

FOR A GOOD **REASON** **GRUNDIG**

en

Owner's Manual

HD-SDI Cameras & Domes

GCH-K0305B 2 Megapixel Full HD CMOS Box HD-SDI Camera ICR WDR

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Content:		3. TV System/Resolution/Frame Rate	4
1. Introduction	1	4. Lens Mounting	5
2. Important Safety Instructions	1	5. Back Focus Adjustment	5
3. Package Contents	2	5. Operation and Configuration	7
4. Installation	2	1. OSD Menu Tree	7
1. Installation Remarks	2	2. Entering the OSD Menu	8
2. Camera Overview	4	3. Configuration Menu	8

1. Introduction

Based on the Television Standard for Full HD Television, HD-SDI products feature 2 Megapixel (1920x1080) pictures in real-time (30fps) transmitted over coax cabling.

Get the advantages of an IP technology without their drawbacks. Get 16:9 megapixel pictures without network configuration, bandwidth problems and network security risks. Use existing coax cables and only exchange the cameras and recorders. Get a "real" live picture and see the things that happen in the now, not a few seconds later. Connect a monitor directly to a camera using only a HD-SDI-to-HDMI converter.

HD-SDI products are easy to handle, easy to install and produce amazing high quality pictures.

With its innovative WDR function and digital noise reduction technology, the HD-SDI Box Cameras from GRUNDIG can offer close-up images with exceptional details even at night time. The camera can stream HD-SDI signals up to 50/60fps which will give you crystal clear pictures of moving objects.

2. Important Safety Instructions

Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product. Incorrectly connecting the power supply may cause explosion, fire, electric shock, or damage to the product. Do not connect multiple products to one single adapter. Exceeding the capacity may cause abnormal heat generation or fire.

Do not place conductive objects (e.g. screwdrivers, coins or any metal items) or containers filled with water on top of the product. Doing so may cause personal injury due to fire, electric shock, or falling objects.

If any unusual smells or smoke comes out of the unit, stop using the product. In this case, immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.

If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way. (GRUNDIG is not liable for problems caused by unauthorised modifications or attempted repair.)

To prevent fire or electric shock, do not expose the inside of this device to rain or moisture.

3. Package Contents

These parts are included:



HD-SDI Camera



CD
(Software and Documentation)



Back Focus Adjuster



Quick Guide

4. Installation

4.1. Installation Remarks

Do not install the product in a location subject to high temperature (over 50°C), low temperature (below -10°C), or high humidity. Doing so may cause fire or electric shock. Keep out of direct sunlight and heat radiation sources. This may cause fire. Avoid aiming the camera directly towards extremely bright objects such as the sun, as this may damage the image sensor.

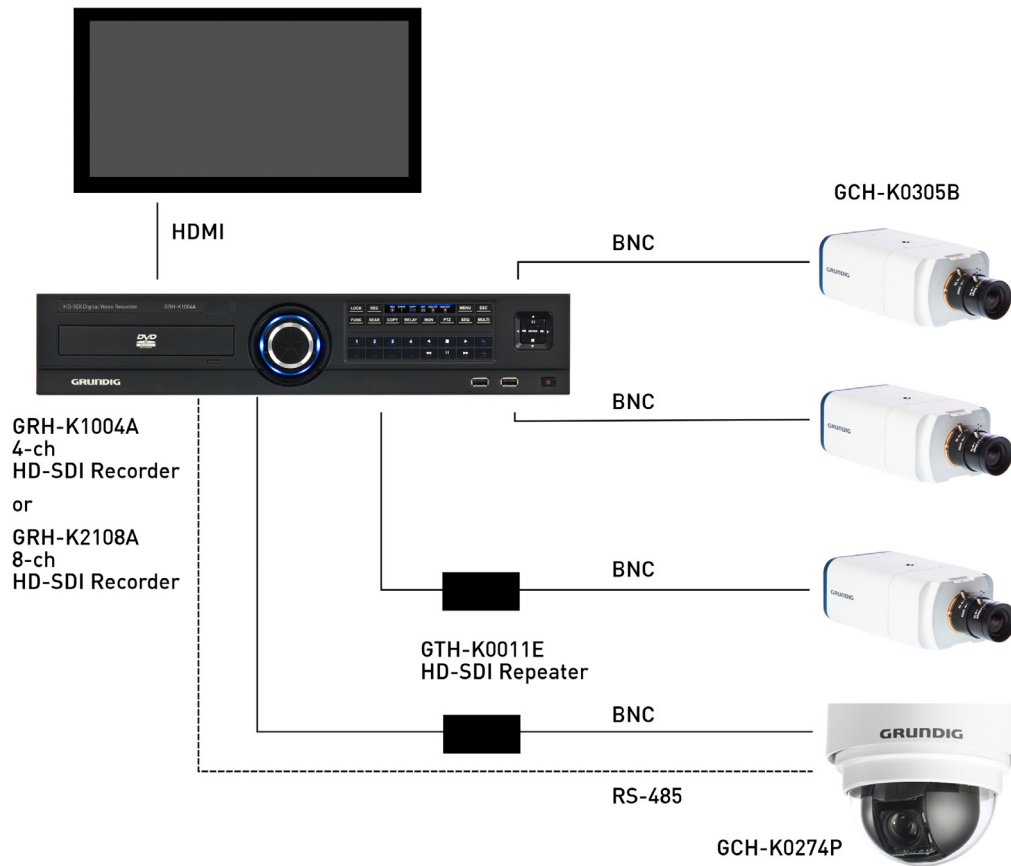
Do not install the unit in humid, dusty or sooty locations. Doing so may cause fire or electric shock. Install it in a place with good ventilation.

When installing the unit, fasten it securely and firmly. A falling unit may cause personal injury.

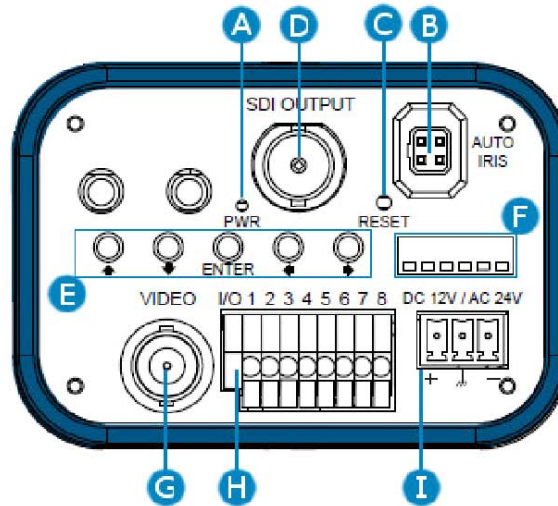
If you want to relocate the already installed product, be sure to turn the power off and then move or reinstall it.

Connect the HD-SDI Camera to other devices as shown in the diagram to complete a video surveillance solution. HD-SDI products can be connected through BNC cables. The installation is Plug & Play. There is no further configuration necessary.

If you do not get a signal, please check whether all cables are connected correctly. The distance of HD-SDI signals is limited to approx. 100-120m when using a RG59 cable. If you want to use HD-SDI for further distances, please use either a higher quality cable (RG6 approx. 300m) or the Grundig HD-SDI repeater GTH-K0011E that will extend the transmitting distance to 200-240m.



4.2. Camera Overview

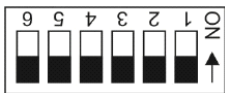


Item	Definition		Remark			
A	PWR		Power Connection Indication (green light)			
B	AUTO IRIS Connector		Auto Iris Lens Connector			
C	RESET		Reset			
D	HD-SDI OUTPUT		HD-SDI Signal Output			
E	↑ / ↓ / ← / → / ENTER		OSD Control Key			
F	DIP Switch		TV System/ Resolution/ Frame Rate Setup/ BNC			
G	VIDEO		BNC Output			
I	Dual Board	DC12V/AC24V	+	AC 24V: AC_IN 1	DC 12V: DC12V	
			⏏	AC 24V: GND	DC 12V: GND	
			-	AC 24V: AC_IN 2	DC 12V: DC12V	
H	Alarm I/O		1	ALARM_GND	5	T-
			2	ALARM_IN+	6	T+
			3	ALARM_OUT-	7	R-
			4	ALARM_OUT+	8	R+

4.3. TV System/Resolution/Frame Rate

Please refer to the illustrations below to set up the Camera TV system, resolution and frame rate.

Pin	Definition	Setting	
		ON	OFF
1	TV System	NTSC	PAL
2	Resolution	720P	1080P
3	Frame Rate	50/60	25/30
4	Reserved	-	-
5	Reserved	-	-
6	Video Out	Analogue on/ SDI off	Analogue off/ SDI on



6 5 4 3 2 1

NOTE:

To activate the analogue video output, please set the DIP Switch PIN 6 on the Camera Rear Plate (Item F in the picture in 4.2. Camera Overview) to <ON>. Please note that while the DIP Switch PIN 6 is set to <ON>, the SDI output will be deactivated.

4.4. Lens Mounting

Lens Mounting for C/CS Mount Lens Model:

It is possible to attach all CS-Mount lenses with manual or DC controlled iris on the camera. Please remove the camera's plastic covering first and then attach the CS-Mount lens onto the camera. If you would like to use a C-Mount lens, you need a 5 mm C/CS Mount Adapter between the camera and the C-Mount lens, as shown in the illustration below.



C/CS Mount Adapter (on camera)



Completion

4.5. Back Focus Adjustment

When to adjust the back focus:

Back Focus refers to the distance from the rear lens element to the camera focal plane. It is only required to adjust the back focus only when the focus cannot be adjusted throughout its zoom range.

Requirements:

Tools required when carrying out back focus adjustment include:

1. Back focus adjuster (in the package of the camera)
2. Test chart / contrasting object

How to adjust the back focus:

Step 1: Set the camera on a stable mount, with the test chart or object at least 75 feet (23 meters) away (or as far as possible). Please loosen the focus ring's retaining screw with the supplied back focus adjuster.



Retaining Screw

Back Focus Adjuster

Step 2: Make sure the iris is wide open. Therefore, it is advised to keep the environment in low light condition. To open the automatic lens completely, please use a neutral density filter. With this filter it is possible to simulate a low light condition so that the lens can open up completely.

Step 3: Adjust the focus to infinite far (∞).

Step 4: Turn the zoom to the wide angle (telephoto) position, and then focus with the back focus on the subject.

Step 5: Set the zoom to the most extreme wide angle (telephoto) position.

Step 6: Focus on the object with the back focus ring. Check now whether it is possible to adjust the focus with the back focus ring also in the wide angle range.

Step 7: Repeat steps 3 ~ 6 until the focus can be adjusted throughout the zoom range. When using a zoom lens and changing the focal length, the focus does not need to be adjusted again once the back focus adjustment has been completed. This does not apply to vario lenses.

Step 8: Tighten the back focus ring's retaining screw to fix the ring.

5. Operation and Configuration

5.1. OSD Menu Tree

The OSD setup menu structure is listed in the following section. The star symbol indicates the factory default. For detailed function description, please refer to 5.3. Configuration Menu.

Item	Layer 1	Layer 2	Layer 3	Default
VIDEO FORMAT	720P/ 1080P, 60/50FPS, 30/25FPS			-
DEFAULT CAMERA	<ON>, <OFF>			ON
BACKLIGHT	<ON>, <OFF>			OFF
AE FUNCTION	EXPOSURE COMP.	<OFF>, <ON>		OFF
	EXPOSURE VALUE	<00>~<15>		-
	AE MODE	AUTO	MAX. GAIN: <0>DB~<48>DB	☆
		SHUTTER_PRI	SHUTTER SPEED: <1/60>~<1/10000> MAX. GAIN: <0>DB~<48>DB	-
		IRIS_PRI	IRIS VALUE: <OPEN> MAX. GAIN: <0>DB~<48>DB	-
		MANUAL_PRI	SHUTTER SPEED: <1/60>~<1/10000>	-
	IRIS VALUE: <OPEN> GAIN VALUE: <0>DB~<29.2>DB		-	
	EXIT & SAVE			-
WBC MODE	AUTO (Auto White Balance)			☆
	INDOOR			-
	OUTDOOR			-
	ATW (Auto-tracing WBC)			-
	MANUAL	R GAIN <000> ~ <255>		
B GAIN <000> ~ <255>				-
EXIT + SAVE: YES				-
D.N.R.	<ON>, <OFF>			ON
APERTURE	<00>~<15>			06
IR FUNCTION	<AUTO>, <ON>, <OFF>			AUTO
WDR FUNCTION	<ON>, <OFF>			OFF
VERSION INFO	FIRMWARE VER.			-
PRIVACY MASK	ALL MASK	<OFF>, <ON>		OFF
	SET MASK	<01>~<16>	MASK ON/OFF: <ON>, <OFF>	-
			TRANSPARENCY: <OFF>, <ON>	-
			COLOR: <BLACK>, <WHITE>, <RED>, <GREEN>, <BLUE>, <YELLOW>, <MAGENTA>, <CYAN>	-
			MASK LEFT: <000>~<080> MASK TOP: <000>~<060>	-
			MASK RIGHT: <000>~<080> MASK BOTTOM: <000>~<060>	-
	CLEAR MASK	<01>~<16>		-
	EXIT & SAVE			-
IMAGE FLIP	<NORMAL>, <ROTATE>, <UD REVERSE>, <LR REVERSE>			NORMAL
ALARM IN/OUT	<N.O./N.O.>, <N.C./N.O.>, <N.C./N.C.>, <N.O./N.C>			N.O./N.O.

PROTOCOL & ID	PROTOCOL	<PELCO P 2400>, <PELCO P 4800>, <PELCO P 9600>, <PELCO D 2400>, <PELCO D 4800>, <PELCO D 9600>, <DSCP 9600>	PELCO D 2400
	ID	<001>~<255>	001
EXIT & SAVE	YES		-

5.2. Entering the OSD Menu

The detailed functions and parameter settings of your Camera can be set through the OSD (On Screen Display) menu with the rear panel control buttons of the Camera. The items in the OSD menu are described in the following sections.

To enter the OSD menu of the camera, press the <ENTER> key.

To select a setup item, use the direction keys (up/down) on the rear panel to move the OSD cursor in the OSD menu.

To set up items, use the direction keys (left/right) on the rear panel to change the settings in the OSD menu. For items with <ENTER>, press the <ENTER> key on the rear panel to enter the sub menus.

5.3. Configuration Menu

5.3.1. VIDEO FORMAT

The resolution (1080P or 720P) and frame rate (30/25fps or 60/50fps) setting of the Camera will be shown on the Main Page of OSD Menu on the screen for users' reference.

To revise the Video Format setting, please refer to chapter 4.3. TV System/Resolution/Frame Rate for more detail.

MAIN PAGE [1/2]	
VIDEO FORMAT	1080@25FPS
DEFAULT CAMERA	ON
BACKLIGHT	OFF
AE FUNCTION	AUTO
WBC MODE	ENTER
D.N.R.	AUTO
APERTURE	6
IR FUNCTION	AUTO
WDR FUNCTION	OFF
EXIT & SAVE	

5.3.2. DEFAULT CAMERA

This item is for restoring the camera settings, including Backlight, AE, WBC, D.N.R., Aperture, WDR and Privacy Mask, to factory defaults. Once one of the parameters mentioned above is modified, the DEFAULT CAMERA item will turn automatically to <OFF>. Select <ON> to recall the default settings for these camera parameters.

5.3.3. BACKLIGHT

The Backlight Compensation function prevents the centre object from being too dark in surroundings where excessive light is behind the centre object.

When you set this item to <ON>, the centre object will be brightened in contrast to the edge of the picture (where backlight would most likely be located).

5.3.4. AE FUNCTION

Exposure is the amount of light received by the image sensor and is determined by how wide you open the lens diaphragm (iris adjustment), by how long you keep the sensor exposed (shutter speed), and by other exposure parameters. With this item, users can define how the Auto Exposure (AE) function works.

AE FUNCTION	
EXPOSURE COMP.	OFF
EXPOSURE VALUE	--
AE MODE	IRIS_PRI

EXPOSURE COMPENSATION / VALUE:

The exposure value ranges from <00> dB to <15> dB. Select <OFF> to disable this function.

AE MODE:

- AUTO:

In this mode, the camera's Brightness, Shutter Speed, IRIS and AGC (Auto Gain Control) control circuits work together automatically to get consistent video output level.

- SHUTTER_PRI:

With this option, the Shutter Speed takes the main control of exposure, and both IRIS and AGC will function automatically in cooperation with the shutter speed to achieve consistent exposure output. The shutter speed ranges from 1/10000 to 1.

- IRIS_PRI:

In this mode, the IRIS function adjusts exposure in higher property. SHUTTER speed and AGC circuit will function automatically in cooperating with the IRIS to get consistent exposure output. The IRIS value is fixed to <OPEN>.

- MANUAL:

In this mode, users can adjust the shutter speed (1/10000 ~ 1) and the gain value (0dB ~ 29.2dB) for optimised video output.

EXIT & SAVE:

Exit the AE FUNCTION menu and go back to the Main Page 1 to set the WBC mode.

5.3.6. WBC MODE

To display natural colours, the camera needs to know the reference colour temperature of the light source. Based on this reference colour temperature the camera will calculate the correct values for all colours. The camera can perform a measurement by itself or the user can set up the reference colour temperature manually. The scale unit of the colour temperature is Kelvin [K]. The following list shows the colour temperature of some light sources for reference.

Users can select one of the White Balance Control modes according to the operating environment.

Light Sources :

Cloudy Sky (Colour Temperature: 6,000 to 8,000 K)

Noon Sun and Clear Sky (Colour Temperature: 6,500 K)

Household Lighting (Colour Temperature: 2,500 to 3,000 K)

75-watt Bulb (Colour Temperature: 2,820 K)

Candle Flame (Colour Temperature: 1,200 to 1,500 K)

AUTO:

In this mode, white balance works within its colour temperature range. This mode computes the white balance value output using the colour information from the entire screen. It outputs the proper value using the colour temperature radiating from a black subject based on a range of values from 3000K to 7500K.

INDOOR:

3200 K Base mode.

OUTDOOR:

5800 K Base mode.

ATW (Auto Tracing White Balance):

The Dome Camera takes out the signals in a screen in the range from 2500 K to 10000 K.

MANUAL:

In this mode, users can change the White Balance value manually.

- R GAIN/ B GAIN:

R gain and B gain are adjustable and range from 0 to 127.

- EXIT & SAVE:

After the parameter setups relevant for WBC are completed, please exit the WBC MODE menu and go back to Main Page 1 to continue to set other functions.

5.3.7. D.N.R.

With Digital Noise Reduction (D.N.R.), the processor analyses pixel by pixel and frame by frame to eliminate the environmental noise signal so that the highest quality image can be produced even in low light conditions. Select <ON> to activate the Digital Noise Reduction function.

5.3.8. APERTURE

In this mode, users can adjust the enhancement of the edges of objects in the picture. There are 16 levels of adjustment; the options are from <00> to <15>. <00> represents "no enhancement". When shooting a text, this function can make the text sharp.

5.3.9. IR FUNCTION

With the IR cut filter, the Dome Camera can still catch a clear image at night time or in a very dark light condition. During day time, the IR cut filter will be on to block the infrared light for a clear image. During night time or in dark light condition, the IR cut filter will be removed to catch infrared light, and the displayed images will become black and white.

AUTO:

The Internal circuit will automatically decide to remove the IR cut filter according to the light condition calculated by the internal light algorithm.

- ON:

Select the item to remove the IR cut filter. The camera will change to B/W (Night) mode.

- OFF:

Select the item to disable the IR cut function; the camera will be in Colour (Day) mode.

5.3.10. WDR FUNCTION

The Wide Dynamic Range (WDR) function is especially effective in solving indoor and outdoor contrast issues to enhance better image quality and video display. It enables the Dome Camera to catch detailed data from the dark part (Indoor) without any saturation from the bright part (Outdoor).

- ON:

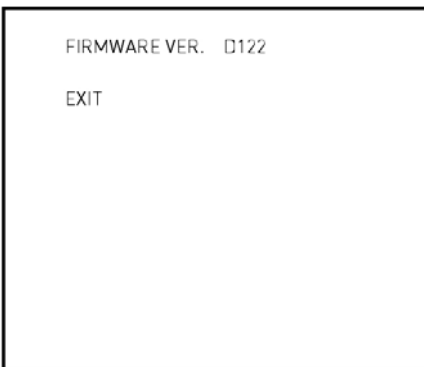
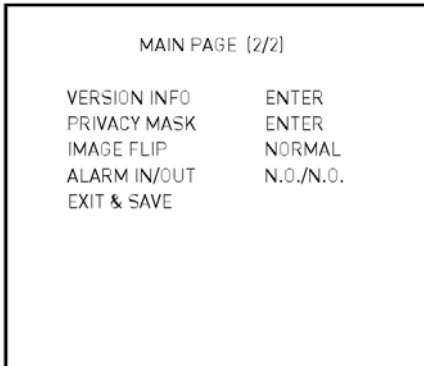
Activate the WDR function by selecting this option. In this mode, the Dome Camera will operate the WDR function automatically.

- OFF:

Deactivate the WDR function.

5.3.11. VERSION INFO

Press ↓ on <MAIN PAGE 1> to get to the next page, the currently installed software version of the Camera is on top of <MAIN PAGE 2> as <VERSION INFO>. Press <Enter> to enter the menu, the <FIRMWARE VER.> will be shown on the screen for users' reference.



5.3.12. PRIVACY MASK

The Privacy Mask function aims to avoid any intrusive monitoring. Users can adjust the camera view position and the mask size and area via the direction keys on the rear panel of the camera. When setting a mask, it is suggested to set it at least twice bigger (height and width) than the masked object. A maximum of 16 masks can be displayed in one scene. Please refer to the following description for setting the privacy masks.



ALL MASK:

Users can enable or disable the Privacy Mask function through this item. Set this item to <ON> before configuring the mask zones.

SET MASK:

Use the control device to move the Dome Camera to the area where you want to set a mask. Press <ENTER> to enter the mask setting menu. The dome will memorise the present position as a privacy mask position. Up to 16 masks can be set.

- MASK ON/OFF:

Users can enable or disable the Privacy Mask function through this item. Set this item to <ON> before configuring the mask zones.

- TRANSPARENCY:

The colour of a privacy mask can be set as transparent. Select <ON> to display transparent masks.

- COLOR:

The colour of a privacy mask can be set through this item. The available colours are black, white, red, green, blue, cyan, yellow and magenta.

- MASK LEFT/ RIGHT:

The Mask Left/ Right value ranges from <000> to <080>. The original horizontal center of a mask zone is the center of a screen; the value is <040>. It is possible to move a mask zone to another position by adjusting the Mask Left/Right value with the LEFT/RIGHT keys on the Camera rear panel.

To move the mask horizontally toward the right/left side of the screen, please set the Left/Right value under/over <040>. The smaller/bigger the value gets, the closer the mask will be positioned to the right/left side of the screen. The horizontal size of a privacy mask is adjusted by setting up these values.

- MASK TOP/BOTTOM:

The Mask Top/Bottom value ranges from <000> to <060>. The original vertical center of a mask zone is the center of a screen. The value is <030>. It is possible to move a mask zone to the other position by adjusting the Mask Top/Bottom value with the LEFT/RIGHT keys on the Camera rear panel.

To move the mask vertically toward the upper/lower side of the screen, please set the Mask Top/Bottom Value under/over <030>. The smaller/bigger the value gets, the upper/lower the mask will be positioned on the screen. Users can also adjust the vertical size of a privacy mask by setting up the value.

- EXIT & SAVE:

Exit the <MASK 01 SETUP MENU> and go back to the <PRIVACY MASK MENU> to continue with more Mask settings.

CLEAR MASK:

Users can delete a preset mask zone with this item. Please follow the steps listed below.

STEP 1: Select the mask zone that is to be erased (e.g. 01).

STEP 2: Press <ENTER> to confirm your selection.

EXIT & SAVE:

Exit the PRIVACY MASK menu and go back to MAIN PAGE 1 to carry on with other settings.

5.3.13. IMAGE FLIP

Users can change the video display type if necessary. The selectable video rotate types include Normal, Rotate, UD Reverse and LR Reverse. Differences among these types are described below.

NORMAL:

Select <Normal> to keep the image as displayed originally.

ROTATE:

Select <Rotate> to turn the image 180 degrees.

UD REVERSE:

Select <UD Reverse>, the image will be shown upside down.

LR REVERSE:

Select <LR Reverse>, the image will be shown mirror reversed.

5.3.14. ALARM IN/OUT

The Camera provides one alarm input and one alarm output (N.O. and N.C) to connect alarm devices. With this function, the Camera will cooperate with alarm systems to catch the event images. For wiring, please refer to 4.2. Camera Overview.

ALARM TYPE:

There are two kinds of alarm types: Normal Open and Normal Close, which are illustrated below. There are four combinations for the Alarm In/Out setting type including N.O./N.O., N.C./N.O., N.C./N.C. and N.O./N.C., please select an Alarm In/Out combination that corresponds with your alarm application.

5.3.15. PROTOCOL & ID

Define the protocol and ID you are going to use based on the devices of your surveillance system.

PROTOCOL:

Select a matching Protocol with the correct baud rate to control the Camera via a RS-485 device such as a keyboard. The Protocol options include Pelco D 2400, Pelco D 4800, Pelco D 9600, Pelco P 2400, Pelco P 4800, Pelco P 9600 and DSCP 9600.

ID:

Please change the Camera's ID if there is more than one Camera in the same network. The ID setting range is from 1 to 255.

NOTE: No two Dome Cameras should be given the same ID, otherwise a communication conflict may occur.

5.3.16. EXIT & SAVE

Select the item <EXIT & SAVE> on the bottom of <MAIN PAGE1> to exit the OSD setup menu.

Specifications GCH-K0305B

Image Sensor	1/2.8" Progressive Scan CMOS, 3 Megapixels
Pixels - Total	2144(H) x 1588(V), 3.40M pixels
Pixels - Effective	2080(H) x 1553(V), 3.23M pixels
Scanning System	Progressive
Image Size	1920x1080, 1280x720
Frame Rate	30/60, 25/50 fps at 1080p; 30/60, 25/50 fps at 720p
Sensitivity	0.227 lux at F1.2, 30 IRE (25fps)
Video Outputs	1 Ch HD-SDI BNC or 1 Ch Composite BNC
Serial Interface(s)	RS-485 (In/Out)
Lens Mount	C/CS mount
Lens Drive Type	Auto iris (DC)
High Speed Shutter	1/30 ~ 1/10.000 sec
Shutter Mode	Auto / Fix / Iris / Manual
Col/B&W	On/Off/Auto
Protocol	Pelco D, Pelco P, ...
Serial Interface(s)	RS-485
OSD	Yes
Number of Privacy Zones	16
BLC	On/Off
Digital Noise Reduction (DNR)	On/Off
White Balance	Auto, Manual, Indoor, Outdoor, ATW
Operating Temperature	0°C ~ +50°C
Humidity	10 ~ 90% no condensation
Supply Voltage	12 VDC/24 VAC
Power Consumption	5 W
Weight	0.33 kg
Dimensions (wxhxd)	82 x 52 x 125 mm

EC Declaration of Conformity



GCH-K0305B 2 Megapixel Full HD CMOS Box HD-SDI
Camera ICR WDR

It is hereby certified that the products meet the standards in
the following relevant provisions:

EC EMC Directive 2004/108/EC
Low Voltage Directive 2006/95/EC

Applied harmonised standards and technical specifications:

EN 55022: 2006/A1: 2007 (Class A),
IEC/EN 61000-3-2: 2006/A1: 2009/A2: 2009,
IEC/EN 61000-3-3: 2008
AS/ NZS CISPR22: 2009 (Class A)
EN 50130-4: 1995 /A1: 1998/ A2: 2003,
IEC 61000-4-2: 2008
IEC 61000-4-3: 2010
IEC 61000-4-4: 2010
IEC 61000-4-5: 2005
IEC 61000-4-6: 2008
IEC 61000-4-11: 2004
Mains Supply Voltage Variations

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Remscheid, 14.03.2012

A handwritten signature in blue ink, which appears to read 'L. Bergschneider', is written over a horizontal line.

Ludwig Bergschneider
CEO