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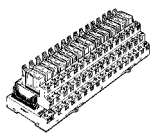
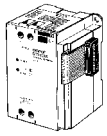
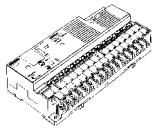
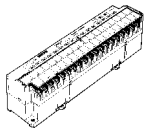
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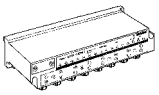
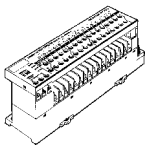
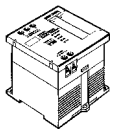
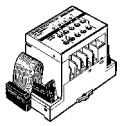
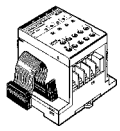
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# Classification According to Terminal Characteristics

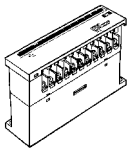
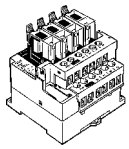
| Classification | I/O Block Base | PROFIBUS | SYSMAC BUS | | |
|---|---|---|---|---|---|
| Model | G70A | G71P | G71 | G72C | |
| | | | | G72C | G72C-V |
| Appearance |  234 x 75 x 64 (W x D x H) |  60 x 85 x 63.5 (W x D x H) |  60 x 85 x 63.5 (W x D x H) |  182 x 85 x 45 (W x D x H) |  202 x 45 x 63 (W x D x H) |
| Features | I/O Block conforming to VDE standards. | I/O Bus Unit conforming to DIN19245. | I/O Unit for G70A. | I/O Unit combined with I/O Block. | |
| Communication speed | --- | 9.6/19.2/500 kbps | 187.5 kbps | | |
| Relay | G2R | --- | --- | --- | --- |
| Output capacity | 10 A | 30 mA | 30 mA | 0.3 A | |
| I/O points | 16 | 16 | 16 | 16 | |
| Applicable PC Unit | --- | C200H-PH | C200H-RM201/3G2A5-RM201 | | |
| Approved standards | VDE | --- | UL/CSA | UL/CSA | |
| Other | Relays are sold separately. | I/O blocks are sold separately. | | --- | |
| Page | 22 | 141 | 29 | 34 | 41 |

| Classification | SYSMAC BUS | SYSMAC BUS/2 | | | |
|---|---|---|---|---|---|
| Model | G720 | G700 | | | |
| | | G700-U | G700-E | G700-T | G700-S |
| Appearance |  208 x 91 x 60 (W x D x H) |  60 x 85 x 63.5 (W x D x H) |  60 x 85 x 63.5 (W x D x H) |  182 x 85 x 45 (W x D x H) |  202 x 45 x 63 (W x D x H) |
| Features | I/O Unit combined with I/O Block incorporating IP67 input connector. | I/O Bus Unit conforming to DIN19245. | I/O Unit for G70A-ZOC. | I/O Unit combined with I/O Block. | |
| Communication speed | 187.5 kbps | 1.5 Mbps | | | |
| Relay | --- | --- | --- | --- | G7T |
| Output capacity | --- | 0.3 A | 50 mA | 0.3 A | 2 A |
| I/O points | 16 | 16 | 32 | 4 | |
| Applicable PC Unit | C200H-RM201/ 3G2A5-RM201 | CV500-RM221 | | G700-E | |
| Approved standards | --- | --- | | | |
| Other | --- | --- | I/O blocks are sold separately. | --- | |
| Page | 47 | 70 | 55 | 66 | 61 |

**Note:** The SYSMAC BUS and SYSMAC BUS/2 systems allow connection of a maximum of 32 I/O Units.



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| Classification | SYSMAC BUS | | | | |
|---|---|---|---|---|---|
| Model | G730 | | | | |
| | G730-M | G730-V16 | G730-V8 | G730-V4 | G730-R4 |
| Appearance |  20 x 111 x 90 (W x D x H) |  115 x 50 x 67 (W x D x H) | | |  80 x 75 x 70 (W x D x H) |
| Features | General-purpose transmission system connecting to a variety of controllers.<br>G730-M: Master<br>G730-V16/-V8/-R4: I/O Unit combined with I/O Block | | | | |
| Communication speed | 187.5 kbps | | | | |
| Relay | --- | --- | | | G2R |
| Output capacity | 20 mA | 0.3 A | | | 5 A |
| I/O points | 32 | 16 | 8 | 4 | 4 |
| Applicable PC Unit | Receiving NPN output. | G730-M/N | | | |
| Approved standards | --- | | | | |
| Other | I/O blocks are sold separately. | Applicable Remote Masters for SYSMAC BUS: C200H-RM201 and 3G2A5-RM201 | | | |
| Page | 82 | 91 | | | 101 |

**Note:** The SYSMAC BUS system allows connection of a maximum of 32 I/O Units.

# PC and I/O Terminal Connection

| Name | Model | C20H/40H/60H/ (Other maker's PC) | CQM1 | C200H/C1000H | CV500/CV1000 |
|---|---|---|---|---|---|
| I/O Block | G70A | Using I/O connector (see note 1) | Connector connection | Connector connection | Connector connection (see note 2) |
| I/O Unit | G70A + G71P | Connection impossible | Connection impossible | Two wires (see note 6) | Connection impossible |
| | G70A + G71 | Connection impossible | Connection impossible | Two wires (see note 3) | Two wires |
| I/O Unit (I/O Block) | G72C | Connection impossible | Connection impossible | Two wires | Two wires |
| | G720 | Connection impossible | Connection impossible | Two wires | Two wires |
| | G730 | Using I/O connector (see note 4) | Connection impossible | Two wires; using I/O connector (see note 4) | Two wires; using I/O connector (see note 4) |
| | G700 | Connection impossible | Connection impossible | Connection impossible | Two wires (see note 5) |

**Note:**
1. Connection of G70A and Loose Wires: page 22
2. Connection of G70A and Connector: page 22
3. SYSMAC BUS: page 13
4. G730 Bus: page 15
5. SYSMAC BUS/2: page 17
6. PROFIBUS: page 19



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## ■ Connection of G70A and PC Cards

### CQM1's I/O Cards

| I/O Unit | G70A-ZIM16-5 | G70A-ZOC16-3 | G70A-ZOC16-4 |
|---|---|---|---|
| CQM1-ID213 (32) | G79-I j C- j | --- | --- |
| CQM1-OD213 (32) | --- | G79-O j C- j | --- |
| CQM1-ID212 (16) | G79-Y j C/G79-A j C | --- | --- |
| CQM1-OD212 (16) | --- | G79-Y j C/G79-A j C | --- |
| CQM1-OD214 (16 PNP) | --- | --- | G79-Y j C/G79-A j C |

**Note:** Data in parentheses represents the number of total points, the number of connectors, or the number of I/O points per connector. PNP or NPN description is required between the parentheses attached to Output Card model numbers.

### C200H's I/O Cards

| I/O Unit | G70A-ZIM16-5 | G70A-ZOC16-3 | G70A-ZOC16-4 |
|---|---|---|---|
| C200H-ID215 (32) | G79- j C | --- | --- |
| C200H-MD215 (16/16) | G79- j C | G79- j C | --- |
| C200H-OD215 (32) | --- | G79- j C | --- |
| C200H-ID216 (32) | G79-I j C- j | --- | --- |
| C200H-ID217 (64) | G79-I j C- j | --- | --- |
| C200H-OD218 (32) | --- | G79-O j C- j | --- |
| C200H-OD219 (64) | --- | G79-O j C- j | --- |
| C200H-ID212 (16) | G79-Y j C/G79-A j C | --- | --- |
| C200H-OD212 (16) | --- | G79-Y j C/G79-A j C | --- |
| C200H-OD214 (8 PNP) | --- | --- | G79-Y j C/G79-A j C |
| C200H-OD217 (12 PNP) | --- | --- | G79-Y j C/G79-A j C |

### C1000H's I/O Cards

| I/O Unit | G70A-ZIM16-5 | G70A-ZOC16-3 | G70A-ZOC16-4 |
|---|---|---|---|
| 3G2A5-ID218 (32) | G79-Y j C/G79-A j C | --- | --- |
| 3G2A5-MD211CN (16/16) | G79- j C | G79- j C | --- |
| 3G2A5-OD215 (16) | --- | G79-Y j C/G79-A j C | --- |
| 3G2A5-ID218CN (32) | G79- j C | --- | --- |
| 3G2A5-OD218 (32) | --- | G79-Y j C/G79-A j C | --- |
| 3G2A5-ID212 (64) | G79-Y j C/G79-A j C | --- | --- |
| 3G2A5-OD212 (32 PNP) | --- | --- | G79-Y j C/G79-A j C |
| C500-OD219 (16) | G79-I j C- j | --- | --- |
| 3G2A5-OD213 (64) | --- | G79-O j C- j | --- |

**Note:** The G79 is an I/O cable.

## ■ SYSMAC C-series (SYSMAC BUS)

| PC | I/O Unit | I/O Block | Page |
|---|---|---|---|
| C200H-RM201 or 3G2A5-RM201 (SYSMAC BUS) | G71-IC | G70A-ZIM | 22, 29 |
| | G71-OD | G70A-ZOC | |
| | G72-IN | | 34, 41 |
| | G72-OUT | | |
| | G720-VID16C | | 47 |
| | G730-IN | | 82, 91, 101, 112 |
| | G730-OUT | | |



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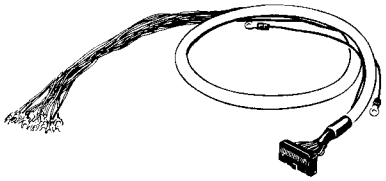
## ■ G79 Connecting Cables for I/O Terminals

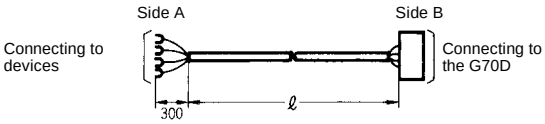
### Connecting Cables

| With loose wires and crimp terminals | | With loose wires | | With connector | |
|---|---|---|---|---|---|
| **Length (*l*)** | **Model** | **Length (*l*)** | **Model** | **Length (*l*)** | **Model** |
| 1 m<br>1.5 m<br>2 m<br>3 m<br>5 m | G79-Y100C<br>G79-Y150C<br>G79-Y200C<br>G79-Y300C<br>G79-Y500C | 2 m<br>5 m | G79-A200C<br>G79-A500C | 1 m<br>1.5 m<br>2 m<br>3 m<br>5 m | G79-100C<br>G79-150C<br>G79-200C<br>G79-300C<br>G79-500C |

#### G79-Y j C Cable with Loose Wires and Crimp Terminals

Convenient for connecting screw terminals to I/O Terminals






**Note:**
1. Keep the line capacity to 50 mA per I/O or less. Also, check the capacity of the relay drive element against the power consumption of the I/O relay before output applications.
2. I/O Terminal connector pin numbers are written on the loose wires.
3. Connector pin numbers correspond to G70A pin numbers.

**Connections**

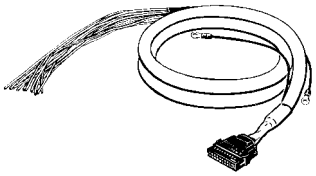
| Tube no. | | Wire no. | Color of insulator | Dot mark | Dot color | Connector no. | |
|---|---|---|---|---|---|---|---|
| Side A | 20 | 1 | Light brown | J | Black | 1 | Side B |
| | 10 | | | J | Red | 2 | |
| | 19 | 2 | Yellow | J | Black | 3 | |
| | 9 | | | J | Red | 4 | |
| | 18 | 3 | Light green | J | Black | 5 | |
| | 8 | | | J | Red | 6 | |
| | 17 | 4 | Gray | J | Black | 7 | |
| | 7 | | | J | Red | 8 | |
| | 16 | 5 | White | J | Black | 9 | |
| | 6 | | | J | Red | 10 | |
| | 15 | 6 | Light brown | J J | Black | 11 | |
| | 5 | | | J J | Red | 12 | |
| | 14 | 7 | Yellow | J J | Black | 13 | |
| | 4 | | | J J | Red | 14 | |
| | 13 | 8 | Light green | J J | Black | 15 | |
| | 3 | | | J J | Red | 16 | |
| | 12 | 9 | Gray | J J | Black | 17 | |
| | 2 | | | J J | Red | 18 | |
| | 11 | 10 | White | J J | Black | 19 | |
| | 1 | | | J J | Red | 20 | |

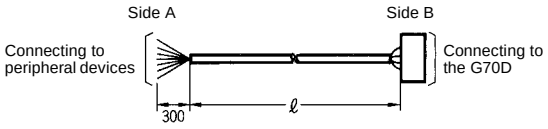


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### G79-A j C Cable with Loose Wires

Device connection end provides loose wires.





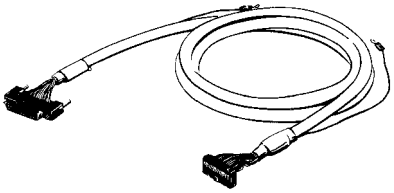

**Note:** 1. Loose wires are AWG24 (wire diameter: 0.6 mm).
2. Connector pin numbers correspond to G70A pin numbers.

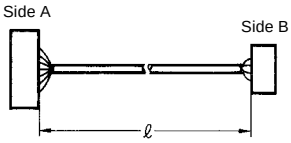
**Connections**

| Tube no. | Wire no. | Color of insulator | Dot mark | Dot color | Connector no. | |
|---|---|---|---|---|---|---|
| Side A | 1 | Light brown | J | Black | 20 | Side B |
| | | | J | Red | 19 | |
| | 2 | Yellow | J | Black | 18 | |
| | | | J | Red | 17 | |
| | 3 | Light green | J | Black | 16 | |
| | | | J | Red | 15 | |
| | 4 | Gray | J | Black | 14 | |
| | | | J | Red | 13 | |
| | 5 | White | J | Black | 12 | |
| | | | J | Red | 11 | |
| | 6 | Light brown | J J | Black | 10 | |
| | | | J J | Red | 9 | |
| | 7 | Yellow | J J | Black | 8 | |
| | | | J J | Red | 7 | |
| | 8 | Light green | J J | Black | 6 | |
| | | | J J | Red | 5 | |
| | 9 | Gray | J J | Black | 4 | |
| | | | J J | Red | 3 | |
| | 10 | White | J J | Black | 2 | |
| | | | J J | Red | 1 | |

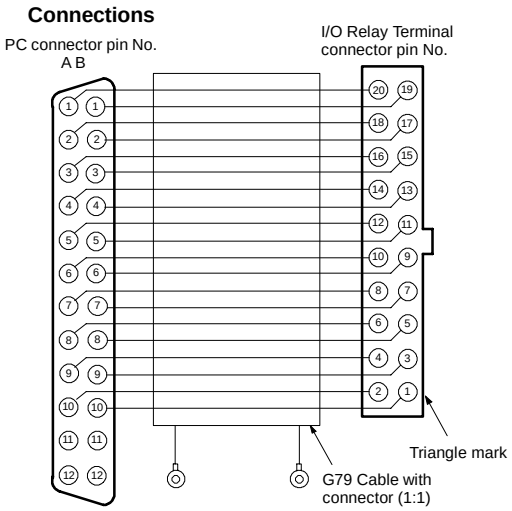
### G79- j C Cable with Connector (1:1)

Convenient for 1:1 connection of various devices to I/O Terminals.






**Connections**




**Note:** Connector pin numbers correspond to G70A pin numbers.

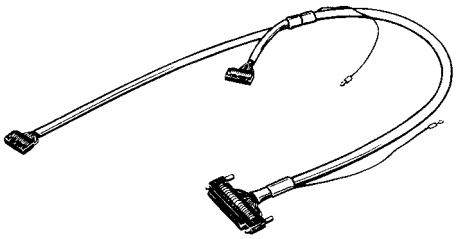


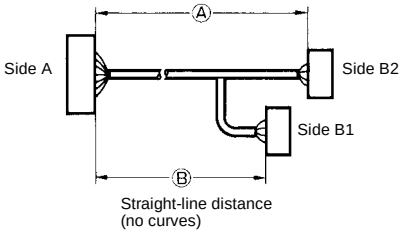
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### G79-O j C- j /-I j C- j Cable with Connectors (1:2)

Both Input and Output Cables available (Input: connect to PC I/O Units, tape color: red; Output: connect to PC I/O Units, tape color: yellow)

| Length | | For input | For output |
|---|---|---|---|
| A | B | Model | Model |
| 1 m | 0.75 m | G79-I100C-75 | G79-O100C-75 |
| 1.5 m | 1.25 m | G79-I150C-125 | G79-O150C-125 |
| 2 m | 1.75 m | G79-I200C-175 | G79-O200C-175 |
| 3 m | 2.75 m | G79-I300C-275 | G79-O300C-275 |
| 5 m | 4.75 m | G79-I500C-475 | G79-O500C-475 |






## ■ SYSMAC CV-series (SYSMAC BUS/2)

| PC Unit | I/O Terminal | I/O Block | Page |
|---|---|---|---|
| CV500-RM221 (SYSMAC BUS/2) | G700-IN | | 55, 61, 66, 70 |
| | G700-OUT | | |
| C200H-RM201 or 3G2A5-RM201 (SYSMAC BUS) | G71-IC16-3 | G70A-ZIM | 22, 29 |
| | G71-OD16 | G70A-ZOC | |
| | G72-IN | | 34, 41 |
| | G72-OUT | | |
| | G720-VID16C | | 47 |
| | G730-IN | | 82, 91, 101, 112 |
| | G730-OUT | | |

**Note:** If I/O Terminals and/or I/O Blocks other than G700 Models are connected, the system functions will conform to those of the SYSMAC BUS system.

## ■ G71P PROFIBUS

| PC Unit | I/O Terminal | I/O Block | Page |
|---|---|---|---|
| C200H-PFB21 | G71P-IC | G70A-ZIM | 22, 29 |
| | G71P-OD | G70A-ZOC | |

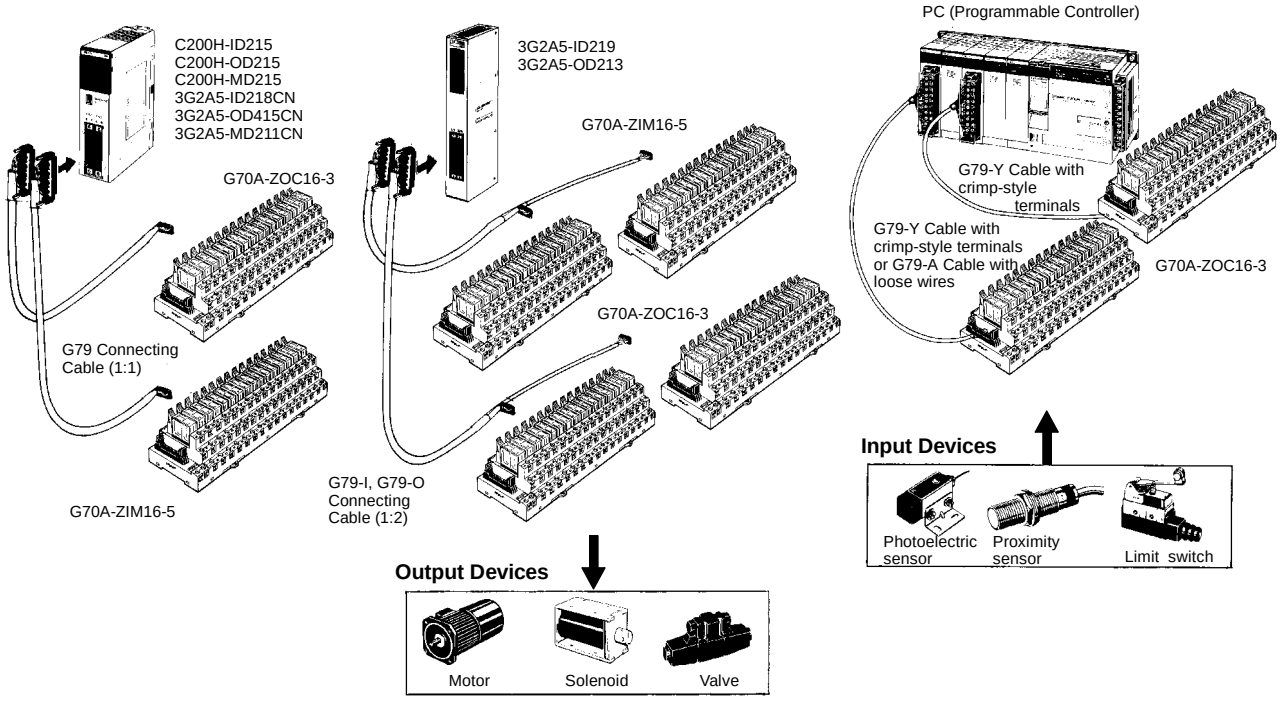


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# System Configuration

## ■ With G79 Connecting Cable

- Saves wiring effort and panel-mounting space.
- Prevents wiring mistakes.
- Reduces the number of wiring steps.

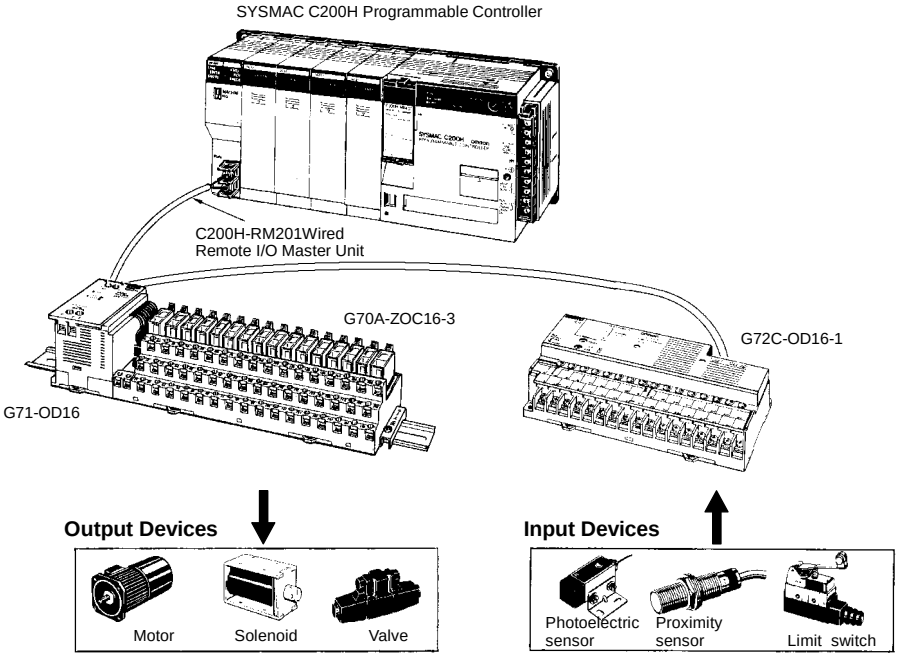





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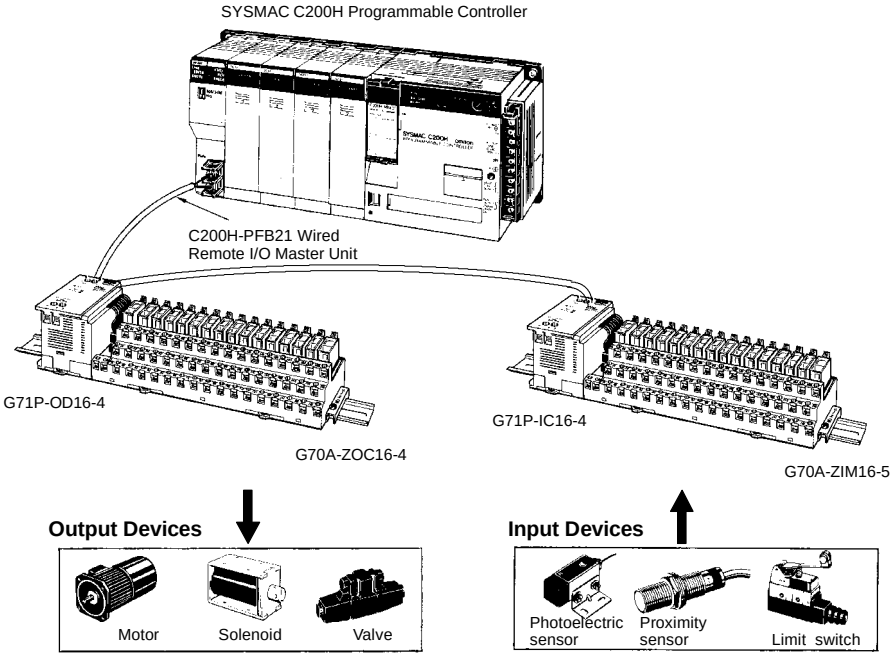
## ■ With OMRON G71 Remote Interface

- Greatly reduces the number of wiring steps.
- Prevents wiring mistakes.
- Copies smoothly with system changes.
- Reduces the total cost of the system.




## ■ With OMRON G71P PROFIBUS Remote Interface

- Makes it possible to construct multi-vendor systems.
- The communication protocol conforms to DIN19245.
- Transmission distances and speeds: 1,200 m at 9.6 kbps or 19.2 kbps, and 200 m at 500 kbps.






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## ■ Mounted with Relay and SSR (G70A)

### G2R

**Applicable Models**

| Models | Coil ratings | Contact form | Accessory | Applicable I/O Model |
|---|---|---|---|---|
| G2R-1-SN | 24 VDC | SPDT-NO/NC | Operation indicator | G70A-ZOC16-3<br>G70A-ZOC16-4 |
| G2R-1A3-SN | 12/24 VDC<br>110/230 VAC | SPST-NO | | G70A-ZIM16-5 |
| G2R-13-SN | | SPDT-NO/NC | | |
| G2R-1A3-SND | 12/24 VDC | SPST-NO | Operation indicator + diode | |
| G2R-13-SND | | SPDT-NO/NC | | |

**Contact Ratings**

| Item | G2R-1-SN | |
|---|---|---|
| **Load** | Resistive load (cosf = 1) | Inductive load (cosf = 0.4; L/R = 7 ms) |
| **Rated load** | 10 A at 250 VAC; 10 A at 30 VDC | 7.5 A at 250 VAC;<br>5 A at 30 VDC |
| **Rated carry current** | 10 A | |
| **Max. operating voltage** | 400 VAC, 125 VDC | |
| **Max. operating current** | 10 A | |
| **Min. permissible load** | 100 mA at 5 VDC | |
| **Max. switching capacity** | 2,500 VA, 300 W | 1,875 VA, 150 W |

### G3R

**Applicable Models**

| Models | Coil ratings | Contact form | Accessory | Applicable I/O Model |
|---|---|---|---|---|
| G3R-OA202SZN | 5 to 24 VDC | SPST-NO (zero cross) for AC | Operation indicator | G70A-ZOC16-3<br>G70A-ZOC16-4 |
| G3R-OA202SLN | | SPST-NO for AC | | |
| G3R-ODX02SN | | SPST-NO for DC | | |
| G3R-OD201SN | 100 to 240 VAC,<br>5 VDC, 12 to 24 VDC | SPST-NO for DC | | G70A-ZIM16-5 |
| G3R-IAZR1SN | | | | |
| G3R-IDZR1SN | | | | |
| G3R-IDZR1SN-1 | | SPST-NO (high speed) for DC | | |

**Ratings**

| Model | Applicable load voltage | Output current | Inrush current |
|---|---|---|---|
| G3R-OA202SZN | 75 to 264 VAC | 0.05 to 2 A | 30 A (60 Hz, 1 cycle) |
| G3R-OA202SLN | | | |
| G3R-ODX02SN | 4 to 60 VDC | 0.01 to 2 A | 8 A (10 ms) |
| G3R-OD201SN | 40 to 200 VDC | 0.01 to 1.5 A | 8 A (10 ms) |
| G3R-IAZR1SN | 4 to 32 VDC | 0.1 to 100 mA | --- |
| G3R-IDZR1SN | | | |
| G3R-IDZR1SN-1 | | | |



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# System Configuration

**SYSMAC BUS**

G71 , G72C, G720 . . . . . 12

**Original BUS**

G730 . . . . . 14

**SYSMAC BUS/2**

G700 . . . . . 16

**PROFIBUS**

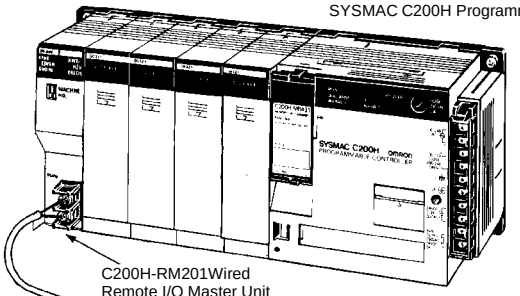
G71P . . . . . 18



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# ■ I/O Terminal (SYSMAC BUS)

SYSMAC C200H Programmable Controller

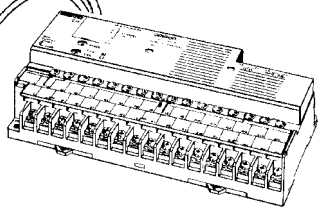


C200H-RM201Wired
Remote I/O Master Unit

Remote Terminals and I/O Blocks can be connected in series with 2-conductor cables (VCTF 0.75 recommended) to construct a Local I/O Network with a maximum total transmission distance of 200 m and a transmission time of 2 ms multiplied by the number of G71 and G72C Remote Terminals in the Network. Up to 32 nodes can be designed into the Network. With each node consisting of a G72C Remote Terminal or a pair of G71 Remote Interface and I/O Block. All Remote Terminals and I/O Blocks must be provided with a power supply. Although the Network below use a C200H Programmable Controller (PC), a C500 PC can also be used.

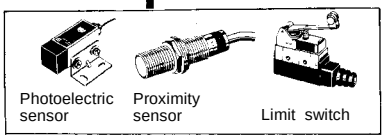
Two-conductor cable

Connection possible to up to 32 terminals total.

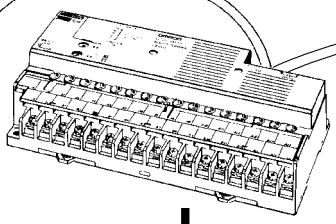


G72C-OD16

**Input Devices**

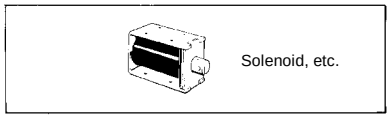


Photoelectric sensor | Proximity sensor | Limit switch

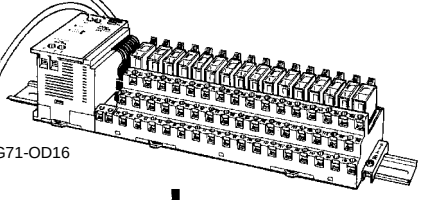


G72C-OD16(-1)
G72C-VOD16

**Output Devices**



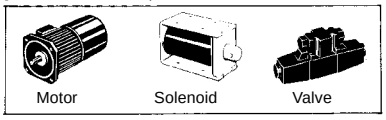
Solenoid, etc.



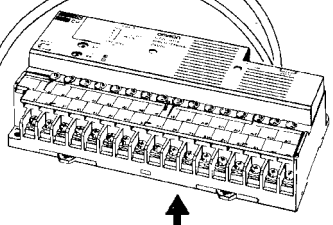
G71-OD16

G70A-ZOC16-3

**Output Devices**

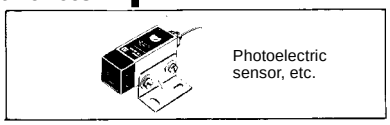


Motor | Solenoid | Valve



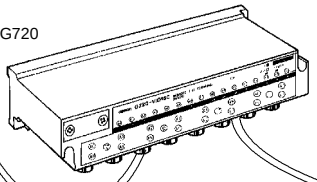
G72C-ID16(-1)
G72C-VID16

**Input Devices**

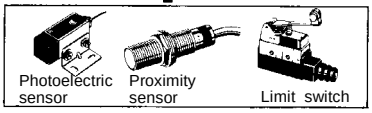


Photoelectric sensor, etc.

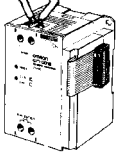
G720



**Input Devices**

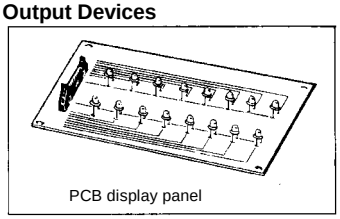


Photoelectric sensor | Proximity sensor | Limit switch

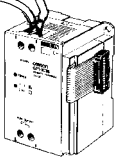


G71-OD16

**Output Devices**

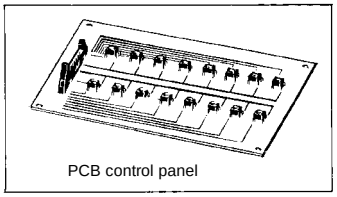


PCB display panel



G71-IC16

**Input Devices**



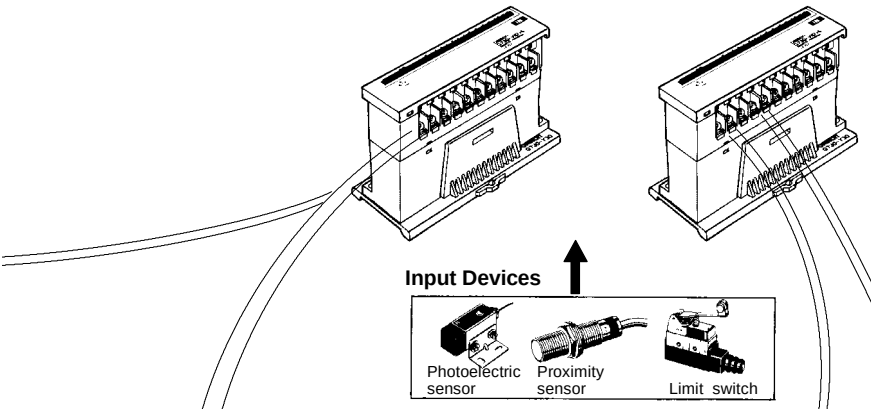
PCB control panel



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For Input

G730-VID08 + G730-Y30/G730-VID16 + G730-Y30/
G730-VID04 + G730-Y31

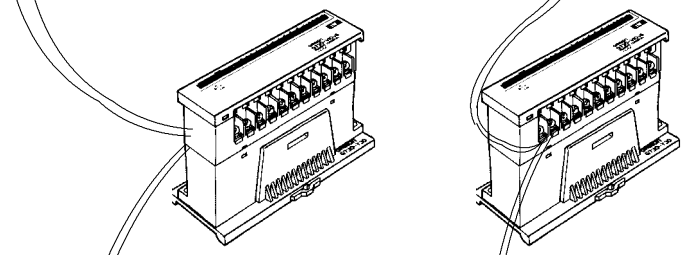


**Input Devices**



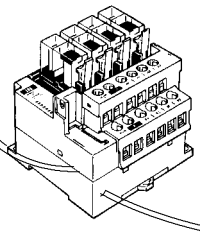

For Output

G730-VOD08 + G730-Y30/G730-VID16 + G730-Y30/
G730-VOD04 + G730-Y31



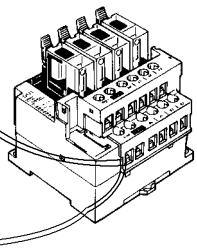
For Input

G730-RID04/G730-RIA04



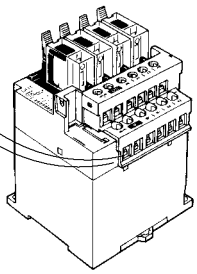
For Output

G730-ROC04

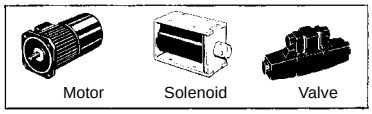


For Output (With Built-in Error Detecting Function)

G730-ROC04



**Output Devices**





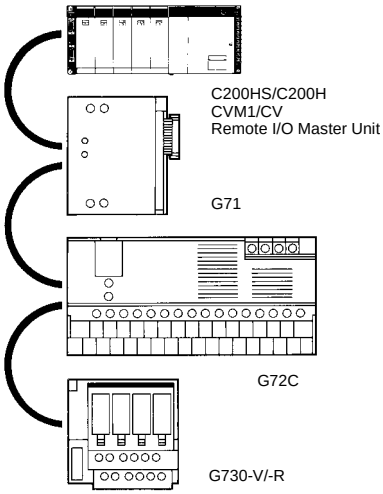

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# G730 Remote Terminals Connect to General-purpose Transmission Systems and Saves Wiring Effort

G730 Remote Terminals collectively transmit signals that are input from sensors and switches, and signals that are output to PCs, motors, and valves over a single two-conductor cable. It is possible to use G730 Remote Terminals as Remote I/O Units in SYSMAC BUS systems. G730 Remote Terminals connect to a variety of controllers via a G730-M Master Unit, thus making it possible to construct general-purpose transmission systems that save wiring effort and reduce mounting space.

## ■ Directly Connecting to OMRON's PCs and Wired SYSMAC BUS Systems

A G730-V or G730-R Remote Terminal directly connects to OMRON C-series PCs over a single two-conductor cable. It is possible to use G730 Remote Terminal and wired SYSMAC BUS Units such as G72C and G71 Units together in the same system. G730-V-series and G730-R-series Models are available with 16, 8, or 4 points and are ideal for small-scale applications or system expansion purposes.

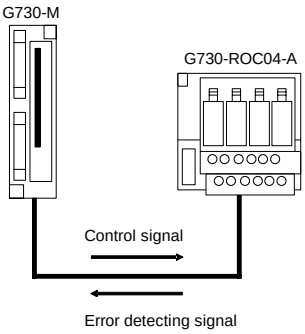



## ■ Constructing General-purpose Systems with Ease

A general-purpose transmission system can be constructed with ease by connecting the G730-M Master to a variety of controllers and personal computers. The Master alone allows 32-point signal transmission. A maximum of three G730-N Expansion Units can be connected to the Master. If three G730-N Expansion Units are connected to the Master, it will be possible to control a maximum of 128 points.

## ■ Constructing Safe Systems

G730-ROC04-A-series models are the world's first remote terminals with an error detecting function and indicator. With this function, the indicator will be lit if there is incorrect relay contact or contact weld. Furthermore, the error detecting signal will be fed back to the Master or PC.




## ■ Constructing Low-cost Systems

A series of G730 Remote Terminals with 16, 8, or 4 I/O points is available. These input and output models can be freely combined, which makes it possible to adjust the number of I/O points according to the application and to construct low-cost systems. G730 Remote Terminals are ideal for small-scale lines and applications that do not require any I/O point.

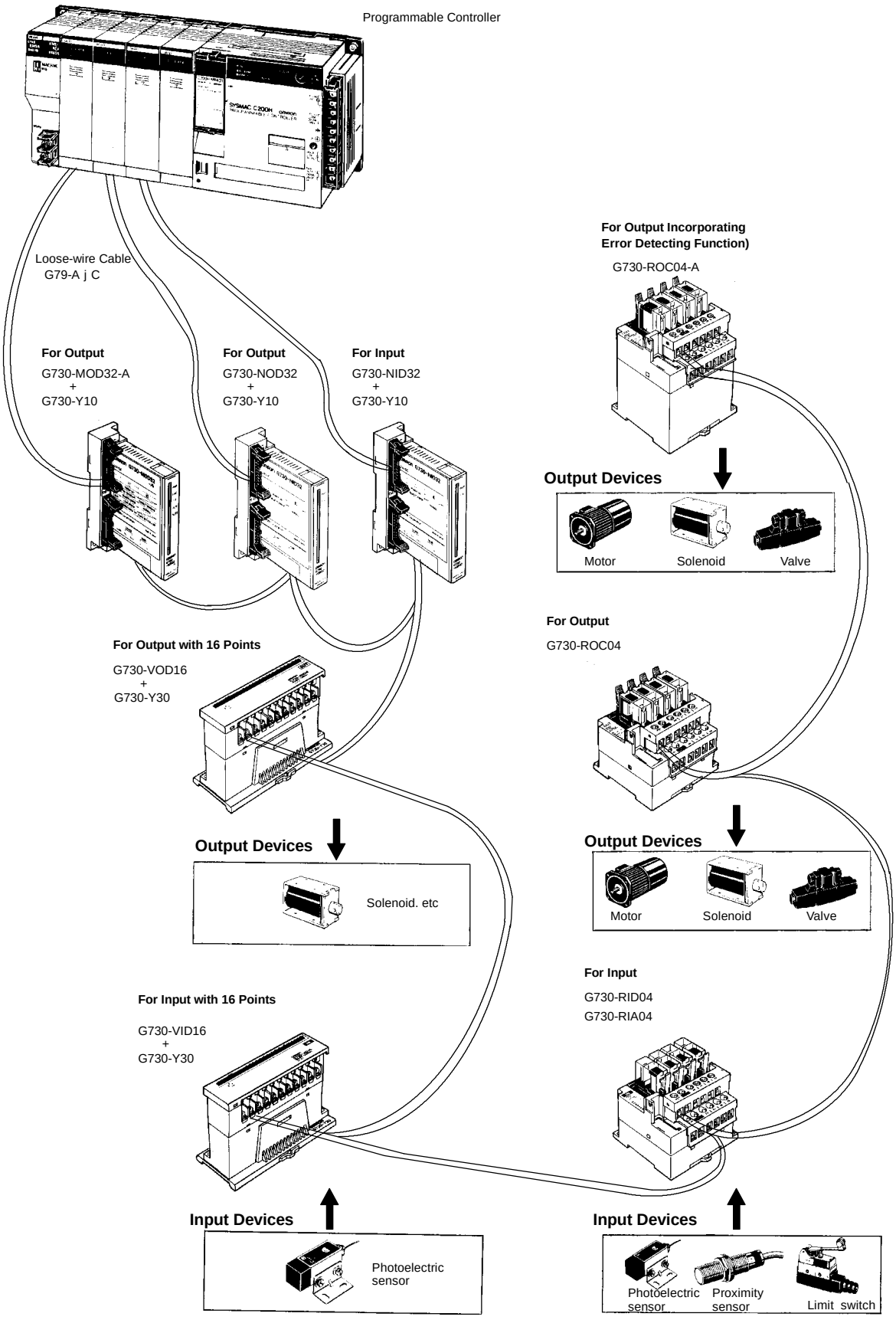
## ■ Constructing Space-saving Systems

The G730-V j D16 is approximately one-third the size of the conventional G72C(-V) and does not require much mounting space, thus making it possible to reduce the size of the panel. By using an adaptor, the G730-V j D16 can be DIN-track mounted.



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## ■ G730 I/O Terminal






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# G700 I/O Terminals Easily Connect to SYSMAC BUS/2 Remote I/O System

The SYSMAC BUS/2, a dedicated Remote I/O System for SYSMAC CV-series PCs, supports G700 I/O Terminals. As advanced models of the G71 and G72C, G700 I/O Terminals reduce the transmission delays to approximately one-tenth of the time taken by the G71 and G72C. The G700 Series also has a longer transmission distance and can control a larger number of I/O points. G700 I/O Terminals ensure ease-of-use and maintenance as well as safety in operation.

## ■ Flexibility

G700 I/O Terminals have both communications and terminals functions to enable flexibility in FA systems. Since each I/O Terminal can increase its I/O capacity to up to 32 points, FA lines can be easily enlarged.

## ■ Reduced Transmission Delay

G700 I/O Terminals feature high-speed transmissions (baud rate: 1.5 Mbps), with a maximum transmission delay of 5.2 ms, to achieve high-speed I/O signal transmission.

## ■ Easy Maintenance

G700 I/O Terminals have LED indicators with which the ON/OFF status and transmission status of I/O signals can be monitored, making it possible to easily locate malfunctions and operating errors.

## ■ Long-distance Transmission Capability

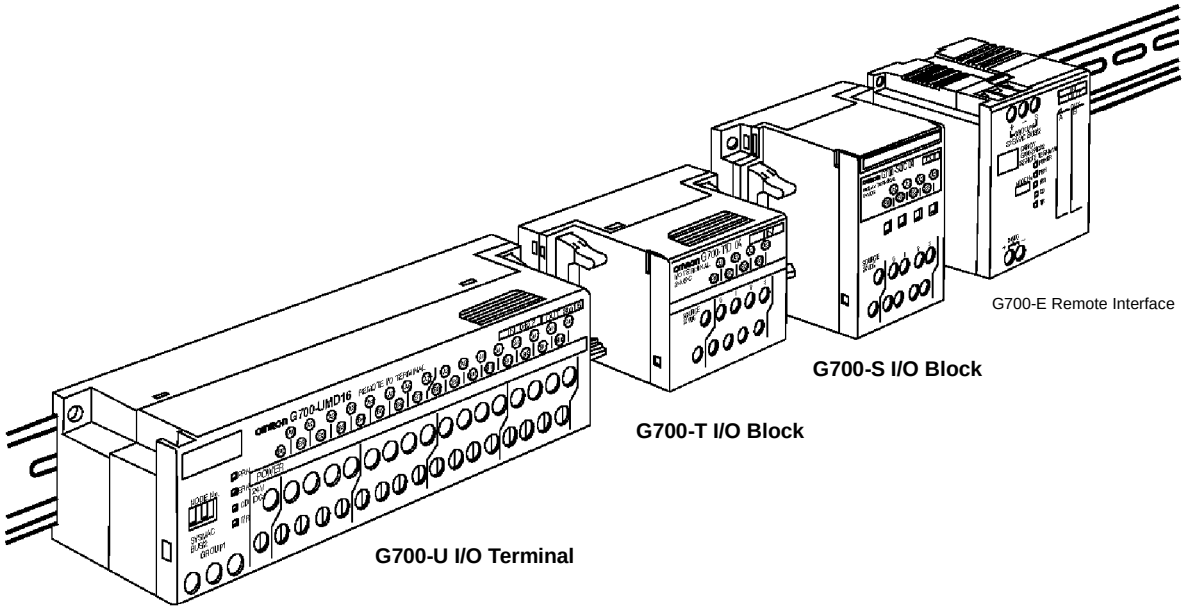
With a maximum transmission distance of 500 m, the G700 can be used in large FA networks.

## ■ Large I/O Capacity

A Remote I/O Master Unit in a SYSMAC BUS/2 can control up to 2,048 remote I/O points to enable large-scale FA systems.

## ■ Easy Operation

Operating modes and other operational settings are easily made using DIP switches.




Fuse Replacement

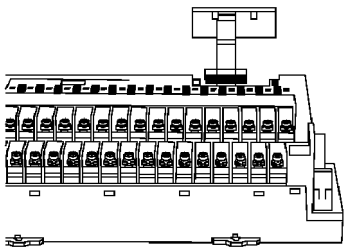
The fuse can be easily replaced without disconnecting the G700 from the FA network or removing the casing.

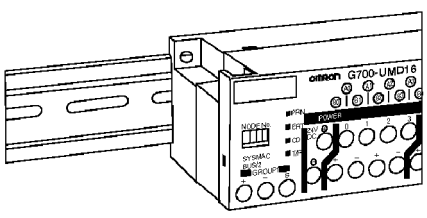
DIN Track/Screw Mounting

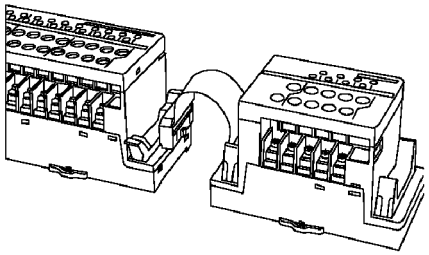
The G700 can be mounted to a DIN track or screw-mounted, as required by the application.

System Expansion through Simple Cable Connections

The G700-U, G700-T, and G700-S can be easily connected to one another with a single cable and connectors, thus making it possible to expand FA line capacity.





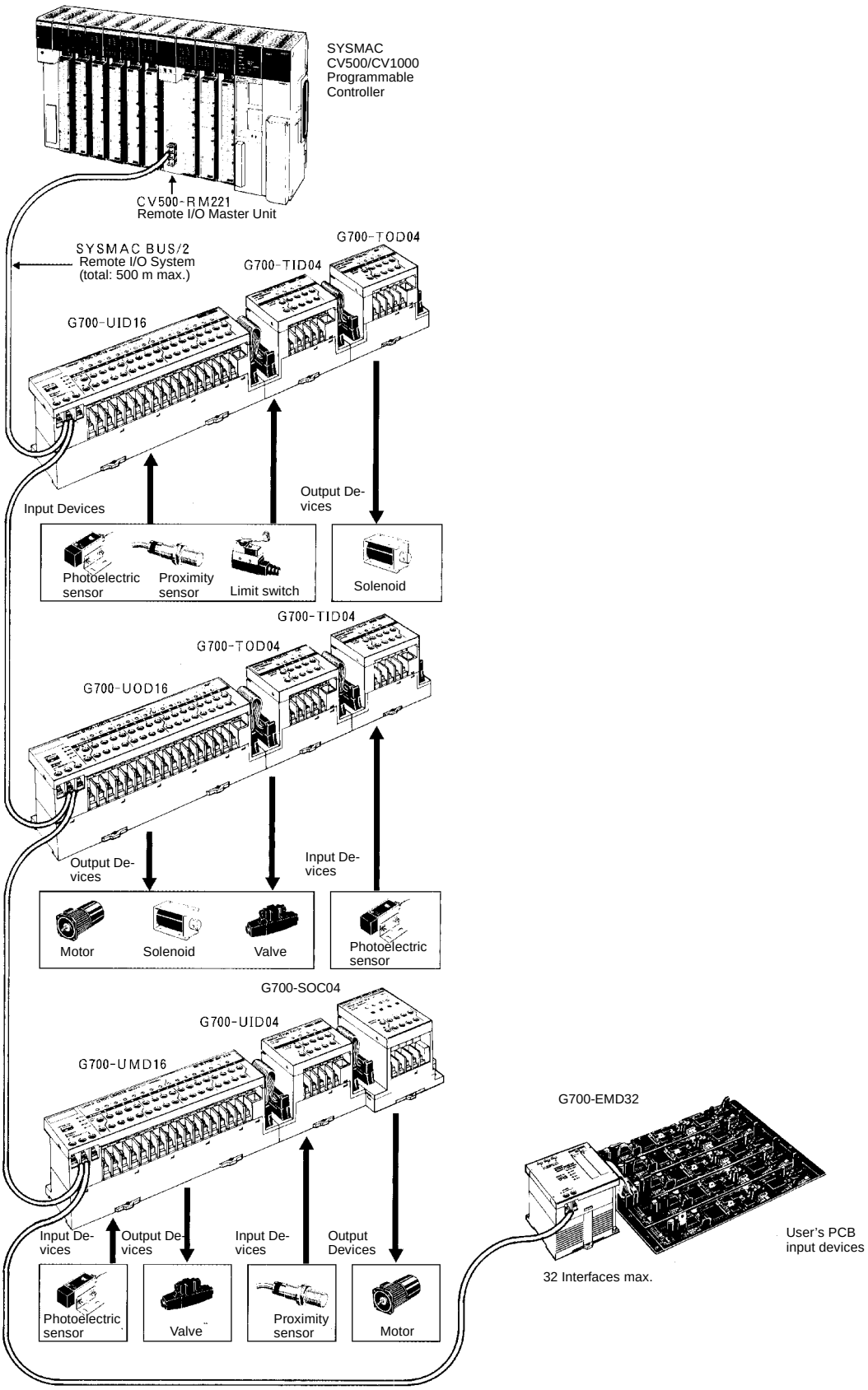





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## Connection Example

### I/O Terminal (SYSMAC BUS/2)






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# ■ G71P

## Features

The G71P- j j 16-4 Remote Interface connects a G70A- j j j 16- j I/O Block or User's designing board to a PROFIBUS network.

The G71P- j j 16-4 acts as a PROFIBUS Slave which supports the complete PROFIBUS protocol and contains a PROFIBUS application program that covers the following operations:

- Automatic data exchange with a PROFIBUS Master similar to that in the SYSMAC BUS.
- 10 kinds of services.
- 10 Masters can be accessed at the same time.

The G71P- j j 16-4 Remote Interface has 16 I/O points of distributed control.

## PROFIBUS

### General Information

PROFIBUS is an international field bus standard which was originally specified by a group of equipment manufacturers and sponsored by the German Federal Ministry for Research and Technology.

PROFIBUS realizes a 3-layer stack (Layer 1, 2 and 7) corresponding to the ISO/OSI model of open communication.

The PROFIBUS protocol is defined in the German Standard "DIN19245". DIN19245-part 1 defines Layer 1 (physical layer) and Layer 2 (data link layer), and DIN19245-part 2 defines Layer 7 (application layer).

Layer 7 of the PROFIBUS protocol, FMS (Field Message Service) offers a subset of MAP Layer 7 services called MMS (Manufacturing Message Service).

### System Configuration

In a PROFIBUS system, three different parameters must be defined before operation. These parameters are:

- Bus parameters
- Communication Reference List (CRL, or KBL in German)
- Object Dictionary (OD, or OV in German)

G71P- j j 16-4 PROFIBUS System provides 2 different ways of setting some of these parameters. These are:

- Default Configuration
- Configuration through communications

## Services

The G71P- j j 16-4 supports the complete PROFIBUS protocol. The following services are supported:

**Service Description**

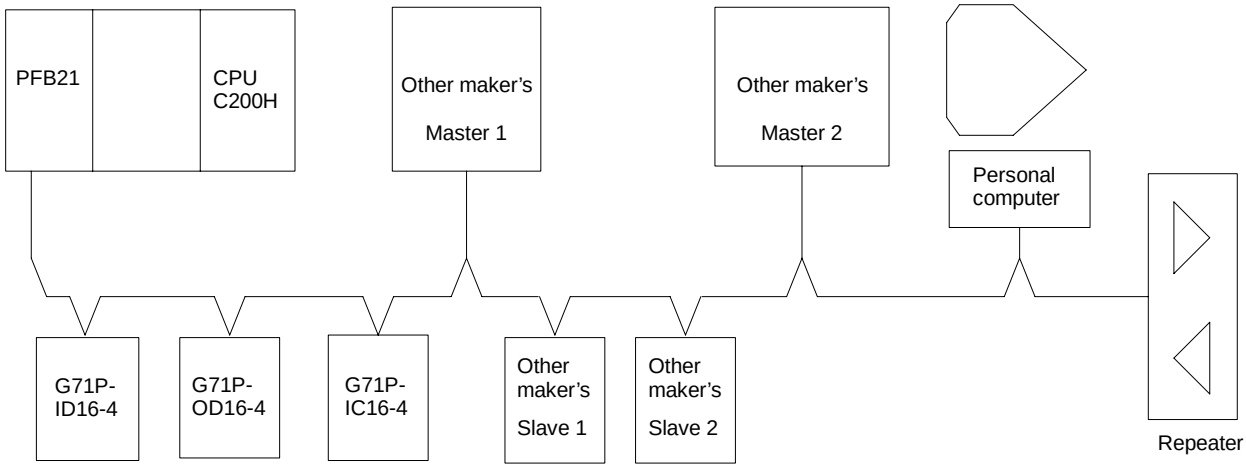
| | |
|---|---|
| **Initiate** | With this service a connection between two communication partners is established. |
| **Abort** | With this service an existing connection between two communication partners is aborted. An abort request or abort response is generated automatically without involving the application program. |
| **Status** | This service is used to read the statuses of the Unit and application program. |
| **Identify** | This service allows a communication partner to read basic information about a virtual field device via the bus. The identification consists of:<br>• Vendor name<br>• Model name<br>• Revision<br>The listed strings and numbers in the identification list above are transmitted. |
| **Get-OD** | This service accesses the Object Dictionary (OD). Addressing via the object name is not provided, but the object name is accessed in a subsequent Get-OD response. The short and long forms of the Get-OD service are supported. |
| **Read** | This service is used to read objects. Access must be made via the index. A cyclic Read is not possible since this would slow down the average reaction time of the whole system. |
| **Write** | This service is used to write objects. Access must be made via the index. A cyclic Write is not possible since this would slow down the average reaction time of the whole system. |
| **Physical Read** | With this service a direct read access to the physical memory of the processor is possible. |
| **Physical Write** | With this service a direct write access to the physical memory of the processor is possible. |
| **Information Report** | With this service a remote unit can transmit simple-variable objects, arrays, and records to a server. |



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## PROFIBUS System Configuration

The following diagram shows the configuration of a PROFIBUS System.




**Connections** At least one Remote I/O Master Unit is required to connect G71P- j j 16-4 Units to a PROFIBUS System. G71P- j j 16-4 Units must be bus-connected to a Master Unit.



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## Technical Data

**I/O Block Base**
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## Reduces Wiring while Providing I/O Flexibility

- Mount I/O relays and I/O SSRs freely.
- Electric-shock preventive (finger-touch protection) terminal block incorporated conforming to VDE 0106.
- Connects to the PC and SBC easily via a connector.
- DIN track mounted.
- I/O Block conforming to VDE 0106.
- G2R relays are UL, CSA, IEC, VDE, SEV, SEMKO, DEMKO, and SET1 approved.

# Ordering Information

| Classification | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|
| **Output** | NPN (+ common) | 24 VDC | G70A-ZOC16-3 |
| | PNP (– common) | 24 VDC | G70A-ZOC16-4 |
| **Input** | NPN/PNP | 110 VDC max., 240 VAC max. (see note) | G70A-ZIM16-5 |

**Note:** Each relay to be mounted must incorporate a coil that has proper specifications within the maximum rated voltage range.

## ■ Suitable Relay/SSR

| Classification | I/O Block Base | PCB Relay | Solid State Relay |
|---|---|---|---|
| **Output** | NPN: G70A-ZOC16-3<br>PNP: G70A-ZOC16-4 | G2R-1-S<br>G2R-1-SN | G3R-202SN-US-E<br>G3R-202SLN-US-E<br>G3RD-X02SN-US-E<br>G3R-OA202SZN<br>G3R-OA202SLN<br>G3R-ODXO2SN<br>G3R-OD201SN |
| **Input** | G70A-ZIM16-5 | G2R-1A3-SN<br>G2R-13-SN<br>G2R-1A3-SND<br>G2R-13-SND | G3R-IAZR1SN<br>G3R-IDZR1SN<br>G3R-IDZR1SN-1 |

**Note:** G2R-13-SN has twin cross-bar contacts.

## ■ Connecting Sockets for I/O Terminal Expansion

| Model | Number of poles |
|---|---|
| P2RF-05-E | 1 pole (G2R: 1 pole usage) |
| P2RF-08-E | 2 poles (G2R: 2 poles usage) |



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# Specifications

## ■ Ratings/Characteristics

| Item | G70A-ZOC16-3 | G70A-ZOC16-4 | G70A-ZIM16-5 |
|---|---|---|---|
| **Contact resistance** | 10 mW (excluding the resistance of the relay to be used) | | |
| **Permissible current** | 10 A | | 100 mA |
| **Max. operating voltage** | 380 VAC, 125 VDC | | 30 VDC |
| **Dielectric strength** | 4,000 VAC, 50/60 Hz for 1 min between connector and output terminals<br>2,000 VAC, 50/60 Hz for 1 min between output terminals<br>250 VAC, 50/60 Hz for 1 min between connectors | | 4,000 VAC, 50/60 Hz for 1 min between connector and input terminals<br>2,000 VAC, 50/60 Hz for 1 min between coil terminals<br>250 VAC, 50/60 Hz for 1 min between connectors |
| **Insulation resistance** | 100 MW (at 500 V) | | |
| **Vibration resistance** | Malfunction: 10 to 61.2 Hz, 0.2-mm double amplitude; 61.2 to 150 Hz, 1.5G | | |
| **Shock resistance** | Malfunction: 200 m/s$^2$ (approx. 20G) | | |
| **Noise immunity** | Noise level: 2.0 kV; pulse width: 100 ns to 1 ms | | |
| **Ambient temperature** | Operating: 0%C to 55%C (with no icing) | | |
| **Ambient humidity** | Operating: 35% to 85% | | |
| **Coil surge absorption element** | Diode: 1 A, 400 V | | Varistor (see note) |
| **Protection diode for inverse connection** | Diode (2 A, withstand inverse voltage: 40 V) | | |
| **Tightening torque** | 6 kgf $ cm (0.59 N $ m) | | |

**Note:** Use a DC relay with a built-in diode because a DC relay without a built-in diode does not absorb any coil surge.

## ■ Relay (G2R-1-S, G2R-1-SN)

### Coil Ratings

| | | |
|---|---|---|
| **Rated voltage** | | 24 VDC |
| **Rated current (50/60 Hz)** | | 21.8 mA |
| **Coil resistance** | | 1,100 W |
| **Coil inductance (H) (ref. value)** | **Armature OFF** | 4.27 |
| | **Armature ON** | 8.55 |
| **Must operate voltage** | | 70% min. of rated voltage |
| **Must release voltage** | | 15% min. of rated voltage |
| **Max. voltage** | | 110% of rated voltage |
| **Power consumption** | | Approx. 0.53 W |

### Contact Ratings

| | | |
|---|---|---|
| **Number of poles** | 1 pole | |
| **Load** | Resistive load (cosf = 1) | Inductive load (cosf = 0.4; L/R = 7 ms) |
| **Rated load** | 10 A at 250 VAC; 10 A at 30 VDC | 7.5 A at 250 VAC; 5 A at 30 VDC |
| **Rated carry current** | 10 A | |
| **Max. operating voltage** | 380 VAC, 125 VDC | |
| **Max. operating current** | 10 A | |
| **Max. switching capacity** | 2,500 VA, 300 W | 1,875 VA, 150 W |
| **Min. permissible load** | 100 mA at 5 VDC | |



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## ■ Relay (G2R-1A3-SN (SND), G2R-13-SN (SND))

### Coil Ratings

| | | | | |
|---|---|---|---|---|
| **Rated voltage** | | 230 VAC | 12 VDC | 24 VDC |
| **Rated current** | **50 Hz** | 3.7 mA | 43.6 mA | 21.8 mA |
| | **60 Hz** | 3.1 mA | | |
| **Coil resistance** | | 30,000 Ω | 275 Ω | 1,100 Ω |
| **Must operate voltage** | | 80% max. of rated voltage | 70% max. of rated voltage | |
| **Must release voltage** | | 30% min. of rated voltage | 15% min. of rated voltage | |
| **Max. voltage** | | 110% of rated voltage | | |
| **Power consumption** | | Approx. 0.7 W (60 Hz) | Approx. 0.53 W | |

**Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $^{+15\%}/_{-20\%}$ (AC rated current) or +10% (DC coil resistance).

2. LEDs are used for the built-in operation indicator. For models equipped with these indications, the VAC rated current must be increased by approximately 1 mA; the VDC rated current, by approximately 4 mA.

3. Operating characteristics are measured at a coil temperature of 23°C.

### Contact Ratings

Refer to Ratings/Characteristics of G70A-ZIM16-5.

## ■ SSR

### Ratings for G3R/G3R-E Series (UL/CSA Approved)

**Input (AC Output, With Zero Cross Function)**

| Model | Rated voltage | Operating voltage | Impedance | Voltage level | |
|---|---|---|---|---|---|
| | | | | Must operate voltage | Must release voltage |
| **G3R-202SN-US-E** | 5 VDC | 4 to 6 VDC | 250 Ω+20% | 3.5 VDC max. | 0.375 VDC min. |
| | 12 VDC | 9.6 to 14.4 VDC | 600 Ω+20% | 8.4 VDC max. | 0.9 VDC min. |
| | 24 VDC | 19.2 to 28.8 VDC | 1.5 kΩ+20% | 16.8 VDC max. | 1.8 VDC min. |

**Input (AC Output, Without Zero Cross Function, and DC Output)**

| Model | Rated voltage | Operating voltage | Impedance | Voltage level | |
|---|---|---|---|---|---|
| | | | | Must operate voltage | Must release voltage |
| **G3R-202SLN-US-E** | 5 VDC | 4 to 6 VDC | 300 Ω+20% | 3.5 VDC max. | 0.375 VDC min. |
| **G3RD-X02SN-US-E** | 12 VDC | 9.6 to 14.4 VDC | 750 Ω+20% | 8.4 VDC max. | 0.9 VDC min. |
| | 24 VDC | 19.2 to 28.8 VDC | 1.5 kΩ+20% | 16.8 VDC max. | 1.8 VDC min. |

**Output**

| Model | Applicable laod | | |
|---|---|---|---|
| | Load voltage | Load current | Inrush current |
| **G3R-202SN-US-E**<br>**G3R-202SLN-US-E** | 75 to 264 VAC | 0.1 to 2 A | 30 A (60 Hz, 1 cycle) |
| **G3R-X02SN-US-E** | 3 to 52.8 VDC | 0.01 to 2 A | 8 A (10 ms) |

### Characteristics for G3R/G3R-E Series

| Item | G3R-202SLN-US-E | G3R-202SN-US-E | G3RD-X02SN-US-E |
|---|---|---|---|
| **Operate time** | 1 ms max. | 1/2 of load power supply cycle + 1 ms max. | 1 ms max. |
| **Release time** | 1/2 of load power supply cycle + 1 ms max. | | 1 ms max. |
| **Output ON voltage drop** | 1.6 V (RMS) max. | | 1.5 V max. |
| **Leakage current** | 2 mA max. (at 100 VAC); 5 mA max. (at 200 VAC) | | 0.1 mA max. (at 50 VDC) |
| **Insulation resistance** | 100 MΩ min. (at 500 VDC) | | |
| **Dielectric strength** | 2.500 VAC, 50/60 Hz for 1 min | | |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude | | |
| **Shock resistance** | 1,000 m/s$^2$ (approx. 100G | | |
| **Ambient temperature** | Operating: −30°C to 80°C<br>Storage: −30°C to 100°C | | |
| **Ambient humidity** | Operating: 45% to 85% | | |
| **Weight** | Approx. 18 g | | |



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## Ratings for G3R I/O Module

**Input for Input Module**

| Model | Rated voltage | Operating voltage | Input current | Voltage level | |
|---|---|---|---|---|---|
| | | | | Must operate voltage | Must release voltage |
| **G3R-IAZR1SN** | 100 to 240 VAC | 60 to 264 VAC | 15 mA max. | 60 VAC max. | 20 VAC min. |
| **G3R-IDZR1SN** | 5 VDC | 4 to 6 VDC | 8 mA max. | 4 VDC max. | 1 VDC min. |
| **G3R-IDZR1SN** | 12 to 24 VDC | 6.6 to 32 VDC | | 6.6 VDC max. | 3.6 VDC min. |
| **G3R-IDZR1SN-1** | 5 VDC | 4 to 6 VDC | | 4 VDC max. | 1 VDC min. |
| **G3R-IDZR1SN-1** | 12 to 24 VDC | 6.6 to 32 VDC | | 6.6 VDC max. | 3.6 VDC min. |

**Output for Input Module**

| Model | Logic supply voltage | Logic supply current |
|---|---|---|
| **G3R-IAZR1SN** | 4 to 32 VDC | 0.1 to 100 mA |
| **G3R-IDZR1SN** | | |
| **G3R-IDZR1SN-1** | | |

**Input for Output Module**

| Model | Rated voltage | Operating voltage | Input current | Voltage level | |
|---|---|---|---|---|---|
| | | | | Must operate voltage | Must release voltage |
| **G3R-OA202SZN (with zero cross function)** | 5 to 24 VDC | 4 to 32 VDC | 15 mA max. (at 25°C) | 4 VDC max. | 1 VDC min. |
| **G3R-OA202SLN (without zero cross function)** | | | | | |
| **G3R-ODX02XN** | | | 8 mA max. | | |
| **G3R-OD201SN** | | | | | |

**Output for Output Module**

| Model | Applicable load | | |
|---|---|---|---|
| | Load voltage | Load current | Inrush current |
| **G3R-OA202SZN** | 75 to 264 VAC | 0.05 to 2 A | 30 A (60 Hz, 1 cycle) |
| **G3R-OA202SLN** | | | |
| **G3R-ODX02XN** | 4 to 60 VDC | 0.01 to 2 A | 8 A (10 ms) |
| **G3R-OD201SN** | 40 to 200 VDC | 0.01 to 1.5 A | 8 A (10 ms) |

## Characteristics for G3R I/O Module

**Input Module**

| Item | G3R-IAZR1SN | G3R-IDZR1SN | G3R-IDZR1SN-1 |
|---|---|---|---|
| **Operate time** | 20 ms max. | 0.1 ms max. | 20 ms max. |
| **Release time** | | | |
| **Response frequency** | 10 Hz | 1 kHz | 10 Hz |
| **Output ON voltage drop** | 1.6 V max. | | |
| **Leakage current** | 5 μA max. | | |
| **Insulation resistance** | 100 MW min. (at 500 VDC) | | |
| **Dielectric strength** | 4,000 VAC, 50/60 Hz for 1 min | | |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude | | |
| **Shock resistance** | 1,000 $m/s^2$ (approx. 100G) | | |
| **Ambient temperature** | Operating: –30%C to 80%C<br>Storage: –30%C to 100%C | | |
| **Ambient humidity** | Operating: 45% to 85% | | |
| **Weight** | Approx. 18 g | | |



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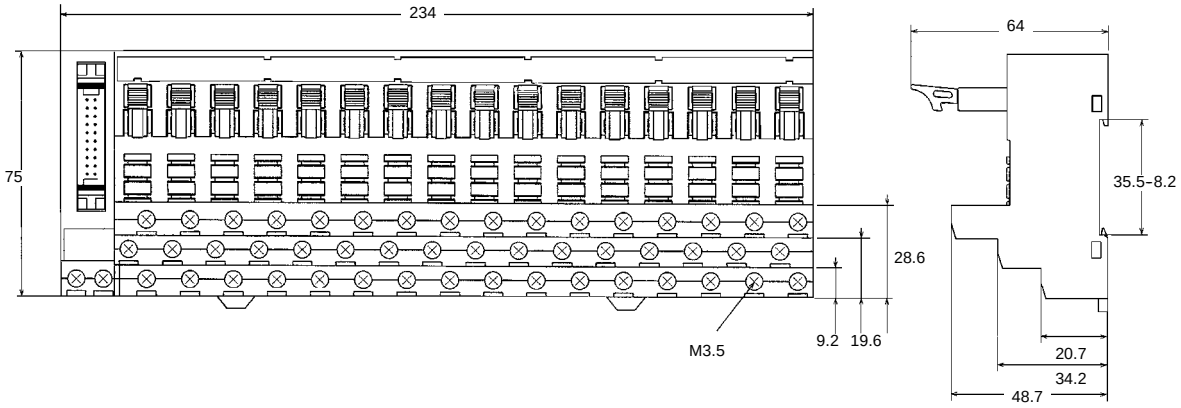
**Output Module**

| Item | G3R-OA202SZN | G3R-OA202SLN | G3R-ODX02SN | G3R-OD201SN |
|---|---|---|---|---|
| **Operate time** | 1/2 of load power supply cycle + 1 ms max. | | 1 ms max. | |
| **Release time** | | | 2 ms max. | |
| **Response frequency** | 20 Hz | | 100 Hz | |
| **Output ON voltage drop** | 1.6 V max. | | | 2.5 V max. |
| **Leakage current** | 1.5 mA max. | | 1 mA max. | |
| **Insulation resistance** | 100 MW min. (at 500 VDC) | | | |
| **Dielectric strength** | 4,000 VAC, 50/60 Hz for 1 min | | | |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude | | | |
| **Shock resistance** | 1,000 m/s$^2$ (approx. 100G) | | | |
| **Ambient temperature** | Operating: −30%C to 80%C<br>Storage: −30%C to 100%C | | | |
| **Ambient humidity** | Operating: 45% to 85% | | | |
| **Weight** | Approx. 18 g | | | |

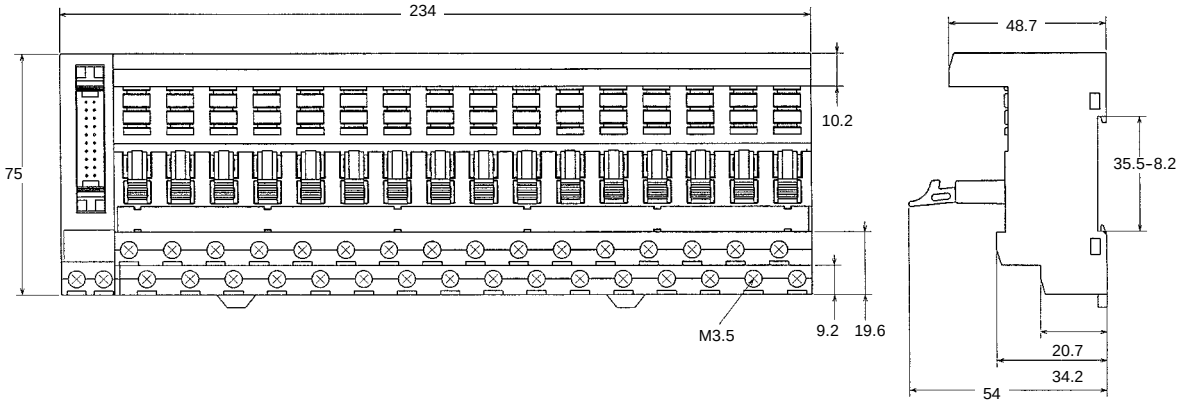
# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

**G70A-ZOC16 (Output)**



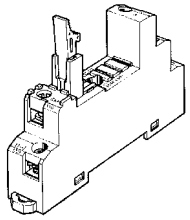

**G70A-ZIM16 (Input)**

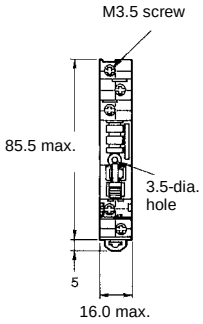




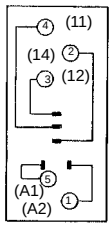

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**P2RF-05-E**

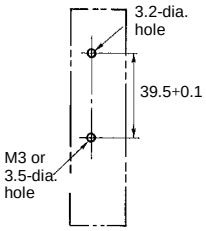





**Terminal Arrangement (Top View)**

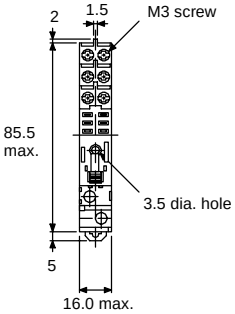


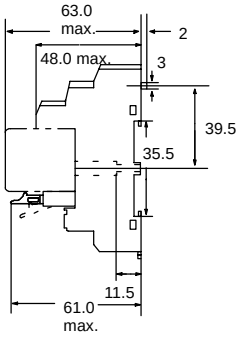

**Mounting Holes (for Surface Mounting)**



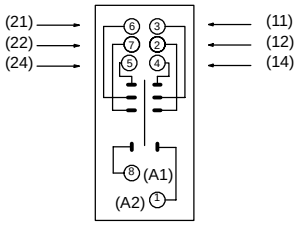

**Note:** Pin numbers in parentheses apply to DIN standard.

**P2RF-08-E**

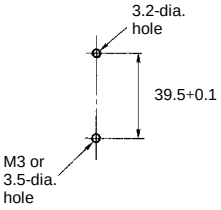



**Terminal Arrangement (Top View)**



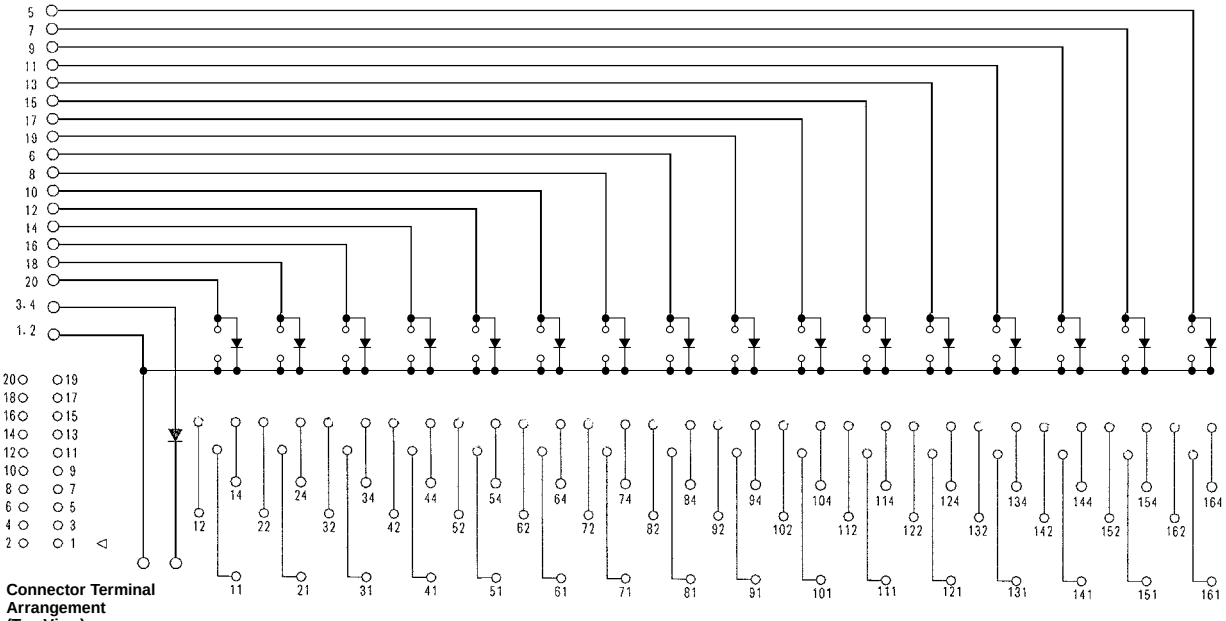

**Mounting Holes (for Surface Mounting)**




# Installation

## ■ Terminal Arrangement/Internal Connection

**G70A-ZOC16-3 (NPN)**

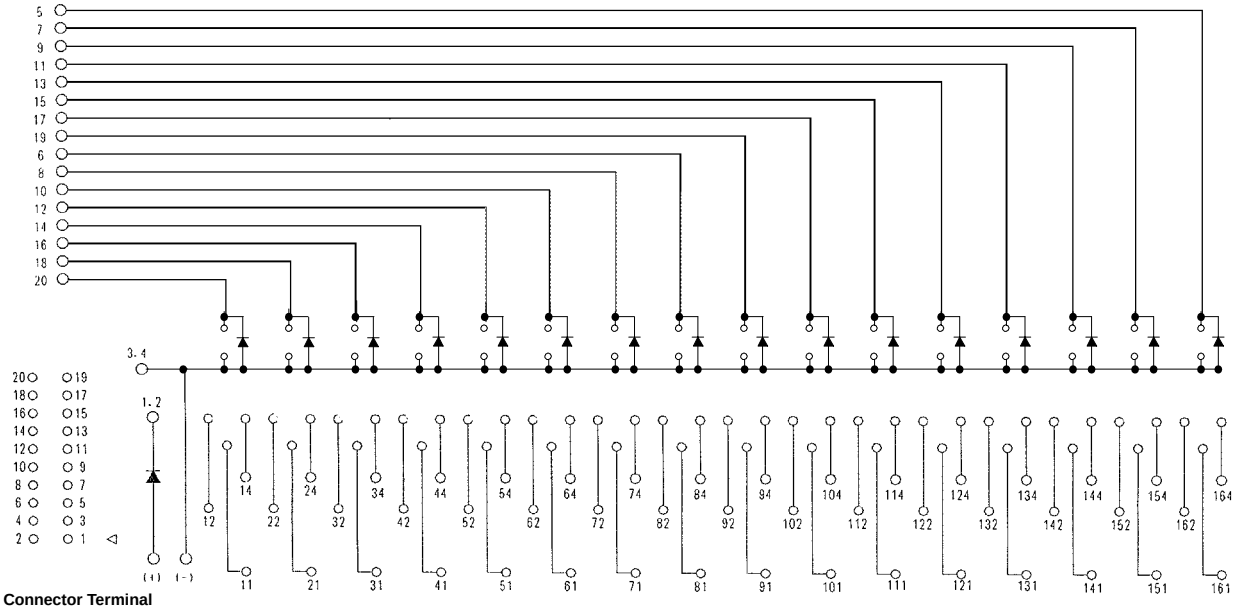



**Connector Terminal Arrangement (Top View)**



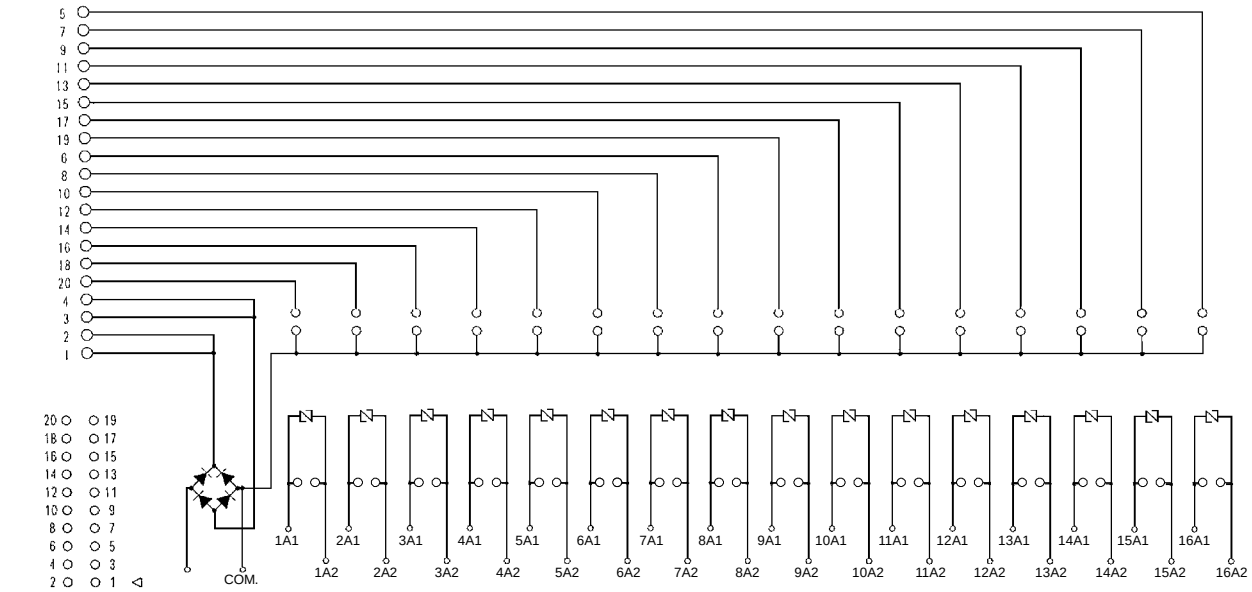
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**G70A-ZOC16-4 (PNP)**




**Connector Terminal Arrangement (Top View)**

**G70A-ZIM16-5 (NPN/PNP)**




**Connector Terminal Arrangement (Top View)**

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J87-E1-2A



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## Used in Combination with G70A or G7TC I/O Blocks

- Effectively reduces wiring requirements while lowering the cost of distributed communications control.
- Each pair of Remote Interfaces and I/O Blocks is easily connected through a single connector to provide 16 input/output points of distributed control.
- Two-conductor cable communications are possible with OMRON Wired Remote I/O Master Units (C500-RM201 or C200H-RM201)
- Isolated transmission lines ensure excellent noise immunity.
- DIN track mounting ensures easy installation, while diagnostic functions provide troubleshooting ease.

# Ordering Information

| Classification | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|
| **For input** | NPN (+ common) | 24 VDC | G71-IC16 |
| | | | G71-IC16-3 |
| **For output** | NPN (– common) | 24 VDC | G71-OD16 |

### Remote Interface and I/O Block Combinations

| Applicable I/O Block | | | Remote Interface |
|---|---|---|---|
| **AC input block** | 110/120 VAC | G7TC-IA16 110/120 VAC | G71-IC16 24 VDC |
| | 220/240 VAC | G7TC-IA16 220/240 VAC | |
| | 230 VAC (see note 2) | G70A-ZIM16-5 + G2R-1-SN-AP3 230 VAC | G71-IC16-3 24 VDC |
| **DC input block** | 24 VDC | G7TC-ID16 24 VDC | G71-IC16 24 VDC |
| | 24 VDC (see note 2) | G70A-ZIM16-5 + G2R-1-SN(D)-AP3 24 VDC | G71-IC16-3 24 VDC |
| **Output block** | 24 VDC | G7TC-OC16 24 VDC<br>G7TC-OC08 24 VDC<br>G70A-ZOC16-3 + G2R-1-SN 24 VDC | G71-OD16 24 VDC |

**Note:** 1. Do not connect the G71 with the G7TC-OC16-1 or G7TC-OC08-1 (PNP output, – common). Due to the difference in polarity, the G71 will be damaged if the G71 and G7TC-OC16(or 08)-1 are connected to each other.
Use the G7TC-OC16 or G7TC-OC08 (NPN output, + common) instead, to connect to the G71.

2. The rated voltages and relay models are typical examples. Refer to the *G70A Datasheet (J87)* for details.



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# Specifications

## ■ Ratings

### G71-IC16/IC16-3 Input

| | |
|---|---|
| **Rated input voltage** | 24 VDC |
| **Input current** | 6.7 mA/point |
| **ON delay time (see note)** | 9 ms max. |
| **OFF delay time (see note)** | 14.5 ms max. |
| **Number of circuits** | 16 points (8 points/common) |
| **ON voltage** | 15 VDC max. |
| **OFF voltage** | 5.6 VDC max. |

**Note:** Transistor inputs with an ON-delay time of 1 ms, and OFF-delay time of 1.45 ms are available.

### G71-OD16 Output

| | |
|---|---|
| **Rated input voltage** | 24 VDC |
| **Rated output current** | 30 mA/point |
| **Residual voltage** | 1.2 V max. |
| **Leakage current** | 100 μA max. |
| **Number of circuits** | 16 points (8 points/common) |

## ■ Characteristics

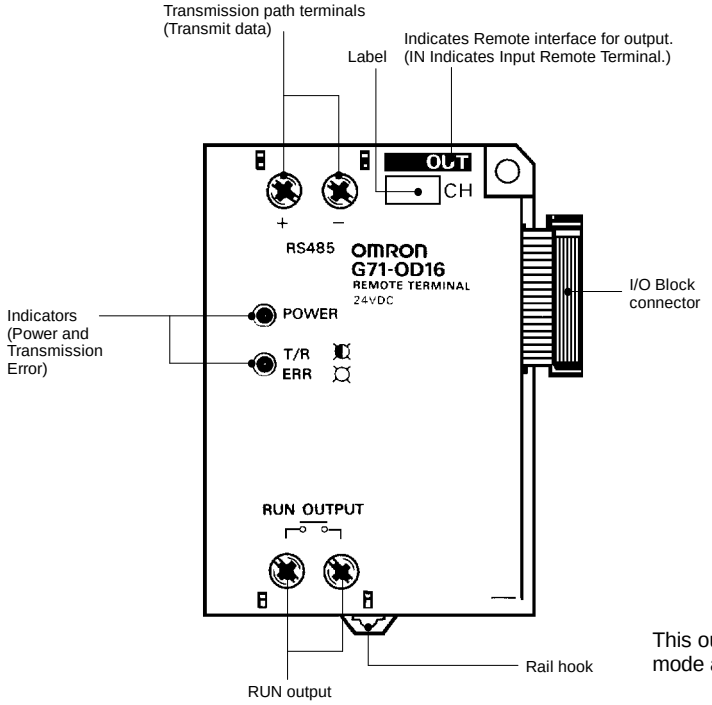
| | |
|---|---|
| **Communication system** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission speed (baud rate)** | 187.5 kbps (transmission time: 2 ms max. per Remote Interface Unit) |
| **Transmission distance** | 200 m (total length) |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x DPDT recommended) |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption (see note)** | 24 VDC: 200 mA max. for input terminal; 500 mA max. for output terminal |
| **RUN output** | SPST-NO contact output (closed during operation)<br>Contact capacity: 100,000 operations at 2 A, 250 VAC (cosf = 1) |
| **Diagnosis** | Transmission error check (BCC plus inverted two-transmission verification check), CPU error monitor |
| **Insulation resistance** | 20 MW min. (at 250 VDC) between transmission circuits and RUN output circuit<br>20 MW min. (at 250 VDC) between RUN output circuit and power circuits<br>20 MW min. (at 250 VDC) between transmission circuits and power circuits |
| **Dielectric strength** | 2,000 VAC, 50/60 Hz for 1 min between transmission circuits and RUN output circuit<br>2,000 VAC, 50/60 Hz for 1 min between RUN output circuit and power circuits<br>500 VAC, 50/60 Hz for 1 min between transmission circuits and power circuits |
| **Noise immunity** | Noise level: 1.5 kV; pulse width: 100 ns to 1 ms |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions (both mounted and not mounted to DIN track) |
| **Shock resistance** | 50G, 3 times each in X, Y, and Z directions |
| **Ambient temperature** | Operating: 0%C to 55%C<br>Storage: –20%C to 65%C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (4.9 N) pull load was applied for 1 s in all directions (except for 1 kgf (0.9 N) in direction of rail) |
| **Terminal strength** | No abnormality when 5 kgf (4.9 N) pull load was applied for 1 s in all directions |
| **Weight** | Approx. 200 g |

**Note:** Consumption for both G71 Remote Interface and G7TC I/O Block when all 16 points are ON. Includes G7T relay coil current for Remote Output Interface. Maximum current consumption when all points are OFF is as follows: 40 mA at 24 VDC.



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# Nomenclature




This output turns ON when the PC is in the RUN or MONITOR mode and no error has occurred; otherwise OFF.

## LED Operation

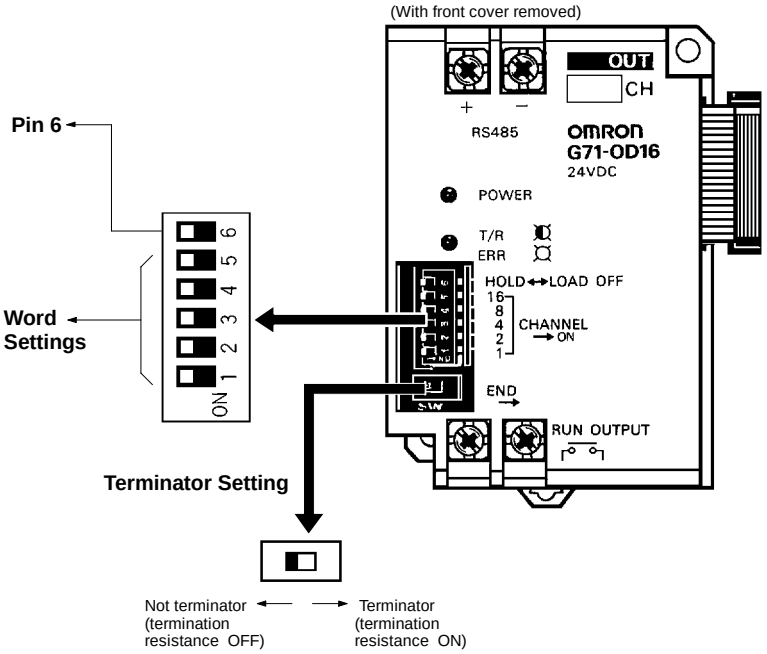
| Display | | Meaning |
|---|---|---|
| **POWER** | **Lit** | Lit when power is supplied and the unit is operating. |
| | **Not lit** | Not lit when power supply is abnormal. |
| **T/R ERR** | **Flashing** | Flashes during normal data transmission. |
| | **Lit** | Lit during standby and transmission error. |
| | **Not lit** | Not lit during CPU (watchdog timer) error. |



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# Operation

## ■ Setting the Front-panel DIP Switch




**Note:** The terminator setting also sets the termination resistance. Be sure to set only one terminator per Remote I/O Master Unit and be sure it is the Unit farthest from the Master. (Set to OFF at the factory).
Set word numbers in backwards order from 31. (Set to 31 at the factory).
See G72C-5 for system configurations and operating precautions.

### Output HOLD/STOP Mode

(for Remote Output Interface only)

| Pin 6 | |
|---|---|
| **HOLD** | **STOP** |
| OUT channel status is held during a slave transmission error. | All OUT channel bits go OFF for a slave transmission error. (see note) |

**Note:** A slave transmission error results if no data or abnormal data is sent from the Master Unit. (Factory-set to STOP mode.)

### Word Settings

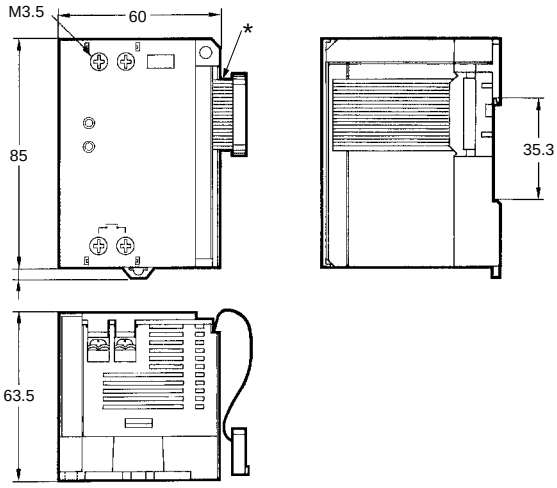
| Word | Pin | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 0 | OFF | OFF | OFF | OFF | OFF |
| 1 | ON | OFF | OFF | OFF | OFF |
| 2 | OFF | ON | OFF | OFF | OFF |
| 3 | ON | ON | OFF | OFF | OFF |
| . . . | . . . | . . . | . . . | . . . | . . . |
| 28 | OFF | OFF | ON | ON | ON |
| 29 | ON | OFF | ON | ON | ON |
| 30 | OFF | ON | ON | ON | ON |
| 31 | ON | ON | ON | ON | ON |



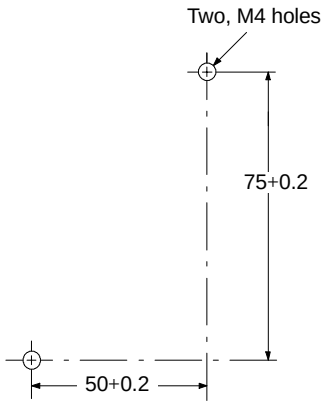
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# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.




**Mounting Holes**

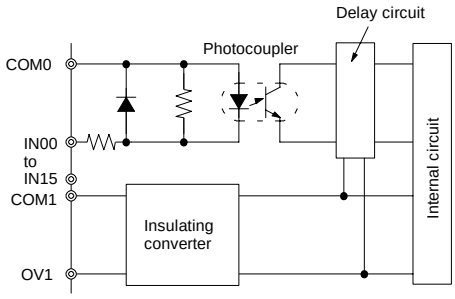



*A flat cable with a length of 85 mm can be used.

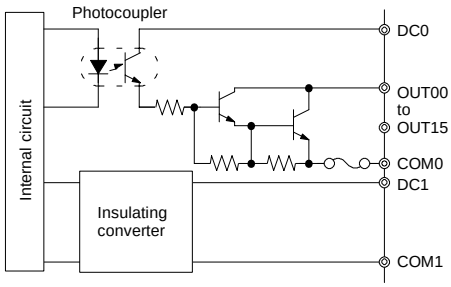
# Installation

## ■ Internal Circuit

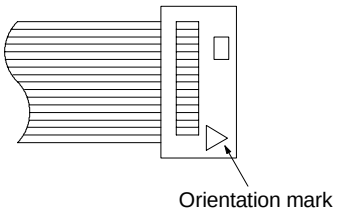
**Input (NPN: + Common)**




**Output (NPN: - Common)**




## ■ Terminal Arrangement




**G71-IC16**

| | |
|---|---|
| IN08 | IN00 |
| IN09 | IN01 |
| IN10 | IN02 |
| IN11 | IN03 |
| IN12 | IN04 |
| IN13 | IN05 |
| IN14 | IN06 |
| IN15 | IN07 |
| COM1 | COM0 |
| OV1 | NC |

**G71-IC16-3**

| | |
|---|---|
| IN08 | IN00 |
| IN09 | IN01 |
| IN10 | IN02 |
| IN11 | IN03 |
| IN12 | IN04 |
| IN13 | IN05 |
| IN14 | IN06 |
| IN15 | IN07 |
| OV1 | NC |
| COM1 | COM0 |

**G71-OD16**

| | |
|---|---|
| OUT08 | OUT00 |
| OUT09 | OUT01 |
| OUT10 | OUT02 |
| OUT11 | OUT03 |
| OUT12 | OUT04 |
| OUT13 | OUT05 |
| OUT14 | OUT06 |
| OUT15 | OUT07 |
| COM1 | COM0 |
| DC1 | DC0 |

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J46-E1-2



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OMRON

# Remote Terminal

# G72C

## Combines the Terminal Block with a Transmission Capability to Reduce Wiring and Save Space

- Each terminal is provided with 16 input/output points that can be connected to a Remote I/O Master Unit (3G2A5-RM201 or C200H-RM201) through a two-conductor cable.
- Can share transmission lines with the G71 Remote Interface and G7TC I/O Block.
- Power terminals are provided for I/O devices.
- Flat-profile design has a height of only 45 mm, while DIN track- and screw-mounting capabilities provide installation flexibility.
- Isolated transmission lines eliminate noise interference.
- I/O signals can be confirmed with the easy-to-see LED indicators.

RC

## Ordering Information

| Classification | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|
| **For input** | NPN (+ common) | 24 VDC | G72C-ID16 |
| | PNP (– common) | | G72C-ID16-1 |
| **For output** | NPN (– common) | 24 VDC | G72C-OD16 |
| | PNP (– common) | | G72C-OD16-1 |

## Specifications

### ■ Ratings

**G72C-ID16-1 Input**

| | |
|---|---|
| **Rated input voltage** | 24 VDC |
| **Input current** | 9.7 mA/point |
| **ON delay time** | 1.5 ms max. |
| **OFF delay time** | 1.5 ms max. |
| **Number of circuits** | 16 points (8 points/common) |
| **ON voltage** | 15 VDC max. |
| **OFF voltage** | 5.6 VDC max. |
| **Insulation method** | Photocoupler |
| **Input indication** | LEDs (green) |

**G72C-OD16-1 Output**

| | |
|---|---|
| **Rated input voltage** | 24 VDC |
| **Rated output current** | 0.3 A/point |
| **Residual voltage** | 1.2 V max. |
| **Leakage current** | 100 μA max. |
| **Number of circuits** | 16 points (8 points/common) |
| **Insulation method** | Photocoupler |
| **Input indication** | LEDs (green) |



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## ■ Characteristics

| | |
|---|---|
| **Communication system** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission speed (baud rate)** | 187.5 kbps (transmission time: 2 ms max. per G72C) |
| **Transmission distance** | 200 m (total length) |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x DPDT recommended) |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption (see note)** | 24 VDC: 200 mA max. |
| **RUN output** | SPST-NO contact output (closed during operation)<br>Contact capacity: 100,000 operations at 2 A, 250 VAC (cosf = 1) |
| **Diagnosis** | Transmission error check (BCC plus inverted two-transmission verification check), CPU error monitor |
| **Insulation resistance** | 20 MW min. (at 250 VDC) |
| **Dielectric strength** | 2,000 VAC, 50/60 Hz for 1 min between RUN output circuit and other terminals<br>500 VAC, 50/60 Hz for 1 min for other terminals |
| **Noise immunity** | Noise level: 1.5 kV; pulse width: 100 ns to 1 ms |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions (both mounted and not mounted to DIN track) |
| **Shock resistance** | 50G, 3 times each in X, Y, and Z directions |
| **Ambient temperature** | Operating: 0%C to 55%C<br>Storage: –20%C to 65%C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (4.9 N) pull load was applied for 1 s in all directions<br>(except for 1 kgf (0.9 N) in direction of rail) |
| **Terminal strength** | No abnormality when 5 kgf (4.9 N) pull load was applied for 1 s in all directions |
| **Weight** | Approx. 380 g |

**Note:** Consumption when all 16 points are ON. Excludes external current for Remote Input Terminal and external load current for Remote Output Terminal. Maximum current consumption for both input and output when all points are OFF will be 40 mA at 24 VDC.

## ■ Approved Standards

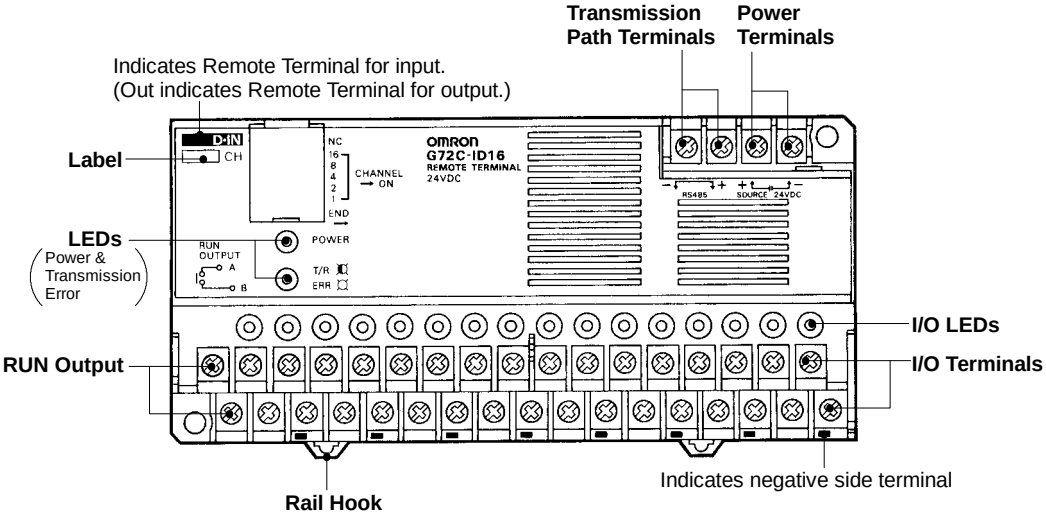
### UL (File No. E41515)
### CSA (File No. LR31928)

The G72C-ID16/-OD16 has received UL and CSA approvals.



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# Nomenclature

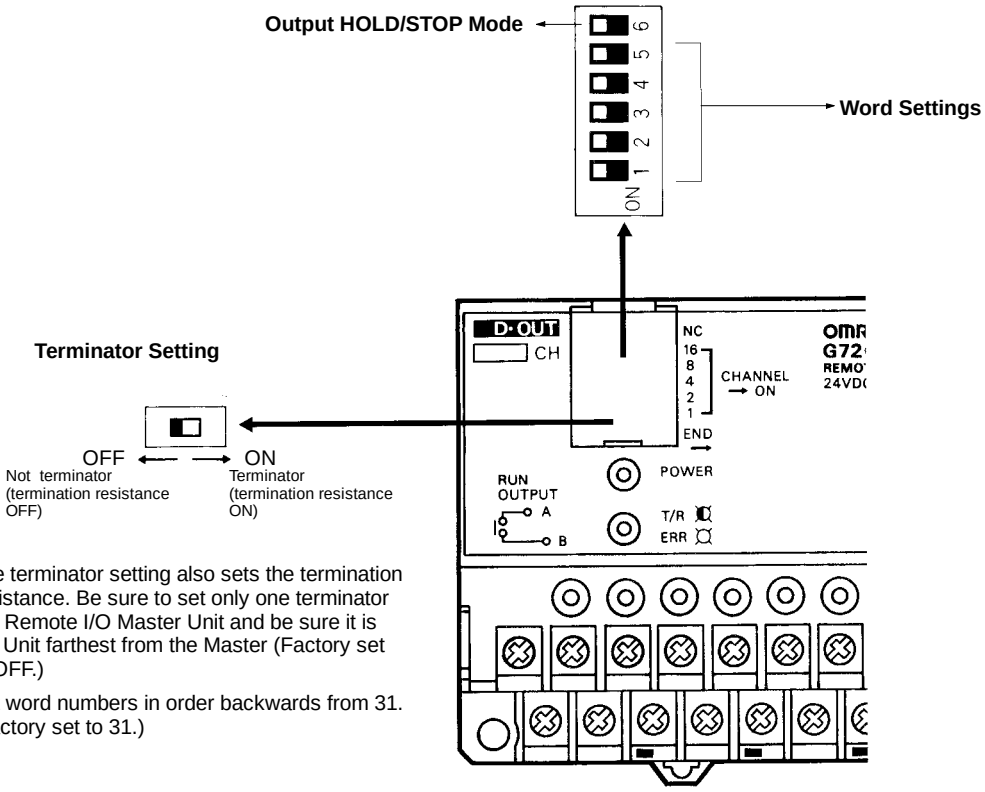



### LED Operation

| Display | | Meaning |
|---|---|---|
| **POWER** | **Lit** | Lit when power is supplied and the unit is operating. |
| | **Not lit** | Not lit when power supply is abnormal. |
| **T/R ERR** | **Flashing** | Flashes during normal data transmission. |
| | **Lit** | Lit during standby and transmission error. |
| | **Not lit** | Not lit during CPU (watchdog timer) error. |

# Operation

## ■ Setting




The terminator setting also sets the termination resistance. Be sure to set only one terminator per Remote I/O Master Unit and be sure it is the Unit farthest from the Master (Factory set to OFF.)

Set word numbers in order backwards from 31. (Factory set to 31.)



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### Output HOLD/STOP Mode

(for Remote Output Interface only)

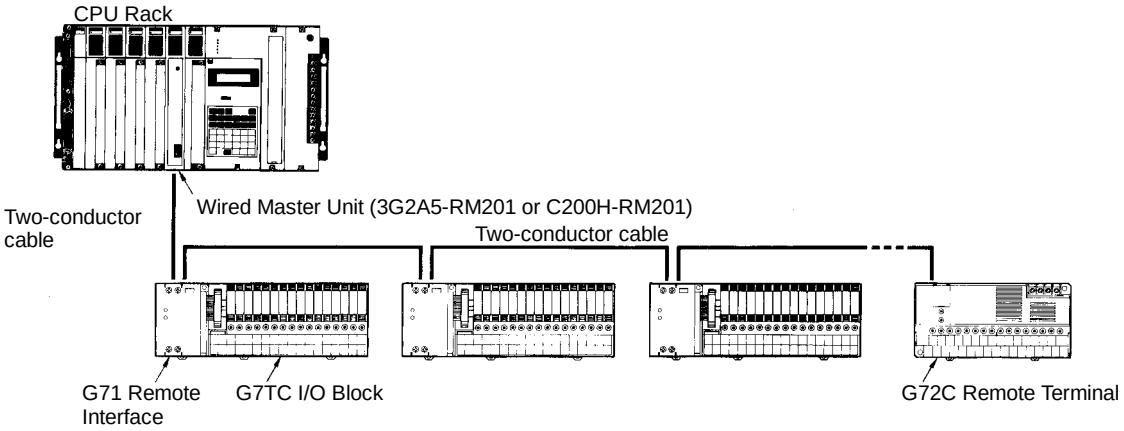
| Pin 6 | |
|---|---|
| **HOLD** | **STOP** |
| OUT channel status is held during a slave transmission error. | All OUT channel bits go OFF for a slave transmission error. (see note) |

**Note:** A slave transmission error results if no data or abnormal data is sent from the Master Unit. (Factory-set to STOP mode.)

### Word Settings

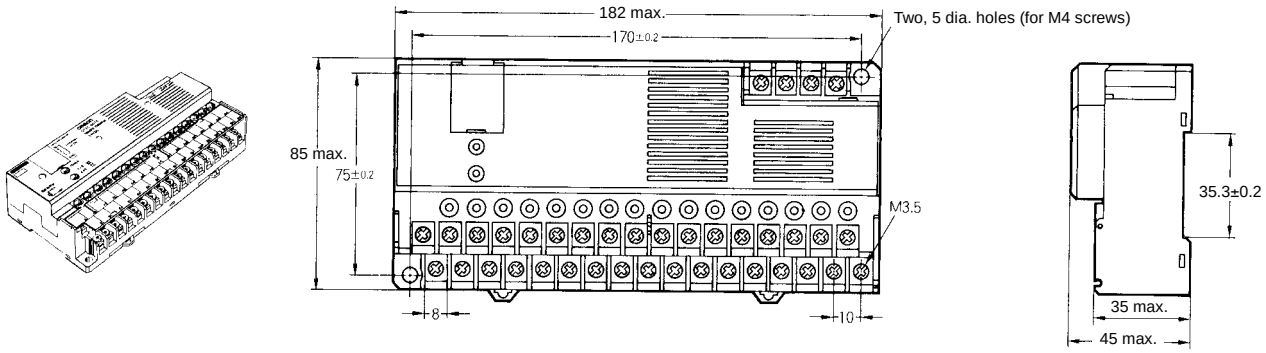
| Word | Pin | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 0 | OFF | OFF | OFF | OFF | OFF |
| 1 | ON | OFF | OFF | OFF | OFF |
| 2 | OFF | ON | OFF | OFF | OFF |
| 3 | ON | ON | OFF | OFF | OFF |
| . . . | . . . | . . . | . . . | . . . | . . . |
| 28 | OFF | OFF | ON | ON | ON |
| 29 | ON | OFF | ON | ON | ON |
| 30 | OFF | ON | ON | ON | ON |
| 31 | ON | ON | ON | ON | ON |

## ■ System Configuration




# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.



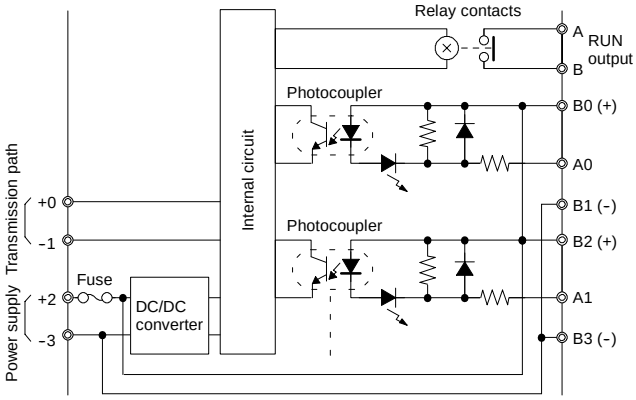



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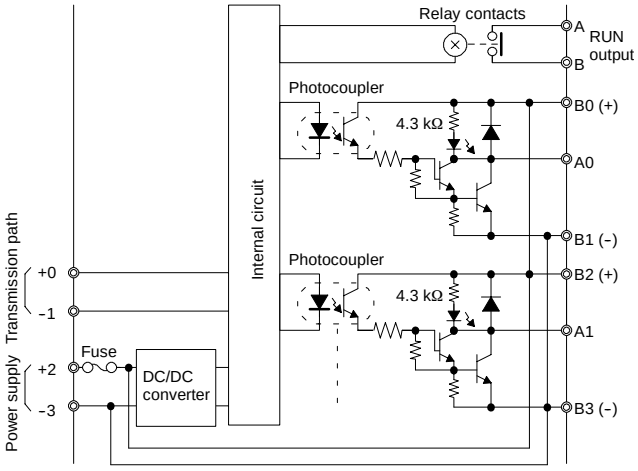
# Installation

## ■ Internal Circuits

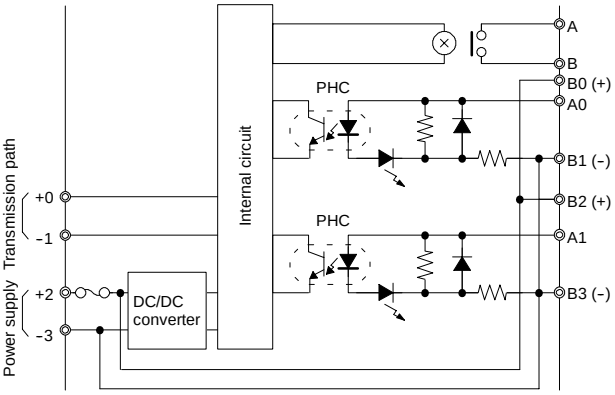
### G72C-ID16 for Input



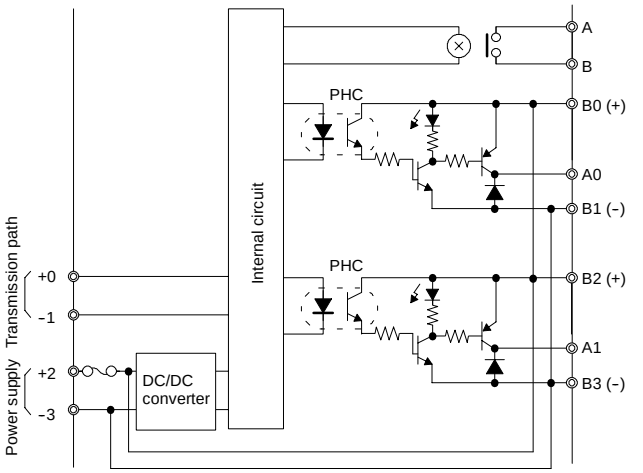

### G72C-OD16 for Output



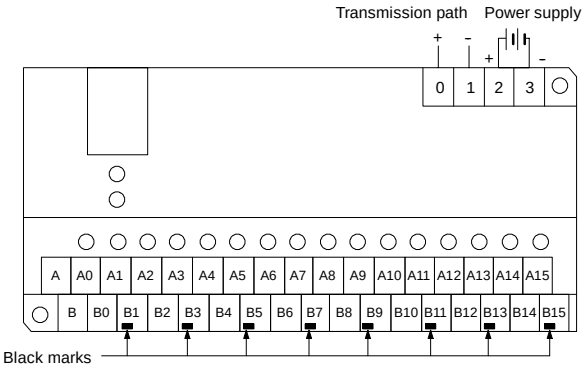

### G72C-ID16-1 for Input




### G72C-OD16-1 for Output




## ■ Terminal Arrangement



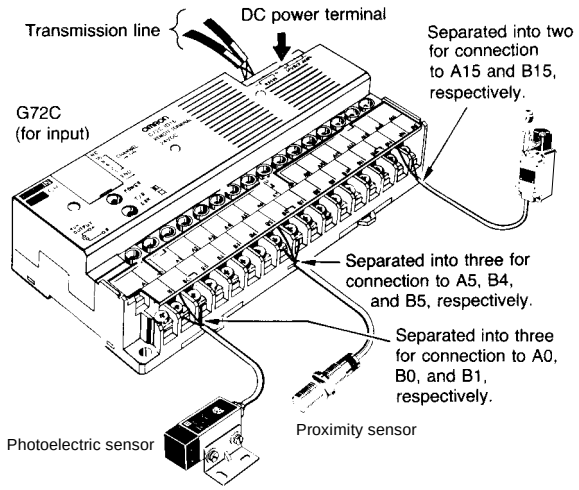

**Note:** Positive power terminal no. 2 at the upper-right part is internally connected to the B0, B2, B4, B6, B8, B10, B12, and B14 I/O terminals at the lower part, and negative power terminal no. 3 at the upper-right part is internally connected to the B1, B3, B5, B7, B9, B11, B13, and B15 I/O terminals at the lower part and have black marks.



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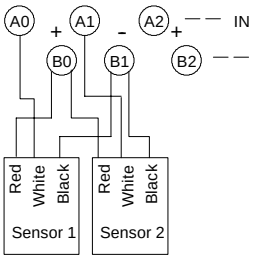
## ■ Connection with I/O Devices

(Repeater terminal block for sensor/load power wiring is not required.)

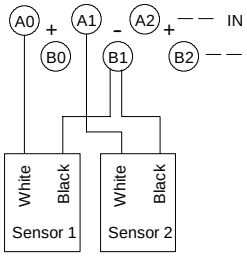



### For Input

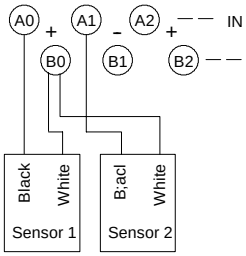
**Three-wire Connection**




**Two-wire Connection**
**G72C-ID16**

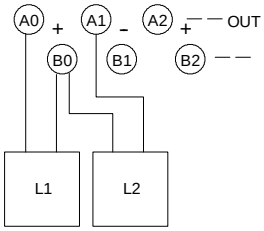



**Two-wire Connection**
**G72C-ID16-1**

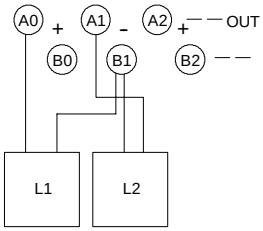



### For Output

**G72C-OD16**




**G72C-OD16-1**




# Precautions

### Proper Application

Each node can consist of either a G72C Remote Terminal or a G71 Remote Interface and G7TC I/O Block pair.

Each Remote I/O Subsystem connected to a Master Unit can contain up to 32 nodes.

Never connect or disconnect a G71 Remote Interface without first turning off the power. Failure to turn off the power can result in operational errors.

All Units are available as 24-VDC Input or 24-VDC Output Models. Be sure to supply the correct power to each Unit and combine only compatible units.

I/O specifications are provided in the following. Proper combinations can be checked with label colors.

The G71 Remote Output Interface corresponds to NPN (- common). Use the NPN-output G7TC Models (+ common) when connecting.



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Always confirm that all G71 and G72C Units have been turned on before turning providing power to the Master.

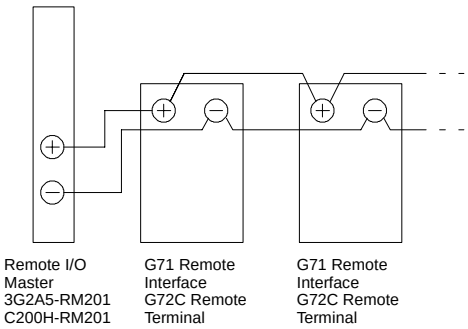
| | G71 Remote Interface | | G7TC I/O Block | | G72C Remote Terminal | |
|---|---|---|---|---|---|---|
| | **Model** | **Label color** | **Model** | **Label display (color)** | **Model** | **Label color** |
| **Input** | G71-IC16 | Red | G7TC-IA16/ID16 | US16 (red) | G72C-ID16 | Red |
| **Output** | G71-OD16 | Yellow | G7TC-OC16/OC08 | OS16/OS08 (yellow) | G72C-OD16 | Yellow |

**Note:** Do not connect a G71 Remote Interface to a G7TC-OC16-1 I/O Block, which is a PNP Model (– common) and therefore incompatible.

## Connections

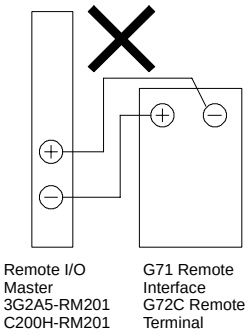
**Correct Example**

Always wire in order from the Master, connecting positive to positive and negative to negative, without branching.



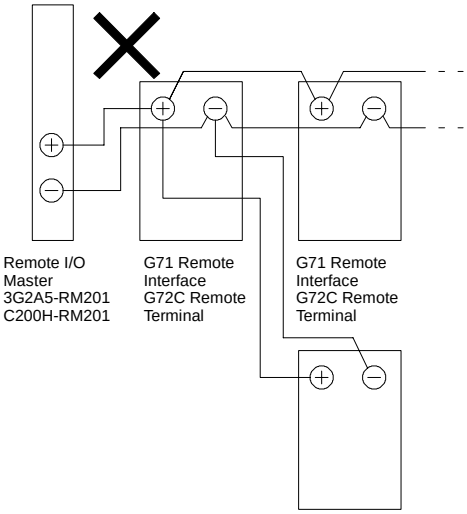

**Incorrect Example 1**

The wiring below is incorrect because positive has been connected to negative.




**Incorrect Example 2**

The wiring below is incorrect because a branch has been created.




**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J47-E1-1B



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OMRON

# Remote Terminal

# G72C-V

## Slim-profile Remote Terminal Combines the Terminal Block with a Transmission Capability

- Slim-profile design has a depth of only 45 mm against a width of 202 mm and a height of 63 mm.
- Each Terminal Unit is provided with 16 input/output points that can be connected to a Remote I/O Master Unit (3G2A5-RM201 or C200H-RM201) through a two-wire cable.
- Power terminals are provided for I/O devices.
- Can share transmission lines with the G71 Remote Interface and G7TC or G72C I/O Block.
- Isolated transmission lines eliminate noise interference.
- DIN track- and screw-mounting capabilities provide installation flexibility.

RC

## Ordering Information

| Classification | Internal I/O circuit common | I/O points | Rated voltage | Model |
|---|---|---|---|---|
| **For input** | NPN (+ common) | 16 points | 24 VDC | G72C-VID16 |
| **For output** | NPN (- common) | | 24 VDC | G72C-VOD16 |

**Note:** UL and CSA approvals are pending.

## Specifications

### ■ Ratings

**G72C-VID16 Input**

| | |
|---|---|
| **Input current** | 9.7 mA/point |
| **ON delay time** | 1.5 ms max. |
| **OFF delay time** | 1.5 ms max. |
| **Number of circuits** | 16 points (8 points/common) |
| **ON voltage** | 15 VDC max. |
| **OFF voltage** | 5.6 VDC max. |
| **Insulation method** | Photocoupler |
| **Input indication** | LEDs (green) |

**G72C-VOD16 Output**

| | |
|---|---|
| **Rated output current** | 0.3 A/point, 2.4 A/unit |
| **Residual voltage** | 1.2 V max. |
| **Leakage current** | 100 μA max. |
| **Number of circuits** | 16 points (8 points/common) |
| **Insulation method** | Photocoupler |
| **Input indication** | LEDs (green) |



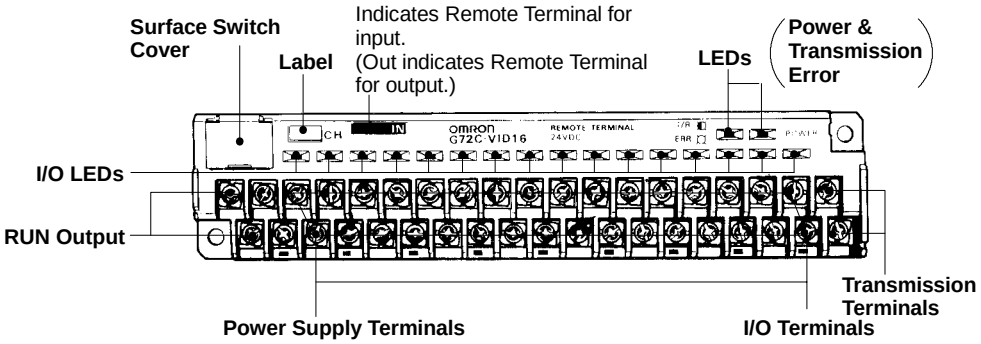
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## ■ Characteristics

| | |
|---|---|
| **Communication system** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission speed (baud rate)** | 187.5 kbps (transmission time: 2 ms max. per G72C-V) |
| **Transmission distance** | 200 m (total length) |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x DPDT recommended) |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption (see note)** | 24 VDC: 200 mA max. |
| **RUN output** | SPST-NO contact output (closed during operation)<br>Contact capacity: 100,000 operations at 2 A, 250 VAC (cosf = 1) |
| **Diagnosis** | Transmission error check (BCC plus inverted two-transmission verification check), CPU error monitor |
| **Insulation resistance** | 20 MW min. (at 250 VDC) |
| **Dielectric strength** | 2,000 VAC, 50/60 Hz for 1 min between RUN output circuit and other terminals<br>500 VAC, 50/60 Hz for 1 min for other terminals |
| **Noise immunity** | Noise level: 1.5 kV; pulse width: 100 ns to 1 ms |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions (both mounted and not mounted to DIN track) |
| **Shock resistance** | 500 m/s$^2$ (approx. 50G) |
| **Ambient temperature** | Operating: 0%C to 55%C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (4.9 N) pull load was applied for 1 s in all directions<br>(except for 1 kgf (0.9 N) in direction of rail) |
| **Terminal strength** | No abnormality when 5 kgf (4.9 N) pull load was applied for 1 s in all directions |
| **Weight** | Approx. 380 g |

**Note:** Consumption when all 16 points are ON. Excludes external sensor current for Remote Input Terminal and external load current for Remote Output Terminal. Maximum current consumption for both input and output when all points are OFF will be 40 mA at 24 VDC.

# Nomenclature




### LED Operation

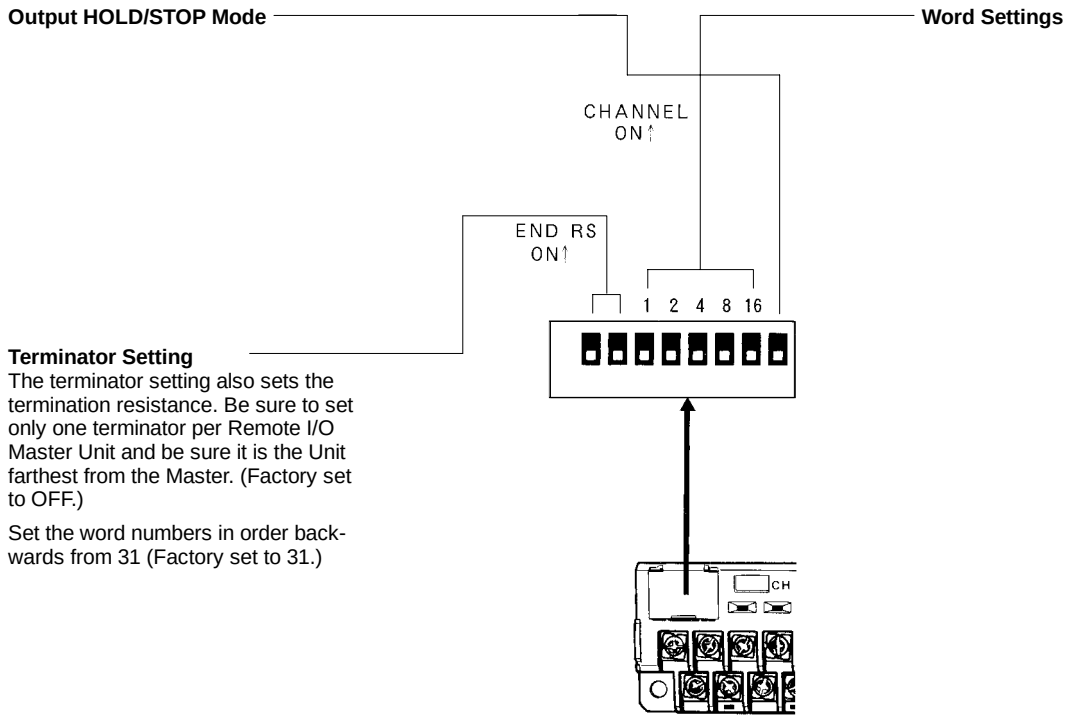
| Display | | Meaning |
|---|---|---|
| **POWER** | **Lit** | Lit when power is supplied and the unit is operating. |
| | **Not lit** | Not lit when power supply is abnormal. |
| **T/R ERR** | **Flashing** | Flashes during normal data transmission. |
| | **Lit** | Lit during standby and transmission error. |
| | **Not lit** | Not lit during CPU (watchdog timer) error. |



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# Operation

## ■ Setting




### Output HOLD/STOP Mode

(for Remote Output Interface only)

| Pin 6 | |
|---|---|
| **HOLD** | **STOP** |
| OUT channel status is held during a slave transmission error. | All OUT channel bits go OFF for a slave transmission error. (see note) |

**Note:** A slave transmission error results if no data or abnormal data is sent from the Master Unit. (Factory-set to STOP mode.)

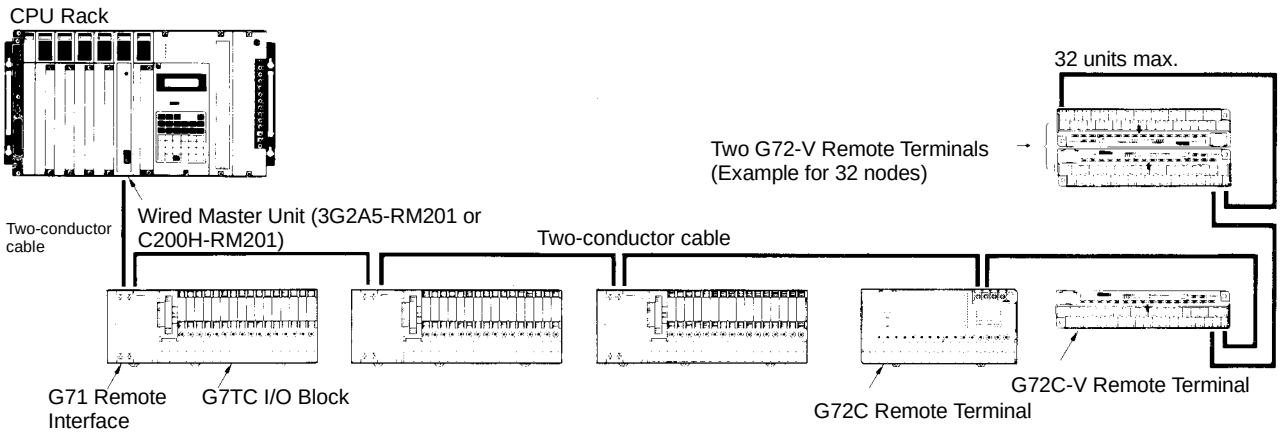
### Word Settings

| Word | Pin | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 0 | OFF | OFF | OFF | OFF | OFF |
| 1 | ON | OFF | OFF | OFF | OFF |
| 2 | OFF | ON | OFF | OFF | OFF |
| 3 | ON | ON | OFF | OFF | OFF |
| . . . | . . . | . . . | . . . | . . . | . . . |
| 28 | OFF | OFF | ON | ON | ON |
| 29 | ON | OFF | ON | ON | ON |
| 30 | OFF | ON | ON | ON | ON |
| 31 | ON | ON | ON | ON | ON |



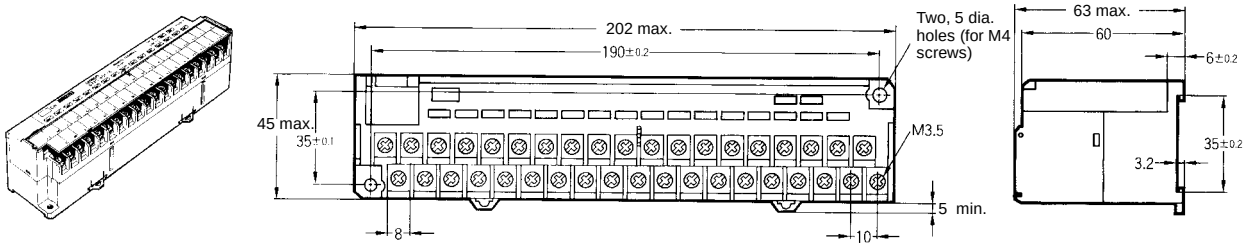
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## ■ System Configuration




# Dimensions

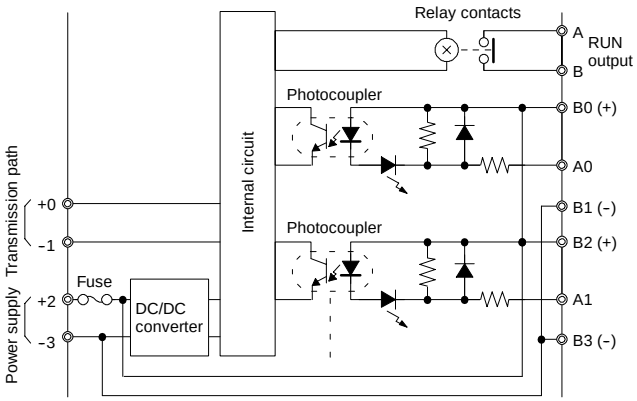
**Note:** All units are in millimeters unless otherwise indicated.



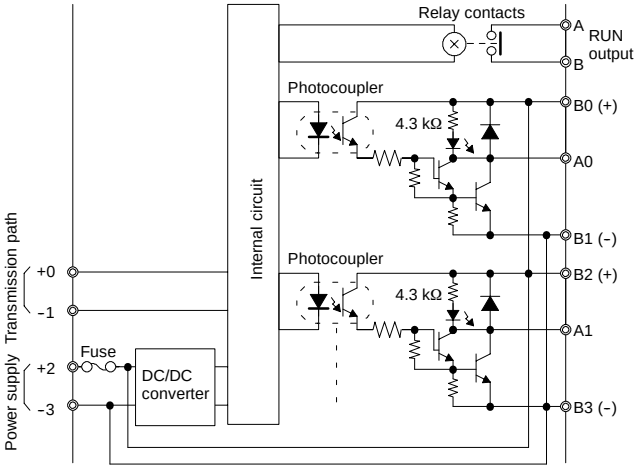

# Installation

## ■ Internal Circuits

**G72C-VID16 for Input, NPN (+ Common)**




**G72C-VOD16 for Output, NPN (- Common)**

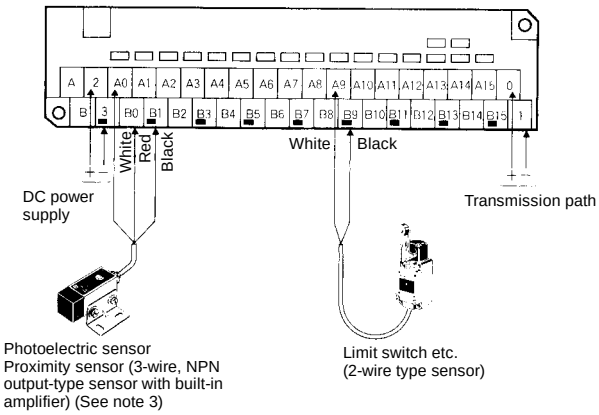




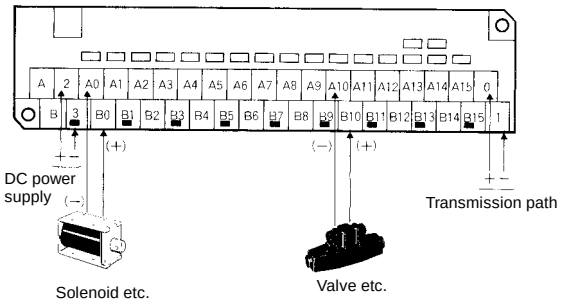

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## ■ Terminal Arrangement and I/O Device Connection Examples

**G72C-VID16 for Input**




**G72C-VOD16 for Output**

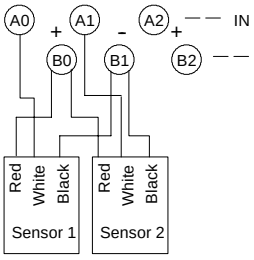



**Note:** 1. Positive power terminal no. 2 at the upper-right part is internally connected to the B0, B2, B4, B6, B8, B10, B12, and B14 I/O terminals at the lower part, and negative power terminal no. 3 at the upper-right part is internally connected to the B1, B3, B5, B7, B9, B11, B13, and B15 I/O terminals at the lower part and have black marks.

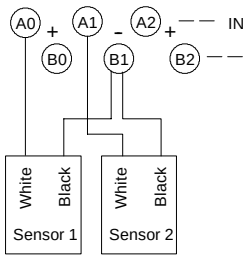
2. The capacity of the DC power supply should be large enough to cover the total power consumption of the G72C-V's LED indicators and I/O devices.
3. Three-wire PNP output sensors cannot be connected.

**For Input**

**Three-wire Connection**

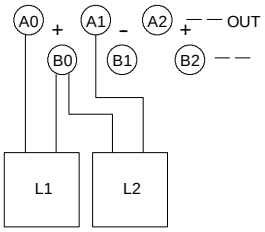



**Two-wire Connection**




**For Output**

**G72C-OD16**




# Precautions

## Proper Application

Each node can consist of either a G72C Remote Terminal or a G71 Remote Interface and G7TC I/O Block pair.

Each Remote I/O Subsystem connected to a Master Unit can contain up to 32 nodes.

Never connect or disconnect a G71 Remote Interface without first turning off the power. Failure to turn off the power can result in operational errors.

All Units are available as 24-VDC Input or 24-VDC Output Models. Be sure to supply the correct power to each Unit and combine only compatible units.
I/O specifications are provided in the following. Proper combinations can be checked with label colors.
The G71 Remote Output Interface corresponds to NPN (- common). Use the NPN-output G7TC Models (+ common) when connecting.

Always confirm that all G71 and G72C Units have been turned on before turning providing power to the Master.

| | G71 Remote Interface | | G7TC I/O Block | | G72C Remote Terminal | |
|---|---|---|---|---|---|---|
| | Model | Label color | Model | Label display (color) | Model | Label color |
| **Input** | G71-IC16 | Red | G7TC-IA16/ID16 | US16 (red) | G72C-ID16 | Red |
| **Output** | G71-OD16 | Yellow | G7TC-OC16/OC08 | OS16/OS08 (yellow) | G72C-OD16 | Yellow |

**Note:** Do not connect a G71 Remote Interface to a G7TC-OC16-1 I/O Block, which is a PNP Model (- common) and therefore incompatible.

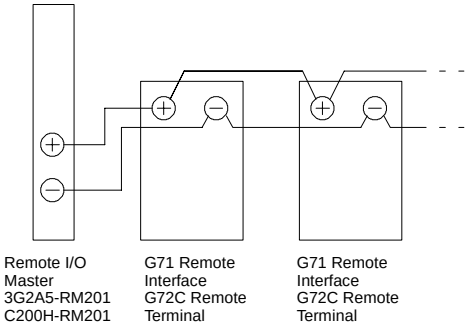


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## Connections

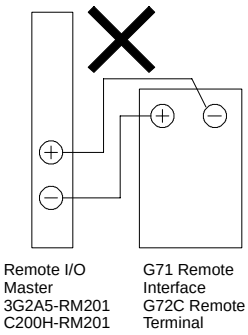
**Correct Example**

Always wire in order from the Master, connecting positive to positive and negative to negative, without branching.



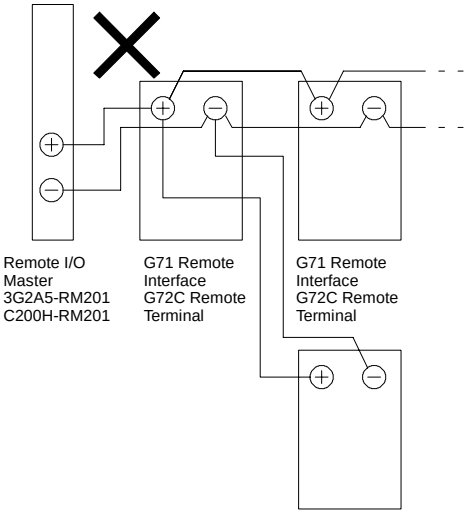

**Incorrect Example 1**

The wiring below is incorrect because positive has been connected to negative.




**Incorrect Example 2**

The wiring below is incorrect because a branch has been created.




**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J47-E1-1B



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OMRON

# Remote I/O Terminal

# G720

## Space-saving Remote I/O Terminal with Consolidated Functions Reduces Wiring

- Vertical type with 202 (W) x 63 (H) x 45 (D).
- Each Output Terminal transmits 16-point signals to the C500-or C200H-RM201 Remote I/O Master Unit and the Input Terminal receives 16-point signals from the Remote I/O Master Unit.
- Can share transmission lines with the G71, G7TC, or G72C.
- Isolated transmission lines eliminate noise interference.
- I/O signals can be confirmed with the easy-to-see LED indicators.

## Ordering Information

| Internal I/O circuit common | Rated voltage | Model |
|---|---|---|
| NPN | 24 VDC | G720-VID16C |

### ■ Accessories (Order Separately)

| | |
|---|---|
| **Mounting Track** | PFP-100N, PFP-50N, PFP-100N2 |
| **End Plates** | PFP-M |
| **Spacers** | PFP-S |

## Specifications

### ■ Ratings

**Input Terminal**

| | |
|---|---|
| **Rated input voltage** | 24 VDC |
| **Input current** | 9.7 mA/point |
| **ON delay time** | 1.5 ms max. |
| **OFF delay time** | 1.5 ms max. |
| **Number of circuits** | 16 points/common |
| **ON voltage** | 15 VDC max. |
| **OFF voltage** | 5.6 VDC min. |
| **Insulation method** | Photocoupler |
| **Input indication** | LEDs (green) |



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## ■ Characteristics

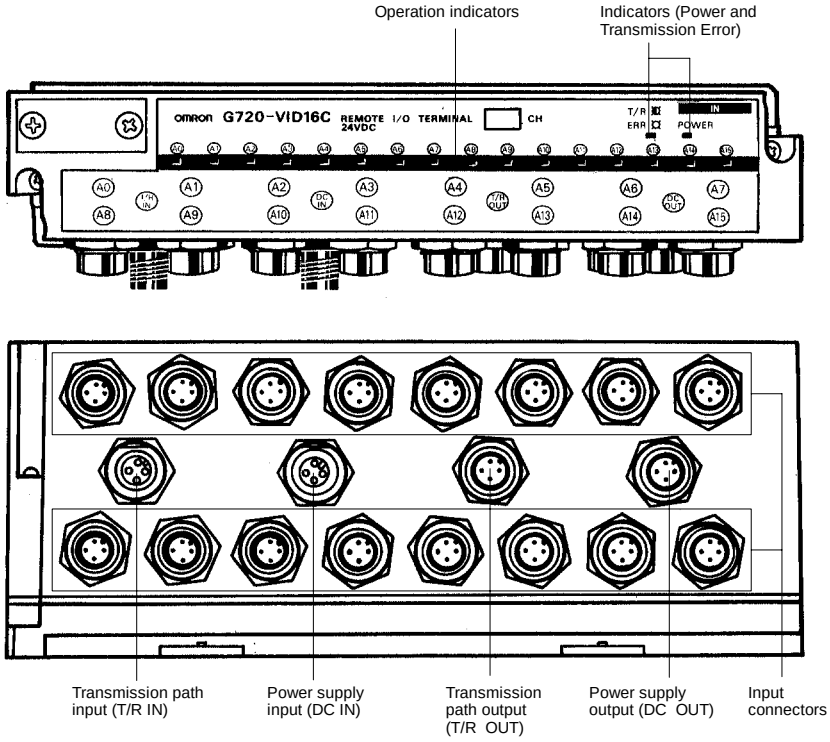
| | |
|---|---|
| **Communication method** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission distance** | 200 m (total length) |
| **Transmission speed (baud rate)** | 187.5 kbps (transmission time: 2 ms max. per G720) |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption** | 24 VDC: 200 mA max. (see Note) |
| **Diagnosis** | Transmission error check (BCC plus inverted 2-transmission verification check) and CPU error monitor |
| **Insulation resistance** | 20 MW min. (at 250 VDC) |
| **Dielectric strength** | 2,000 VAC, 50/60 Hz for 1 min between transmission circuits and DIN rail |
| **Noise immunity** | Noise level: 1.5 kV; pulse width: 100 ns to 1 ms (transmission path line winding noise only) |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions (both mounted and not mounted to DIN rail) |
| **Shock resistance** | 300 $m/s^2$ (approx. 30G) |
| **Ambient temperature** | Operating: 0%C to 55%C<br>Storage: –20%C to 65%C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (49N) pull load was applied for 1 s in all directions (except for 1 kgf (9.8 N) in direction of rail) |
| **Enclosure rating** | Drip-proof construction |
| **Weight** | Approx. 680 g |

**Note:** The current consumption shows the current that is consumed when all 16 points are ON excluding the current consumed by the external sensor. When all points are OFF, the current consumption will be 40 mA max. at 24 VDC.



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# Nomenclature

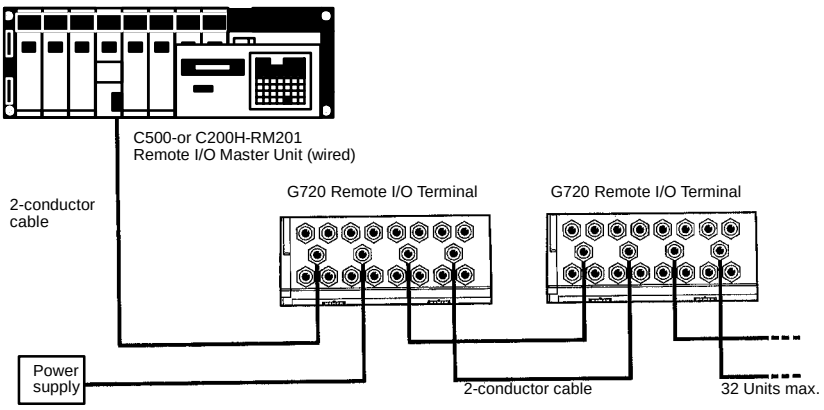



### LED Operation

| Display | | Function |
|---|---|---|
| **POWER** | **Lit** | Lit when power is supplied and the unit is operating. |
| | **Not lit** | Not lit when power supply is abnormal. |
| **T/R ERR** | **Flashing** | Flashes during normal data transmission. |
| | **Lit** | Lit during standby and transmission error. |
| | **Not lit** | Not lit during CPU (watchdog timer) error. |

# Operation

## ■ System Configuration

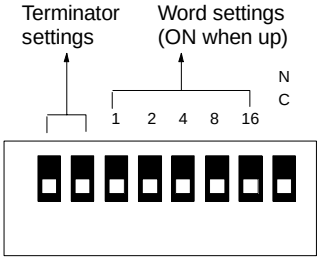





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## ■ Setting the Back-panel DIP Switch

Turn off the power supply before setting the DIP switch.




### Terminator Settings

To specify the Terminal as the terminator and connect terminator resistance, turn ON both pins. These pins must be turned ON on only the End Slave for each Master. The terminals are not factory-set as a terminator.

Assign words to the Terminals starting backward from word 31. The Terminal is factory-set to word 31.

### Word Settings

| Word | Pin | | | | | Word | Pin | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | 16 | | 1 | 2 | 4 | 8 | 16 |
| **0** | OFF | OFF | OFF | OFF | OFF | **16** | OFF | OFF | OFF | OFF | ON |
| **1** | ON | OFF | OFF | OFF | OFF | **17** | ON | OFF | OFF | OFF | ON |
| **2** | OFF | ON | OFF | OFF | OFF | **18** | OFF | ON | OFF | OFF | ON |
| **3** | ON | ON | OFF | OFF | OFF | **19** | ON | ON | OFF | OFF | ON |
| **4** | OFF | OFF | ON | OFF | OFF | **20** | OFF | OFF | ON | OFF | ON |
| **5** | ON | OFF | ON | OFF | OFF | **21** | ON | OFF | ON | OFF | ON |
| **6** | OFF | ON | ON | OFF | OFF | **22** | OFF | ON | ON | OFF | ON |
| **7** | ON | ON | ON | OFF | OFF | **23** | ON | ON | ON | OFF | ON |
| **8** | OFF | OFF | OFF | ON | OFF | **24** | OFF | OFF | OFF | ON | ON |
| **9** | ON | OFF | OFF | ON | OFF | **25** | ON | OFF | OFF | ON | ON |
| **10** | OFF | ON | OFF | ON | OFF | **26** | OFF | ON | OFF | ON | ON |
| **11** | ON | ON | OFF | ON | OFF | **27** | ON | ON | OFF | ON | ON |
| **12** | OFF | OFF | ON | ON | OFF | **28** | OFF | OFF | ON | ON | ON |
| **13** | ON | OFF | ON | ON | OFF | **29** | ON | OFF | ON | ON | ON |
| **14** | OFF | ON | ON | ON | OFF | **30** | OFF | ON | ON | ON | ON |
| **15** | ON | ON | ON | ON | OFF | **31** | ON | ON | ON | ON | ON |

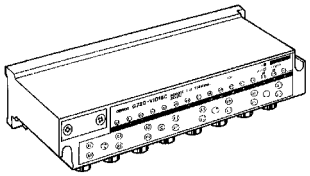


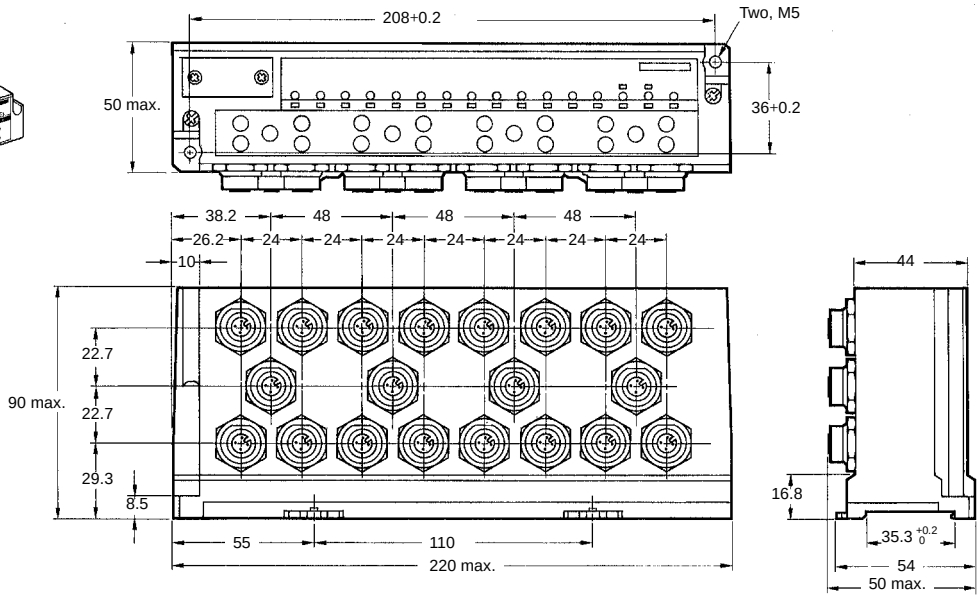
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# Dimensions

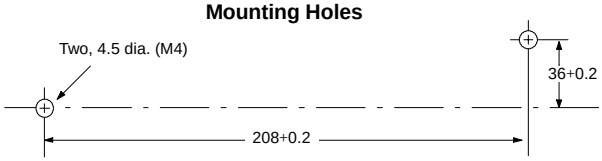
**Note:** All units are in millimeters unless otherwise indicated.

**G720-VID16C**



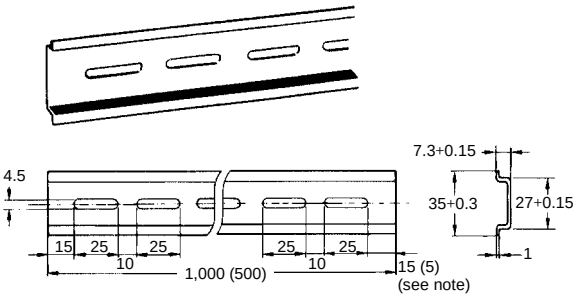



**Mounting Holes**

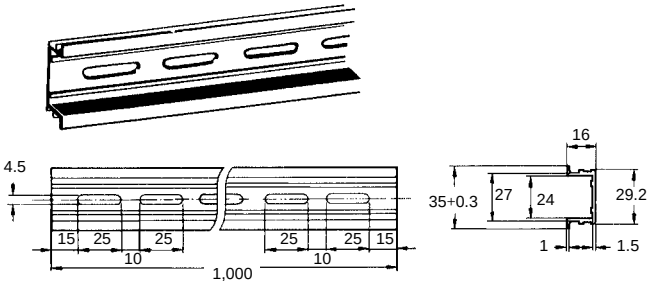



## Accessories

**Mounting Track**
**PFP-100N/PFP-50N**

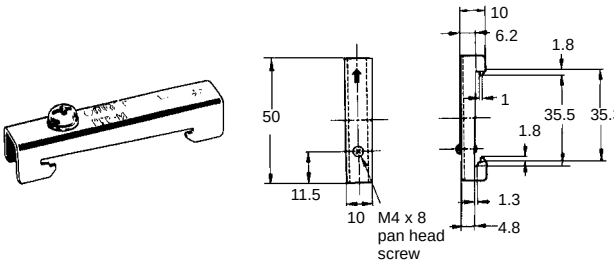



**PFP-100N2**

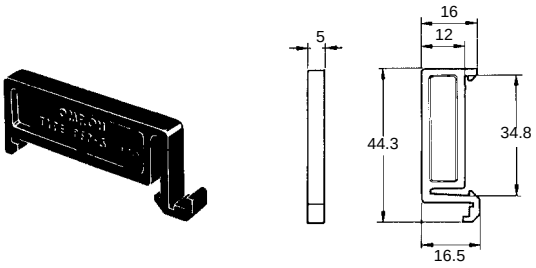



**Note:** The values shown in parenthesis are for the PFP-50N.

**End Plates**
**PFP-M**




**Spacers**
**PFP-S**

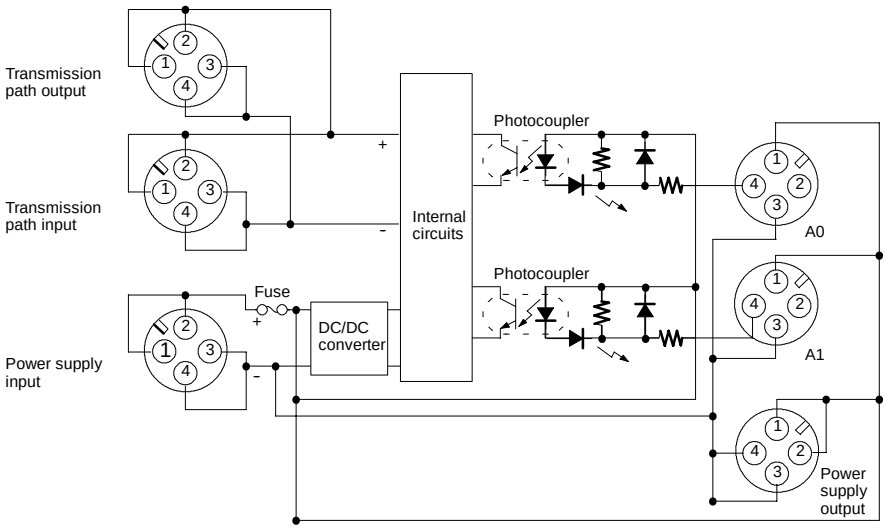





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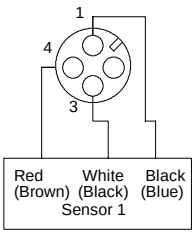
# Installation

## ■ Internal Circuit Configuration

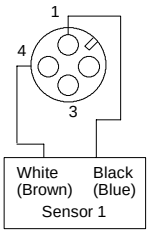



## ■ External Circuit Configuration

**Three-wire Connection**



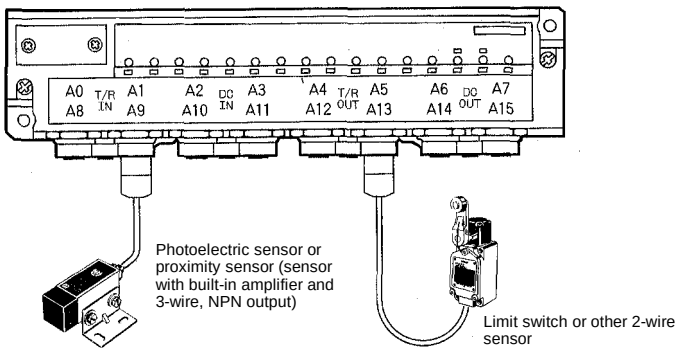

**Two-wire Connection**




## ■ Terminal Arrangement/I/O Device Connection Examples

A power supply relay terminal block is not required for sensors/loads.

**Input Terminal**





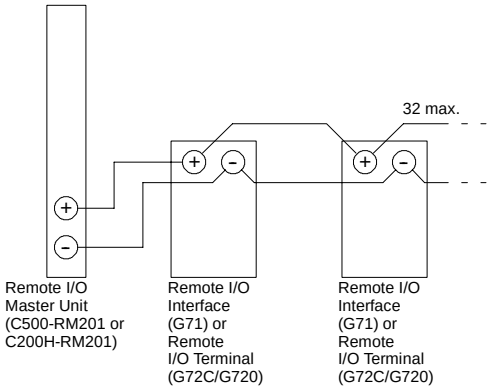

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# Precautions

## Connection Example

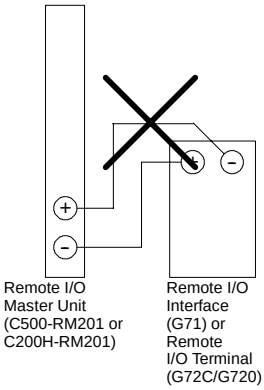
### Correct Example

Connect the Slaves in series starting from the Master.



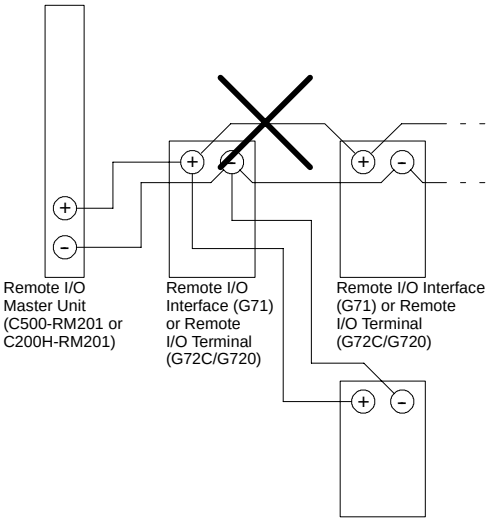

### Incorrect Example 1

Do not reverse polarity.




### Incorrect Example 2

Do not branch connections.




## Recommended Connecting Methods of OMRON's Sensor and Connector with Cable

When connecting a sensor I/O connector to OMRON's sensor, refer to the following table and select the colors of the cable conductor covers for the purposes of unification and easy maintenance.

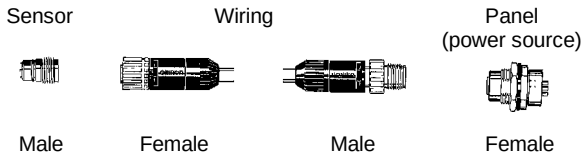
| Connector terminal number | Recommended color | Sensor output stage | | |
|---|---|---|---|---|
| | | Two-wire | Three-wire | Four-wire |
| 1 | Red | Not used | Power supply (+V) | Power supply (+V) |
| 2 | Orange (see note) | Not used | Not used | Output (2) |
| 3 | Black | Power supply (0 V) | Power supply (0 V) | Power supply ( 0 V) |
| 4 | White | Output (1) | Output (1) | Output (1) |

## Recommended Cables

Any cable available on the market with an external diameter of 3 to 6 mm with a conductor size of 0.18 to 0.75 $mm^2$ (crimp-type) or 0.5 $mm^2$ (solder-type) can be used as a cable for an Assembly-type Connector. If water-tight and oil resistive capabilities are required, use the following cable.
Maker: Shinagawa Densen
Model: S-FLEX [V1] SKCVV

## Connector Wiring

When configuring a system using a Sensor I/O Connector, for safety reasons, always attach a male connector to the sensor cable and a female connector to the sensor end of the power source cable when wiring from a Sensor I/O Connector to the control panel. Similarly, the power supply end of the connector cable should be male, and the power outlet connector should be female.




## Tightening the Cap

1. Use of pliers or other tools may damage the cap. Tighten the cap firmly by hand. (4 to 5 kgf $ cm) (0.39 to 0.49 N $ m)
2. If the cap is not on tight enough, it may not be possible to use the IP67 protective housing. Also, it may become loose from vibration.

## Inserting and Removing the Connector

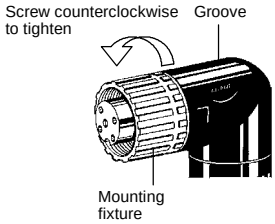
Be sure to turn off the power before inserting or removing any connector.

Before mating any connector, insert the mateable part fully, and tighten the anchors so as not to damage the threads.

When tightening the anchors, do not use a tool, but tighten firmly (4 to 5 kgf $ cm (0.39 to 0.49 N $ m)) by hand so that the threads cannot be seen.

When removing a connector, do not loosen the cap, but loosen the anchor.

Loosen the anchor in the direction of the groove.






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## The Protective Housing

Do not use the IP67 device in a place where it will be continually under stress. This may decrease its protective ability.

The IP67 is not completely waterproof. Do not use it in a place where it will be continually underwater.

The IP67 body is made of resin. Do not step on it, or put heavy objects on top of it.

## Assembly Instructions (for XS2B/XS2C/XS2G)

**Check the Final Diameters of the Connector and Cable**

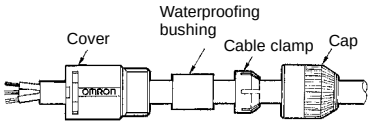
Recommended cables are 6-mm (diameter 5 to 6 mm), 4-mm (diameter 4 to 5 mm), and 3-mm (diameter 3 to 4 mm).

Before assembling, make sure that a proper size cable is used.

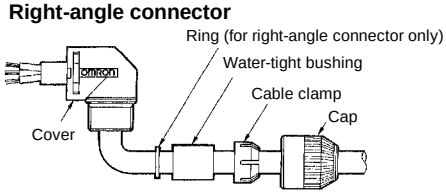
The cable clamp for the 6-mm cable is white. The cable clamp for the 4-mm and the 3-mm cable is black.

**Insertion**

**Straight Connector**

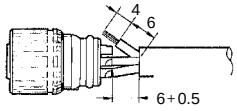



**Right-angle connector**




If using a cable that has been prepared as shown previously, assemble all parts as shown here.

## Wiring (Connecting the Cable Terminals)




The wire should extend 10 mm (0.39 in.) from the cable sheath, and the core should be exposed 4 mm (0.16 in.) from the covering.

The core guide and the solder cup should be pre-soldered before final soldering.

Soldering iron: 30 to 60 W
Iron temperature: 280%C to 340%C
Soldering time: Under 3 seconds

If the cable length is more than 6.5 mm (0.26 in.) after soldering, then the protective housing cannot be used.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J89-E1-1



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OMRON

# Remote I/O Interface

# G700-E

## A Wiring Block with Communications Features in Input, Output, or I/O Models

- Accepts signals from Remote I/O Master Unit (CV500-RM221) via shielded twisted-pair cable (B200-TW) up to 500 m away.
- Connects to G7TC I/O Block easily via one-piece connector (G700-CN050).
- Output Terminals feature open-collector outputs for greater applicability.
- Communications status indicators (LED).
- Mount to DIN track or via screws.

## Ordering Information

| Classification | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|
| **Input** | NPN (+ common) | 24 VDC | G700-EID32 |
| **Output** | NPN (– common) | 24 VDC | G700-EOD32 |
| **Input/output (mixed)** | Input (+ common); output (– common) | 24 VDC | G700-EMD32 |

### Accessories (Order Separately)

**G700-CN050 Connecting Cable**

G700-EMD32's input and output connectors are different to each other in shape.

| Length (*l*) | Model |
|---|---|
| 500 mm | G700-CN050 |

## Specifications

### Transmissions

| | |
|---|---|
| **Communication method** | 1: N polling |
| **Coding method** | Manchester coding |
| **Topology** | Wired multi-drop |
| **Baud rate** | 1.5 M bps |
| **Transmission delay** | 5.2 ms max.* |
| **Transmission distance** | 500 m max. |
| **No. of connecting nodes** | 32 max. per Remote I/O Master Unit (do not exceed the I/O capacity of the PC) |
| **Communications cable** | Shielded Twisted-pair Cable B200-TW |
| **Error control method** | CRC-CCITT inverted double transmission collation |
| **Interface** | Dedicated interface |

*Set the transmission delay of the PC to 0 when the G700-U or G700-E is connected.



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## ■ Characteristics

| | |
|---|---|
| **Power supply voltage** | 24 VDC |
| **Operating voltage range** | 21.6 to 26.4 VDC |
| **Current consumption** | 2.0 W max. (excluding I/O current consumption) |
| **Insulation resistance** | 20 MW min. (at 250 VDC) between transmission circuit and power supply circuit |
| **Dielectric strength** | 1,000 VAC, 50/60 Hz for 1 min between transmission circuit and power supply circuit |
| **Noise immunity** | Noise level: 1.5 kV min.; pulse width: 100 ns, 1 ms |
| **Vibration resistance** | Malfunction: 10 to 55 Hz, 0.25-mm double amplitude |
| **Shock resistance** | Malfunction: 200 m/s$^2$ (approx. 20G) |
| **Ambient temperature** | Operating: 0% to 55%C<br>Storage: –20% to 65%C |
| **Ambient humidity** | 35% to 85% |
| **Ambient atmosphere** | No corrosive gas |
| **Mounting strength** | No damage when 5 kgf (49 N) pull load was applied for 1 s in all directions (except for 1 kgf (9.8 N) in direction of track). |
| **Terminal strength** | No damage when 5 kgf (49 N) pull load was applied for 1 s in all directions. |
| **Weight** | Approx. 200 g |

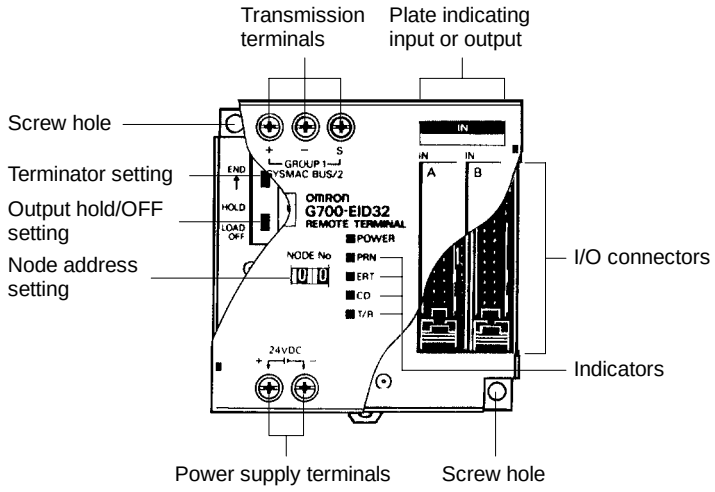
### Inputs

| Item | G700-EID32 | G700-EMD32 |
|---|---|---|
| **Input current** | 7 mA max./point | |
| **ON delay** | 1.5 ms max. | |
| **OFF delay** | 1.5 ms max. | |
| **Number of circuits** | 16 points/common; 1 common | |
| **ON voltage** | 6 VDC max. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A15.) | |
| **OFF voltage** | 3 VDC min. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A15.) | |
| **Insulation method** | Photocoupler | |

### Outputs

| Item | G700-EOD32 | G700-EMD32 |
|---|---|---|
| **Rated output current** | 50 mA max./point | |
| **Residual voltage** | 1.2 V max. | |
| **Leakage current** | 100 mA max. | |
| **Number of circuits** | 16 points/common; 1 common | |
| **Insulation method** | Photocoupler | |

# Nomenclature



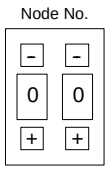



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# Operation

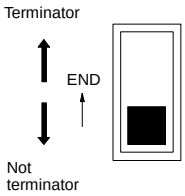
## ■ Surface Switch Setting

### Node Address Setting (Node No. Switch)




Each Remote I/O Subsystem connected to a Remote I/O Master Unit can contain up to 32 nodes (slaves). Use the thumbwheel rotary switch (2-digit, decimal) of the G700-E to set the node address (a 2-digit value) in numerical order from 00 to 31.
The PC recognizes the node addresses when the G700-E Units are turned on or when the I/O table is made. Address changes after that will not be recognized.
The node address is set to 00 before shipping.

### Terminator Setting




The terminator setting sets the termination resistance. Set only one terminator per Remote I/O Master Unit and be sure that the Unit farthest from the Master is set as terminator.
The PC recognizes the terminator when the G700-E Unit is turned on. Address changes after that will not be recognized.
No terminator setting is made before shipping.

**Output Mode: HOLD/ OFF**

| Switch setting | Mode | Description |
|---|---|---|
| HOLD<br>LOAD OFF  | Hold mode | When a transmission error has occurred, the G700-E maintains the previous output status. To clear the output, select the OFF mode. |
| HOLD<br>LOAD OFF  | OFF mode | When a transmission error has occurred, the G700-E turns OFF all output status. |

## ■ Function of Indicators

| Signal | Color | Name | ON | OFF |
|---|---|---|---|---|
| **POWER** | Green | Power supply | Power is supplied and the unit is operating. | Power is turned off. |
| **PRN** | Green | Host program indicator | The host users program is running. | The host user's program is not running or a transmission error has occurred. |
| **ERT** | Red | Transmission error indicator | An cyclic error has occurred. | The cyclic error of the Remote Terminal has been solved. |
| **CD** | Orange | Reception indicator | The I/O Terminal has received some data addressed to itself or other Unit. | The transmission paths have been short-circuited. |
| **T/R** | Orange | Transmission indicator | Cyclic data is being transmitted. | Cyclic data transmission has been interrupted or has not been executed. |

## ■ Operation of Indicators

### Normal Operation

| Status | POWER | PRN | ERT | CD | T/R | Remarks |
|---|---|---|---|---|---|---|
| **Initialization** | ON | OFF | OFF | ON | OFF | This status will last for a very short time. If this status continues for an extended time, the I/O Terminal must be in an abnormal status. |
| **During cyclic transmission or interruption of user's program** | ON | OFF | OFF | ON | ON | --- |
| **During cyclic transmission or execution of user's program** | ON | ON | OFF | ON | ON | --- |

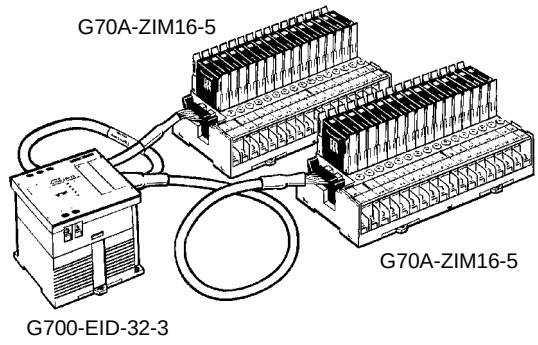


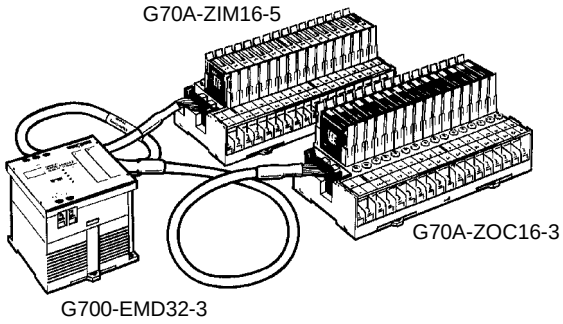
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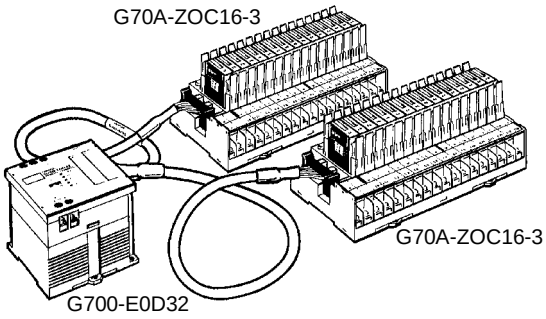
### Operation for Errors

| Error | POWER | PRN | ERT | CD | T/R | Countermeasure |
|---|---|---|---|---|---|---|
| **Power failure of the Unit** | OFF | OFF | OFF | OFF | OFF | Turn power on. |
| **Remote Terminals in the main system not ready** | ON | OFF | OFF | OFF | OFF | Turn on the host system. |
| **Cable disconnection** | ON | OFF | OFF | OFF | OFF | Connect the cable. |
| **Wrong address setting** | ON | OFF | OFF | ON | OFF | Reset the address and restart. |
| **Double address setting** | ON | OFF | OFF | ON | OFF | Reset the address and restart. |
| **I/F error with the host user of the subsystem** | ON | --- | --- | --- | --- | Check the I/F of the subsystem and host controller. |
| **Interruption of data transmission during cyclic transmission** | ON | OFF | OFF | OFF | OFF | Restart cyclic transmission. |
| **Power failure in the host system during cyclic transmission** | ON | OFF | OFF | OFF | OFF | Check the host system. |
| **Deterioration of the transmission paths** | ON | OFF | OFF | OFF | OFF | Check the transmission paths. |

## ■ Connection Examples to G700-E and G70A



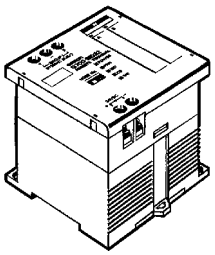

Make sure that the G700-E's I/O connectors are correctly connected to the G70A Input Block and Output Block.

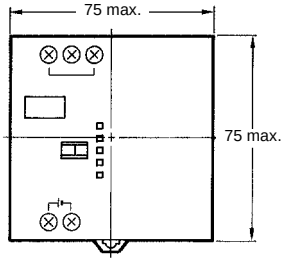


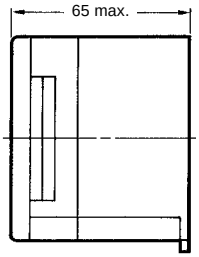
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# Dimensions

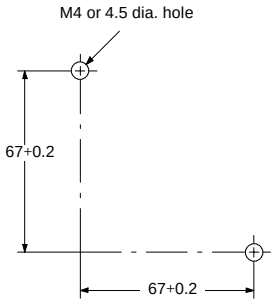
**Note:** All units are in millimeters unless otherwise indicated.



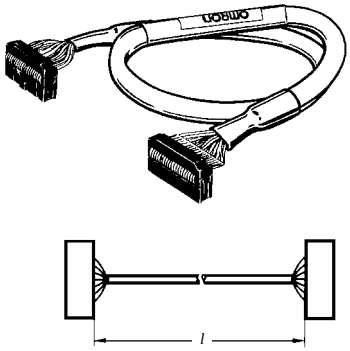


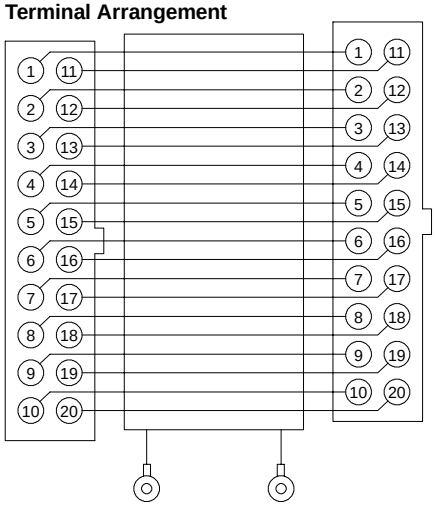

**Mounting Holes**




**G700-CN050 Connecting Cable**




**Terminal Arrangement**



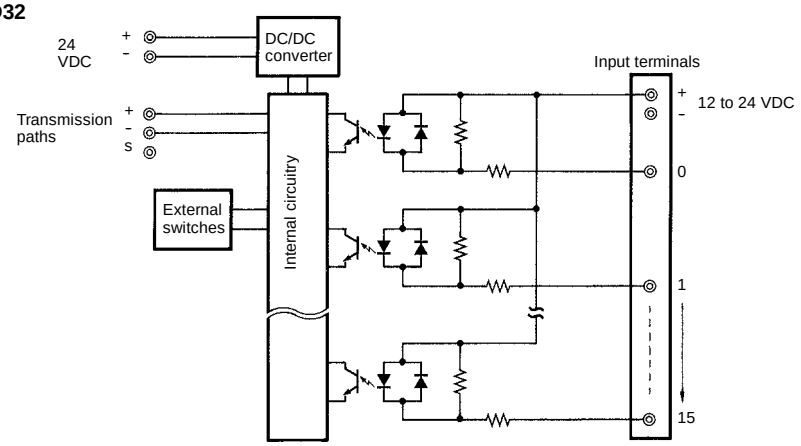



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# Installation

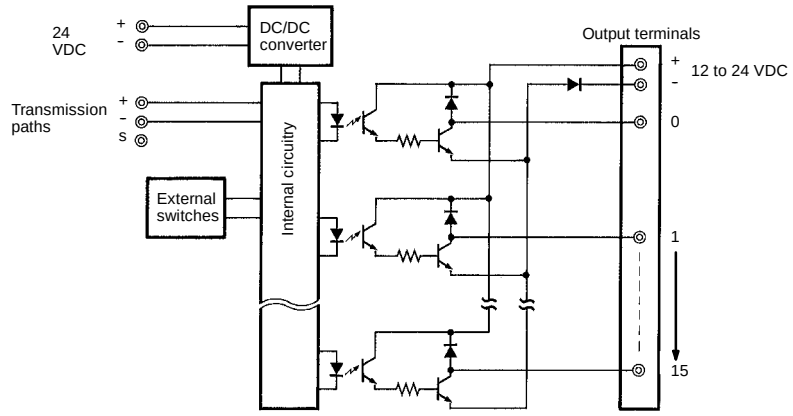
## ■ Internal Circuit Configuration

**G700-EID32**




32 input circuits are incorporated.

**G700-EOD32**



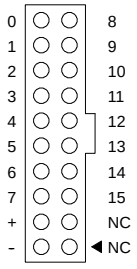

32 output circuits are incorporated.

**G700-EMD32**

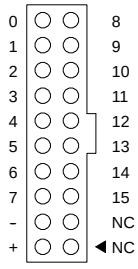
The G700-EMD32 is provided with 16 input and output points of the G700-EID32 and G700-EOD32.

## ■ Connector Pin Configuration (Top View)

**Input Connector**
**G700-EID32**
**G700-EMD32**




**Output Connector**
**G700-EOD32**
**G700-EMD32**




The connector pin numbers are the output point numbers of the G700-E.
Pay attention to the connector pin numbers if you use custom-made connectors.



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OMRON

# I/O Block

# G700-S

## Provides Four I/O Points for Flexible System Expansion

- Connects to the G700-U I/O Terminal to expand I/O capacity.
- Ideal for handling production line additions or changes.
- Connects easily via one-piece connector.
- Fuse replaceable on the back panel.
- Mount to DIN track or via screws.

## Ordering Information

| Classification | Internal I/O circuits | Rated voltage (see note) | Model |
|---|---|---|---|
| **Input** | Independent | 24 to 48 V AC/DC | G700-SIM04 |
| | | 100 to 200 V AC/DC | |
| | Common | 24 to 48 V AC/DC | G700-SIM04-C |
| | | 100 to 200 V AC/DC | |
| **Output** | Independent | 24 VDC | G700-SOC04 |
| | Common | 24 VDC | G700-SOC04-C |

**Note:** The rated voltage for input models is the rated input voltage (the supply voltage is 24 VDC). The rated voltage for the output models is the supply voltage.

## Specifications

### ■ Characteristics

| Item | G700-SIM04 | G700-SIM04-C | G700-SOC04 | G700-SOC04-C |
|---|---|---|---|---|
| **Power supply voltage** | 24 VDC | | | |
| **Operating voltage range** | 21.6 to 26.4 VDC | | | |
| **Current consumption** | 2.5 W max. | | 3 W max. | |
| **Insulation resistance** | 20 MW min. (at 250 VDC) | | | |
| **Noise immunity** | Noise level: 1.5 kV min.; pulse width: 100 ns, 1 ms | | | |
| **Vibration resistance** | Malfunction: 10 to 55 Hz, 0.25-mm double amplitude | | | |
| **Shock resistance** | Malfunction: 200 $m/s^2$ (approx. 20G) | | | |
| **Ambient temperature** | Operating: 0% to 55%C<br>Storage: –20% to 65%C | | | |
| **Ambient humidity** | 35% to 85% | | | |
| **Ambient atmosphere** | No corrosive gas | | | |
| **Mounting strength** | No damage when 5 kgf (49 N) pull load was applied for 1 s in all directions (except for 1 kgf (9.8 N) in direction of track). | | | |
| **Terminal strength** | No damage when 5 kgf (49 N) pull load was applied for 1 s in all directions. | | | |
| **Weight** | Approx. 250 g | | | |



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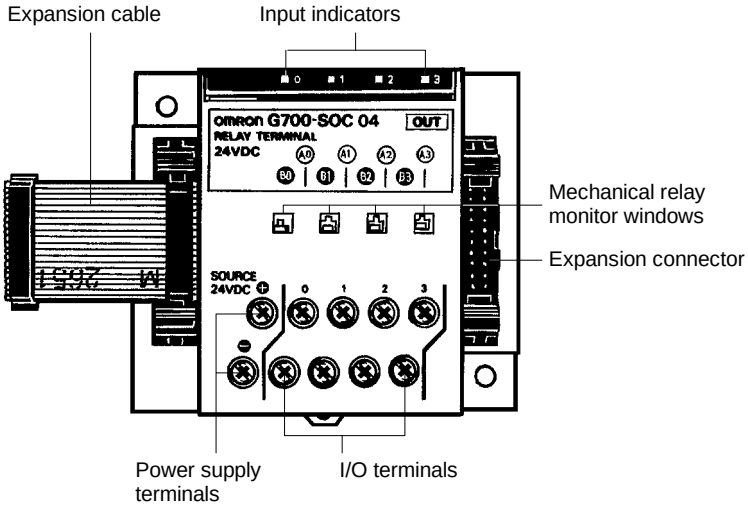
### Inputs

| Item | G700-SIM04 | G700-SIM04-C |
|---|---|---|
| **Rated input voltage** | 24 to 48 VAC/VDC | 100 to 200 VAC/VDC |
| **Mounting relay** | G7T-1122S 24 VDC | |
| **Operating input current range** | 24 V: –10%; 48 V: +10% | 100 V: –10%; 200 V: +10% |
| **ON delay** | 1.5 ms max. | |
| **OFF delay** | 1.5 ms max. | |
| **Number of circuits** | 4 points/independent; commons | |
| **Insulation method** | Photocoupler + relay | |
| **Input indicators** | LED (orange) | |

### Outputs

| Item | G700-SOC04 | G700-SOC04-C |
|---|---|---|
| **Mounting relay** | G7T-1112S 24 VDC | |
| **Max. contact voltage value** | 250 VAC/125 VDC | |
| **Max. contact current value** | 2 A/point | 6 A (for 4 points, common) |
| **Number of circuits** | 4 points | |
| **Output indicators** | LED (orange) | |

# Nomenclature

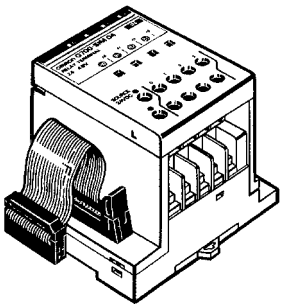


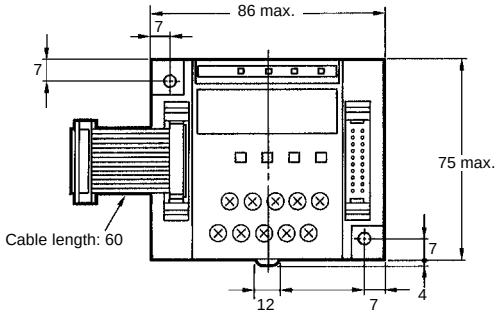


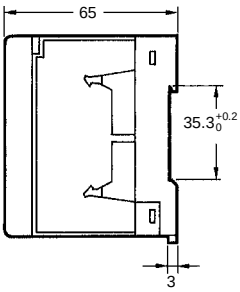

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# Dimensions

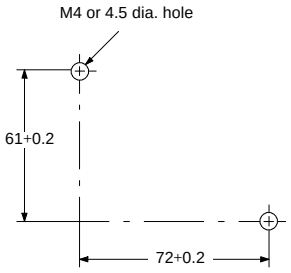
**Note:** All units are in millimeters unless otherwise indicated.






**Mounting Holes**

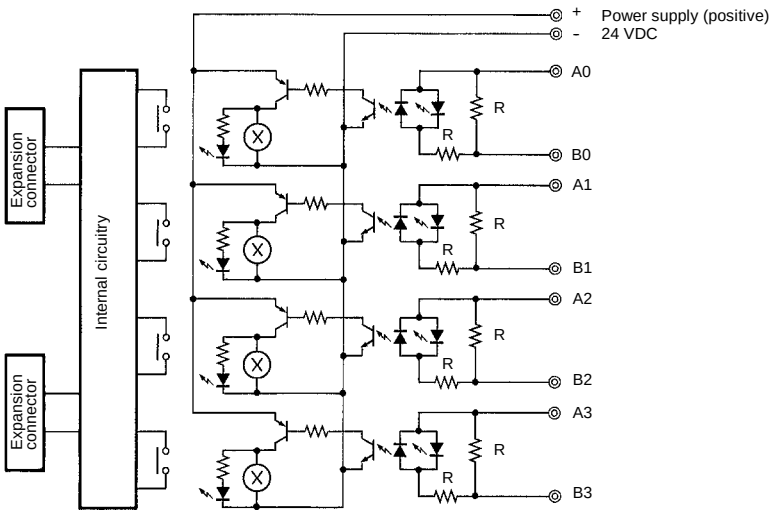



# Installation

## ■ Internal Circuit Configuration

### Input Circuits

**G700-SIM04 (4 Points;/Independent Commons)**

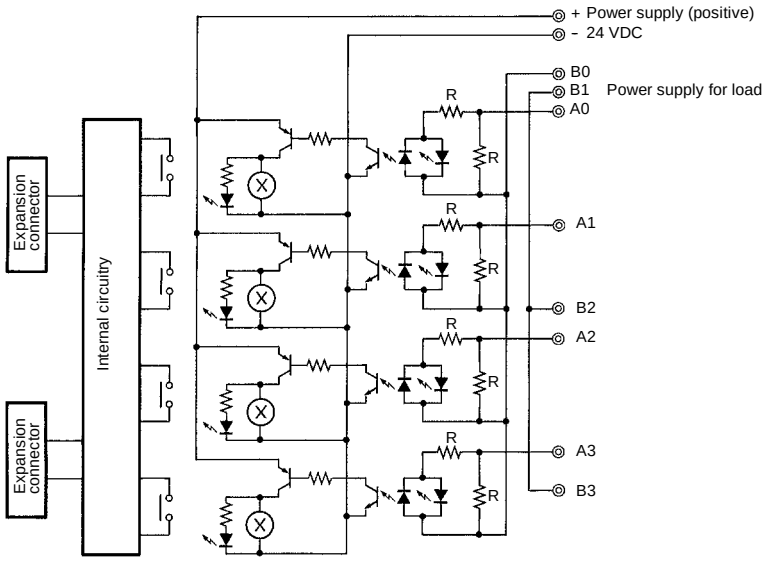



R: 56 kW for 24 to 48 VDC/VAC power supply
R: 330 kW for 100 to 200 VAC/VDC power supply



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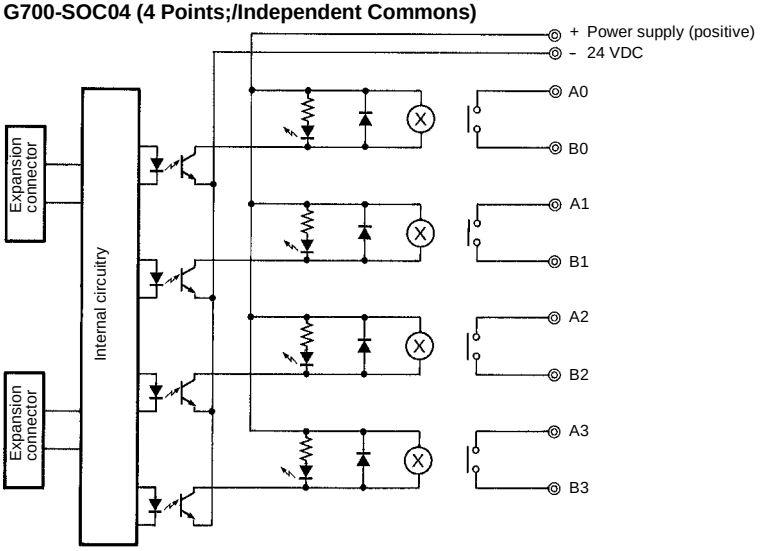
**G700-SIM04-C (4 Points/Common)**



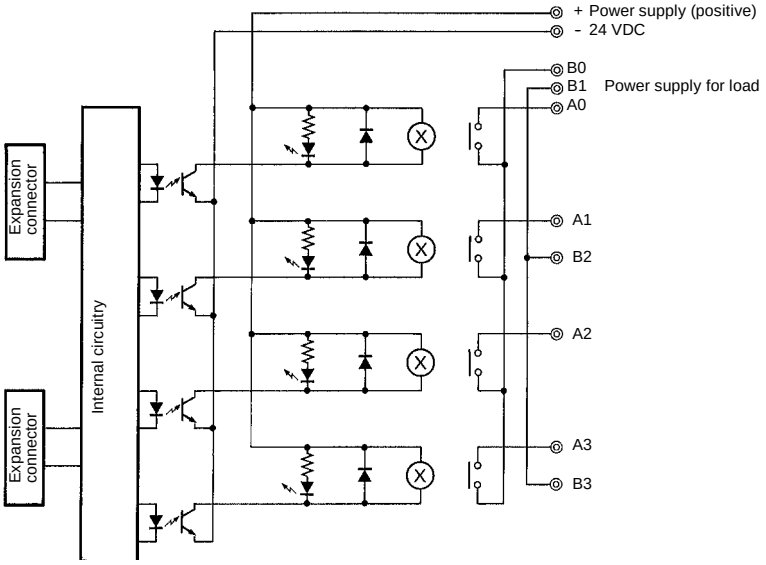

R: 56 kW for 24 to 48 VDC/VAC power supply
R: 330 kW for 100 to 200 VAC/VDC power supply

## Output Circuits

**G700-SOC04 (4 Points;/Independent Commons)**




**G700-SOC04-C (4 Points/Common)**



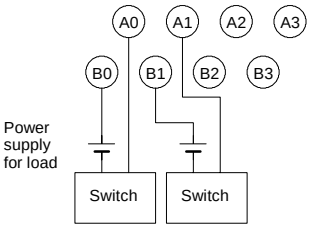



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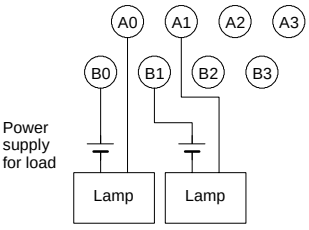
## ■ External Connections

**4 Points; Independent Commons**

**Input Blocks**

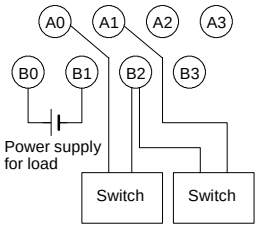



**Output Blocks**

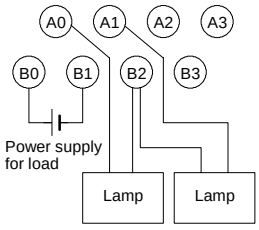



**4 Points/Common (-C Type Models)**

**Input Blocks**



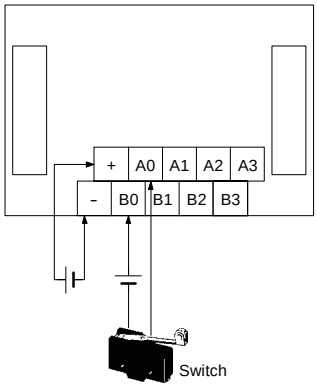

**Output Blocks**



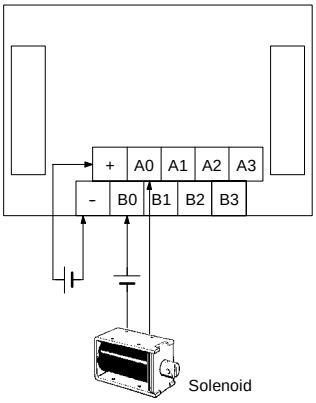

## ■ Terminal Arrangement/I/O Device Connection Examples

**4 Points; Independent Commons**

**Input Blocks**

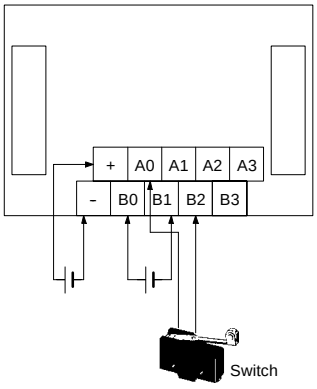



**Output Blocks**

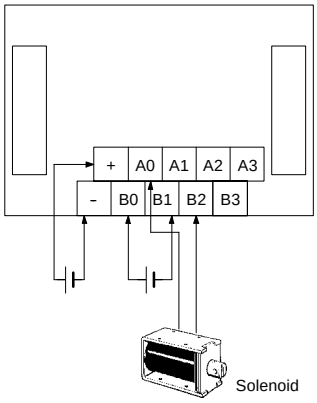



**4 Points/Common (-C Type Models)**

**Input Blocks**




**Output Blocks**






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# I/O Block

# G700-T

## Provides Four I/O Points for Flexible System Expansion

- Connects to the G700-U I/O Terminal to expand I/O capacity.
- Ideal for handling production line additions or changes.
- Connects easily via one-piece connector.
- Fuse replaceable on the back panel.
- Mount to DIN track or via screws.

## Ordering Information

| Classification | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|
| **Input** | NPN (+ common) | 24 VDC | G700-TID04 |
| **Output** | NPN (– common) | 24 VDC | G700-TOD04 |

## Specifications

### ■ Characteristics

| | |
|---|---|
| **Power supply voltage** | 24 VDC |
| **Operating voltage range** | 21.6 to 26.4 VDC |
| **Current consumption** | 1 W max. (excluding I/O current consumption) |
| **Insulation resistance** | 20 MW min. (at 250 VDC) |
| **Noise immunity** | Noise level: 1.5 kV min.; pulse width: 100 ns, 1 ms |
| **Vibration resistance** | Malfunction: 10 to 55 Hz, 0.25-mm double amplitude |
| **Shock resistance** | Malfunction: 200 $m/s^2$ (approx. 20G) |
| **Ambient temperature** | Operating: 0% to 55%C<br>Storage: –20% to 65%C |
| **Ambient humidity** | 35% to 85% |
| **Ambient atmosphere** | No corrosive gas |
| **Mounting strength** | No damage when 5 kgf (49 N) pull load was applied for 1 s in all directions (except for 1 kgf (9.8 N) in direction of track). |
| **Terminal strength** | No damage when 5 kgf (49 N) pull load was applied for 1 s in all directions. |
| **Weight** | Approx. 150 g |



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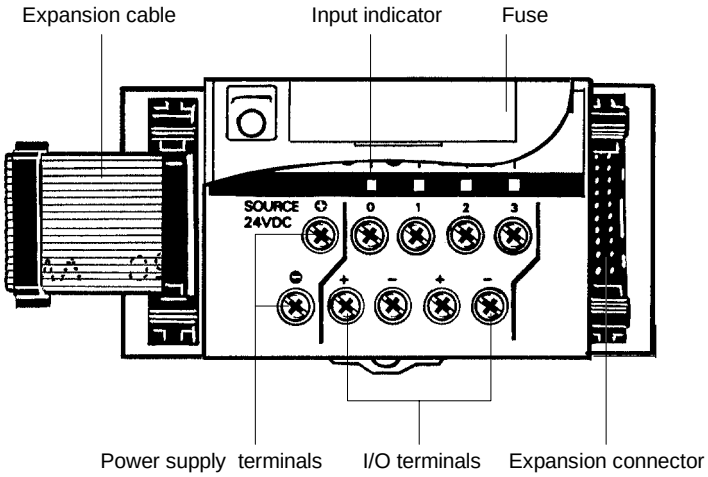
### Inputs

| Item | G700-TID04 |
|---|---|
| **Input current** | 10 mA max. |
| **ON delay** | 1.5 ms max. |
| **OFF delay** | 1.5 ms max. |
| **Number of circuits** | 4 points/common; 1 common |
| **ON voltage** | 15 VDC max. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A3.) |
| **OFF voltage** | 7 VDC min. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A3.) |
| **Insulation method** | Photocoupler |
| **Input indicators** | LED (orange) |

### Outputs

| Item | G700-TOD04 |
|---|---|
| **Rated output current** | 0.3 A max./point |
| **Residual voltage** | 1.2 V max. |
| **Leakage current** | 200 mA max. |
| **Number of circuits** | 4 points/common; 1 common |
| **Insulation method** | Photocoupler |
| **Output indicators** | LED (orange) |

# Nomenclature




# Operation

## ■ Protection

### Short-circuit

The fuse will melt when the positive and negative I/O terminals are short circuited, in which case just replace the fuse with a new one. No maintenance service to the internal circuitry of the G700-T is required.

The fuse could melt when the I/O terminals have not been short-circuited, in which case there is a possibility that the internal circuitry of the G700-T is malfunctioning and repairs may be required. The following table lists the fuse ratings for G700-T models.

| Model | Fuse ratings |
|---|---|
| G700-TID04 | 1 A, 125 V |
| G700-TOD04 | 3 A, 125 V |

The power supply terminals have polarity. Do not reverse the power supply lines when connecting the power supply terminals of the G700-T will be damaged.



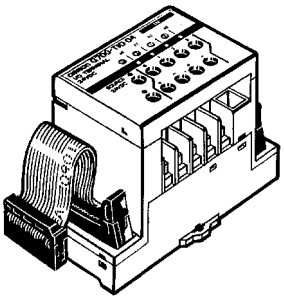
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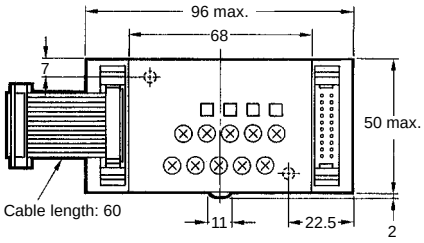
## ■ Replacement of Fuse

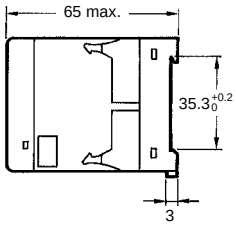
1. Remove the main cover.
2. Remove the fuse cover.
3. Replace the fuse with a new fuse of the same type.
4. Align the fuse cover so that the edges of the fuse cover match the groves in the case, and then press on the fuse cover.
5. Replace the main cover.

# Dimensions

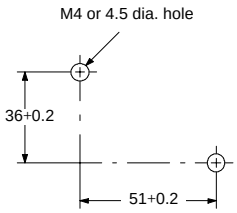
**Note:** All units are in millimeters unless otherwise indicated.





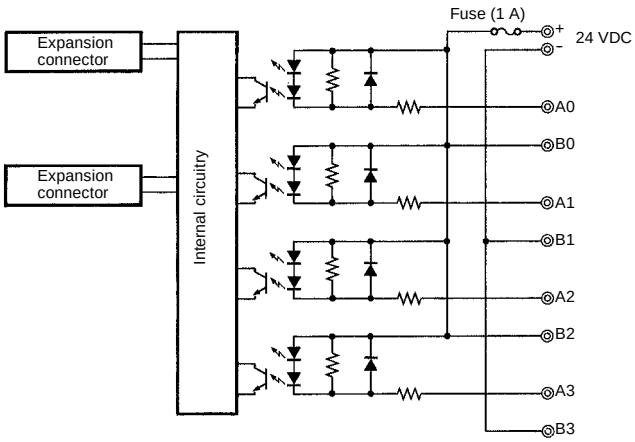

**Mounting Holes**



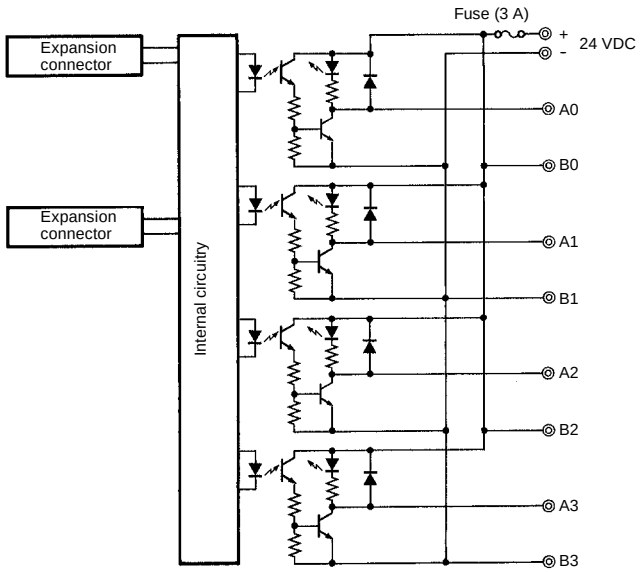

# Installation

## ■ Internal Circuit Configuration

**G700-TID04**




**G700-TOD04**





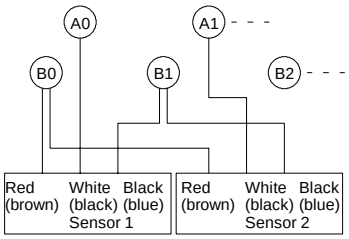

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## ■ External Connections

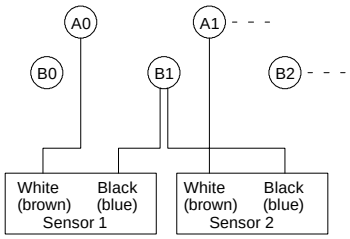
No relay terminal boards for the sensor loads are required.

**Input Blocks**

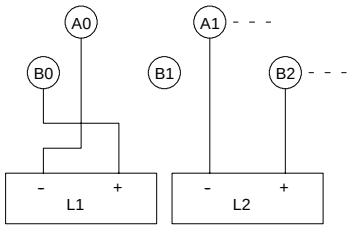
**Three-wire System (NPN)**




**Two-wire System**

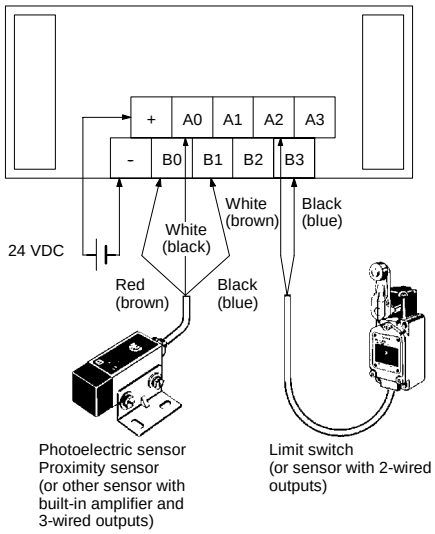



**Output Blocks**

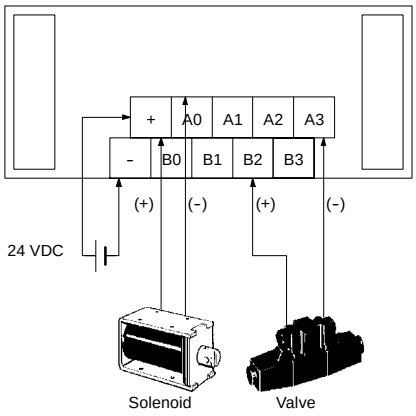



## ■ Terminal Arrangement/I/O Device Connection Examples

**Input Blocks**




**Output Blocks**




**Note:** The colors in the parentheses apply to present models in accordance with a recent revision of the Japanese Industrial Standards.



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# I/O Terminal

# G700-U

## Combines the Features of a Communications Terminal with a Wiring Block; I/O Quantity and Blend Flexibility

- Reduced mounting space requirements.
- Accepts signals from Remote I/O Master Unit (CV500-RM221) via shielded twisted-pair cable (B200-TW) up to 500 m away.
- Expandable in increments of four I/O points by adding the G700-T or G700-S I/O Blocks.
- Expandable to up to 32 I/O points.
- Inputs and outputs can be mixed.
- ON/OFF indicator (LED) for each I/O point and communications status indicators (LED).
- Fuse replaceable on the back panel.
- Mount to DIN track or via screws.
- Provides power terminals for I/O devices.

## Ordering Information

| Classification | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|
| **Input** | NPN (+ common) | 24 VDC | G700-UID16 |
| **Output** | NPN (– common) | 24 VDC | G700-UOD16 |
| **Input/output (mixed)** | Input (+ common); output (– common) | 24 VDC | G700-UMD16 |

## Specifications

### Transmission

| | |
|---|---|
| **Communication method** | 1: N polling |
| **Coding method** | Manchester coding |
| **Topology** | Wired multi-drop |
| **Baud rate** | 1.5 M bps |
| **Transmission delay** | 5.2 ms max.* |
| **Transmission distance** | 500 m max. |
| **No. of connecting nodes** | 32 max. per Remote I/O Master Unit (do not exceed the I/O capacity of the PC) |
| **Communications cable** | Shielded Twisted-pair Shielded Cable B200-TW |
| **Error control method** | CRC-CCITT inverted double transmission collation |
| **Interface** | Dedicated interface |

*Set the transmission delay of the PC to 0 when the G700-U or G700-E is connected.



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## ■ Characteristics

| | |
|---|---|
| **Power supply voltage** | 24 VDC |
| **Operating voltage range** | 21.6 to 26.4 VDC |
| **Current consumption** | 2.5 W max. (excluding I/O current consumption) |
| **Insulation resistance** | 20 MW min. (at 250 VDC) |
| **Dielectric strength** | 1,000 VAC, 50/60 Hz for 1 min between the transmission paths and power supply terminals |
| **Noise immunity** | Noise level: 1.5 kV min.; pulse width: 100 ns, 1 ms |
| **Vibration resistance** | Malfunction: 10 to 55 Hz, 0.25-mm single amplitude |
| **Shock resistance** | Malfunction: 200 $m/s^2$ (approx. 20G) |
| **Ambient temperature** | Operating: 0% to 55%C<br>Storage: –20% to 65%C |
| **Ambient humidity** | 35% to 85% |
| **Ambient atmosphere** | No corrosive gas |
| **Mounting strength** | No abnormality when 5 kgf (49 N) pull load was applied for 1 s in all directions (except for 1 kgf (9.8 N) in direction of track). |
| **Terminal strength** | No abnormality when 5 kgf (49 N) pull load was applied for 1 s in all directions. |
| **Weight** | Approx. 360 g |

### Inputs

| Item | G700-UID16 | G700-UMD16 |
|---|---|---|
| **Input current** | 10 mA max./point | |
| **ON delay** | 1.5 ms max. | |
| **OFF delay** | 1.5 ms max. | |
| **Number of circuits** | 16 points/common; 1 common | 8 points/common; 1 common |
| **ON voltage** | 15 VDC max. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A15.) | |
| **OFF voltage** | 7 VDC min. (The voltage between the 24-VDC power supply terminal (+) and input terminals A0 to A15.) | |
| **Insulation method** | Photocoupler | |
| **Input indicators** | LED (orange) | |

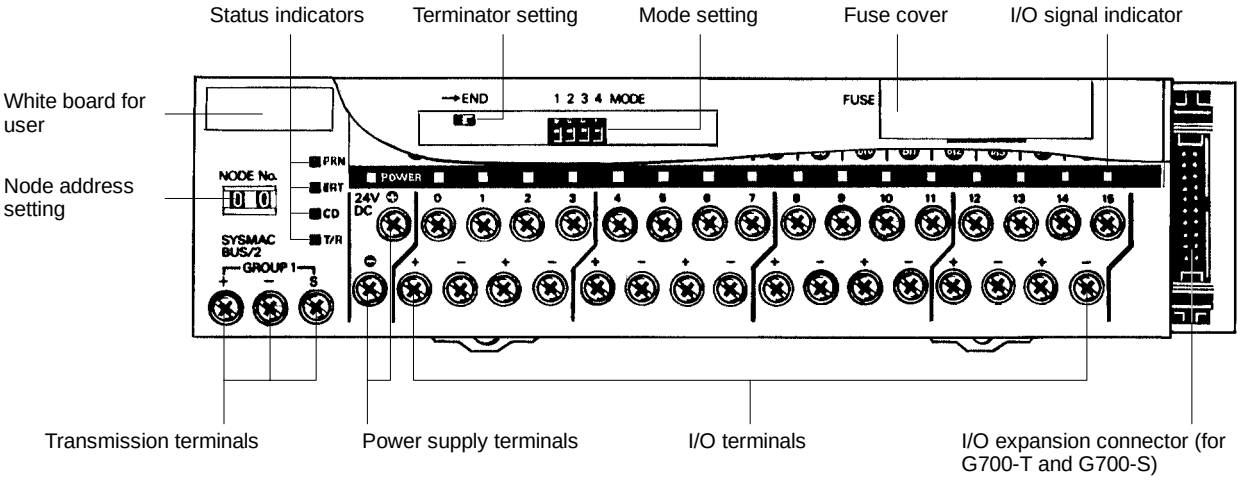
### Outputs

| Item | G700-UID16 | G700-UMD16 |
|---|---|---|
| **Rated output current** | 0.3 A max./point | |
| **Residual voltage** | 1.2 V max. | |
| **Leakage current** | 200 mA max. | |
| **Number of circuits** | 16 points/common; 1 common | 8 points/common; 1 common |
| **Insulation method** | Photocoupler | |
| **Output indicators** | LED (orange) | |



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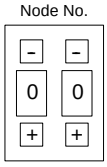
# Nomenclature




# Operation

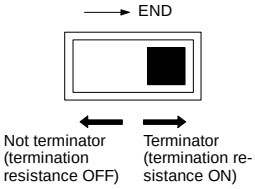
## ■ Surface Switch Setting

### Node Address Setting (Node No. Switch)



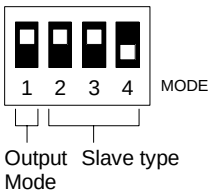

Each Remote I/O Subsystem connected to a Remote I/O Master Unit can contain up to 32 nodes (slaves). Use the thumbwheel rotary switch (2-digit, decimal) of the G700-U to set the node address (a 2-digit value) in numerical order from 00 to 31.
The PC recognizes the node addresses when the G700-U Units are turned on or when the I/O table is made. Address changes after that will not be recognized.
The node address is set to 00 before shipping.

### Terminator Setting

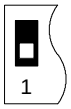
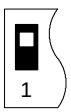



The terminator setting sets the termination resistance. Set only one terminator per Remote I/O Master Unit and be sure that the Unit farthest from the Master is set as terminator.
The PC recognizes the terminator when the G700-U Unit is turned on. Address changes after that will not be recognized.
No terminator setting is made before shipping.

### Mode Setting




**Output Mode: HOLD/OFF**

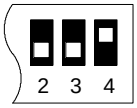
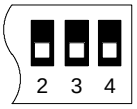
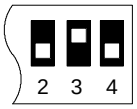
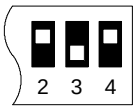
| Switch setting | Mode | Description |
|---|---|---|
|  | Hold mode | When a transmission error has occurred, the G700-U maintains the previous output status. To clear the output, select the OFF mode. |
|  | OFF mode | When a transmission error has occurred, the G700-U turns OFF all outputs. |



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**Slave Type**

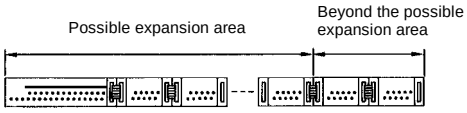
The slave type must be set to 2M, 2I, 2Q or 4M so that the PC can allocate the proper number of I/O bits.

| Switch setting | Slave type | Connecting model | Description |
|---|---|---|---|
|   | 2M: G700-UID16<br>G700-UOD16<br>G700-UMD16 | G700-TID04<br>G700-TOD04<br>G700-SIM04(-C)<br>G700-SOC04(-C) | Up to 16 input and 16 output points are available. |
|   | 2I: G700-UID16 | G700-TID04<br>G700-SIM04(-C) | Up to 32 input points are available. |
|   | 2Q: G700-UOD16 | G700-TOD04<br>G700-SOC04(-C) | Up to 32 output points are available. |
|   | 4M: G700-UID16<br>G700-UOD16<br>G700-UMD16 | G700-TID04<br>G700-TOD04<br>G700-SIM04(-C)<br>G700-SOC04(-C) | Up to 32 input and 32 output points are available. |

**Note:** 1. 2M mode is set before shipping.

2. The G700-U does not operate if the slave type switch is set to any setting not shown above.
3. The G700-U's expansion signal is a dynamic time-division signal. Connections other than those shown above will damage the G700-U. Use the expansion cables that are sold together with the I/O Blocks.

If the number of I/O points you expanded is beyond the permissible range, the PC will support only the I/O points within the permissible range and the I/O points exceeding the permissible range will be ignored.




**PC and No. of Connecting G700-U Units**

| PC | G700-U | | | |
|---|---|---|---|---|
| | 2M | 2I | 2Q | 4M |
| SYSMAC CV500 | 32 units | 32 units | 32 units | 16 units |
| SYSMAC CV1000 | 64 units* | 64 units* | 64 units* | 32 units |

*With two Remote I/O Master Units

## ■ Function of Indicators

| Signal | Color | Name | ON | OFF |
|---|---|---|---|---|
| **POWER** | Green | Power supply | Power is supplied and the unit is operating. | Power is turned off. |
| **PRN** | Green | Host program indicator | The host users program is running. | The host user's program is not running or a transmission error has occurred. |
| **ERT** | Red | Transmission error indicator | An cyclic error has occurred. | The cyclic error of the Remote Terminal has been solved. |
| **CD** | Orange | Reception indicator | The I/O Terminal has received some data addressed to itself or other Unit. | The transmission paths have been short-circuited. |
| **T/R** | Orange | Transmission indicator | Cyclic data is being transmitted. | Cyclic data transmission has been interrupted or has not been executed. |

## ■ Operation of Indicators

### Normal Operation

| Status | POWER | PRN | ERT | CD | T/R | Remarks |
|---|---|---|---|---|---|---|
| **Initialization** | ON | OFF | OFF | ON | OFF | This status will last for a very short time. If this status continues an extended time, the I/O Terminal must be in an abnormal status. |
| **During cyclic transmission or interruption of user's program** | ON | OFF | OFF | ON | ON | --- |
| **During cyclic transmission or execution of user's program** | ON | ON | OFF | ON | ON | --- |



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### Operation for Errors

| Error | POWER | PRN | ERT | CD | T/R | Countermeasure |
|---|---|---|---|---|---|---|
| **Power failure of the Unit** | OFF | OFF | OFF | OFF | OFF | Turn power on. |
| **I/O Terminals in the main system not ready** | ON | OFF | OFF | OFF | OFF | Turn on the host system. |
| **Cable disconnection** | ON | OFF | OFF | OFF | OFF | Connect the cable. |
| **Wrong address setting** | ON | OFF | OFF | ON | OFF | Reset the address and restart. |
| **Duplicate address setting** | ON | OFF | OFF | ON | OFF | Reset the address and restart. |
| **Interface error with the host user of the subsystem** | ON | --- | --- | --- | --- | Check the I/F of the subsystem and host controller. |
| **Interruption of data transmission during cyclic transmission** | ON | OFF | OFF | OFF | OFF | Restart cyclic transmission. |
| **Power failure in the host system during cyclic transmission** | ON | OFF | OFF | OFF | OFF | Check the host system. |
| **Deterioration of the transmission paths** | ON | OFF | OFF | OFF | OFF | Check the transmission paths. |

## ■ Protection

### Short-circuit

The fuse will melt when the positive and negative I/O terminals are short circuited, in which case just replace the fuse with a new one. No maintenance service to the internal circuitry of the G700-U is required.
The fuse could melt when the I/O terminals have not been short-circuited, in which case there is a possibility that the internal circuitry of the G700-U is malfunctioning and repairs may be required. The following table lists the fuse ratings for G700-U models.

| Model | Fuse ratings |
|---|---|
| G700-UID16 | 2 A, 125 V |
| G700-UOD16 | 5 A, 125 V |
| G700-UMD16 | 3 A, 125 V |

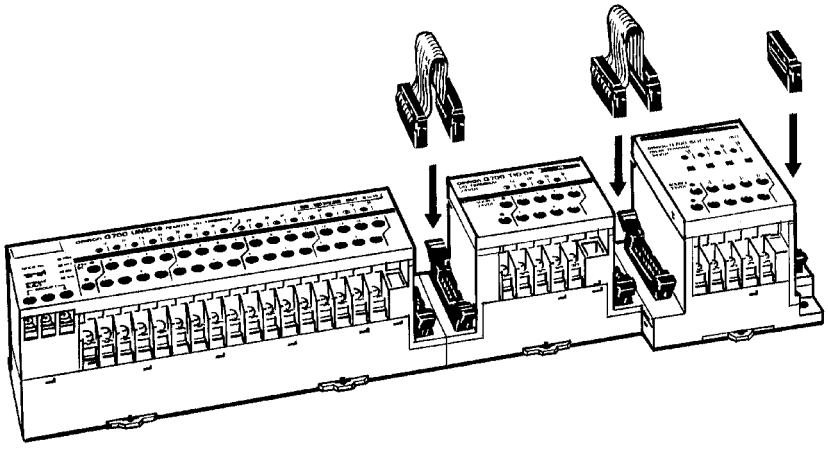
The power supply terminals have polarity. Do not reverse the power supply lines when connecting the power supply terminals or the G700-U will be damaged.

## ■ Replacement of Fuse

1. Remove the main cover.
2. Remove the fuse cover.
3. Replace the fuse with a new fuse of the same type.
4. Align the fuse cover so that the edges of the fuse cover match the groves in the case, and then press on the fuse cover.
5. Replace the main cover.

## ■ Connection of G700-T or G700-S Unit

The G700-U should be connected to the G700-T or G700-S with the cable provided with the G700-T or G700-S. Lock the cable connectors with the levers after the cable is connected. Connect the XG4M-2030 (MIL-type socket, sold separately) and XG4T-2004 (strain-relief type, sold together) to the end terminals that are not connected to an I/O Block.

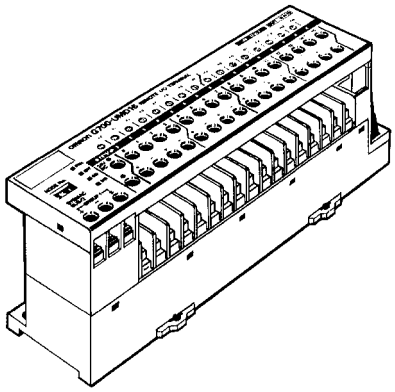


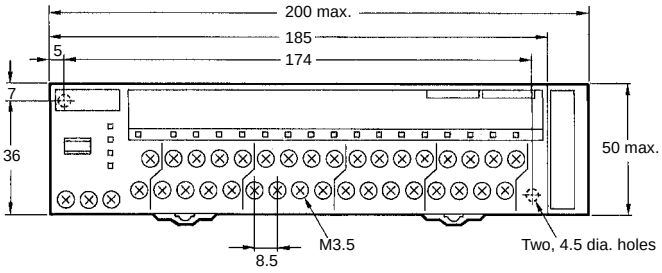


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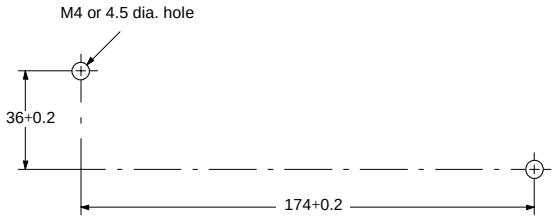
# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.





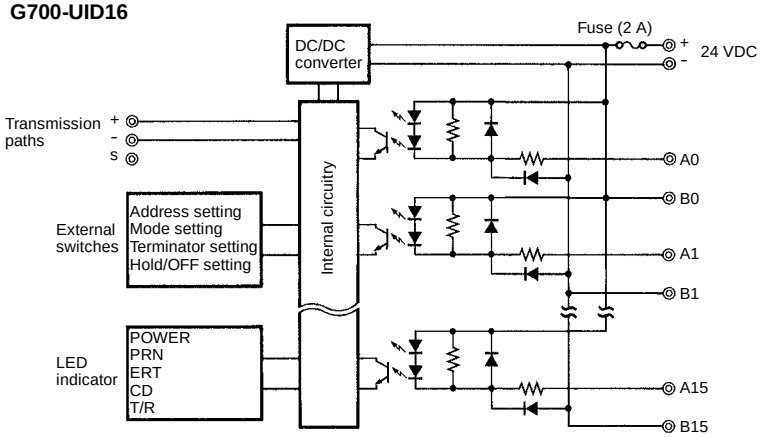

**Mounting Holes**



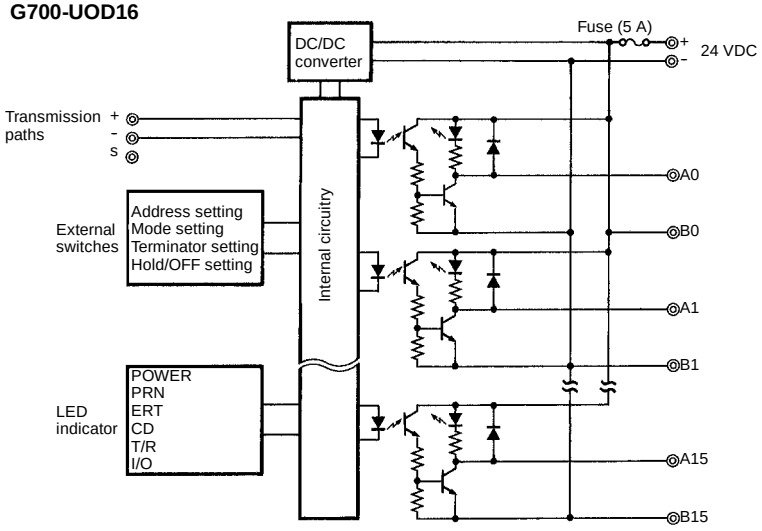

# Installation

## ■ Internal Circuit Configuration

**G700-UID16**



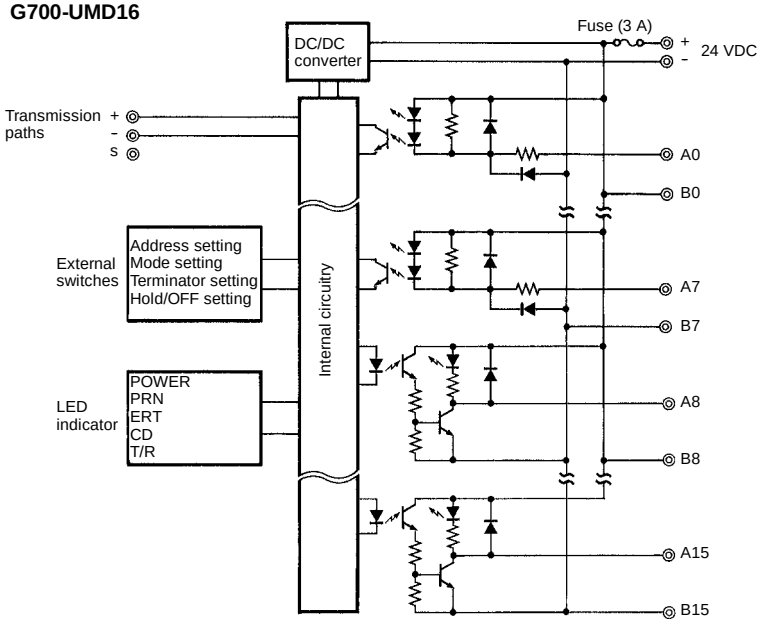

**G700-UOD16**






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**G700-UMD16**

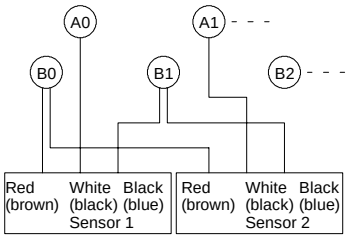



## ■ External Connections

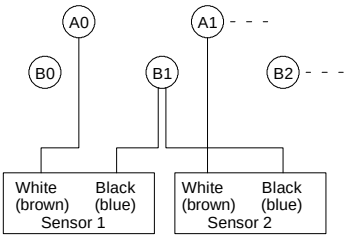
No relay terminal boards for the sensor loads are required.

**Input Blocks**

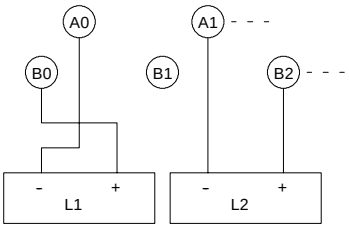
**Three-wire System (NPN)**




**Two-wire System**



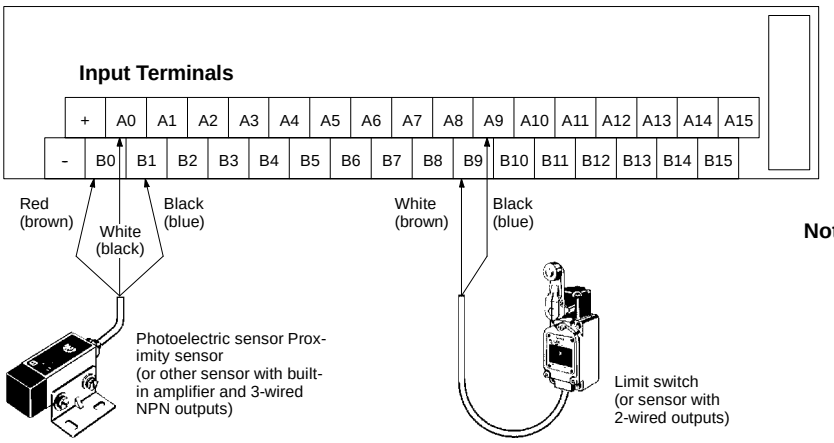

**Output Blocks**

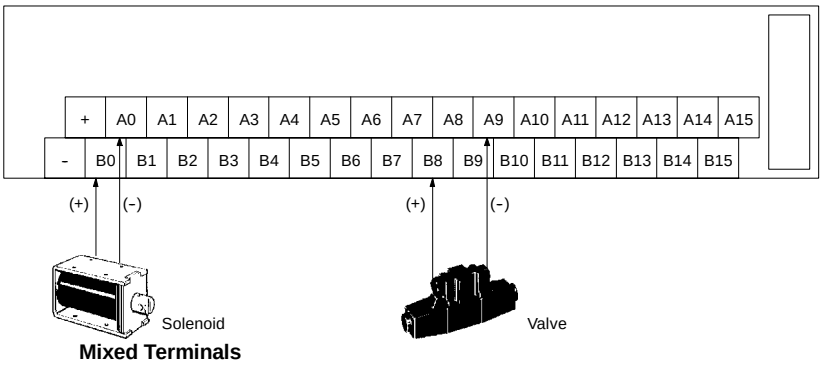


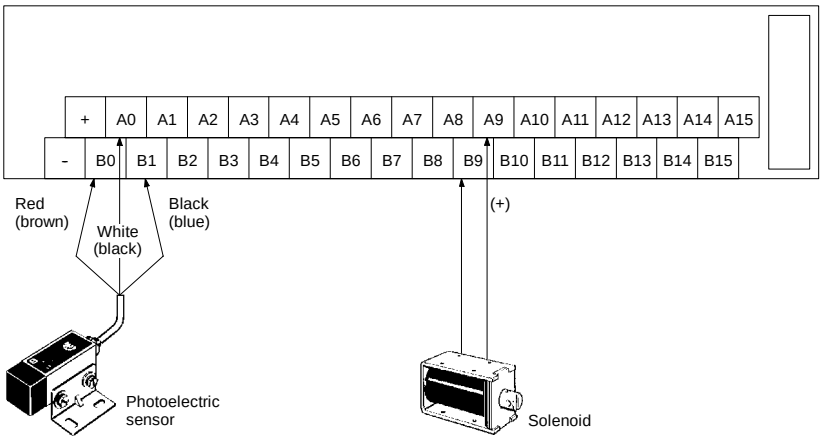



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## ■ Terminal Arrangement/I/O Device Connection Examples




**Note:**

1. Positive power terminal No. 2 on the top row is internally connected to the I/O terminals (B0, B2, B4, B6, B8, B10, B12, B14) on the bottom row, whereas negative power terminal No. 3 on the top row is internally connected to the I/O terminals (B1, B3, B5, B7, B9, B11, B13, B15) on the bottom row. Be careful enough not to short-circuit any terminals next to each other.
2. The capacity of the DC power supply should be large enough to cover the total power consumption of the G700's indicators and I/O devices.
3. The colors in the parentheses apply to present models in accordance with a recent revision of the Japanese Industrial Standards.

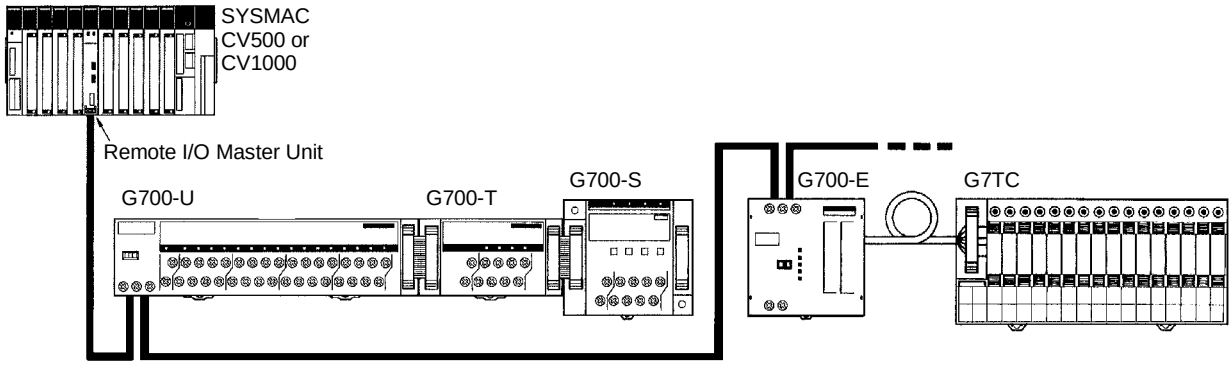


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# Operation

## ■ System Configuration

### SYSMAC BUS/2 System Configuration Example




SYSMAC BUS/2 Remote I/O System (500 m max.)

## ■ Trouble-shooting

Refer to the following lists to trouble-shoot slave errors. The following countermeasures assume the PC and Remote I/O Master Unit normal.

### Input Interface

| Error | Cause | Countermeasure |
|---|---|---|
| **No input is ON (operation indicator is OFF)** | 1. Power not supplied | Supply power. |
| | 2. Low supply voltage | Adjust the supply voltage within the rated range. |
| | 3. Loosened terminal screws | Tighten the screws. |
| | 4. Poor conductance of terminal board connector | Replace the terminal board connector. |
| **No input is ON (operation indicator is ON)** | Malfunctioning of input circuitry | Replace the I/O Remote Interface. |
| **No input is OFF** | Malfunctioning of input circuitry | Replace the I/O Remote Interface. |
| **Specified inputs are not ON** | 1. Malfunctioning of input device | Replace the input device. |
| | 2. Disconnection of input wires | Check the input wiring. |
| | 3. Loosened terminal screws | Tighten the screws. |
| | 4. Poor conductance of terminal board connector | Replace the terminal board connector. |
| | 5. Short input ON time | Adjust the input device. |
| | 6. Malfunctioning of input circuitry | Replace the I/O Remote Interface. |
| **Specified inputs are not OFF** | 1. Malfunctioning of input circuitry | Replace the I/O Remote Interface. |
| | 2. Malfunctioning of input device | Replace the input device. |
| **Inputs are ON and OFF irregularly.** | 1. Low external input voltage | Adjust the external input voltage within the rated range. |
| | 2. Malfunctioning by noise | Insert a surge absorber.<br>Insert an insulating transformer.<br>Wire with shield cables. |
| | 3. Loosened terminal screws | Tighten the screws. |
| | 4. Poor conductance of terminal board connector | Replace the terminal board connector. |
| **Operation indicator is not lit (operation is normal)** | LED malfunction | Replace the I/O Remote Interface. |

**Note:** The ON and OFF conditions are monitored by the PC.



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### Output Interface

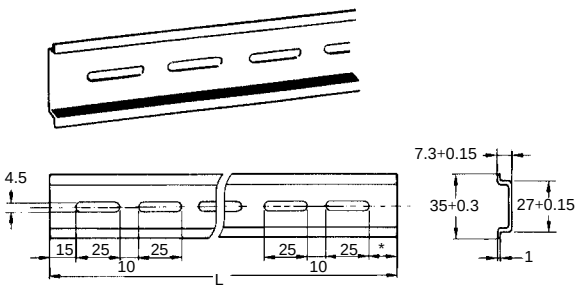
| Error | Cause | Countermeasure |
|---|---|---|
| **No output is ON** | 1. Load power not supplied | Supply power. |
| | 2. Low load supply voltage | Adjust the supply voltage within the rated range. |
| | 3. Loosened terminal screws | Tighten the screws. |
| | 4. Fuse burnout | Replace the fuse. |
| | 5. Malfunctioning of output circuitry | Replace the I/O Remote Interface. |
| **No output is ON** | Malfunctioning of output circuitry | Replace the I/O Remote Interface. |
| **Specified outputs are not ON (operation indicator is OFF)** | 1. Short output ON time | Correct the program. |
| | 2. Malfunctioning of output circuitry | Replace the I/O Remote Interface. |
| **Specified outputs are not ON (operation indicator is ON)** | 1. Malfunctioning of output device | Replace the output device. |
| | 2. Disconnection of output wires | Check the output wiring. |
| | 3. Loosened terminal screws | Tighten the screws. |
| | 4. Malfunctioning of output relay | Replace the relay. |
| | 5. Malfunctioning of output circuitry | Replace the I/O Remote Interface. |
| **Specified inputs are not OFF (operation indicator is OFF)** | 1. Malfunctioning of output relay | Replace the I/O Remote Interface. |
| | 2. Improper reset due to a current leakage or residual voltage. | Add an external load or dummy load. |
| **Specified inputs are not OFF (operation indicator is OFF)** | Malfunctioning of output circuitry | Replace the I/O Remote Interface. |
| **Inputs are ON and OFF irregularly.** | 1. Low load supply voltage | Adjust the load supply voltage within the rated range. |
| | 2. Malfunctioning by noise | Insert a surge absorber.<br>Insert an insulating transformer.<br>Wire with shield cables. |
| | 3. Loosened terminal screws | Tighten the screws. |
| **Operation indicator is not lit (operation is normal)** | LED malfunction | Replace the I/O Remote Interface. |

# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

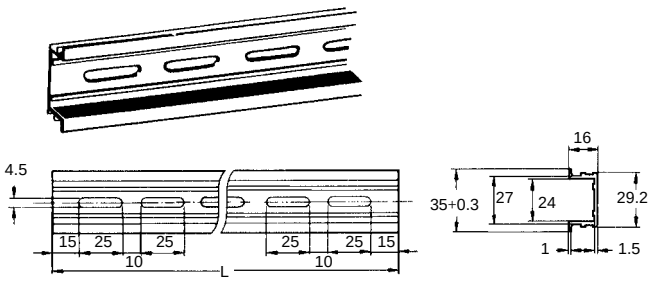
## Mounting Track

### PFP-100N, PFP-50N




It is recommended to use a panel 1.6- to 2.0-mm thick.

### PFP-100N2



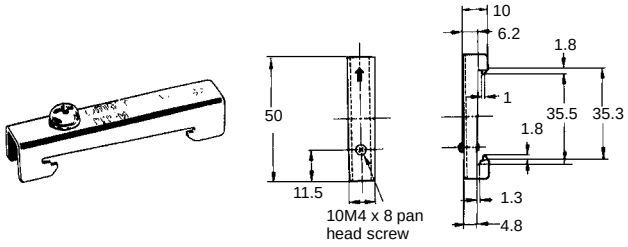

**L: Length**

| | |
|---|---|
| 1 m | PFP-100N |
| 50 cm | PFP-50N |
| 1 m | PFP-100N2 |

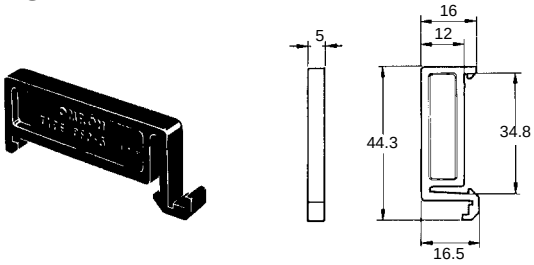


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## End Plates
**PFP-M**



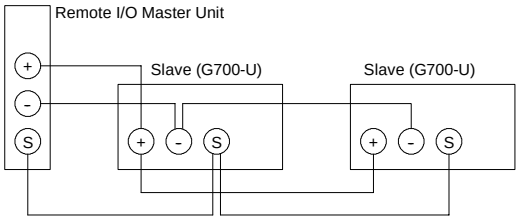

## Spacers
**PFP-S**




# Precautions

### Connection of Transmission Cable (G700-U, G700-E)

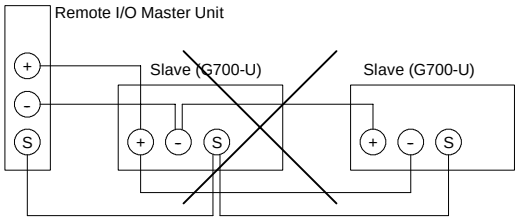
**Correct Example**




**OK**

**Incorrect Example 1**

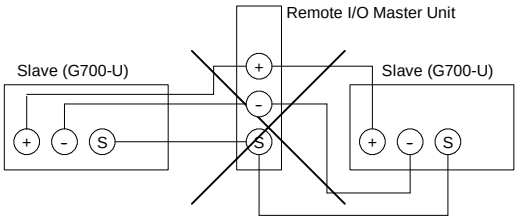
The positive and negative terminals are reversed.




**No**

**Incorrect Example 2**

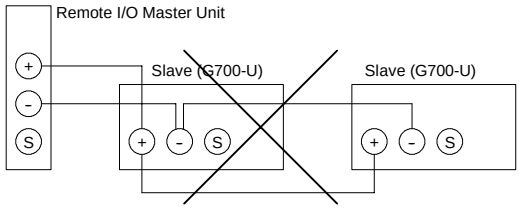
A single Remote I/O Master Unit is directly connected to two slaves.




**No**

**Incorrect Example 3**

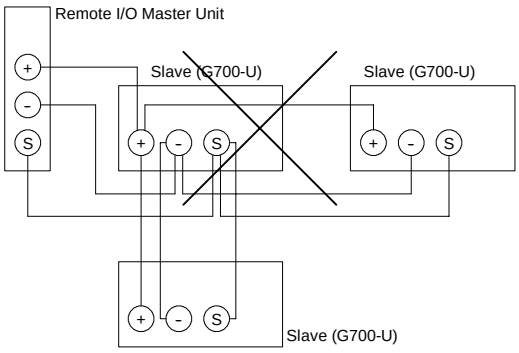
The ground (shield) terminals are not connected.




**No**

**Incorrect Example 4**

The transmission paths are branched at a slave.




**No**



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**B200-TW Transmission Cable (Order Separately)**

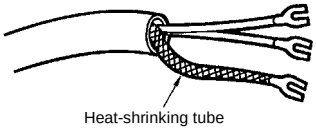
Use the following shielded twisted-pair cable for signal transmission:

| Cable | Length |
|---|---|
| **B200-TW101** | 10 m |
| **B200-TW201** | 20 m |
| **B200-TW501** | 50 m |
| **B200-TW102** | 100 m |
| **B200-TW202** | 200 m |
| **B200-TW502** | 500 m |

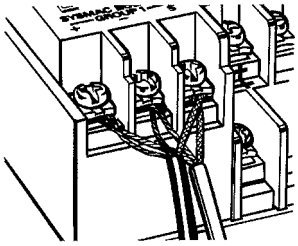
The above cables are for signal transmission. Standard commercial available cables cannot be used for this purpose.

## Wiring (G700-U/G700-E)

1. Twist the tips of the shielded wires and solder it to a fork terminal (M3.5). Then cover the bare wires with heat-shrinking tube or vinyl tape for insulation. Also solder a fork terminal (M3.5) to each of the positive and negative wires as shown by the following illustration.




2. Connect the positive, negative, and shielded wires to the transmission terminals and ground (shield) terminal correctly and tighten the screws to secure the fork terminals. In the case of intermediate terminals, two wires (one from the previous Terminal and the other to the next Terminal) must be connected via the fork terminals, which are soldered to the wires, and secured by the terminal screws.



Do not wire the cable near or in parallel with power lines.

Connect a ground (shield) line to each Remote I/O Interface.

Use the following for wiring.

| | |
|---|---|
| **Cable** | Shielded Twisted-pair cable |
| **Fork terminal** | M3.5 |

**Installation Site**

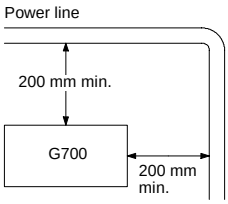
The following conditions are required to install the G700.

There is no direct sunlight.
The ambient temperature is within a range of 0% to 55%C.
The relative humidity is within a range of 10% to 90%.
There is no drastic temperature changes that can cause condensation.
There is no corrosive or inflammable gas.
There is no excessive dust, salinity, or powdered metal.
There is no vibration or shock that is directly imposed on the G700.
No water, oil, or chemical is sprayed to the G700.

**Protection from Noise**

Do not install the G700 on a panel where high-power equipment is installed.

Provide a distance of 200 mm at least between power lines and the G700.




**Mounting Screw**

Mounting screws must be tightened securely in order to prevent the G700 from malfunctioning.

**Connection Cable Lock**

Before turning on the G700, check that the connectors of each connection cable are locked properly.

**Static Electricity**

Excessive static electricity can be generated where the humidity is low. Before you operate the G700, touch grounded metal so that your body will be free from static electricity.

**Cleaning**

Use alcohol to clean the G700. Do not use paint thinner because it will dissolve or discolor the paint on the panel of the G700.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. K78-E1-1B



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## Connected to a Variety of Controllers for I/O Transmission

- Connecting to a variety of controllers and PCs for two-wire I/O transmission using harness connection.
- A single Master connects to a maximum of three Expansion Units to control a maximum of 128 points.
- Monitor outputs allows maintenance with ease.
- G730-M j D32-A is available for G730 Slaves with 4, 8, and 16 words. (However, G730-M j D32 w/o -A is not available for Slave with 16 words).

# Ordering Information

| Unit | I/O points | I/O classification | I/O card of corresponding PC | Rated voltage | Model |
|---|---|---|---|---|---|
| Master | 32 points | Input | Input | 24 VDC | G730-MID32-A |
| | | Output | Output | | G730-MOD32-A |
| Expansion Unit | | Input | Input | | G730-NID32 |
| | | Output | Output | | G730-NOD32 |

| Unit | I/O classification | No. of I/O connector pins | Model |
|---|---|---|---|
| Harness adapter | Both input and output | 20-pin connector x 2 | G730-Y10-1<br>G730-Y10 |

**Note:** 1. The Master Unit is used in combination with a G730-Y10/G730-Y10-1 Harness Adapter.

2. Refer to the following table when connecting the Master Unit to an OMRON PC's I/O Card (connector type) using a G79- j C Cable.

| PC's I/O Card | Harness adapter |
|---|---|
| For input (C200H-ID215) | G730-Y10-1 |
| For output (C200H-OD215) | G730-Y10 |

# Specifications

## ■ Ratings

### Inputs

**For Controller Input Cards**

**G730-MID32-A, G730-NID32**

| | |
|---|---|
| **Rated output voltage** | 24 VDC |
| **Rated output current** | 20 mA/point |
| **Residual voltage** | 0.6 V max. |
| **Leakage current** | 0.1 mA max. |

**Note:** The G730-MID32-A and G730-NID32 incorporate output circuitry to be connected to the I/O cards of controllers. The above specifications are for the output circuitry of the G730-MID32-A and G730-NID32.



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## Outputs

### For Controller Output Cards

**G730-MOD32-A, G730-NOD32**

| | |
|---|---|
| **Input current** | 10 mA max./point |
| **On delay (see note)** | 1 ms max. |
| **OFF delay (see note)** | 1.5 ms max. |
| **On voltage** | 10 VDC max. |
| **OFF voltage** | 1 mA min. |

**Note:** The G730-MOD32-A and G730-NOD32 may malfunction if they are connected to relays or switches with long chattering times. Contact your OMRON representative if the delay time of your model needs to be changed.

### Error Detecting Circuit Output Specification

**G730-MID32-A, G730-MOD32-A**

| | |
|---|---|
| **Rated output voltage** | 24 VDC |
| **Rated output current** | 20 mA |
| **Residual voltage** | 1.2 V max. |

## ■ Characteristics

| | |
|---|---|
| **Communication method** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission distance** | 200 m (total length) |
| **Transmission speed** | 187.5 kbps |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x 2 C is recommended) |
| **Interface** | RS-485 |
| **Maximum I/O cable length between the Master Unit and a controller** | 5 m |
| **No. of connecting I/O points** | 32 points per Unit (128 points max. with three Expansion Units) |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption (see note)** | Input: 60 mA max. at 24 VDC<br>Output: 100 mA max. at 24 VDC |
| **Insulation resistance** | 20 MΩ min. (at 250 VDC) |
| **Dielectric strength** | 500 VAC for 1 min between the power supply terminals and transmission terminals |
| **Noise immunity** | Power supply normal: 600 V for 10 min with a pulse width of 100 ns to 1 μs<br>Power supply common: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around transmission path: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around Unit: 600 V for 10 min with a pulse width of 100 ns to 1 μs |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions |
| **Shock resistance** | Destruction: 300 m/s$^2$ (approx. 30G)<br>Malfunction: 200 m/s$^2$ (approx. 20G) |
| **Ambient temperature** | Operating: 0 to 55 °C<br>Storage: –20 to 65 °C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (49N) pull load was applied for 10 s in all directions (except for 1 kgf (9.8 N) in direction of rail) |
| **Terminal strength** | Tightening strength: 10 kgf S cm (0.98 N S m) for 10 s<br>Pulling strength: 5 kgf (50 N) for 10 s |
| **Weight** | G730-M j D, -N j D: approx. 95 g<br>Harness adapter: approx. 45 g |

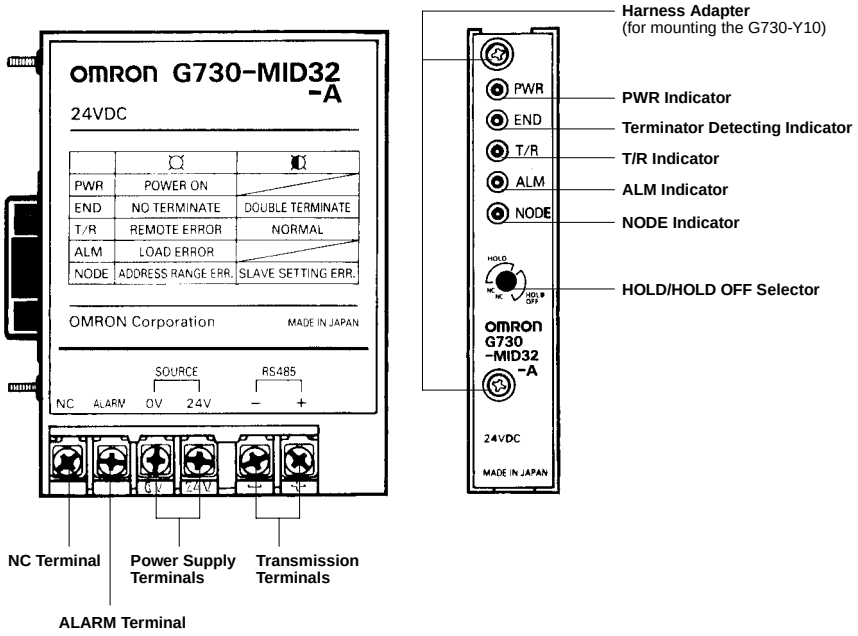
**Note:** The above current consumption is a value with all the 32 points turned ON.



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# Nomenclature

**G730-MID32**
**G730-MOD32**




**ALARM Terminal**
NPN open collector output is ON when the G730-ROC04-A has error output.

**PWR Indicator**
Lit when power is supplied.

**Terminator Detecting Indicator**

| Display | Function |
|---|---|
| **Not lit** | Turns OFF when the terminator of the system is found. |
| **Lit** | Lit while the Master Unit is looking for the terminator. |
| **Flashing** | Flashes when the Master Unit finds more than one terminator in the system. |

**T/R Indicator**

| Display | Function |
|---|---|
| **Flashing** | Flashes during normal transmission. |
| **Lit** | Lit while the Master Unit is waiting for transmission or when a transmission error results. |
| **Not lit** | Turns OFF when the CPU is running abnormally. |

**ALM Indicator**
Lit if the G730-ROC04-A Slave Output Unit has an output error.

**NODE Indicator**

| Display | Function |
|---|---|
| **Lit** | Lit when the Slave Units are set to word 28 to 30. |
| **Flashing** | Flashes if the I/O configuration of the Slave Units and that of the Master Unit in the system do not coincide, 4-point Slave Units exist at word 24 to 27, or there is I/O duplication. |

**Note:** 1. The Slave Units used are G730-VID08(-1), G730-VOD08(-1), G730-VID16, G730-VOD16, G730-RIA(D)04, G730-ROC04, or G730-ROC04-A models.
2. The Master Unit used is a G730-MID32-A, G730-NID32, G730-MOD32-A, or G730-NOD32 model.
3. The 4-point Slave Units used are G730-VID04, G730-VOD04, G730-RIA(D)04, G730-ROC04, or G730-ROC04-A models.

**HOLD/HOLD OFF Selector**

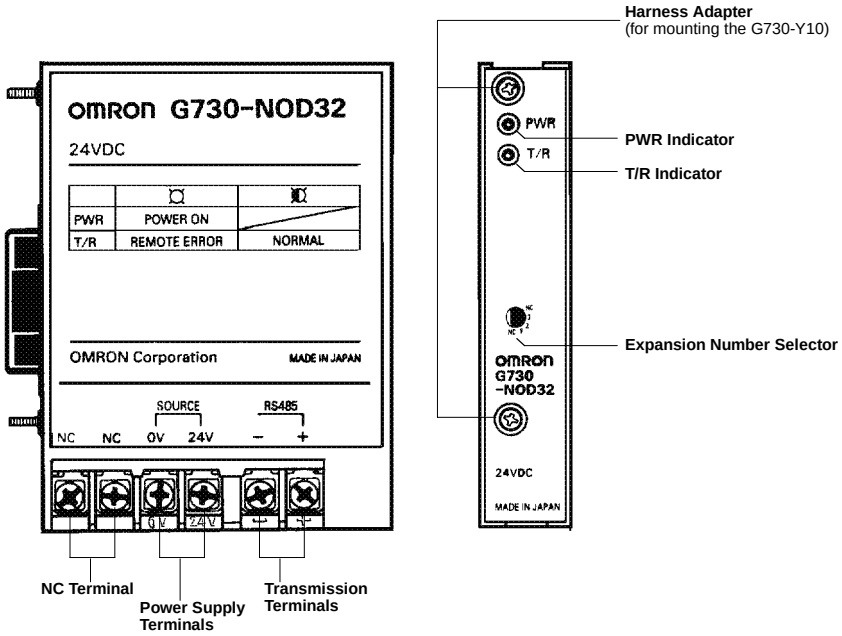
| Setting | Function |
|---|---|
| **HOLD** | If there is a transmission error during signal transmission, the signal being transmitted is put on hold. |
| **HOLD OFF** | If there is a transmission error during signal transmission, the signal being transmitted is turned OFF. |

**Note:** The HOLD/HOLD OFF selector is factory-set to HOLD OFF. Be sure to turn off the Master Unit before setting the HOLD/HOLD OFF selector.



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**G730-NID32**
**G730-NOD32**




**PWR Indicator**
Lit when power is supplied.

**T/R Indicator**

| Display | Function |
|---|---|
| **Flashing** | Flashes during normal transmission. |
| **Lit** | Lit while the Master Unit is waiting for transmission or when a transmission error results. |
| **Not lit** | Turns OFF when the CPU is running abnormally. |

**Expansion Number Selector**

Expansion numbers correspond to the following Slave words.

| Expansion number setting | Slave word |
|---|---|
| **1** | Corresponds to words 8 to 15 |
| **2** | Corresponds to words 16 to 23 |
| **3** | Corresponds to words 24 to 27 |

**Note:** The expansion number selector is factory-set to 1. Be sure to turn off the Master Unit before setting the expansion number selector.

# Operation

## ■ HOLD/HOLD OFF Function

If there is a transmission error during signal transmission, the signal being transmitted can be put on hold or turned OFF by setting the HOLD/HOLD OFF selector. HOLD/HOLD OFF setting is possible on the G730-MOD32-A and G730-MID32-A Master Units. HOLD/HOLD OFF setting has nothing to do with HOLD/LOAD OFF setting on Slave Units for output. HOLD/LOAD OFF setting on the Slave Units in the system must be done separately from the HOLD/HOLD OFF setting.

### Limitations on HOLD Function

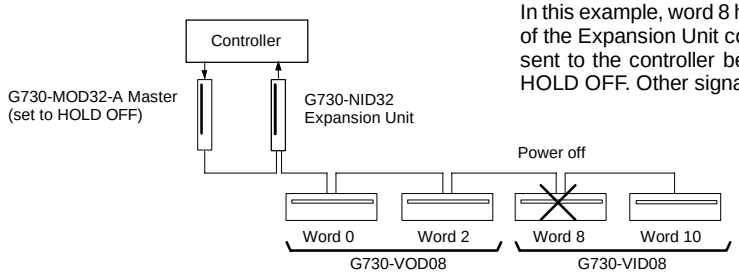
In the following cases, the HOLD function does not work properly.

1. If the Master has an error (such as power failure or CPU abnormality), the signal being transmitted cannot be put on hold by the Master or any Expansion Unit.
2. If an Expansion Unit has an error (such as power failure or CPU abnormality), the signal being transmitted can be put on hold by the Master but not by the Expansion Unit.
3. If the connection cable between the Master and an Expansion Unit is disconnected, the signal being transmitted can be put on hold by the Master but not by the Expansion Unit.
4. If the transmission path is short circuited, the signal being transmitted can be put on hold by the Master but not by any Expansion Unit.



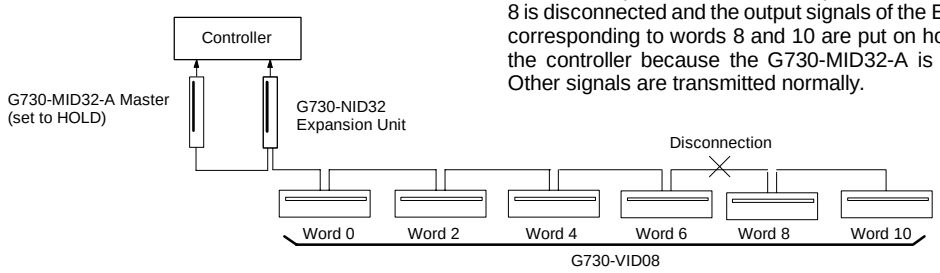
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**Example 1**




In this example, word 8 has power failure and the output signal of the Expansion Unit corresponding to word 8 is cleared and sent to the controller because the G730-MOD32-A is set to HOLD OFF. Other signals are transmitted normally.

**Example 2**



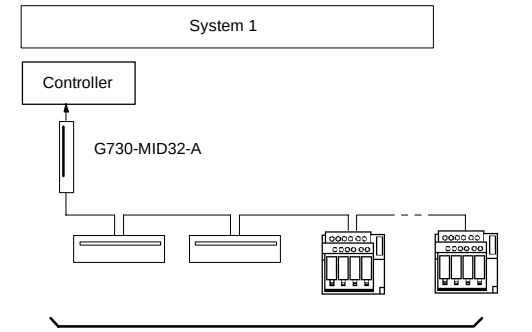

In this example, the transmission path between words 6 and 8 is disconnected and the output signals of the Expansion Unit corresponding to words 8 and 10 are put on hold and sent to the controller because the G730-MID32-A is set to HOLD. Other signals are transmitted normally.

## ■ System Configuration

### Basic Configuration of Multiple Link Terminal

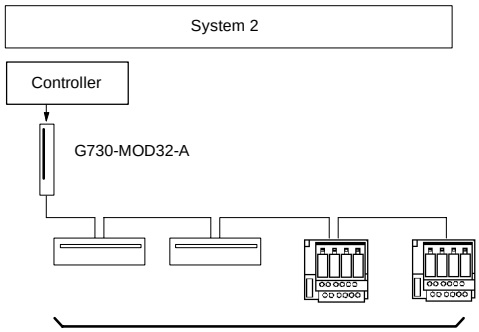
**Note:** Refer to page 121 for word settings.

**G730-MID32-A Master Unit for Input**
(Controlling up to 32 input signal points)



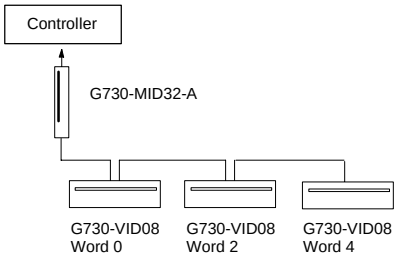

Set the input Slaves (G730-VID04, -VID08(-1), -VID16, -RID04, and -RIA04) with words 0 to 7.

**G730-MOD32-A Master Unit for Output**
(Controlling up to 32 output signal points)




Set the output Slaves (G730-VOD04, -VOD08(-1), -VOD16, -ROC04(-A), -ROC08, -ROC16, -AOM08, and -AOM16) with words 0 to 7.

**Example 1:** There are 20 transistor input points.

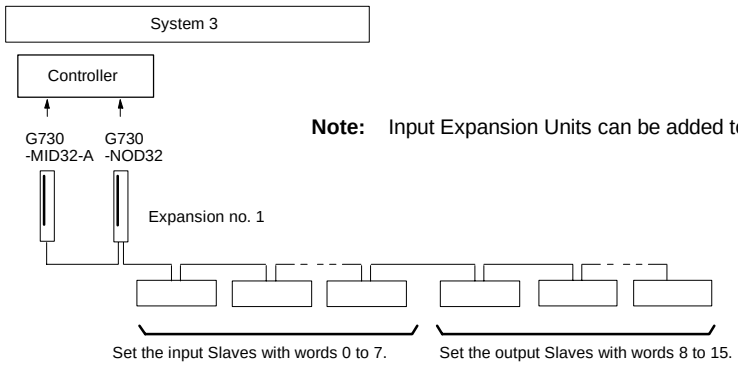





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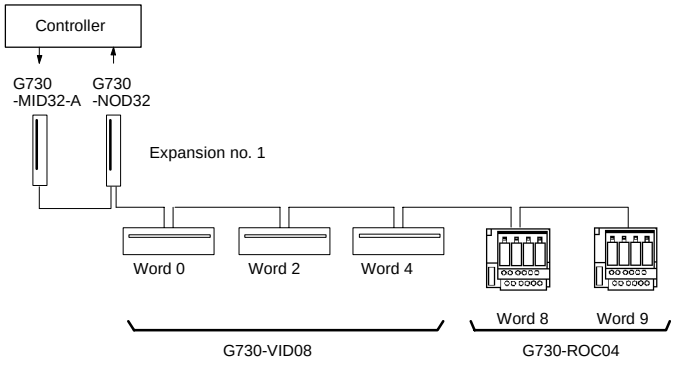
## Combination of Input and Output Slaves

Add a G730-NOD32 Expansion Unit for output as expansion number 1 for system 1, in which case a maximum of 32 input points and 32 output points can be controlled.




**Note:** Input Expansion Units can be added to system 2.

**Example 2:** There are 20 transistor input points and five relay output points.

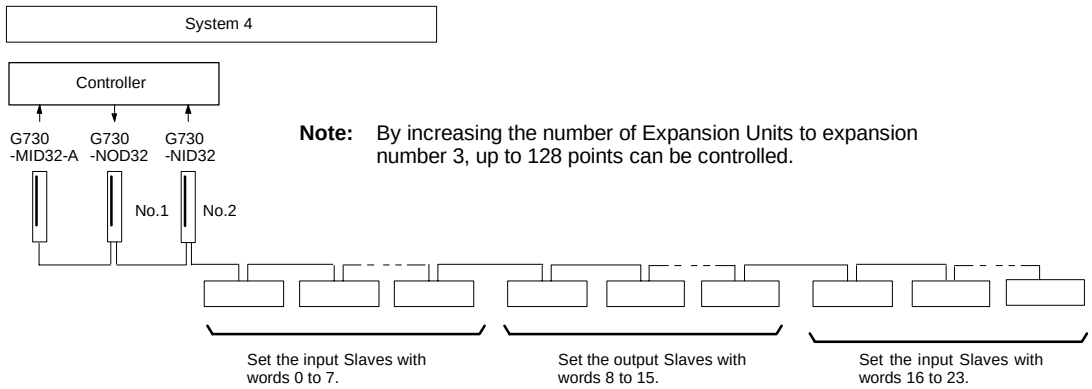





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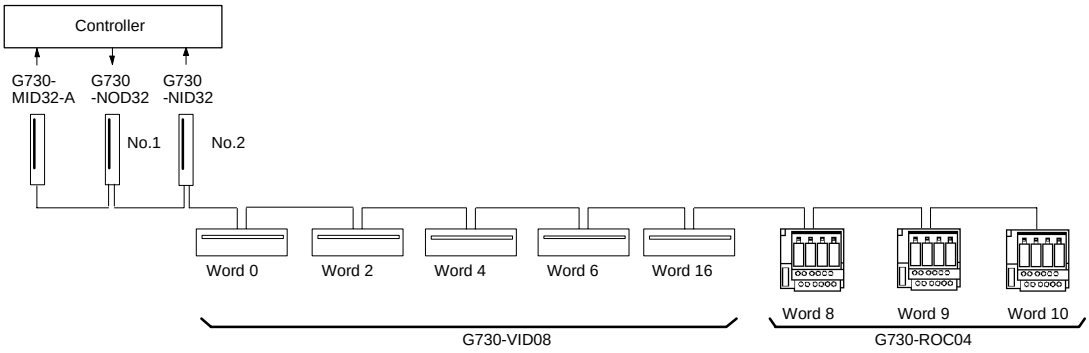
## For Increment of the Number of Control Points

Add a G730-NID32 Expansion Unit for input as expansion number 2 for system 3, in which case a maximum of 64 input points and 32 output points can be controlled.



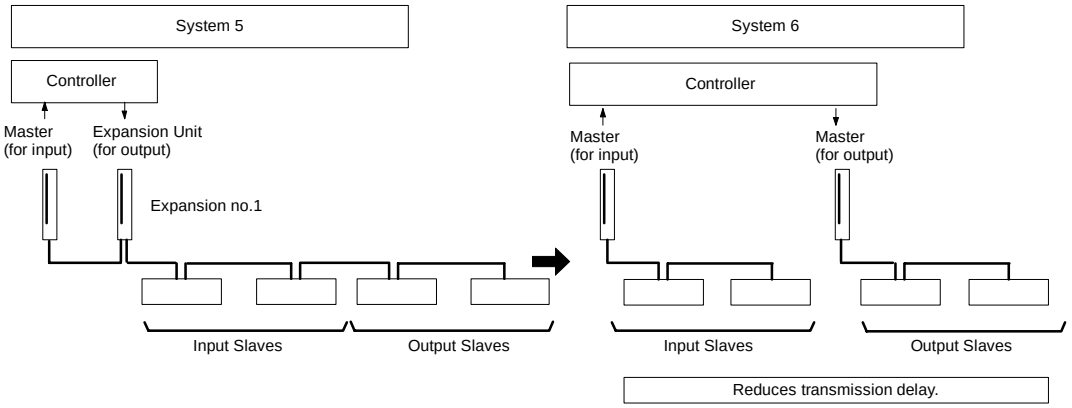

**Note:** By increasing the number of Expansion Units to expansion number 3, up to 128 points can be controlled.

**Example 3:** There are 40 transistor input points and 10 relay output points.




## Reducing Transmission Delay

It is possible to reduce the transmission delay in a system by rearranging the configuration of the system.




System 6 incorporating two Masters has less transmission delay than system 5 incorporating a single Master and an Expansion Unit. Refer to page 127 *"Transmission Delay"* for details on the calculation formula for transmission delay. There is less delay time if one G730-V j D16 Slave is used instead of two G730-V j D08 Slaves.



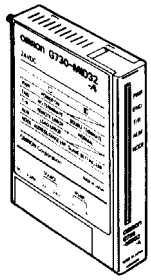
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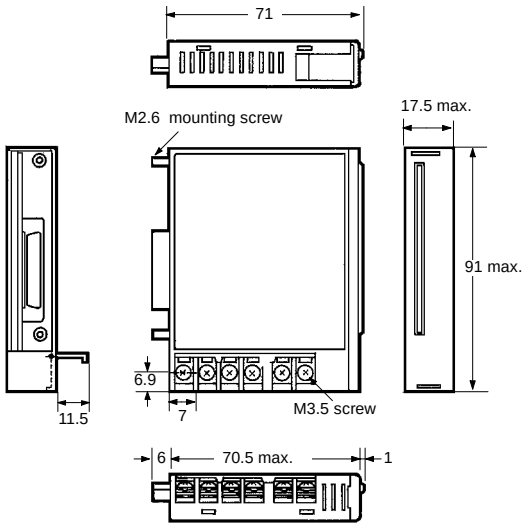
# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

## Master Unit

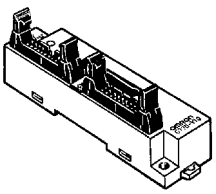
**G730-MID32-A**
**G730-MOD32-A**
**G730-NID32**
**G730-NOD32**

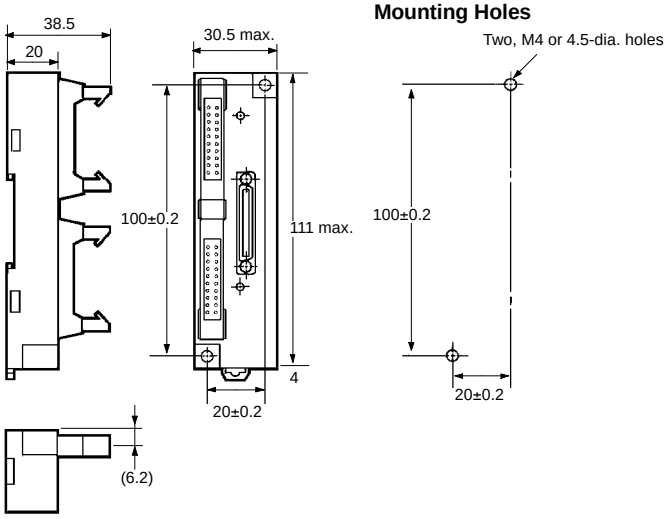





## Harness Adapter

**G730-Y10**
**G730-Y10-1**

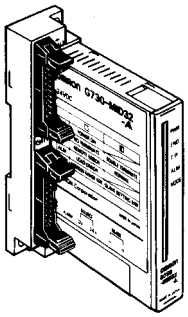


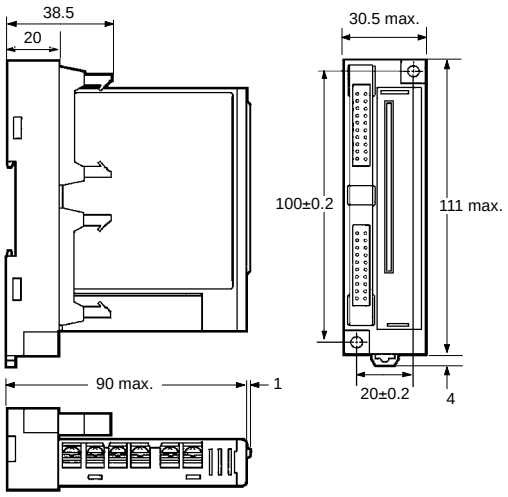



## Mounting Holes




## Mounting Dimensions





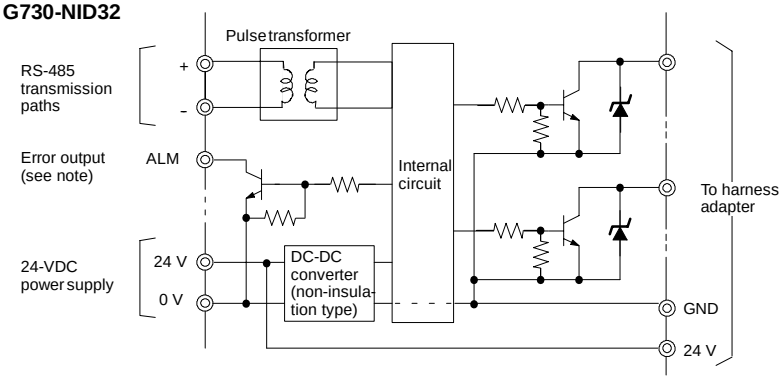



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# Installation

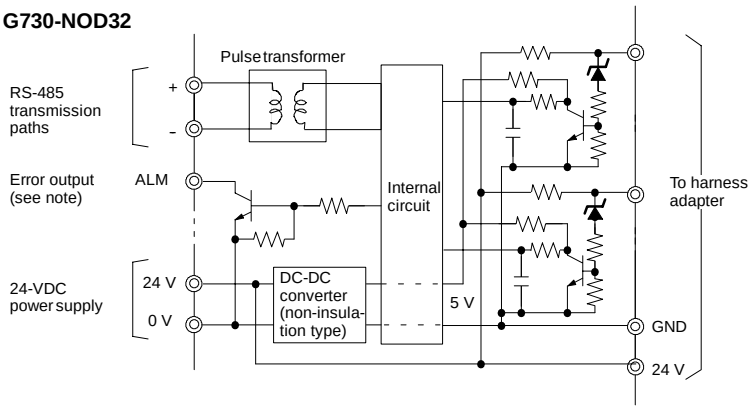
## ■ Internal Circuit Configuration

**Input**
**G730-MID32-A, G730-NID32**




**Note:** Only the G730-MID32-A Master incorporates an error output function.

**Output**
**G730-MOD32-A, G730-NOD32**




**Note:** Only the G730-MOD32-A Master incorporates an error output function.



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OMRON

# Transistor Remote Terminal

# G730-V

### Ultra-miniature 4-point, 8-point, and 16-point Transistorized Terminals at Affordable Prices

- Ultra-compact (4-point models: 82 x 32 x 64.5 mm (WxDxH); 8-point/16-point models: 115 x 32 x 63 mm (WxDxH))
- Connecting to both G730-M/N and Remote I/O (wired SYSMAC BUS) Master Units.
- A series of NPN and PNP input and output models is available (8-point models only).
- Two independent power supplies can be used because the I/O terminals are insulated from the internal circuits.
- Allows DIN-track mounting with a G730-Y30 DIN-track Adapter.

## Ordering Information

| I/O classification | Internal I/O circuit common | I/O points | Rated voltage | I/O rated voltage | Model |
|---|---|---|---|---|---|
| Input | NPN (+ common) | 4 | 24 VDC | 24 VDC | G730-VID04 |
| Output | NPN (– common) | | | | G730-VOD04 |
| Input | NPN (+ common) | 8 | | | G730-VID08 |
| | PNP (– common) | | | | G730-VID08-1 |
| Output | NPN (+ common) | | | | G730-VOD08 |
| | PNP (– common) | | | | G730-VOD08-1 |
| Input | NPN (+ common) | 16 | | | G730-VID16 |
| Output | NPN (– common) | | | | G730-VOD16 |

**Note:** G730-V 16-point models cannot be used with the G720-MID32 or G730-MOD32. Always use the G730-MID32-A or G730-MOD-32-A Master when using G730-V 16-point models (G730-VID-16 or G730-VOD-16).

| Unit | Remote Terminal | Model |
|---|---|---|
| DIN track adapter | G730-V j D04 | G730-Y31 |
| | G730-V j D08 | G730-Y30 |
| | G730-V j D16 | |



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# Specifications

## ■ Ratings

### Inputs

**G730-VID04, G730-VID08, G730-VID08-1, G730-VID16**

| | |
|---|---|
| **Input current** | 10 mA max./point |
| **ON delay** | 1.5 ms max. |
| **OFF delay** | 1.5 ms max. |
| **ON voltage** | 5 VDC max. (at 24 VDC) |
| **OFF current** | 0.2 mA min. |
| **Insulation method** | Photocoupler |
| **Input indicators** | LED (orange) |

**Note:** Connection conditions to input devices are indicated.

### Outputs

**G730-VOD04, G730-VOD08, G730-VOD08-1. G730-VOD16**

| | |
|---|---|
| **Rated output current** | 0.3 A/point (see note) |
| **Residual voltage** | 0.6 V max. |
| **Leakage current** | 0.1 mA max. |
| **Insulation method** | Photocoupler |
| **Output indicators** | LED (orange) |

**Note:** Use at 2.4 A or less per common.

## ■ Characteristics

| | |
|---|---|
| **Master Unit** | For controllers or personal computers: G730-M/N<br>For SYSMAC BUS Wired Remote I/O Systems: C200H-RM201, 3G2A5-RM201 |
| **Communication method** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission distance** | 200 m (total length) |
| **Transmission speed** | 187.5 kbps |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x 2 C is recommended) |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption (see note)** | Output: 80 mA max. at 24 VDC<br>Input: 70 mA max. at 24 VDC |
| **Insulation resistance** | 20 MΩ min. (at 250 VDC) |
| **Dielectric strength** | 500 VAC for 1 min between the input terminals and power supply and transmission paths, and between the power supply terminals and transmission terminals |
| **Noise immunity** | Power supply normal: 600 V for 10 min with a pulse width of 100 ns to 1 μs<br>Power supply common: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around transmission path: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around Unit: 600 V for 10 min with a pulse width of 100 ns to 1 μs |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions |
| **Shock resistance** | Destruction: 300 m/s$^2$ (approx. 30G)<br>Malfunction: 200 m/s$^2$ (approx. 20G) |
| **Ambient temperature** | Operating: 0 to 55 °C<br>Storage: −20 to 65 °C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (49N) pull load was applied for 10 s in all directions |
| **Terminal strength** | Tightening strength: 10 kgf S cm (0.98 N S m) for 10 s<br>Pulling strength: 5 kgf (50 N) for 10 s |
| **Weight** | 4-point model: Approx. 97 g (G730-Y31: approx. 19 g)<br>8-point/16-point models: Approx. 150 g (G730-Y30: approx. 27 g) |

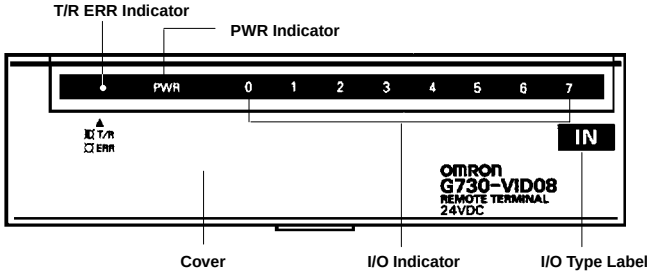
**Note:** The above current consumption is a value with all 4, 8, and 16 points turned ON excluding the current consumption of the external sensor connected to the input Remote Terminal and the current consumption of the load connected to the output Remote Terminal.



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# Nomenclature

**8-point Model**




**T/R ERR**

| Display | Function |
|---|---|
| **Flashing** | Flashes during normal transmission. |
| **Lit** | Lit while the Master Unit is waiting for transmission or when a transmission error results. |
| **Not lit** | Turns OFF if a CPU error is detected during watchdog timer monitoring. |

**PWR Indicator**

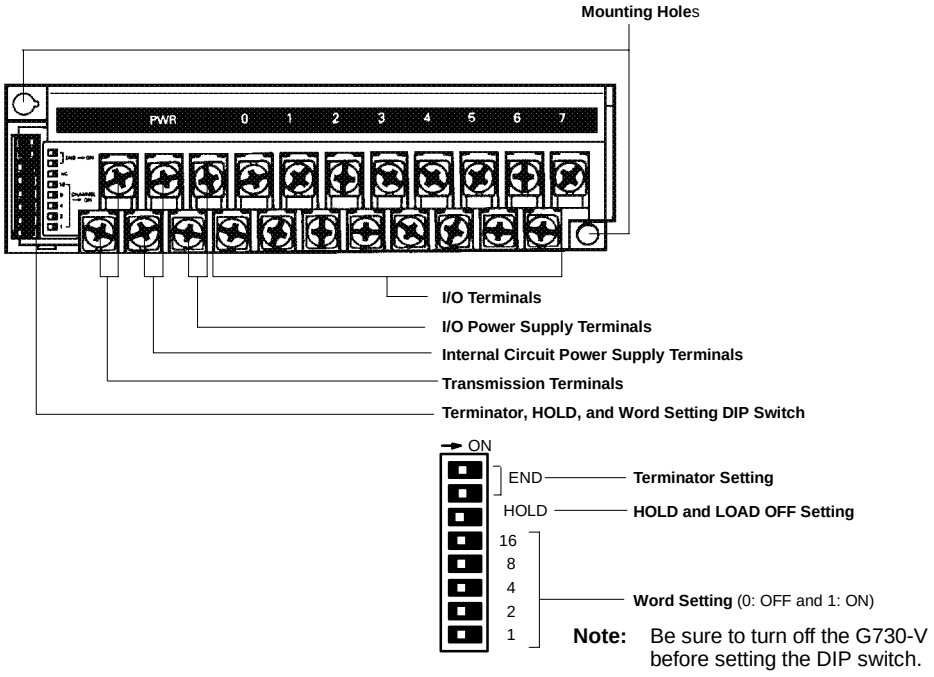
Lit when power is supplied.

**I/O Indicator**

Indicates the ON and OFF conditions of the I/O of the G730.

**Cover**

There are DIP switch terminals under the cover as shown in the illustration below.




**Mounting Hole**

Use an M4 screw to mount the DIP switch terminals.

**I/O Power Supply Terminals**

Connect to a 24 VDC power supply.

**Internal Circuit Power Supply Terminals**

Connect to a 24 VDC power supply.

**Transmission Terminals**

Connect a transmission cable.

**Terminator Setting**

These pins of the terminator must be set to ON.

If these pins of the terminator are set to ON, the terminator resistance of the terminator is turned ON. There must be only one terminator in a system. The G730-V located farthest from the G730-M on the transmission path must be the terminator. These pins are factory-set to OFF.



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**HOLD and LOAD OFF Setting**

| HOLD | LOAD OFF |
|---|---|
| If there is a Slave transmission error during signal transmission, the signal being transmitted is put on hold. | If there is a Slave transmission error during signal transmission, the output of the G730-V is turned OFF. |

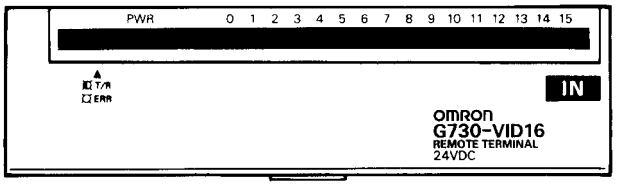
**Note:** If the Master has a data error or if there is no data from the Master, a Slave transmission error will result. The HOLD/LOAD OFF selector is factory-set to LOAD OFF.

**Word Settings**

| Word | Switch | | | | | Word | Switch | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | 16 | | 1 | 2 | 4 | 8 | 16 |
| 0 | OFF | OFF | OFF | OFF | OFF | 16 | OFF | OFF | OFF | OFF | ON |
| 1 | ON | OFF | OFF | OFF | OFF | 17 | ON | OFF | OFF | OFF | ON |
| 2 | OFF | ON | OFF | OFF | OFF | 18 | OFF | ON | OFF | OFF | ON |
| 3 | ON | ON | OFF | OFF | OFF | 19 | ON | ON | OFF | OFF | ON |
| 4 | OFF | OFF | ON | OFF | OFF | 20 | OFF | OFF | ON | OFF | ON |
| 5 | ON | OFF | ON | OFF | OFF | 21 | ON | OFF | ON | OFF | ON |
| 6 | OFF | ON | ON | OFF | OFF | 22 | OFF | ON | ON | OFF | ON |
| 7 | ON | ON | ON | OFF | OFF | 23 | ON | ON | ON | OFF | ON |
| 8 | OFF | OFF | OFF | ON | OFF | 24 | OFF | OFF | OFF | ON | ON |
| 9 | ON | OFF | OFF | ON | OFF | 25 | ON | OFF | OFF | ON | ON |
| 10 | OFF | ON | OFF | ON | OFF | 26 | OFF | ON | OFF | ON | ON |
| 11 | ON | ON | OFF | ON | OFF | 27 | ON | ON | OFF | ON | ON |
| 12 | OFF | OFF | ON | ON | OFF | 28 | OFF | OFF | ON | ON | ON |
| 13 | ON | OFF | ON | ON | OFF | 29 | ON | OFF | ON | ON | ON |
| 14 | OFF | ON | ON | ON | OFF | 30 | OFF | ON | ON | ON | ON |
| 15 | ON | ON | ON | ON | OFF | 31 | ON | ON | ON | ON | ON |

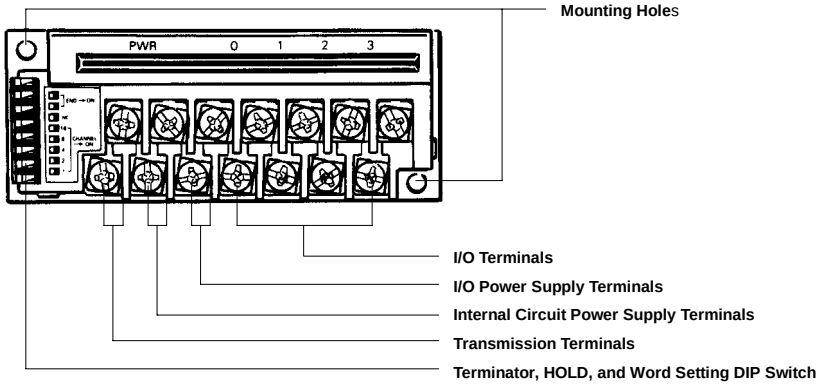
**Note:** The word is factory-set to 0.

## 16-point Model




**Note:** I/O displays and I/O terminals are different from 8-point models. The appearance is otherwise the same as 8-point models. Refer to page 99 for terminal arrangement and I/O device connection examples.

## 4-point Model




**Note:** The LED indicators, terminator, HOLD, and word setting methods are the same as for 8-point models.

**Mounting Hole**
Use an M4 screw to mount the DIP switch terminals.

**I/O Power Supply Terminals**
Connect to a 24 VDC power supply.

**Internal Circuit Power Supply Terminals**
Connect to a 24 VDC power supply.

**Transmission Terminals**
Connect a transmission cable.

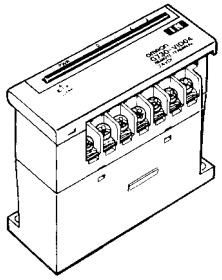


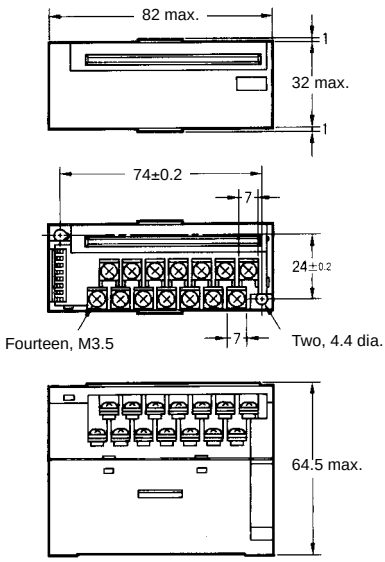
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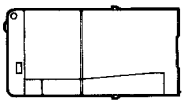
# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

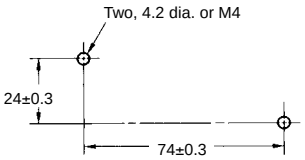
**G730-VID04**
**G730-VOD04**



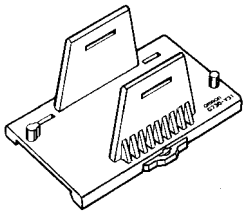


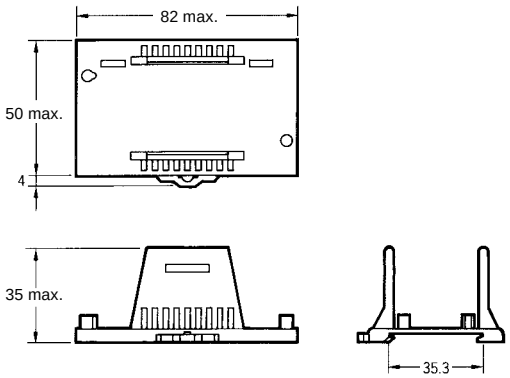



**Mounting Holes**

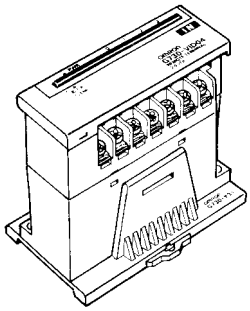


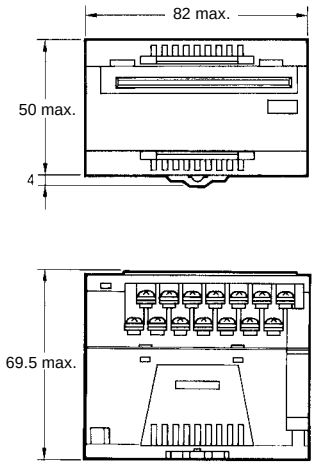

**DIN Track Adapter**
**G730-Y31**






**Mounting Dimensions**

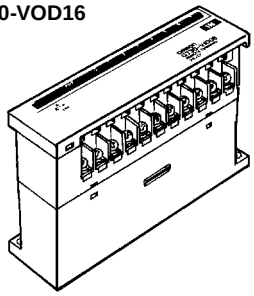


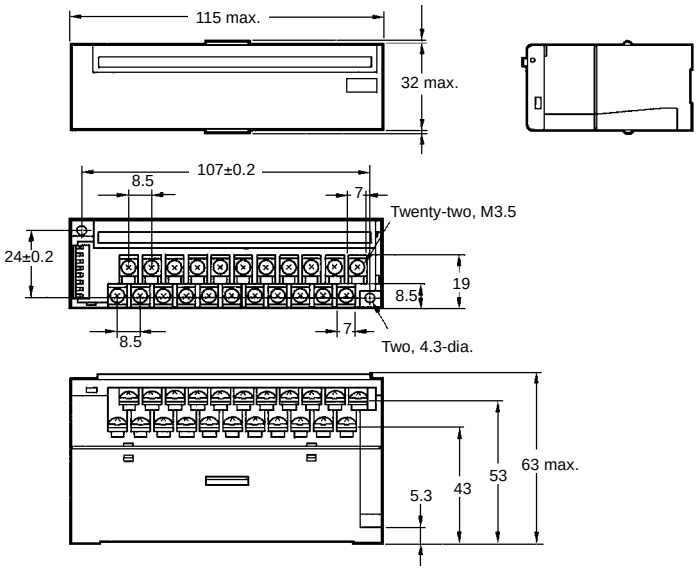




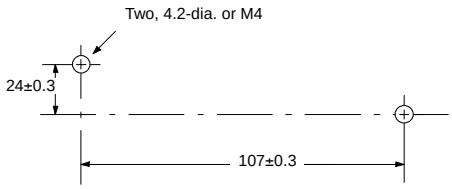

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**G730-VID08**
**G730-VID08-1**
**G730-VOD08**
**G730-VOD08-1**
**G730-VID16**
**G730-VOD16**



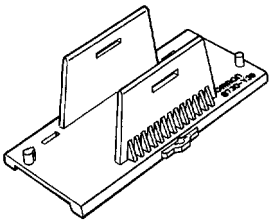


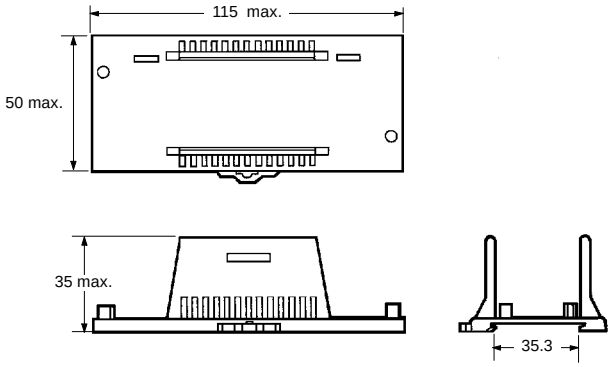

**Mounting Holes**



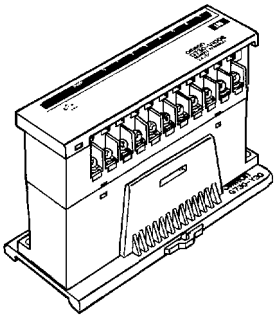

## DIN Track Adapter

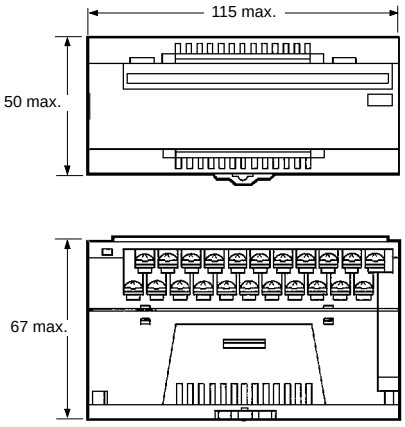
**G730-Y30**






**Mounting Dimensions**





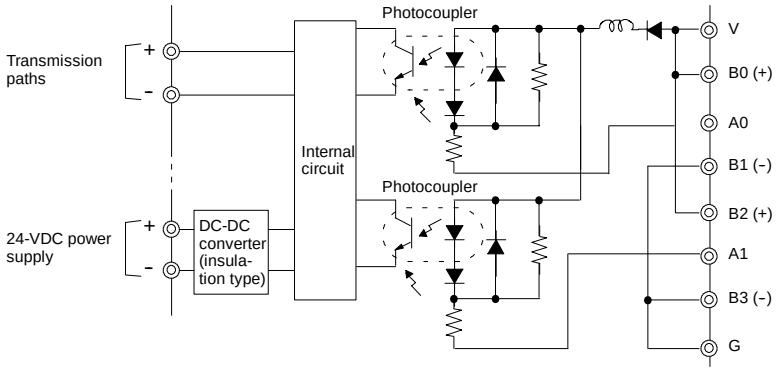



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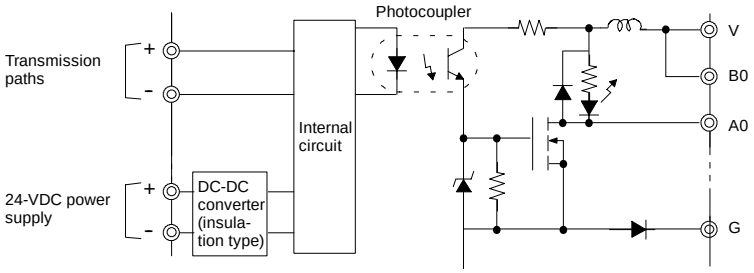
# Installation

## ■ Internal Circuit Configuration

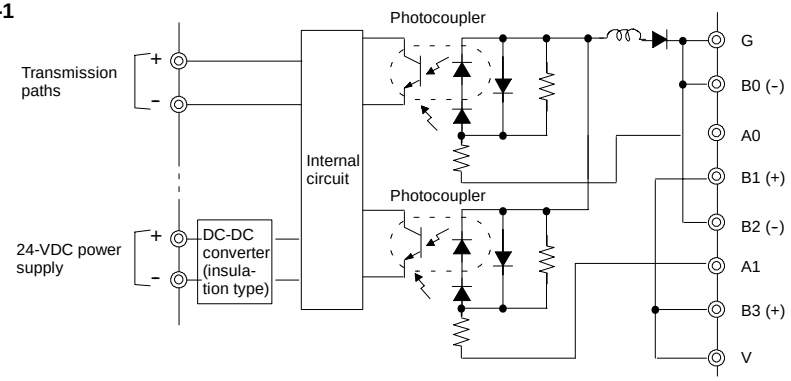
**G730-VID04**
**G730-VID08**



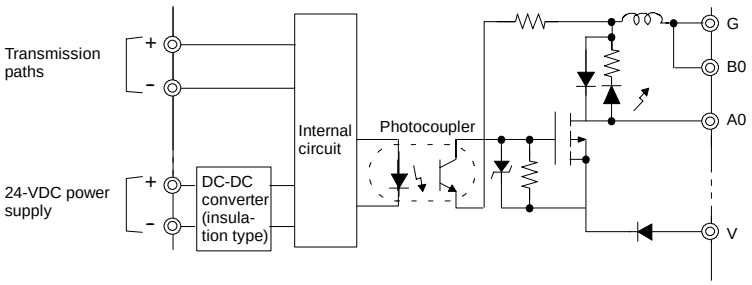

**G730-VOD04**
**G730-VOD08**




**G730-VID08-1**



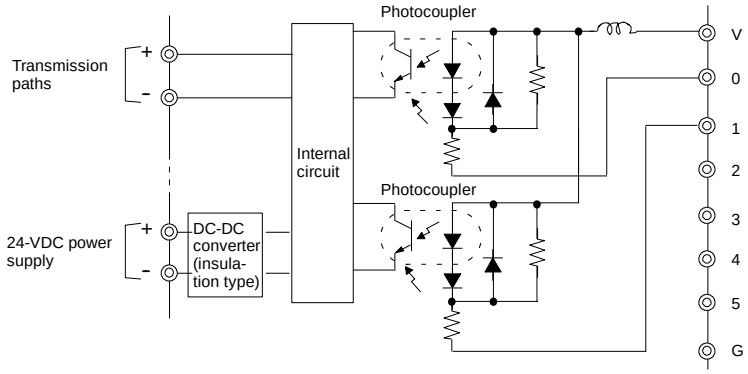

**G730-VOD08-1**



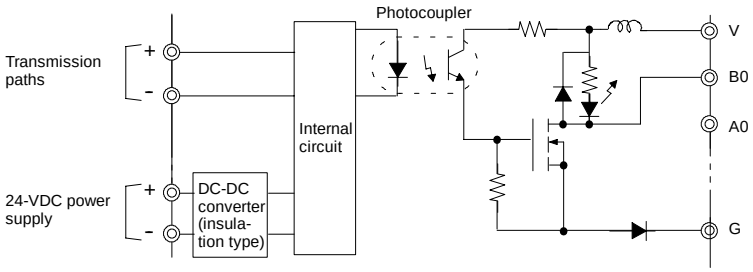



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**G730-VID16**



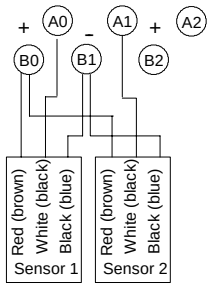

**G730-VOD16**



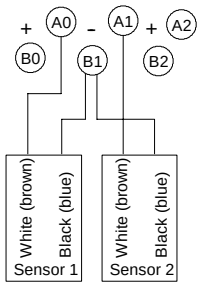

## ■ External Connections

No relay terminal boards for the sensor loads are required.

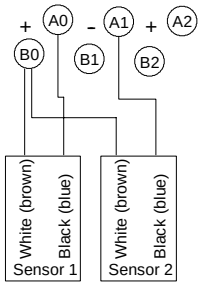
**Three-wire System**
**G730-VID04/G730-VID08 with NPN Output**
**G730-VID08-1 with PNP Output**




**Two-wire System**
**G730-VID04/G730-VID08**

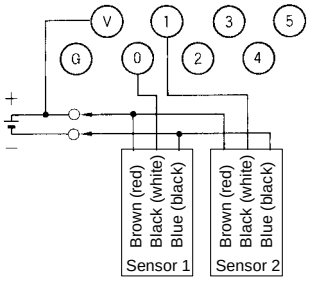



**G730-VID08-1**

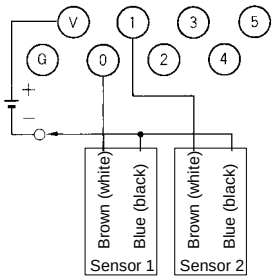



**Input Blocks**

**G730-VID16 with NPN Output**




**Two-wire System**
**G730-VID16**

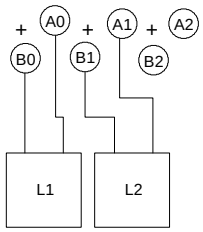




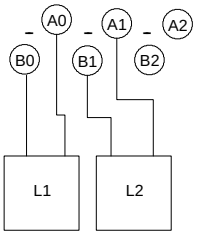

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### Output Blocks

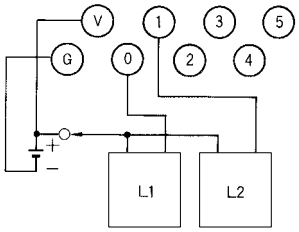
**G730-VOD04/G730-VOD08**




**G730-VOD08-1**




**G730-VOD16**



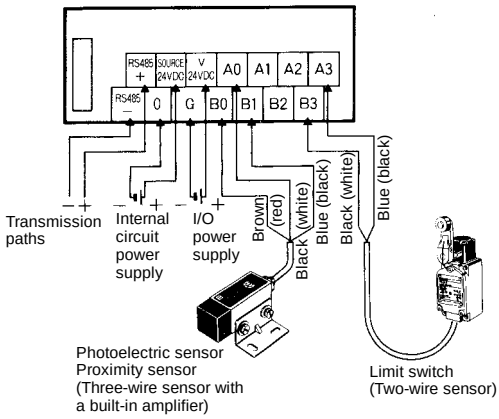

## ■ Terminal Arrangement/I/O Device Connection Examples

**Note:** 1. The connections examples shown are for NPN models.

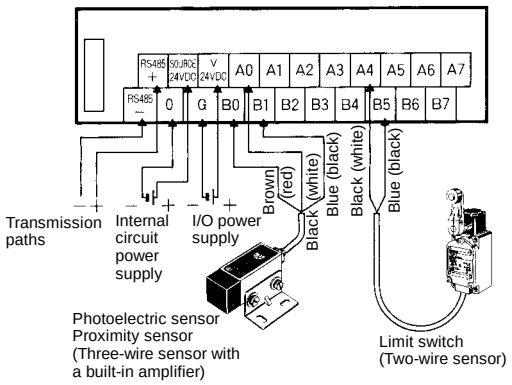
2. Wire colors have been changed as a result of changes in JIS standards for photoelectric and proximity sensors. Colors in parentheses are the old colors.

### Input Terminals

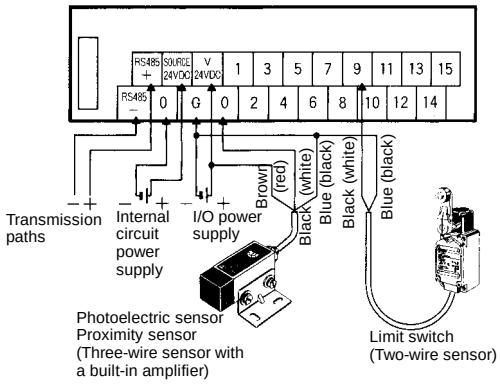
**G730-VID04**




**G730-VID08**




**G730-VID16**

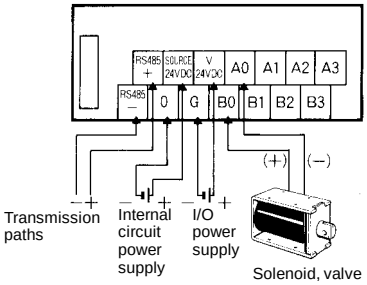




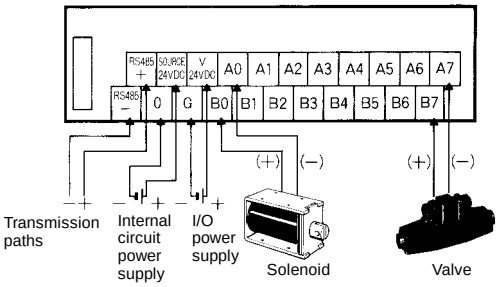

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## Output Terminals

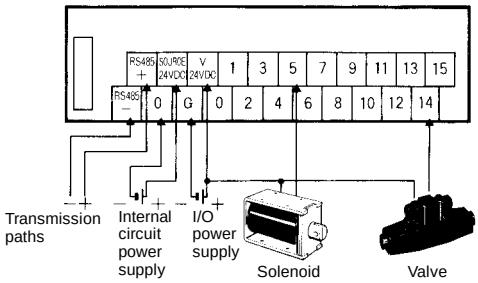
### G730-VOD04




### G730-VOD08




### G730-VOD16






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OMRON

# Relay-mounted Remote Terminal

# G730-R

## Select from 4-point, 8-point, and 16-point Models to Flexibly Meet Your Needs

- Connecting to both G730-M/N and Remote I/O (wired SYSMAC BUS) Master Units.
- G730-A Terminals with no-contact, long-life, no-leak-current Power MOS FET Relays.
- The finger-protect construction of the Remote Terminal meets the VDE0160 requirement (4-point models only).

## Ordering Information

| Classification | Points | Rated voltage | Relay coil rating | Model | Applicable relay |
|---|---|---|---|---|---|
| Relay input | 4 points | 24 VDC | 12 VDC | G730-RID04 | G2R-1A3-S |
| | | | 24 VDC | G730-RID04 | |
| | | | 100/(110) VAC | G730-RIA04 | |
| | | | 200/(220) VAC | G730-RIA04 | |
| Relay output | | | 24 VDC | G730-ROC04 | G2R-1A-S |
| | 8 points | | | G730-ROC08 | G6D-1A (see note 2) |
| | 16 points | | | G730-ROC16 | |
| Power MOS FET relay outputs | 8 points | | | G730-AOM08 | G3DZ-2R6PL (see note 2) |
| | 16 points | | | G730-AOM16 | |

**Note:** 1. G730-R/-A 16-point models cannot be used with the G720-MID32 or G730-MOD32. Always use the G730-MID32-A or G730-MOD-32-A Master when using G730-V 16-point models (G730-VID-16 or G730-VOD-16).

2. Refer to pages 61 to 66 for details on individual relays.

| Classification | Points | Rated voltage | Relay coil rating | Model | Applicable relay |
|---|---|---|---|---|---|
| Input socket | 4 points | 24 VDC | 5 to 24 VDC | G730-ZID04 | G2R-1A3-S, G3R (SSR) G3RZ (Power MOS FET relay) |
| | | | 100 to 240 VAC | G730-ZIA04 | |
| Output socket | | | 24 VDC | G730-ZOM04 | G2R-1A-S, G3R (SSR), G3RZ (Power MOS FET relay) |

**Note:** 1. Other combinations are possible, such as sockets and G3R SSR and sockets, and G3RZ Power MOS FET Relays. Refer to pages 70 to 135 for model numbers.

2. All input relays must be G2R-1A3-S Relays with bifurcated crossbar contacts.



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# Specifications

## ■ Ratings

### Inputs

| Item | G730-RID04 | | G730-RIA04 | |
|---|---|---|---|---|
| **Rated input voltage** | 12 VDC | 24 VDC | 100/110 VAC | 200/220 VAC |
| **Rated input current** | 43.6 mA | 21.8 mA | 6.2 mA | 3.3 mA |
| **Coil resistance** | 275 Ω | 1.1 kΩ | 6.5 kΩ | 25 kΩ |
| **Operating voltage** | 70% max. | | 80% max. | |
| **Release voltage** | 15% min. | | 30% min. | |
| **Max. permissible voltage** | 110% | | | |
| **Power consumption** | Approx. 0.53 W | | Approx. 0.7 VA | |
| **ON delay** | 20 ms | | | |
| **OFF delay** | 35 ms | | 25 ms | |
| **Life expectancy** | Electrical: 100,000 operations min. (under a rated load at 1,800 operations/hr)<br>Mechanical: G730-RID04: 20,000,000 operations min. (at 1,800 operations/hr)<br>G730-RIA04: 10,000,000 operations min. (at 1,800 operations/hr) | | | |

### Outputs

| Item | G730-ROC04 | | G730-ROC08, G730-ROC16 |
|---|---|---|---|
| **Rated load** | Resistive load:<br>5 A at 250 VAC;<br>5 A at 30 VDC | Inductive load:<br>2 A at 250 VAC;<br>3 A at 30 VDC | Resistive load:<br>3 A at 250 VAC;<br>3 A at 30 VDC |
| **Rated carry current** | 5 A | | 3 A |
| **Max. switching voltage** | 380 VAC, 125 VDC | | 250 VAC, 30 VDC |
| **Max. switching current** | 5 A | | 3 A |
| **Max. switching capacity** | 1,250 VA, 150 W | 500 VA, 90 W | 730 VA, 90 W |
| **Min. permissible load (see note)** | 100 mA at 5 VDC | | 10 mA at 5 VDC |
| **Life expectancy** | Electrical: 100,000 operations min. (under a rated load at 1,800 operations/hr)<br>Mechanical: 20,000,000 operations min. (at 1,800 operations/hr) | | |

**Note:** This value fulfills the P reference value of opening/closing at a rate of 120 times per min (ambient operating environment and determination criteria according to JIS C5442).

### Power MOS FET Relay Specifications

| Item | G730-AOM08, G730-AOM16 |
|---|---|
| **Load voltage** | 3 to 264 VAC, 3 to 125 VDC |
| **Load current** | 100 μA to 0.3 A |
| **Inrush current** | 6 A (10 ms) |



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## ■ Characteristics

| Item | G730-RID04, G730-ROD04 | G730-ROC08 | G730-ROC16 | G730-AOM08 | G730-AOM16 |
|---|---|---|---|---|---|
| **Master Unit** | For controllers or personal computers: G730-M/N<br>For SYSMAC BUS Wired Remote I/O Systems: C200H-RM201, 3G2A5-RM201 | | | | |
| **Communication method** | Two-conductor, half duplex | | | | |
| **Synchronization method** | Asynchronous | | | | |
| **Transmission distance** | 200 m (total length) | | | | |
| **Transmission speed** | 187.5 kbps | | | | |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x 2 C is recommended) | | | | |
| **Interface** | RS-485 | | | | |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ | | | | |
| **Current consumption (see note)** | Input: 70 mA max. at 24 VDC<br>Output: 220 mA max. at 24 VDC | Input: 70 mA max. at 24 VDC<br>Output: 220 mA max. at 24 VDC | | | |
| **Insulation resistance** | 20 MΩ min. (at 250 VDC) | | | | |
| **Dielectric strength** | G730-RIA04/-ROC04:<br>2,700 VAC for 1 min between the whole I/O terminals and power supply and transmission terminals,<br>500 VAC for 1 min between the whole power supply terminals and transmission terminals<br>G730-RID04:<br>500 VAC for 1 min between the whole I/O terminals and power supply and transmission terminals; between the whole power supply terminals and transmission terminals | 2,000 VAC for 1 min between the whole output terminals and power supply and transmission terminals<br>500 VAC for 1 min between the whole power supply terminals and transmission terminals | | | |
| **Noise immunity** | Power supply normal: 600 V for 10 min with a pulse width of 100 ns to 1 μs<br>Power supply common: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around transmission path: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around Unit: 600 V for 10 min with a pulse width of 100 ns to 1 μs | | | | |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions | | | | |
| **Shock resistance** | Destruction: 300 m/s$^2$ (approx. 30G)<br>Malfunction: 100 m/s$^2$ (approx. 10G) | | | | |
| **Ambient temperature** | Operating: 0 to 55 °C<br>Storage: −20 to 65 °C | | | | |
| **Ambient humidity** | Operating: 35% to 85% | | | | |
| **Mounting strength** | No damage when 5 kgf (49N) pull load was applied for 1 s in all directions | | | | |
| **Terminal strength** | Tightening strength: 10 kgf·cm (0.98 N·m)<br>Pulling strength: 5 kgf (50 N) for 1 min | | | | |
| **Weight** | G730-RID: approx. 223 g<br>G730-RIA: approx. 225 g;<br>G730-ROC: approx. 224 g (with all the relays mounted.) | Approx. 140 g (with all the relays mounted.) | Approx. 230 g (with all the relays mounted.) | Approx. 140 g (with all the relays mounted.) | Approx. 230 g (with all the relays mounted.) |

**Note:** The above current consumption is a value with all the points turned ON including the current consumption of the G2R/G6D coils for the Remote Output Terminal.



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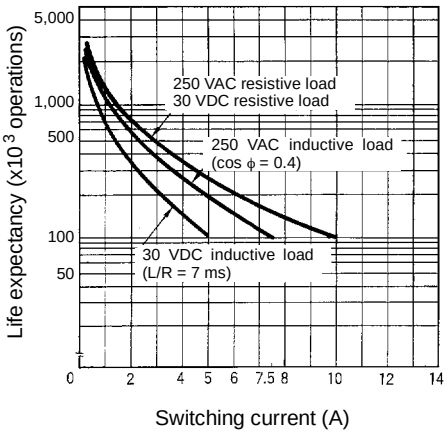
# Engineering Data

## ■ Output

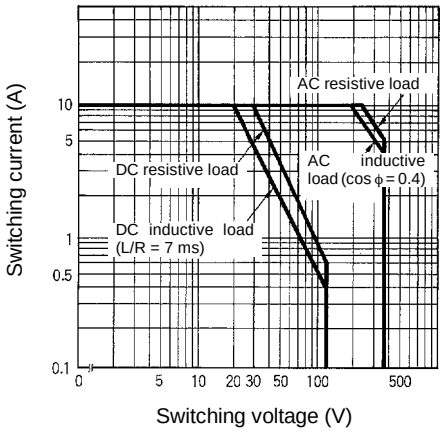
### G2R-1A-S Relay (24 VDC)

For G730-ROC04 and G730-ROC04-A

**Life Expectancy**



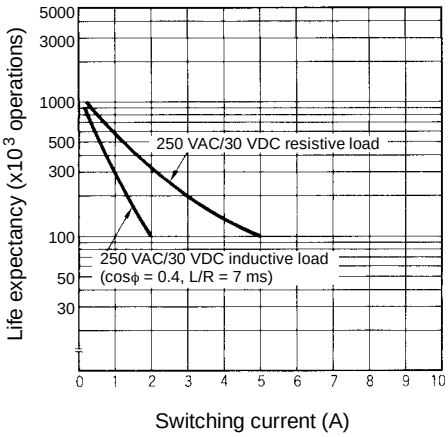

**Max. Switching Capacity**



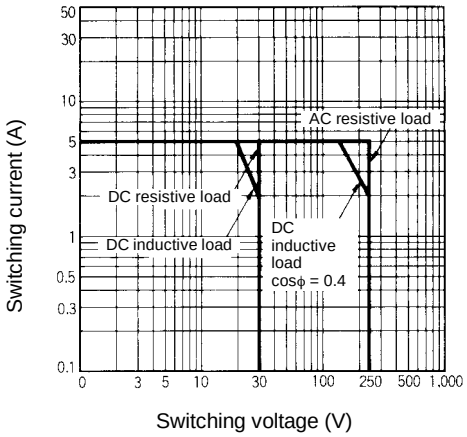

### G6D-1A Relay (24 VDC)

For G730-ROC08 and G730-ROC16

**Life Expectancy**



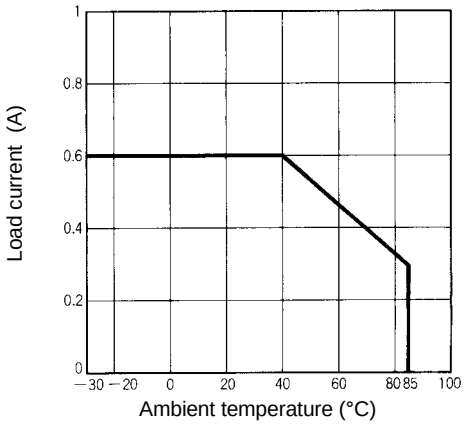

**Max. Switching Capacity**




### G3DZ-2RGPL Relay

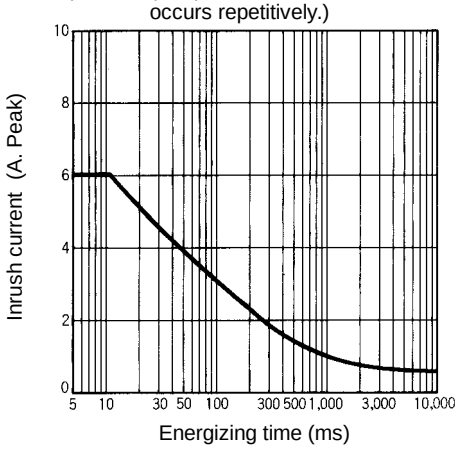
For G730-AOM08 and G730-AOM16

**Load Current vs. Ambient Temperature Characteristics**




**Inrush Current Resistivity**

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

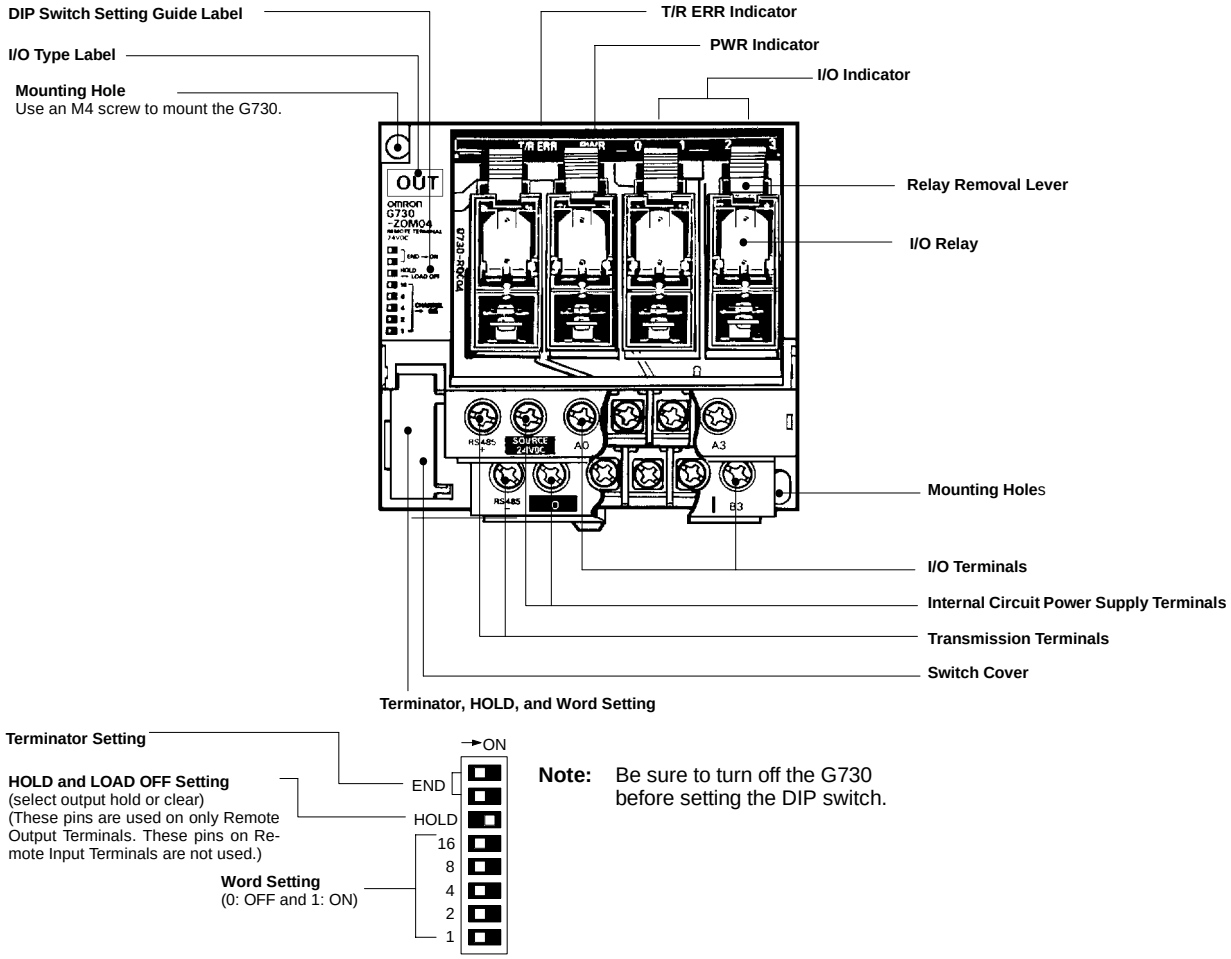





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# Nomenclature

## G730-RIA04, G730-RID04, G730-ROC04

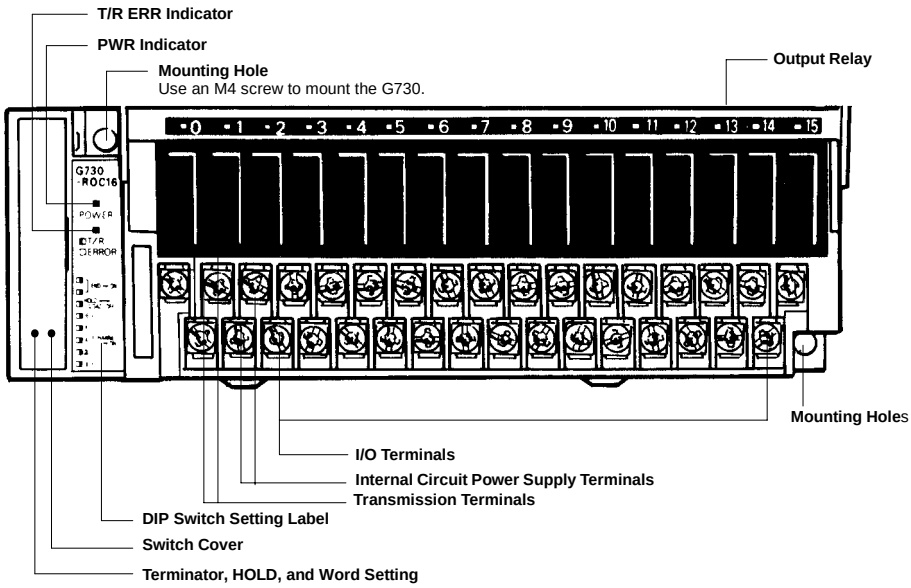


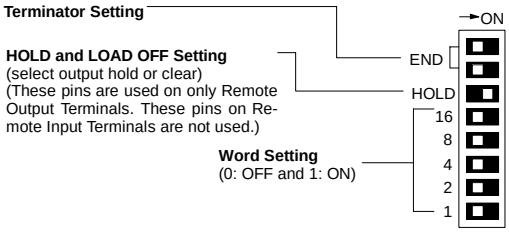

**Note:** Be sure to turn off the G730 before setting the DIP switch.



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## G730-ROC16, G730-AOM16




**Note:** Be sure to turn off the G730 before setting the DIP switch.

**Mounting Holes**
Use an M4 screw to mount the G730.

**Terminator Setting**
These pins on the terminator must be set to ON.
If these pins on the terminator are set to ON, the terminator resistance of the terminator is turned ON. There must be only one terminator in a system. The G730-V located farthest from the G730-M on the transmission path must be the terminator. These pins are factory-set to OFF.

**HOLD and LOAD OFF Setting**

| HOLD | LOAD OFF |
|---|---|
| If there is a Slave transmission error during signal transmission, the signal being transmitted is put on hold. | If there is a Slave transmission error during signal transmission, the output of the G730-V is turned OFF. |

**Note:** If the Master has a data error or if there is no data from the Master, a Slave transmission error will result. The HOLD/LOAD OFF selector is factory-set to LOAD OFF.

**T/R ERR Indicator**

| Display | Function |
|---|---|
| **Flashing** | Flashes during normal transmission. |
| **Lit** | Lit while the Master Unit is waiting for transmission or when a transmission error results. |
| **Not lit** | Turns OFF if a CPU error is detected during watchdog timer monitoring. |

**PWR Indicator**

| Display | Function |
|---|---|
| **Lit** | Lit when the G730-R is in operation. |
| **Not lit** | Turns off when there is a power failure. |

**I/O Indicator**
Indicates the ON and OFF conditions of the I/O of the G730.

**Internal Circuit Power Supply Terminals**
Connect to a 24-VDC power supply.

**Transmission Terminals**
Connect a transmission cable.

**Switch Cover**
There is a DIP switch under the cover, which is used for word, terminator, and HOLD settings.



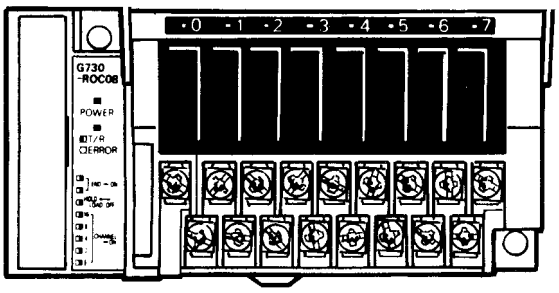
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**Word Settings**

| Word | Switch | | | | | Word | Switch | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | 16 | | 1 | 2 | 4 | 8 | 16 |
| 0 | OFF | OFF | OFF | OFF | OFF | 16 | OFF | OFF | OFF | OFF | ON |
| 1 | ON | OFF | OFF | OFF | OFF | 17 | ON | OFF | OFF | OFF | ON |
| 2 | OFF | ON | OFF | OFF | OFF | 18 | OFF | ON | OFF | OFF | ON |
| 3 | ON | ON | OFF | OFF | OFF | 19 | ON | ON | OFF | OFF | ON |
| 4 | OFF | OFF | ON | OFF | OFF | 20 | OFF | OFF | ON | OFF | ON |
| 5 | ON | OFF | ON | OFF | OFF | 21 | ON | OFF | ON | OFF | ON |
| 6 | OFF | ON | ON | OFF | OFF | 22 | OFF | ON | ON | OFF | ON |
| 7 | ON | ON | ON | OFF | OFF | 23 | ON | ON | ON | OFF | ON |
| 8 | OFF | OFF | OFF | ON | OFF | 24 | OFF | OFF | OFF | ON | ON |
| 9 | ON | OFF | OFF | ON | OFF | 25 | ON | OFF | OFF | ON | ON |
| 10 | OFF | ON | OFF | ON | OFF | 26 | OFF | ON | OFF | ON | ON |
| 11 | ON | ON | OFF | ON | OFF | 27 | ON | ON | OFF | ON | ON |
| 12 | OFF | OFF | ON | ON | OFF | 28 | OFF | OFF | ON | ON | ON |
| 13 | ON | OFF | ON | ON | OFF | 29 | ON | OFF | ON | ON | ON |
| 14 | OFF | ON | ON | ON | OFF | 30 | OFF | ON | ON | ON | ON |
| 15 | ON | ON | ON | ON | OFF | 31 | ON | ON | ON | ON | ON |

**Note:** The word is factory-set to 0.

**G730-ROC08, G730-AOM08**

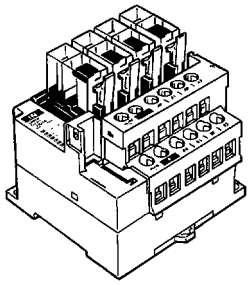


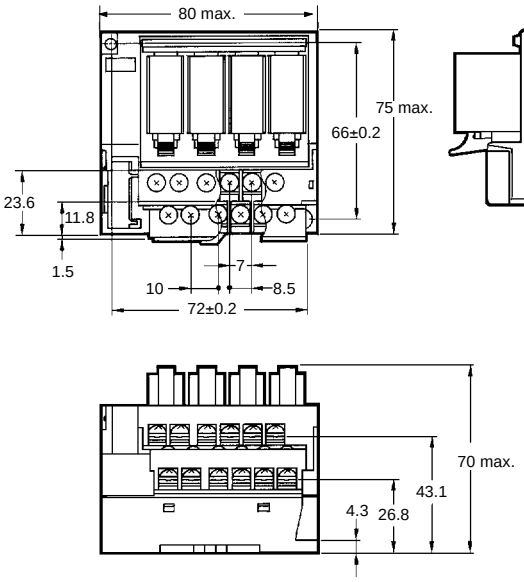

The LED indicators, terminator, HOLD, and word setting methods are the same as for 8-point models.

# Dimensions

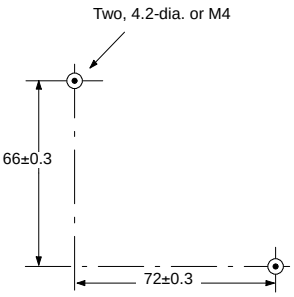
**Note:** All units are in millimeters unless otherwise indicated.

**G730-RID(A)04**





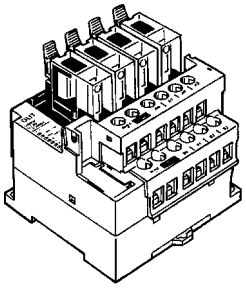

**Mounting Holes**

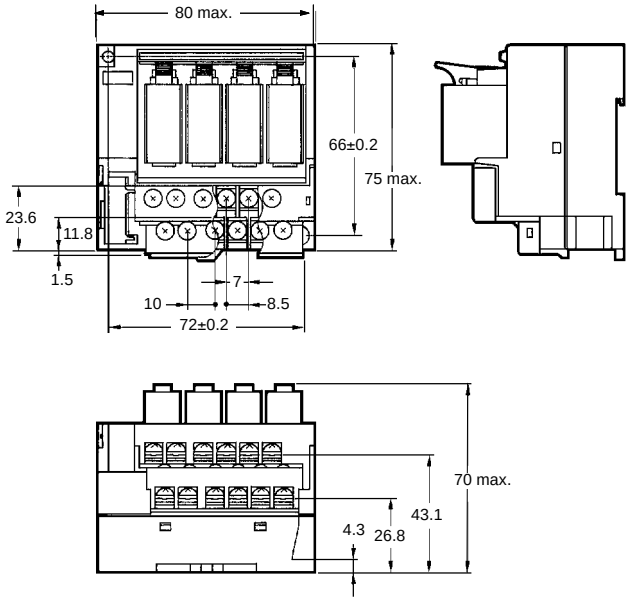




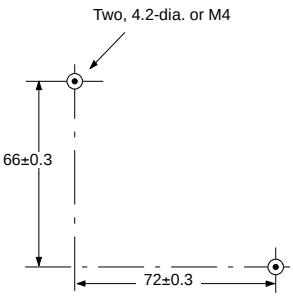

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## G730-ROC04

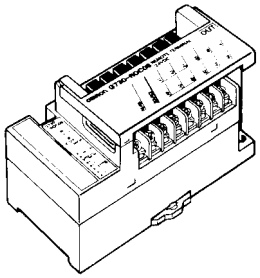


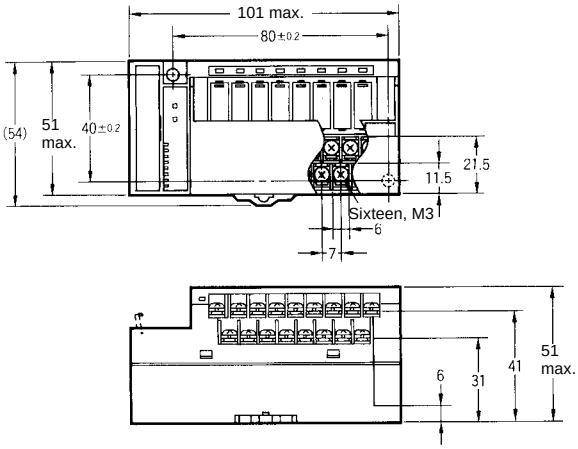



Mounting Holes

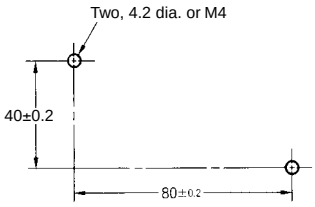



## G730-ROC08
## G730-AOM08

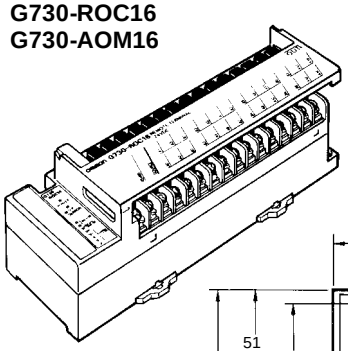


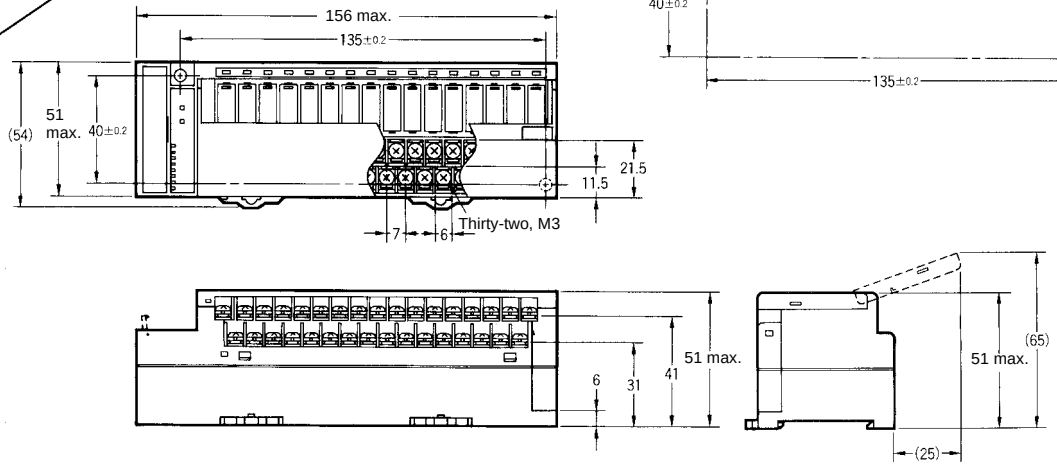



Mounting Holes

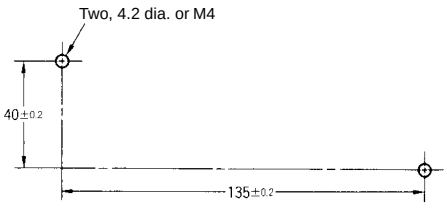



## G730-ROC16
## G730-AOM16






Mounting Holes





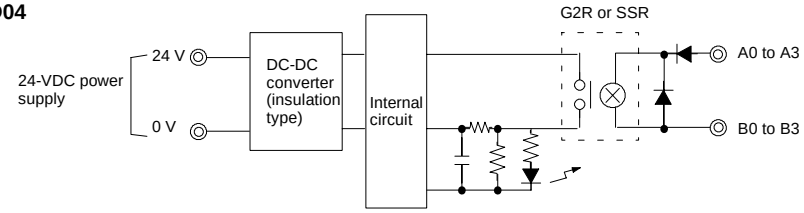

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# Installation

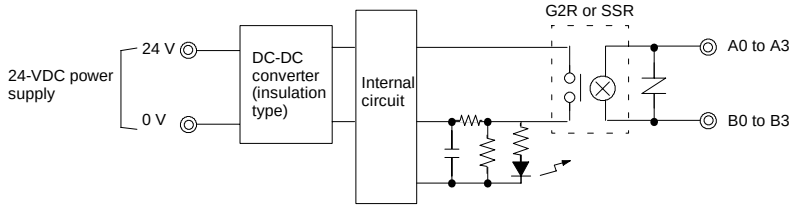
## ■ Internal Circuit Configuration

### Input Circuits

**G730-RID04**

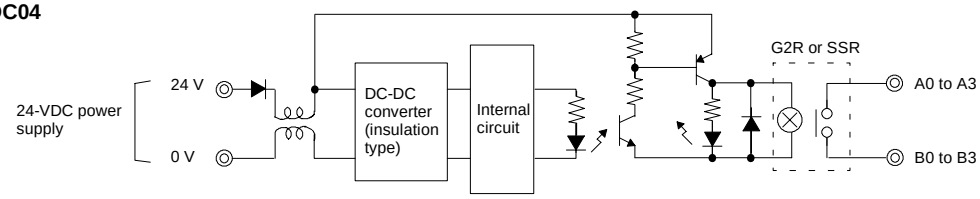



**G730-RIA04**

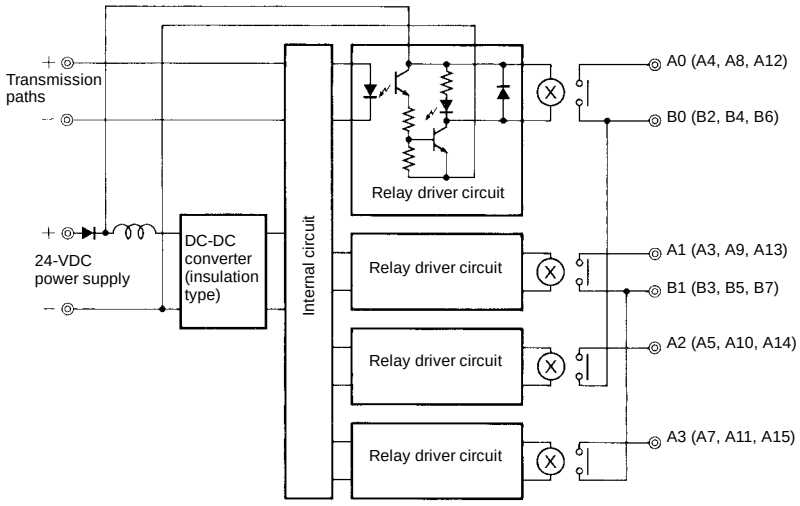



### Output Circuit

**G730-ROC04**




**G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16**



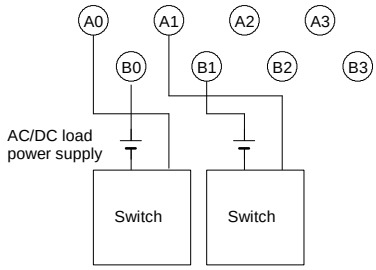



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## ■ External Connections

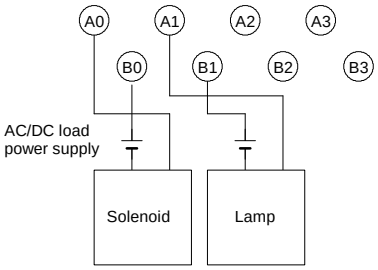
### Input Blocks

**G730-RIA04, G730-RID04**



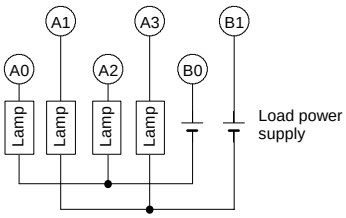

### Output Blocks

**G730-ROC04**




### Output Blocks

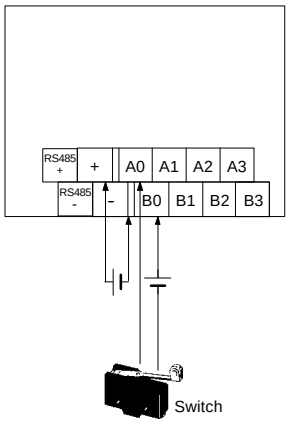
**G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16**




## ■ Terminal Arrangement/I/O Device Connection Examples

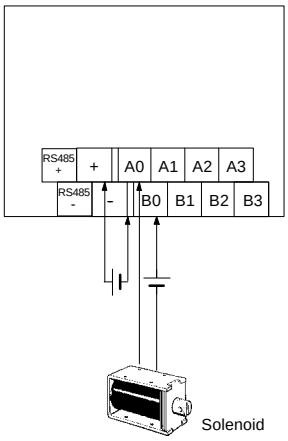
### Input Terminals

**G730-RIA04, G730-RID04**




### Output Terminals

**G730-ROC04**

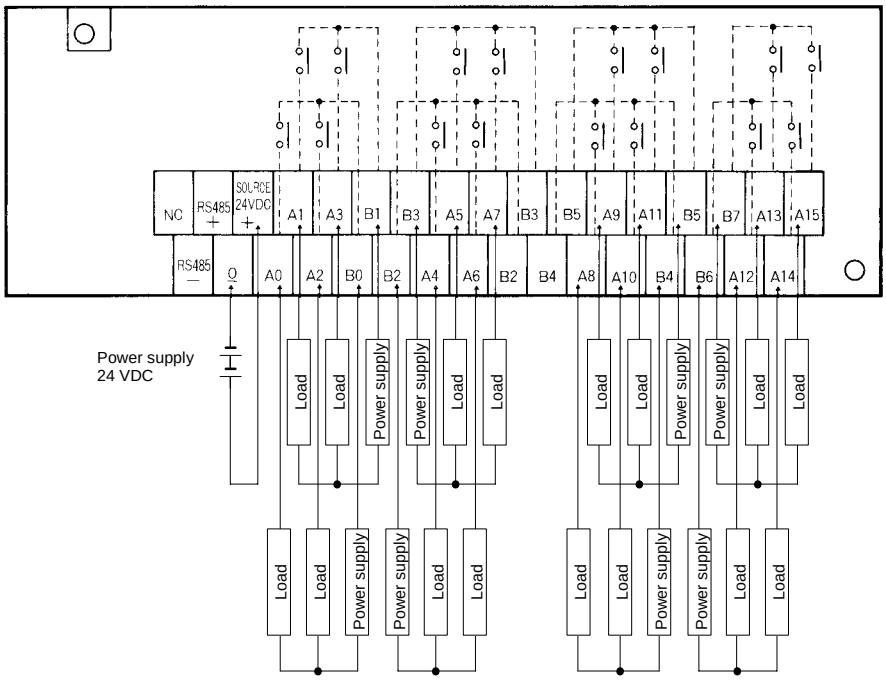





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### Output Terminals

**G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16**




**Note:** The G730-ROC16/AOM16 is shown above. G730-ROC08 and G730-AOM08 do not have terminals A0 through A7.



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### The World's First Remote Terminal with Fault Detection for Safer Operation

- Built-in fault detector detects contact faults, open load lines, relay fusion shorts, and more.
- Detects the contact weld and improper contact of the relays that are mounted.
- AC and DC loads can be connected.
- Error output is indicated with LED indicators and transmission signal feedback.
- Good noise resistance with G2R Relays: the most suitable I/O relay.
- The finger-protect construction of the Remote Terminal meets the VDE0160 requirement.

## Ordering Information

| Classification | Points | Rated voltage | Relay coil rating | Model | Applicable relay |
|---|---|---|---|---|---|
| Relay output (with an error detecting function) | 4 points | 24 VDC | 24 VDC | G730-ROC04-A | G2R-1A-S |

| Classification | Points | Rated voltage | Relay coil rating | Model | Applicable relay |
|---|---|---|---|---|---|
| Output socket (with an error detecting function) | 4 points | 24 VDC | 24 VDC | G730-ZOM04-A | G2R-1A-S<br>G3R (SSR)<br>G3RZ (Power MOS FET relay) |

**Note:** Other combinations are possible, such as sockets and G3R SSR and sockets, and G3RZ Power MOS FET Relays. Refer to pages 70 to 135 for model numbers.

## Specifications

### ■ Ratings

**Outputs**

| Item | G730-ROC04-A | |
|---|---|---|
| **Rated load** | Resistive load:<br>5 A at 250 VAC; 5 A at 30 VDC | Inductive load:<br>2 A at 250 VAC; 3 A at 30 VDC |
| **Rated carry current** | 5 A | |
| **Max. switching voltage** | 380 VAC; 125 VDC | |
| **Max. switching current** | 5 A | |
| **Max. switching capacity** | 1,250 VA; 150 W | 500 VA; 90 W |
| **Min. permissible load** | 100 mA at 5 VDC | |
| **Life expectancy** | Electrical: 100,000 operations min. (under a rated load at 1,800 operations/hr)<br>Mechanical: 20,000,000 operations min. (at 1,800 operations/hr) | |



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### Error Detecting Performance

| | |
|---|---|
| **Detecting mode** | 1. Contact weld detection<br>2. Improper contact detection (including load disconnection and fuse blowout) |
| **Detecting load current** | 0.5 to 5 A (AC/DC) |
| **Open detection selector** | Improper contact detecting function is canceled when the selector is set to OFF. |
| **Error output** | 1. Output indicator LED for each terminal flashes<br>2. Transmission signal feedback (However, no distinction is made between contact weld and improper contact.) |
| **Error detection delay** | Approx. 300 ms |

## ■ Characteristics

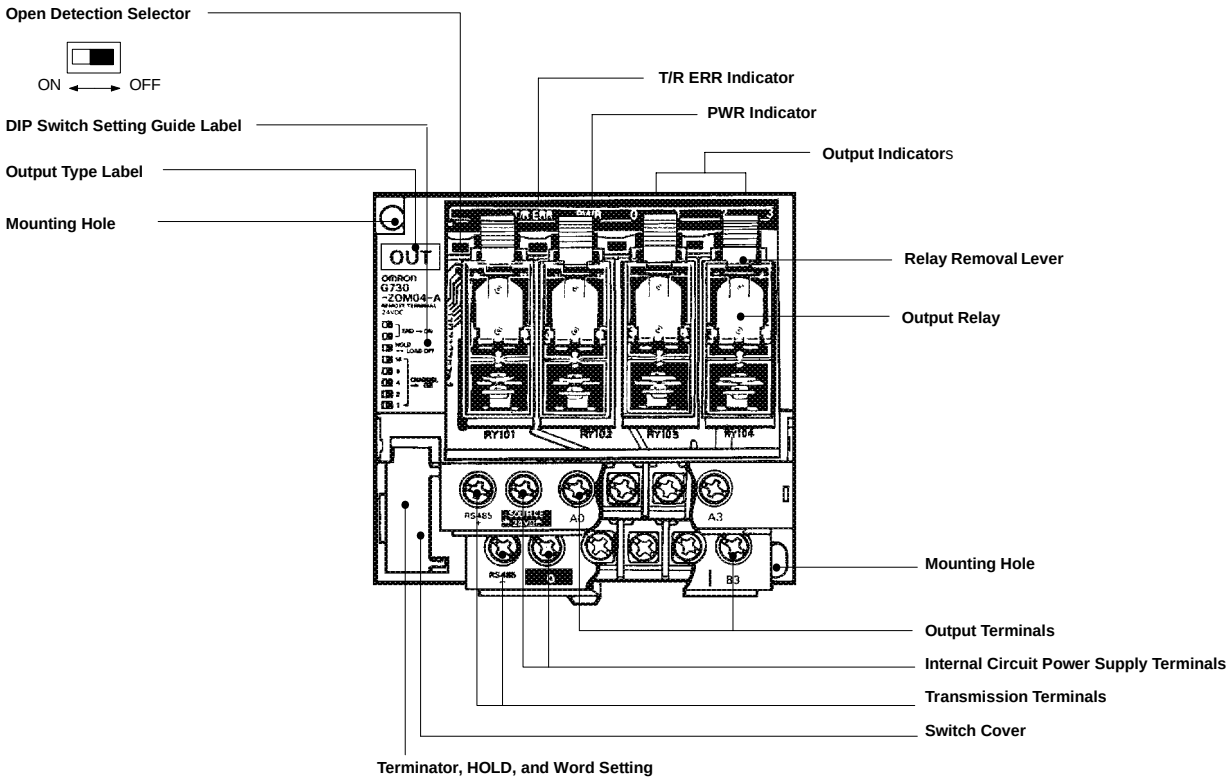
| | |
|---|---|
| **Master Unit** | For controllers or personal computers: G730-M/N<br>For SYSMAC BUS Wired Remote I/O Systems: C200H-RM201, 3G2A5-RM201 |
| **Communication method** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission distance** | 200 m (total length) |
| **Transmission speed** | 187.5 kbps |
| **Transmission path** | Two-conductor cable (VCTF 0.75 x 2 C is recommended) |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption (see note)** | 260 mA max. at 24 VDC |
| **Insulation resistance** | 20 MΩ min. (at 250 VDC) |
| **Dielectric strength** | 2,700 VAC for 1 min between the I/O terminals and power supply and transmission terminals<br>500 VAC for 1 min between the power supply terminals and transmission terminals |
| **Noise immunity** | Power supply normal: 600 V for 10 min with a pulse width of 100 ns to 1 μs<br>Power supply common: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around transmission path: 1.5 kV for 10 min with a pulse width of 100 ns to 1 μs<br>Coiling around Unit: 600 V for 10 min with a pulse width of 100 ns to 1 μs |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm double amplitude for 2 hrs each in X, Y, and Z directions |
| **Shock resistance** | Destruction: 300 m/s$^2$ (approx. 30G)<br>Malfunction: 100 m/s$^2$ (approx. 10G) |
| **Ambient temperature** | Operating: 0 to 55 °C<br>Storage: −20 to 65 °C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (49N) pull load was applied for 10 s in all directions |
| **Terminal strength** | Tightening strength: 10 kgf S cm (0.98 N S m) for 10 s<br>Pulling strength: 5 kgf (50 N) for 10 s |
| **Weight** | Approx. 330 g (with all the relays mounted) |

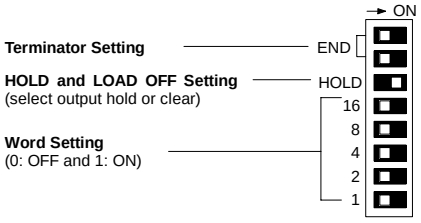
**Note:** The above current consumption is a value with all the points turned ON including the current consumption of the G2R coils for the Remote Output Terminal.



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# Nomenclature




**Note:** Be sure to turn off the G730 before setting the DIP switch.

**Open Detection Selector**

| ON | OFF |
|---|---|
| Open detection and short detection are possible. | Only short detection is possible. |

**Note:** This selector is factory-set to ON.

**Mounting Hole**

Use an M4 screw to mount the G730.

**Terminator Setting**

These pins of the terminator must be set to ON.

If these pins of the terminator are set to ON, the terminator resistance of the terminator is turned ON. There must be only one terminator in a system. The G730-V located farthest from the G730-M on the transmission path must be the terminator. These pins are factory-set to OFF.

**HOLD and LOAD OFF Setting**

| HOLD | LOAD OFF |
|---|---|
| If there is a Slave transmission error during signal transmission, the signal being transmitted is put on hold. | If there is a Slave transmission error during signal transmission, the output of the G730-V is turned OFF. |

**Note:** If the Master has a data error or if there is no data from the Master, a Slave transmission error will result. The HOLD/LOAD OFF selector is factory-set to LOAD OFF.

**T/R ERR Indicator**

| Display | Function |
|---|---|
| **Flashing** | Flashes during normal transmission. |
| **Lit** | Lit while the Master Unit is waiting for transmission or when a transmission error results. |
| **Not lit** | Turns OFF if a CPU error is detected during watchdog timer monitoring. |



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**PWR Indicator**

| Display | Function |
|---|---|
| **Lit** | Lit when the G730-R is in operation. |
| **Not lit** | Turns off when there is power failure. |

**Output Indicator**
Indicates the ON and OFF conditions of the output of the G730. Flashes when the G730 detects a relay malfunction.

**Internal Circuit Power Supply Terminals**
Connect to a 24-VDC power supply.

**Transmission Terminals**
Connect a transmission cable.

**Switch Cover**
There is a DIP switch under the cover, which is used for word, terminator, and HOLD settings.

**Word Settings**

| Word | Switch | | | | | Word | Switch | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | 16 | | 1 | 2 | 4 | 8 | 16 |
| 0 | OFF | OFF | OFF | OFF | OFF | 16 | OFF | OFF | OFF | OFF | ON |
| 1 | ON | OFF | OFF | OFF | OFF | 17 | ON | OFF | OFF | OFF | ON |
| 2 | OFF | ON | OFF | OFF | OFF | 18 | OFF | ON | OFF | OFF | ON |
| 3 | ON | ON | OFF | OFF | OFF | 19 | ON | ON | OFF | OFF | ON |
| 4 | OFF | OFF | ON | OFF | OFF | 20 | OFF | OFF | ON | OFF | ON |
| 5 | ON | OFF | ON | OFF | OFF | 21 | ON | OFF | ON | OFF | ON |
| 6 | OFF | ON | ON | OFF | OFF | 22 | OFF | ON | ON | OFF | ON |
| 7 | ON | ON | ON | OFF | OFF | 23 | ON | ON | ON | OFF | ON |
| 8 | OFF | OFF | OFF | ON | OFF | 24 | OFF | OFF | OFF | ON | ON |
| 9 | ON | OFF | OFF | ON | OFF | 25 | ON | OFF | OFF | ON | ON |
| 10 | OFF | ON | OFF | ON | OFF | 26 | OFF | ON | OFF | ON | ON |
| 11 | ON | ON | OFF | ON | OFF | 27 | ON | ON | OFF | ON | ON |
| 12 | OFF | OFF | ON | ON | OFF | 28 | OFF | OFF | ON | ON | ON |
| 13 | ON | OFF | ON | ON | OFF | 29 | ON | OFF | ON | ON | ON |
| 14 | OFF | ON | ON | ON | OFF | 30 | OFF | ON | ON | ON | ON |
| 15 | ON | ON | ON | ON | OFF | 31 | ON | ON | ON | ON | ON |

**Note:** The word is factory-set to 0.

# Operation

## ■ Error Detection Function

### Detection Mode

| | |
|---|---|
| **Open detection** | Detection of improper relay contact<br>Load disconnection (including fuse blowout) |
| **Short detection** | Relay contact weld |

### Detecting Load Current

The load current must be 0.5 to 5.0 A (AC/DC) so that the error detecting function can work normally. If the load current is less than 0.5 A, there will be an open detection error.

### Open Detection Selector

An open detection selector is prepared for each relay. If this selector is set to OFF, no open detection is possible. Short detection is, however, possible regardless of the setting of this selector if the load current is 0.5 to 5.0 A.



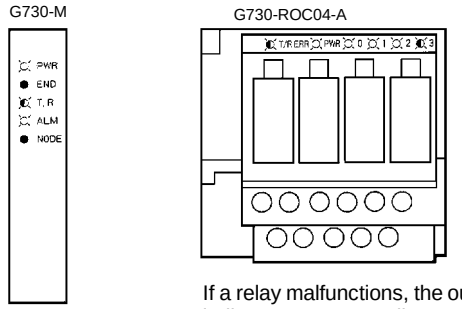
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## Processing after Error Detection

When a G730-M is used.

### Monitor

Example: In this example, the third relay of the G730-ROC04-A has a contact weld (output data: all points turned ON).

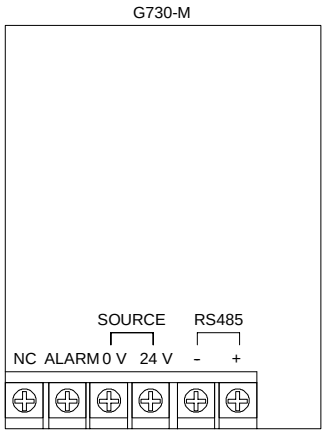



The ALM indicator is lit

If a relay malfunctions, the output indicator corresponding to the relay flashes.

**Note:** 1. The G730-M cannot check the node word or relay number that has the error.
2. There is no distinction between an open and short error.

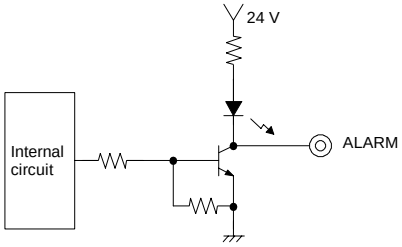
### Error Signal Output




The ALARM terminal has a 24-VDC transistor output.

**Note:** There is no distinction between open and short error.

### Internal Circuit




When connected to a Remote I/O Master Unit (wired SYSMAC BUS)

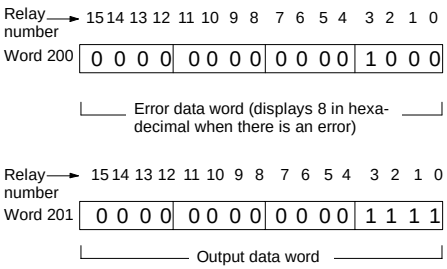
When an error results, the information on the error is transmitted from the G730-ROC04-A to the PC. The information includes the word and relay number that has the error.

Example 1: G730-ROC04-A cannot be set to word 31 when connected to a SYSMAC BUS Wired Remote I/O Master Unit.

Example 2: In this example, the G730-ROC04-A is set to word 0 and the third relay of the G730-ROC04-A has a contact weld (output data: all points turned ON).

If a G730-ROC04-A incorporating an error detecting function is used in a wired SYSMAC BUS System, one unit uses two words. The right word is for the information on the error and the left word acts as an output word.

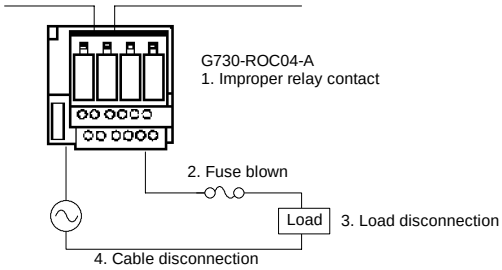
**C200H**




**Note:** For details on the Remote I/O System, refer to *"SYSMAC C-series Remote I/O Unit (Wired-type) Operation Manual"*.

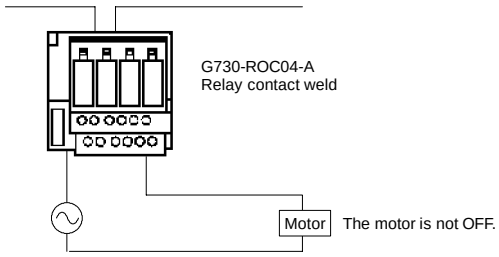
## ■ Application Examples

### Open Detection




Any of the above cases is detected as an open error.

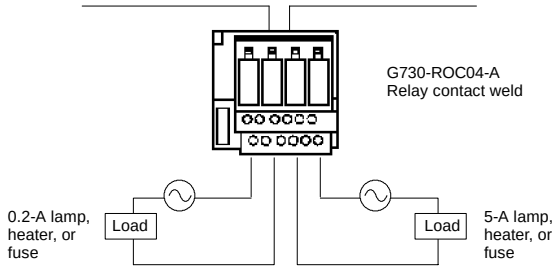
### Short Detection






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### Open Detection Selector




It is possible to detect the disconnection of a 5-A load.
Set the open detection selector to ON.



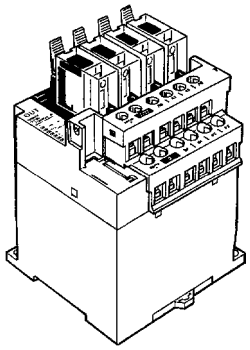

The G730-ROC04-A detects the disconnection of the load with a current consumption of 0.5 to 5.0 A. If the current consumption of the load is 0.2 A, for example, the G730-ROC04-A will have an open detection error. In such a case set the open detection selector to OFF.
Even if the open detection selector is set to OFF, the G730-ROC04-A has the short detecting function for a 0.5- to 5-A load.

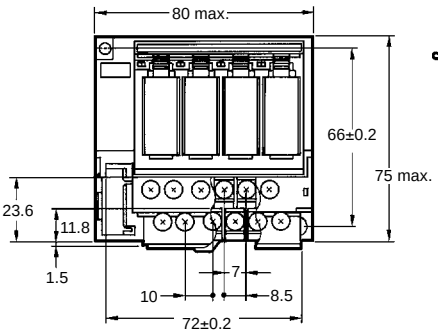


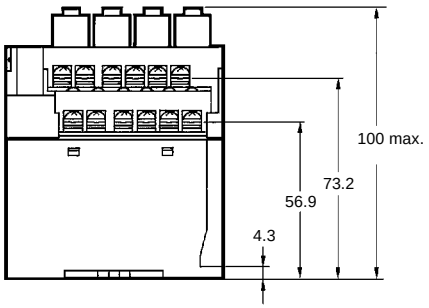

# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

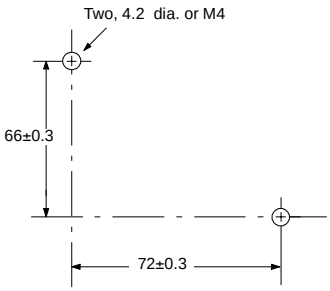
**G730-ROC04-A**





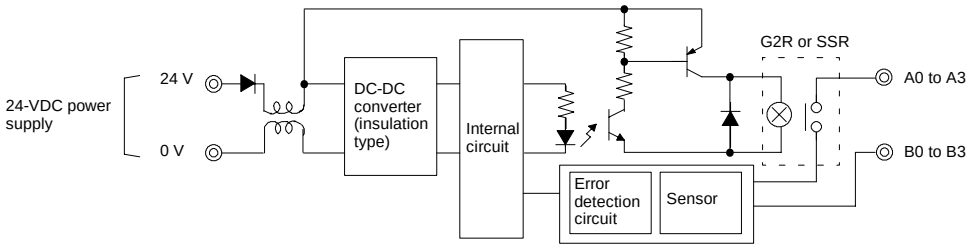




**Mounting Holes**




# Installation

## ■ Internal Circuit Configuration






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# Ordering Information

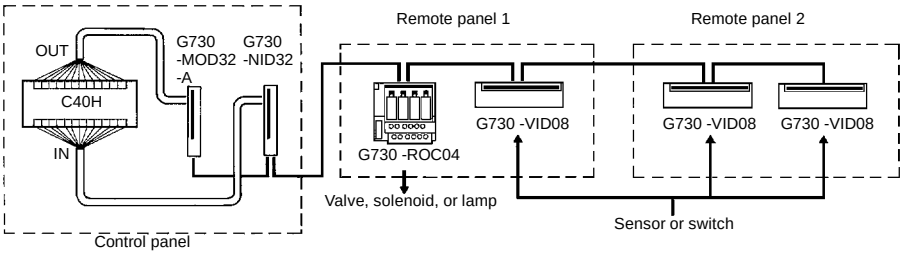
## ■ Accessories (Order Separately)

| Item | Model |
|---|---|
| Connection cable with crimp-style terminals | G79-Y j C |
| Connection cable with multi-strand cable | G79-A j C |
| Connection cable with connector | G79- j C |
| Mounting Track | PFP-100N, PFP-50N, PFP-100N2 |
| End Plates | PFP-M |
| Spacers | PFP-S |

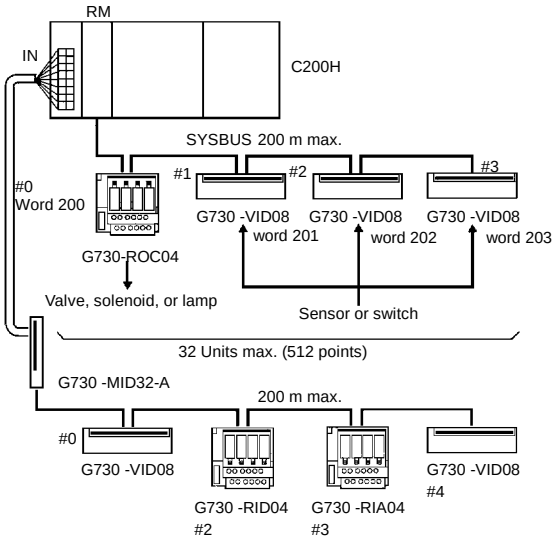
# Application Examples

**Note:** Refer to page 121 for word settings.

## ■ OMRON's Package-type PC for Saving Wiring Effort




## ■ Used in Combination with OMRON's Remote I/O Products

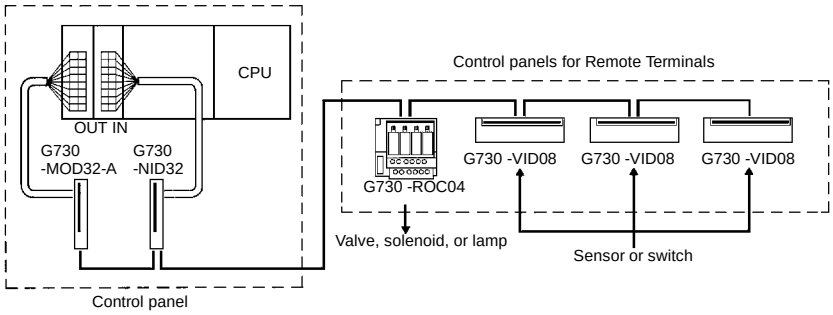



**Note:** Even if all the remote I/O area is occupied, it is possible to the actual I/O relay area (I/O relays) to save further wiring effort.

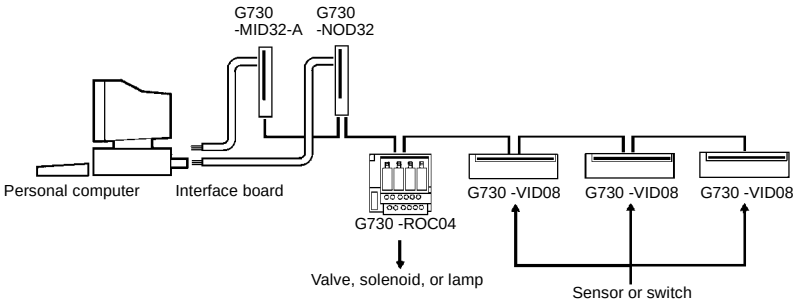


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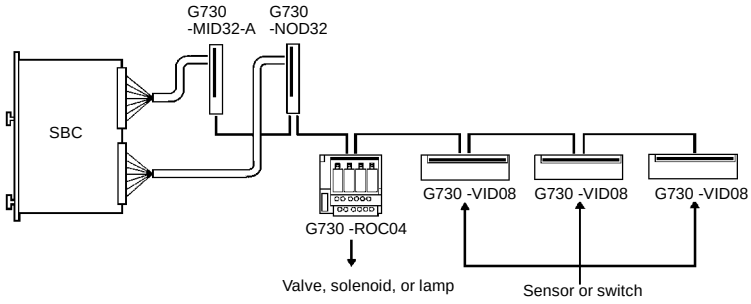
## ■ A Variety of Controllers for Saving Wiring Effort




## ■ Control with Personal Computer




## ■ Control with SBC




# Operation

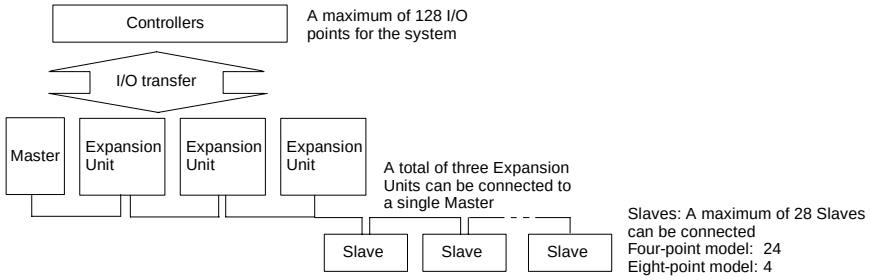
## ■ Connecting Master Unit

The Master and Expansion Unit are called Master Units.
A single G730-M Master can be connected to three G730-N Expansion Units.
A Master or Expansion Unit can exchange 32 I/O points. Therefore a Master with three Expansion Units can control a total of 128 points. The number of Slaves to be connected varies with the kind of Slaves; 4-point, 8-point, and 16-point. The maximum number of Slaves connected is 28 (24 4-point Slaves and four 8-point Slaves).
Take the following into consideration when connecting the Slaves.

1. Do not use more than one Master in a system.
2. Only G730-V-series models (transistor type) and G730-R-series models (with relays mounted), and G730-A-series models (with power MOS FET relays mounted) can be used as Slaves. G71-, G72C-, or G700-series models cannot be used.

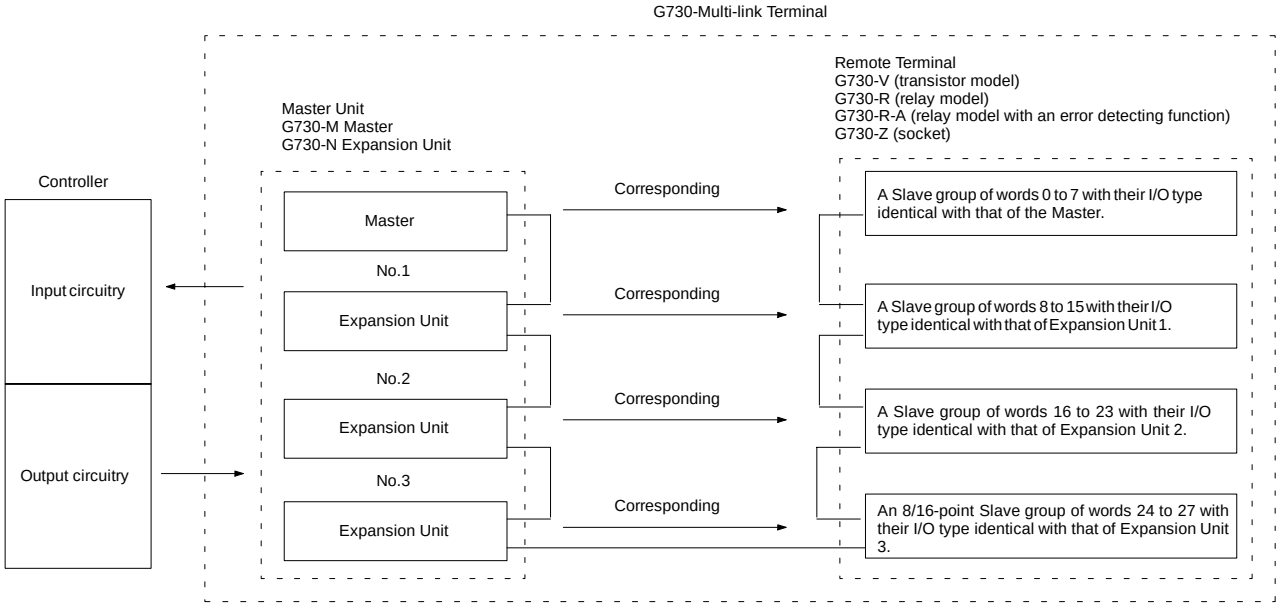


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## ■ Slaves Corresponding to Master and Expansion Units

The Master and Expansion Units each have a corresponding Slave type and words.




**Type**

| | |
|---|---|
| Input Master and Expansion Units<br>G730-MID32-A, G730-NID32 | Sets the input Slaves to corresponding words.<br>G730-VID04, G730-VID08, G730-VID08-1, G730-VID16, G730-RID04, G730-RIA04 |
| Output Master and Expansion Units<br>G730-MOD32-A, G730-NOD32 | Sets the output Slaves to corresponding words.<br>G730-VOD04, G730-VOD08, G730-VOD08-1, G730-VOD16, G730-ROC04, G730-ROC04-A, G730-ROC08, G730-ROC16, G730-AOM08, G730-AOM16 |

**Word**

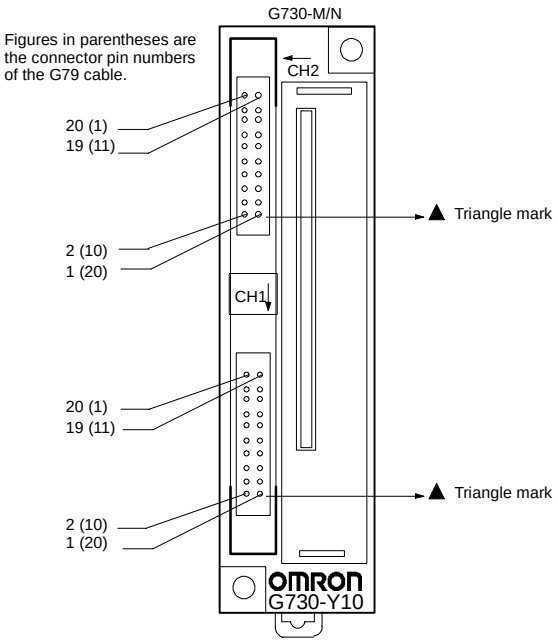
| Kind of Unit | Slave controlled by Master Unit |
|---|---|
| Master | Slaves with words 0 to 7 |
| Expansion unit no. 1 | Slaves with words 8 to 15 |
| Expansion unit no. 2 | Slaves with words 16 to 23 |
| Expansion unit no. 3 | Slaves with words 24 to 27 |

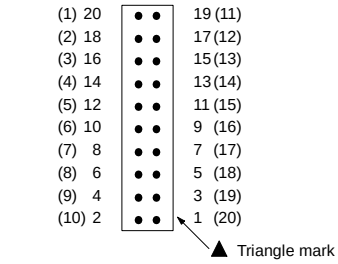
**Note:** 1. For words 0 to 23, 8-point Units can be set to even words only. It is possible to set 4-point Units to any words in these words.
2. Expansion Unit number 3 is for 8/16-point Units only. Do not set 4-point Units to words 24 to 27.
3. Words 28 to 31 cannot be used.
4. For words 0 to 23, 16-point Units can be set to word 0, 4, 8, 12, 16, or 20.



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## ■ Connector Terminal Numbers of Harness Adapter and Corresponding Slave Words




Figures in parentheses are the corresponding connector pin numbers of the G79 cable.



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**G730-MID32-A, G730-MOD32-A**

Corresponds to the Slaves (G730-V, G730-R, and G730-A Slaves) set to words 0 to 7.

| Connector terminal no. (see note) | | | I/O signal name | 4-point Unit | | 8-point Unit | | 16-point Unit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Word no. | Terminal no. | Word no. | Terminal no. | Word no. | Terminal no. |
| CH1 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 0 | 0<br>1<br>2<br>3 | 0 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 0 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | 1 | 0<br>1<br>2<br>3 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 2 | 0<br>1<br>2<br>3 | 2 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 0 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | 3 | 0<br>1<br>2<br>3 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| CH2 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 4 | 0<br>1<br>2<br>3 | 4 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 4 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | 5 | 0<br>1<br>2<br>3 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 6 | 0<br>1<br>2<br>3 | 6 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 4 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | 7 | 0<br>1<br>2<br>3 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |

**Note:** 1. Figures in parentheses are corresponding connector pin numbers when OMRON's G79 Cable is used.

2. The data in the parentheses in the I/O signal name column are for G730-Y10-1 signals.



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**Expansion Unit (G730-N) Set to Expansion No. 1**
Corresponds to the Slaves (G730-V, G730-R, and G730-A Slaves) set to words 8 to 15.

| Connector terminal no. (see note) | | | I/O signal name | 4-point Unit | | 8-point Unit | | 16-point Unit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Word no. | Terminal no. | Word no. | Terminal no. | Word no. | Terminal no. |
| CH1 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 8 | 0<br>1<br>2<br>3 | 8 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 8 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | 9 | 0<br>1<br>2<br>3 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 10 | 0<br>1<br>2<br>3 | 10 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 8 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | 11 | 0<br>1<br>2<br>3 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| CH2 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 12 | 0<br>1<br>2<br>3 | 12 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 12 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | 13 | 0<br>1<br>2<br>3 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 14 | 0<br>1<br>2<br>3 | 14 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 12 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | 15 | 0<br>1<br>2<br>3 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |

**Note:** 1. Figures in parentheses are corresponding connector pin numbers when OMRON's G79 Cable is used.
2. The data in the parentheses in the I/O signal name column are for G730-Y10-1 signals.



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**Expansion Unit (G730-N) Set to Expansion No. 2**
Corresponds to the Slaves (G730-V, G730-R, and G730-A Slaves) set to words 16 to 23.

| Connector terminal no. (see note) | | | I/O signal name | 4-point Unit | | 8-point Unit | | 16-point Unit | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Word no. | Terminal no. | Word no. | Terminal no. | Word no. | Terminal no. |
| CH1 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 16 | 0<br>1<br>2<br>3 | 16 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 16 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | 17 | 0<br>1<br>2<br>3 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 18 | 0<br>1<br>2<br>3 | 18 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 16 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | 19 | 0<br>1<br>2<br>3 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| CH2 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 20 | 0<br>1<br>2<br>3 | 20 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 20 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | 21 | 0<br>1<br>2<br>3 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 22 | 0<br>1<br>2<br>3 | 22 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 20 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | 23 | 0<br>1<br>2<br>3 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | | | | |

**Note:** 1. Figures in parentheses are corresponding connector pin numbers when OMRON's G79 Cable is used.

2. The data in the parentheses in the I/O signal name column are for G730-Y10-1 signals.



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**Expansion Unit (G730-N) Set to Expansion No. 3**
Corresponds to the Slaves (G730-V, and G730-R/-A (8/16-point) Slaves) set to words 24 to 27.

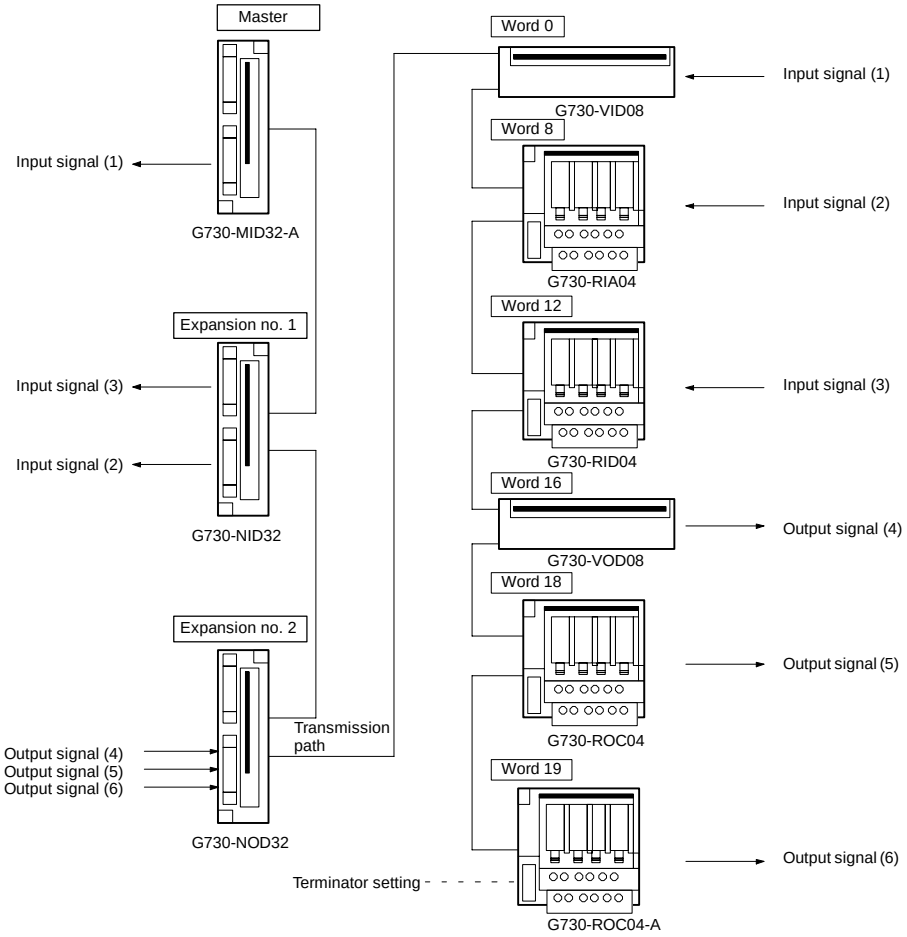
| Connector terminal no. (see note 1) | | | I/O signal name | 8-point Unit | | 16-point Unit | |
|---|---|---|---|---|---|---|---|
| | | | | Word no. | Terminal no. | Word no. | Terminal no. |
| CH1 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 24 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 24 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | --- | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 25 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 24 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | --- | |
| CH2 | 20<br>18<br>16<br>14 | (1)<br>(2)<br>(3)<br>(4) | I/O00<br>I/O01<br>I/O02<br>I/O03 | 26 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 26 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 |
| | 12<br>10<br>8<br>6 | (5)<br>(6)<br>(7)<br>(8) | I/O04<br>I/O05<br>I/O06<br>I/O07 | | | | |
| | 4<br>2 | (9)<br>(10) | GND (+24 V)<br>+24 V (GND) | --- | | --- | |
| | 19<br>17<br>15<br>13 | (11)<br>(12)<br>(13)<br>(14) | I/O08<br>I/O09<br>I/O10<br>I/O11 | 27 | 0<br>1<br>2<br>3<br>4<br>5<br>6<br>7 | 26 | 8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |
| | 11<br>9<br>7<br>5 | (15)<br>(16)<br>(17)<br>(18) | I/O12<br>I/O13<br>I/O14<br>I/O15 | | | | |
| | 3<br>1 | (19)<br>(20) | GND (+24 V)<br>+24 V (GND) | --- | | --- | |

**Note:** 1. Figures in parentheses are corresponding connector pin numbers when OMRON's G79 Cable is used.
2. Expansion Unit number 3 are for 8/16-point Units only. Therefore words 24 to 27 can be used by 8/16-point Units only.
3. I/O signal names in parentheses are for the G730-Y10-1.

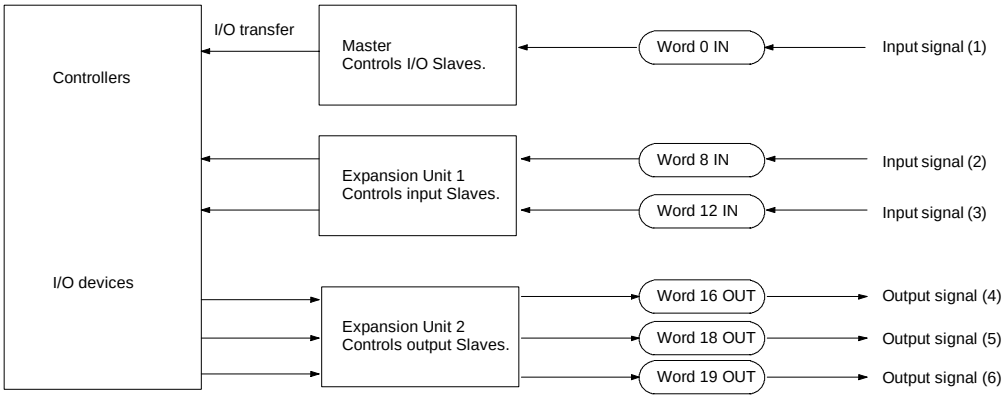


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## ■ System Configuration




### Signal Flow

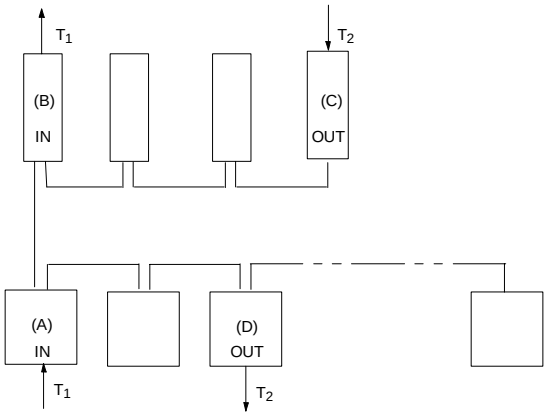





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## ■ Transmission Delay

### System Configuration



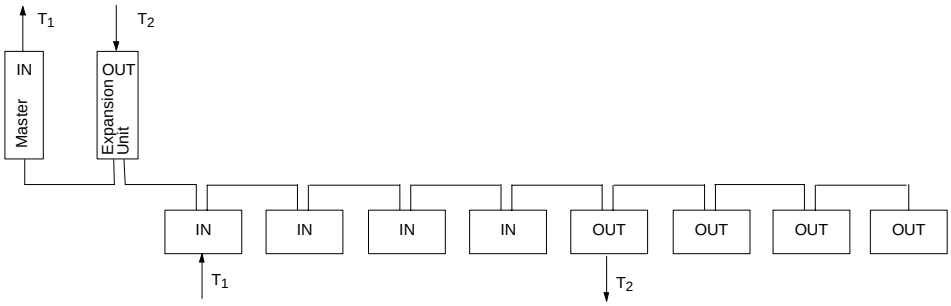

The time required between a signal being input to Slave A and the signal being output from Master Unit B is $T_1$. The time required between a signal being input to Master Unit C and the signal being output from D is $T_2$.

Transmission delay ($T_1$ or $T_2$) ≦ (no. of Slaves + no. of Expansion Units + 1) x 2 x 1.2 (ms)

Example: If Eight Slaves and one Expansion Unit are used, the transmission delay is 24 ms minimum.

**Example**

A single Expansion Unit is connected to the Master.

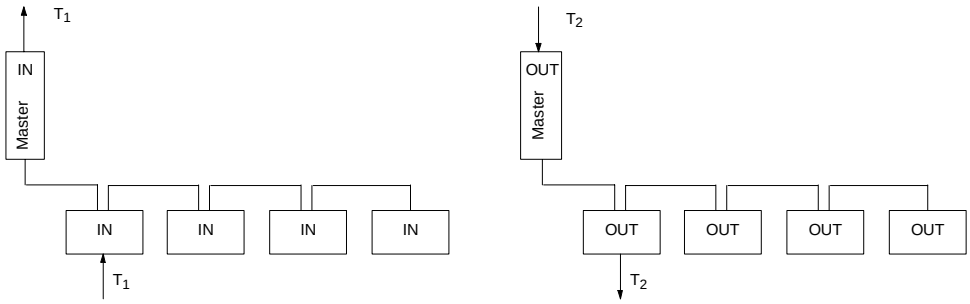



**Transmission Delay**

$T_1$ ≦ (8+1+1) x 2 x 1.2 = 24 ms
$T_2$ ≦ (8+1+1) x 2 x 1.2 = 24 ms

To operate a large system using more than one Expansion Unit, the transmission delay of the system can be reduced by using the following method.

Divide the system into two by using two Masters.




**Transmission Delay**

$T_1$ = (4+1) x 2 x 1.2 = 12 ms
$T_2$ = (4+1) x 2 x 1.2 = 12 ms

There is less delay time if one 16-point Unit is used instead of two 8-point Units.



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## ■ Connecting to Remote I/O Master (Wired SYSMAC BUS)

The G730-V and G730-R can be connected to a Remote I/O Master. In this case, conventional G71 and G72C models can be used in the same system.

Although the G730-V and the G730-R are 16/8/4-point terminal, each of them occupies one word as an actual allocated word. The G730-ROC04-A (with an error detecting function), however, occupies two words because it must transmit error information to the PC.

The following tables list the actual word allocations of Remote Terminals on PCs.

**Remote Terminals** (other than the G730-ROC04-A)

| Model | Actual word allocation |
|---|---|
| **C500** | Switch setting word |
| **C1000H/C2000H** | (32 words x Remote I/O Master backplane no.) + switch setting word |
| **C200H** | 200 words + switch setting word |

**Note:** For other PCs, refer to the operation manuals of those PCs.

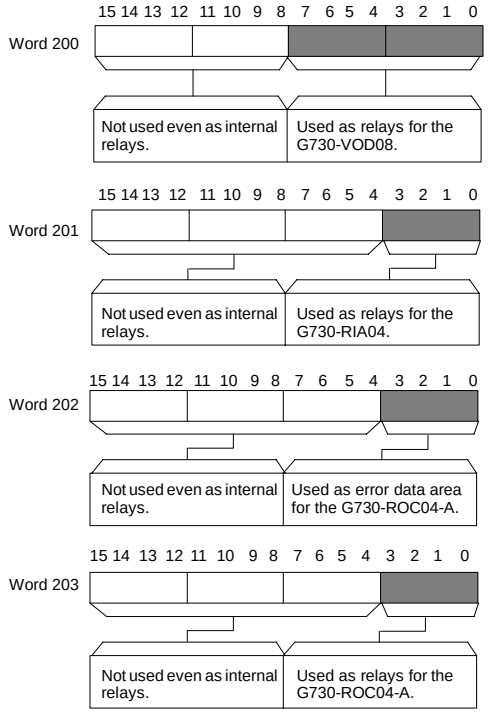
**G730-ROC04-A** (Two Words are Occupied)

| Model | Error information word | Actual word allocation |
|---|---|---|
| **C500** | Switch setting word | Error information word + 1 |
| **C1000H/C2000H** | (32 words x Remote I/O Master backplane no.) + switch setting word | Error information word + 1 |
| **C200H** | 200 words + switch setting word | Error information word + 1 |

**Note:** Refer to page 115 *"Error Detecting Function"* of the G730-ROC04-A.

**Example:** A C200H PC is used with the following settings.

- G730-VOD08 set to word 0.
- G730-RIA04 set to word 1.
- G730-ROC04-A (with error detecting function) set to word 2)






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## ■ Troubleshooting and Alarm List

| | Master Unit (Master) | | | | | Abnormal Expansion Unit/Slave | | Cause of error | Remedy |
|---|---|---|---|---|---|---|---|---|---|
| | PWR | END | T/R | ALM | NODE | PWR | T/R | | |
| Before and after normal operation | Not lit | Not lit | Not lit | Not lit | Not lit | --- | --- | The G730-M is not turned on. | Turn on the G730-M. |
| | Lit | Not lit | Not lit | Not lit | Not lit | --- | --- | CPU abnormality. | Turn off and on the G730-M Master. If the CPU has abnormality again after the G730-M Master is turned on, replace the G730-M Master. |
| Before normal operation | Lit | Lit | Flash-ing | --- | Lit/ Not lit | Lit | Lit | Slaves are set to words 28 to 30. | Slaves must be set to an word range of 0 to 27. |
| | Lit | Lit | Flash-ing | --- | Not lit | Lit | Lit | No terminator is set. | The terminator switch of the Slave located farthest from the G730-M Master on the transmission path must be set to ON. |
| | | | | | | | | There is more than one G730-M Master in the system. | There must be only one G730-M Master in a single system. If more I/O points are required, connect one to three Expansion Units according to the number of I/O points required. |
| | | | | | | | | A Master Unit different in communication configuration exists. | A different Master Unit in communication configuration cannot be used together with the G730-M/N. |
| | | | | | | | | The transmission path is short-circuited.<br>The transmission path is disconnected.<br>The positive and negative wiring of the transmission path is reversed. | Wire the transmission path correctly. |
| | | | | | | | | The expansion numbers of two Expansion Units with the same I/O configuration are identical. | Assign different words to all Units. |
| | | | | | | | | The words of two Slaves with the same I/O configuration are identical. | |
| | Lit | Lit | Flash-ing | --- | Not lit | Not lit | Not lit | The terminator has power failure. | Turn on the terminator. |
| | Lit | Flash-ing | Flash-ing | --- | Not lit | Lit | Lit | There is more than one terminator. | The terminator switch of only the Slave located farthest from the G730-M Master on the transmission path must be set to ON. |
| | Lit | Not lit | Flash-ing | --- | Flash-ing | Lit | Lit | The I/O type of the Master Unit and that of the Slaves do not correspond. | The I/O type of the Master Unit must correspond to the I/O type of the Slaves. Refer to 121 and set them correctly. |
| | | | | | | | | The words of two Slaves different to each other in I/O type are identical. | Set so that no word will be duplicated. |
| | | | | | | | | The expansion numbers of two Expansion Units different to each other in I/O type are identical. | |
| | | | | | | | | Four-point Units are set to words 24 to 27, which is an exclusive area for 8/16-point Units. | Set 4-point Units to words 0 to 23, and set 8/16-point Units to words 24 to 27. |
| | | | | | | | | The word settings for a 8-point/16-point Unit is beyond the specified range. | Not all words between word 00 and word 32 can be used for 8-point or 16-point Units. Refer to pages 47 and 55 to correct the setting. |
| | | | | | | | | The words for Units with different numbers of points are duplicated. | Assign different words to all Units. |
| | Lit | Not lit | Flash-ing | --- | Not lit | Lit | Lit | A Slave is set to word 31. There is a Slave with no Expansion Unit. | Slaves must be set to words 0 to 27. |
| | | | | | | Not lit | Not lit | The Slaves except the terminator or Expansion Unit in the system are not turned on. | Turn on the Slaves and Expansion Unit. |



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| | Master Unit (Master) | | | | | Abnormal Expansion Unit/Slave | | Cause of error | Remedy |
|---|---|---|---|---|---|---|---|---|---|
| | PWR | END | T/R | ALM | NODE | PWR | T/R | | |
| After normal operation | Lit | Not lit | Lit | --- | --- | Lit | Lit | The transmission path is short-circuited.<br>The transmission path is disconnected. | Wire the transmission path correctly. |
| | | | | | | Not lit | Not lit | The Expansion Unit is turned off. | Turn on the Expansion Unit. |
| | | | | | | | | The Slave has power failure. | Turn on the Slave. |
| | Lit | Not lit | Flash-ing | Lit | Not lit | Lit | Flash-ing | Relay contact weld, improper relay contact, or load disconnection has caused the Slave to indicate an error detecting function. | Replace the relay or connect the load. |
| | Lit | Not lit | Lit | --- | --- | Lit | Not lit | The CPU on the Expansion Unit for the Slave has abnormality. | Turn off the Slave and Expansion Unit and turn them on again and check if they operate normally. If they do not operate normally, replace them. |

**Note:** 1. Doted lines mean that the indication of the LEDs have nothing to do with the errors.

2. Refer to *"SYSMAC C-series Remote I/O Unit (wired-type) Operation Manual"* for details on troubleshooting when the system is connected to a Remote I/O Master.

# Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

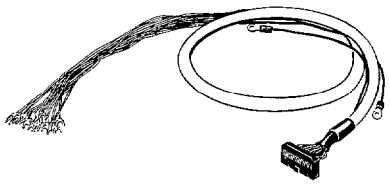
## ■ Harness Adapter Cable (Sold Separately)

**Note:** Contact your OMRON representative for cables other than the following ones.

### G79 Connecting Cable

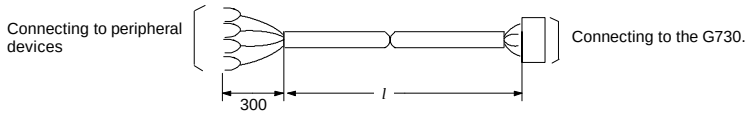
**G79-Y j C with Crimp-style Terminals**

The G79-Y j C Cable is convenient for connecting the screw terminals of a controller and the G730-M/N Master Unit.



**L: Length**

| | |
|---|---|
| 1,000 mm | G79-Y100C |
| 1,500 mm | G79-Y150C |
| 2,000 mm | G79-Y200C |
| 3,000 mm | G79-Y300C |
| 5,000 mm | G79-Y500C |

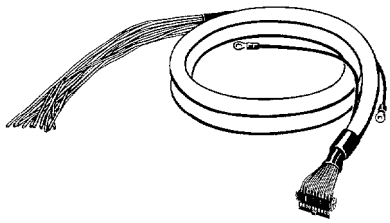



**Note:** 1. The wire capacity must be 50 mA max. per I/O.

2. Each wire has a pin number as shown in the following table *Connections*.

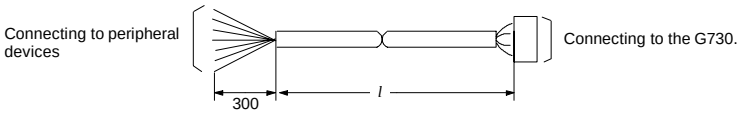
**G79-A j C with Multi-strand Cable**

The G79-A j C has a multi-strand cable on the controller side.



**L: Length**

| | |
|---|---|
| 2,000 mm | G79-A200C |
| 5,000 mm | G79-A500C |




**Note:** 1. The diameter of each wire is 0.6 mm (AWG24)

2. Each wire has a pin number as shown in the following table *Connections*.



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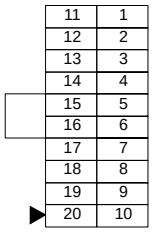
## Connecting Socket

| Harness Adapter | Plug for model | Applicable socket (see note) |
|---|---|---|
| G730-Y10 | XG4A-2031 OMRON (MIL) | XG4M-2030, XG4T-2004 OMRON (MIL)<br>(These sockets are provided with a G79 Connecting Cable but not with a G730-Y10.) |

**Note:** When you make a cable, use one of the above sockets as well as the following sockets for crimp-style terminals.
Socket: XG5M-2035 (AWG26 to AWG28 (UL-1007)), XG5M-2032 (AWG24 (UL-1061))
Cover: XG5S-1001 (x 2), XG5S-2012 (x 1)

**Connections**

| No. | Color of insulator | Dot mark | Dot color | No. | Color of insulator | Dot mark | Dot color |
|---|---|---|---|---|---|---|---|
| 20 | White | J J | Red | 10 | White | J J | Black |
| 19 | Gray | J J | Red | 9 | Gray | J J | Black |
| 18 | Light green | J J | Red | 8 | Light green | J J | Black |
| 17 | Yellow | J J | Red | 7 | Yellow | J J | Black |
| 16 | Light brown | J J | Red | 6 | Light brown | J J | Black |
| 15 | White | J | Red | 5 | White | J | Black |
| 14 | Gray | J | Red | 4 | Gray | J | Black |
| 13 | Light green | J | Red | 3 | Light green | J | Black |
| 12 | Yellow | J | Red | 2 | Yellow | J | Black |
| 11 | Light brown | J | Red | 1 | Light brown | J | Black |

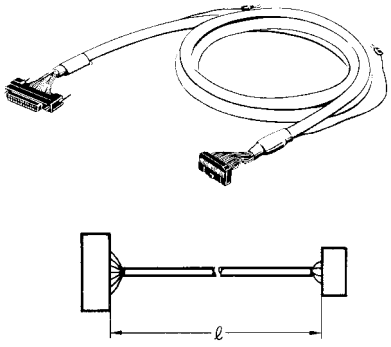


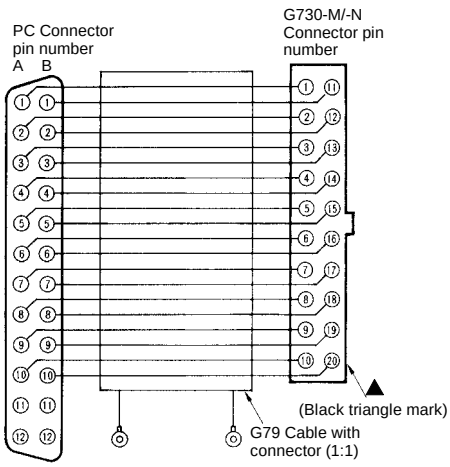

**G79- j C with Connector (1:1)**

Convenient for 1:1 connection of various devices to I/O Terminals.

**L: Length**

| | |
|---|---|
| 1,000 mm | G79-100C |
| 1,500 mm | G79-150C |
| 2,000 mm | G79-200C |
| 3,000 mm | G79-300C |
| 5,000 mm | G79-500C |





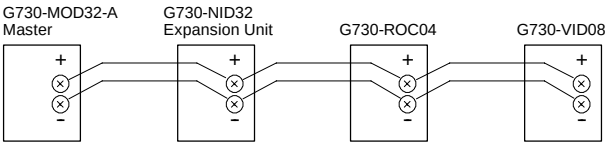

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# Precautions

## Connection

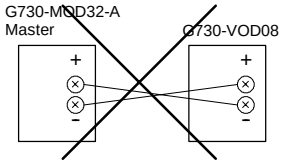
### Correct Example

Connect from the G730-M Master to the succeeding Units in sequence as shown in the following diagram.



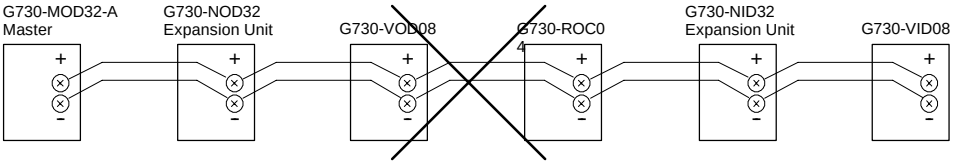

### Incorrect Example 1

The positive and negative terminals are reversed.



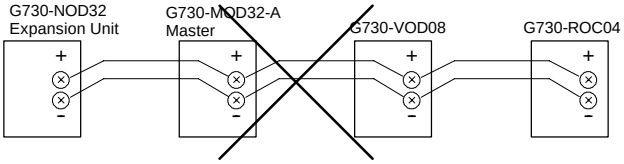

### Incorrect Example 2

A G730-N cannot be connected in the middle of the line. Connect the Expansion Unit only after a Master Unit.



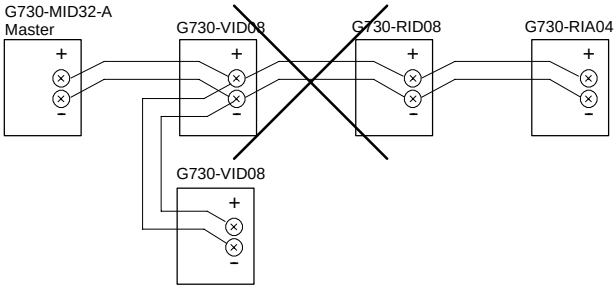

### Incorrect Example 3

In the following example, the transmission path is split from the G730-M Master to the G730-NOD32 and G730-VOD08, which is wrong. Connect from the G730-M Master to the the succeeding Units in sequence.




### Incorrect Example 4

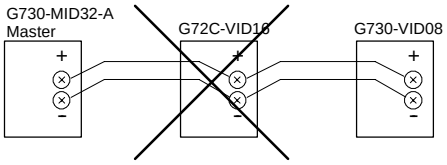
The transmission path cannot be split from the G730-V/R or G730-N.




**Note:** The same caution is required when connecting the G730-M Master to a wired SYSMAC BUS Remote I/O Master Unit.

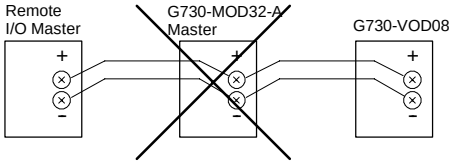
### Incorrect Example 5

The Master Unit cannot be connected to the conventional G71 or G72C.



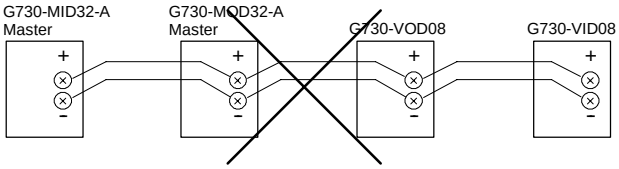

### Incorrect Example 6

A wired SYSMAC BUS Remote I/O Master such as a C200H-RM201 cannot be connected to a G730-M Master.




### Incorrect Example 7

More than one G730-M Master cannot exist in a system.






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## Wiring

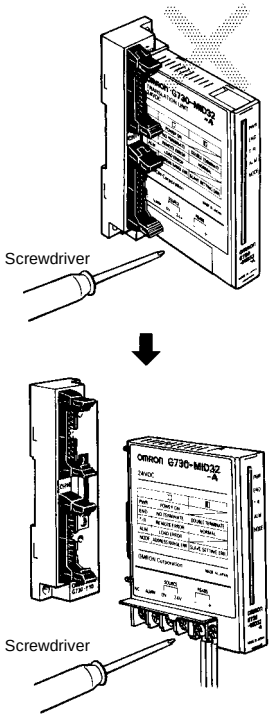
Do not wire the cable near or in parallel with power lines.

Pay attention to the polarities of the terminals.

Be sure to wire the transmission path and power lines correctly.

Design the whole system with the correct voltage specification for I/O exchange.

Disconnect the Master Unit from the harness adapter before wiring the Master Unit.




### Installation Site

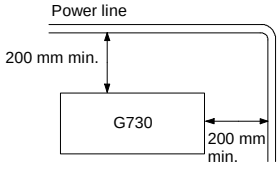
The following conditions are required to install the G730.

There is no direct sunlight.
The ambient temperature is within a range of 0 to 55 °C.
The relative humidity is within a range of 10% to 90%.
There is no drastic temperature changes that can cause condensation.
There is no corrosive or inflammable gas.
There is no excessive dust, salinity, or powdered metal.
No vibration or shock is directly imposed on the G730.
No water, oil, or chemical is sprayed on the G730.

### Protection from Noise

Do not install the G730 on a panel where high-power equipment is installed.

Provide a distance of 200 mm at least between power lines and the G730.




### Mounting Screws

Mounting screws must be tightened securely to prevent the G730 from malfunctioning.

### Connection Cable Lock

Before turning on the G730, check that the connectors of each connection cable are locked properly.

### Static Electricity

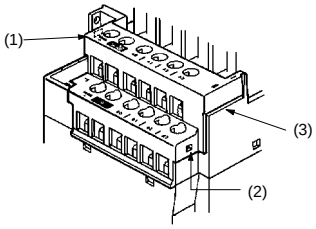
Excessive static electricity can be generated where the humidity is low. Before you operate the G730, touch grounded metal so that your body will be free from static electricity.

### Cleaning

Use alcohol to clean the G730. Do not use paint thinner; it will dissolve or discolor the paint on the panel of the G730.

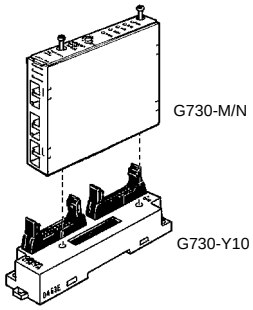
## Dismounting Finger Protect Cover

Use a screwdriver to unlock parts (1), (2), and (3).



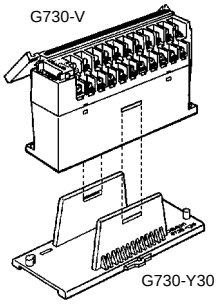

## Mounting Adapter

### Harness Adapter




**Note:** Tighten the screws securely.

### DIN Track Adapter

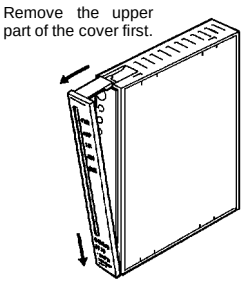



**Note:** Mount the G730-V to the G730-Y30 so that the G730-V and G739-Y30 mate securely with each other.



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**Dismounting G730-M/N Cover**




# G3RZ Power MOS FET Relay

## ■ Ordering Information

### Input/Output Module

| Insulation method | Indicator | Zero cross function | Applicable output load | Rated input voltage | Model |
|---|---|---|---|---|---|
| Photodiode array | Yes | No | 1.0 A at 3 to 264 VAC/ 3 to 125 VDC | 5 V | G3RZ-201SLN |
| | | | | 12 V | |
| | | | | 24 V | |

## ■ Ratings

### Input/Output Module

**Input**

| Model | Rated voltage | Operating voltage | Input impedance | Must operate voltage | Must release voltage |
|---|---|---|---|---|---|
| **G3RZ-201SLN** | 5 VDC | 4 to 6 VDC | 400 Ω ±20% | 4 VDC max. | 1 VDC min. |
| | 12 VDC | 9.6 to 14.4 VDC | 1.1 kΩ ±20% | 9.6 VDC max. | |
| | 24 VDC | 19.2 to 28.8 VDC | 2.2 kΩ ±20% | 19.2 VDC max. | |

**Output**

| Load voltage | Load current | Inrush current |
|---|---|---|
| 3 to 264 VAC, 3 to 125 VDC | 100 μA to 1.0 A | 10 A (10 ms) |

## ■ Characteristics

### Input/Output Module

| Item | G3R-IAZR1SN |
|---|---|
| **Operate time** | 6 ms max. |
| **Release time** | 10 ms max. |
| **Output ON-resistance** | 2.4 Ω max. |
| **Leakage current** | 10 μA max. (at 125 VDC) |
| **Insulation resistance** | 100 MΩ min. (at 500 VDC) |
| **Dielectric strength** | 2,500 VAC, 50/60 Hz for 1 min between input and output |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude |
| **Shock resistance** | 1,000 $m/s^2$ (approx. 100G) |
| **Ambient temperature** | Operating: −30 to 100 °C (with no icing)<br>Storage: −30 to 85 °C (with no icing) |
| **Ambient humidity** | Operating: 45% to 85% |
| **Weight** | Approx. 20 g |

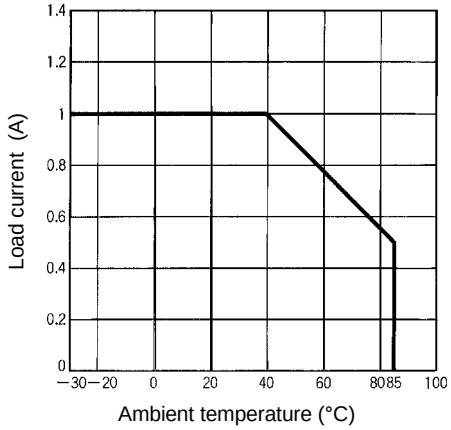


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## ■ Reference Data

### Load Current vs. Ambient Temperature Characteristics

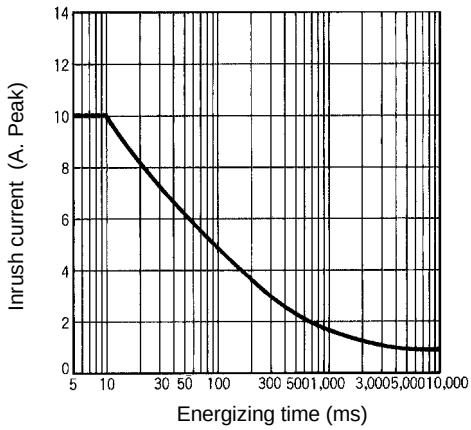
**G3RZ-201SLN**




### Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

**G3RZ-201SLN**




**Note:** The above data are for a G730 mounted with four G3RZs.



# G3R Solid-state Relay

## ■ Ordering Information

### Input Module

| Isolation | Indicator | Response speed | Logic level | | Rated input voltage | Model |
|---|---|---|---|---|---|---|
| | | | Supply voltage | Supply current | | |
| Photocoupler | Yes | --- | 4 to 32 VDC | 0.1 to 100 mA | 100 to 240 VAC | G3R-IAZR1SN |
| | | High-speed | | | 5 VDC | G3R-IDZR1SN |
| | | | | | 12 to 24 VDC | |
| | | Low-speed | | | 5 VDC | G3R-IDZR1SN-1 |
| | | | | | 12 to 24 VDC | |

### Output Module

| Isolation | Indicator | Zero cross function | Applicable output load | Rated input | Model |
|---|---|---|---|---|---|
| Phototriac | Yes | Yes | 2 A at 75 to 264 VAC | 5 to 24 VDC | G3R-OA202SZN |
| | | No | | | G3R-OA202SLN |
| Photocoupler | | --- | 2 A at 4 to 60 VDC | | G3R-ODX02SN |
| | | | 1 A at 40 to 200 VDC | | G3R-OD201SN |



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## ■ Ratings

### Input Module

**Input**

| Model | Rated voltage | Operating voltage | Input current | Must operate voltage | Must release voltage |
|---|---|---|---|---|---|
| **G3R-IAZR1SN** | 100 to 240 VAC | 60 to 264 VAC | 15 mA max. | 60 VAC max. | 20 VAC min. |
| **G3R-IDZR1SN** | 5 VDC | 4 to 6 VDC | 8 mA max. | 4 VDC max. | 1 VDC min. |
| | 12 to 24 VDC | 6.6 to 32 VDC | | 6.6 VDC max. | 3.6 VDC min. |
| **G3R-IDZR1SN-1** | 5 VDC | 4 to 6 VDC | | 4 VDC max. | 1 VDC min. |
| | 12 to 24 VDC | 6.6 to 32 VDC | | 6.6 VDC max. | 3.6 VDC min. |

**Output**

| Model | Logic level supply voltage | Logic level supply current |
|---|---|---|
| **G3R-IAZR1SN** | 4 to 32 VDC | 0.1 to 100 mA |
| **G3R-IDZR1SN** | | |
| **G3R-IDZR1SN-1** | | |

### Output Module

**Input**

| Model | Rated voltage | Operating voltage | Input current | Must operate voltage | Must release voltage |
|---|---|---|---|---|---|
| **G3R-OA202SZN** | 5 to 24 VDC | 4 to 32 VDC | 15 mA max. (at 25°C) | 4 VDC max. | 1 VDC min. |
| **G3R-OA202SLN** | | | | | |
| **G3R-ODX02SN** | | | 8 mA max. | | |
| **G3R-OD201SN** | | | | | |

**Output**

| Model | Load voltage | Load current (see note) | Inrush current |
|---|---|---|---|
| **G3R-OA202SZN** | 75 to 264 VAC | 0.05 to 2 A | 30 A (60 Hz, 1 cycle) |
| **G3R-OA202SLN** | | | |
| **G3R-ODX02SN** | 4 to 60 VDC | 0.01 to 2 A | 8 A (10 ms) |
| **G3R-OD201SN** | 40 to 200 VDC | 0.01 to 1.5 A | 8 A (10 ms) |

**Note:** The minimum current value is measured at 10°C min..

## ■ Characteristics

### Input Module

| Item | G3R-IAZR1SN | G3R-IDZR1SN | G3R-IDZR1SN-1 |
|---|---|---|---|
| **Operate time** | 20 ms max. | 0.1 ms max. | 15 ms max. |
| **Release time** | 20 ms max. | 0.1 ms max. | 15 ms max. |
| **Response frequency** | 10 Hz | 1 kHz | 10 Hz |
| **Output ON voltage drop** | 1.6 V max. | | |
| **Leakage current** | 5 μA max. | | |
| **Insulation resistance** | 100 MΩ min. between input and output | | |
| **Dielectric strength** | 4,000 VAC for 1 min between input and output | | |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude | | |
| **Shock resistance** | 1,000 $m/s^2$ (approx. 100G) | | |
| **Ambient temperature** | Operating: −30 to 80 °C (with no icing)<br>Storage: −30 to 100 °C (with no icing) | | |
| **Ambient humidity** | Operating: 45% to 85% | | |
| **Weight** | Approx. 18 g | | |



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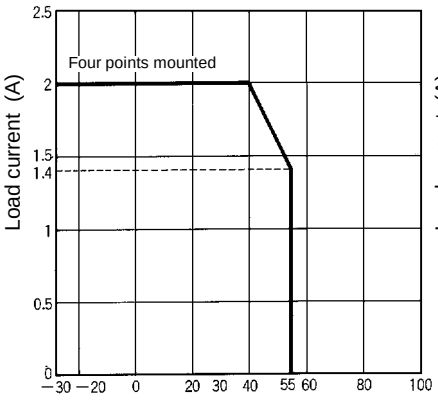
### Output Module

| Item | G3R-OA202SZN | G3R-OA202SLN | G3R-ODX02SN | G3R-OA201SN |
|---|---|---|---|---|
| **Operate time** | 1/2 of load power source cycle + 1 ms max. | | 1 ms max. | |
| **Release time** | 1/2 of load power source cycle + 1 ms max. | | 2 ms max. | |
| **Response frequency** | 20 Hz | | 100 kHz | |
| **Output ON voltage drop** | 1.6 V max. | | | 2.5 V max. |
| **Leakage current** | 1.5 mA max. | | 1 mA max. | |
| **Insulation resistance** | 100 MΩ min. between input and output | | | |
| **Dielectric strength** | 4,000 VAC for 1 min between input and output | | | |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude | | | |
| **Shock resistance** | 1,000 m/s$^2$ (approx. 100G) | | | |
| **Ambient temperature** | Operating: −30 to 80 °C (with no icing)<br>Storage: −30 to 100 °C (with no icing) | | | |
| **Ambient humidity** | Operating: 45% to 85% | | | |
| **Weight** | Approx. 18 g | | | |

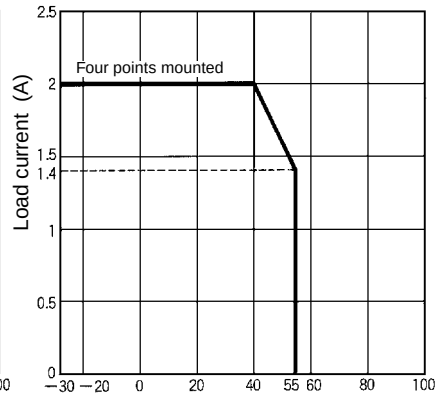
## ■ Engineering Data

### Load Current vs. Ambient Temperature Characteristics

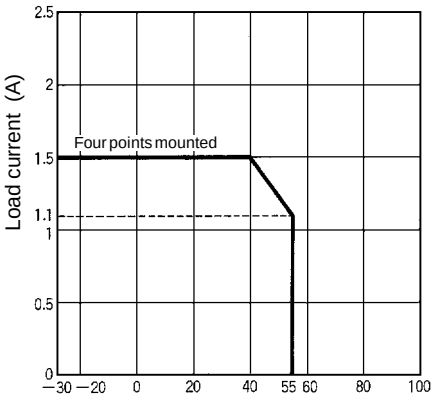
**G730-ZOM04 + G3R-OA202S j N**




**G730-ZOM04 + G3R-ODX02SN (4 to 60 VDC)**




**G730-ZOM04 + G3R-OD201SN (40 to 200 VDC)**



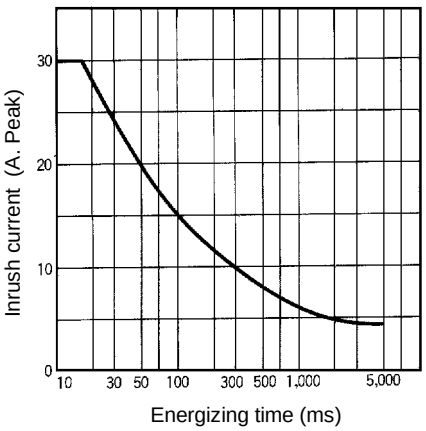

**Note:** The above data are for a G730 mounted with four G3Rs.



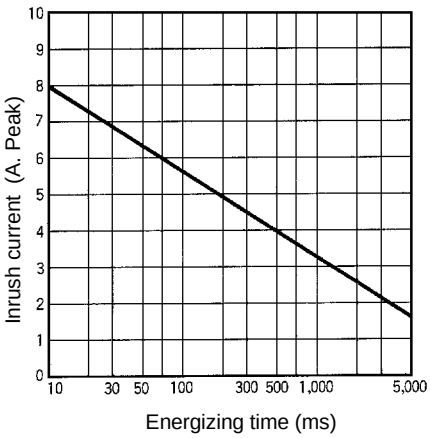
### Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

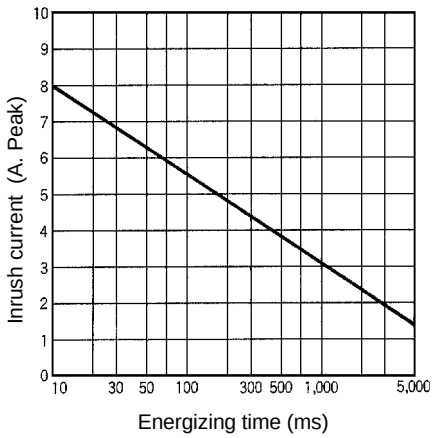
**G3R-OA202S j N**




**G3R-ODX02SN**




**G3R-OD201SN**






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# G6D Power Relay

## ■ Ordering Information

| Contact form | Rated coil voltage | Model |
|---|---|---|
| SPST-NO | 5 VDC | G6D-1A |
| | 12 VDC | |
| | 24 VDC | |

## ■ Coil Ratings

### Output Module

| | | | |
|---|---|---|---|
| **Rated voltage** | 5 VDC | 12 VDC | 24 VDC |
| **Rated current** | 40 mA | 16.7 mA | 8.3 mA |
| **Coil resistance** | 125 Ω | 720 Ω | 2,880 Ω |
| **Must operate voltage (see note 1)** | 70% max. of rated voltage | | |
| **Must release voltage** | 10% min. of rated voltage | | |
| **Max. voltage** | 130% of rated voltage | | |
| **Power consumption** | Approx. 200 mW | | |

**Note:** 1. The must operate voltage is 75% or less of the rated voltage if the relay is mounted upside down.
2. Rated current and coil resistance were measured at a coil temperature of 23_C with a tolerance of ±10%.
3. Operating characteristics were measured at a coil temperature of 23_C.
4. The maximum allowable voltage is the maximum value of the allowable voltage range for the relay coil operating power supply. There is no continuous allowance.

## ■ Characteristics

### Output Module

| | |
|---|---|
| **Contact resistance (see note 2)** | 100 mΩ max. |
| **Operate time** | 10 ms max. |
| **Release time** | 5 ms max. |
| **Insulation resistance** | 1,000 MΩ min. (at 500 VDC) |
| **Dielectric strength** | 3,000 VAC, 50/60 Hz for 1 min between coil and contacts<br>750 VAC, 50/60 Hz for 1 min between contacts of same polarity |
| **Surge withstand voltage** | 6,000 V, 1.2 x 50 μs between coil and contacts |
| **Vibration resistance** | Destruction: 10 to 55 Hz, 1.5-mm double amplitude<br>Malfunction: 10 to 55 Hz, 1.5-mm double amplitude |
| **Shock resistance** | Destruction: 1,000 $m/s^2$<br>Malfunction: 100 $m/s^2$ |
| **Life expectancy** | Mechanical: 20,000,000 operations min. (at 18,000 operations/hr)<br>Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load)<br>100,000 operations min. (5 A at 30 VDC, resistive load)<br>300,000 operations min. (2 A at 250 VAC, resistive load)<br>300,000 operations min. (2 A at 30 VDC, resistive load)<br>(at 1,800 operations/hr) |
| **Ambient temperature** | Operating: −25°C to 70°C |
| **Ambient humidity** | Operating: 45% to 85% |
| **Weight** | Approx. 3 g |

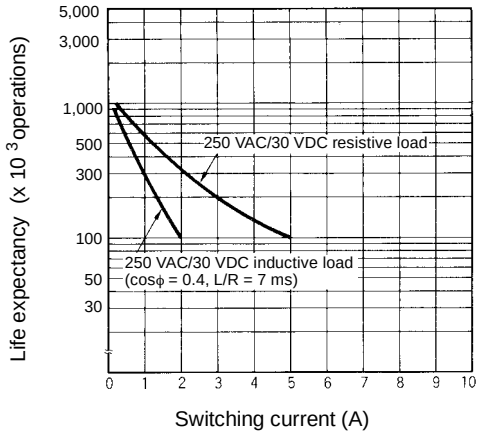
**Note:** 1. The above values are initial values.
2. Measurement condition: 1 A at 5 VDC



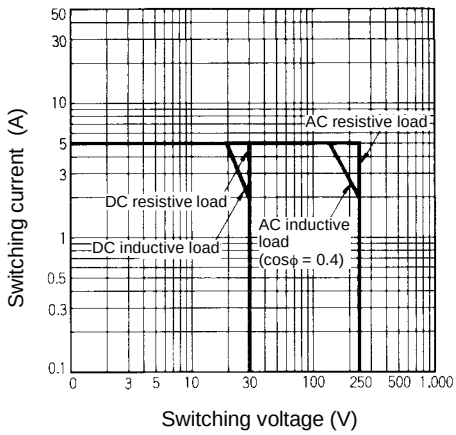
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## ■ Reference Data

**Life Expectancy**




**Max. Switching Capacity**




# G3DZ Power MOS FET Relay

## ■ Ordering Information

| Insulation method | Indicator | Zero cross function | Applicable output load | Rated input voltage | Model |
|---|---|---|---|---|---|
| Photodiode array | No | No | 0.6 A at 5 to 240 VAC/ 5 to 100 VDC | 5 VDC | G3DZ-2R6PL |
| | | | | 12 VDC | |
| | | | | 24 VDC | |

## ■ Ratings

### Output Module

**Input**

| Rated voltage | Operating voltage | Input impedance | Voltage level | |
|---|---|---|---|---|
| | | | Must operate | Must release |
| 5 VDC | 4 to 6 VDC | 830 Ω ±20% | 4 VDC max. | 1 VDC min. |
| 12 VDC | 9.6 to 14.4 VDC | 2 kΩ ±20% | 9.6 VDC max. | |
| 24 VDC | 19.2 to 28.8 VDC | 4 kΩ ±20% | 19.2 VDC max. | |

**Output**

| Load voltage | Load current | Inrush current |
|---|---|---|
| 3 to 264 VAC, 3 to 125 VDC | 100 μA to 0.6 A | 6 A (10 ms) |

## ■ Characteristics

| | |
|---|---|
| **Operate time** | 6 ms max. |
| **Release time** | 10 ms max. |
| **Output ON-resistance** | 2.4 Ω max. |
| **Leakage current** | 10 μA max. (at 125 VDC) |
| **Insulation resistance** | 100 mΩ max. (at 500 VDC) |
| **Dielectric strength** | 2,500 VDC, 50/60 Hz for 1 min |
| **Vibration resistance** | 10 to 55 Hz, 1.5-mm double amplitude |
| **Shock resistance** | 1,000 m/s$^2$ (approx. 100G) |
| **Ambient temperature** | Operating: −30°C to 85°C (with no icing)<br>Storage: −30°C to 100°C (with no icing) |
| **Ambient humidity** | Operating: 45% to 85% |
| **Weight** | Approx. 3.1 g |

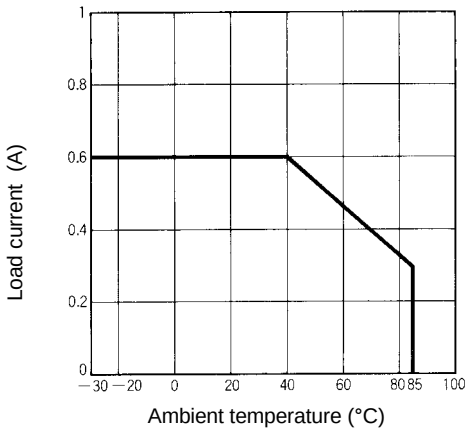


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## ■ Reference Data

### Load Current vs. Ambient Temperature Characteristics

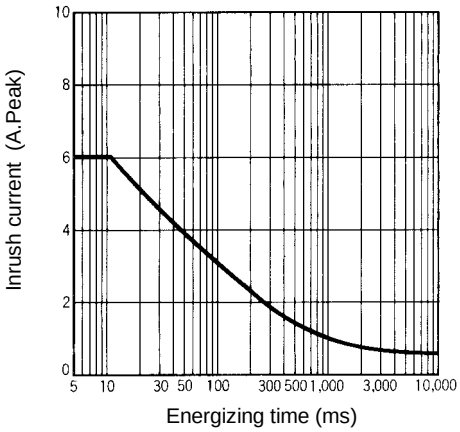
**G3DZ-2R6PL**




### Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

**G3DZ-2R6PL**

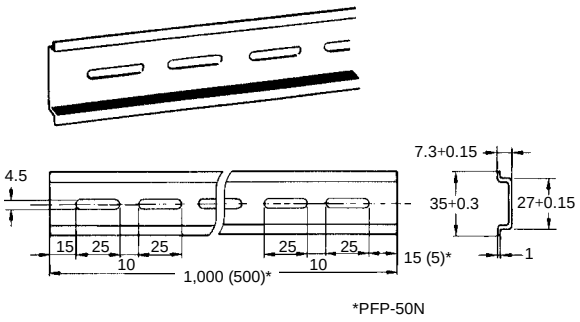



**Note:** The above data are for a G730 mounted with 8 or 16 G3DZs.

# DIN Track Mounting Accessories

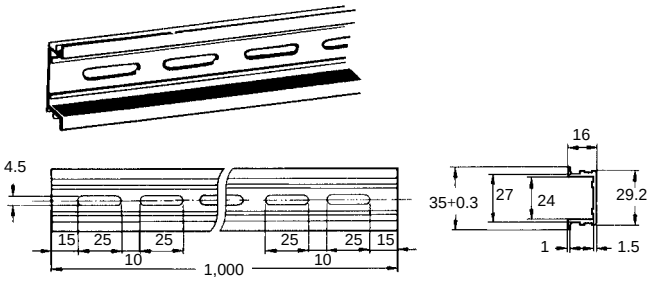
### Mounting Track

**PFP-100N**
**PFP-50N**



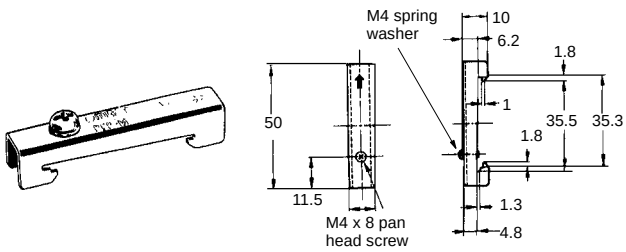

*PFP-50N

**PFP-100N2**



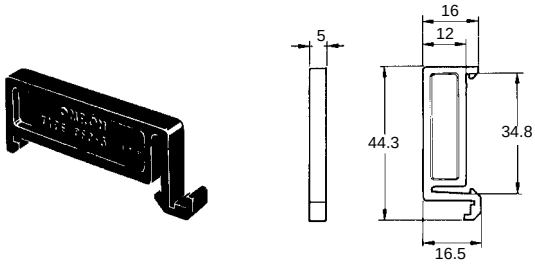

### End Plates

**PFP-M**




### Spacers

**PFP-S**




**Note:** Order the above parts in units of 10.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J94-E1-2A



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## Connects to Standard DIN Bus

- Can be combined with a G70A I/O Block to provide 16 input/output points of distributed control through a two-conductor cable.
- Conforms to DIN-19245.
- One G71P can be connected to a maximum of 10 Master Units.
- Data transmission speed (baud rate) is changeable.
- Easily connects to I/O devices via connector.
- Either DIN-rail or screw mounting possible.
- Built-in diagnostic functions provide easy trouble-shooting.
- Terminator function incorporated.

# Ordering Information

| I/O classification | I/O points | Internal I/O circuit common | Rated voltage | Model |
|---|---|---|---|---|
| **Contact input** | 16 points | PNP (- common) | 24 VDC | G71P-IC16-4 |
| **Transistor input** | | | | G71P-ID16-4 |
| **Transistor output** | | PNP (+ common) | | G71P-OD16-4 |

Do not connect the G7TC I/O Block to the G71P. Use the G70A (PNP output, 16 I/O points, mounting G2R relays) instead, to connect to the G71P.

### Remote Interface and I/O Block Combinations

**PROFIBUS Models**

| Application I/O block | | | Remote Interface |
|---|---|---|---|
| **AC input block** | 230 VAC | G70A-ZIM16-5 | G71P-IC16-4 24 VDC |
| **DC input block** | 24 VDC | G70A-ZIM16-5 | |
| **Output block** | 24 VDC | G70A-ZOC16-4 | G71P-OD16-4 24 VDC |

# Specifications

## ■ Ratings

### G71P-ID16-4/IC16-4 Input

| Item | G71P-ID16-4 | G71P-IC16-4 |
|---|---|---|
| **Rated input voltage** | 24 VDC | |
| **Input current** | 6.7 mA/points | |
| **ON delay time** | 1.5 ms max. | 9 ms max. |
| **OFF delay time** | 1.5 ms max. | 14.5 ms max. |
| **Number of circuits** | 16 points (8 points/common) | |
| **ON voltage** | 15 VDC max. | |
| **OFF voltage** | 5.6 VDC min. | |



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### G71P-OD16-4 Output

| Item | G71P-OD16-4 |
|---|---|
| **Rated output voltage** | 24 VDC |
| **Rated output current** | 30 mA/points |
| **Residual voltage** | 1.2 V max. |
| **OFF delay time** | 100 ms max. |
| **Number of circuits** | 16 points (8 points/common) |

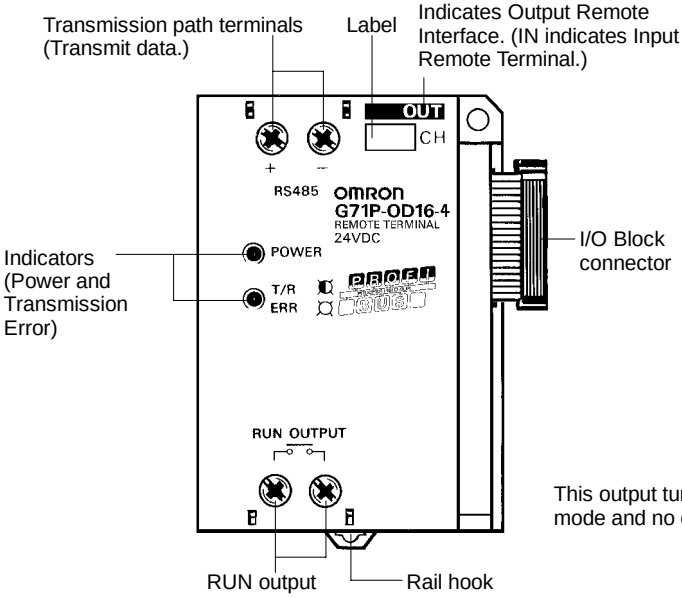
## ■ Characteristics

| | |
|---|---|
| **Communication system** | Two-conductor, half duplex |
| **Synchronization method** | Asynchronous |
| **Transmission speed (baud rate)** | 500 kbps, 19.2 kbps, 9.6 kbps (Automatic detection) |
| **Transmission distance** | 500 kbps: 200 m; 19.2/9.6 kbps: 1.2 km (Transmission distance depends on the baud rate.) |
| **Transmission path** | Two-conductor cable |
| **Interface** | RS-485 |
| **Operating voltage range** | 24 VDC $^{+10\%}/_{-15\%}$ |
| **Current consumption** | 24 VDC: 40 mA max. (when all relays are OFF) |
| **RUN output** | SPST-NO contact output (closed during operation)<br>Contact capacity: 100,000 operations at 2 A, 200 VAC (cosf = 1) |
| **Diagnosis** | Transmission error check (DIN-19245), CPU error monitor |
| **Insulation resistance** | 20 MW min. (at 250 VDC) between transmission circuits and RUN output circuit<br>20 MW min. (at 250 VDC) between RUN output circuit and power circuits<br>20 MW min. (at 250 VDC) between transmission circuits and power circuits |
| **Dielectric strength** | 2,000 VAC, 50/60 Hz for 1 min between transmission circuits and RUN output circuit<br>2,000 VAC, 50/60 Hz for 1 min between RUN output circuit and power circuits<br>500 VAC, 50/60 Hz for 1 min between transmission circuits and power circuits |
| **Noise immunity** | Noise level: 1.5 kV; pulse width: 100 ns to 1 ms |
| **Vibration resistance** | 10 to 55 Hz, 0.75-mm single amplitude for 2 hrs each in X, Y, and Z directions (both mounted and not mounted to DIN rail) |
| **Shock resistance** | 300 $m/s^2$ (approx. 30G) |
| **Ambient temperature** | Operating: 0%C to 55%C<br>Storage: –20%C to 65%C |
| **Ambient humidity** | Operating: 35% to 85% |
| **Mounting strength** | No damage when 5 kgf (4.9 N) pull load was applied for 1 s in all directions<br>(1 kgf (0.9 N) in direction of rail) |
| **Terminal strength** | No abnormality when 5 kgf (4.9 N) pull load was applied for 1 s in all directions |
| **Weight** | Approx. 200 g |



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# Nomenclature



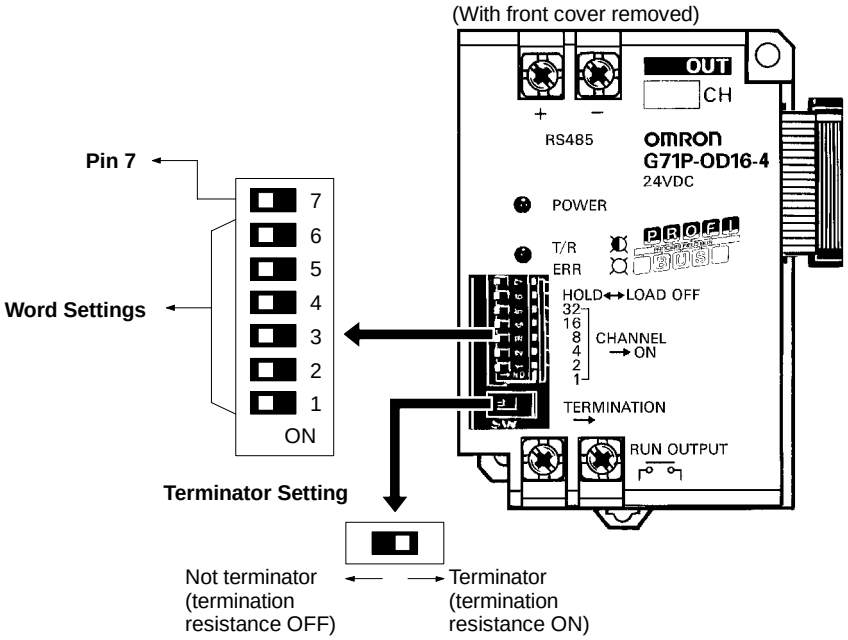

This output turns ON when the PC is in the RUN or MONITOR mode and no error has occurred; otherwise OFF.

### LED Operation

| Display | | Meaning |
|---|---|---|
| **POWER** | **Lit** | Lit when power is supplied and the unit is operating. |
| | **Not lit** | Not lit when power supply is abnormal. |
| **T/R ERR** | **Flashing** | Flashes during normal data transmission. |
| | **Lit** | Lit during standby and transmission error. |
| | **Not lit** | Not lit during CPU (watchdog timer) error. |

# Operation

## ■ Setting the Front-panel DIP Switch




**Note:** The termination resistance is set to OFF before shipping.



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### Output HOLD/LOAD OFF Mode

(for Remote Output Interface only)

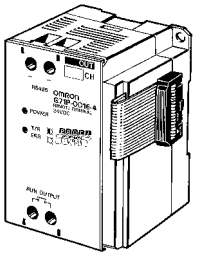
| Pin 7 | |
|---|---|
| **HOLD** | **LOAD OFF** |
| OUT channel status is held during a slave transmission error. | All OUT channel bits go OFF for a slave transmission error. |

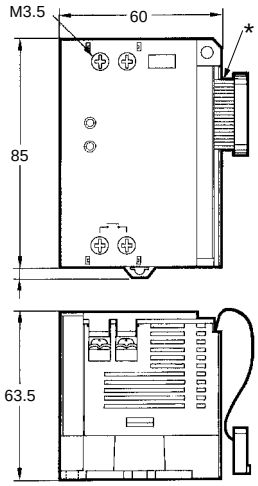
### Word Settings

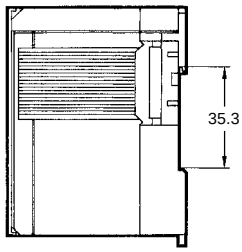
| Word | | Pin | | | | | |
|---|---|---|---|---|---|---|---|
| **Address Range Bit OFF** | **Address Range Bit ON** | **1** | **2** | **3** | **4** | **5** | **6** |
| 0 | (64) | OFF | OFF | OFF | OFF | OFF | OFF |
| 1 | (65) | ON | OFF | OFF | OFF | OFF | OFF |
| 2 | (66) | OFF | ON | OFF | OFF | OFF | OFF |
| 3 | (67) | ON | ON | OFF | OFF | OFF | OFF |
| . . . | . . . | . . . | . . . | . . . | . . . | . . . | . . . |
| 60 | (124) | OFF | OFF | ON | ON | ON | ON |
| 61 | (125) | ON | OFF | ON | ON | ON | ON |
| 62 | (126) | OFF | ON | ON | ON | ON | ON |
| 63 | | ON | ON | ON | ON | ON | ON |

# Dimensions

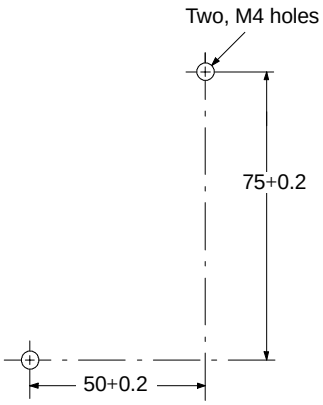
**Note:** All units are in millimeters unless otherwise indicated.






**Mounting Holes**




*A flat cable with a length of 85 mm can be used.



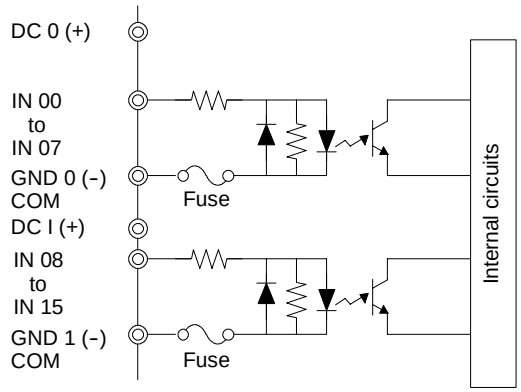
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# Installation

## ■ Internal Circuit

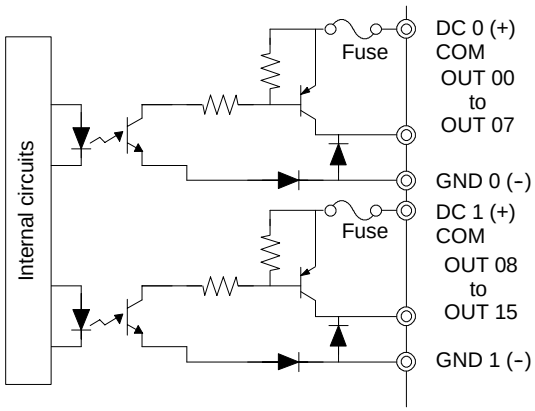
**Input (PNP: - Common)**

**G71P-IC16-4**

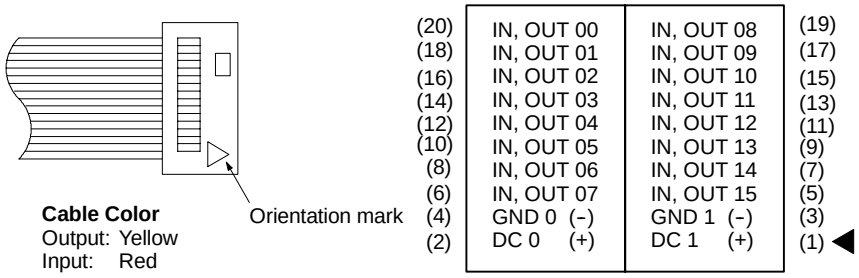



**Output (PNP: + Common)**

**G71P-OD16-4**




## ■ Terminal Arrangement




**Note:** Figures in parentheses are connector pin numbers.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. K80-E1-2A



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