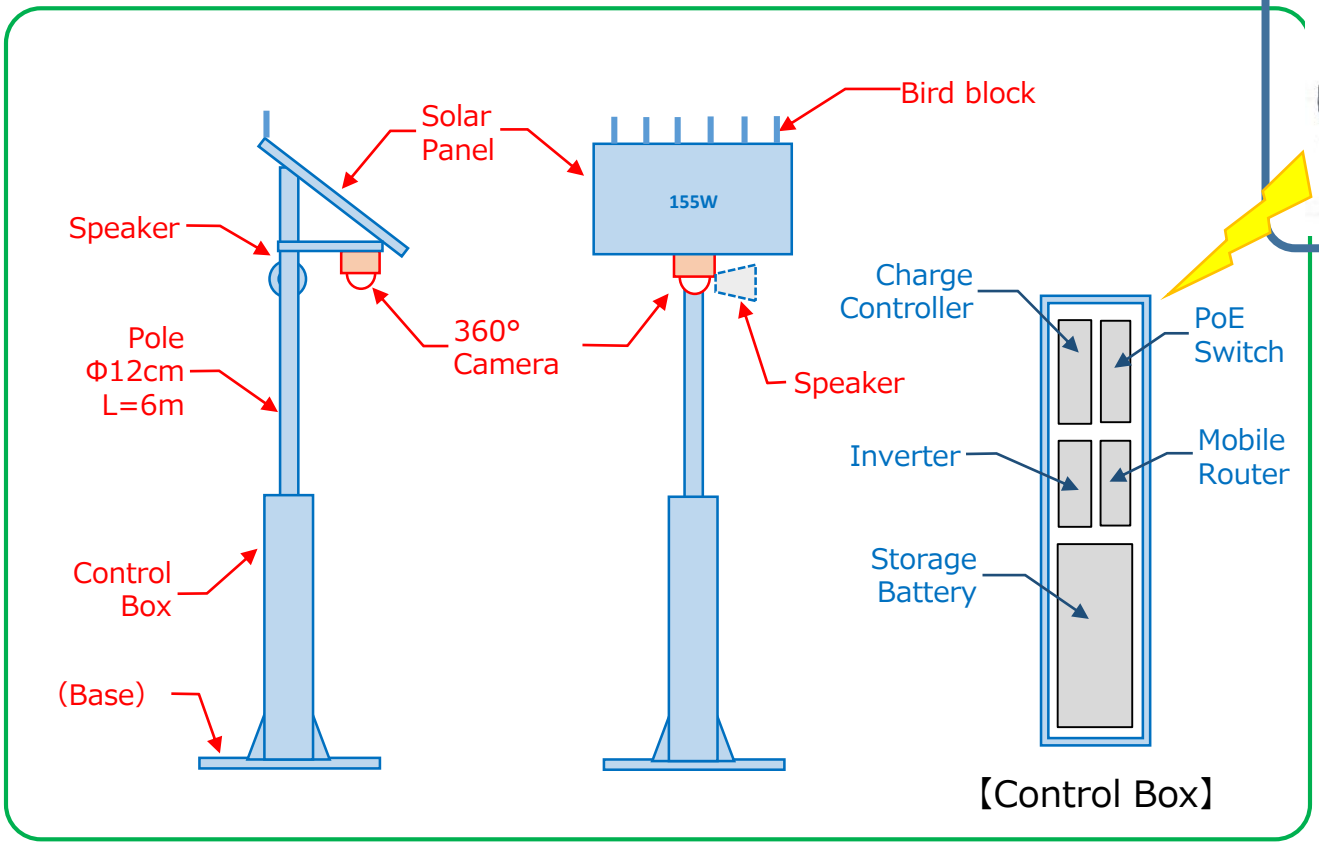
Self-subsistent type
360° Surveillance Camera Unit

- 360° Network Camera installed.
  Monitor omnidirection by one camera.
- Solar panel installed:
  Self power generation system
- No power supply construction required
- Cable laying work unnecessary

1. Surveillance Camera Unit



- Video transmission over telephone line
- Storage battery capacity: 1150 Wh (It is possible to operate 5 days x 8 hours even without power generation)
- Design varies depending on the purpose and requirement.

2．Feature of our 360° Camera

- 360 ° omnidirectional camera equipped with a high-resolution fisheye lens yielded by outstanding optical design.
- It provides clear view in all directions and far distances with one unit.
- Without moving mechanism, High Durability.
- Water/Dust Proof（IP66）Housing
- Partial enlargement/video dewarping is easy with remote control.

3. Usages

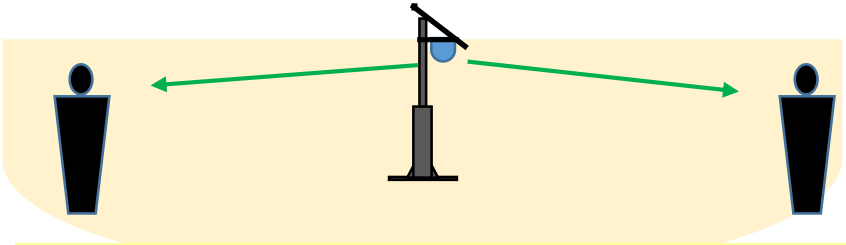
These kinds of requests can be fulfilled

- to monitor places where power supply is difficult.
- to see pictures from remote places.
- to avoid troublesome wiring work.

- Monitoring in mountains, rivers, border lines, remote places …
- Management of farmland (agricultural crops / livestock)
- Monitoring places such as disaster sites that are in danger of entry

4. Idea of Use

All area under the lens can be monitored



You can shoot both upstream and downstream with one unit.

River side:
No wiring for the power supply and the data transfer.

Fish-eye ominidirection image

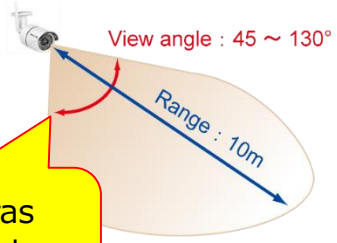
Dewarped into 180x2 panorama views

Or into an enlarged view

※ In actual use, it will be installed facing downward, so the center will be the image just under the camera.

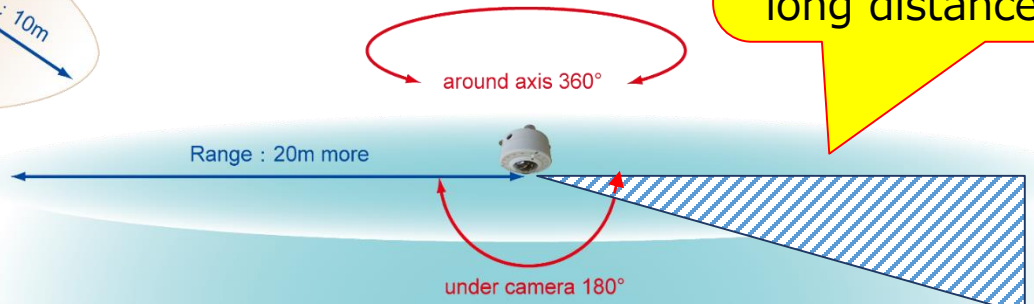
Very Wide High Resolution Advantage

Conventional One-direction Cameras

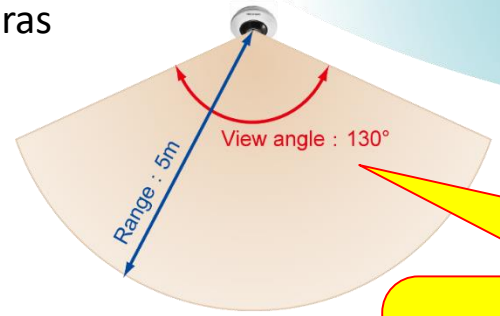


Many cameras are required to see a whole area.

High resolution at the lens fringe area is very important for a 360° long distance surveillance.



Typical Hemispheric Cameras



Our NUD360-F
- Wide angle
- High edge resolution

Because of poor resolution at the lens fringe area, the acceptable range is narrow, ~130° even though the original view angle is 180°.

360° fringe area image clarity test

Our NUD360-F

Excellent

USA Competitor

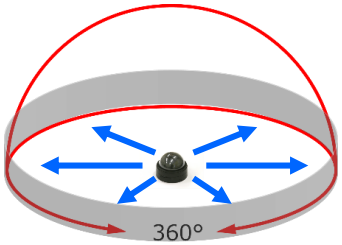
Bad

Japan Competitor

Good

360° fringe area image clarity

Whole image



Comparison at the edges of the image – more resolution!

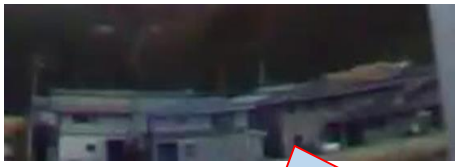
Enlarged partial image

Excellent

Clear view in entire circumference at 100m.

▲ Our 360° camera

▼ A competitor's, same angle, same image



Very Bad

Image height is low. Resolution is poor.

Urban Surveillance

Replace 40 competitor's cameras with 7 NUD36-F

✕ Using conventional cameras with directivity or mechanical PTZ, due to blind spots, the number of cameras and the cost increases, and the management of a picture is difficult.

✕ Connection of many camera pictures is necessary for viewing of a moving object.

Viewing area of a camera with directivity (assuming about 10m)

◎ Installing NUD360-F at every radius 50-100m makes it possible to use a small number of cameras with few system connections – easing the management of images.

◎ Observing in a wide range, it becomes straightforward to find the direction of moving subject and follow it.

Viewing area of our NUD360-F.
(assuming about 50m radius)

Example of use ～ Road Intersection

2048 x 2048

The camera is installed on a pole of 12 m high facing downward.

Example of use ～ Border Guard

【 Border Guard Security 】

*** between the states with international dispute**

*** Watch of illegal violation of the border**

*** The sea coastal guard**

【 Assumed Demand for Border Line 】（placing every 100 m）

Country	Border Line	Distance (Km)	Q'ty（unit）
Vietnam	China	1,281	12,810
	Laos	2,130	21,300
	Cambodia	1,228	12,280
South Korea	North Korea	248	2,480
USA	Mexico	3,141	31,410
Iran	Iraq	1,458	14,580
	Afghanistan	936	9,360
	Total		104,220

5. Specifications

Model: SG360NWC-155

Camera Part: NUD360-F

Image Sensor	1/1.7" Progressive Scan CMOS
Effective Pixels	4072(H) × 3046(V) (12.4 M) pixels
Minimum Illumination	Color: 0.1 lux (30 IRE、2400°K), B/W: 0 lux (IR LED ON)
Day/Night	Yes, Mechanical IR cut filter
Color to B/W switch	On/Off/Auto
IR LED	850 nm X 18 Working distance: 20 m (0 lux, 30 IRE, gain 255, auto shutter mode)
Electronic Shutter	1/5~1/10,000 sec (auto), 1/5~1/2,000 sec (manual)
S/N Ratio	56 dB

LENS Part:

Lens Type	Fish-eye Lens (stereographic projection type)
Focal Length/Aperture	f=1.44 mm/F1.8
Viewing Angle	Horizontal: 180°, Vertical: 180°
Iris / Focus	fixed

Video Part:

Compression	H.264, M-JPEG
View Mode	Fisheye view, Dewarped view, 180°/360° Panorama, ePTZ
Max. Frame rate vs. Resolution	18 fps/4000x3000, 10 fps/4096x2160, 10 fps/3840x2160 30 fps/2048x2048, 30 fps/1600x1200, 30 fps/1920x1080 30 fps/1024x1024, 30 fps/1280x960, 30 fps/1280x720 30 fps/800x600, 30 fps/640x480
Multi-Streaming	Simultaneous 3 streams (based on Video configuration)
Bit Rate	Constant, Variable (128 Kbps-12 Mbps/stream)
Privacy Mask	Enable/Disable, Max. 8 configurable regions

Image Enhancement	WDR (130 dB), White balance (auto, manual) Brightness, Contrast, Sharpness (auto), AGC Digital noise reduction, Flickerless, Defogging

Network Part:

Protocol & Service	TCP, UDP, HTTP, HTTPS, DHCP, PPPoE, RTP, RTSP, IPv4, IPv6, DNS, DDNS, NTP, ICMP, ARP, IGMP, SMTP, FTP, UPnP, SNMP, Bonjour, Sony VISCA, Pelco D, Pelco P
Ethernet Port	10/100BASE-T、RJ-45
Security	IP address filtering, HTTPS encryption, Password protected user levels IEEE802.1X network access control, Anonymous Login

General

Operating Temperature	-20～+50℃ 10～85% (no condense)
Storage Temperature	-40～+60℃ 10～95% (no condense)
Environmental Casing	Dust/Water-proof IP66, IK10
Firmware Access Browser	Microsoft® Internet Explorer® 8.0/9.0/10.0/11.0
Applicable OS	Microsoft® Windows® 7, 8, 8.1, 10
Approvals	CE(EN 55022 Class B, EN 55024), FCC(Part15 Subpart B Class A)
	IP66, IK10

Power Supply Part:

Solar Panel	Max. output 155W
Power Storage	Lithium ion battery, 90 Ah/12.8V=1152Wh
Suspension	Straight pole: 6m, Φ12cm
Weight	T.B.D.

Rev.2