

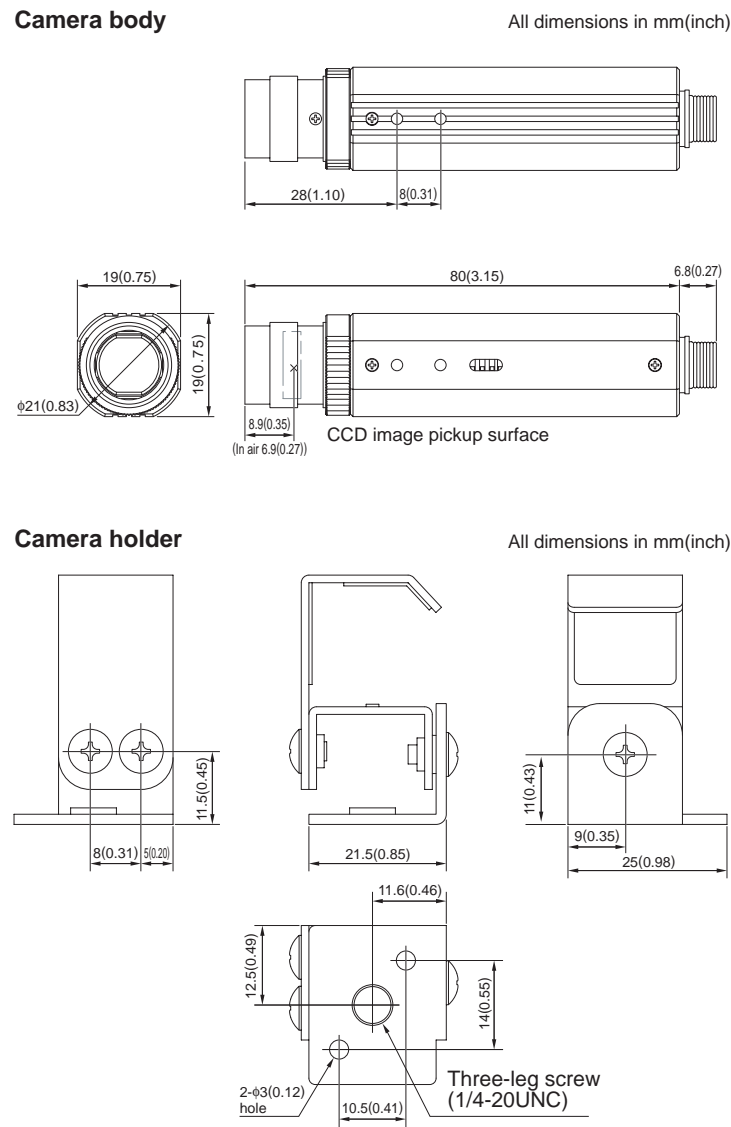
Elmo Colour Camera Module Instruction Manual

Model Slim Camera MP450

Precautions for Installation and Use

- **Handle with care.** - Do not drop, shock or vibrate this product excessively, or the product could go out of order. Do not handle the camera cable roughly, or the camera cable could be disconnected.
- **Do not aim at an intense light.** - Do not allow an intense light, such as a spotlight, to come into the camera screen, blooming or smearing could occur. Do not direct the camera to the sun, either, or an intense light could come into the camera and vertical stripes could appear on the camera screen, though this is not a symptom of failure.
- **Install this product in a place free from noise into the camera screen.** - If the camera is installed or the camera cable is wired near a lamp line or a TV set, the camera screen could suffer noise. If this is the case, relocate the camera or cable routing.
- **Keep the camera head and the protective cap from the reach of infants.** - Do not place the camera head or the protective cap within the reach of infants, or they could dangerously put it into their mouth or swallow it. The protective cap is used to protect the CCD image pickup surface; do not throw it away but safekeep it.
- **When leaving the camera unused for a long time** - When the camera is left unused for a long time, shut OFF the power supply for the safety purpose.
- **When maintaining the camera** - Shut OFF the power supply to the camera, and wipe the camera with a dry cloth. If the stain will not come off, wipe it off with a cloth soaked with a diluted neutral detergent. Do not use benzene, alcohol or thinner, or the coating could fall off or the indication could degenerate. For cleaning the lens, use a lens cleaning paper or the like.

Outside Drawing

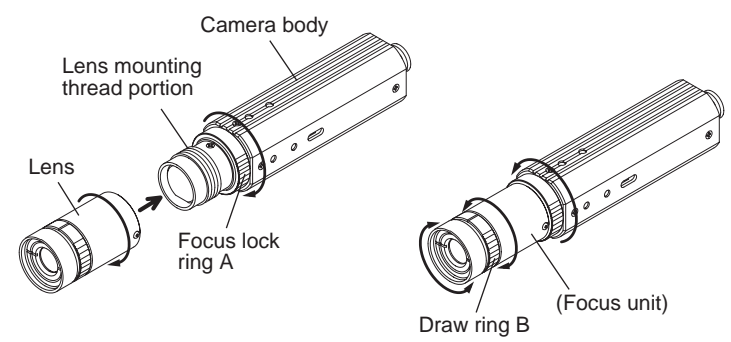


Options

| CODE | Model | Max. relative aperture (f-number) | Focal length f |
|--------|---------|-----------------------------------|-----------------|
| 8771 | T183 | 1.8 | f=3.0mm |
| 9264 | T204D | 2.0 | f=4.0mm |
| 9250 | T1675F | 1.6 | f=7.5mm |
| 9265 | T2015D | 2.0 | f=15mm |
| 9266 | T3124 | 3.1 | f=24mm |
| 9819 | T4536 | 4.5 | f=36mm |
| 9267 | T287P | 2.8 | f=7mm |
| 8797 | T3425M | *4.6 - 5.2 | f=25mm close-up |
| 8797-1 | T3425MB | *4.3 - 6.0 | f=25mm close-up |
| 8797-2 | T3425MC | *6.0 - 8.1 | f=25mm close-up |
| 9271 | T416MA | *8.4 - 12.2 | f=16mm close-up |
| 9271-1 | T416MB | *6.3 - 8.4 | f=16mm close-up |

*The f-number represents effective f-number.

- (1) Turn the lens to focus the camera, and then turn the focus lock ring A counterclockwise to lock the lens.
- (2) Turn the draw ring B to adjust the aperture.



IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not install near heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
8. Do not touch this apparatus during lightning storms.
9. Unplug when unused for long periods of time.
10. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have been fallen onto the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING:
Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm.
Wash hands after handling.

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

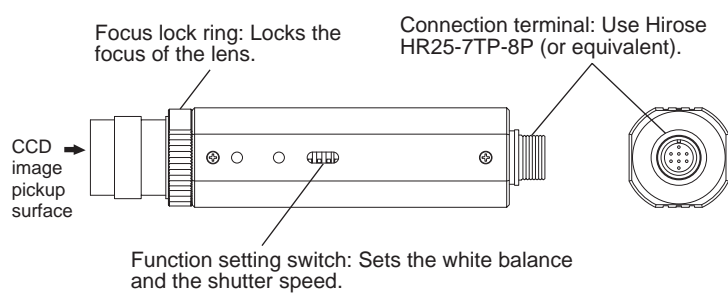
CAUTION
• Do not use any power supply other than specified.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
* The CAUTION label is attached on the base of product.

INFORMATION
This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, use, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USER-INSTALLER CAUTION: Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part of the FCC Rules.

Name and Function of Each Part



Setting the white balance
The white balance can be set to any of the following 4 modes according to the imaging conditions (light source):

| 1 | 2 | Mode | Contents |
|---|---|-------|--|
| L | L | ATW | The camera checks the color temperature of the light source continuously, and adjusts the white balance automatically. |
| H | L | 3200K | For electric bulb (fixed value) |
| L | H | 4200K | For fluorescent lamp (fixed value) |
| H | H | 6300K | For outdoor light (fixed value) |

Setting the shutter speed

| 3 | 4 | Mode | Contents |
|---|---|-----------|--|
| L | L | 1/50 sec | Factory-set. |
| L | H | 1/120 sec | Decreases flickers when the camera is used in the illumination in an area with a power supply frequency of 60Hz, but lowers the sensitivity. |
| H | L | AES | Operates the electronic shutter automatically according to the light intensity of the object and adjusts the exposure appropriately. |
| H | H | | |

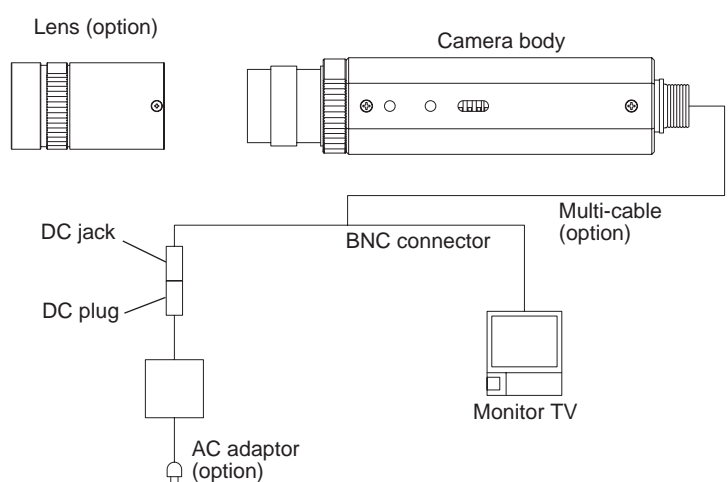
*Notes for the AES mode
- Adequate light intensity is required.
- Flickers may occur in the fluorescent illumination.

About the connection terminal

| Pin No. | Contents |
|---------|-----------------|
| 1 | GND (VIDEO OUT) |
| 2 | VIDEO OUT |
| 3 | - |
| 4 | - |
| 5 | - |
| 6 | - |
| 7 | GND (DC IN) |
| 8 | DCIN |

How to Connect

- (1) Attach the lens (option) to the camera body.
- (2) Attach the multi-cable (option) to the camera body and connect the BNC connector of the multi-cable to the VIDEO IN terminal of a monitor TV or the like.
- (3) Connect the DC jack of the multi-cable to the DC plug of the AC adaptor (option).
 - For the information of the lens, multi-cable, AC adaptor, etc., refer to "Option."



Specifications

| Model | MP450 |
|-------------------------------|---|
| Power input | 12VDC (11VDC - 15VDC) |
| Power consumption | Approx. 0.125A (at 12VDC input) |
| Image pickup device | Type 1/2 color interline transfer system CCD |
| Effective image pickup pixels | Horizontal 752, vertical 582 |
| Image pickup area | Horizontal 6.47mm, vertical 4.83mm |
| Scanning system | 2:1 interlace |
| Scanning frequency | Horizontal 15.625kHz, vertical 50Hz |
| Synchronous system | Internal synchronization |
| Resolution | Horizontal 470TV, vertical 420TV |
| S/N ratio | 50dB or more |
| Standard object illuminance | 60 lx (F1.6 incandescent lamp) |
| Minimum object illuminance | 2 lx (F1.6 incandescent lamp) |
| White balance | ATW, 3200K, 4200K, 6300K |
| AGC | Built-in (always ON) |
| Electronic shutter | 1/50 sec, 1/120 sec, AES |
| AES | 1/50 sec - 1/100,000 sec |
| Power terminal | 8P round connector |
| Video terminal | 8P round connector, output VBS 1.0V (p-p), 75 |
| Dimensions | Width:19mm (0.75"), height:19mm (0.75"), depth:80mm (3.15") |
| Weight | Approx. 50g (0.11 lbs) |
| Ambient temperature | -10 - 40 (14 F- 104 F) |
| Ambient humidity | 30 - 90% |
| Accessories | Instruction manual, camera holder |

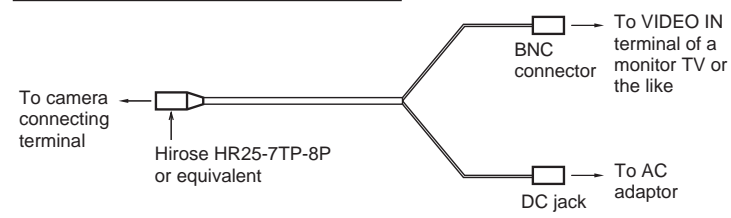
* The design, the specifications, etc. are subject to change without notice due to continual improvements.

Troubleshooting

| Symptom | Checking point |
|------------------------|---|
| Image does not appear. | - Is the power being supplied normally? |
| | - Is the lens aperture adjusted appropriately? |
| | - Is the cable connected appropriately? |
| | - Is the monitor TV adjusted appropriately? |
| | - Is the Function setting switch set appropriately? |
| Image is dark. | - Is the lens aperture been adjusted appropriately? |
| | - Is the shutter speed set appropriately? |

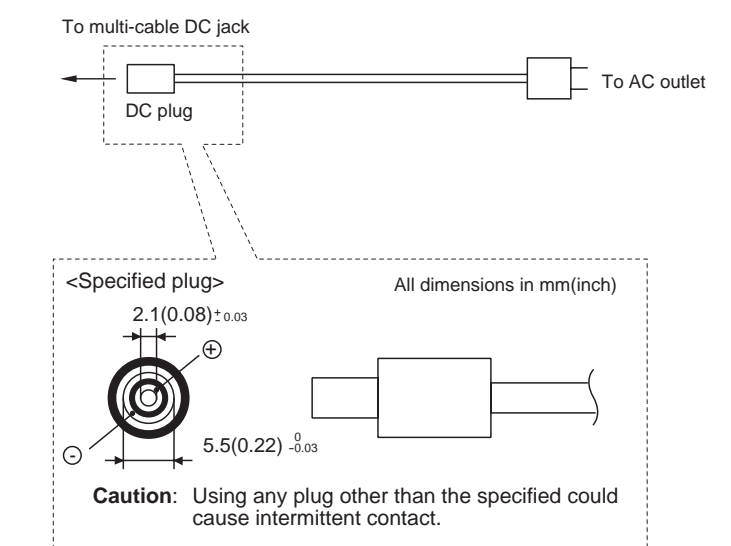
Multi-cable

| CODE | Model | Length |
|--------|---------|--------|
| 9888 | MNC-03A | 3m |
| 9888-1 | MNC-10A | 10m |



AC adaptor

| CODE | Model | Input voltage | Rated output |
|----------|----------|---------------|--------------|
| 9896-GER | AC-E450P | 100-250V | DC12V 1.0A |



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