

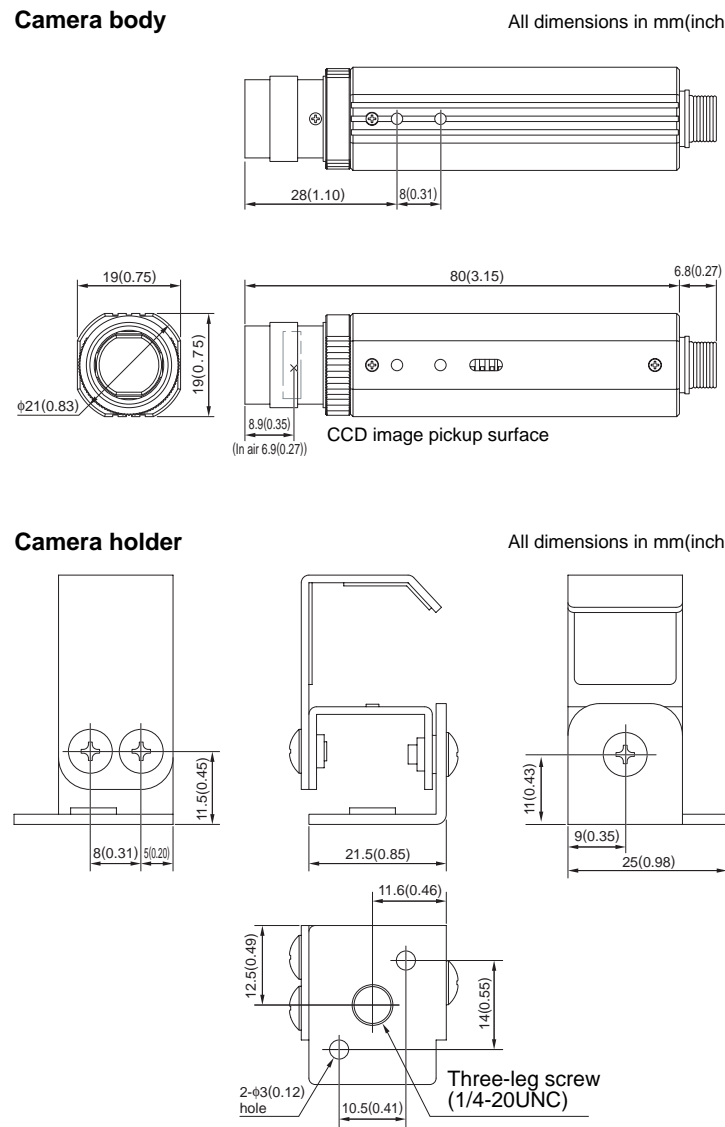
Elmo Color Camera Module Instruction Manual

Model Slim Camera MN400

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

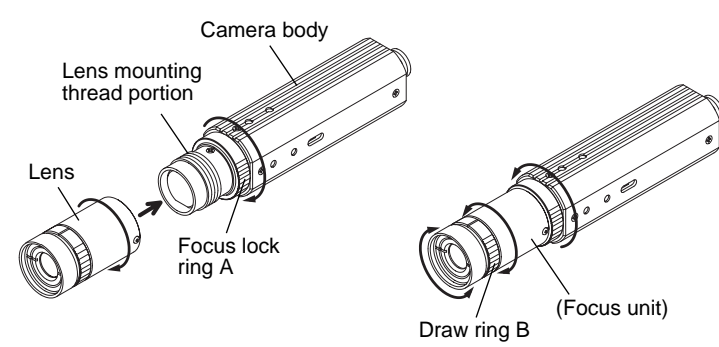


Options

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.

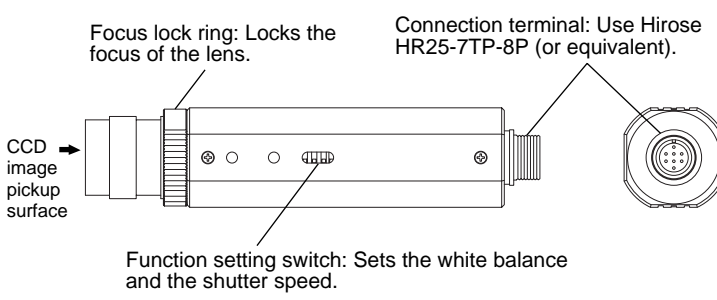
WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
* The CAUTION label is attached on the base of product.

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)

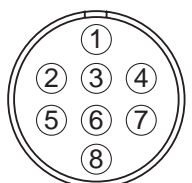
Setting the shutter speed

3	4	Mode	Contents
L	L	1/60 sec	Factory-set.
L	H	1/100 sec	Decreases flickers when the camera is used in the illumination in an area with a power supply frequency of 50Hz, 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.

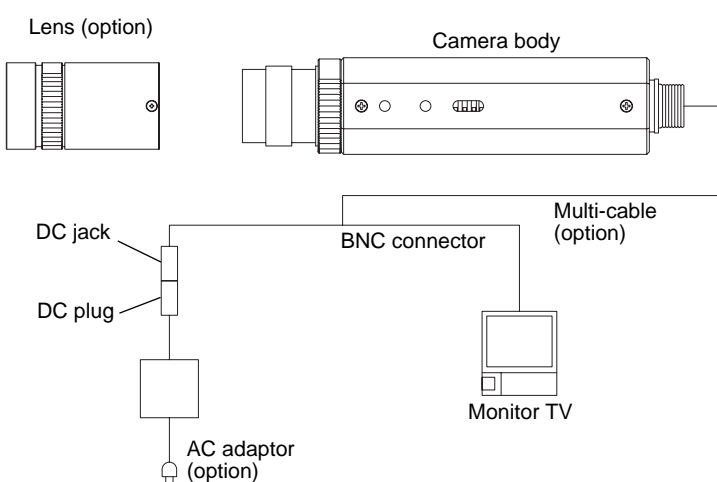
About the connection terminal

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	MN400
Power input	12VDC (11VDC - 15VDC)
Power consumption	Approx. 1.5W (at 12VDC input)
Image pickup device	Type 1/2 color interline transfer system CCD
Effective image pickup pixels	Horizontal 768, vertical 494
Image pickup area	Horizontal 6.54mm, vertical 4.89mm
Scanning system	2:1 interlace
Scanning frequency	Horizontal 15.734kHz, vertical 59.94Hz
Synchronous system	Internal synchronization
Resolution	Horizontal 480TV, vertical 350TV
SN 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	1/60 sec, 1/100 sec, AES
AES	1/60 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
Ambient temperature	-10 - 40 (14 F- 104 F)
Ambient humidity	30 - 90%
Accessories	Instruction manual, camera holder

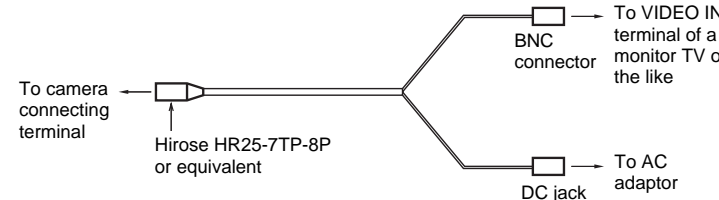
* The design, the specifications, etc. are subject to change without notice due to continual improvements.

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?

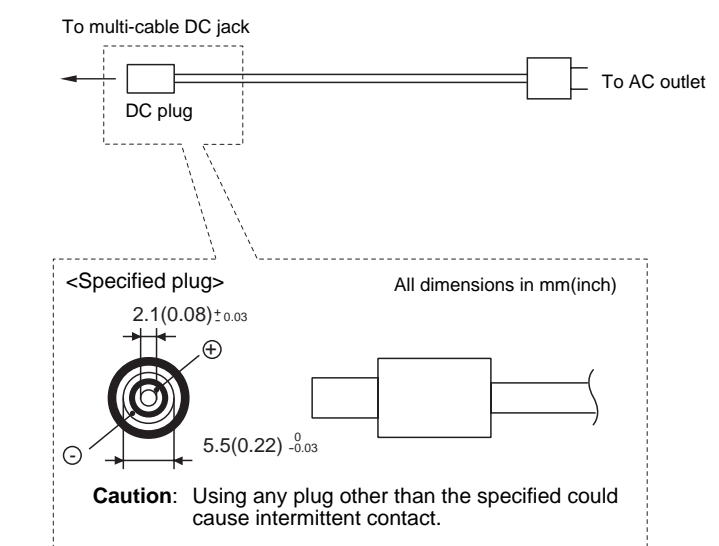
Multi-cable

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



AC adaptor

CODE	Model	Input voltage	Rated output
9894	GSU06-3-U	100-240V	DC12V 0.5A



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