

IPC3500 Series Hardware Manual



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1. INTRODUCTION

This IPC3500 can compress video/audio data and transmit the compressed video/audio data through the network in real time. IPC3500 provides a high quality video image with a limited bandwidth and storage capacity. These products are ideally suited for a wide range of surveillance and remote monitoring applications. Main features are highlighted below.

Main features

- Vandal Proof Outdoor Dome Type IP Camera
- High Quality Compression in real time streaming
- IPC3500 provides high quality MPEG-4 and MJPEG encoding at D1 in real time. Main features

Network

- RTP/RTSP and unicast/multicast are supported.

Streaming

- IPC3500 supports hardware de-interlacing.

Video/Audio

- Loop out is supported
- IPC3500 supports two-way audio
 - Transmits to client - G.711 by software
 - Receives from client - one digital audio

Camera

- Sony 1/3" Super HAD CCD & High Quality SS-HQ1 Full Kit Chip Set
- True Day / Night (ICR) (IPC3500A-D, IPC3501A-D only)
- AGC / EE, AI / BLC / FLK / Gamma / Mirror Function
- Improvement of color rolling suppression

Additional Features

- Hardwre motion detection
- OSD
- RS-485 serial port
- RS-232C serial port for some devices like a POS terminal.

SDK

- Four types (RTSP, UDA5, ActiveX, HTTP-API) are provided for application development.

2. Product Description

2.1. Function Specifications

IPC3500 specification is shown as the following table

Model Classification

IPC3500A-D : Day / Night Sony 1/3" Super HAD CCD, 540 TVL, 12 VDC

IPC3500A-IR : IR(Built in 12PCS LED), 1/3" Super HAD CCD, 540 TVL, 12 VDC

IPC3500A : Sony 1/3" Super HAD CCD, 540 TVL, 12 VDC (Standard Model)

Network

		IPC3500A-D	IPC3500A / IPC3500A-IR
Video	Compression	MPEG-4, JPEG	
	Resolution	D1, 2CIF, CIF, QCIF	
	Compression FPS	25/30 fps @ D1	
Audio	Input/Output	1 / 1 ch	
	Compression	G.711	
Network		10/100 Base-T	
DI / DO		1 / 1	
RS-232C		Support	
RS-485		Support	
Power Over Ethernet(PoE)		Optional	
De-interlacing		Support (Hardware Encoding Engine)	
Motion Detection		Support	
OSD & Privacy Zone Masking		Support	
Video Stream Encryption		AES	
Protocol		SNTP,TCP,UDP,DHCP,HTTP,NTP,RTSP,RTP(Unicast,Multicast)	

Camera

	IPC3500A-D	IPC3500A	IPC3500A-IR	
Day / Night	Available (ICR)	N / A		
Image Sensor	Sony 1/3" Super HAD CCD			
Effective Pixels	NTSC – 768(H) x 494 (V) / PAL – 752 (H) x 582(V)			
TV System	NTSC / PAL			
Horizontal Resolution	540 TVL			
White Balance	Automatic White Balance (AWB)			
Scanning System	525 Lines (NTSC), 625 Lines (PAL), 2:1 Interlace			
Sync System	Internal (12 VDC)			
Scanning Frequency	NTSC – 15.734 KHz(H) 59.94 Hz(V) PAL – 15.625 KHz(H) 50 Hz(V)			
Min. Illumination	0.05 Lux	0.5 Lux		
Lens	4 ~9 mm Day / Night Vari-focal Auto IRIS Lens	4 ~ 9 mm Vari-focal Auto IRIS Lens		
Electronic Shutter	1 / 60 ~ 100,000 (NTSC), 1 / 50 ~100,000 (PAL)			
S / N Ratio	More than 48dB			
Gamma Correction	0.45 or 1 Selectable			
Video Output (Loop Out)	VBS 1.0 Vp-p Composite			
Function Key	AGC, EE / AI, BLC, FLK, Gamma, Mirror			
Electrical				
Power Source	12 VDC 515 mA	12 VDC 500 mA	12 VDC 640 mA (510mA - IR off)	
Video Output(Loop Out)	BNC Cable			
Power Input	DC Jack			
Environmental				
Operating Temperature	0 °C ~ 60 °C (32°F ~ 140 °F)			
Storage Temperature	-20 °C ~ 60 °C (-4°F ~ 140 °F)			
Operating Humidity	Up to 85% RH			
Mechanical				
Material	Diecasting / Urethane Polycarbonate			
Dimensions	Flush	140.0(W) x 111.3(H) mm		
	Surface	137.09(W) x 120.3(H) mm		
Weight	Flush	591.0g	581.0g	591.0g
	Surface	866.0g	856.0g	866.0g

** The weight is measured without POE module.

3. INSTALLATION & CONFIGURATION

3.1. Package Contents

The Package contains the following. Please make sure all listed items are included in the box.

IPC3500.....	1
LAN Cable (Cross Type 1.5m)	1
Screw	5
Driver for adjusting DC Level	1

3.2. Part List

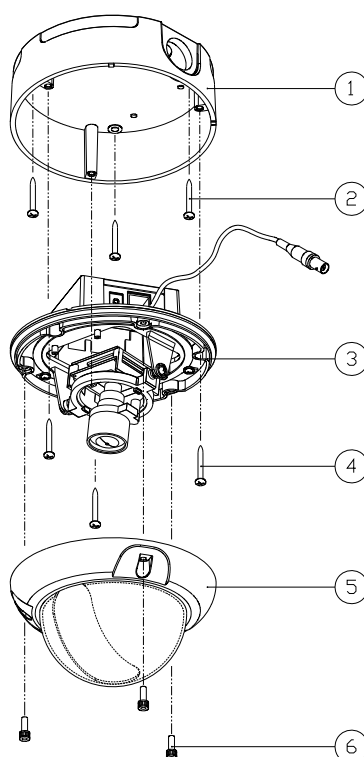


Figure 1. Part List

3.3. Basic Connection

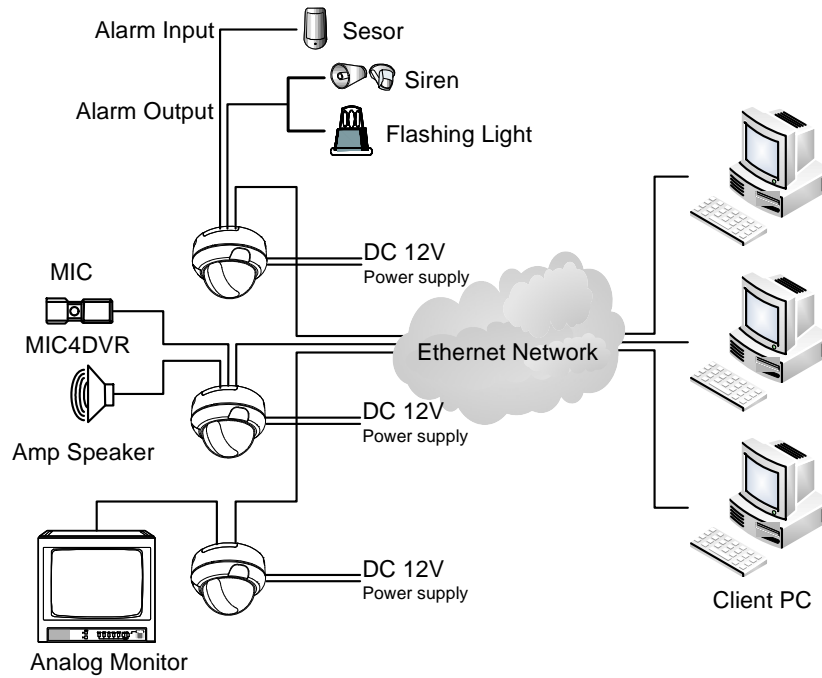


Figure 2. Basic Installation Configuration

3.4. Functions

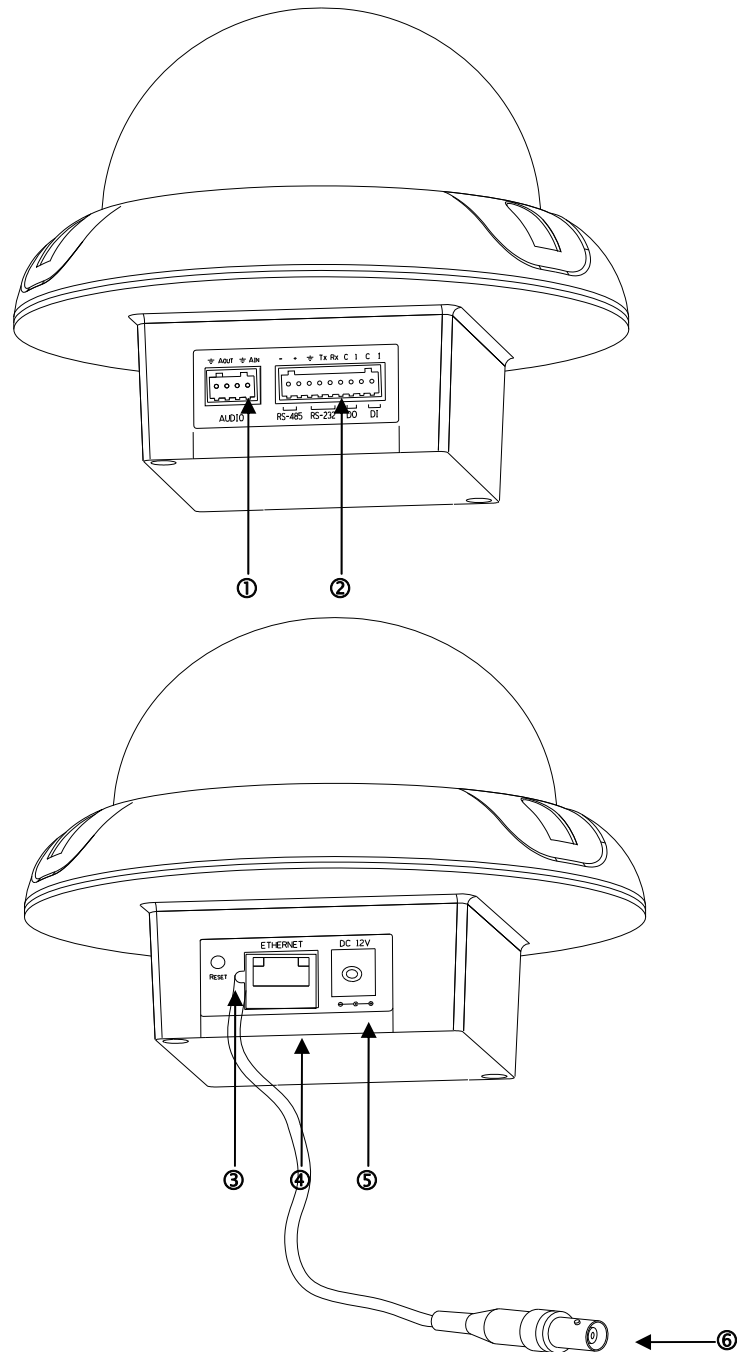


Figure 3. External connectors of IPC3500

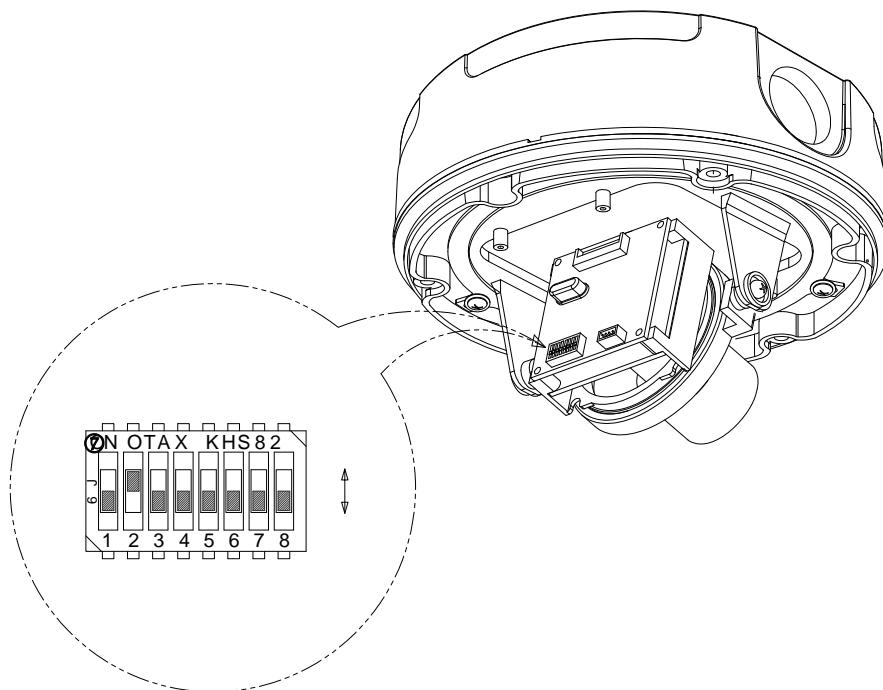


Figure 4. Internal view of IPC3500

① **4 pin connector for audio In / Out**

IPC3500 have a mono audio input and a mono audio output.

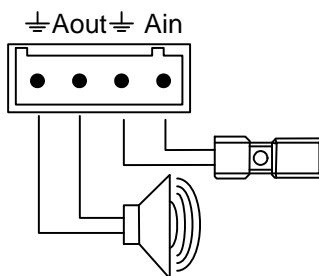


Figure 5. 4 pin connector for audio in and out.

② **9 pin terminal block for D/I, D/O and serial communication**

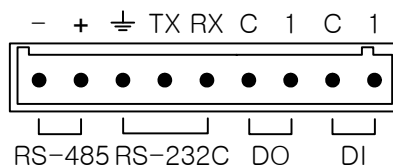


Figure 6. 9 pin terminal block

D/I

IPC3500 provides 1 channel D/I. It can be connected to either a voltage type sensor or a relay type sensor as following Figure 7 and Figure 8. It can be selected by software.



Do not use voltage and relay type sensor together.

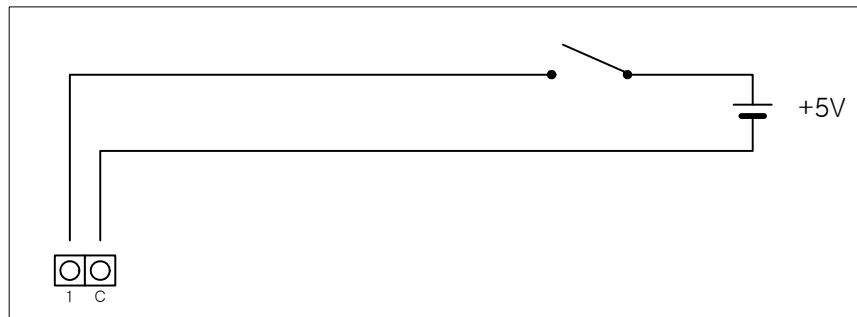


Figure 7. Voltage Type Digital Input Connection

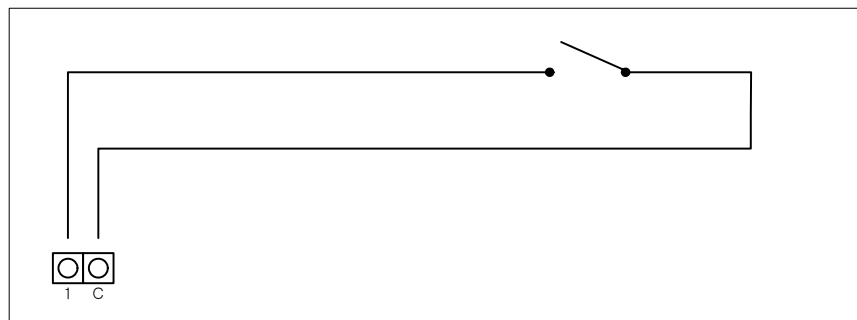


Figure 8. Relay Type Digital Input Connection

D/O

IPC3500 provides 1 channel D/O. It can be connected to either a voltage type sensor or a relay type sensor as following Figure 9.

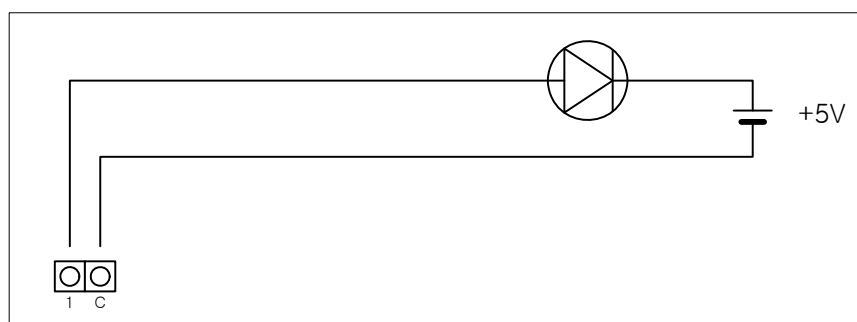


Figure 9. Digital Output Connection



Please pay attention to electric characteristics during installation.
(Detailed instructions are being prepared.)

RS-232C

RS-232C Terminal Block is used for some devices such as POS terminal block.

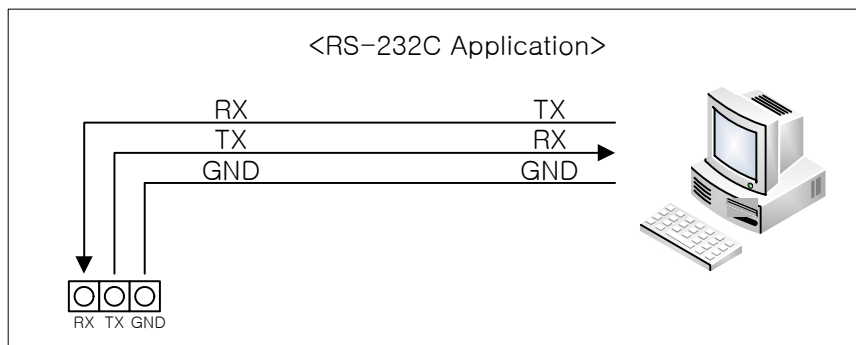


Figure 10. RS-232C Connection

RS-485

The RS-485 serial port consists of TRX+(RX+) and TRX-(RX-) as following Figure 11.

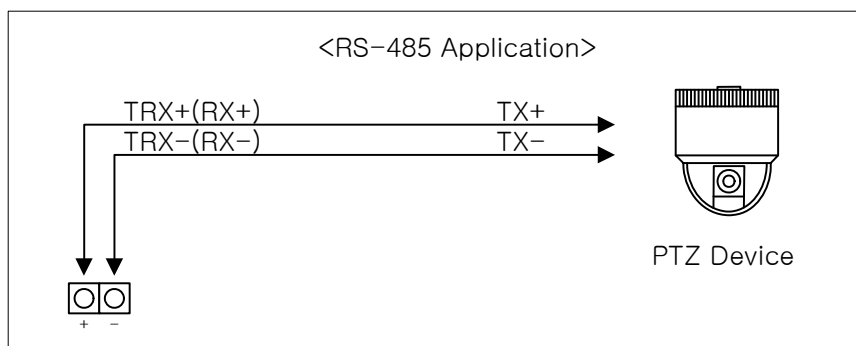


Figure 11. RS-485 Connection

③ Reset Switch (Reset)

Reset switch is used for restarting IPC3500 or resetting IPC3500 to Factory Default (FD). Refer to '4.1. Factory Default Settings' for detailed procedures.

④ LAN Connector (Ethernet)

This is a RJ45 LAN connector for 10/100 Base-T Ethernet.

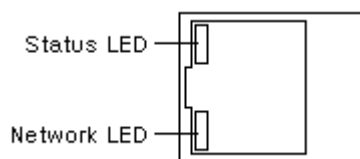


Figure 12. RJ45 LAN connector

⑤ Power Adaptor Connector (DC 12V)

IPC3500 Series needs a DC 12V 1A adapter for power supply.



Figure 13. Power Socket

◎ Video Loop Out

It is a loop back video output port.

⑦ DIP Switch for Camera Modes

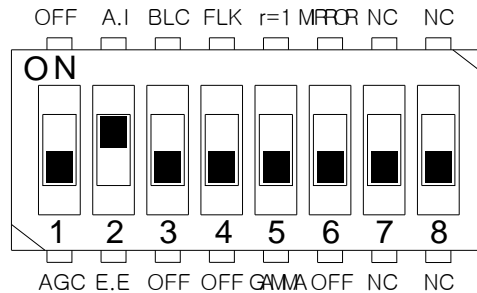


Figure 14. DIP switch for camera mode

AGC(Automatic Gain Control) ON/OFF switch

The automatic gain function automatically adjusts picture in accordance with the brightness of subject. (Initial setting: ON)

A.I./E.E.

Electronic or Auto IRIS shutter control (Initial setting: A.I)

BLC (backlight compensation) ON/OFF switch

When switched on, the function adjusts exposure to compensate for situations where the subject is lit from behind. (Initial setting: OFF)

FLK ON/OFF switch

If the camera is used with 50Hz fluorescent lighting, there is flicker on the screen.

In this case, F.L.K function should be set to on position. But F.L.K function should be set to OFF in 60Hz power source.

GAMA ON/OFF switch

Switch for Y-gamma setting (ON:=1/OFF:=0.45, Initial setting: OFF)

MIRROR ON/OFF switch

When the Mirror switch is set ON, the image will be reversed vertically.

3.5. Serial Number / MAC Address

Serial number and MAC address is attached on the bottom of IPC5300 as shown in Figure 15.

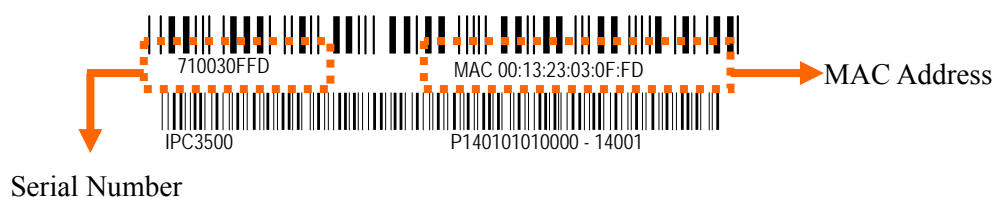


Figure 15. Serial Number / MAC Address

4. Operation Description

4.1. Factory Default Settings

Factory default settings are as follows:

- IP address: 192.168.xx.yy (refer to 2.3 Serial Number / MAC Address)
- Mask: 255.255.0.0
- Gateway: 192.168.0.1
- User ID: root
- Password: pass



MAC address = 00-13-23-01-23-45 → IP address = 192.168.35.69

Convert the Hexadecimal number to Decimal number

Factory Default (FD) initialization procedure is as follows

1. Turn ON the power.
2. Press “Reset” button when Status LED at LAN connector start to blink very rapidly.
3. Release “Reset” button when Status LED at LAN connector is blinking slowly.

4.2. Rebooting

Reset can be carried out as follows:

1. Press Reset for 1 second.
When Reset function is activated, Status LED and Network LED at LAN connector will blink together, twice. User may stop pressing Reset at this point.
2. When “Reset” function has been completed, LEDs will stop blinking.

5. Electrical Characteristics

5.1. Operating conditions

Parameters	Min	Typical	Max	Units
Audio input range	0.01	1	2.5	Vp-p
Ambient Operating Temperature	0	-	60	°C
Ambient Operating Humidity	20	-	80	%

Table 1. Operating conditions

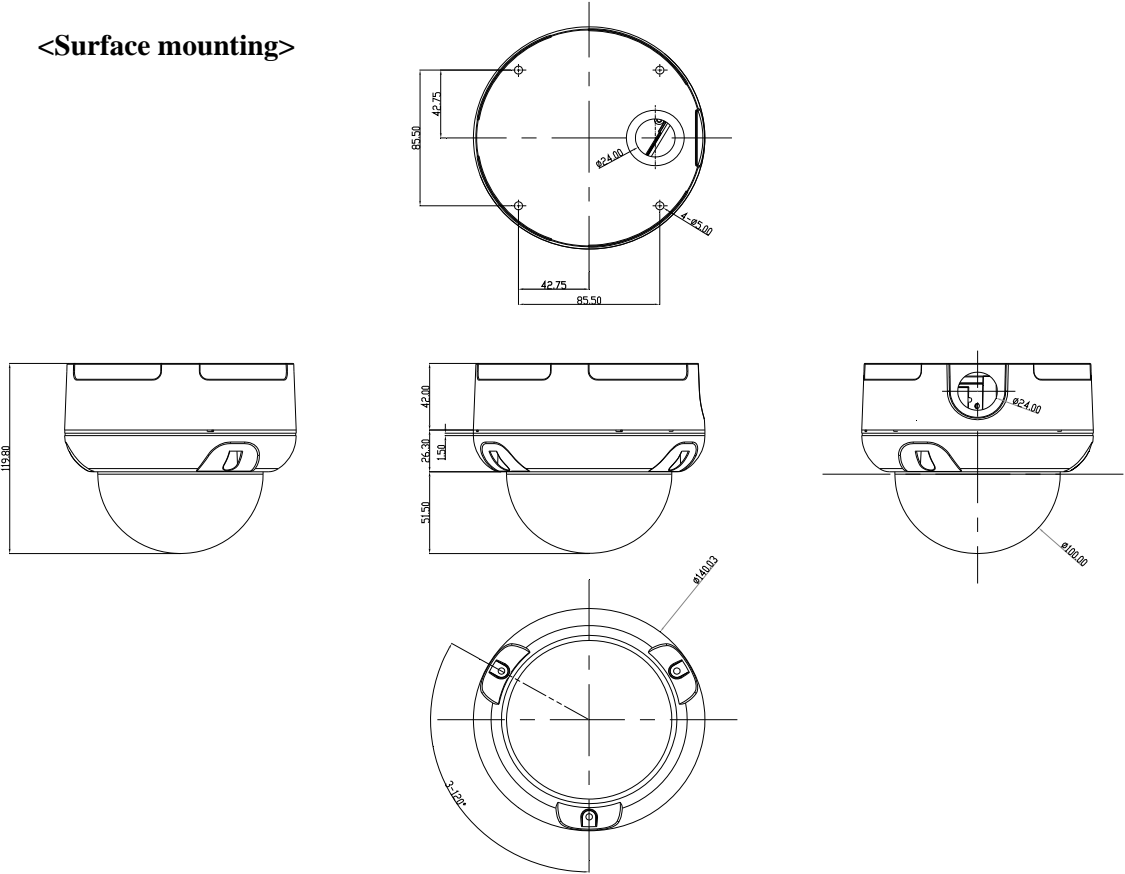
5.2. Power consumption (Max. $\pm 5\%$)

	IPC3500A	IPC3500A-IR
Input Voltage	12 V	
Current	500 mA	640 mA
Consumption	6.00 W	7.68 W

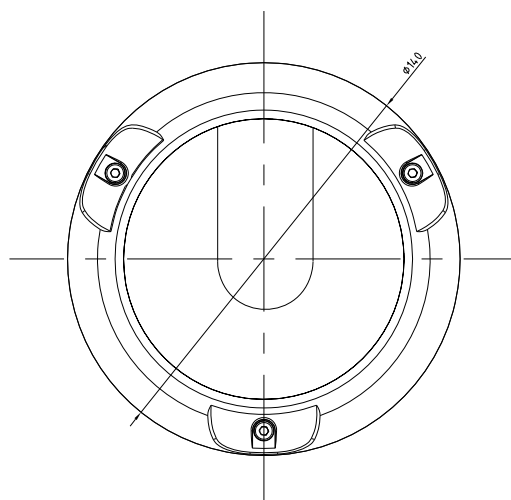
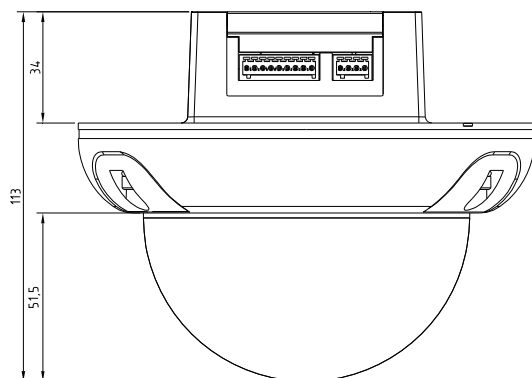
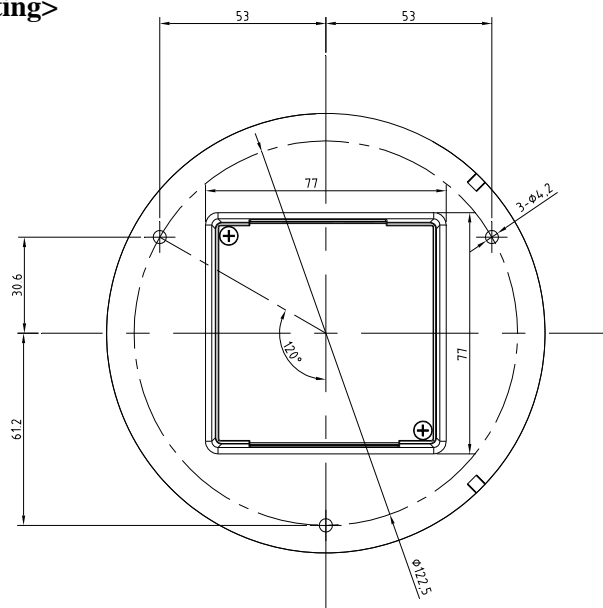
Table 2. Power consumption

6. DIMENSIONS

<Surface mounting>



<Flush mounting>



Revision history

Rev.	Date	Description
A	2007-05-29	Created.
B	2007-06-05	Correct Figure 2. Basic Installation Configuration
C	2008-10-14	Power consumption is changed
D	2009-05-04	Model IPC3101A, IPC3101A-D, and IPC3101A-IR deleted. Power consumption modified per model and mounting type (flush and surface) Weight modified per model and mounting type (flush and surface) Dimension modified Dimension drawing for flush mounting added newly.