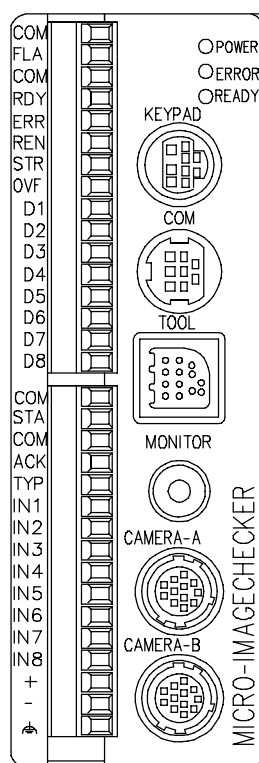
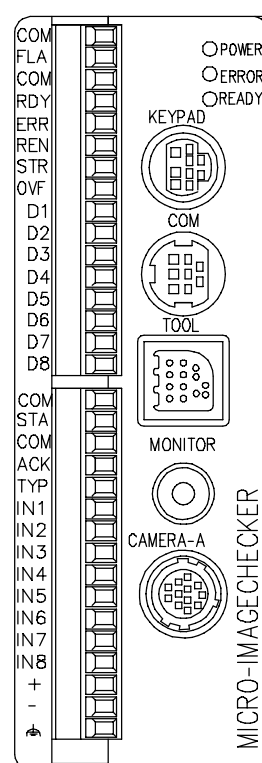


## Micro-Imagechecker A100/A200 Hardware Manual



A200



A100

# WARNINGS AND CAUTIONS

---

## To be observed at all times

Read the manual carefully before installing, running, maintaining or inspecting the equipment.

This manual uses two safety flags to indicate different levels of danger.

**WARNING:** A handling error could cause serious physical injury to an operator, and in the worst case could even be fatal.

**CAUTION:** A handling error could cause serious physical injury to an operator, or damage to the equipment.

## WARNING

---

A handling error could cause serious physical injury to an operator, and in the worst case could even be fatal.

- When using the equipment for a purpose which could conceivably result in the physical injury of an operator and/or damage to the equipment itself, adequate secondary or backup safety and/or protection mechanisms of one sort or another should also be incorporated into the system.
- Do not use the Imagechecker in an environment which contains combustible gases as this may result in an explosion.
- Never open the Imagechecker. The main unit contains high-voltage components which are dangerous to touch. Do not loosen the retaining screws as this may result in electric shocks.

## CAUTION

---

A handling error could cause serious physical injury to an operator, or damage to the equipment.

- Configure so that the emergency stop and interlock circuits are external circuits.
- Be certain to use the equipment within its specified ratings and environmental conditions at all times. Failure to do so can cause overheating.
- Do not disassemble or restructure the Imagechecker in any way as this may result in electric shocks or in the emission of smoke.
- Do not bend the controller's power cable, or place anything heavy on top of the cable. Do not allow the cable close to any other items of equipment that emit significant amounts of heat. When disconnecting the power cable, always grip the plug, and never pull the cable, as this could result in an electric shock or the emission of smoke.
- Always ground the earth wire. Failure to do so may result in an electric shock.
- The power cable must be carefully secured in position using the terminal screw. A faulty connection may result in the generation of excessive heat or the emission of smoke.
- Do not touch the terminals while the power is ON, as this may result in an electric shock.

# GENERAL INSTRUCTIONS

---

## Installation Environment

Avoid using the Micro–Imagechecker A210/A110 in the following types of locations:

- Locations with direct sunlight or environmental temperatures that exceed a range of 0°C to 50°C.
- Locations with a relative humidity exceeding a range of 35%RH to 75%RH or that are subject to condensation due to dramatic temperature fluctuations.
- Locations with an atmosphere containing corrosive gases or flammable gases.
- Locations that subject the main unit to direct vibration or impact.
- Locations with a lot of fine particles, iron filings or salt.
- Locations likely to have contact with water, oil or chemicals.
- Locations with an atmosphere likely to contain organic solvents such as benzene, paint thinner, and alcohol as well as strongly alkaline materials such as ammonia and caustic soda.

## Static Electricity

In a dry environment, there is a risk of accumulation of static electricity, so when there is a need to touch the equipment, users should always discharge the accumulated static by touching an earthed part of the equipment first.

## Cleaning

Do not use thinners or similar solvents, as they may dissolve parts of the unit and cause colors to run.

## Power

Use an insulated power source with built in protection circuits. The controller power unit uses non–insulated circuits, so if an irregular voltage is applied, there is a danger that the internal circuitry will be damaged. If you use a power source that does not use protection circuits, supply the power via a fuse or other protective device.

## Power Sequence

- Arrange the power sequence so that the controller power source is turned off before the input/ output power source.
- If you turn off the input/output power source before the controller power source, the controller unit will detect an input signal level change and may not run properly.

## **Before Switching On the Power**

The following points should be checked before switching the power on to the controller for the first time.

- Check that no extra wiring left installation, especially conductive materials, have become attached to the board.
- Confirm that the power supply wiring and I/O wiring and power supply voltage are correct.
- Firmly tighten all installation screws and terminal block screws.

## **Before Creating Type Data**

Before creating type data, be sure to initialize the environment settings and all type settings.

## **Other Instructions**

- Use monitor, monitor cable, keypad, camera and camera cable models and serial numbers specified by Panasonic.
- Do not disassemble, modify, or change internal settings for the Micro–Imagechecker unit or other equipment.
- Setting or changing items other than those that can be set or changed, as described in the product manual and specifications, will result in damage.
- After completing all of the settings for the Micro–Imagechecker, do not connect the personal computer used for connecting the keypad, restoring or backup, in order to prevent malfunctioning due to noise.
- Do not perform insulation resistance or pressure resistance tests between metal areas of the power supply, input/output signal and connectors and the camera case.

## **To USA Customer**

- Products sold by Seller are covered by the warranty and patent indemnification provisions in its Terms and Conditions of Sale only.

## Important Symbols

---

One or more of the following symbols may be used in this manual:



### **Warning.**

The warning triangle indicates especially important safety instructions. If they are not adhered to, the results could be:

- fatal or critical injury and/or
- significant damage to instruments or their contents, e.g. data



### ◆ **NOTE**

---

Contains important additional information.



### ◆ **EXAMPLE**

---

Contains an illustrative example of the previous text section.



### ◆ **REFERENCE**

---

Indicates where you can find additional information on the subject at hand.



### ◆ **CAUTION**

---

Indicates that you should proceed with caution.



### ◆ **KEY POINTS**

---

Summarizes key points in a concise manner.



### ◆ **SHORTCUTS**

---

Provides helpful keyboard shortcuts.



### ◆ **EXPLANATION**

---

Provides brief explanation of a function, e.g. why or when you should use it.

➞ next page

Indicates that the text will be continued on the next page.

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## Record of Changes



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# Chapter 1

---

## Part Names and Functions

## 1.1 Controller

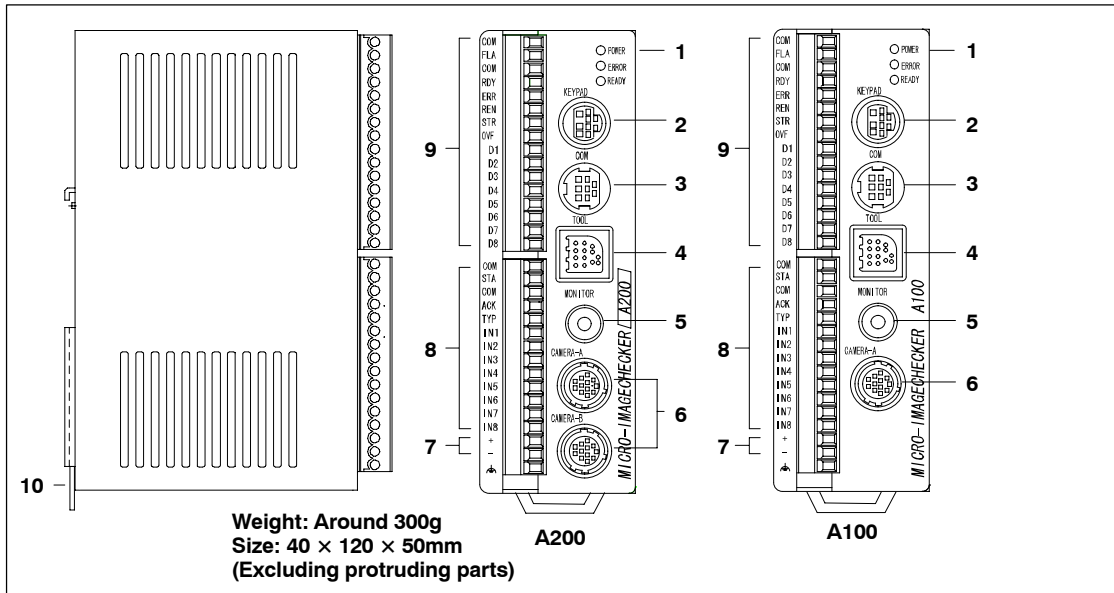


Figure 1: controller parts

### 1.1.1 Names and Functions of Controller Parts

- ① Operating LEDs  
Indicate the controller's operating status.  
POWER (green). This green LED is lit when the controller is connected to a live power source.  
ERROR (red). The red LED is lit when an error has occurred.  
READY (green). This green LED is lit when the start signal can be input (when ready for inspection).
- ② Keypad jack  
Provides a connection for the operation keypad.
- ③ RS232C port  
Provides an RS232C connection for an external device.
- ④ TOOL port  
Provides an RS232C connection for an external device (only VBT Ver. 2).
- ⑤ Monitor  
Provides a connection for a monitor.
- ⑥ Camera jack  
One camera jack is provided on an A100.  
Two camera jacks are provided on an A200, one for camera A and one for Camera B.
- ⑦ Power supply  
24 power is required. The power supply is connected to the input terminal block.

- ⑧ External input terminal (16 pin)  
Provides a connection for input from an external source.
- ⑨ External output terminal (16 pin)  
Provides a connection for output to an external device.  
The input/output terminal block is part order number 1840502 from Phoenix Contact. For details about compatible electric wiring and the terminal block, [see page 3-2](#).
- ⑩ DIN rail mounting lever  
You can mount the controller onto a DIN rail with one easy (one–two hook) motion.

### **1.1.2 Using the Controller Correctly**

---

Please follow the instructions for correct usage:

- When you connect two cameras to an A200 controller, be sure the cameras are of the same type.
- When you connect only one camera to an A200 controller, plug it into the Camera A jack.
- Do not connect any products to the controller other than those specified by us.
- Do not connect more than two cameras to the controller.

## 1.2 A Series Camera

### 1.2.1 Double-Speed Random Camera

This is an asynchronous triggerable double-speed progressive-scan camera.

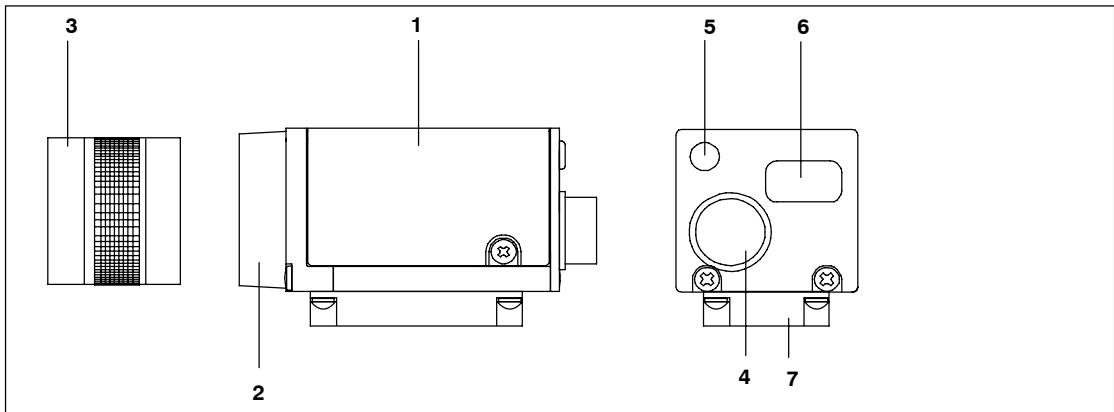


Figure 2: double-speed random camera

#### 1.2.1.1 Part Names and Functions

- ① Camera  
The camera body. Weight: around 70g (camera only), size: 29x31x54.5mm (excluding protruding parts).
- ② Lens mount  
A C-mount.
- ③ Lens  
If a C-mount is required for your application, mount it using a extension ring (view range and lens selection table [see page 2-7](#)).
- ④ Cable connector  
The camera is connected to the controller with a camera cable having the specified part number.
- ⑤ Gain fine turning knob  
Used to finely adjust the camera gain. This is only active when DIP-SW5 is ON.
- ⑥ DIP Switches  
Switches camera modes between frame and field, adjusts camera gain.
- ⑦ Mounting hardware  
Hardware used to mount the camera.

### 1.2.1.2 DIP Switches

- Gain adjustment  
DIP switch 5: ON = 0 to +10dB range gain adjustment volume. OFF = 0dB
- Potentiometer: When DIP–SW5 is ON, turning this potentiometer to the right increases the brightness of the image captured by the camera.
- Camera mode switch  
DIP switch 6: ON = frame mode, OFF = field mode
- Other  
DIP switches 1 to 4, 7, 8: Normally OFF
- Settings when shipped  
DIP switch 5 = ON, VOL +10dB. All others are OFF.

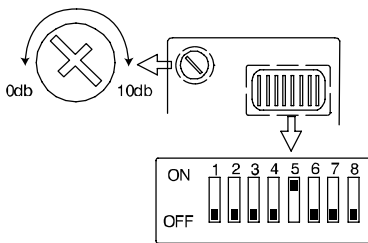


Figure 3: DIP Switches

### 1.2.1.3 Using the Camera Correctly

Please follow the instructions for correct usage:

- When you connect more than one camera to an A200 controller, be sure the cameras are of the same type.
- When you connect only one camera to an A200 controller, plug it into the Camera A jack.
- Do not connect more than two cameras to the controller.
- Do not use products other than those specified by us for camera cables or camera extension cables.
- Do not connect multiple camera cables or camera extension cables to one another to make an extension.
- Do not touch the camera's CCD elements or lens surface. Also, be sure to cap the camera when storing it in order to prevent smudges on the CCD elements or lens surface.
- Change the DIP switch positions in accordance with the camera mode.
- Be very certain not to change the DIP switch settings of other DIP switches.

### 1.2.1.4 Spectral Response

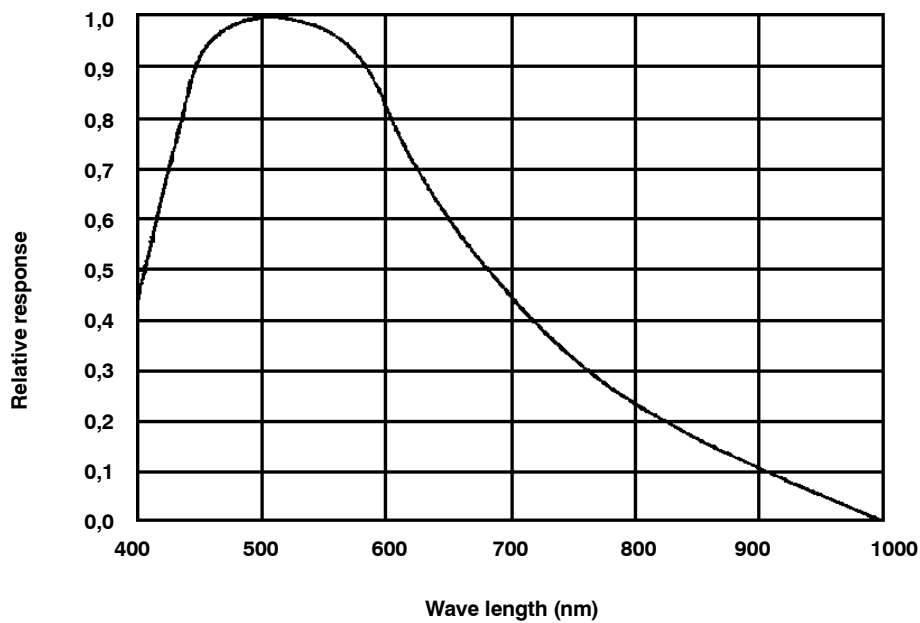


Figure 4: spectral response of the double-speed camera

## 1.2.2 Standard Camera

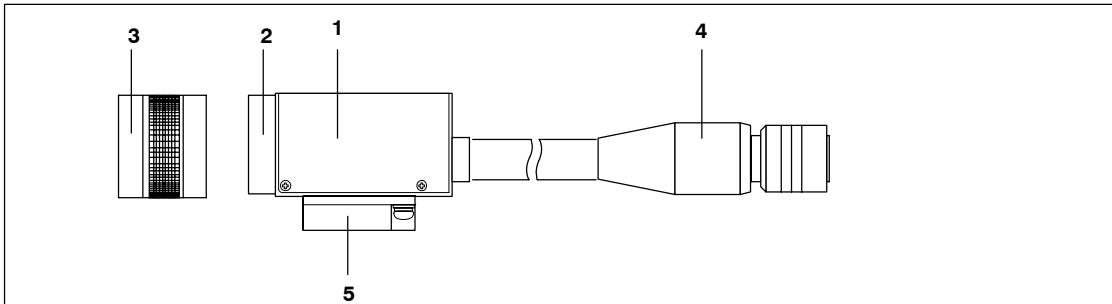


Figure 5: standard camera

### 1.2.2.1 Part Names and Functions

- ① Camera  
The camera's main unit.
- ② Lens mount  
A CS-mount.
- ③ Lens  
If a C-mount or CS-mount lens is required for your application, mount it using an extension ring (view range and lens selection table [see page 2-7](#)).
- ④ Cable connector  
The camera is connected to the controller via this connector. If necessary, also use a camera extension cable with a part number specified by us.
- ⑤ Mounting hardware  
Hardware used to mount the camera.

### 1.2.2.2 Using the Camera Correctly

Please follow the instructions for correct usage:

- When you connect two cameras to an A200 controller, be sure the cameras are of the same type.
- When you connect only one camera to an A200 controller, plug it into the Camera A jack.
- Do not use products other than those specified by us for camera cables or camera extension cables.
- Do not connect multiple camera cables or camera extension cables to one another to make an extension.
- Do not touch the camera's CCD elements or lens surface. Also, be sure to cap the camera when storing it in order to prevent smudges on the CCD elements or lens surface.



### 1.2.2.3 Spectral Response

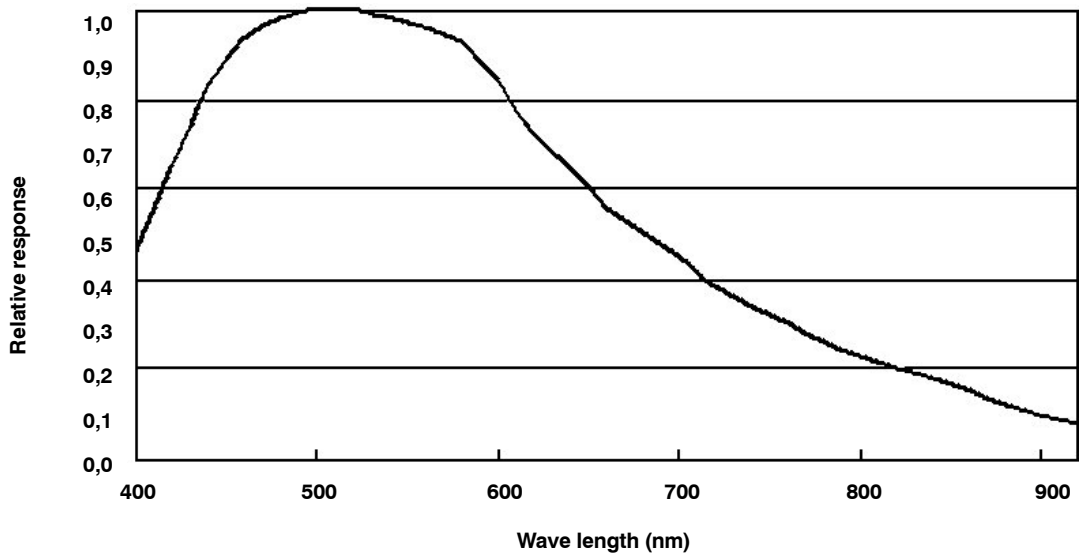


Figure 6: spectral response of the standard camera

## 1.3 Camera Cable and Camera Extension Cable

---

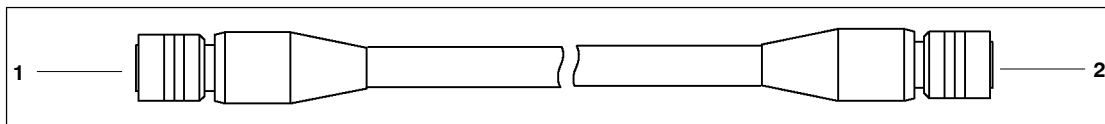


Figure 7: camera (extension) cables

### 1.3.1 Names and Functions of Parts

---

- ① Connector (male):  
Connects the male connector to the controller.
- ② Connector (female):  
Connects the female connector to the camera.

### 1.3.2 Using the Cable Correctly

---

Please follow the instructions for correct usage:

- Do not use products other than those specified by us for camera cables or camera extension cables.
- Do not connect multiple camera cables or camera extension cables to one another to make an extension.
- Do not bend camera cables unnecessarily or place loads on the connector joints.

## 1.4 Keypad

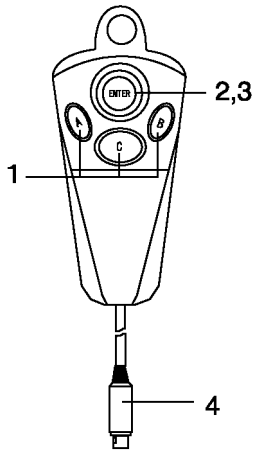


Figure 8: keypad

### 1.4.1 Names and Functions of Parts

- ① A, B, C buttons  
Can be operated using function displayed on the screen.
- ② Cursor lever  
Moves the cursor. Can move it in a maximum of eight directions.
- ③ Enter button  
Confirms an entry.
- ④ Terminal  
Connects the keypad to the A Series controller.

### 1.4.2 Operation of the Cursor Lever and ENTER button

When you press the cursor lever to move the cursor an ENTER may be input erroneously. To avoid this problem, remove your finger from the cursor lever momentarily as you change cursor movement direction.

The functions available from the keypad depend on the functions provided by the controller. Avoid connecting a keypad not specified by us to the controller.

#### Cursor operation

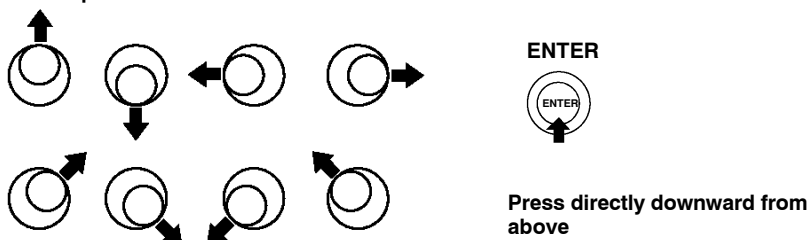


Figure 9: controlling the cursor with the keypad

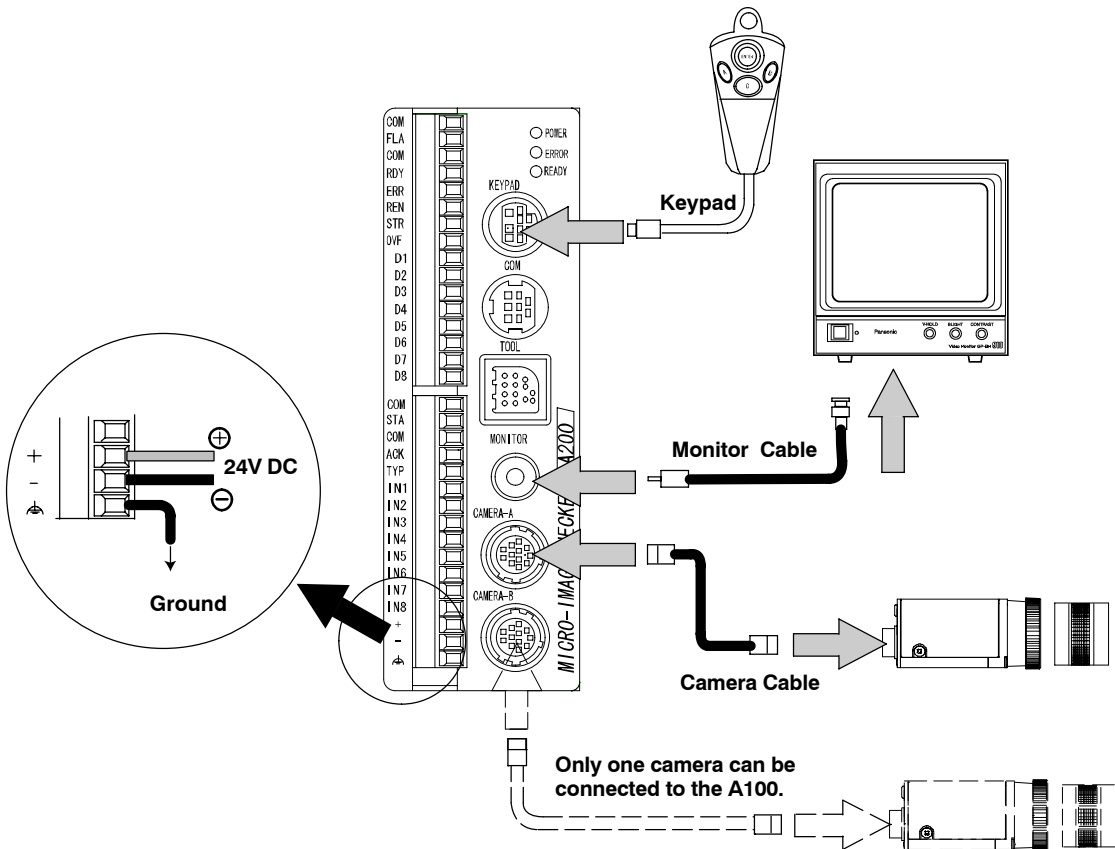
## **Chapter 2**

---

# **Installation and Wiring**

## 2.1 Connecting Peripherals

Be sure to connect peripherals to the controller only when the controller power is OFF.



### 2.1.1 Using Peripherals Correctly

Please follow the instructions for correct usage:

- Do not connect products not specified by us to the controller.
- Be sure to connect peripherals only when the controller power is turned OFF. Otherwise, damage could result.
- When you connect two cameras to an A200 controller be sure the cameras are of the same type.
- When you connect only one camera to an A200 controller plug it in to the Camera A jack.
- Avoid unintentional cable detachment by arranging the wiring so there is no weight or load on the cable connector joints.
- When unplugging a connector, be sure to grasp the connector part itself and avoid exerting unnecessary force on the cable. Also, avoid touching or allowing water to come in contact with the connector pins.

## 2.2 Installation Environment and Mounting Space

### Avoid Installing the Equipment in Locations with the Following Characteristics

- Where the temperature is outside the range of 0°C to 50°C.
- Where the relative humidity is outside the range of 35%RH to 75%RH.
- Where there is a danger of condensation due to sudden temperature fluctuations.
- In the presence of corrosive gas or combustible gas.
- Where dust, metal powders, or salt are present in large amounts.
- In an environment where there is a possibility that organic solvents such as benzene, paint thinner, or alcohol, or strong alkaline substances such as ammonia or caustic soda may adhere.
- Where the equipment will be subject to vibration or shock.
- In direct sunlight.
- Where there is a possibility that water, oil, or chemicals may come into direct contact.
- Where there will be a weight load placed on the main unit.

### 2.2.1 Noise Considerations

- Install the unit as far away as possible from high-voltage lines and equipment, drive lines and equipment, and other equipment that may generate large power surges when it turns on or off.
- Install the unit as far away as possible from equipment such as amateur radio transmitters
- Follow the usual recommendations from the EMC directive.

### 2.2.2 Heat Dissipation

Mount the unit in any of the following arrangements to facilitate heat dissipation.

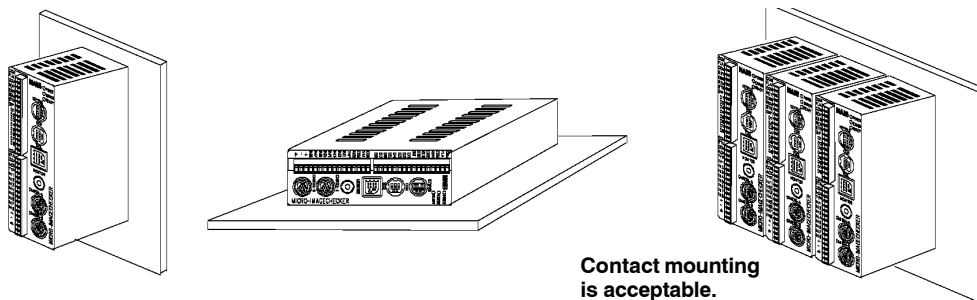


Figure 10: installation with regards to heat dissipation

Do not mount the unit on top of strong heat sources such as heaters, transformers, or high-capacity resistors.

### 2.2.3 Mounting Space

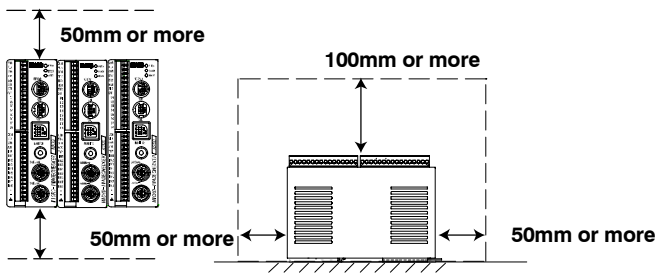


Figure 11: mounting space needed for the installation

- When installing the unit, aim to leave at least 50mm between the controller and any nearby objects such as ducts or other equipment. Controller replacement and wiring will be easier this way.
- When you install doors or other equipment in front of the controller's front panel provide at least a 100mm space between the controller and the equipment in order to avoid noise and heat effects.
- Provide at least 100mm of space in front of the controller's front panel to provide for the keypad connection and wiring.

## 2.3 Mounting the Controller

You can mount the controller either by using screws or by hooking it on a DIN rail (35mm).

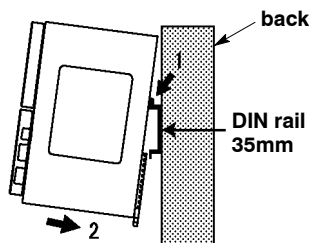
### 2.3.1 Mounting the Controller on a DIN Rail

The controller can be mounted on or removed from a 35mm wide DIN rail (DIN EN50022) by a single easy motion.



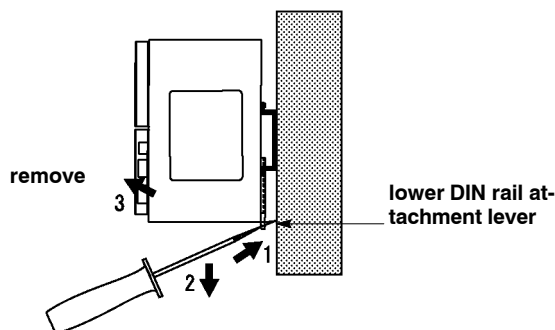
#### ◆ PROCEDURE

1. Catch the controller on to the hook rail at the top of the DIN rail
2. Press the controller into position



#### ◆ PROCEDURE

1. Push a straight screwdriver into the mounting lever
2. Press the mounting lever downward.
3. Pick up the controller to remove it



### 2.3.2 Mounting the Controller Using Screws

Refer to the dimension diagrams ([see page 8-2](#)) and secure the controller using M3 screws (maximum depth 4mm).



## 2.4 Mounting the Camera

---

Mount the camera so it doesn't wobble. You can mount the camera directly or with hardware. Use the dimensional diagram for reference when you mount the camera ([see page 8-3](#)).



**Danger of damage to the camera!**

**When you use screws that are too deep you may destroy the camera.**

### 2.4.1 Using the Camera Correctly

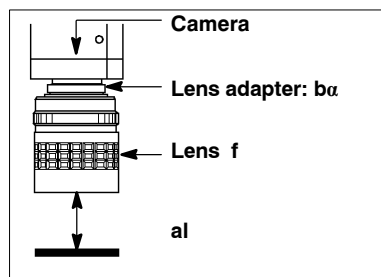
---

Please follow the instructions for correct usage:

- Connect the camera case to the internal circuit ground. When you mounted the camera to a device with a different electric potential there is a concern that internal damage could result, so mount it in an electrically isolated way.

## 2.5 View Range and Lens Selection Tables

Select the lens and extension rings from the following tables in order to match the resolution or view range.



$b\alpha$ : thickness of lens adapter

$f$ : focal distance

$a$ : distance from end of lens to inspected object



### ◆ NOTE

The view range – lens table is designed primarily for use as a focusing guide. The lenses may have focus differences within the tolerance range. Allow space for adjusting the camera during installation. Use the camera itself to make the final adjustments to focus, view range, distance to work, resolution and any other settings which need to be made before running the system. Unless otherwise noted, the focus values in the chart are all infinity.

### 2.5.1 Double-Speed Random Camera ANM831

Lens		ANM8850 f=50mm		ANB847 f=50mm		ANB846N f=25mm		ANB845N f=16mm		ANB843 f=8.5mm		ANB842 f=6.5mm		Resolution μm/pixel	
View range (mm)		a	$b\alpha$	a	$b\alpha$	a	$b\alpha$	a	$b\alpha$	a	$b\alpha$	a	$b\alpha$	Vertical	Horizontal
Vertical	Horizontal														
1	1.1	59	178	48	178									2.1	2.1
2	2.1	73	89	62	89									4.2	4.2
3	3.2	87	59	76	59									6.3	6.2
4	4.3	101	44	90	44									8.3	8.3
5	5.3	115	36	104	36	31	18							10	10
7.5	8.0	150	24	139	24	49	12							16	16
10	10.7	186	18	175	18	66	9	31	6					21	21
12.5	13.3	221	14	210	14	84	7	42	5					26	26
15	16.0	256	12	245	12	101	6							31	31
20	21.3	326	9	315	9	137	2 <sup>*2</sup>	76	2 <sup>*1</sup>	30	1.5			42	42
30	32.0	467	6	456	6	207	2 <sup>*1</sup>	121	2	54	1	42	1.0	63	62
40	42.6					277	2	166	1	78	1	60	0.5	83	83
50	53.3					348	2	211	1	102	0.5	79	0.5	104	104
75	79.9					524	1	323	1	162	0	124	0	156	156
100	106.5					700	1	436	0.5	221	0	170	0	208	208
150	159.8							661	0	341	0	262	0	313	312
200	213.1									461	0	353	0	417	416
250	266.3									580	0	445	0	521	520
300	319.6											536	0	625	624

\*1 Lens focal position is near middle.

\*2 Lens focal position is in closest position.

## 2.5.2 Standard Camera ANM832

Lens View range (mm)		ANM8850 f=50mm		ANB847 f=50mm		ANB846N f=25mm		ANB845N f=16mm		ANB843 f=8.5mm		Resolution μm/pixel	
Vertical	Horizontal	al	bα	al	bα	al	bα	al	bα	al	bα	Vertical	Horizontal
1	1.1	59	183	48	183							2.1	2.1
2	2.1	73	94	62	94							4.2	4.2
3	3.2	87	64	76	64							6.3	6.3
4	4.3	101	49	90	49							8.3	8.3
5	5.3	115	41	104	41	31	23					10.4	10.4
7.5	8.0	150	29	139	29	49	17					15.6	15.6
10	10.7	186	23	175	23	66	14	31	11			20.8	20.9
12.5	13.3	221	19	210	19	84	12	42	10			26.0	26.1
15	16.0	256	17	245	17	101	11	53	9			31.3	31.3
20	21.4	326	14	315	14	137	9	76	8	30	7	41.7	41.7
30	32.0	467	11	456	11	207	8	121	7	54	6	62.5	62.6
40	42.7	608	9	597	9	277	7	166	6	78	6	83.3	83.4
50	53.4					348	7	211	6	102	6	104.2	104.3
75	80.1					524	6	323	6	162	5	156.3	156.4
100	106.8					700	6	436	6	221	5	208.3	208.6
150	160.2							661	5	341	5	312.5	312.9
200	213.6							886	5	461	5	416.7	417.2
250	267.0									580	5	520.8	521.5
300	320.4											625.0	625.8

Lens View range (mm)		ANB842 f=6.5mm		ANM8808 f=8mm		ANM8804 f=4mm		ANM8828 f=2.8mm		Resolution μm/pixel	
Vertical	Horizontal	al	bα	al	bα	al	bα	al	bα	Vertical	Horizontal
1	1.1									2.1	2.1
2	2.1									4.2	4.2
3	3.2									6.3	6.3
4	4.3									8.3	8.3
5	5.3									10.4	10.4
7.5	8.0									15.6	15.6
10	10.7									20.8	20.9
12.5	13.3									26.0	26.1
15	16.0									31.3	31.3
20	21.4			315	9					41.7	41.7
30	32.0	467	11	456	6					62.5	62.6
40	42.7	608	9	597	4	277	2			83.3	83.4
50	53.4	749	9	738	4	348	2			104.2	104.3
75	80.1	1101	7	1090	2	524	1	323	1	156.3	156.4
100	106.8	1452	7	1441	2	700	1	436	1	208.3	208.6
150	160.2	2156	6	2145	1	1052	1	661	0	312.5	312.9
200	213.6	2860	6	2849	1	1403	0	886	0	416.7	417.2
250	267.0	3564	6	3553	1	1755	0	1112	0	520.8	521.5
300	320.4	4268	6	4257	1	2107	0	1337	0	625.0	625.8

## **Chapter 3**

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### **Input/Output Terminals**

### 3.1 Attaching Wires to the Terminal Blocks

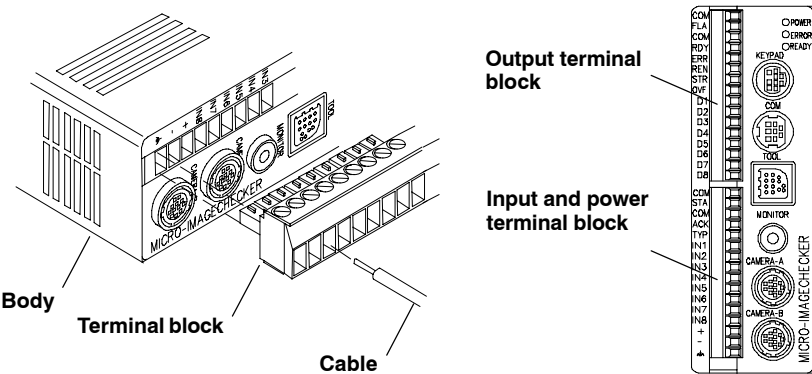


Figure 12: wiring the controller

#### 3.1.1 Notes on the Terminal Blocks

The I/O terminal block plugs into the controller, and the terminals are fastened by tightening the screws. Use the fittings and cable listed in the tables below.

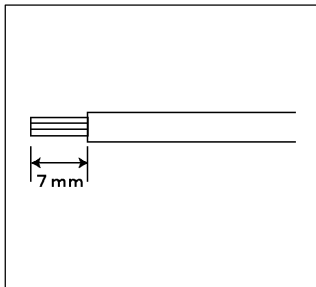


#### ◆ NOTES

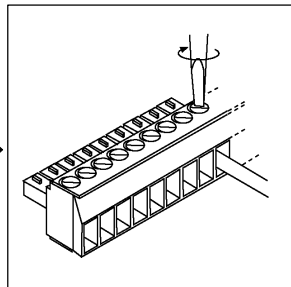
- Attach wires and attach or remove the terminal block only when the power is OFF.
- Do not use soldered wires. Vibrations may cause breakage.

Article	Manufacturer	Description
Terminal block	Matsushita Electric Works, Ltd.	Part number ANMA8001
	Phoenix Contact KK	Model number MC1.5/16-ST-3.5 Part number 1840502
Screwdriver specification		Conductor surface area (cross-section) 0.4 x 2.5mm <sup>2</sup> Screw torque 0.25N . m or less
Wire specification		Size AWG#24 to 16 Conductor surface area (cross-section) 0.3 x 1.25mm <sup>2</sup>

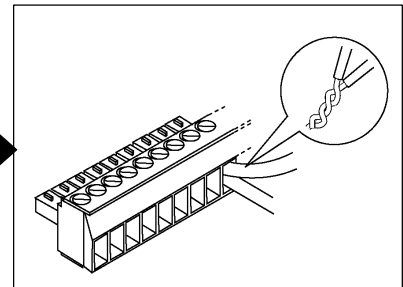
### 3.1.2 Wiring Method



**1. Remove the wire shield.**



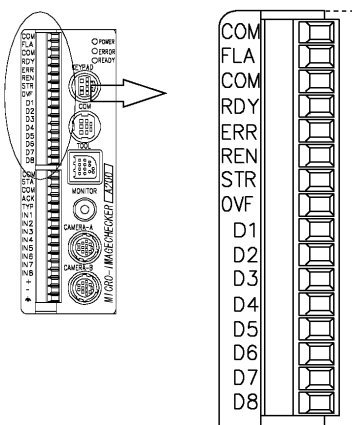
**2. Insert the wire into a terminal block hole until it stops. Turn the screw.**



**3. When connecting two or more wires, twist them together before inserting.**

## 3.2 Parallel Outputs

### 3.2.1 Pin Assignment



Signal	Name	Content
COM	COMMON	Common flash dedicated line
FLA	FLASH	Flash sync signal
COM	COMMON	General output common
RDY	READY	Ready signal
ERR	ERROR	Error signal
REN	READ END	Image capture complete signal
STR	STROB	Strobe signal
OVF	OVERFLOW FLAG	Overflow flag
D1	Data1	Data output signals D1 to D8
D2	Data2	
D3	Data3	
D4	Data4	
D5	Data5	
D6	Data6	
D7	Data7	
D8	Data8	



#### ◆ NOTE

The COM ports are NOT connected internally.

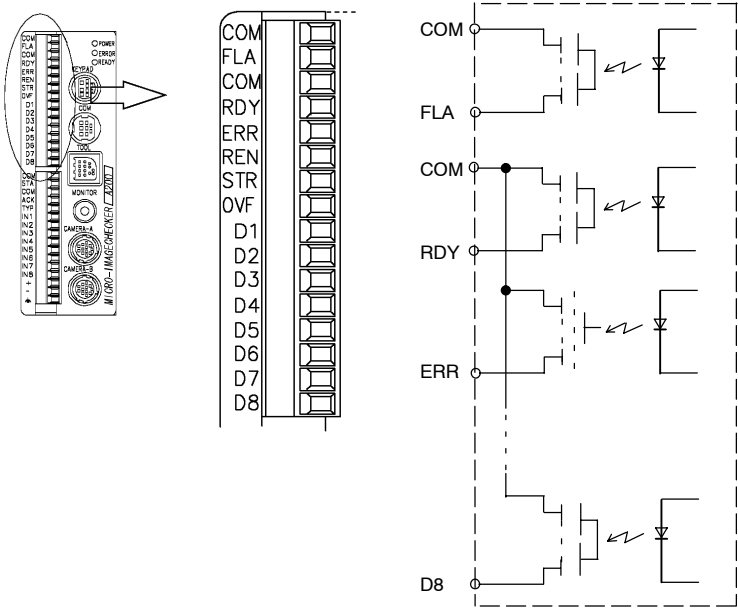


Figure 13: connection diagram outputs

### 3.2.2 Output Circuit



**Danger of damage to the controller!**  
Do not apply more than the maximum current load of 24mA to an output (see page 3-8)!

#### European Edition (Part Numbers ANMA1xxJ and ANMA2xxJ)

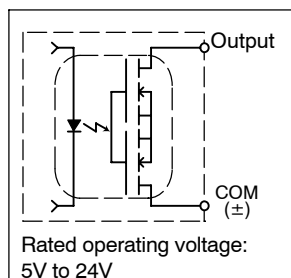
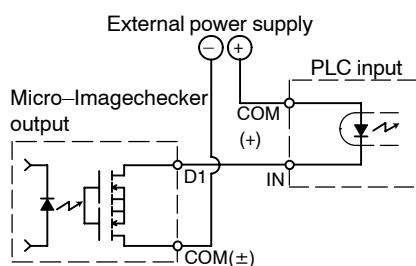
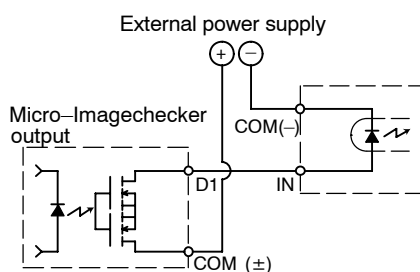


Photo-mos controller output circuit

#### Connection Example of Photo-mos Controller Output with PLC

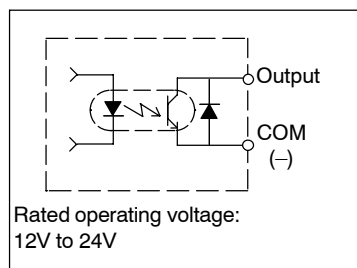


NPN connection example

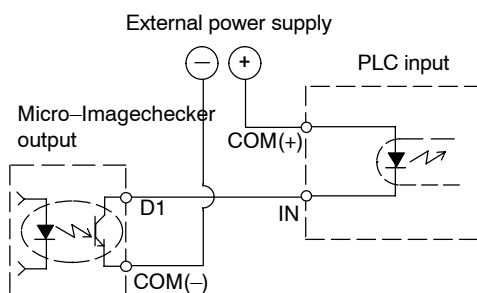


PNP connection example

#### Japanese Edition (Part Numbers ANMAx10 and ANMAx12)



Controller parallel output  
(NPN specification) circuit

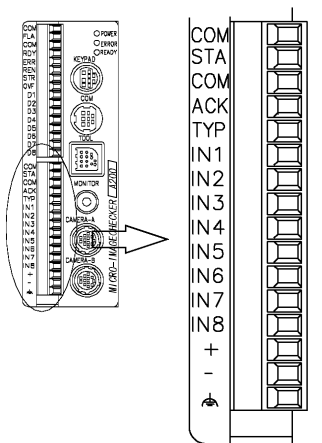


NPN controller output connection example with PLC



### 3.3 Parallel Inputs

#### 3.3.1 Pin Assignment



Signal	Name	Content
COM	COMMON	START COMMON
STA	START	Inspection start signal
COM	COMMON	COMMON, other than START input
ACK	ACKNOWLEDGE	Data receiving complete signal
TYP	TYPE	Type switch completed signal
IN1	IN1	Data input IN1 to IN8
IN2	IN2	
IN3	IN3	
IN4	IN4	
IN5	IN5	
IN6	IN6	
IN7	IN7	
IN8	IN8	
+	+24V DC	Controller power supply 24V DC
-	MASSE	
	FUNCTIONAL EARTH	Functional ground



#### ◆ NOTE

The COM ports are NOT connected internally.

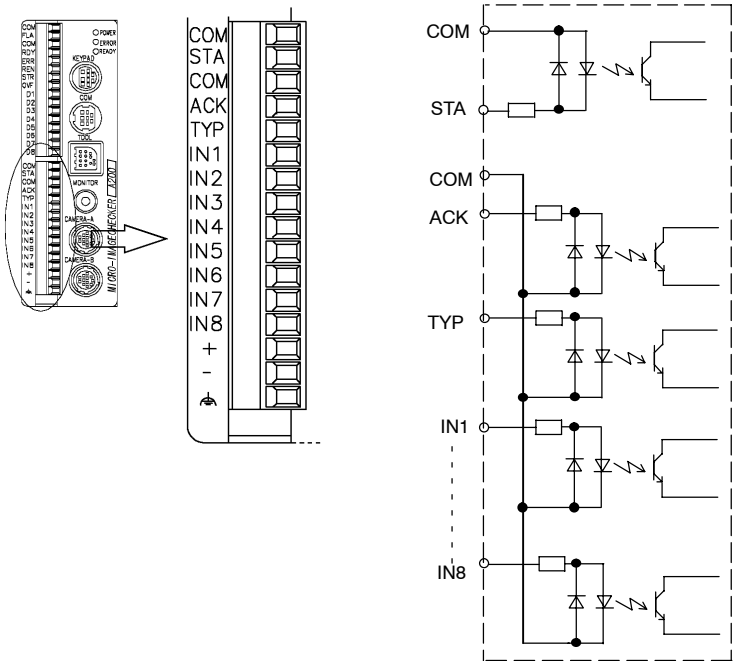
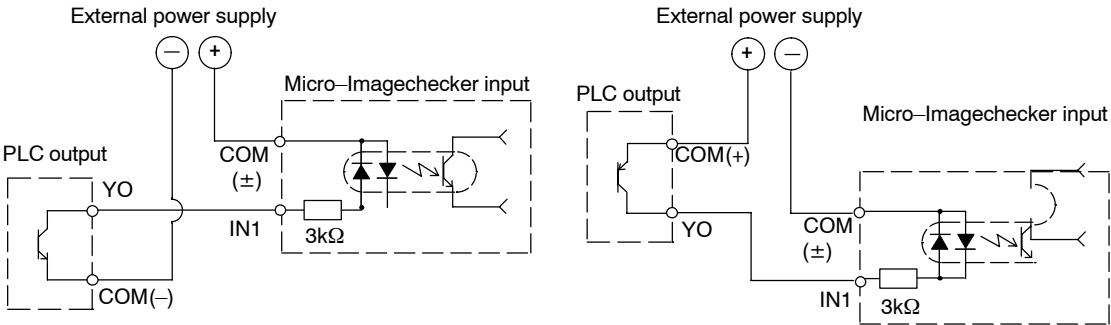


Figure 14: connection diagram inputs

### 3.3.2 Input Circuit

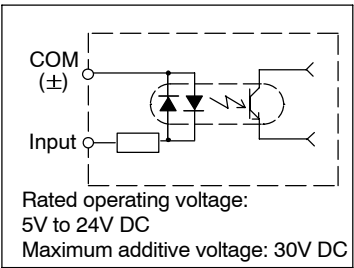
#### European Edition (Part Numbers ANMA1xxJ and ANMA2xxJ)



Example of connection with PLC used as NPN

Example of connection with PLC used as PNP

#### Japanese Edition (Part Numbers ANMAx10 and ANMAx12)



Rated operating voltage:  
5V to 24V DC  
Maximum additive voltage: 30V DC

Controller parallel input circuit

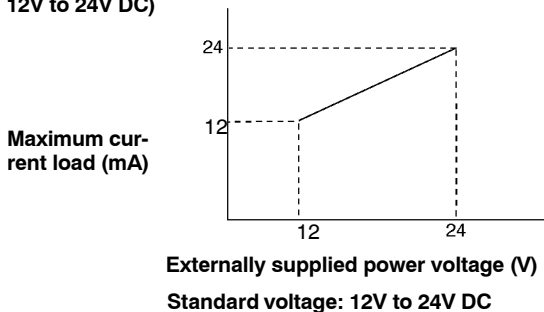
## 3.4 Notes on Parallel Input/Output

The input/output ports are housed in the particular controller being used. The ports differ according to the inspection specifications. See the individual controller's user manual for details.

### 3.4.1 Notes on the Parallel Outputs

- Depending on the controller being used, the output is either NPN open collector, or Photo-MOS. Be certain to use them within their rated load current range.
- The Photo-MOS output can be used as either PNP output or NPN output, but when connecting, make them uniform for the controller.
- The controller has only a low capacity to carry current. It takes into consideration connections with a PLC, etc., as shown above. Do not connect to a heavy load such as a directly-connected bulb. When such a requirement exists, pass it through our Power-Photo relay (part number AQZ\*\*\*).
- The output load should be within the range specified below (maximum 24mA per 1 signal).

**NPN output specification (external supply voltage: 12V to 24V DC)**



**Photo-Mos output specification (external supply voltage: 5V to 24V DC)**

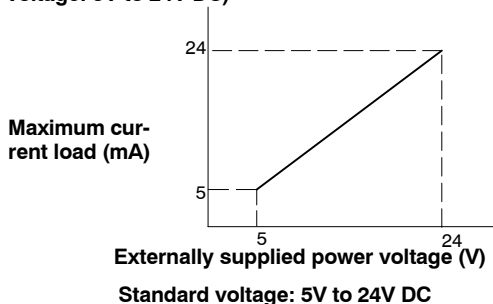


Figure 15: output load for parallel outputs

- The output circuit contains no internal fuse. When it is necessary to prevent output circuit burnout in the event of an output load short circuit, attach an

external fuse. However, there are cases when internal elements cannot be protected in the event of a short circuit.

- The common flash line has a specialized terminal. Do not use it together with other common lines.



**Danger of damage to the controller!**

**Do not apply more than the maximum current load of 24mA to an output!**

### 3.4.2 Notes on the Parallel Inputs

- The controller accepts ( $\pm$ ) common. To prevent input signal chattering, use a non-contact input (transistor etc.). If chattering occurs, inputs can be missed, and input recognition delayed.
- Be careful when using only full-wave rectification (including ripples) power supply for DC input, as it may cause abnormal operation.
- When current is leaking from the input side there are cases when input will not turn OFF. Use the diagram below as reference to connect resistance.

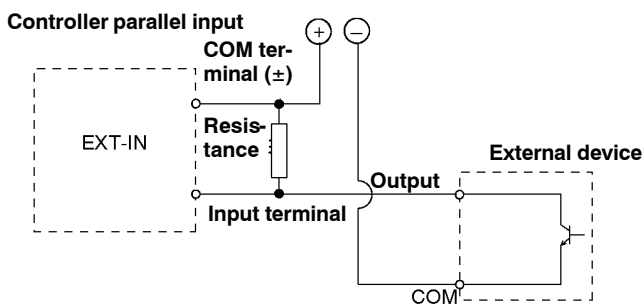
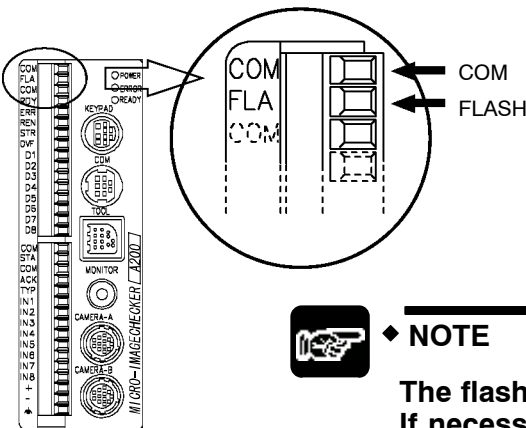


Figure 16: using resistance at the input terminal

- When you are using a two-line opto-electrical sensor or proximity sensor and the controller will not turn OFF due to the effects of leaking electrical current, connect bleeder resistance.
- Even in cases where LEDs such as LED read switches are connected in series to an input contact point, make sure the controller's input terminal receives more voltage than the ON voltage.

### 3.5 Flash Output Sync Signal

#### 3.5.1 Pin Assignment



**COM:** The common terminal for use by the flash is a specialized terminal. Do not use it together with other common lines.

**FLASH:** The flash terminal is located in the output terminal.



◆ **NOTE**

The flash output is specified for 24mA maximum. If necessary, use an external amplifier.

#### 3.5.2 Output Circuit

Use the output controller parallel output (NPN specification) circuit within the range specified below (maximum 24mA for 1 signal).

European edition with Photo-Mos output	Japanese edition with NPN output
<div><p>Rated operating voltage: 5V to 24V</p></div> <div><p>Maximum current load (mA)</p><p>Externally supplied power voltage (V) Standard voltage: 5V to 24V DC</p></div>	<div><p>Rated operating voltage: 12V to 24V</p></div>

### 3.5.3 Flash Time Diagram

Output type	Flash to use
<b>Photo-Mos output (European edition)</b>	Use a flash for which the time from when the flash output synchronization signal goes on to when the light generation finishes is 450 $\mu$ s or less.
<b>NPN output (Japanese edition)</b>	Use a flash for which the time from when the flash output synchronization signal goes on to when the light generation finishes is 550 $\mu$ s or less.

With the camera ANM832, a strobe can only be used for the flash output in frame mode.

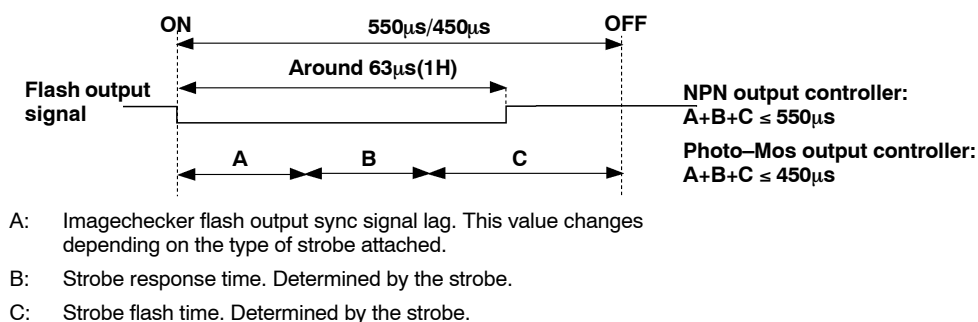


Figure 17: time diagram for flash output

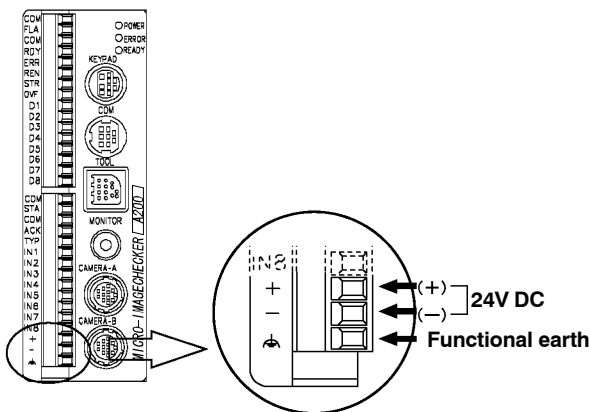
### 3.5.4 Using the Flash Output Sync Signal Correctly

- The flash's common wire uses a specialized terminal. Do not use it together with another common wire.
- You cannot use the same strobe for two cameras connected to separate controllers.
- When a strobe is used, the strobe flashes continuously during through screen display. Therefore, change to memory image display when connecting, setting up, and testing a strobe.

## 3.6 Electric Power Wiring

### 3.6.1 Pin Assignment

24V DC electric power is supplied by attaching wires to the input terminal block's (+) and (–) terminals and to the ground terminal (frame ground). Twist the electric wires in order to reduce the effects of noise.



<b>Standard voltage</b>	24V DC
<b>Permitted voltage fluctuation range</b>	21.6V to 26.4V DC
<b>Standard current consumption</b>	1 camera = 0.7A 2 cameras = 0.9A

### 3.6.2 Notes on Power Supply

#### Using Electric Wiring Correctly

- Be sure to turn the power OFF before doing any electrical wiring.

#### Consider the Electric Power Sequence

- Consider the electric power off sequence so the controller power is turned OFF before the input/output device power is turned OFF.
- If you turn OFF the input/output power before the controller power the controller main unit will detect a change in the input signal level and may operate abnormally.
- When you turn OFF the controller power wait at least 10 seconds before turning it ON again.

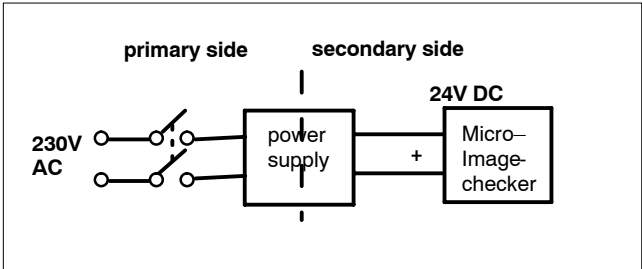
#### Use a Power Supply with Sufficient Surplus Capacity

- When you switch the power on, the temporary in-rush current far exceeds the rated current. Therefore, be certain to use a power supply that has sufficient surplus capacity to handle this (i.e. rated at about three times the steady-state current), and test it to ensure that it operates correctly.

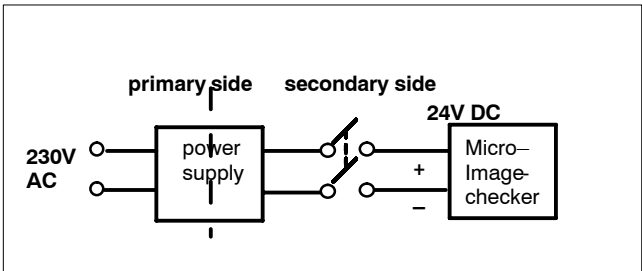
### Switch the Power on and off at the Primary Side

- Switch the power on and off at the primary side (230V AC). If you switch the power on and off at the secondary side (24V DC), you can cause the fuses to blow.

#### CORRECT



#### WRONG



### Use a Power Supply with an Isolating Internal Protection Circuit

- Use an isolating power supply that incorporates an internal protection circuit in order to protect against abnormal voltages coming from the electric lines.
- The controller regulator is non-isolated.
- When using an electrical device that does not have an internal protective circuit be sure to supply electric power to the controller only after passing it through a fuse or other protective element.

### Increase Resistance to Noise

- Separate the systems for wiring to the controller, input devices, and output devices.
- When there is a particular concern about noise coming from input/output circuits, supply power to the controller and to the input/output devices separately.

### 3.6.3 Behavior during Momentary Power Interruptions

Duration of power interruption	Controller behavior
10ms or less	Continues running
Between 10 and 20ms	Depending on the conditions, the system may continue running, the system may reset itself, or the camera image capture may stop.
20ms or more	The system will reset itself. When power is restored the system will begin operating from its initial state.



### 3.6.4 Notes on Grounding

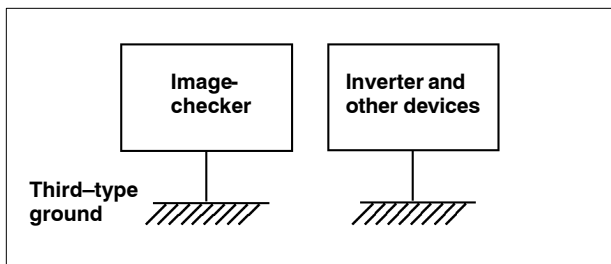
#### Attaching a Ground to Prevent Effects of Noise

- The controller can tolerate the noise present in a normal environment. Provide a ground when installing it in a particularly noisy environment.

#### Use a Dedicated Ground Wire

- Use a third-type ground of 0.3 to 1.25mm<sup>2</sup> or more and with ground resistance of 100Ω or less.
- For grounding use low-impedance wires with the highest possible cross section. Follow the regulations for type III grounding with a maximum resistance of 100Ω.
- Locate the ground as close as possible to the controller and minimize the length of the ground wire.
- Use a dedicated ground wire in order to avoid negative effects from ground wires shared with other devices.

#### CORRECT



#### INCORRECT

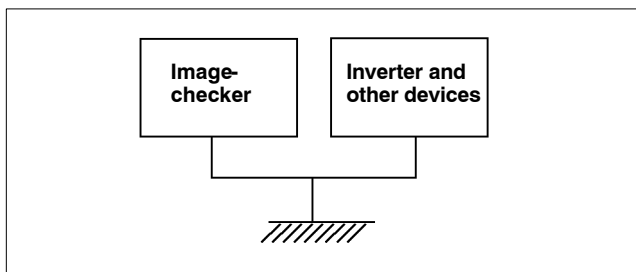


Figure 18: correct grounding

## Chapter 4

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## Serial Ports

## 4.1 RS232C Ports

The controller contains two independent serial ports.

- The COM port is an 8-pin round connector. It is used for general RS232C communication. The COM port can also be used for backing up data with the Vision Backup Tool Ver 2.0 (VBT).
- The TOOL port is a square connector. It is used for backing up data with VBT Ver 2.0 and for programming

A type (application) stored in the controller determines the communication parameters such as baud rate and parity.



### ◆ REFERENCE

**For details on setting communication parameters see the corresponding user manual.**

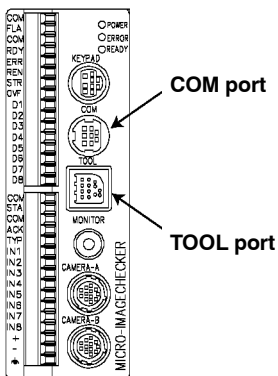


Figure 19: serial ports COM and TOOL

### 4.1.1 Using the Ports Correctly

Please follow the instructions for correct usage:

- There may be cases where normal communication is not possible with the high-speed transmission speed setting owing to the type of the equipment used for communication. Make sure to test the communication under realistic conditions. Make sure to shield the cables well.

4.1.2 Examples of RS232C Connections

General-purpose RS232C and VBT Ver. 2 can be used for the COM port. The TOOL port is used for backing up data with VBT Ver. 2 and for programming.

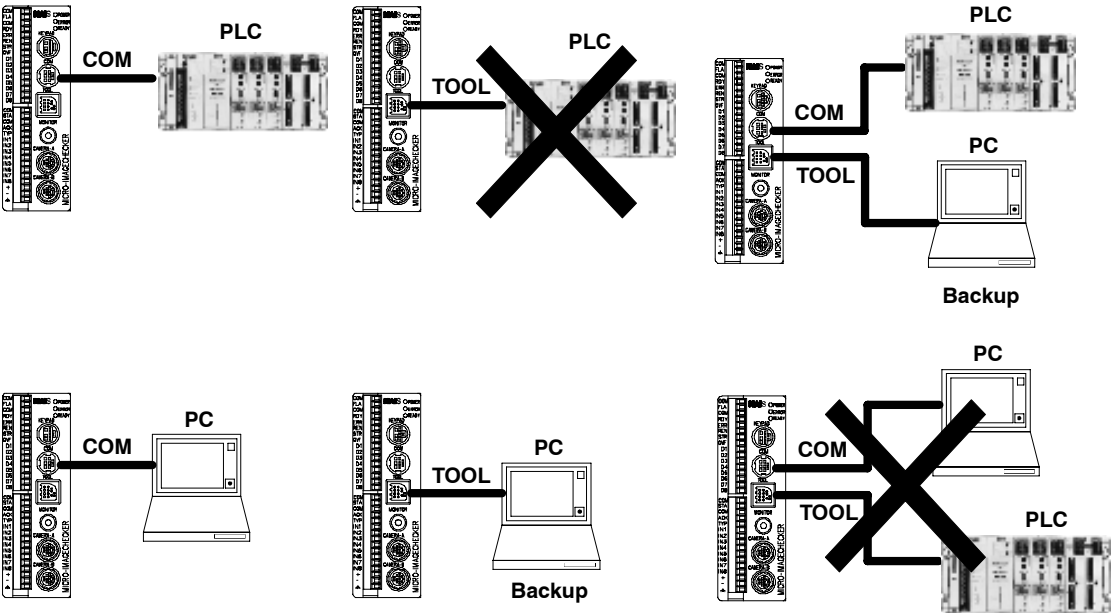
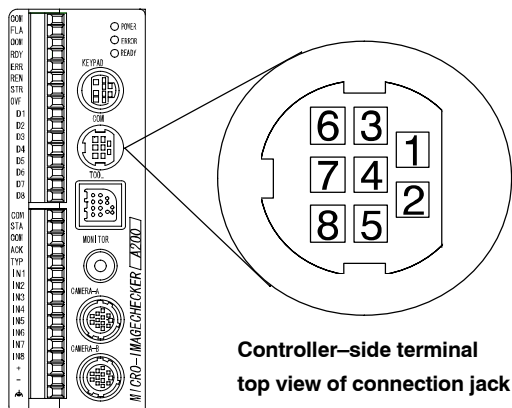


Figure 20: connection examples via RS232C

## 4.2 COM Port

### 4.2.1 Pin Assignment

As wire colors may differ, refer to the documentation enclosed with the cable.



Pin number	Wire color	Signal name
1	Red	TxD
2	White	RxD
3	Black	RTS
4	Yellow	CTS
5	Blue	DSR
6	Green	GND
7	Brown	DCD
8	Gray	DTR
Cover	—	Shield

### 4.2.2 Wiring Examples

#### 4.2.2.1 Connection with an IBM PC-AT Compatible

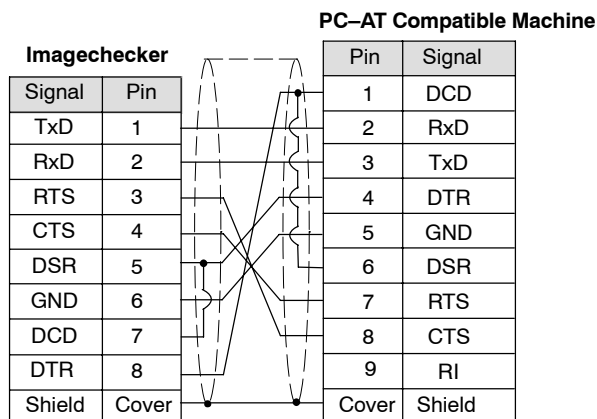


Figure 21: wiring COM port with PC

Please use the RS232C cable with a 9-pin sub-D plug (order number ANM81103).

## A Series Imagechecker side

**PC side**

(to COM port)

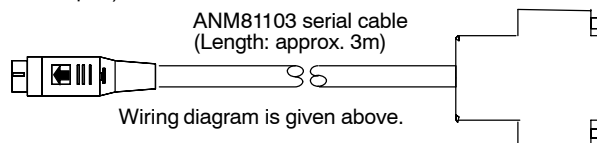


Figure 22: pin assignments for wiring COM port with PC

4.2.2.2 Connection with Panasonic PLC from FP Series

Please make the connection using the RS232C cable (order number ANM81303) according to the following wiring examples.

Use this cable for connection with a PLC. For wiring refer to the manufacturer's instructions. The following paragraphs contain connection examples with PLCs from different manufacturers.

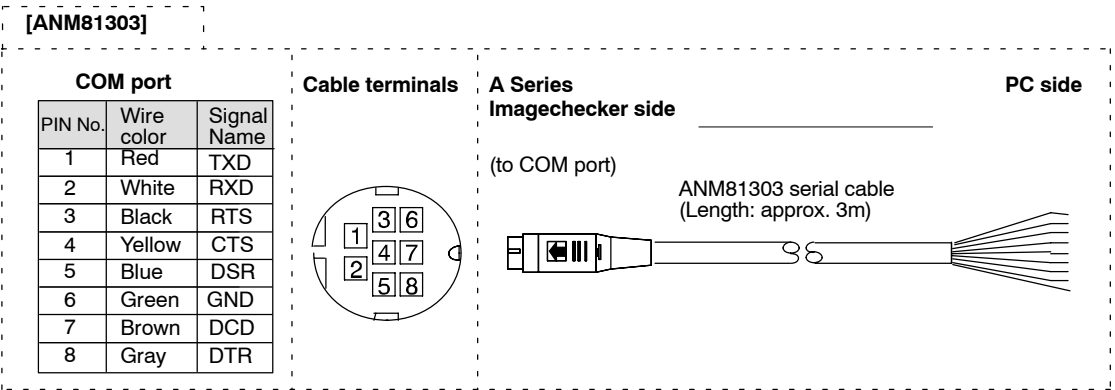


Figure 23: pin assignment for wiring COM port with Panasonic PLC

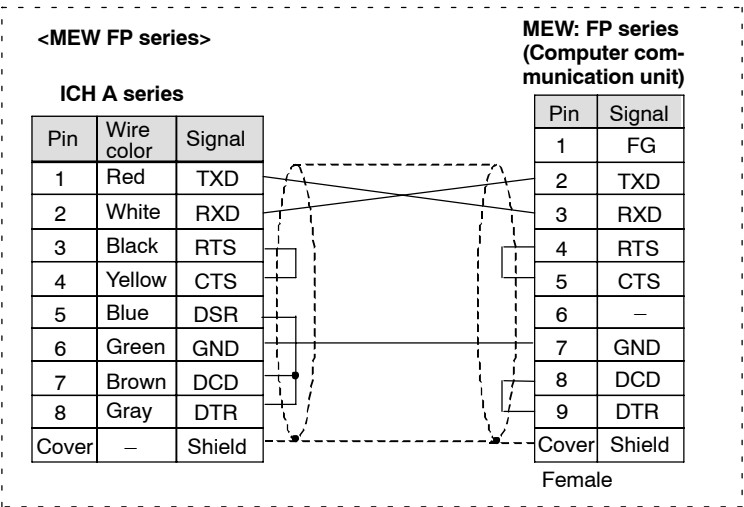


Figure 24: wiring COM port with Panasonic CCU

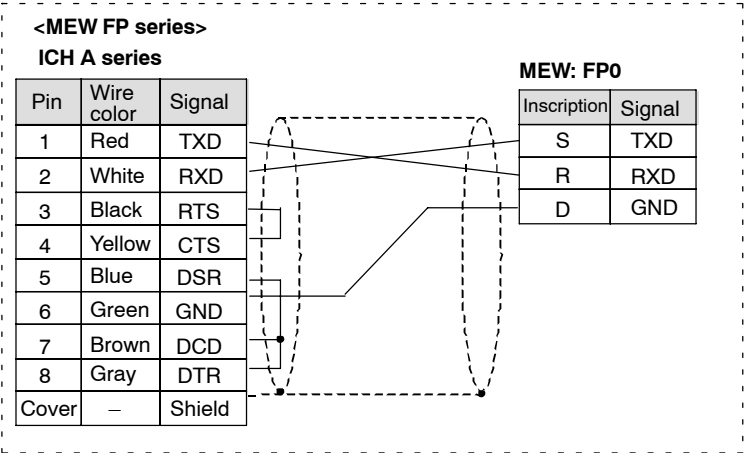


Figure 25: wiring COM port with Panasonic PLC

4.2.2.3 Connection with Mitsubishi PLC

Computer link transmission with Mitsubishi A series uses Format 4.

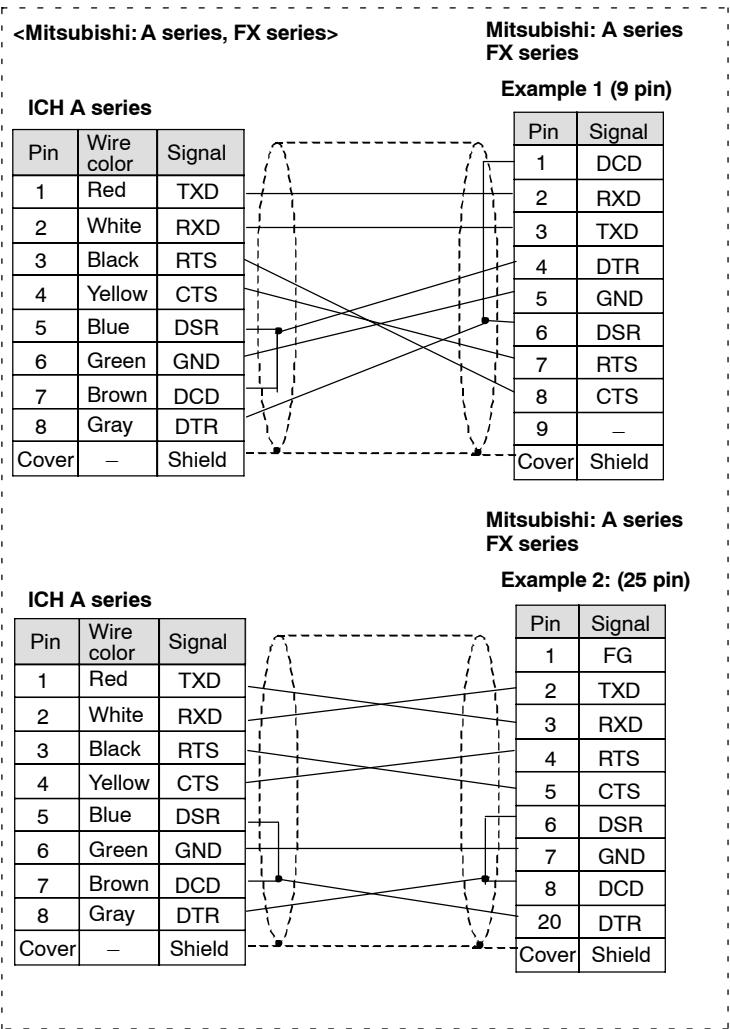


Figure 26: wiring COM port with Mitsubishi PLC



4.2.2.4 Connection with Omron PLC

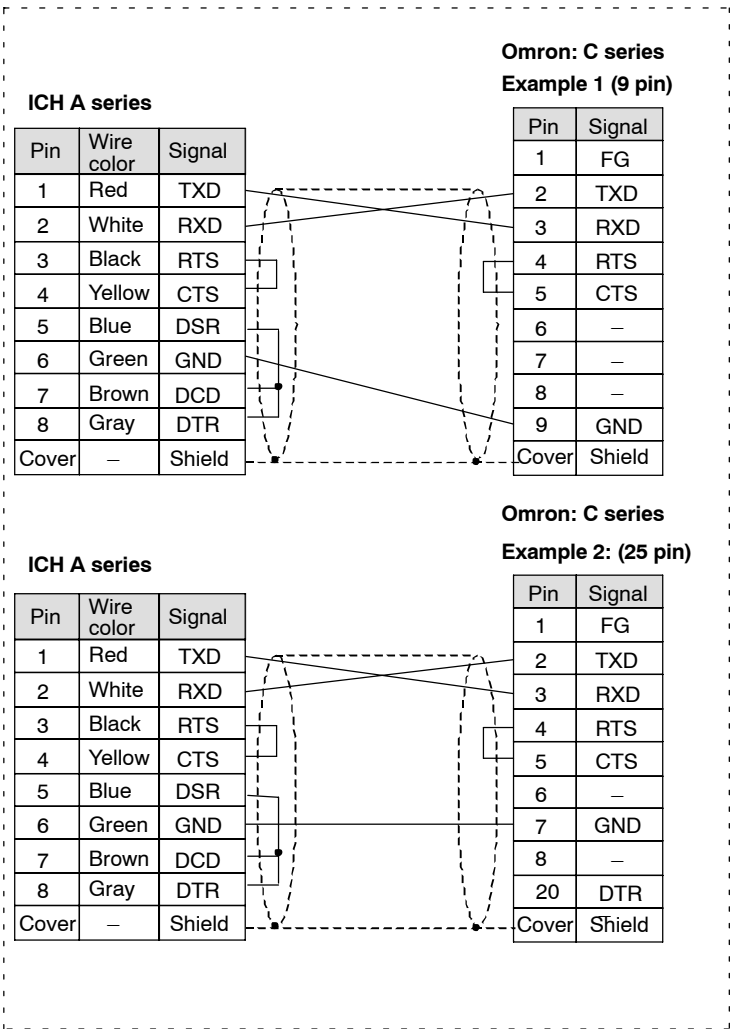


Figure 27: wiring COM port with Omron PLC

4.2.2.5 Connection with Allen–Bradley PLC

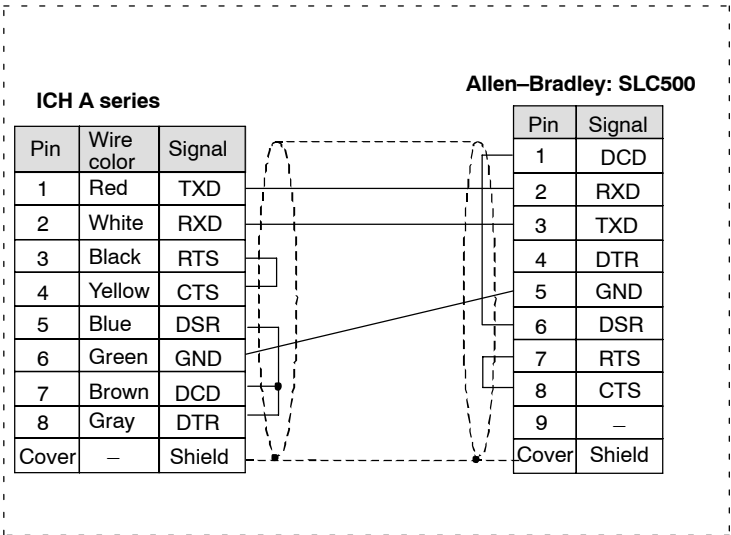


Figure 28: wiring COM port with Allen–Bradley PLC

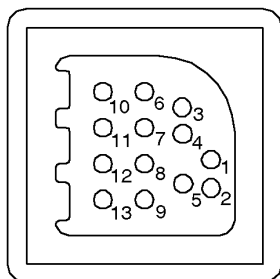
## 4.3 TOOL Port

### 4.3.1 Pin Assignment



◆ **NOTE**

The highlighted signals are reserved. Do not use them.



Controller-side terminal  
top view of connection jack

Pin No.	Signal name	Pin No.	Signal name
1	Used	8	Used
2	Used	9	Used
3	TxD	10	CTS
4	Used	11	RxD
5	Used	12	Used
6	RTS	13	Used
7	GND	Cover	Shield

### 4.3.2 Wiring Examples

#### 4.3.2.1 Connection with an IBM PC-AT Compatible

Connect as shown in the diagram.

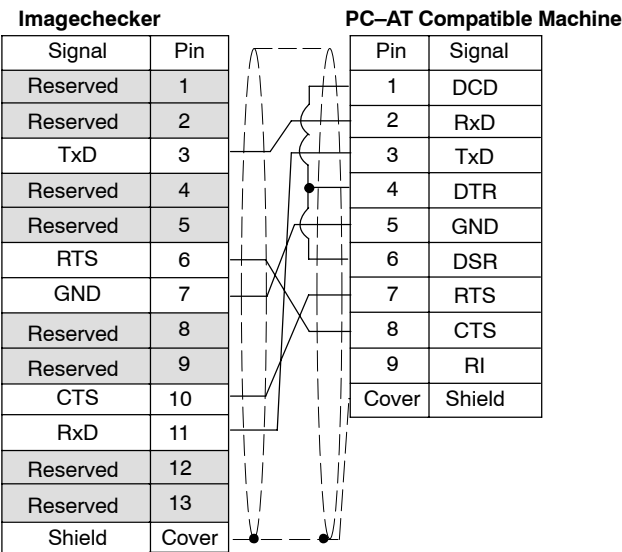


Figure 29: wiring TOOL port with PC

Use the cable ANM812001 with an off-the-shelf cross cable.

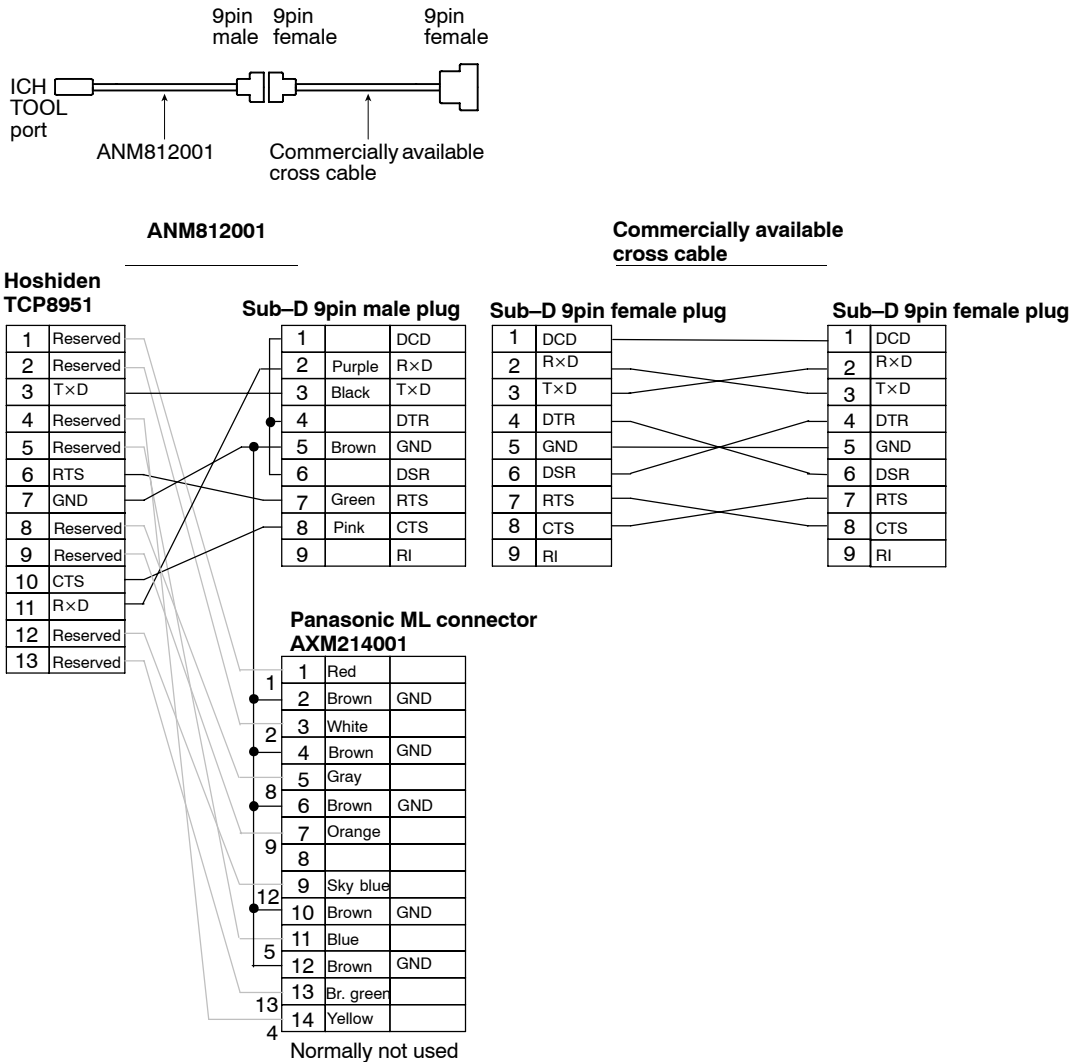


Figure 30: pin assignment for wiring TOOL port with PC



## Chapter 5

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### Camera Modes

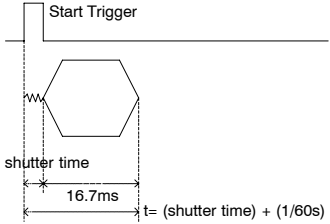
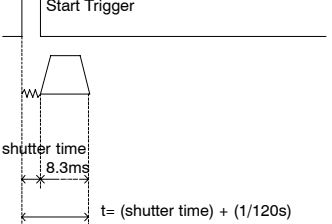
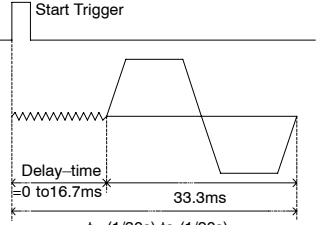
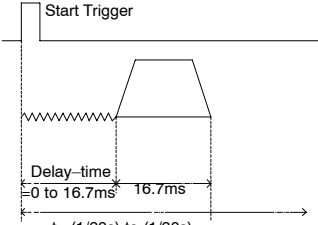
## 5.1 Overview

Two of our cameras can be used with the A Series: The double-speed random camera, model ANM831, and the standard camera, model ANM832.

The A Series supports a total of six camera modes. The camera mode is set according to whether the inspection object is moving or still, whether the illumination is continuous or strobe, and the camera type.

Camera mode	Usage	Frame/Field mode specification
<b>Double-Speed Random Modes</b>	<p>This mode uses the double-speed random camera ANM831. This mode is used when the light is continuous and imaging objects are either moving or still.</p> <p>The camera mode is switched <b>between frame and field</b> by setting menu options and changing the settings of the DIP switches on the back of the camera (<a href="#">see page 1-5</a>).</p>	<b>Frame Mode</b>
		Imaging time = (shutter time) + (16.7ms). Images are processed at the high resolution of 512 x 480 pixels. This is the fastest mode for taking 512 x 480 pixel images (up to 3 times faster than previous models).
		<b>Field Mode</b>
		Fast imaging time = (shutter time) + (8.3ms). Images are processed at 512 x 240 pixel resolution. This is the fastest imaging mode (up to 4 times faster than previous models).
<b>Normal Modes</b>	<p>These modes use the standard camera ANM832.</p> <p>This frame mode is used to image moving objects using strobe light.</p> <p>Either mode will support the imaging of still objects.</p>	<b>Frame Mode</b>
		This mode can image still objects using continuous light or can image moving objects using strobe light. Imaging time = (33.3 to 49.9ms). Images are processed at the high resolution of 512 x 480 pixels. When using strobe light, set this normal mode frame mode and switch the monitor display to "Memory Display".
		<b>Field Mode</b>
		Imaging time = (16.7 to 33.3ms). Images are processed at 512 x 240 pixels.
<b>Internal Sync</b>	<p>This mode uses NTSC signal input.</p> <p>The field mode is used for moving images.</p> <p>The frame mode is used for still images.</p> <p><b>The A200 supports only camera A in this mode!</b></p>	<b>Frame Mode</b>
		The mode captures still images using an NTSC signal. Imaging time = (shutter time) + (33.3 to 49.9ms). Images are processed at the high resolution of 512 x 480 pixels.
		<b>Field Mode</b>
		The mode captures moving images using an NTSC signal. Imaging time = (shutter time) + (16.7 to 33.3ms). Images are processed at a resolution of 512 x 240 pixels.

## 5.2 Imaging Time/Resolution for Memory Image Display

	Frame	Field
<b>Double-Speed Random</b>	Imaging time = (shutter time) + 16.7ms	Imaging time = (shutter time) + 8.3ms
		
	Resolution = 512 x 480 pixels	Resolution = 512 x 240 pixels
	Supports moving and still objects, continuous light.	Supports moving and still objects, continuous light
	Camera = ANM831 To switch between frame and field modes, you must change the settings on the controller menu and change the DIP switch settings on the back of the camera (see note 1). Set the camera shutter time from the controller menu.	
<b>Normal Internal Sync</b>	Imaging time = 33.3 to 50ms	Imaging time = 16.7 to 33.3ms
		
	Resolution = 512 x 480 pixels	Resolution = 512 x 240 pixels
	Supports still objects and continuous light. Supports moving objects with strobe light that uses the FLASH signal (see note 2).	Supports moving and still objects, continuous light.
	Camera = ANM832 (see note 3) To switch between frame mode and field mode, change the settings in the software menu. Set the camera shutter time in the software menu.	



### ◆ NOTES

- 1) See the information about DIP switches on [page 1-5](#).
- 2) When using a strobe light, use normal frame mode, and be certain to switch the monitor display to “Memory Display”. If the monitor display is set to “Through Display”, the strobe will flash continuously.
- 3) The internal sync is an NTSC signal input.



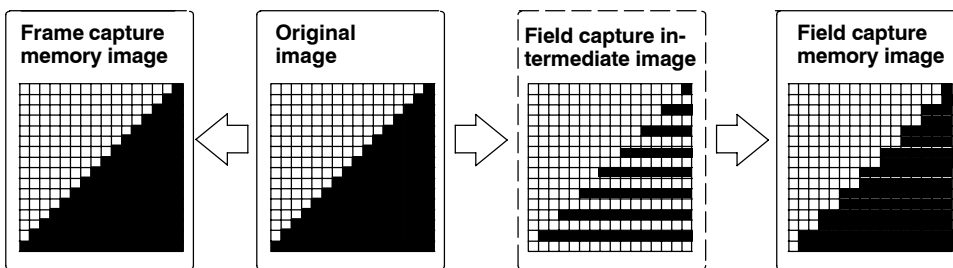
## 5.3 Frame Mode and Field Mode

### 5.3.1 Frame Mode

In this mode, the camera captures an even number array and an odd number array and sends them to the image processing system. In the A Series, all 512 x 480 pixels are sent to memory and are then subject to image processing. Compared to field mode this requires more imaging time, but the resolution is higher.

### 5.3.2 Field Mode

In this mode, the camera captures either an even number array or an odd number array and sends it to the image processing system. In the A Series, 512 x 240 pixels are captured, but are transferred to memory as 512 x 480 pixels and then image processed. Image capture is faster than in frame mode, but resolution is lower.



In frame mode, the original image is captured into 256 level (8 bit) gray-scale memory with a resolution of 512 x 480 pixels.

In field mode:

1. Every other line (vertical) of the original camera image is captured into 256 level (8 bit) gray-scale memory with a resolution of 512 x 240 pixels.
2. The uncaptured lines are added during display and image processing and the image is captured into a 256 level (8 bit) gray-scale memory as a memory image with a resolution of 512 x 480 pixels.

### **5.3.3 Using Frame and Field Mode Correctly**

---

- Use memory image display for displaying the camera image. It takes much longer to complete image capture when you use through image display. In addition, there is a large amount of dispersion in the imaging time (max.: 33ms) for double-speed random modes.
- When connecting only one camera to the A200, connect it to Camera jack A.
- When connecting two cameras to the A200, they must be the same camera type, use the same mode, and have the same shutter time.
- Be sure to turn OFF the power when connecting a camera to the controller.
- When using strobe light set the camera to normal field mode and be sure to switch the monitor display to “Memory Display”. The strobe will flash continuously if the monitor display is set to “Through Display”.
- During field mode or when using a random camera the sensitivity decreases in proportion to increases in shutter time. Smears may increase. When through (live) images are displayed the monitor display will have fluctuating brightness. This is not an indication of a problem. The brightness will be stable when you display the memory images.
- Be sure to use illumination that is designed for image processing.



## **Chapter 6**

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### **General Specifications**

## 6.1 Controller

Item		Specification		
Processing resolution		512 x 480 pixels (horizontal x vertical)		
Processing function		Gray-scale image/binarized image processing (details are determined by the application)		
Settings		Special-purpose keypad		
External interface	Serial	COM port: RS232C TOOL port: RS232C (can also be used to write programs for the A100P and A200P)		
External interface	Parallel input	Removable terminal block input to 11 positions 12V to 24V DC input , bidirectional photocoupler		
	Parallel output	Removable terminal block output to 14 positions		
		NPN output type	12V to 24V DC photocoupler output (flash only 5 to 24 V)	
		Photo-MOS output type	5V to 24V DC Photo-MOS relay output	
Rated voltage		24V DC		
Operating voltage range		21.6 to 26.4V DC (including ripples)		
Number of connected cameras	A100 Series	Max. 1 camera		
	A200 Series	Max. 2 cameras		
Standard power consumption		0.9A or less (when one camera is connected: 0.7A or less)		
Operating temperature		0 to 50°C (avoid ice and condensation)		
Monitor output		1 ch: NTSC output		
Storage temperature		-20 to 60°C (avoid ice and condensation)		
Operating / storage humidity range		35 to 75%RH (avoid ice and condensation)		
Noise resistance		1000V pulse width 50ns/1μs (from a noise simulator. Note no keypad was connected)		
Vibration resistance		10 to 55Hz, one vibration per minute, vibration width 0.75mm, 30 minutes each in X, Y, Z directions		
Jolt resistance		196m/s <sup>2</sup> , five times each in X, Y, Z directions		
Weight		around 300g		

## 6.2 Keypad

Item	Specification
<b>Operation</b>	8-direction lever, used jointly with the ENTER button: 1. A, B, C buttons = 1 each
<b>Operating / storage humidity range</b>	RH 35% to 75% (no icing or condensation)
<b>Operating temperature</b>	0°C to +50°C (no icing or condensation)
<b>Storage temperature</b>	–20°C to +60°C (no icing or condensation)
<b>Weight</b>	Approx. 50g (excluding cable)

## 6.3 Double-Speed Random Camera ANM831

Item	Specification
<b>Imaging element</b>	Readout of all pixels (interline transfer protocol), 1/3 inch CCD fixed photo elements
<b>Effective pixels</b>	Horizontal 659 pixels x vertical 494 pixels; pixel size = 7.4μm x 7.4μm
<b>Scanning method</b>	Non-interlaced mode (1/60s) 2:1 interlaced (1/120s x 2) Switched mode (using DIP switches on camera back)
<b>Shutter times</b>	OFF (1/120), 1/200, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, and 1/20000s (set by the controller)
<b>Gain switch and adjustment</b>	Gain switch = 0dB or gain up (DIP switch) Gain-up volume is adjusted within the range of 0 to +10dB using the fine tuning knob on the back of the camera.
<b>Lens mount</b>	C mount
<b>Rated voltage / Operating voltage range</b>	12V DC (supplied from the controller) ,10.8 to 13.2V DC
<b>Consumed current</b>	130mA
<b>Operating temperature</b>	Operating temperature range = 0 to 40°C (avoid ice and condensation)
<b>Storage temperature</b>	–30 to 60°C (avoid ice and condensation)
<b>Operating humidity range</b>	Operating humidity temperature range = 50 to 70%RH (avoid ice and condensation)
<b>Storage humidity</b>	25 to 90%RH or less (avoid ice and condensation)
<b>Vibration resistance</b>	70m/s <sup>2</sup> (10 to 55Hz, one hour each in X, Y, Z directions, fixed vibration width)
<b>Jolt resistance</b>	700m/s <sup>2</sup> 6 directions
<b>Weight</b>	Approx. 70g (excluding cables, lens, and camera mounting hardware)

## 6.4 Standard Camera ANM832

Item	Specification
<b>Imaging element</b>	Interline transmission method 1/3 inch CCD solid state imaging element
<b>Effective pixels</b>	768 pixels (horizontal) x 492 pixels (vertical), pixel size = 6.35 $\mu$ m x 7.4 $\mu$ m
<b>Scanning method</b>	2:1 interlace (1/60s)
<b>Accumulation</b>	Frame accumulation
<b>Shutter times</b>	OFF 1/60s Electronic shutter = 1/100, 1/125, 1/500, 1/1000, 1/2000, 1/4000, and 1/10000s (set by the controller)
<b>Synchronization</b>	External synchronization
<b>Lens mount</b>	CS mount
<b>Rated voltage / Operating voltage range</b>	12V DC (supplied from the controller) 10.8 to 13.2V DC
<b>Consumed current</b>	140mA
<b>Operating temperature</b>	0°C to + 40°C (no icing or condensation)
<b>Storage temperature</b>	–30°C to + 60°C (no icing or condensation)
<b>Operating humidity range</b>	RH 35% to 85% (no icing or condensation)
<b>Storage humidity</b>	RH 85% or less (no icing or condensation)
<b>Vibration resistance</b>	10 to 55Hz, 1 vibration per minute, vibration width 1.2mm, 30 minutes each in X, Y, Z directions.
<b>Jolt resistance</b>	700m/s <sup>2</sup> , three times each in X, Y, Z directions
<b>Weight</b>	Approx. 450g (excluding lens and holder)

## Chapter 7

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### Part Numbers



## 7.1 Controller

Item	Specification		CE	Part number
Micro–ImagecheckerA200 series	Multi–Checker Package V2	Photo MOS Output Initial display: English Alternative display: Japanese No manual	CE	ANMA213V2J
		Photo MOS Output Initial display: German Alternative display: English No manual	CE	ANMA214V2J
		Photo MOS Output Initial display: French Alternative display: English No manual	CE	ANMA215V2J
		Photo MOS Output Initial display: Spanish Alternative display: English No manual	CE	ANMA216V2J
	OCV Checker Package	Photo MOS Output Initial display: English Alternative display: Japanese No manual	CE	ANMA223J
		Photo MOS Output Initial display: German Alternative display: English No manual	CE	ANMA224J
	OCR Checker Package	Photo MOS Output Initial display: English Alternative display: Japanese No manual	CE	ANMA233J
		Photo MOS Output Initial display: German Alternative display: English No manual	CE	ANMA234J
Micro–Imagechecker A100 series	Multi–Checker Package V2	Photo MOS Output Initial display: English Alternative display: Japanese No manual	CE	ANMA113V2J
		Photo MOS Output Initial display: German Alternative display: English No manual	CE	ANMA114V2J
		Photo MOS Output Initial display: French Alternative display: English No manual	CE	ANMA115V2J
		Photo MOS Output Initial display: Spanish Alternative display: English No manual	CE	ANMA116V2J
Spare Input/Output Terminal Blocks (for repairs)	Spare Input/Output Terminal Blocks (1 for input, 1 for output)		—	ANMA8001D

## 7.2 Cameras

Item	Specification	CE	Part number
Double-speed random camera	Double-speed random camera	CE	ANM831J
Standard camera	CS-mount camera	CE	ANM832CEJ

## 7.3 Double-Speed Random Camera Cable

Item	Specification	CE	Part number
ANM831 camera cable	3m	CE	ANM84303CEJ



### ◆ NOTE

Further cables are available from your local Panasonic branch.

## 7.4 Camera Extension Cable

Item	Specification	CE	Part number
Extension cable for ANM831/ANM832 (CE)	Extension cable = 2m, total 5m	CE	ANM84002CEJ
	Extension cable = 7m, total 10m	CE	ANM84007CEJ
	Extension cable = 12m, total 15m	CE	ANM84012CEJ
	Extension cable = 17m, total 20	CE	ANM84017CEJ

## 7.5 Keypad

Item	Specification	CE	Part number
Keypad for A/M series	Cable length = 2m	CE	ANM85202CEJ
	Cable length = 5m	CE	ANM85205CEJ
	Cable length = 10m	CE	ANM85210CEJ

## 7.6 Data Backup Software and PC Cable

Item	Specification	CE	Part number
<b>Data backup software</b>	Vision Backup Tool Version 2 (for A/M series), supports English, runs under Windows 95/98/NT/ME/2000	—	ANM70131V2J
<b>RS232C cable for connecting the COM port with a PC</b>	Sub-D 9 pin connection RS232C cable (3m) for connecting the COM port with a PC-AT compatible machine	CE	ANM81103J
	RS232C cable (3m) with loose ends for connecting the COM port with a PLC	CE	ANM81303J
<b>RS232C cable for connecting the TOOL port with a PC</b>	Sub-D 9 pin connection RS232C cable (10cm) for connecting the TOOL port with a PC-AT compatible machine (use with an off-the-shelf Sub-D 9-pin cross extension cable)	CE	ANM812001J



### ◆ REFERENCE

**For information on lenses and lighting, please contact your local Panasonic branch.**

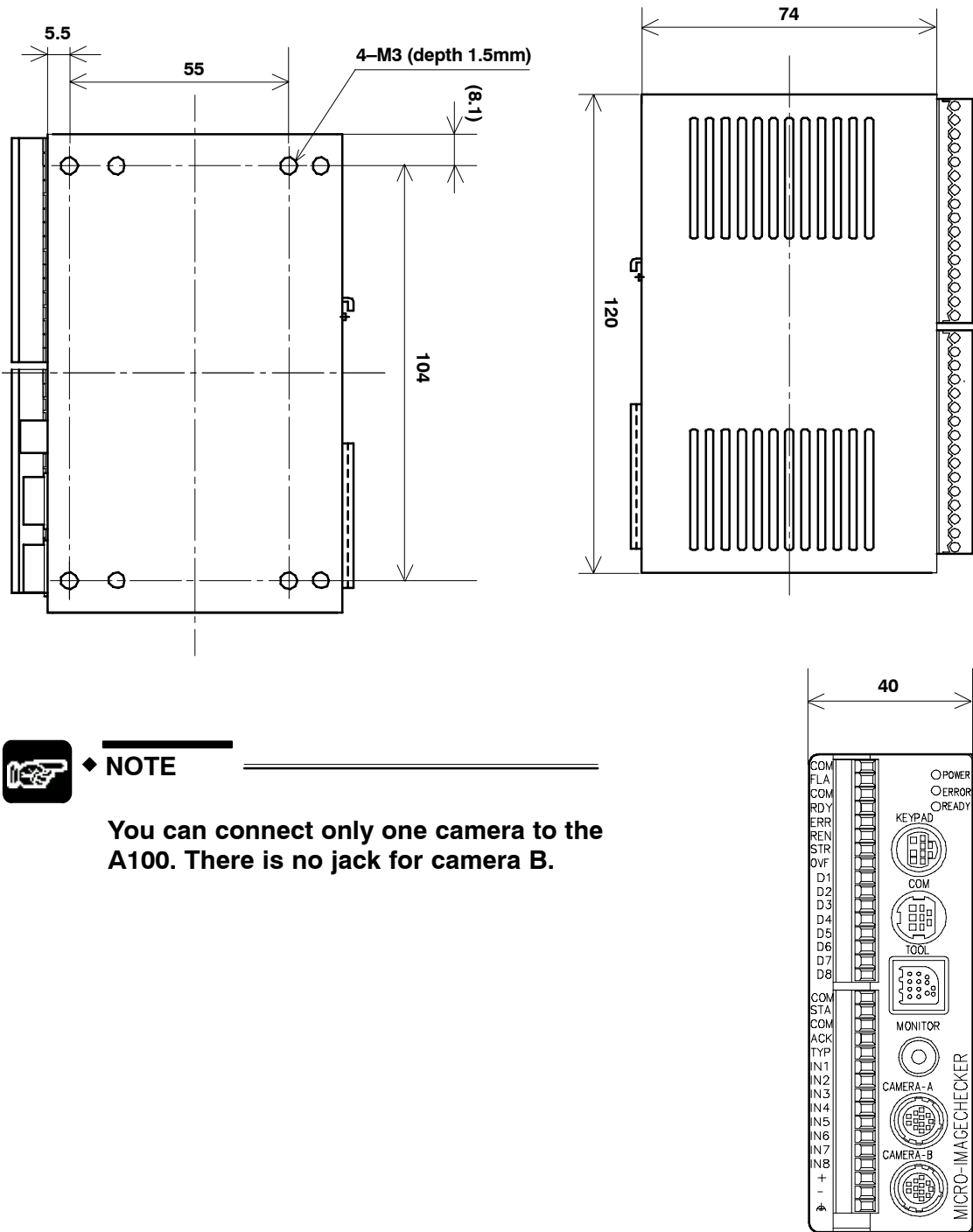
## Chapter 8

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### Dimension Diagrams

# 8.1 Controller

Unit: mm



## NOTE

You can connect only one camera to the A100. There is no jack for camera B.

Figure 31: dimension diagram controller

# 8.2 Camera

## 8.2.1 Double-Speed Random Camera ANM831

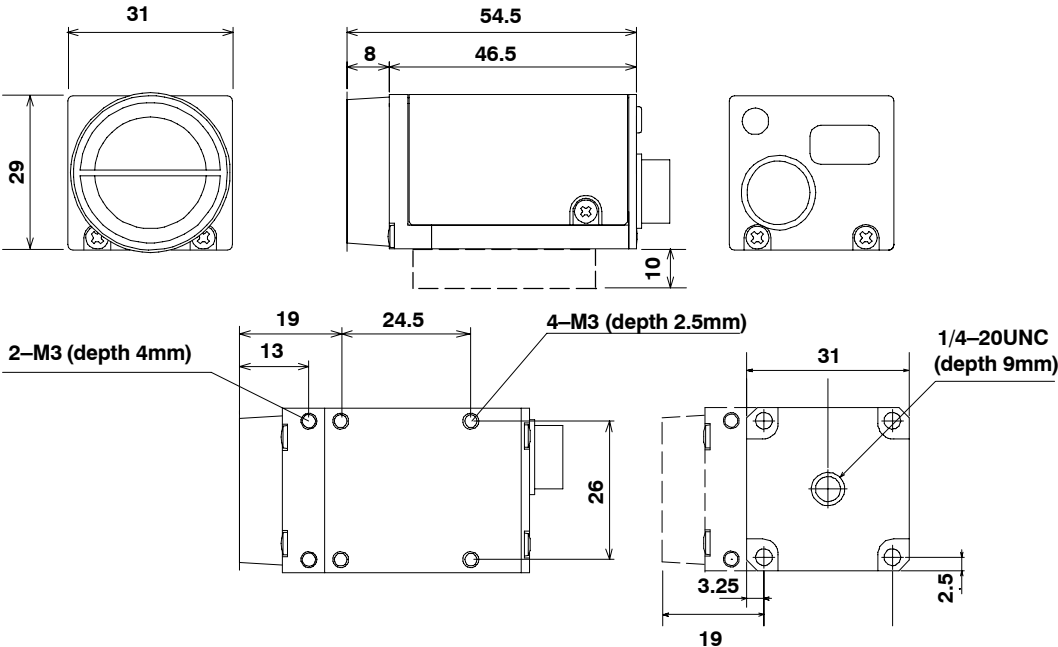


Figure 32: dimension diagram double-speed random camera ANM831

8.2.2 Standard Camera ANM832

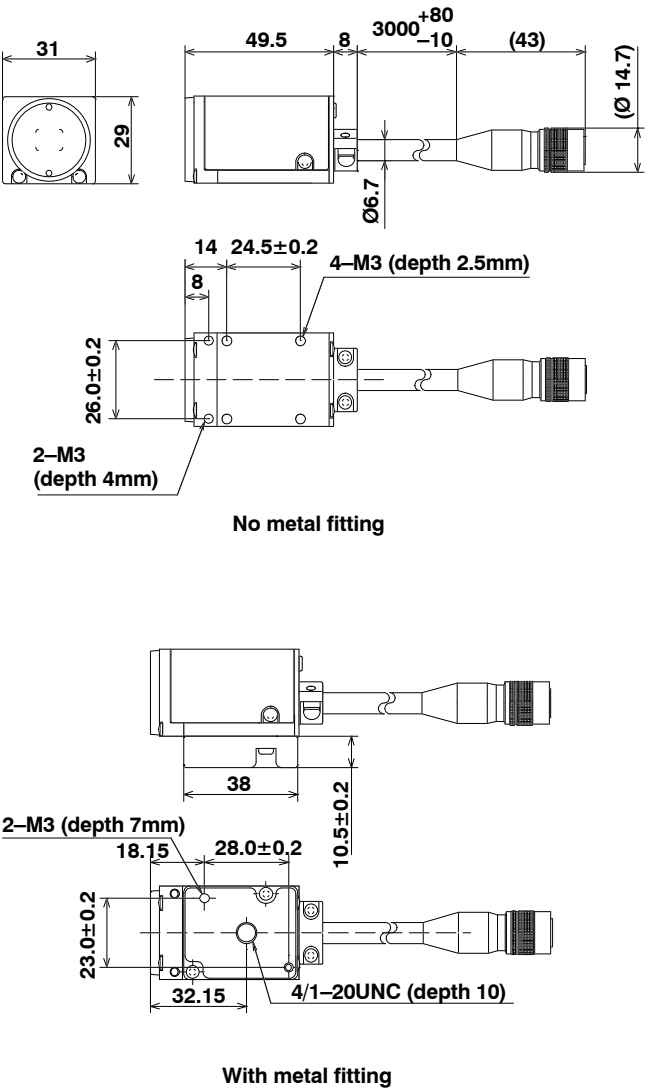


Figure 33: dimension diagram standard camera ANM832

## 8.3 Camera Cable and Camera Extension Cable

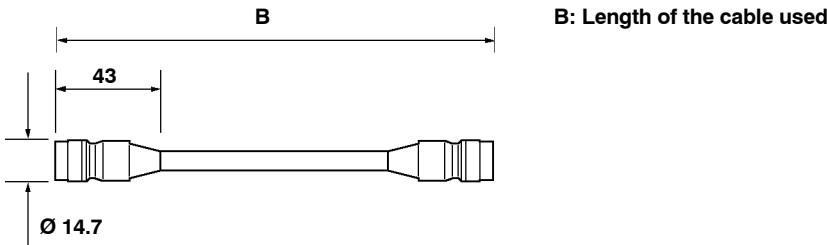


Figure 34: dimension diagram camera cable

## 8.4 Keypad

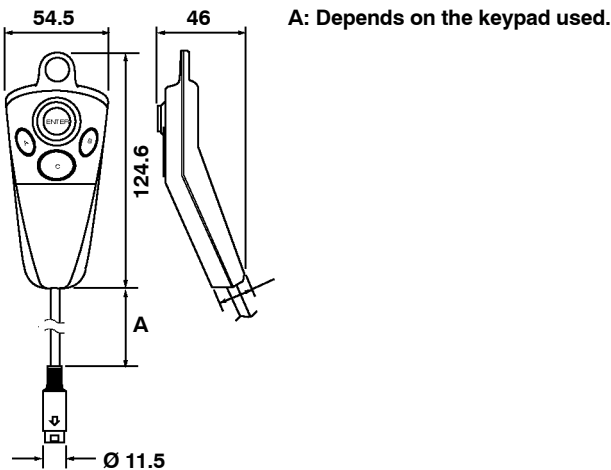


Figure 35: dimension diagram keypad





## Chapter 9

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### Pin Assignment

# 9.1 Pin Positions for Camera ANM831

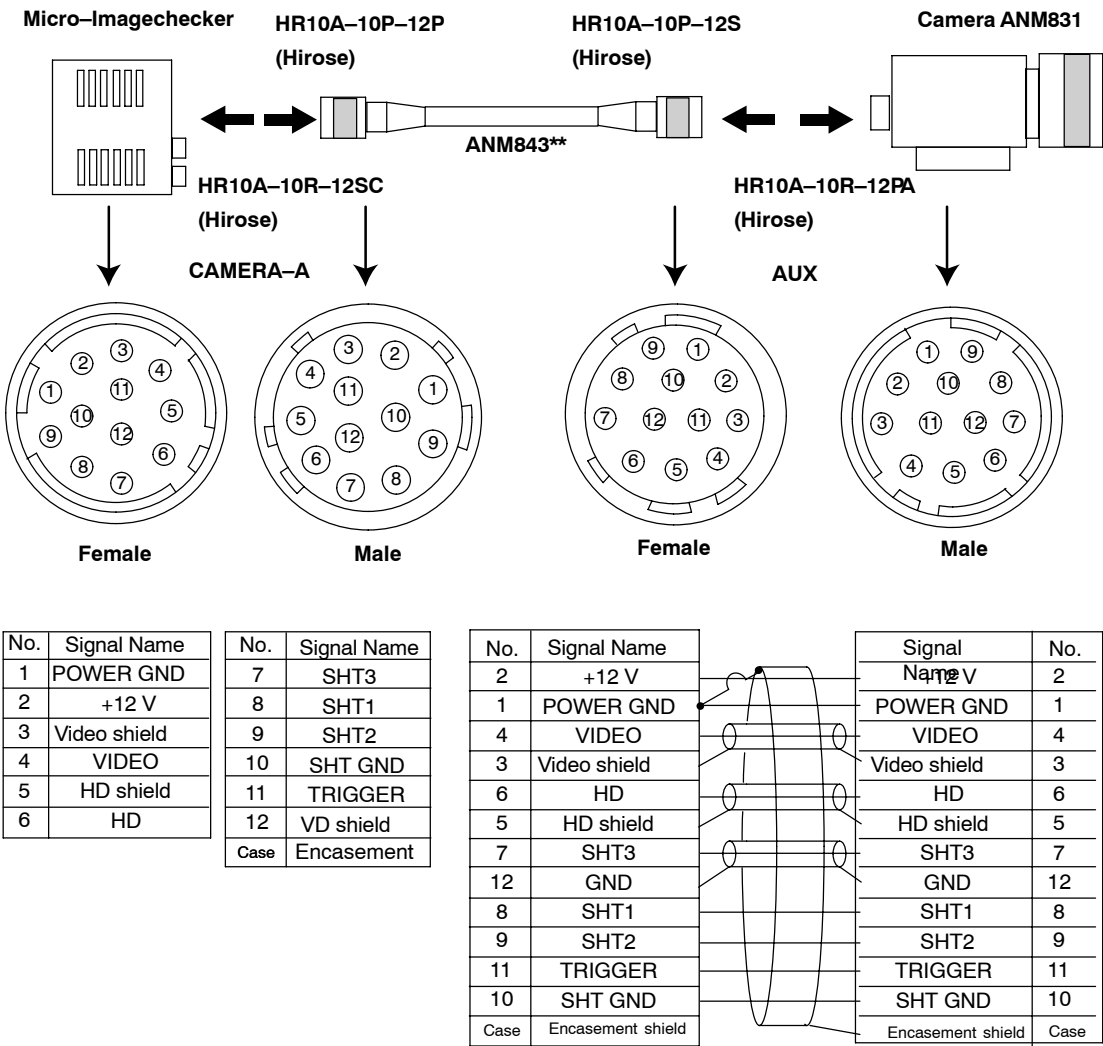


Figure 37: pin assignment camera ANM831

## 9.2 Pin Positions for Camera ANM832

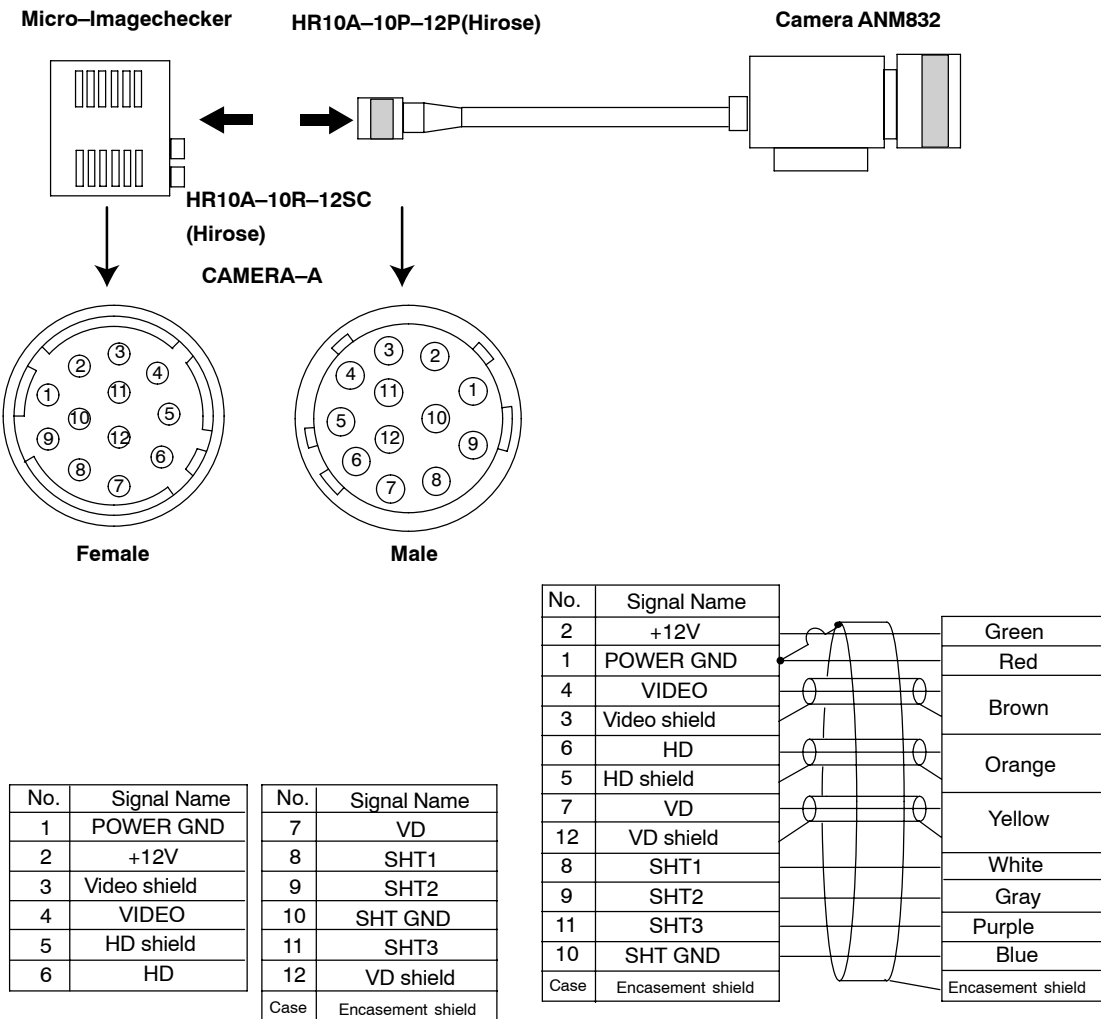


Figure 38: pin assignment camera ANM832



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# Record of Changes

Manual No.	Date	Description of Changes
ARCT1F326V20END	August 2002	<p>Second European edition, update of ARCT1F326V1.0END</p> <p>This manual contains all upgrade information since the release of the predecessor ARCT1F326V10END:</p> <p>Added:</p> <ul style="list-style-type: none"><li>Spectral response for the cameras</li><li>New diagrams for the input and output circuits</li><li>Warnings and notes concerning the inputs and outputs</li><li>Pixel sizes in the camera specifications</li></ul> <p>Changed:</p> <ul style="list-style-type: none"><li>Minor errors</li></ul>
ARCT1F326V21END	March 2006	<p>Update of the second European edition.</p> <p>Changed:</p> <ul style="list-style-type: none"><li>Change of company name to Panasonic</li><li>Correction of errors</li></ul> <p>Deleted:</p> <ul style="list-style-type: none"><li>Monitor WV-BM900</li></ul>

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