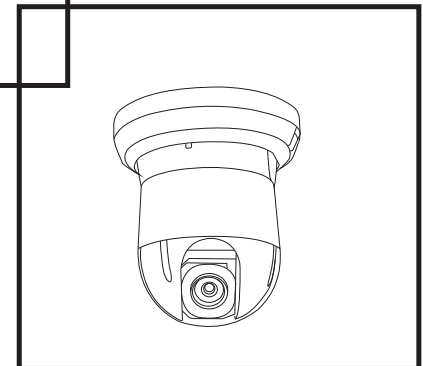
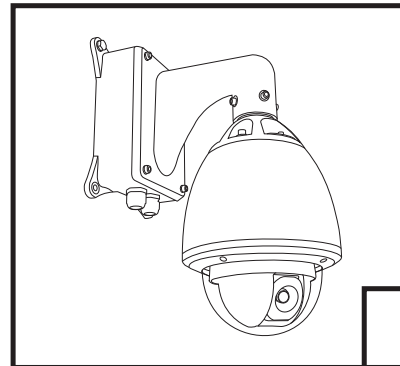




High Speed Dome Camera Series

User Manual English

v2.33



WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECTS THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION
RISK OF ELECTRIC SHOCK.
DO NOT OPEN.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. JUST QUALIFIED SERVICE PERSONNEL SHOULD SERVICE THE PRODUCT.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

FCC COMPLIANCE STATEMENT

FCC INFORMATION: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

CE COMPLIANCE STATEMENT

WARNING: THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

CAUTION: BEFORE ATTEMPTING TO CONNECT OR OPERATE THIS PRODUCT, PLEASE READ THE LABEL ON THE BOTTOM AND USER'S MANUAL CAREFULLY

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Technical specification are subjects to change without prior notification. Manual may contain mistakes or print errors.
All trade marks mentioned belong to their respective owners.

1. PRECAUTION

Refer all work related to the installation of this product to qualified service personnel or system installers.

Do not attempt to disassemble the appliance

To prevent electric shock, do not remove screws or cover. There are no user-serviceable parts inside. Contact qualified service personnel for maintenance

Handle the appliance with Care

Do not strike or shake, as this may damage the appliance. It should be protected against extreme pressure, vibration and humidity during transportation and storage. Damages caused by improper transportation avoid the warranty.

Do not use strong or abrasive detergents when cleaning the appliance body and transparent cover.

Use a dry cloth to clean the appliance when it is dirty. When the dirt is hard to remove, use a mild detergent and wipe gently.

Do not operate the appliance beyond its specified temperature, humidity or power source ratings.

Do not use the dome camera in an extreme environment where high temperature or high humidity exists.

Use the indoor models within -10°C to +50°C (14°F to 122°F) and a humidity below 90%. The input power source is 24V AC, 50/60Hz and requires 1000mA.

Use the outdoor models within -20°C to +60°C (-4°F to 140°F) and a humidity below 90%. The input power source is 24V AC, 50/60Hz and requires 2500mA.

Do not expose the indoor model of dome camera to water or moisture, not try to operate it in wet areas.

Take immediate action when the indoor speed dome becomes wet. Turn off the power and refer servicing to qualified service personnel. Moisture may damage the appliance and cause electric shock.

Do not point the camera lens directly to sunlight or any strong light source.

This will cause permanent damage to the camera and voids the warranty.

Read this user's manual carefully before operating the appliance.

Make sure that local electric safety standards are followed when using or installing the appliance

Do not install the camera in other orientation as designed.

And do not bend or squeeze the structure, as this may damage the mechanical structure of the appliance and voids the warranty.

Do not touch the Cover with bare hands or any object.

These will scratch the surface and affect the image quality.

2. FEATURES

The high speed dome camera series are designed for in- and outdoor video surveillance application. The integrated, motorized pan-tilt mechanism allows user to point the camera to any position (360° horizontal and 180° vertical). Both series can be equipped with digital zoom camera modules, which provide zooming function from 18 to 36 times (optical) and advanced image features.

Key features:

- 360° Pan and 180° Tilt range (90° with auto-image-flip)
- Support most well-known camera modules
- 128 preset points memory (80 can be used for auto tour function)
- 4 pattern tours
- 4 Scan tour
- Basic setup directly from Keyboard.
- Advanced setup through OSD (On Screen Display) menu.
- up to 24 privacy masking zones (depends on camera module)
- 7 alarm input & 2 output (4 input & 1 output pre-wired)
- Multi-Protocol through RS485 or coaxial cable.
- Direction Indicator on screen
- Aluminum Alloy structure with high intensity and heat-sinking
- High-precision step-motor for flicker-less image during movement.

Camera Features:

- High Resolution with 520TVL and Wide-Dynamic*
- Auto-Focus
- Auto-Iris
- Auto- Brightness control,
- Auto-Balance
- IR cutter control, Day-Night mode switching. (Available in 36X only)
- Auto Slow-Shutter

Temperature monitoring and protection

- Alarm notification will be displayed once the inner temperature exceeds the limit
- In low temperature area, the dome camera will only start after the operation temperature is reached.
- Cooling fan activity is managed by the CPU (extends the duration)

Other features:

- Proportional pan for Focus / Speed on different zoom factor.
- Auto-resuming user-defined action, such as tour, pattern or scan after selectable idle time.
- Power-up Action activates tour or pattern by default.

* depends on camera module type.

3. PACKING LIST

Indoor



Core unit
1 piece



Indoor Roof-Mount
base plate
1 piece



Instruction and
operation manual
1 piece

Outdoor



Core unit
1 piece



Outdoor housing
with sun shield and
cover
1 piece

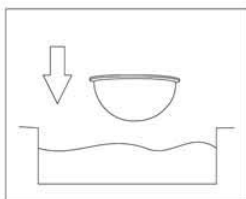


Spare dome
cover
1 piece



Instruction and
operation manual
1 piece

WARNING: The transparent cover part is sensitive and must be handled with care. Do not touch or rub the surface in any way with the protection foil. Improper cleaning methods will cause permanent scratches on the cover and cause unclear image or focusing error of the camera. For cleaning the cover, replace the original cover with the spare cover, then wash it by immersing it into warm water containing a non-corrosive cleaning agent.



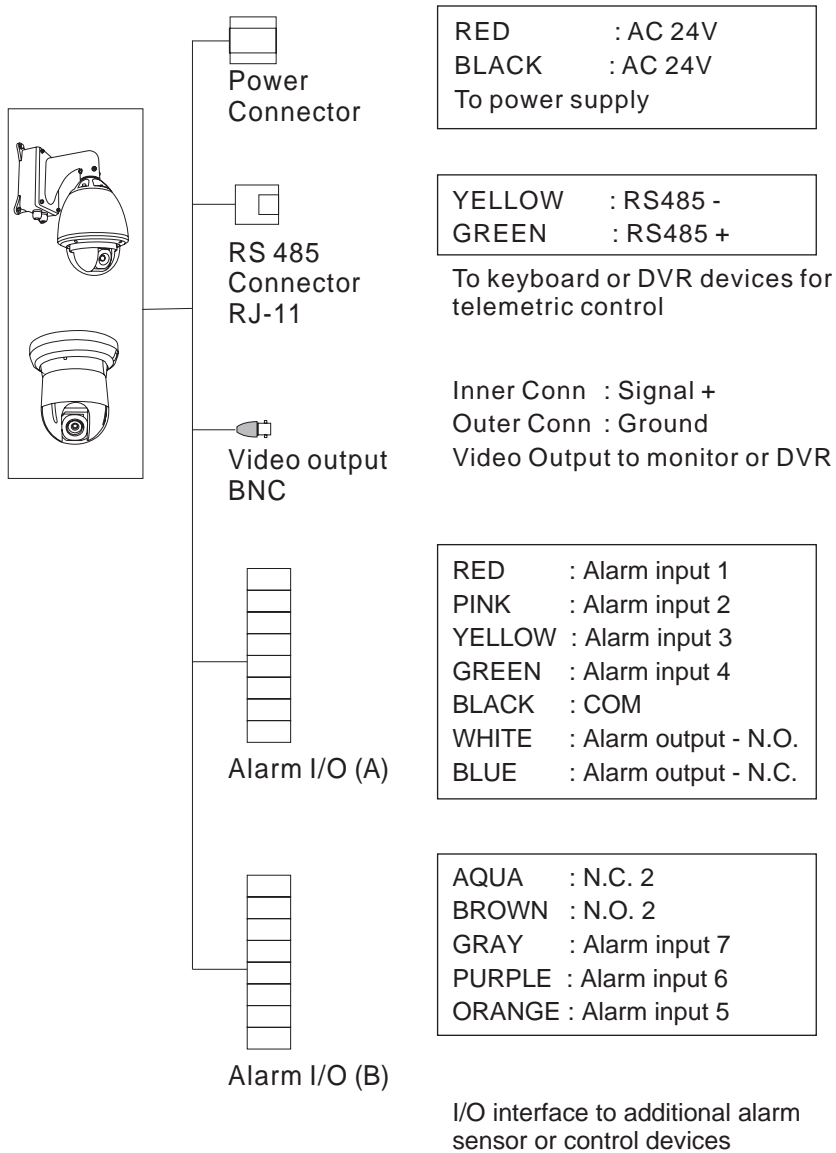
4. INSTALLATION

Safety Instructions before starting

- Do not install and operate this appliance in a flammable and / or explosive environment.
- Make sure that the installation is done according to the local electricity safety regulations of your country.
- Before installation and maintenance, make sure that the appliance is disconnected from the power source.
- Do not use any power source other than 24V AC, in order to prevent damages to the device. Please refer to the section "Precaution" for more details.
- Handle the device during the installation with care. Dropping the product or extreme vibration may cause irreparable damages and void the warranty.
- Do not install or operate the appliance close to high-voltage devices or high-voltage cables. The safety distance should remain at least 50 m.
- To achieve best image quality, it is recommended to use underground cables shielded by steel tube. Do not install the cable without any protection.
- In a thunderstorm area or region with high inductive voltage, such as high voltage transformer stations, it is necessary to use additional lightning-proof equipment and/or lightning rods for protection.
- For outdoor installations, lightning protection and grounding of the device should be considered. Please refer to the industrial safety regulations of your country.
- Grounding of the appliance should include anti-interference and fulfill the safety requirements. Do not connect the ground with short-circuited or other high-voltage electric networks.
- The resistance of down conductor should not exceed 4 Ohm, and its thickness should be at least 25mm².
- This appliance has the lightning-proof function which can prevent damages caused by high-voltage pulse, such as lightning strikes below 1500 V.
- This appliance meets the Ip66 standard for water and dust proof. Do not install the indoor model for out-door applications as the model is not designed withstanding permanent water exposure. Make sure that the installation is protected from long-time water-drop or spatter, which may damage the appliance.
- Make sure that the environment of installation meets the requirements of the appliance, such as holding the weight and providing enough space for bracket and power supply.

4.INSTALLATION

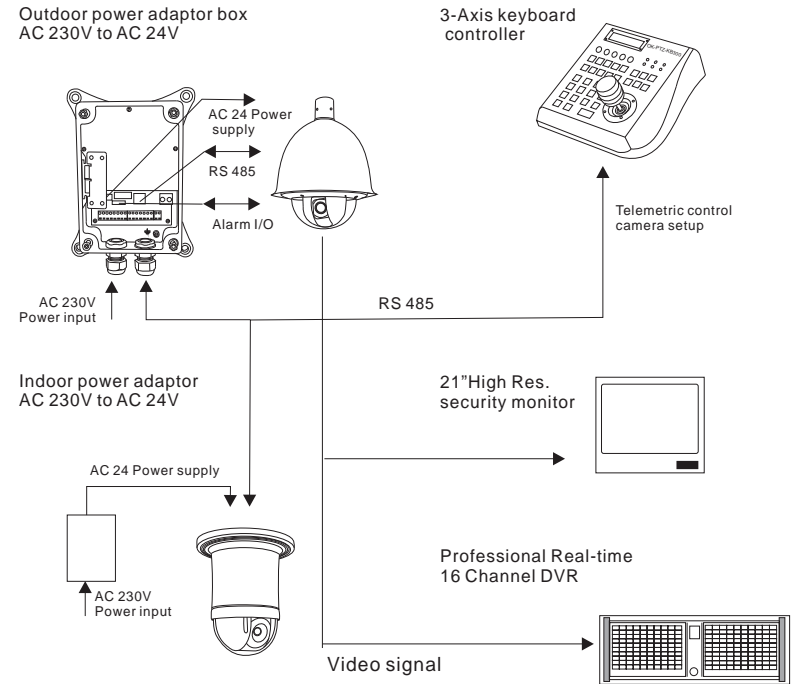
Connector description



4.INSTALLATION

Using optional accessories

The speed dome camera series can be connected to various optional accessories through the standard connector types, which simplify the cable handling and avoid possible mistakes. All accessories are tested for max. Compatibility and best performance.



RS485 cable

The telemetric control of the appliance uses RS485 serial communication with half-duplex transmission technology. Depending on the cable type and baud rate, the transmission distance could vary. The following table shows max. distances based on cable with 0,56mm (24AWG) twisted pair:

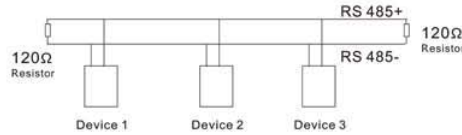
Baud Rate	Max. Distance
2400 bps	1700m
4800 bps	1100 m
9600 bps	700m
19200 bps	400m

Due the environmental interferences, such as eletromagnetic and induction fields, or number of connected appliance on the RS485 bus, the transmission range may decrease.

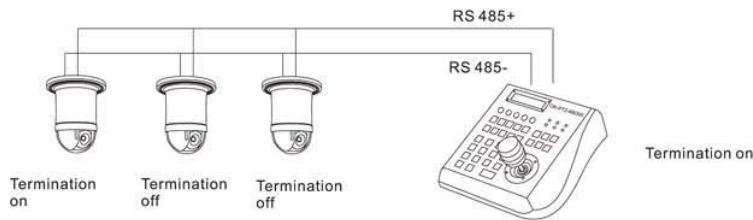
4.INSTALLATION

RS485 Termination

Devices using RS485 control are usually connected in daisy-chain which requires termination with 120Ω resistor on both ends. The following graphic illustrates the connection methods. Please note that a daisy-chain connection type shall not exceed 7 meters.

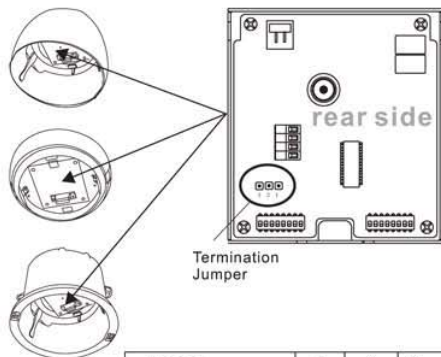


The speed dome series provide an integrated termination switch. It should be turned ON on the dome serving as the last device. If a controller keyboard is used, you also need to turn the termination ON on the keyboard. Please refer to the keyboard's manual for details.

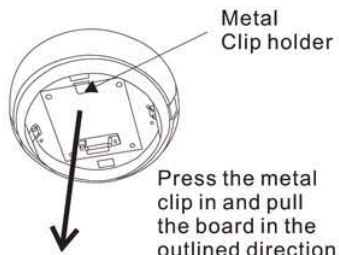


How to turn termination ON on the speed dome

The termination switch is located on the rear side of the connection board. For turning it ON open the connector board.



How to open the connector board
The connector board can be opened by holding the metal clip and pulling.



Jumper	1	2	3
Term. On	ON	ON	OFF
Term. Off (default)	OFF	ON	ON

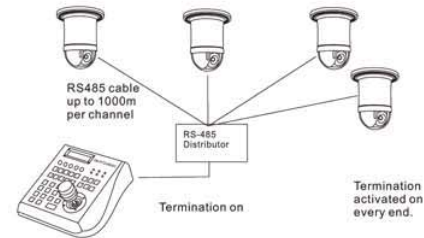
7

Some products may not be available in your country, please contact our distributor for more details

4.INSTALLATION

Star-Connection

The star-form connection is a popular way to connect different devices. It enables longer distance connection of different dome cameras. It is recommended to use RS485 distributor to ensure the telemetric data transmission:



The advantage of star-connection is that every channel can work independently and supports a cable length up to 1000 meters (depending on the quality of the cable). In case more dome cameras are installed, the star-connection can be extended with additional RS485 distributors.

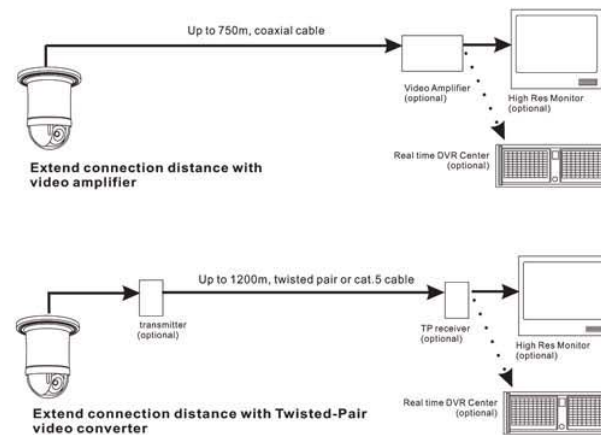
Video Cable

Coaxial cable with 75Ω impedance with copper conductor at the center and shielded with 95% copper. The following table shows different cable types and their maximum length:

Cable standard	Max. Distance (m / ft)
RG 59 /U	229m / 750 ft
RG 6 /U	305m/ 1000 ft
RG 11 /U	457m / 1500 ft

The values are for reference only. Depending on the quality of the cable and environmental conditions the transmission distance might decrease.

If the cable length is more than 400 m, it is recommended to use optional accessories, such as video amplifiers or twisted-pair video converters, to amplify the video signal.



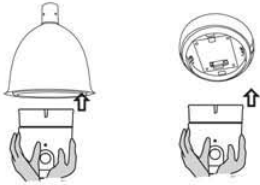
8

Some products may not be available in your country, please contact our distributor for more details

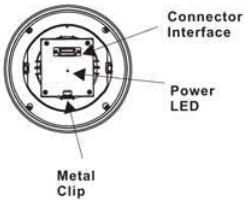
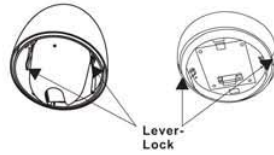
4. INSTALLATION

Installing the core unit to base board.

The core units and base boards are packed separately, in order to protect them during transportation. After unpacking and during the installation, the core unit should be installed as follows:



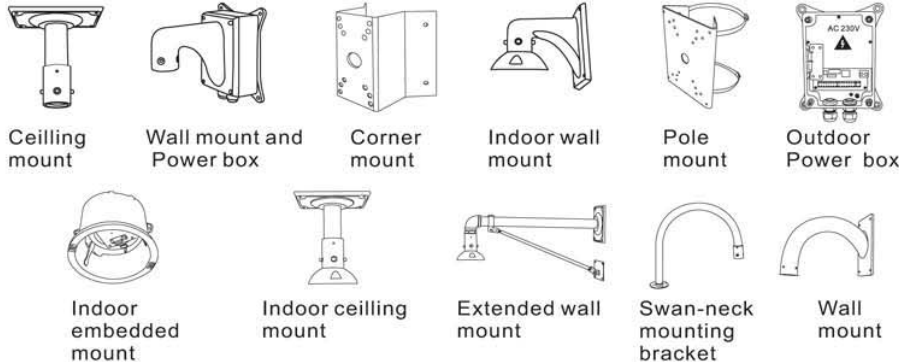
Installing the core unit by inserting it into the housing. Please note the position of the connector. For releasing, please press the lever-lock to core and pull off the unit.



Once the base board is connected to power, the power LED will light up.

Optional bracket accessories

The speed dome can be equipped with various bracket accessories for indoor and outdoor installation. Please contact your distributor for further details.



5. OPERATING THE SPEED DOME



Initial Screen

After powering up, the camera will enter into the self-test mode and display the status screen (see picture left). It contains information about the model and current settings.

- **"FIRMWARE "**: Model number
- **V2.25**: Current firmware version
- **Protocol**: Current control protocol
- **Dome address**: Address ID of speed dome. Please refer to the section "Protocol setup" for details
- **Comm 9600,N,8,1**: Current setting of the serial communication interface
9600: Baud rate. Please refer to section "Baud-Rate setup" for details
N, 8, 1: No parity bit, 8 bit length, 1 stop bit. This setting cannot be changed

The initial screen will remain on until any user action is taken. If the power-up action is set, the initial info will vanish immediately.

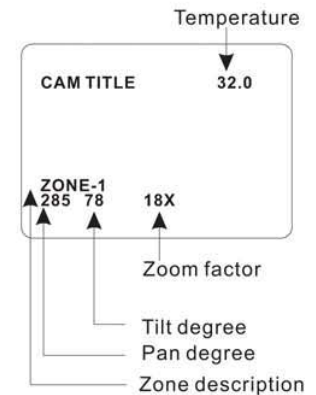
Operation Screen

The operation screen can display additional information.

Temperature: Current temperature inside the speed dome(°C)

Cam title: User definable camera title
Zone: Current zone name
Pan deg.: Pan angle, 0-359°
Tilt deg.: Tilt angle, 0-90°
Zoom Factor: Zoom factor

Display of the information can be activated or deactivated through the OSD menu. Please refer to the system setting for details.



PTZ operation

For the surveillance operation, the dome can be controlled from a keyboard device, Multiplexer or DVR through RS485 interface. Make sure that the cable is connected and the settings (baud rate, Address ID and protocol) of both, keyboard and the dome, are correctly configured. For further details on operating the PTZ, please refer to the user's manual of the keyboard.

6.OSD - System Setting

SYSTEM SETTING

EDIT DOME LABEL
INITIAL INFO
DISPLAY SETUP
MOTION
CLEAR
PASSWORD SETUP
BACK
EXIT

System Setting

In the system setting menu, you can modify operation and display settings, such as dome label, temperature and display of various values on the operational screen.

EDIT DOME LABEL

⚙️ LABEL : ENTRANCE
BACK
EXIT

Dome Label:

1. use UP or DOWN to change the character.
2. use RIGHT to move to next character.
3. use RIGHT to move to last char. and to save.
4. use Left to go to first char. and to cancel.

INITIAL INFO

FIRMWARE V2:33
PROTOCOL: FACTORY
DOME ADDRESS: 001
COMM: 4800, N, 8, 1
BACK
EXIT

Initial Info:

Shows the information about current settings.

DISPLAY SETUP

DOME LABEL OFF
⚙️ PRESET LABEL OFF
ZOOM LABEL ON
ZONE LABEL OFF
DIRECTION LABEL ON
TEMPERATURE LABEL OFF
BACK
EXIT

Display Setup

Enables the display for the on-screen info during operaton mode.

Dome label: Name of the dome

Preset label: Shows the label of every preset

Zoom label: Shows zoom factor on screen

Zone label: Shows the zone name

Direction label: Shows the coordinates

Temperature label: Shows the current temp. in the dome

6.OSD - Motion, Clear, Password

MOTION

⚙️ AUTO FLIP ON
PROPORTION PAN ON
PARK TIME 005
PARK ACTION SCAN
POWER UP ACTION AUTO
FAN ENABLED 040
BACK
EXIT

Motion control

AUTO FLIP: Auto. image flip, tilt range from 90° to 180°.

PROPORTIONAL PAN: Depending on the zoom factor, the dome will adjust the pan and tilt speed automatically for comfortable viewing.

PARK TIME: Defines the idle time prior to start a custom defined action (park action). The duration can vary from 1 to 240 minutes. This function can be disabled by setting the minute to 0.

PARK ACTION: The action which will be started after the idle time (park time). Selectable between Preset, Scan, Pattern (Nr), Tour or None.

POWER UP ACTION: Action which starts after power up and self test. Selectable between Auto, Preset 1, Scan, Pattern (Nr), Tour or None. By selecting Auto, the dome will resume the last action before power off.

FAN ENABLED: Defines the temperature limit (in °C) at which the internal cooling starts operating. The standard limit is 40°C.

CLEAR

CLEAR ALL ZONES
CLEAR ALL PRESETS
CLEAR ALL PATTERNS
CLEAR ALL TOURS
CLEAR ALL WINDOWS
FACTORY DEFAULTS
RESTART
BACK
EXIT

Clear

You can clear setting's memory or reset the camera to factory default. The following functions are supported:

- Clear all zones
- Clear all presets
- Clear all patterns
- Clear all tours
- Clear all windows
- Factory defaults

Warning: The clear action cannot be undone. Once an item is cleared it is impossible to retrieve the deleted setting. Please make sure that the requested clear action is desired.

PASSWORD SETUP

OLD PASSWORD : *****
NEW PASSWORD : *****
CONF PASSWORD : *****
ENABLE PASSWORD OFF
BACK
EXIT

Password setup

You can change password to access the OSD menu. Default Password is 000000.

6.OSD - Camera Setting

CAMERA SETTING

⚙️ ZOOM SPEED	HIGH
DIGITAL ZOOM	ON
BLC MODE	OFF
SLOW SHUTTER	ON
IR CUT FILTER	AUTO
LINE SYNC	OFF
WDR MODE	ON
ADVANCE SETTING	➔
BACK	
EXIT	

Camera Setting

In the camera setting menu, you can access camera module related settings. Please note that depending on module's capability, some functions may not be available. Please contact your local sales representative for detailed information.

ZOOM SPEED: Defines the speed in which zoom functions are performed.

DIGITAL ZOOM: Activates or deactivates the camera module's digital zoom function.

BLC MODE: Selects the Back Light Compensation mode which improves the image when an object has strong back light.

SLOW SHUTTER: Activates the Slow Shutter function of the camera, which provides a higher light sensibility in low-lit environments.

IR CUT FILTER: Enables the removal of Infrared Cut Filter (IRC), also known as "DAY/NIGHT" mode. Enabling the IRC the camera turns into Black/White mode and has higher sensibility to low-light situations or turns on the IR-light, depending on the light condition. Selectable between On, Off or Auto. Only available on camera modules with IRC function.

LINE SYNC: Enables and disables Line Synchronization.

ADVANCE SETTING

⚙️ AE MODE	AUTO
SHUTTER	N/A
IRIS	N/A
BRIGHT	N/A
WB MODE	AUTO
R GAIN	N/A
B GAIN	N/A
HI-RESOLUTION	OFF
BACK	
EXIT	

Advanced Setting

Under the advanced setting, you can make improvements to the image quality depending on different environmental conditions.

AE MODE: Auto Exposure mode. Depends on the light condition in the surveillance area, you can set the AE in different modes and adjust the parameters, such as shutter speed, iris factor and brightness for the best image quality.

WB MODE: White Balance mode, an image improvement based on DSP processing. You can also adjust the Red-Gain or Blue-Gain to change the color tone.

Hi-RESOLUTION: Switch between 470-530 TVL (only with FCB-1010P)

6.OSD - Preset, Scan

FUNCTION SETTING

PRESETS ➔
SCAN ➔
PATTERNS ➔
TOUR ➔
ZONES ➔
BACK
EXIT

Function Setting

In function setting menu, you can define and activate different PTZ functions, such as preset points, auto scan, tours and patterns. Presets and tour functions can also be set or activated directly from the keyboard without entering the OSD Menu. Please refer to the keyboard's manual for operation details.

Presets

PRESET NUMBER: supports up to 128 presets. The number can be selected from 0 to 128.

SET PRESET: Defining the preset points directly in OSD by entering this menu item and move the PTZ. Press IRIS-OPEN key on the keyboard to save. If the preset is pointed within digital zoom, it will automatically go back to the max. optical zoom range in order to provide the best image quality.

SHOW PRESET: Moves to the current preset point.

CLEAR PRESET: Clears the current preset.

EDIT PRESET LABEL: For the current preset, you can define a name which will be displayed on the operation screen once the preset is called. Please choose the preset number first. The available characters are: 0-9, A-Z, <, >, . and space.

Scan

The SCAN function moves the PTZ between 2-predefined points with constant speed. The following parameters can be set:

SCAN NUMBER: Supports up to 4 scans.
SCAN SPEED: Cruising speed between the points.
SET LEFT LIMIT: Defines the left point.
SET RIGHT LIMIT: Defines the right point.
CLEAR SCAN: Deletes the scan setting.
RUN SCAN: Starts the scan function.
EDIT SCAN LABEL: Sets the name for the scan.

PRESETS

PRESET NUMBER 001
SET PRESET
SHOW PRESET
CLEAR PRESET
EDIT PRESET LABEL
BACK
EXIT

EDIT PRESET LABEL

LABEL : MAIN ENTR,
BACK
EXIT

SCAN

SCAN NUMBER 01
SCAN SPEED 63
SET LEFT LIMIT
SET RIGHT LIMIT
CLEAR SCAN
RUN SCAN
EDIT SCAN LABEL
BACK
EXIT

6.OSD - Alarm Setting

ALARMS	
RESUME	OFF
RESET DELAY	020
ALARM CONTACT	N/C
ALARM SETTING	→
BACK	
EXIT	

Alarms

RESUME: Continues the previous function of the camera before the alarm was activated.

RESET DELAY: How long the camera stays in Alarm mode.

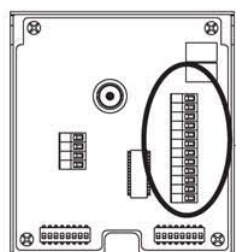
ALARM CONTACT: Setting between N/C (normal Close) or N/O (normal Open).

ALARM SETTING	
ALARM NUMBER	001
ALARM ACTION	TOUR
ACTIVATE AUX	AUX1
BACK	
EXIT	

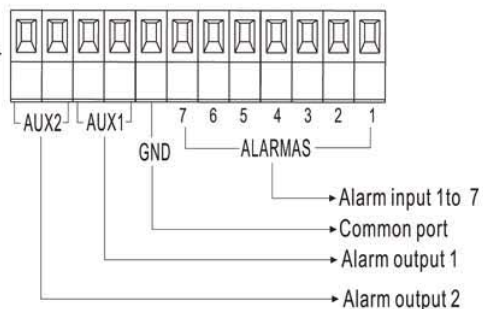
ALARM NUMBER: Ranging from 1-7.

ALARM ACTION: Setting for PRESET, SCAN, TOUR, PAT 1-4, or NONE, if the camera's alarm function is activated.

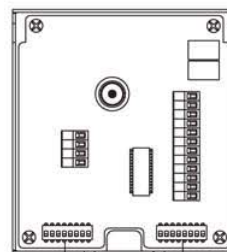
ACTIVATE AUX: Setting Alarm Output, when alarm is activated. Select between AUX1, AUX2 (not connected) or BOTH.



Alarm Connection on Backboard



7.PROTOCOL SETTING



Sw1 Sw2

Protocol Setting

This procedure is needed if a connection of the telemetric control with the keyboard device is desired. You need to setup the dome address and protocol settings.

The speed dome supports multiple communication protocols. The settings can be changed by rearranging the DIP-Switches on the rear side of the connector board as illustrated.

Please use the following table for detailed information.

SW 1:

Represents the dome's address in binary form. Please refer to the list on the next pages for reference.

SW 2:

Used for protocol setting and baud rate.
DIP 1 to 6 : Protocol settings
DIP 7 and 8: Baud rate settings

Protocol / DIP	1	2	3	4	5	6
B02	0	0	1	1	0	0
DIAMOND	1	0	0	1	0	0
HUNDA	1	0	1	1	0	0
KALATEL	0	1	0	1	0	0
LILIN	1	1	0	1	0	0
MOLYNX	0	0	1	0	0	0
PANASONIC	1	1	1	0	0	0
PELCO (D/P)	1	0	0	0	0	0
PHILIPS	0	0	0	0	0	1
SAE	0	1	0	0	0	0
SAMSUNG	0	0	0	1	0	0
SANTACHI	0	1	1	0	0	0
UNIVISION	0	1	0	0	0	1
VCL	1	1	0	0	0	0
VICON	1	0	1	0	0	0
AD	0	0	1	1	0	0

Baud rate	DIP 7	DIP 8
2400 bps	0	0
4800 bps	1	0
9600 bps	0	1
19200 bps	1	1

8. Address ID, 1 to 67

ID	Switchnumber (Sw1)								ID	Switchnumber (Sw1)								
	Bit	1	2	3	4	5	6	7		8	Bit	1	2	3	4	5	6	7
		0	0	0	0	0	0	0		34	0	1	0	0	0	1	0	0
1		1	0	0	0	0	0	0		35	1	1	0	0	0	1	0	0
2		0	1	0	0	0	0	0		36	0	0	1	0	0	1	0	0
3		1	1	0	0	0	0	0		37	1	0	1	0	0	1	0	0
4		0	0	1	0	0	0	0		38	0	1	1	0	0	1	0	0
5		1	0	1	0	0	0	0		39	1	1	1	0	0	1	0	0
6		0	1	1	0	0	0	0		40	0	0	0	1	0	1	0	0
7		1	1	1	0	0	0	0		41	1	0	0	1	0	1	0	0
8		0	0	0	1	0	0	0		42	0	1	0	1	0	1	0	0
9		1	0	0	1	0	0	0		43	1	1	0	1	0	1	0	0
10		0	1	0	1	0	0	0		44	0	0	1	1	0	1	0	0
11		1	1	0	1	0	0	0		45	1	0	1	1	0	1	0	0
12		0	0	1	1	0	0	0		46	0	1	1	1	0	1	0	0
13		1	0	1	1	0	0	0		47	1	1	1	1	0	1	0	0
14		0	1	1	1	0	0	0		48	0	0	0	0	1	1	0	0
15		1	1	1	1	0	0	0		49	1	0	0	0	1	1	0	0
16		0	0	0	0	1	0	0		50	0	1	0	0	1	1	0	0
17		1	0	0	0	1	0	0		51	1	1	0	0	1	1	0	0
18		0	1	0	0	1	0	0		52	0	0	1	0	1	1	0	0
19		1	1	0	0	1	0	0		53	1	0	1	0	1	1	0	0
20		0	0	1	0	1	0	0		54	0	1	1	0	1	1	0	0
21		1	0	1	0	1	0	0		55	1	1	1	0	1	1	0	0
22		0	1	1	0	1	0	0		56	0	0	0	1	1	1	0	0
23		1	1	1	0	1	0	0		57	1	0	0	1	1	1	0	0
24		0	0	0	1	1	0	0		58	0	1	0	1	1	1	0	0
25		1	0	0	1	1	0	0		59	1	1	0	1	1	1	0	0
26		0	1	0	1	1	0	0		60	0	0	1	1	1	1	0	0
27		1	1	0	1	1	0	0		61	1	0	1	1	1	1	0	0
28		0	0	1	1	1	0	0		62	0	1	1	1	1	1	0	0
29		1	0	1	1	1	0	0		63	1	1	1	1	1	1	0	0
30		0	1	1	1	1	0	0		64	0	0	0	0	0	0	1	0
31		1	1	1	1	1	0	0		65	1	0	0	0	0	0	1	0
32		0	0	0	0	0	1	0		66	0	1	0	0	0	0	1	0
33		1	0	0	0	0	1	0		67	1	1	0	0	0	0	1	0

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8. Address ID, 68 to 135

ID	Switchnumber (Sw1)								ID	Switchnumber (Sw1)								
	Bit	1	2	3	4	5	6	7		8	Bit	1	2	3	4	5	6	7
68		0	0	1	0	0	0	1	0	102	0	1	1	0	0	1	1	0
69		1	0	1	0	0	0	1	0	103	1	1	1	0	0	1	1	0
70		0	1	1	0	0	0	1	0	104	0	0	0	1	0	1	1	0
71		1	1	1	0	0	0	1	0	105	1	0	0	1	0	1	1	0
72		0	0	0	1	0	0	1	0	106	0	1	0	1	0	1	1	0
73		1	0	0	1	0	0	1	0	107	1	1	0	1	0	1	1	0
74		0	1	0	1	0	0	1	0	108	0	0	1	1	0	1	1	0
75		1	1	0	1	0	0	1	0	109	1	0	1	1	0	1	1	0
76		0	0	1	1	0	0	1	0	110	0	1	1	1	0	1	1	0
77		1	0	1	1	0	0	1	0	111	1	1	1	1	0	1	1	0
78		0	1	1	1	0	0	1	0	112	0	0	0	0	1	1	1	0
79		1	1	1	1	0	0	1	0	113	1	0	0	0	1	1	1	0
80		0	0	0	0	1	0	1	0	114	0	1	0	0	1	1	1	0
81		1	0	0	0	1	0	1	0	115	1	1	0	0	1	1	1	0
82		0	1	0	0	1	0	1	0	116	0	0	1	0	1	1	1	0
83		1	1	0	0	1	0	1	0	117	1	0	1	0	1	1	1	0
84		0	0	1	0	1	0	1	0	118	0	1	1	0	1	1	1	0
85		1	0	1	0	1	0	1	0	119	1	1	1	0	1	1	1	0
86		0	1	1	0	1	0	1	0	120	0	0	0	1	1	1	1	0
87		1	1	1	0	1	0	1	0	121	1	0	0	1	1	1	1	0
88		0	0	0	1	1	0	1	0	122	0	1	0	1	1	1	1	0
89		1	0	0	1	1	0	1	0	123	1	1	0	1	1	1	1	0
90		0	1	0	1	1	0	1	0	124	0	0	1	1	1	1	1	0
91		1	1	0	1	1	0	1	0	125	1	0	1	1	1	1	1	0
92		0	0	1	1	1	0	1	0	126	0	1	1	1	1	1	1	0
93		1	0	1	1	1	0	1	0	127	1	1	1	1	1	1	1	0
94		0	1	1	1	1	0	1	0	128	0	0	0	0	0	0	0	1
95		1	1	1	1	1	0	1	0	129	1	0	0	0	0	0	0	1
96		0	0	0	0	0	1	1	0	130	0	1	0	0	0	0	0	1
97		1	0	0	0	0	1	1	0	131	1	1	0	0	0	0	0	1
98		0	1	0	0	0	1	1	0	132	0	0	1	0	0	0	0	1
99		1	1	0	0	0	1	1	0	133	1	0	1	0	0	0	0	1
100		0	0	1	0	0	1	1	0	134	0	1	1	0	0	0	0	1
101		1	0	1	0	0	1	1	0	135	1	1	1	0	0	0	0	1

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8. Address ID, 136 to 203

ID	Switchnumber (Sw1)								
	Bit	1	2	3	4	5	6	7	8
136	0	0	0	1	0	0	0	1	
137	1	0	0	1	0	0	0	1	
138	0	1	0	1	0	0	0	1	
139	1	1	0	1	0	0	0	1	
140	0	0	1	1	0	0	0	1	
141	1	0	1	1	0	0	0	1	
142	0	1	1	1	0	0	0	1	
143	1	1	1	1	0	0	0	1	
144	0	0	0	0	1	0	0	1	
145	1	0	0	0	1	0	0	1	
146	0	1	0	0	1	0	0	1	
147	1	1	0	0	1	0	0	1	
148	0	0	1	0	1	0	0	1	
149	1	0	1	0	1	0	0	1	
150	0	1	1	0	1	0	0	1	
151	1	1	1	0	1	0	0	1	
152	0	0	0	1	1	0	0	1	
153	1	0	0	1	1	0	0	1	
154	0	1	0	1	1	0	0	1	
155	1	1	0	1	1	0	0	1	
156	0	0	1	1	1	0	0	1	
157	1	0	1	1	1	0	0	1	
158	0	1	1	1	1	0	0	1	
159	1	1	1	1	1	0	0	1	
160	0	0	0	0	0	1	0	1	
161	1	0	0	0	0	1	0	1	
162	0	1	0	0	0	1	0	1	
163	1	1	0	0	0	1	0	1	
164	0	0	1	0	0	1	0	1	
165	1	0	1	0	0	1	0	1	
166	0	1	1	0	0	1	0	1	
167	1	1	1	0	0	1	0	1	
168	0	0	0	1	0	1	0	1	
169	1	0	0	1	0	1	0	1	
170	0	1	0	1	0	1	0	1	
171	1	1	0	1	0	1	0	1	
172	0	0	1	1	0	1	0	1	
173	1	0	1	1	0	1	0	1	
174	0	1	1	1	0	1	0	1	
175	1	1	1	1	0	1	0	1	
176	0	0	0	0	1	1	0	1	
177	1	0	0	0	1	1	0	1	
178	0	1	0	0	1	1	0	1	
179	1	1	0	0	1	1	0	1	
180	0	0	1	0	1	1	0	1	
181	1	0	1	0	1	1	0	1	
182	0	1	1	0	1	1	0	1	
183	1	1	1	0	1	1	0	1	
184	0	0	0	1	1	1	0	1	
185	1	0	0	1	1	1	0	1	
186	0	1	0	1	1	1	0	1	
187	1	1	0	1	1	1	0	1	
188	0	0	1	1	1	1	0	1	
189	1	0	1	1	1	1	0	1	
190	0	1	1	1	1	1	0	1	
191	1	1	1	1	1	1	0	1	
192	0	0	0	0	0	0	1	1	
193	1	0	0	0	0	0	1	1	
194	0	1	0	0	0	0	1	1	
195	1	1	0	0	0	0	1	1	
196	0	0	1	0	0	0	1	1	
197	1	0	1	0	0	0	1	1	
198	0	1	1	0	0	0	1	1	
199	1	1	1	0	0	0	1	1	
200	0	0	0	1	0	0	1	1	
201	1	0	0	1	0	0	1	1	
202	0	1	0	1	0	0	1	1	
203	1	1	0	1	0	0	1	1	

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8. Address ID, 204 to 255

ID	Switchnumber (Sw1)								
	(Bit)	1	2	3	4	5	6	7	8
204	0	0	1	1	0	0	1	1	
205	1	0	1	1	0	0	1	1	
206	0	1	1	1	0	0	1	1	
207	1	1	1	1	0	0	1	1	
208	0	0	0	0	1	0	1	1	
209	1	0	0	0	1	0	1	1	
210	0	1	0	0	1	0	1	1	
211	1	1	0	0	1	0	1	1	
212	0	0	1	0	1	0	1	1	
213	1	0	1	0	1	0	1	1	
214	0	1	1	0	1	0	1	1	
215	1	1	1	0	1	0	1	1	
216	0	0	0	1	1	0	1	1	
217	1	0	0	1	1	0	1	1	
218	0	1	0	1	1	0	1	1	
219	1	1	0	1	1	0	1	1	
220	0	0	1	1	1	0	1	1	
221	1	0	1	1	1	0	1	1	
222	0	1	1	1	1	0	1	1	
223	1	1	1	1	1	0	1	1	
224	0	0	0	0	0	1	1	1	
225	1	0	0	0	0	1	1	1	
226	0	1	0	0	0	1	1	1	
227	1	1	0	0	0	1	1	1	
228	0	0	1	0	0	1	1	1	
229	1	0	1	0	0	1	1	1	
230	0	1	1	0	0	1	1	1	
231	1	1	1	0	0	1	1	1	
232	0	0	0	1	0	1	1	1	
233	1	0	0	1	0	1	1	1	
234	0	1	0	1	0	1	1	1	
235	1	1	0	1	0	1	1	1	
236	0	0	1	1	0	1	1	1	
237	1	0	1	1	0	1	1	1	
238	0	1	1	1	0	1	1	1	
239	1	1	1	1	0	1	1	1	
240	0	0	0	0	1	1	1	1	
241	1	0	0	0	1	1	1	1	
242	0	1	0	0	1	1	1	1	
243	1	1	0	0	1	1	1	1	
244	0	0	1	0	1	1	1	1	
245	1	0	1	0	1	1	1	1	
246	0	1	1	0	1	1	1	1	
247	1	1	1	0	1	1	1	1	
248	0	0	0	1	1	1	1	1	
249	1	0	0	1	1	1	1	1	
250	0	1	0	1	1	1	1	1	
251	1	1	0	1	1	1	1	1	
252	0	0	1	1	1	1	1	1	
253	1	0	1	1	1	1	1	1	
254	0	1	1	1	1	1	1	1	
255	1	1	1	1	1	1	1	1	

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9. SPECIFICATION

NOTES

Model	OK-SEM18I-V48DN	OK-SEM26I-V48DN	OK-SEM36I-V53DN
	OK-SEM18S-V48DN	OK-SEM26S-V48DN	OK-SEM36S-V53DN
	OK-SEM18HB-V48DN	OK-SEM26HB-V48DN	OK-SEM36HB-V53DN
	Day / Night	Day / Night	Day / Night
Signal Format	PAL / NTSC		
Scanning	Progressive		
Image Sensor	1/4 inch Ex-View CCD		
H. Resolution	470 TVL, 440K Pixels (PAL)		530 TVL (High Resolution)
Viewing Angle	48.0° (Wide end)	54.2° (Wide end)	57.8° (Wide end)
	2.8° (Tele end)	2.2° (Tele end)	1.7° (Tele end)
Zoom	18× Opt. / 12× Digital	26× Opt. / 12× Digital	36× Opt. / 12× Digital
Min. Illumination	0.7 Lux (1/50 sec., Color)	Day: 0.7Lx (1/50), 0.1Lx (1/3)	Day: 2.0Lx (1/50), 0.14Lx (1/3)
	-	Night: 0.01Lx (1/3)	Night: 0.7Lx (1/50), 0.05Lx (1/3)
Focus	Auto / Manual		
White Balance	Auto / Manual (ATW, Indoor, Outdoor, One Push WB, Manual WB) Wide Dynamic Function (Sb36 / Wb36 models)		
Shutter Speed	1 to 1/10,000 Sec.		1/3 to 1/10,000 Sec.
Iris Control	Auto / Manua/ Auto Slow Shutter		
IR Cutter Control	N/A		Yes
Day/Night Mode	N/A		Yes
Gain Control	Auto / Manual (-3 to 28 dB, 2 dB steps, 16steps)		
Video Output	VBS: 1.0Vp-p (Sync Negative), Y / C Output		
S/N Ratio	More than 50 dB		
Pan Speed	0.4° - 300° per Sec.		
Tilt Speed	0.4° - 150° per Sec.		
Pan Range	360°		
Tilt Range	0 - 90°		
Communication	RS485, multiple-protocol, coax		
Preset Positions	128 Presets		
Auto Pan	Yes, between 2 presets		
Tour / Sequence	4 progr. Tours with max 24 presets/ 4 Pattern up to 180s		
Alarm inputs	7 inputs / 2 output		
Operating Temp.	Outdoor: -40°C to 60°C / Indoor: -10°C to 50°C		
Power	24V AC / 24 -60 VA (outdoor)		