

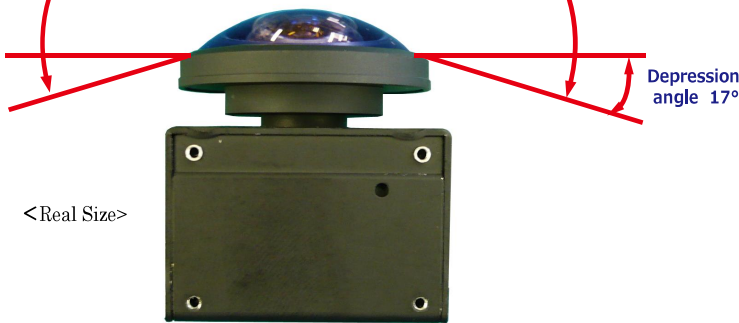
360° Camera module

Model : **NM33-M**

This camera has no blind spot.

Ultra Wide View angle

214°



Easy to dewarp into 15 patterns

Key Features

- ◆ **214°+ 360°** ultra wide Viewing Angle
- ◆ **3 Mega Pixel** color CMOS Sensor
- ◆ **JPEG** compressed digital images via **USB** port provide high-definition image to PCs and VCR
- ◆ NTSC/PAL composite output
- ◆ max **15** frames per second
- ◆ **Digital Pan/Tilt/Zoom** with no moving parts
- ◆ Enbeded Dewarping Software
- ◆ Small and light body = **High Durability**



<Fisheye Image>



<Dewarped Wide View Image >



<Partial Enlarged Image>

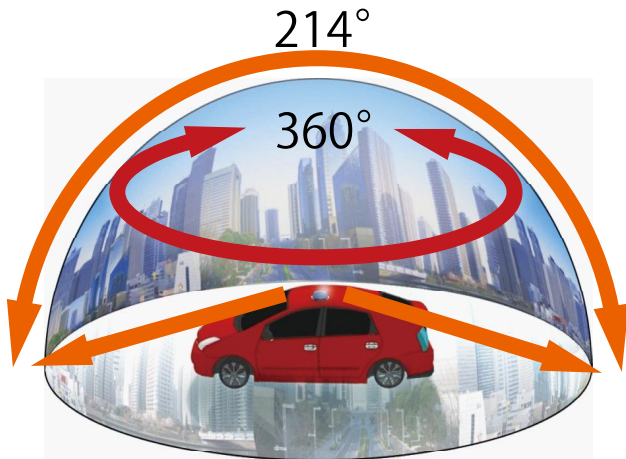
Most Effective Usage

【Install on the car roof-top】

Built in $\Phi 12\text{cm}$, IP66 small dome.



allows to see all around the car even the surface of road.



Separately display as the front 180° view and the rear 180° view.

Specifications

Items	Specification
Power	
Power Voltage	5.0 V \pm 0.5 V
Consumption Current	500 mA
Max Rated Voltage	-0.3 ~ 6.0 V
Lens	
Focus Length	10 mm ~ ∞ (from Lens surface)
View Angle	214°
Image Sensor	
Effective Pixels	H: 2048 x V: 1536, approx. 3.15 M pixels
Usable Pixels	approx. 1.7 M pixels
Minimum Light Required	5 lux (skin color base)
AV Output (Analog)	
(VBS mode)	NTSC/PAL switchable (when ex-factory)
Video Signal system	Composite VIDEO 1Vp-p, Negative Sync.
Output Drive Capacity	75 Ω
AV Output (Digital)	
(USB FS mode)	Video Frame Rate 15 fps (max.)
Signal type	USB1.1
Imager Compression	JPEG
Image Dimension	640 x 480 VGA size 320 x 240 QVGA size 1536 x 1536 LARGE mode
Control Input	
Dimensions	USB1.1
Cubic Body Size	
Weight	39(W) x 30(D) x 27(H) mm 80 g
Operation Environment	
Storage Environment	Temperature : 0 ~ 40°C (no condensing) Humidity : 20 ~ 80 %Rh Temperature : -20 ~ 60°C Humidity : 20 ~ 90 %Rh

※ Specification is the subject of change without notice.

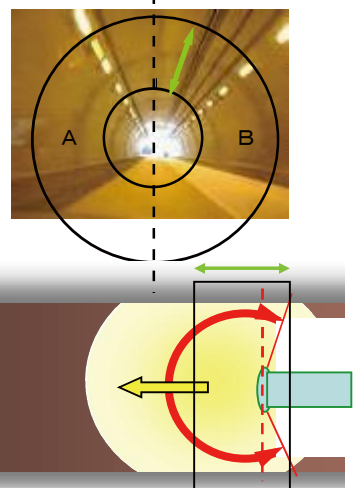
Key Features

- By using a newly developed large aperture ($\phi 38\text{ mm}$) small fisheye lens, it has achieved the industry's largest view angle of 214° resulting in the light intensity has increased by 130% compared with NM33-F.
- Bright images can be obtained even with a small amount of data, so the image transfer rate is improved.
- Since the image height of the lens fringe area is high, images with a more realistic feeling are obtained than before.
- Even with a larger lens, the camera is lightweight (80 g) and superior in vibration and shock resistance improving durability and handling properties.
- Digital output of clear video from USB.
- Since there is no driving mechanism for P/T/Z, it is a low failure rate.

Examples of Usage

- Store monitoring system
- Factory monitoring system
- TV Conference
- Surveillance Camera
- In-pipe Inspection Device
- In-tunnel Inspection system

<Idea of Tunnel Camera>



Designed by:

OPT Corporation

5423-2 Miyagawa, Chino-shi, Nagano-ken 391-0013 Japan

Phone: +81-266-82-0020, Fax: +81-266-82-0022

<http://www.optnagano.co.jp> e-mail: opt_info2@optnagano.co.jp