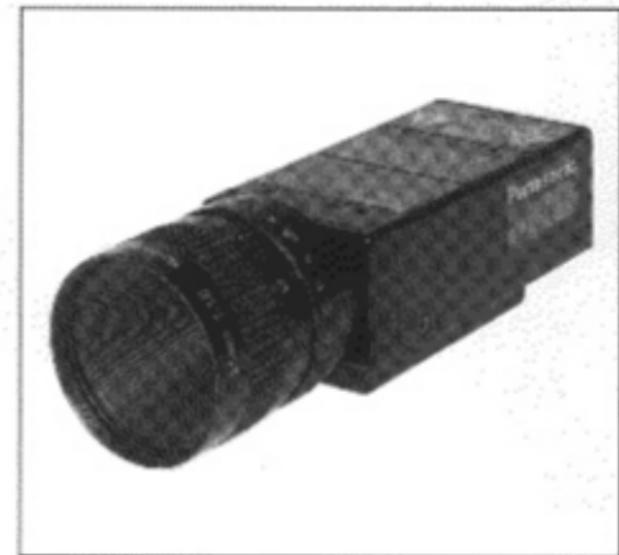


Industrial Camera
GP-MF802

Operating Instructions



Panasonic®

Before attempting to connect or operate this product,
please read these instructions completely.

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Remove dust on the faceplate of filter glass
before mounting the lens on the camera.

The serial number of this product may be found on
the bottom of the unit.

You should note the serial number of this unit in the
space provided and retain this book as a permanent
record of your purchase to aid identification in the
event of theft.

Model No. _____

Serial No. _____

PREFACE

The Panasonic GP-MF802 Industrial Camera has a progressive scanning CCD image sensor which features 325,000 pixels, a horizontal resolution of 480 lines, and minimum smear.

The camera produces perfectly square pixels to permit application to factory automation (FA) in measurement, pattern recognition or video processing.

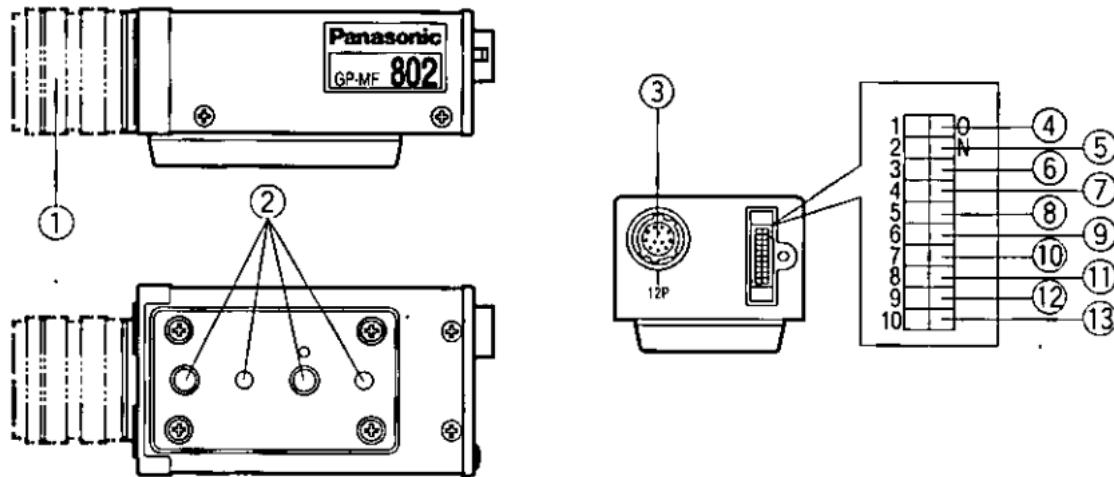
FEATURES

1. Newly developed multi-function 1/3" inter-line transfer CCD image sensor with 659 (H) x 494 (V) pixels.
2. 1-line interlace, 2-line interlace, 2-line sequential, and 2-line simultaneous read out available for highest quality video processing.
3. Frame shutter with shutter speeds from 1/100 to 1/16000 seconds.
4. Read Out/Inhibit function.
5. Seven-step electronic shutter or three-step electronic shutter with trigger function selectable.

PRECAUTIONS

1. Do not attempt to disassemble the camera. To prevent electric shock, do not remove screws or cover. There are no user-serviceable parts inside. Call a qualified service person for repairs.
2. Do not expose the camera to rain or moisture, and avoid operation in wet areas. Take immediate action if the camera become wet. Turn power off and Call a qualified service person. Moisture can damage the camera and create danger of electric shock.
3. Do not drop anything inside the camera. Dropping metal for example inside the camera may permanently damage the unit. If anything is dropped inside the camera, turn off power immediately and call a qualified service person.
4. Never aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun, or other extremely bright objects as this may cause blooming.
5. Do not use the camera beyond the specified ambient temperature or humidity, or power source ratings. This camera is designed for indoor use.
 - (a) The ambient temperature range is -10°C - +50°C (14°F - 122°F).
 - (b) Avoid using the camera when relative humidity is above 90%.
 - (c) Use an input power source of 12V DC, 190mA.

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



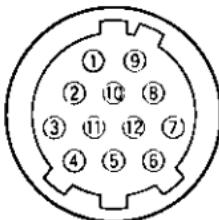
1. Manual Iris Lens (Optional)

2. Mounting Holes

There are two screw holes (1/4") for mounting the camera on a tripod, and two more screw holes (No.8-32 UNC) for mounting the camera on a mounting bracket.

3. Camera Connector (12P)

Connect the optional camera cable GP-CA81, GP-CA82, or GP-CA83 to it.



**CAUTION: CONNECT
THIS TO A 12V DC
CLASS 2 POWER
SUPPLY ONLY.**

Pin No.	Description
1	Ground
2	+12V DC In
3	Ground for Video Out 1
4	Video Out 1
5	Ground for HD
6	External HD
7	External VD
8	Ground for Video Out 2
9	Video Out 2
10	Ground for Clock
11	Clock Out
12	Ground for VD

4. Switch 1 (1/ON) 1 ON

This switch is used with switch 2 to select a field or frame accumulation. Switch position combinations and accumulations are shown in the table right;

Switch 1	OFF	ON	OFF	ON
Switch 2	OFF	OFF	ON	ON
Accumulation	Field Accumulation 1 (2:1 Interlace)	Field Accumulation 2 (2:1 Interlace)	Field Mix (2:1 Interlace)	Frame Accumulation (Full frame with no Interlace)
Video 1	Field A (Even) Field B (Even)	Field A (Odd) Field B (Even)	Field A (Even + Odd) Field B (Odd + Even)	Sequential
Video 2	Field A (Odd) Field B (Odd)	Field A (Even) Field B (Odd)	No Output	No Output

5. Switch 2 (2/ON) 2 ON

This switch is used with switch 1 to select a field or frame accumulation. Switch position combinations and accumulations are shown in the table above.

6. Switch 3 (3/ON) 3 ON

This switch is used to set the frame reset (shutter trigger) to on or off.

In case of frame reset off, you can select a shutter speed using switch 4, switch 5, and switch 6.

Shutter speeds and combinations of the switches in case of frame reset off are shown in the table below;

Switch			Shutter Speed
6	5	4	
OFF	OFF	OFF	NORMAL
ON	OFF	OFF	1/100
OFF	ON	OFF	1/250
ON	ON	OFF	1/500
OFF	OFF	ON	1/1000
ON	OFF	ON	1/2000
OFF	ON	ON	1/4000
ON	ON	ON	1/8000

In case of frame reset on, you can select a shutter speed or long time exposure mode using switch 4, switch 5, and switch 6.

Shutter speeds and combinations of the switches in case of frame reset on are shown in the table below;

Switch			Shutter Speed
6	5	4	
OFF	OFF	OFF	OFF
ON	OFF	OFF	OFF
OFF	ON	OFF	OFF
ON	ON	OFF	OFF
OFF	OFF	ON	ON 1/2000
ON	OFF	ON	ON 1/4000
OFF	ON	ON	ON 1/8000
ON	ON	ON	ON 1/16000

Note: The accurate shutter speed function cannot be expected in non-interlaced synchronization.

7. Switch 4 (4/ON) 4 ON

Set this switch with switch 5 and switch 6 as shown in the tables above.

8. Switch 5(5/ON) 5 ON

Set this switch with switch 4 and switch 6 as shown in the tables above.

9. Switch 6 (6/ON) 6 ON

Set this switch with switch 4 and switch 5 as shown in the tables above.

10. Switch 7 (7/ON) 7 ON

Set this switch to ON to terminate the external HD signals with 75Ω .

11. Switch 8 (8/ON) 8 ON

Set this switch to ON to terminate the external VD signals with 75Ω .

12. Switch 9 (9/ON) 9 ON

This switch is used to set long time exposure mode to ON or OFF.

Set this switch to ON only when switch 3 is set to ON with switches 4, 5 and 6 in the specified positions.

This switch changes the AC/DC coupling to AC coupling when OFF is selected or to DC coupling when ON is selected.

13. Switch 10 (10/ON) 10 ON

This switch is used to set the clock out function to ON or OFF.

PREPARATIONS

1. Power Supply for Camera

Prepare a regulated DC power supply of $12V \pm 10\%$, 190 mA or more, and rated CLASS 2.

2. Lenses

Be sure to use an optional manual iris lens that meets the following items.

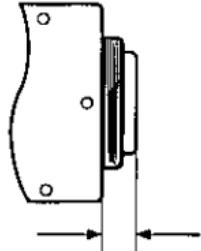
Focus : Adjustable

Lens Weight : Less than 300 g (0.66 lbs.)

Note: If the lens weight exceed 300 g (0.66 lbs.), the camera and lens should be secured.

Mount : C-mount

Lens mount should be as shown in the diagram, otherwise the lens will damage the camera.

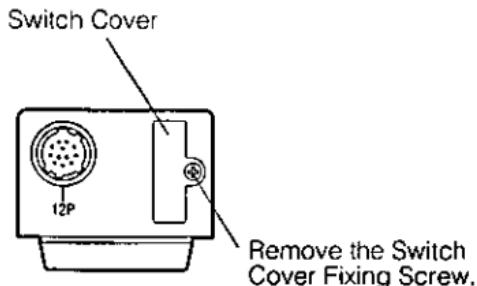


Less than 8 mm (Less than 5/16")

3. Switch Cover Removal

Caution: The following preparations should be made by a qualified service person or system installer.

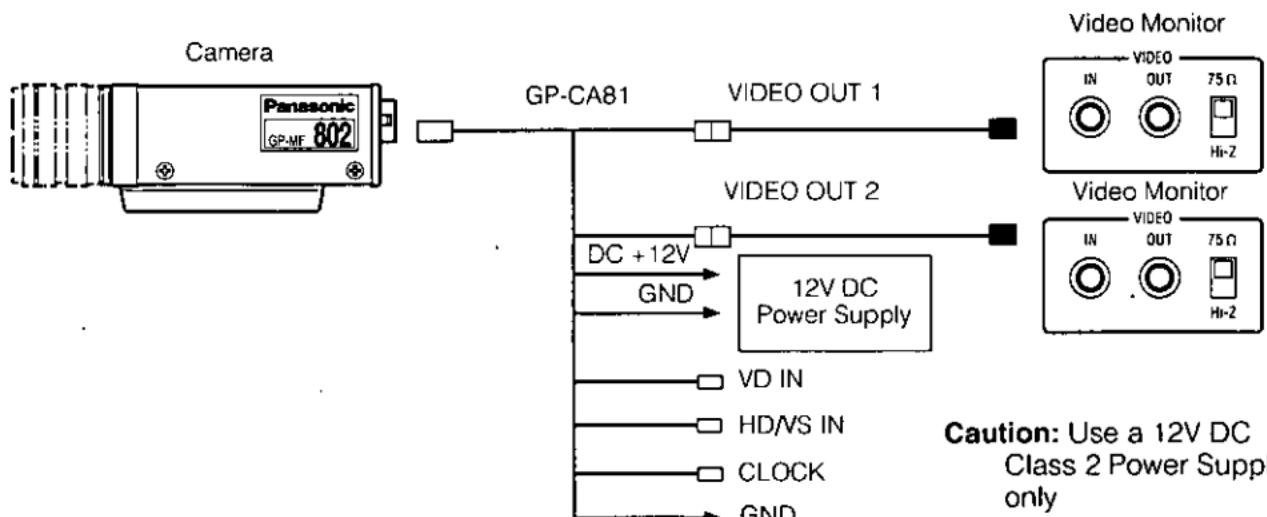
To set switch 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, remove the switch cover fixing screw on the rear panel as shown below.



SYSTEM CONNECTIONS

Caution: Set the power switches of all units to OFF before connection.

1. Connect the optional camera cable GP-CA81 between the connector of this camera and the 12V DC Class 2 power supply(not provided as an accessory).
2. Connect the video connector of the GP-CA81 to the video monitor.



INSTALLATION OF CAMERA

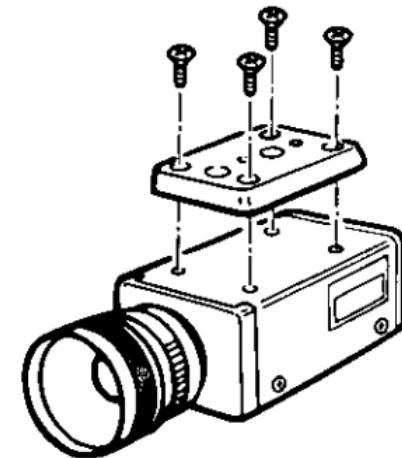
1. Bottom Mounting

This camera is originally designed for bottom mounting. The hole is the standard photographic pan-head screw size (1/4").

2. Top Mounting

Remove the mount adaptor on the bottom of the camera by removing 4 fixing screws. Attach the mount adaptor to the top as shown in the illustration, then mount the camera on the mounting bracket.

Make sure that the 4 original screws are used when mounting the mount adaptor; longer type screws will break the inner component.



EXTERNAL SYNCHRONIZATION

1. 2 : 1 Interface

The GP-MF802 works in 2 : 1 interlace mode when external 2 : 1 interlaced HD and VD signals are supplied to pin 6 and pin 7 of the camera connector(12-pin)

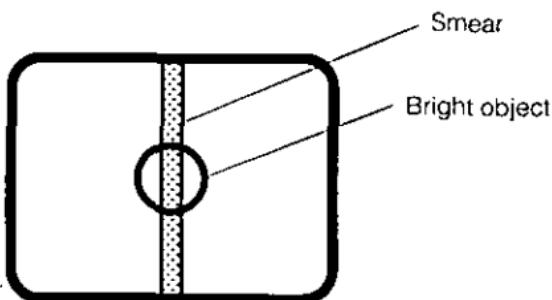
2. Non-interlace

The GP-MF802 works in non-interlace mode when external non-interlaced HD and VD signals are supplied to pin 6 and pin 7 of the camera connector (12-pin).

Note: If the picture appears disturbed, be sure to match the phases of falling edges of the external HD and VD.

PREVENTION OF BLOOMING AND SMEAR

When the camera is aimed at spotlights, other bright lights, or light reflecting objects, a vertical stripe (smear) or blooming may appear. The camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.



SPECIFICATIONS

Pick-up Device :	Progressive Scanning Interline Transfer CCD with 659 (H) x 494 (V) pixels.
Image Size :	1/3" (6.3 (H) x 6.4 (V) mm) 2 : 1 interlace 1-line interlace (Frame accumulation) 2 : 1 interlace 2-line interlace (Field accumulation) 2-line sequential (at non-interlaced external HD/VD)
Synchronization :	internal or external (Selectable automatically) Internal : Built-in sync generator External : 4.0 V[p-p] / 75 Ω Horizontal drive and vertical drive pulses for 2 : 1 interlace or sequential scanning
External Reset :	External signal (4.0 V[p-p]/75 Ω , negative) supplied to EXT VD IN connector can be used as reset signal
Horizontal Resolution :	480 lines at center
Minimum Illumination :	6.5 lx (0.65 footcandles) at F1.4, (Manual Gain Max, γ ON, 2 : 1 interlace, without shutter)
Signal to Noise Ratio:	56 dB Typical (Fix Gain, γ OFF, 2:1 interlace without shutter)
Electronic Shutter :	7-step (1/100 to 1/8,000) at normal. 4-step (1/2,000 to 1/16,000) at Shutter Trigger-A. Approx. 1/2,000 at Shutter Trigger-B.
Lens Mount :	C-mount

Vibration Resistance : 8 G (10 Hz - 150 Hz), (2 hours each for three axes)(IEC 68)
Shock Resistance : 80 G (IEC 68) *IEC=International Electrotechnical Commission
Power Source : 12V DC, 190 mA
Ambient Temperature : -10°C - +50°C (14°F - 122°F)
Dimensions : 44(W) x 29(H) x 82(D) mm [1-3/4"(W) x 1-1/8"(H) x 3-1/4"(D)] without
mount adaptor
Weight : 165g (0.36 lbs.) without lens

Dimensions and weight indicated are approximate values.

Specifications are subject to change without notice.

OPTIONAL ACCESSORIES

Camera Cable GP-CA83
GP-CA82
GP-CA81

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