu status:  or  button to select among menu options,  or  to change option / value.


17 Preset Setting

“” button to call a preset.

Input number key(s), and then press this button to call a preset.

“” button to set a preset.

Move the camera to a specific position, adjust focus value and etc, and then press this button to set a preset.

“” button to clear a preset.

Input number key(s), and then press this button to clear a preset.

18 Enter

After inputting numbers, press this button to confirm.

INSTALLATION

INSTRUCTIONS

The camera has 2 installation types: desktop, wall (optional) installations.

Note

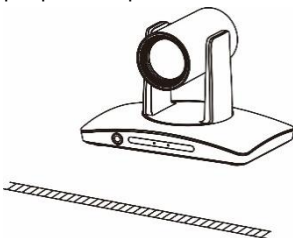
Before installing, make sure there is enough space to install the camera and its parts.



Make sure the installed place is strong and safe enough to hold the camera and relative parts, it is suggested that the installed place can withstand 4 times the weight of the camera and its relative parts.

Desktop Mount Installation

1. Put the camera on a flat surface. In case the camera has to be placed on an inclined surface, make sure the cline angle is less than 15 degrees to ensure proper pan /tilt operation.

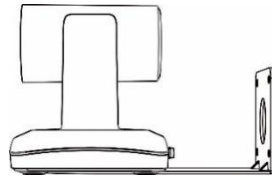


Note

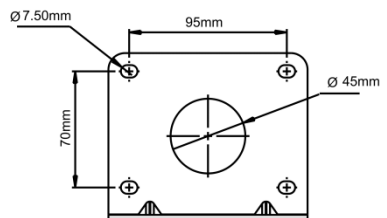


- Take effective measures to avoid camera from dropping.
- Do not grab the camera head when carrying.
- Do not rotate the camera head with hand. It may cause malfunction to the camera.

Wall Mount Installation

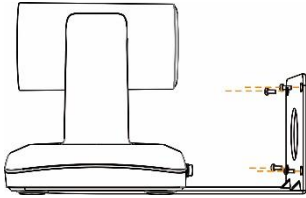


1. According to diameter and position of the 4 installation holes (As shown below) on the bracket, drill 4 holes on the wall and fix the bracket onto the wall by using 4 screws which should be prepared by you.



2. Before fixing the camera, set the DIP switches of the camera correctly.
3. Use inch screws to fix the camera on the bracket, fix the limit screw according to actual requirement, and make sure the

camera is tightly fixed onto the bracket before your hands leave the camera.



BLS Requirements

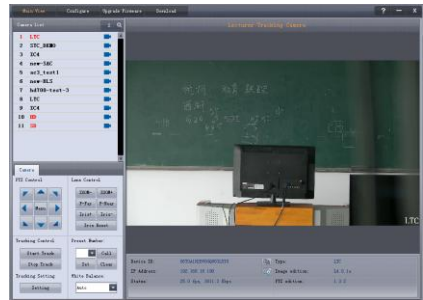
BLS device shall be installed up-left or up-right of the blackboard, with a distance of 15–20cm from the blackboard. The view angle of the camera built in BLS is 90°. Please capture the camera view and adjust the installation position till the camera view is fully covered to the whole blackboard and the bottom boundaries of blue rectangle and the blackboard in parallel, shown as follows:



SOFTWARE

CONNECTION

Setup RoomTracker from the disc in the packing, and enter the main interface as following.

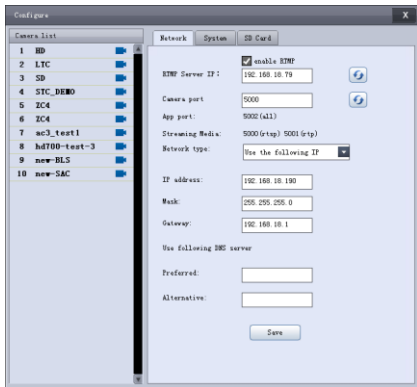


The software will auto search all devices from the same network and list all those found in the camera list. Press the Search button and the software will search again.

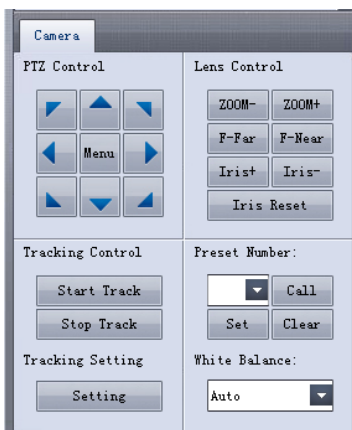
In CONFIGURE menu, select a camera in the list to change camera parameters.

Network: Set camera IP and port. App port is for SDK. Stream media is for rtsp and rtp access to the camera (such as access to main stream via VLC). Network type is to identify camera IP type and address.

System: set camera name, time, RTSP (main channel and sub channel), update PWD, and reboot camera;



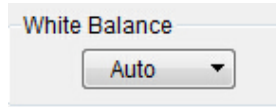
At the main interface, double click a device from the camera list and the preview interface will display the video of the device's main channel. Please use other stream media players such as VLC to view the sub channel; The control interface is under the camera list, as follows:



Menu Button:

Click MENU and the camera menu will display in the preview interface to set camera video parameters; Click MENU again and the menu will disappear;

White Balance



White balance mode, two options: Auto WB, one push WB.

Auto WB: The camera can automatically adjust white balance (WB) according to the alteration of background lightness to give a true color image. Auto WB can be used for general use.

One push WB: When the color of the video is obviously incorrect, you can enable one push trigger WB for color correction.

Operation of One push WB :

1. Have a person hold a A4 white paper, make sure the paper is pointing directly to the tracking camera.
2. Adjust the camera's Pan / Tilt / Zoom until the paper is able to cover the whole image without finger or other objects.
3. Choose one push WB option, after waiting for ten seconds when the image has been adjusted, move away the paper.

Tracking Control



Start Tracking: Start the camera's tracking function;

Stop Tracking: stop camera's tracking function;

Tracking Setting



Click SETTING and a setting interface will be displayed at the right side of the view interface to set the tracking parameters of the selected device; Click Save to save the parameter.

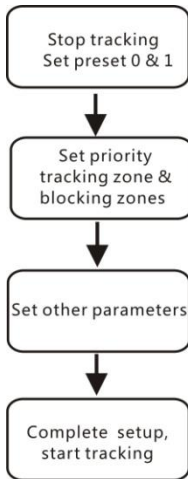
Click INQUIRE to verify if the set parameters are saved.

For LTC device, the view interface will display the videos of tracking camera (left) and full-view camera (right). After setting, the view will display the video of tracking camera.

PARAMETERS

SETTING

Setting Process



Preset 0: It is a position that can be configured to have the camera move to once tracked object gets lost, recommended to set at a full view image of the lecturing area. See basic parameter settings for details.

Preset 1: Preset 1 is the position where tracking starts, preferred to be set at Podium; to configure it, move the camera's Pan/Tilt/Zoom to put the lecturer in the appropriate size and position in the image, then set it as preset 1. In some other cases,

the preset 1 is also useful: after camera finishes calibration, it will sit at preset 1; once tracking object gets lost, the camera can be configured to move to preset 1; when the camera starts auto zooming, its zooming times is also based on preset 1's zooming times.

Preset 2: the position of BLS to determine the P/T/Z level of the LTC .

Tracking Setting

The screenshot shows the 'Tracking Setting' interface with the following sections:

- Basic Parameter:** Video Format: 1080p25, Baud Rate: 9600bps, Protocol: VISCA, Device Addr: 01. Buttons: Pos Correct, Head Height, Debug.
- Tracking Zone:** A 'Set' button.
- Blocking Zone:** A grid of 8 buttons labeled 1 through 8.
- Tracking Setting:** Checkboxes for Tilt Motion, Permanent Track, Keep Tracking Outside Tracking Zone, and Auto Zoom.
- Tracking Parameters:** A 'Reset' button and sliders for Track Sens (Low to High 4), Pan Speed (Slow to Fast 4), Tilt Speed (Slow to Fast 3), Zoom Limit (Less to More 3), and Lost Timeout (Sec. to 1 S).
- Action Settings:** Object Lost Action: Preset 1, Boardwriting Action: No Action, Startup Action: Track.
- Buttons:** Inquire, Save, OK.

Basic

The factory default setting of LTC is 1 (address), 9600bps, VISCA protocol, 1080P25 for tracking camera and full-view camera.

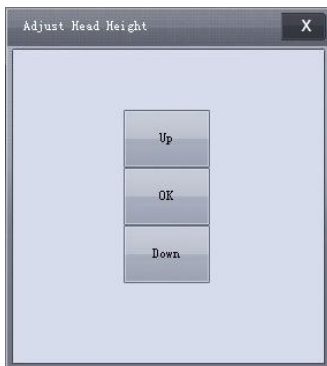
Position Calibration: adjust the lecturer's position in the video when he/she is not in the center.

Warning



The position has been adjusted to the best value before leaving the factory, do not change it until it is necessary.

Adjust Head Height

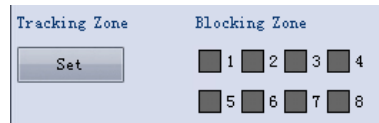


User can adjust the head height in the view.

Debug

Enable and disable the rectangles of head tracking of tracking camera and motion detection of full-view camera.

Zone Set



Recommended to set the platform or podium as priority zone, the camera will detect object from this zone to start tracking accordingly. Set other interference sources (like projector, digital whiteboard, TV screen and etc) near the platform or podium as blocking zones so the camera will not track these sources. The blocking zones must be inside the priority zone, otherwise, there will be problem in blocking. The camera's tracking range can cover the whole classroom, so the platform zone is defined as a priority tracking zone.

Usually set the top edge of the blackboard as the top boundary of the platform zone (at least higher than the lecturer's head), and the bottom boundary is higher than the students' head.



Blocking zones: There are 8 blocking zones shown in green rectangle, they can be configured independently. The moving objects inside the blocking zones of the full-view camera will not be detected and tracked while the tracking camera still tracks the lecturer head.

Tracking Setting

Tracking Setting

- Tilt Motion Permanent Track
- Keep Tracking Outside Tracking Zone
- Auto Zoom

Tilt Motion: when it's enabled the camera will automatically adjust tilt angle during tracking. When it's disabled, the camera will track as per the tilt angle of preset 1.

If the lecturer does not walk into the student area, it's suggested to disable auto zoom and tilt motion.

Permanent Tracking: when it's enabled, tracking will be activated all the time even when the lecturer walks into the student area. To avoid an extreme low tilt angle, it's suggested to disable permanent tracking. And the camera will not track at an extreme low tilt angle.

Keep tracking outside tracking zone: when it's enabled the camera will still track if the object is outside the tracking zone.

Auto zoom: when it's enabled, during tracking, the camera will auto zoom in or out. When it's disabled, the zoom during tracking will be according to preset 1.

Tracking Parameters



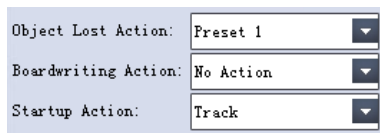
Track Sens : Set sensitivity of tracking based on speed of movement. High sensitivity will track at small movement.

Pan Speed: Pan speed of tracking;

Tilt Speed: Tilt speed of tracking;

Zoom Limit: Higher value enables higher zoom times.

Lost Timeout: Duration of seconds adjust timeout before object lost act will be performed, (go to preset 1 or 0. Default time is 5s to avoid PTZ fault when the objects disappear suddenly and come back shortly.

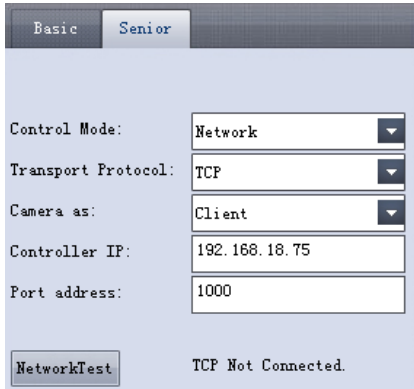


Object Lost Action: Used to define the action to be performed if the camera loses the tracked object for a period of time.

Boardwriting Action: Used to define the action to be performed when BLC is triggered. When Preset 2 is selected, LTC will go to preset 2. When Lecturer Tracking is selected, LTC will track the lecturer with zoom and tilt

degree of preset 2. It's used when preset 2 does not cover the blackwriting area.

Startup Action: The action to be performed when the camera is powered on. Default is non tracking.



Basic Senior

Control Mode: Network

Transport Protocol: TCP

Camera as: Client

Controller IP: 192.168.18.75

Port address: 1000

NetworkTest TCP Not Connected.

Control Mode: choose to control camera via network or serial port;

Transport Protocol: once "Network" is chosen as "Control Mode", choose TCP or UDP as transport protocol at this option;

Camera as: once "Network" is chosen as "Control Mode", choose "Client" to actively communicate with network controller, choose "Server" to await to be communicated from network controller;

Controller IP and Port Address: once "Network" is chosen as "Control Mode", configure network controller IP address and Port at these two frames;

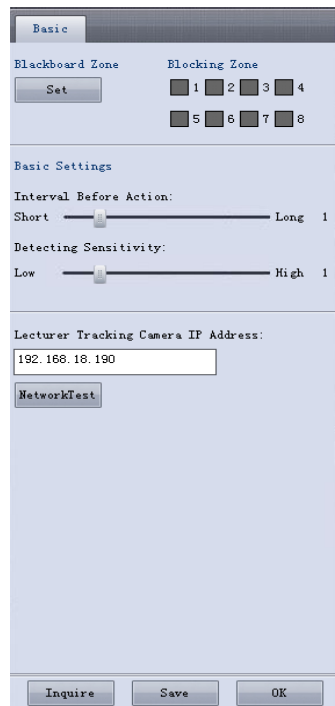
Network Test: once "TCP" is chosen, click this button to test if connection has been made.

BLS

Capture the camera view and adjust the installation position till the camera view is fully covered to the whole blackboard and the bottom boundaries of blue rectangle and the blackboard in parallel, shown as follows:



Basic



Basic

Blackboard Zone Blocking Zone

Set 1 2 3 4

5 6 7 8

Basic Settings

Interval Before Action:

Short Long 1

Detecting Sensitivity:

Low High 1

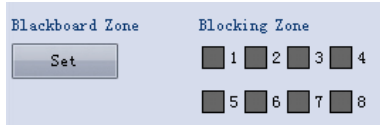
Lecturer Tracking Camera IP Address:

192.168.18.190

NetworkTest

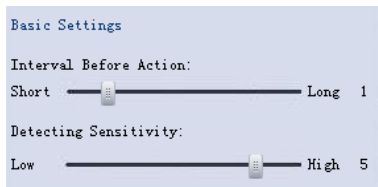
Inquire Save OK

Basic Parameters



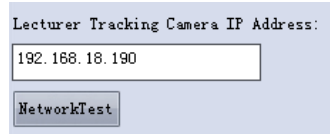
Blackboard Zone: define the effective zone of BLS trigger, displayed as a blue rectangle. Generally it covers just the whole blackboard. Bottom as per that of blackboard. To avoid faulty detection, do not cover floor beneath the blackboard or the area that may be touched by the lecturer when he is not writing on blackboard.

Blocking zones: There are 8 blocking zones shown in red rectangle to avoid interference in BLS and podium areas, they can be configured independently. The moving objects inside the blocking zones of the full-view camera will not be detected and tracked while the tracking camera still tracks the lecturer head.



Interval Before Action: Used to avoid frequent switch of BLS in short period. It's the duration of time in seconds when BLS detects the blackwriting ends. For example, if there is 3 seconds of non-blackwriting, the blackwriting end then is confirmed.

Detecting Sensitivity: 0-6 levels. Higher level may cause higher faulty detection rate. When it's 6, any object in the BLS area (for example, shadow) may be detected as a blackwriting. So 0-5 is suggested. Low level is suggested when blackboard is short.



Lecturer Tracking Camera IP Address: Setting of LTC IP is necessary. When BLS detects blackwriting, the camera of the IP address will be notified to perform a shot of blackwriting.

NetworkTest: to test if BLS and LTC is connected in the network.

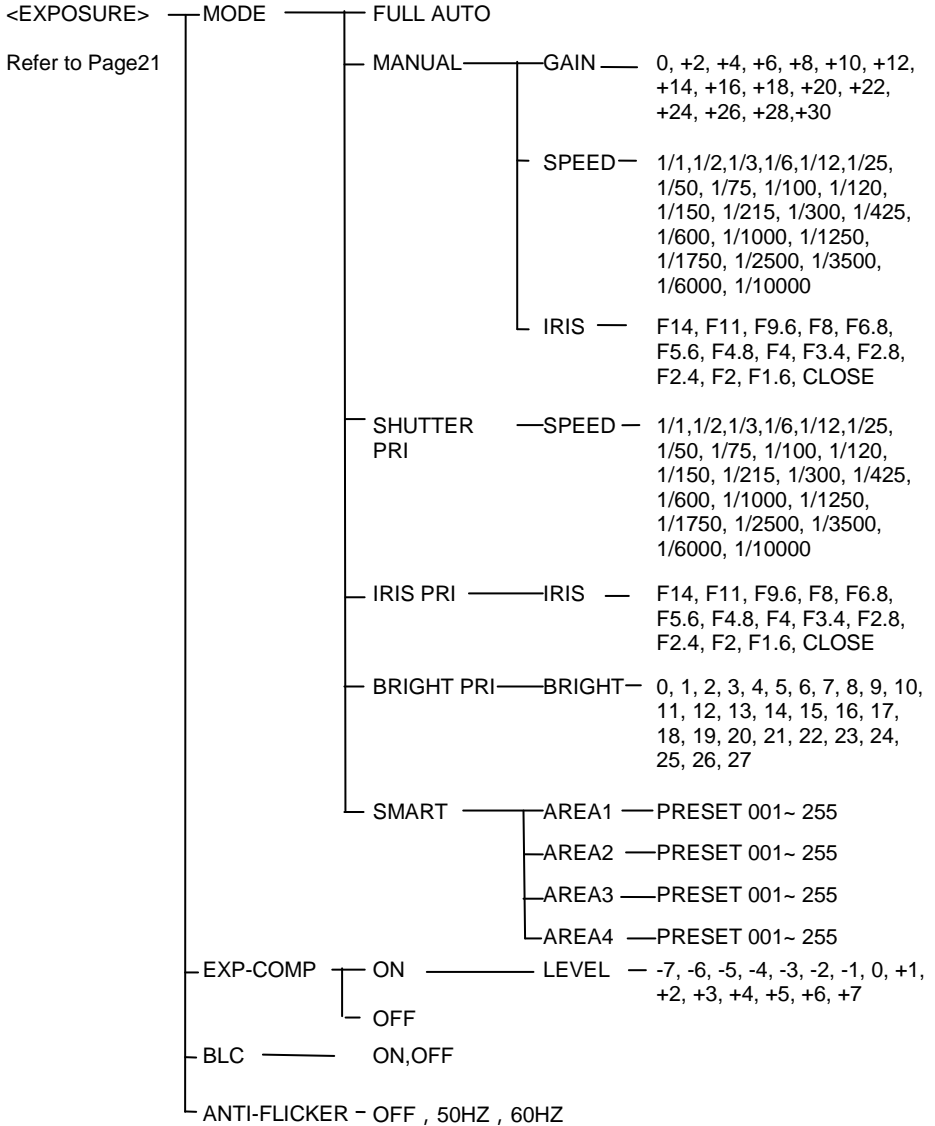
MENU SETTINGS

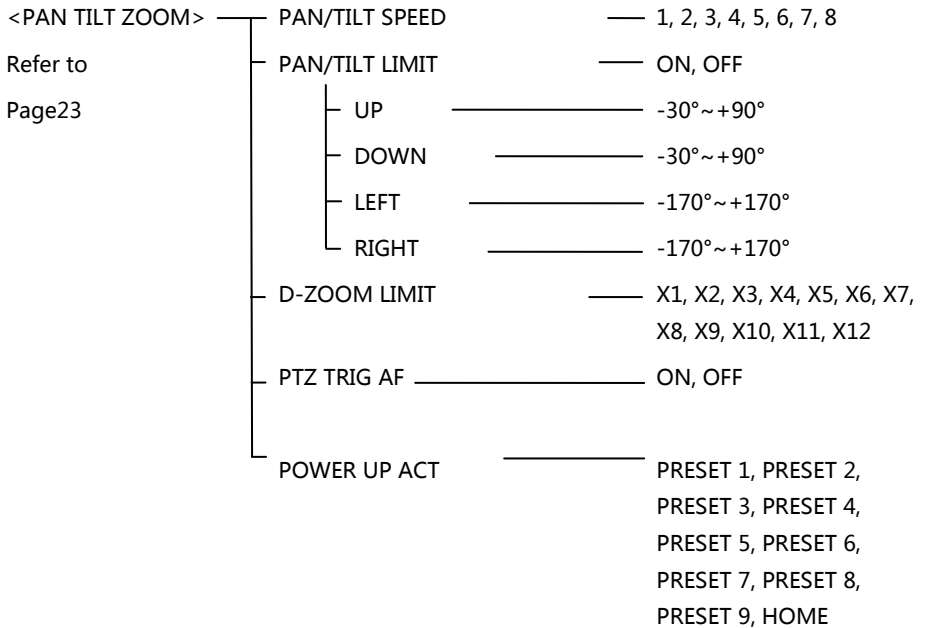
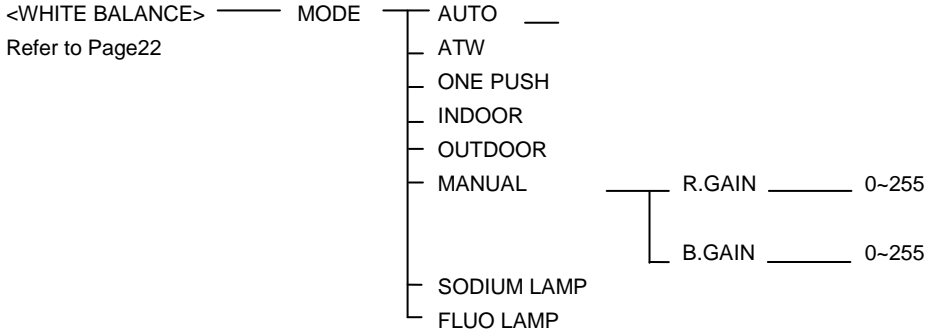
Simply click the button **MENU** to enter or exit the menu of the tracking camera, Press **IRIS+** to access the selected second level, Press **IRIS-** to go back to the previous level menu. Press the direction button to change menu item or change the parameters.

The parameters in the menu has adjusted to the best value before leaving the factory, please do not change the parameters easily. If necessary, please contact the manufacturer.

Menu Configuration

<VIDEO>	SHARPNESS	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Refer to Page 21	2DNR LEVEL	OFF , ON
	3DNR LEVEL	OFF , AUTO , 1 , 2 , 3 , 4
	WIDE DYNAMIC	ON, OFF





SYSTEM>	—	DISPLAY INFO	—	ON, OFF
Refer to	—	RATIO SPEED	—	ON, OFF
Page23	—	PRESET FREEZE	—	ON, OFF
	—	RS485	—	HALF-DUPLEX-1,HALF-DUPLEX-2,

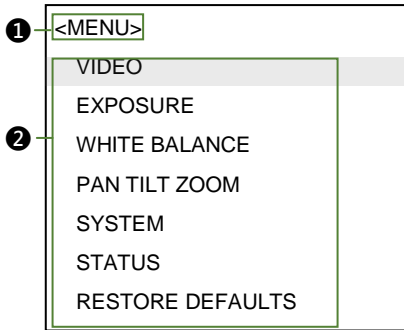
<STATUS>	—	ADDRESS	1
Refer to	—	PROTOCOL	VISCA
Page24	—	BAUDRATE	9600
	—	FORMAT	1080P50
	—	MOUNT	STAND
	—	FIRMWARE	V1.1.1

<RESTORE DEFAULTS> Refer to Page 24

Menu Explanation

Main Menu

Click **MENU** button to enter / exit menu.



1 Menu Title

It displays currently selected menu option.

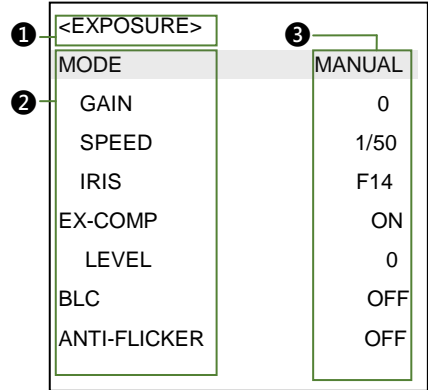
2 Menu Options

It displays options under current menu title.

Click **UP** or **DOWN** button to select among menu options, once color of options turned to different color, it indicates the menu has been elected, click **IRIS+** button to get into this menu.

Submenus

From main menu, navigate to select <EXPOSURE> menu, click **IRIS+** to enter.



1 Menu Title

It displays currently selected menu option.

2 Menu Options

It displays options under current menu title.

Click **UP** or **DOWN** button to select among menu options, once color of options turned to different color, it indicates the menu has been elected, click **IRIS+** button to get into this menu.

3 Manual Exposure

Click **LEFT** or **RIGHT** button to change value.

Video

VIDEO menu is used to change video value.

<VIDEO>	
SHARPNESS	5
2DNR LEVEL	OFF
3DNR LEVEL	OFF
WIDE DYNAMIC	OFF

Available Options:

SHARPNESS: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

2DNR LEVEL: OFF, LOW, MID, MAX

If camera displays color image, it is suggested to turn off the 2DNR level, otherwise, the video trails will be generated. The higher the level is, the better is the noise reduction performance, but more video trails will be generated.

3DNR LEVEL: OFF, LOW, MID, MAX.

WIDE DYNAMIC: ON, OFF

Exposure

EXPOSURE menu is used to adjust exposure value.

<EXPOSURE>	
MODE	MANUAL
GAIN	0
SPEED	1/50
IRIS	F14
EXP-COMP	ON
LEVEL	0
BLC	ON
ANTI-FLICKER	OFF

Available Options:

MODE:

FULL AUTO: Gain, Shutter Speed and Iris value are adjusted automatically according to working environment.

MANUAL: manually adjust Gain, Shutter Speed and Iris

GAIN: 0, +2, +4, +6, +8, +10, +12, +14, +16, +18, +20, +22, +24, +26, +28, +30.

SPEED: 1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000

IRIS: F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2, F1.6, CLOSE.

SHUTTER PRI: Gain and Iris value are adjusted automatically according to working

environment; shutter speed value is adjustable manually.

SPEED: 1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000

IRIS PRI: Gain and shutter speed value are adjusted automatically according to working environment; Iris value is adjustable manually.

IRIS: F14, F11, F9.6, F8, F6.8, F5.6, F4.8, F4, F3.4, F2.8, F2.4, F2, F1.6, CLOSE.

BRIGHT PRI: manually adjust bright of image.

BRIGHT: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27

SMART : AREA1 PRESET:001-255 ; AREA2 PRESET:001-255 ; AREA3 PRESET:001-255 ; AREA4 PRESET:001-255

This function can address the problem that, once there are high brightness backgrounds (like projector or etc) in the tracking area, the lecturer will be too black when he / she moves into the area. By setting these areas as smart exposure areas, this problem will be resolved. There are 4 definable areas, by setting presets, to realize smart exposure function, once camera moves into these specific areas, its exposure value will automatically be kept as before the camera moves into these specific areas; after camera moves out of these specific areas, its exposure switches back to Auto mode again.

EXP-COMP:once EXP-COMP is set as On, below level options become available -7, -6, -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5, +6, +7. +7 is the maximum compensation value for bright, -7 is the maximum compensation value for dark.

BLC : ON, OFF

Backlight compensation (BLC) is video gain done automatically to correct the exposure of subjects that are in front of a bright light source.

ANTI-FLICKER: OFF, 50HZ, 60HZ


This function is used to resolve the problem that the image flicks when the camera is used with lighting environment of different frequency, this function is only available when the camera is at auto focus mode.

White Balance

WHITE BALANCE menu is used to select from white balance modes. Available options:

< WHITE BALANCE >	
MODE	MANUAL
R.GAIN	1
B.GAIN	128

MODE: AUTO, ATW(auto tracking), ONE PUSH, INDOOR, OUTDOOR, MANUAL, SODIUM LAMP, FLUO LAMP.

“ONE PUSH”:when in “ONE PUSH TRIGGER” mode, aim the camera at a pure white object (say a white paper), then press  button.

“MANUAL” mode: R.GAIN and B. GAIN value can be chosen from 0~255.

Pan/Tilt/Zoom

PAN/TILT/ZOOM is used to change pan/tilt/zoom value, available options:

<PAN TILT ZOOM>	
PAN/TILT SPEED	8
PAN/TILT LIMIT	ON
UP	+90
DOWN	-30
LEFT	+150
RIGHT	-150
D-ZOOM LIMIT	X4
PTZ TRIG AF	ON/OFF
POWER UP ACT	HOME

PAN/TILT SPEED: 1, 2, 3, 4, 5, 6, 7, 8 the bigger the number is, the faster the speed is. The speed is the fastest in 1x zoom compared to other zooming times.

High speed: 15°~50° (5°/step)

Low speed: 4°~11° (1°/step)

PAN/TILT LIMIT: ON/OFF, once it is set as ON, below limit value can be set

UP: -30°~+90°, adjustable 1°/step;

DOWN: -30°~+90°, adjustable 1°/step;

LEFT: -170°~+170°, adjustable 1°/step;

LIGHT: -170°~+170°, adjustable 1°/step.

D-ZOOM LIMIT: X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12.

PTZ TRIG AF: Turn ON / OFF the auto focus when the camera pans / tilts / zooms.

POWER UP ACT: PRESET 1, PRESET 2, PRESET 3, PRESET 4, PRESET 5, PRESET 6, PRESET 7, PRESET 8, PRESET 9, HOME

System

<SYSTEM>	
DISPLAY INFO	OFF
RATIO SPEED	ON
PRESET FREEZE	OFF
RS485	HALF-DUPLEX-1

DISPLAY INFO: Turn ON / OFF display of pan / tilt angle and prompt message.

RATIO SPEED: When RATIO SPEED is set as ON, the camera’s pan and tilt speeds are based on zooming times, that is, more zooming, less pan and tilt speed; less zooming, more pan and tilt speed.

PRESET FREEZE: When it is on, during a regular preset call, the video will be frozen at point A till Point B. At Point B, the video will be displayed normally.

RS485: HALF-DUPLEX-1, HALF-DUPLEX-2

HALF-DUPLEX-1:RS-485 half duplex mode, in VISCA protocol, after executing the

command message, the camera does not return confirmation / completion / error messages.

HALF-DUPLEX-2:RS-485 half duplex mode, in VISCA protocol, after executing the command message, the camera return confirmation / completion / error messages.

Status

< STATUS>	
ADDRESS	1
PROTOCOL	VISCA
BAUD RATE	2400
FORMAT	1080P50
MOUNT	STAND
FIRMWARE	V1.1.1

It displays current camera's address, protocol, baud rate, video format and firmware version number.

Restore Defaults

< RESTORE DEFAULTS>	
PRESS OK	CONFIRM
PRESS BACK	CANCEL

RESTORE DEFAULTS option is used to reset all menus to default value. Press **OK** to confirm or press **↩** to cancel and return to previous menu.

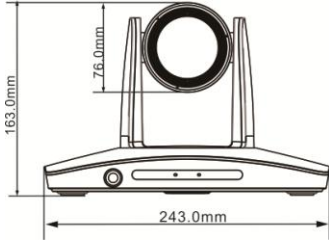
ANNEX 1 TECHNICAL SPECIFICATIONS

LENS	
Tracking Camera	
Image Sensor	1/2.8" CMOS, 2.14MP
Lens	f=3.9mm-46.8mm
Iris	F1.6-F2.8
Optical Zoom	12x
Digital Zoom	12X
Angle of view	72.5°-6.3°
Focus	Auto, Manual, PTZ Trigger, One Push Trigger
Min. Illumination	0.5lux(color), 0.1lux(B/W)
Shutter	1/1 ~ 1/10,000 sec
Gain	Auto/Manual
White Balance	Auto, Indoor, Outdoor, One Push, Manual, Auto Tracking Sodium Lamp, Fluorescent Lamp
Exposure	Auto, Indoor, Outdoor, One Push, Manual, Auto Tracking Sodium Lamp, Fluorescent Lamp
DNR	2D/3D
BLC	Support
S/N Ratio	≥50dB
Full-view Camera	
Image Sensor	1/2.8" CMOS
Effective Pixels	2.14MP
White Balance	Auto
Exposure	Auto
Focus	Manual
focal distance	2.4mm
Angle of view	Horizontal:68°, Vertical:41°(before geometric distortion correction)
Network	
Resolution	Max Support 1920*1080@60fps

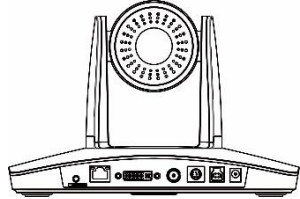
Video Compression	H.264
Audio Compression	AAC
Network Protocol	ONVIF,RTSP,HTTP, TCP,UDP,RTMP
Dual Stream	Yes
PTZ	
Pan Range	-170°~+170°
Tilt Range	-30°~+90°
Pan Speed	0.1°~120°/s
Tilt Speed	0.1°~90°/s
Preset Number	256
Comm. Port	RS-232/RS-485/USB3.0
Debug Interface	RJ45/100M,
Protocol	PELCO-D , VISCA , UVC1.1
SDI Video	
Video Output	3G-SDI, DVI-D, USB3.0
Video Format	1080P60, 1080I60, 1080P30, 1080P25, 1080P50, 1080I50, 720P60, 720P50
Genral	
OSD	Yes
Power Input	DC12V
Power Consumption	<30W
Working Temp	0°C ~+40°C
Storage Temp	-20°C~+60°C
Dimensions	243mm×145mm×163mm
Color	Grey

ANNEX 2 SIZE AND DIMENSION

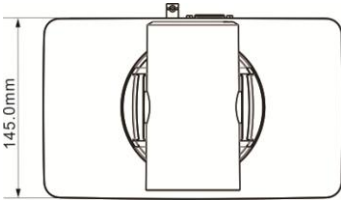
Front



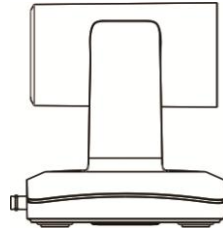
Rear



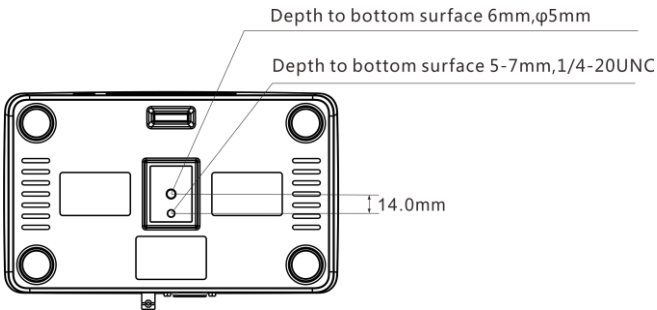
Top



Side



Bottom



TROUBLESHOOTING

Problem	Possible Cause	Solution
No action or image after powered on	Power supply failure	Check power supply
	Power adapter damaged	Replace power adapter
	Power cable connection got loosen	Check & reconnect
No self-testing after powered on, or with motor noise	Not enough power supply	Check & reconnect power cable connection
	Mechanical failure	Repair
Not controllable from remote controller	Low battery of remote controller	Change battery for remote controller
	Exceed remote control distance	Control within distance of 8M
After power on, self-test successfully, but not controllable	Wrong address / protocol / baud rate	Check & set again
	Wrong connection or short circuit of RS-485/RS-232 or RS-232 cable	Check & reconnect
Video loss when pans / tilts / zooms	Not enough power supply	Check & reconnect power cable
	Video cable not properly connected	Replace with a good video cable
Video captured after connected to digital video interface of a capture device is not good as the video captured after connected directly analog video interface of the capture device	Different video capture devices have different video capturing performance, image quality maybe worse after it has been converted from analog to digital	Consult video capture device supplier for more information

The user manual is only for a reference, if there are any changes or differences, please ask for the latest version from your supplier

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