IPC1100
Hardware Manual
(IPC1100A-D, IPC1100A, IPC1100AP)

UDP Technology

Table of Contents

1. Introduction

This IPC1100 compress video/audio data and transmit the compressed video/audio data through the network in real time. IPC1100 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

- Standard Box Type IP Camera
- High Quality Compression in real time streaming
- IPC1100 provides high quality MPEG-4 and MJPEG encoding at D1 in real time.

Network

- 10 / 100 Base T
- RTP/RTSP and unicast/multicast are supported.

Streaming

- IPC1100 supports de-interlacing by hardware.

Video/Audio

- IPC1100 supports de-interlacing by hardware.
- Loop out is supported
- IPC1100 supports two ways audio which compressed by G.711

Camera

- Sony 1/3" Super HAD CCD & High Quality SS-HQ1 Full Kit Chip Set
- True Day / Night (ICR) (IPC1100A-D only)
- AGC / EE, AI / BLC / FLK Function

Additional Features

- Motion detection by hardware.
- RS-485 serial port
- RS-232C serial port for some devices like a POS terminal.

SDK

- Three types (RTSP, UDA5, and HTTP-API) are provided for application development.

2. Product Description

2.1. Function Specifications

IPC1100 specification is shown as following Table

Model Classification

Model	Description
IPC1100A-D	Day / Night, SONY 1/3" Super HAD CCD, 540 TVL, 12VDC
IPC1100A	SONY 1/3" Super HAD CCD, 540 TVL, 12VDC (Standard Model)

Camera

	IPC1100A-D	IPC1100A
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	C / CS Mount Lens (Not supplied)	
S / N Ratio	1 / 60 ~ 100,000 (NTSC), 1 / 50 ~100,000 (PAL)	
Gamma Correction	0.45	
Video Output (Loop Out)	BNC 1ch, VBS 1.0 Vp-p Composite)	
Function Key	AGC, EE / AI, BLC, FLK	
Material	Aluminum	
Dimensions	68(W) x 74(H) x 133(D) mm	
Weight	370.0 g	358.0 g

Network

		IPC1100A-D	IPC1100A
Video	Compression	MPEG-4, JPEG	
	Resolution	D1, 2CIF, CIF, QCIF	
	Compression FPS	25/30 fps @ D1	
Audio	Input/Output	1 / 1 ch	
	Compression	PCM(software 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 & Private Region Masking		Support	
Video Stream Encryption		AES	
Protocol		TCP,UDP,DHCP,HTTP,NTP,RTSP,RTP(Unicast,Multicast)	

3. Installation & Configuration

3.1. Package Contents

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

IPC1100.---------- 1
AC Power Cord ---------- 1
DC12V, 1A Adaptor ---------- 1
LAN Cable (Cross Type 1.5m) ---------- 1
9 Pin Terminal Block ---------- 1
Stereo to 2RCA Cable ---------- 1
Adaptor for mounting camera ---------- 1
Fixing bolts for mounting adaptor ---------- 2
Mount ring for lens ---------- 1
0.9 mm hexa wrench driver ---------- 1
Rubber cap for protecting CCD ---------- 1

3.2. Basic Connection

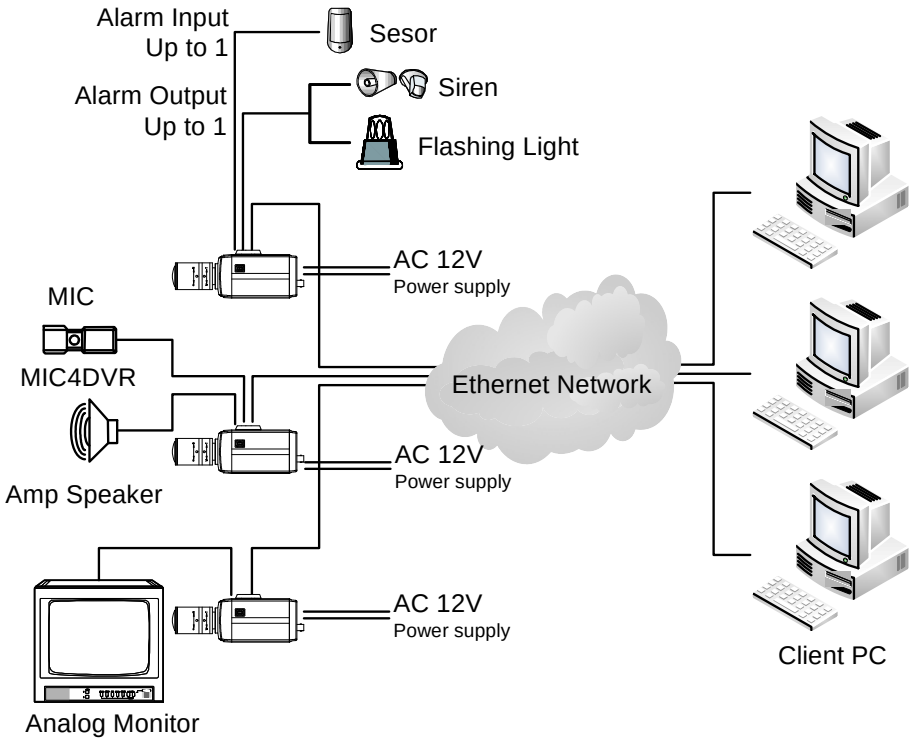


Figure 1. Basic Installation Configuration

3.3. Functions

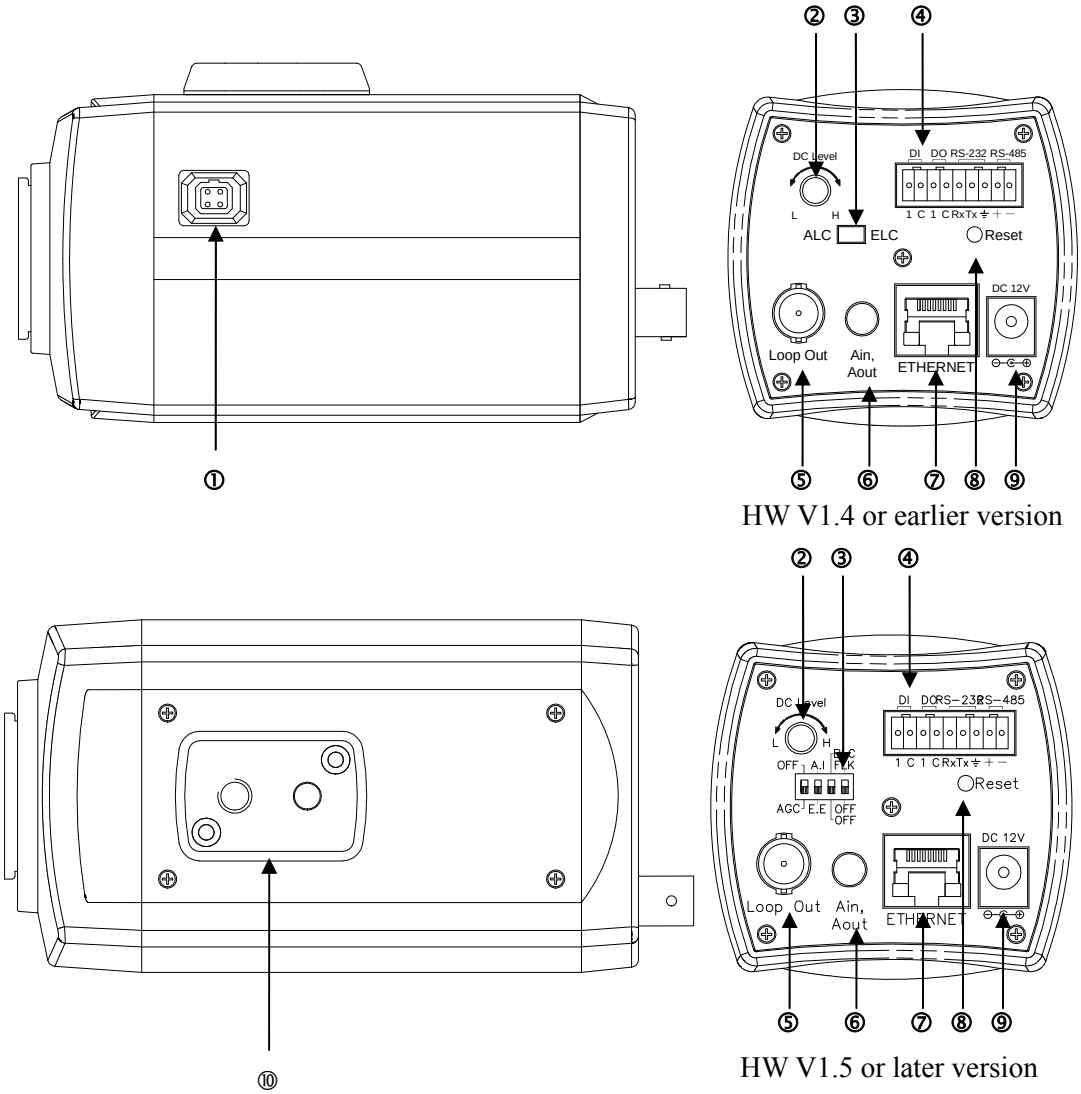


Figure 2. IPC1100

① 4 pin connector for IRIS

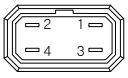


Figure 3. 4 pin connector for IRIS

Only DC-drive type is supported. If using DC-drive type of auto IRIS lens, set ELC/ALC(A.I./E.E.) switch to the ALC (A.I.)position.

PIN	DC IRIS Lens
1	Damp-
2	Damp+
3	Drive+_
4	Drive-

Table 1. Pin description for IRIS

② Potentiometer for DC Level

This is for adjusting the overall light level manually when using a DC type lens. To make the monitor picture brighter, turn clockwise and to make the monitor picture darker, turn counterclockwise.

③ Switch for camera mode

Figure 4. Switch for camera mode (HW V1.4 or earlier version)

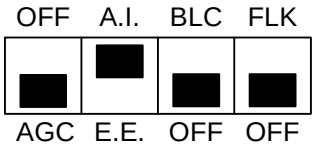


Figure 5. Switch for camera mode (HW V1.5 or later version)

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.(ALC)/E.E.(ELC)

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

In E.E. mode, a continuously variable electronic shutter is employed to automatically control the exposure time of the CCD image sensor according to the incoming light level. With this mode selected, a fixed or manual IRIS lens can be used instead of an auto IRSI lens.

In A.I. mode, the CCD shutter speed is fixed to 1/60 sec@NTSC, 1/50 sec@PAL and the incoming light level is controlled by the auto IRIS lens.

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 fluoresent 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. (Initial setting: OFF)

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

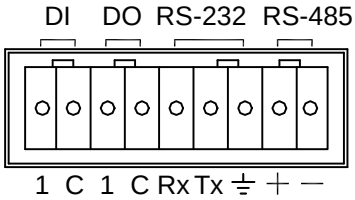


Figure 6. 9 pin terminal block

D/I

IPC1100 provides 1 channel D/I. It can be connected either voltage type sensor or relay type sensor as following Figure 7 and Figure 8. It can be selected by software.

Caution

Do not use voltage and relay type sensor together.

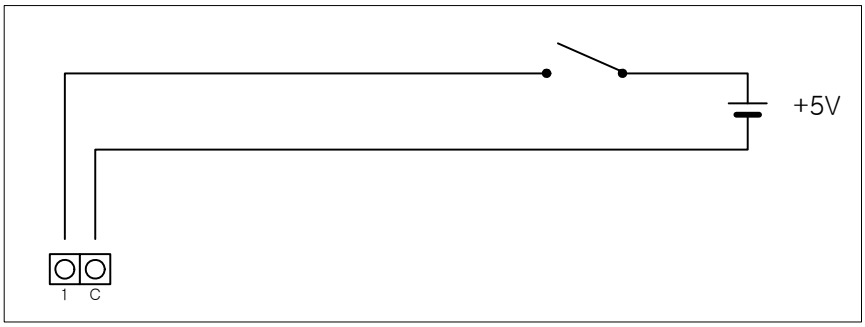


Figure 7. Voltage Type Digital Input Connection

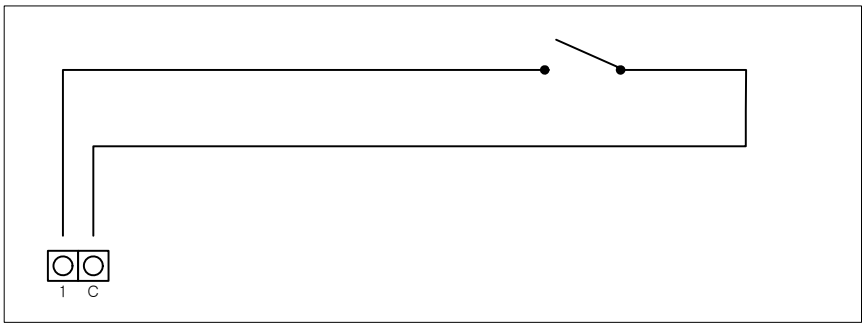


Figure 8. Relay Type Digital Input Connection

D/O

IPC1100 provides 1 channel D/O. It can be connected either voltage type sensor or relay type sensor as following Figure 9.

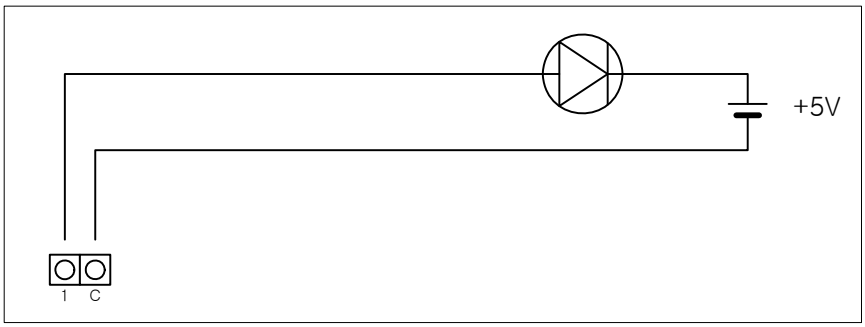


Figure 9. Digital Output Connection

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.

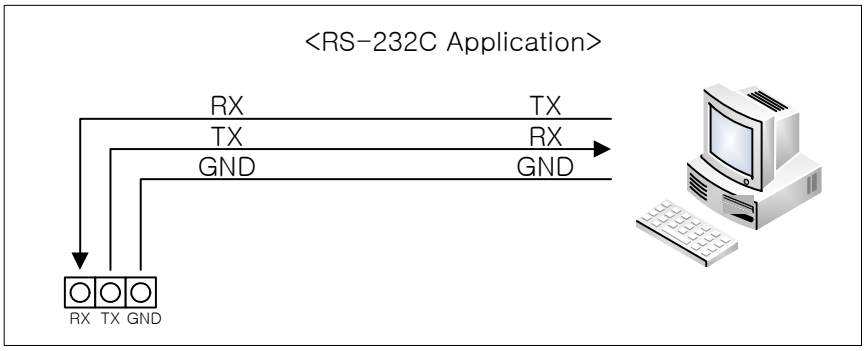


Figure 10. RS-232C Connection

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

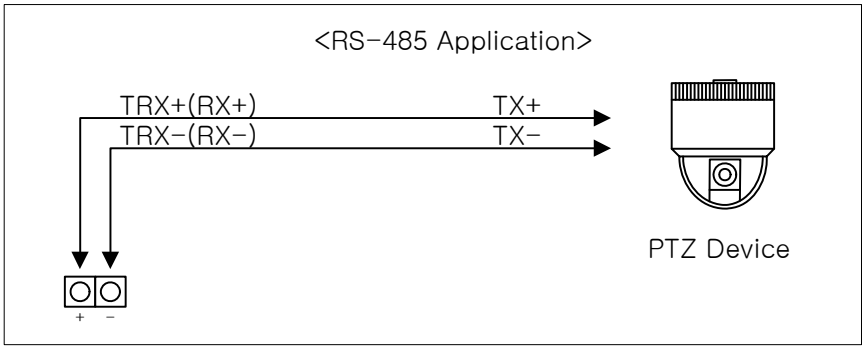


Figure 11. RS-485 Connection

⑤ Video Loop Out
It is loop back video output port.

⑥ Audio In / Out

IPC1100 have mono audio input channel and mono audio output channel using stereo audio socket. Left is for audio input and right is for audio output.

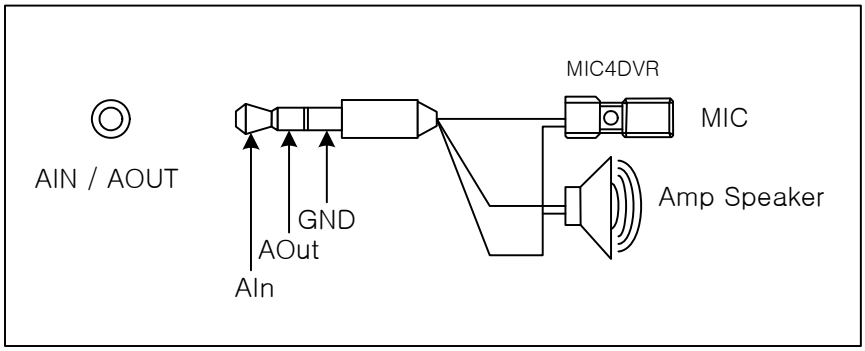


Figure 12. Stereo Audio Jack for Audio In / Out

⑦ LAN Connector (Ethernet)

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

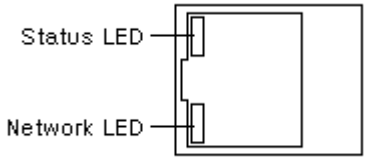


Figure 13. RJ45 LAN connector

⑧ Reset Switch (Reset)

Reset switch is used for restarting IPC1100 or resetting IPC1100 as Factory Default (FD). Refer to '4.1. Factory Default Settings' for detailed procedures.

⑨ Power Adaptor Connector (DC 12V)

IPC1100A-D needs a DC 12V 1A adapter and IPC1100A needs a DC12V 500mA for power supply.

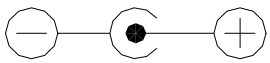


Figure 14. Power Socket

⑩ Adaptor for mounting the camera

Mounting points adaptor is provided on the bottom of the camera for mounting the camera on a bracket or tripod. This is designed to accept standard sized mounting bolts. It can be unscrewed and the mounted onto the top side of the camera, depending on your application.
Caution : The mounting bracket must be capable of supporting the weight of the camera and it lens.

3.4. Lens Installation

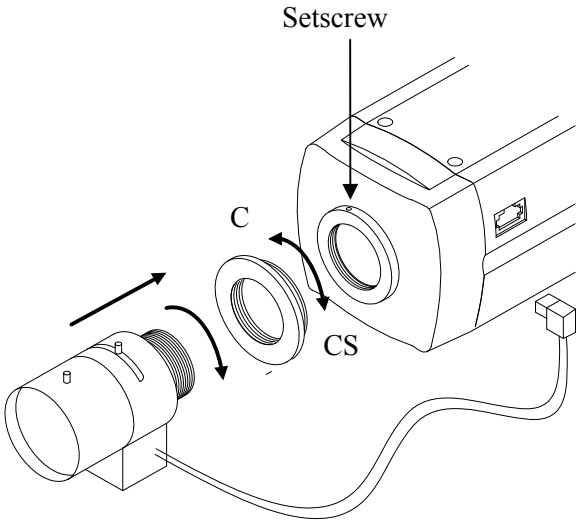


Figure 15. Lens installation

3.4.1. Installing a C/CS Mounting lens

1. Remove the protective rubber cap from the front of the camera
2. Install the mount ring for lens and adjust the mount ring to fit C or CS lens.
3. Tighten the setscrews using hexa wrench in the package.

3.4.2. Installing an Auto IRIS lens

1. Remove the cover of the auto iris lens plug and connect with the lens cable.
2. Connect the auto iris lens plug to the 4-pin lens terminal on the side of the camera.
3. Move to EE mode switch to ALC mode.
4. Adjust to the DC LEVEL carefully to avoid hunting

Note : Use the connection recommended by the manufacturer. For best practices, read the lens manual carefully. You may need to set the flange back focus.

3.5. Serial Number / MAC Address

Serial number and MAC address is attached on the bottom of IPC1100 as shown in Figure 16.

Figure 16. 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. Power over Ethernet (PoE)

The PoE module used in IPC1100 is commercially available module without modification. The standard IPC1100 does not include PoE module in it. PoE module is included on the request of a customer. For the detailed information, please contact sales person.
The PoE module is designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af Power-over-Ethernet (PoE) standard.
IEEE 802.3af allows for two power options for Category 5 cables and the PoE module have two pairs of power inputs pins: - VA1&2 and VB1&2 to accommodate this.
The PoE module signature and control circuit provides the PoE compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 15W power to the port. The PoE module is compatible with Class 0 to Class 3 equipment.
The high efficiency DC/DC converter operates over a wide input voltage range and provides a regulated low ripple and low noise output. The DC/DC converter also has built-in overload and short-circuit output protection.

5.1. Features

- IEEE802.3af compliant
- Small SIL package size - 56mm (L) x 14mm (H)
- Overload and short-circuit protection
- 1500V isolation (input to output)

5.2. Mechanical characteristics

Dimension: 56mm (L) x 14mm (H)

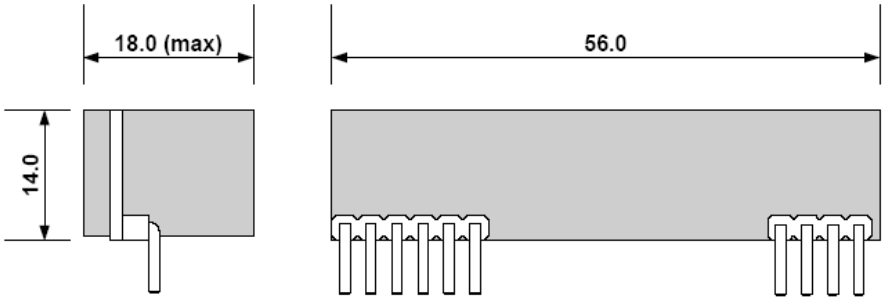


Figure 17. Dimension of PoE module

The following pictures show PoE module installed in the products.

Figure 18. IPC1100 without PoE module

Figure 19. IPC1100 with PoE module installed

5.3. PoE compatibility

With non Power Sourcing Equipment (PSE)
When it is connected with non PSE, the power adaptor should be connected.

With power adaptor
Connecting both PSE and power adaptor does not do any harm to the products. Disconnecting power adaptor while it is operating does not stop operation. The product continues to work without rebooting.

6. Electrical Characteristics

6.1. Operating conditions

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

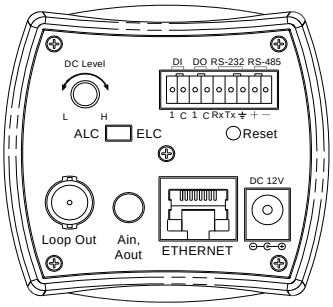
Table 2. Operating conditions

6.2. Power consumption

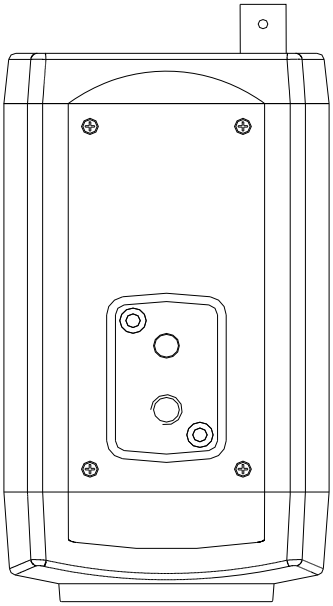
	IPC1100A-D	IPC1100A
Input Voltage	12 V	
Current	630 mA	490 mA
Consumption	7.56 W	5.88 W

Table 3. Power consumption

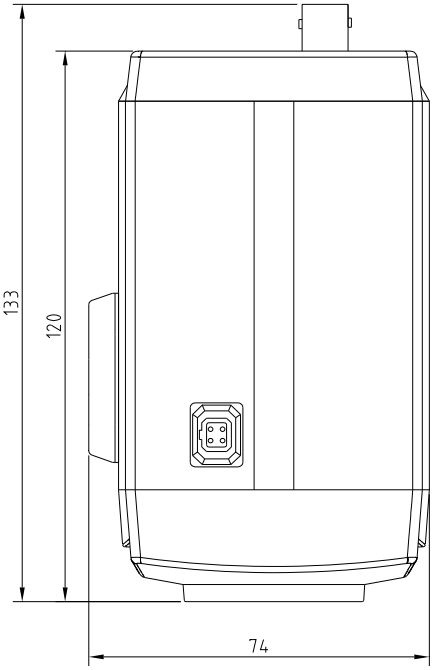
7. Dimensions



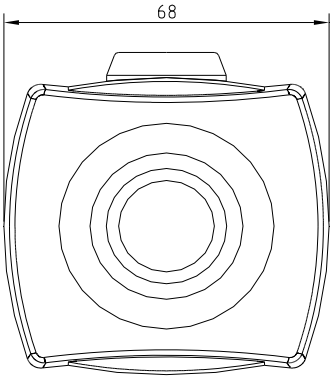
Rear view



Top view

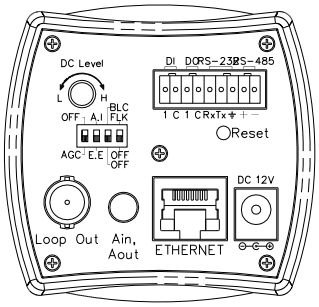


Right side view

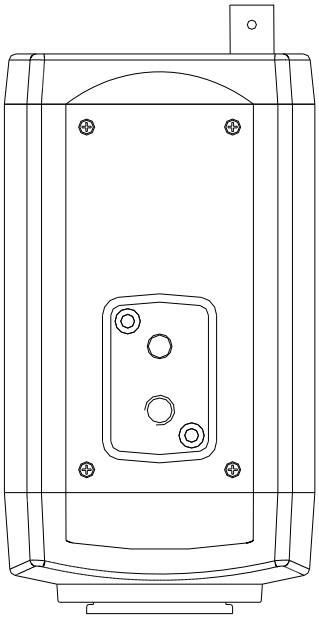


Front view

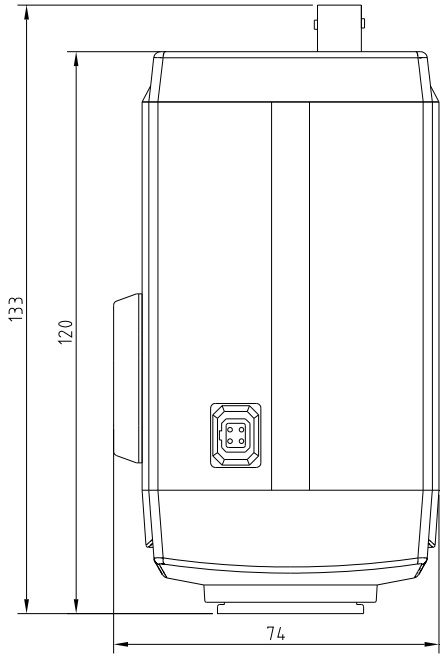
Figure 20.Dimension of HW V1.4 or earlier version



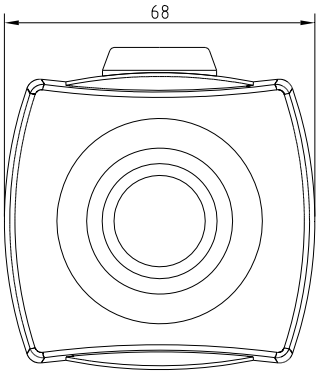
Rear view



Top view



Rightside view



Front view

Figure 21.Dimension of HW V1.5 or later version

Revision history

Rev.	Date	Description
A	2007-04-19	Created.
B	2007-08-09	Added the description about HW V1.5
C	2008-10-14	Power consumption is changed POE model(IPC1100AP) is added
D	2009-05-04	Weight modified : IPC1100A-D 370.0, IPC1100A 358.0 Resolution modified : Half D1 -> 2CIF