




SHM-7540LPDN-IO

License Plate Capture Day & Night Camera with I/O



User Manual

 Thank you for purchasing our product. Before operating the unit, please read the instructions carefully and keep this manual for future reference.

Safety Warning

- **1. Read manual carefully before installing the unit.**
Please read this manual first for correct installation and operation.
- **2. Never install the camera on a ceiling that cannot hold its weight.**
The product may fall down and cause damages.
- **3. Never install the camera near electric or magnetic fields.**
Install the camera away from TV, radio transmitter, magnet, electric motor, transformer, audio speakers since the magnetic fields generate from above devices would distort the video image.
- **4. Never install or use the camera in areas exposed to water, oil or gas.**
The water, oil or gas may result in operation failure, electric shock or fire. Do not use this unit near water-for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, near a swimming pool, in an unprotected outdoor installation, or any area which is classified as a wet location.
- **5. Never face the camera toward the sun.**
Direct sunlight or severe ray may cause fatal damage to sensor and internal circuit.
- **6. Power Cord Protection.**
Touching the wet power cord with hands or touching the power cord with wet hands may result in electric shock. Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, playing particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
- **7. Attachments**
Do not use attachment not recommended by the product manufacturer as they may cause hazards.
- **8. Object and Liquid Entry**
Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock, Never spill liquid of any kind onto the product.
- **9. Do not operate the camera in environments where the temperature, humidity or power source is beyond the specified ones.**
Use the camera in suitable environments where the temperature is within -10°C~ 50°C and humidity below 80%. The input power source is 12V DC.

- **10. Cleaning**

Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

- **11. Never disassemble the camera nor put impurities in it.**

Disassembly or impurities may result in trouble or fire.

- **12. Stop using when the product emits smoke or abnormal heat.**

- **13. Servicing**

Do not attempt to repair this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

- **14. Retain Instructions**

The safety and operating instructions should be retained for future reference.

Warranty

OKINA USA products are covered under warranty for one year from the date of purchase. The warranty will automatically be voided if any of the following occurs:

- 1. Camera sticker is removed**

If the camera sticker is removed, we will not be able to confirm any information regarding when and where the product was purchased. We have no other way to verify the purchase record without the serial number on the camera sticker; therefore, it should not be removed.

- 2. Camera is modified in any way**

If the camera is scratched, damaged, or modified in a manner not described in this manual, the warranty will be voided immediately. It is the customer's responsibility to keep the camera in good condition.

- 3. Video or power cable is cut**

The video cable and the power cable should not be tampered with. Cutting or modifying of the cables will result in termination of the warranty.

NOTICE: The information in this manual was current when published. The manufacturer reserves the right to revise and improve its products. All specifications are therefore subject to change without notice.

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1. Product Overview

1.1 Features

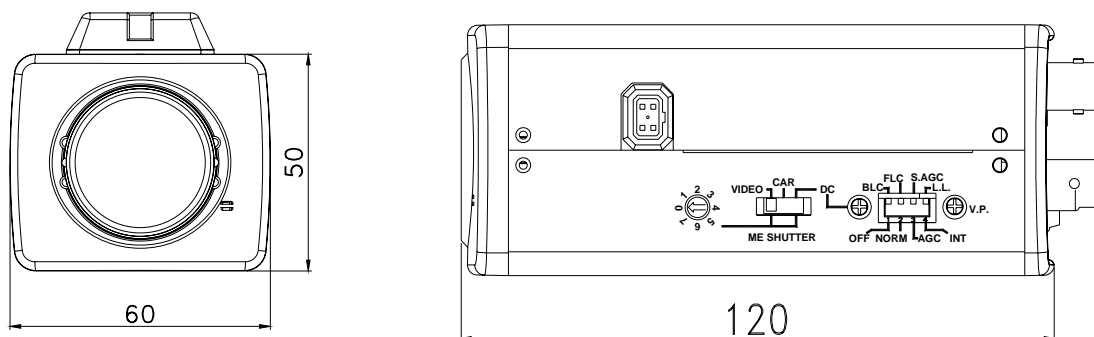
- 1/3" Sony Super HAD CCD II
- Sony HQ-1 DSP, 540 TVL
- 0.08 Lux @ F1.0
- I/O Input/Output
- Mechanical IR Cut Filter (ICR)
- Built-in Auto Sense-up
- High Gain/Low Noise Amplifier – DNR
- Advanced 8-step Manual Shutter
- CAR-DC Iris Control is available to achieve reliable license plate recognition for road surveillance when car speed is up to 90 mi/hr (150km/hr) in the daytime and 90 mi/hr (150km/hr) at night time with external IR LEDs.
- Dual Power 12V DC / 24V AC

1.2 Package Contents

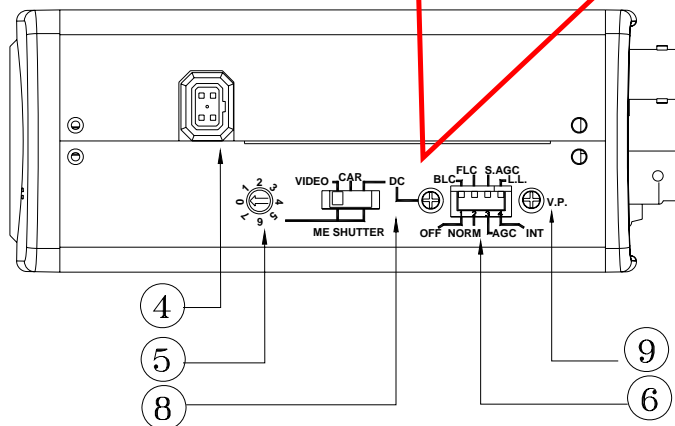
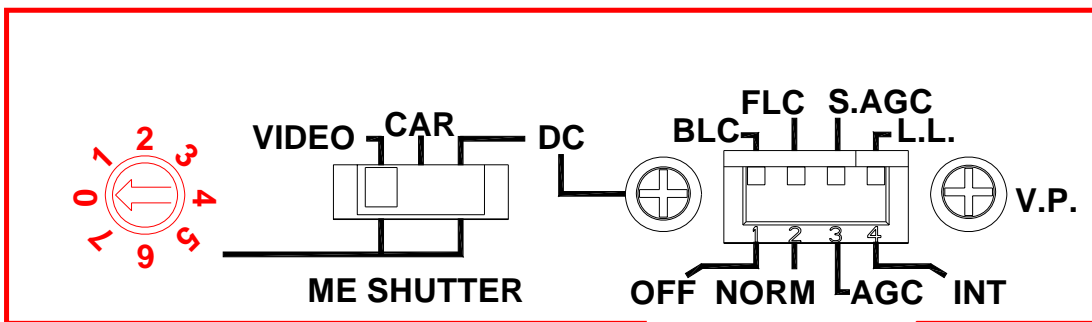
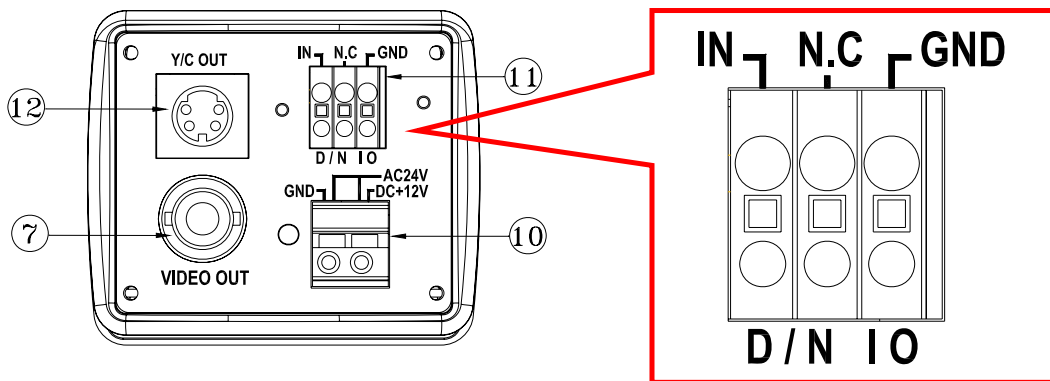
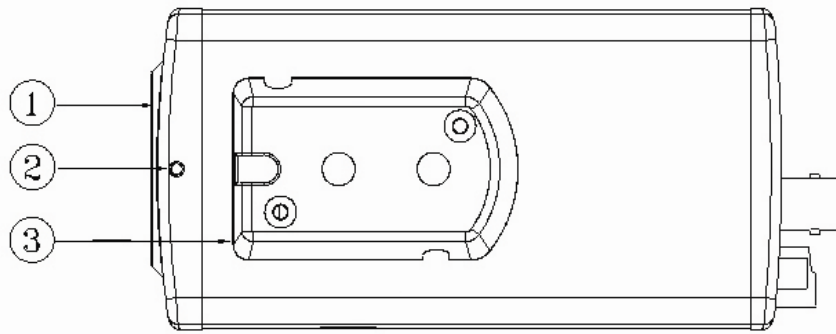
- One (1) SHM-7540LPDN-IO Camera
- One (1) User's manual

* For any returns, please include all components listed above with original packaging in **Resalable Condition**. There is **Absolutely No Returns** if any component is missing/damaged or if any cable is cut/tampered with.

1.3 Dimensions



2. Parts & Functions



① **Lens Mount**

Used to install a CS mount lens. CS adaptor ring is required if using a C mount lens.

② **CS Mount Fixing Screw**

Screw for fixing mount and adjusting back focus if needed.

③ **Mount Adaptor**

Can be attached to either the top or bottom of the unit.

④ **Auto Iris Lens Connector (4-pin type)**

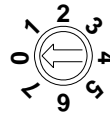
The lens connector supplies the auto-iris lens (not supplied) with DC power and a video signal or DC control signal.

PIN NO.	VIDEO	DC
1	DC + 12V	CONTROL -
2	NC	CONTROL +
3	VIDEO SIG	DRIVE +
4	GND	DRIVE -



⑤ **ME / AES Shutter Control**

- (0) 1/100 (120) sec.
- (1) 1/190 sec.
- (2) 1/350 sec.
- (3) 1/610 sec.
- (4) 1/1120 sec.
- (5) 1/2000 sec.
- (6) 1/3240 sec.
- (7) 1/4000 sec.



⑥ **Control Switch**

- SW1. BLC: Back Light Compensation OFF/BLC switch
- SW2. FLC: Flickerless NORM / FLC switch
- SW3. AGC: Automatic Gain Control AGC/S.AGC switch
- SW4. Sync Mode: Sync Mode Selection L.L/INT switch

⑦ **Video Connector**

Output for connecting to a video monitor or recorder.

⑧ **Auto Iris Mode Selection Switch**

For switching the output from the auto iris connector. Shutter speed is fixed at 1/100(120) sec. when switch is set to DC or VIDEO position.



DC: To be set when using an auto iris lens. Be sure to adjust proper DC level for D/N operation.

CAR-DC: To be set when using for license plate capture. (Car speed is up to 90mi/hr (150km/hr) at daytime and 90 mi/hr (150 km/hr) at night time with external IR LEDs).

VIDEO: To be set when using an auto iris lens with built-in amp.

⑨ **V.P. (Vertical Phase) Adjustor**

Used to adjust the vertical phase of the video output signal.

⑩ **Power Input Terminal**

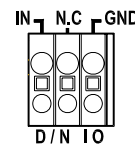
Connect the power supply of 12V DC or 24V AC.

⑪ **External D/N Input Controller**

Connect to an external IR illuminator and the camera can be triggered from daytime to nighttime mode by output controller of the IR illuminator. There are 2 methods to connect to the external IR illuminator.

Method A: Connect the IR illuminator with Pin1 and Pin2.
Pin1: 5V~12V Pin2: GND

Method B: Connect the IR illuminator with Pin2 and Pin3.
Pin2: GND Pin3: OUT



⑫ **Y/C(S-Video) Output Terminal**

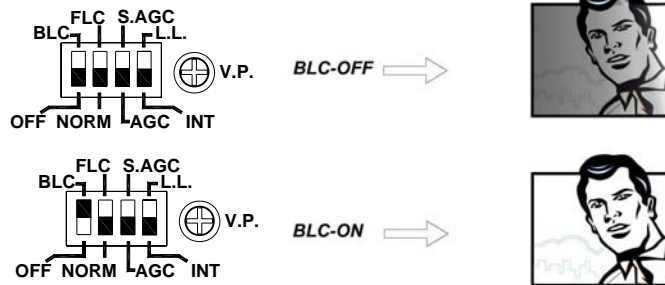
Separate Y(brightness) and C(Color) signal are outputs from this terminal to obtain better video quality at a video monitor.

3. Control Switch

3.1 Operation of Mode Switch

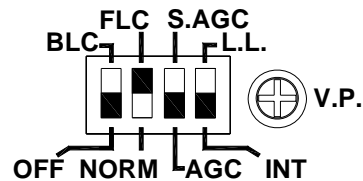
SW1. BLC (Back Light Compensation) Mode Switch

When strong light is present behind the object being photographed, the object will appear dark. In this case, turn on the BLC.



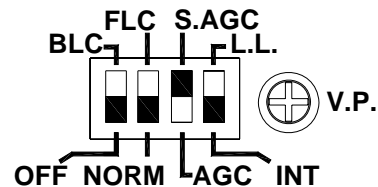
SW2. FLC mode switch

FLC: Fixes shutter speed at NTCS: 1/100Sec.;
PAL: 1/120Sec.
NOM: Normal position.



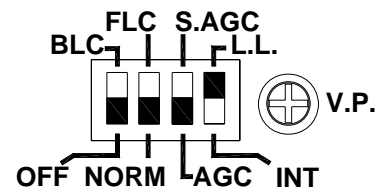
SW3. S.AGC / AGC Mode Switch

S.AGC: When camera has installed at low light condition, the sensitivity of the camera rises.
AGC: 26dB -- In order to activate D/N function (Color mode automatically switches to B/W mode under 2 Lux), please switch to S.AGC.



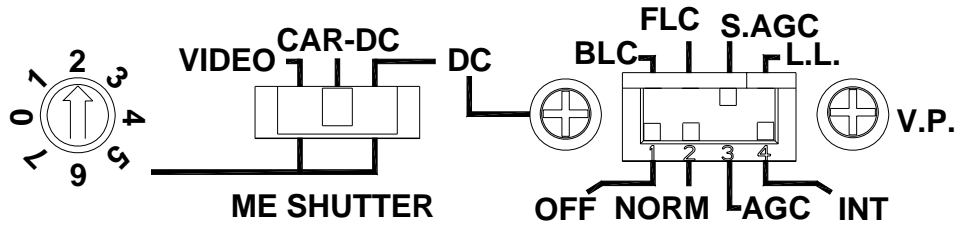
SW4. SYNC Mode Switch

L.L. MODE: It synchronizes the video signal between cameras using the frequency of the power supply without external synchronous generator.
INT MODE: The camera may be operated independently with the internal crystal control.

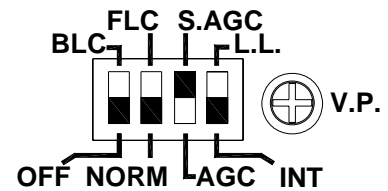


3.2 Setting of Mode Switch

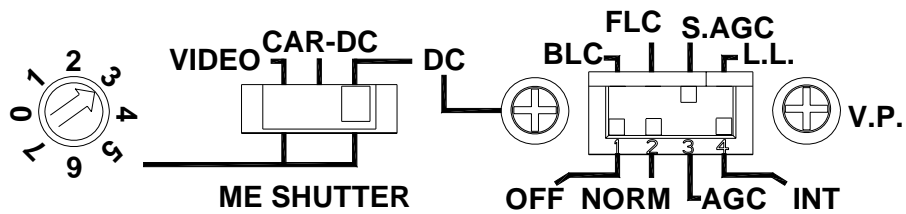
For Road Surveillance: Car speed is up to 90 mi/hr (150 km/hr) in the daytime and 90 mi/hr (150 km/hr) at night.



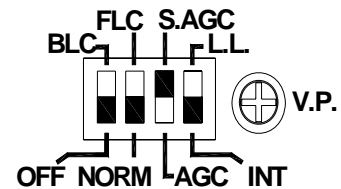
1. ME/AES Shutter Control should be set on "2".
(Please refer to the function 5 **ME/AES Shutter Control**).
2. Auto Iris Mode should be switched to "CAR-DC" mode.
3. Control Switch should be set as following:



For Highway Surveillance:



1. ME/AES Shutter Control should be set on "3" or "4".
(Please refer to 5 **ME/AES Shutter Control**).
2. Auto Iris Mode should be switched to "VIDEO" or "DC".
3. Control Switch should be set as following:



4. Specifications

P.I.C.	L-803	
Model	SHM-7540LPDN-IO	SHM-7540LPDN-IOP
TV System	NTSC	PAL
Image Sensor	1/3" Sony Super HAD CCD II	
DSP	Sony HQ-1	
Resolution	540 TV Lines	
Total Pixels	811(H) x 508(V)	795(H) x 596(V)
Video Output	1.0Vp-p Composite, 75 Ohms	
Minimum Illumination	0.08 Lux @ F1.0 without IR light 0 Lux @ IR on	
IR Sensitivity	700~1100nm	
Mechanical IR Cut Filter (ICR)	External controlled by D/N IO Color: (In: 0V or normally open) / D/N: 5V~12V or normally close)	
Electronic Shutter Speed	AES ON, AES OFF, 1/100(120) sec., 1/190sec., 1/350sec., 1/610sec., 1/1120sec., 1/2000sec., 1/3240sec., 1/4000sec.	
Intelligent Shutter Speed	Capturing license plate for vehicle speeds up to 90 mi/hr (150 km/hr) in the daytime and 90 mi/hr (150 km/hr) at night with external IR LEDs	
Back Light Compensation	ON/OFF Switchable	
Auto Gain Control	ON/OFF Switchable	
Auto White Balance	AWB	
Day/Night	Mechanical IR Cut Filter (ICR) Auto Switching (Color / Monochrome) D/N / Color Switchable	
I/O	Yes	
DNR / Sens-up	Automatic; High Gain/Low Noise Amplifier	
Scan System	2:1 Interlace	
Synchronization	Internal/Line Lock (AC Version Only)	
S/N Ratio	More than 50dB (AGC Off)	
Automatic Iris	Video/DC	
Lens Mount	CS/C (with adaptor)	
Power Supply	12V DC / 24V AC	
Power Consumption	3.5W	
Operation Temperature	14°F ~ 122°F / -10°C ~ 50°C	
Storage Humidity	RH 85% or less	
Storage Temperature	-4°F ~ 140°F / -20°C ~ 60°C	
Dimension	4.72"(L) x 2.36"(W) x 1.97"(H) 120mm(L) x 60mm(W) x 50mm(H)	
Weight	0.88 lbs / 400g	

5. Related Products

5.1 Recommended Lens:

3~80mm IR D&N Auto Iris



LEN0380DCIR-J

- Made in Japan
- 1/3" Aspherical
- f: 3~80mm Vari-focal
- F0.95
- Auto Iris
- Day & Night
- IR-corrected
- CS mount

2.7~12mm IR D&N Auto Iris



LEN2712DCIR-J

- Made in Japan
- 1/3" Aspherical
- f: 2.7~12mm Vari-focal
- F1.2
- Auto Iris
- Day & Night
- IR-corrected
- CS mount

5~60mm Auto Iris



LEN0560DC-J

- Made in Japan
- 1/3" Aspherical
- f: 5~60mm Vari-focal
- F1.6
- Auto Iris
- Day & Night
- CS mount

5.2 Recommended Housing:

11 Hi-Power IR LED Illuminator with Housing & Bracket



- 11 Super Power IR LED, 6pc x 25° / 5pc x 45°
- IR Distance up to 395ft / 120m
- IP66 Rating
- User Adjustable IR LED Intensity (VR),
- Factory Default 80%
- Fully-Cable Managed Mounting Bracket
- Uses professional rust-proof stainless steel screws
- Heater & Blower
- 24V AC, 60VA, Power Ready Plug for 12V DC Camera



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