Multiplex Transmission System

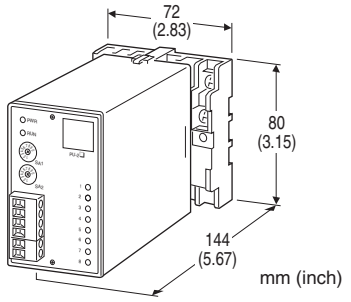
MULTI-TRANSMISSION MODULE

Functions & Features

• Miniaturized, plug-in, socket-mounted version of the multiplex transmission system
• Analog, digital or pulse string signals transmitting via twisted-pair cable
• No master station required
• Easy expansion up to 256 modules (2000 points)

Typical Applications

• Input and output processing for computer systems and telemetering systems
• Complete system compatibility with DLA1 and other units, utilizing the same communication protocol



MODEL: 22LA1–3[1]–[2]

ORDERING INFORMATION

• Code number: 22LA1–3[1]-[2]
Specify a code from below for each of [1] and [2].
(e.g. 22LA1-3A4-K)

TRANSMISSION MEDIA

3: Twisted-pair cable for small-scale system

[1] I/O SECTION

A1: Di 24 points (BCD)
A2: Di 16 points (BCD)
A4: Di 8 points
C1: Do 24 points (BCD)
C2: Do 16 points (BCD)
C7: Do 8 points (relay)
C8: Do 8 points (photo MOSFET relay)
E5: Di 4 + Do 4 points (relay)
E6: Di 4 + Do 4 points (photo MOSFET relay)
G3: Ai 8 points
G4: Ai 4 points
M3: Ao 8 points
M4: Ao 4 points
P4: Pi 4 points
U4: Po 4 points

[2] POWER INPUT

AC Power
K: 85 – 132 V AC
(Operational voltage range 85 – 132 V, 47 – 66 Hz)
L: 170 – 264 V AC
(Operational voltage range 170 – 264 V, 47 – 66 Hz)
DC Power
S: 12 V DC
(Operational voltage range 12 V ±10 %, ripple 10 %p-p max.)
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

GENERAL SPECIFICATIONS

Construction: Plug-in
Connection
Power input: M3.5 screw terminals
Field I/O: M3.5 screw terminals or 26-pin connector
Transmission: Euro type connector terminal
Housing material: Flame-resistant resin (black)
Isolation: I/O to transmission to reset (provided only for pulse I/O type) to power
Terminator: Incorporated (remove jumper pin with those modules not located at the end of transmission line)
Power indicator: Red LED turns ON in normal conditions; OFF when the voltage level becomes low.
RUN indicator: Red LED turns ON when the selfdiagnosis proves normal, OFF in an abnormality.
■ **RUN Output**: Contact opens when the self-diagnosis detects an abnormality.
125 V AC @ 0.5 A (cos ø = 1)
30 V DC @ 0.5 A (resistive load)
Maximum switching voltage: 250 V AC or 125 V DC
Maximum switching power: 62.5 VA or 60 W
Minimum load: 10 mV DC @ 1 mA
Mechanical life: 5×10^7 cycles (rate 300/min.) 10^8 cycles (rate 180/min.)
Self-diagnosis
Communication: The receiver modules detect loss of communication and wire break.
CPU: Watch-dog timer
Memory: Sum check
Power voltage: Detects when the voltage supply to the CPU drops.

COMMUNICATION

Communication: 2-wire, half-duplex
Transmission: conform to RS-422, EIA

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Transmission speed: 125 kbps
Data encoding: SDLC
Control procedure: NRZ
Protocol: SIN-NET (dedicated protocol)
Error check: CRC
Cable: CPEV-0.9 dia.
Transmission distance: 500 meters

INSTALLATION

Power consumption
•**AC**: Approx. 5 VA
•**DC**: 24 V or 12 V ±10 % (ripple 10 %p-p max.) approx. 4.4 W (180 mA with 24 V) with 8-point relays at the maximum load
Operating temperature: -5 to + 50°C (23 to 122°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Atmosphere: No corrosive gas or heavy dust
Mounting: Surface or DIN rail
Weight: 400 g (0.88 lb)

PERFORMANCE

Permissible power failure duration: ≤ 10 msec.
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 500 V AC @ 1 minute
(I/O to transmission to reset*)
1500 V AC @ 1 minute
(power to I/O or transmission or reset*)
1500 V AC @1 minute (FG to each section)
*Reset terminals are provided only for pulse string I/O type.

DESCRIPTIONS

■ **RUN Output (LED) Operation**

Input unit
The LED for the Input Units (A1, A2, A4, G3, G4 and P4) turns ON when the network is on-line.
When there is an abnormality in the network, the LED turns OFF. The network is reconfigured after an abnormality.

Output unit
The LED for the Output Units (C1, C2, C7, C8, M3, M4 and U4) turns ON when the network is on-line and the unit receives data from the corresponding Input Unit.
When there is an abnormality in the network or there is no data receiving, the LED turns OFF.
When the I/O Units are connected via the 22LS1 (DLS), once the LED turns ON, it remains ON regardless of the state of Input Unit or the leased circuit.
When the Output Unit is connected to the DLC (for setting data from the DLC), the LED turns ON once the Output Unit receives normal data, and remains ON even when there is no data update.

I/O Unit
The LED's operating conditions for the I/O Unit (E5 and E6) are combined ones of Input Unit and Output Unit.
Caution: When the network is reconfigured e.g. by noise interference, the RUN LED and output for all units on the network turn briefly OFF until they are turned ON after the reconfiguration is complete.

■ **Station Number (Address)**

A) 1 input unit and X output units: Match the address for input and output modules. The input data can be output at several modules.
B) I/O mixed modules: Set an even number and a consecutive number for the 2 corresponding modules.

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C) Computer interface: Set address numbers to correspond with the computer as I/O module.

■ Transmission Time

Integrate all the transmission time for each process input (or I/O-mixed) module in the system.

- •Contact input, BCD, 16 points (A2) 1.5 msec.
- •Contact input 8 points (A4) 1.5 msec.
- •Contact I/O each 4 points (E5, E6) 1.5 msec.
- •Analog input 8 points (G3) 12.0 msec.
- •Analog input 4 points (G4) 6.0 msec.
- •Pulse input 4 points (P4) 6.0 msec.

An analog module does not transmit all its signals in serial but does 1 point per each cycle. For example, when 1 contact input module (8 points) and 1 analog input module (4 points) are connected, 8 point contact signal and 1 point analog signal are transmitted in turn. One cycle time is therefore calculated as:

4 points × 1.5 msec. + 6 msec. = 12 msec.

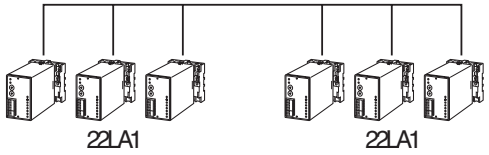
This method is beneficial for giving a priority to contact signals which vary rapidly.

■ Transmission line configuration

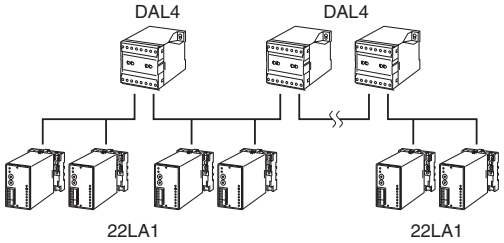
The multi-drop transmission line containing 22LA1 and DLx units should meet the following conditions.
Contact M-System's sales office or representatives when designing.

A) 10 kilometers at maximum in total system.

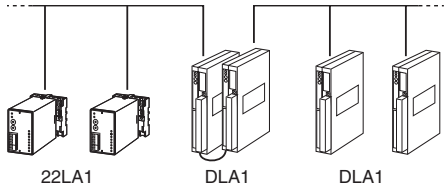
B) Line consists only of 22LA1 modules: one multitransmission line can contain at the maximum of 16 units within the total distance of 500 m.



C) 22LA1 modules plus link adapter (model: DAL4): DAL4 units can expand the total distance. (8 DAL4 units max.)

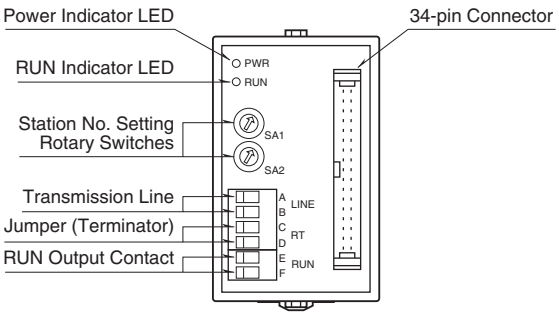


D) 22LA1 modules plus DLx units: the total distance of a section consists of 22LA1 modules is less than 500 meters. The 22LA1 modules can be connected to DLx units via a DLx-7 unit. (Eight DLx-7 units max.)

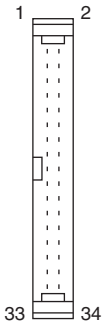


EXTERNAL VIEW

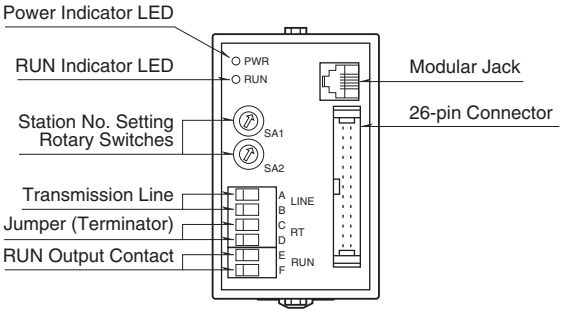
■ 22LA1-3A1, -3C1



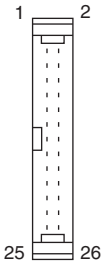
•Pin Assignments



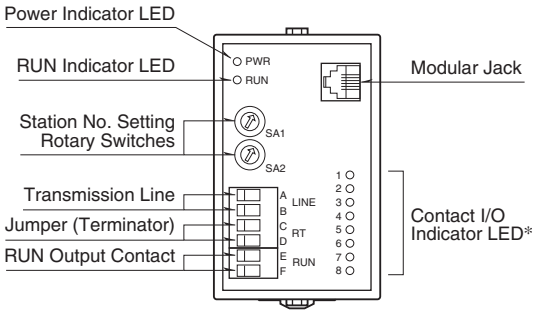
■ 22LA1-3A2, -3C2



•Pin Assignments



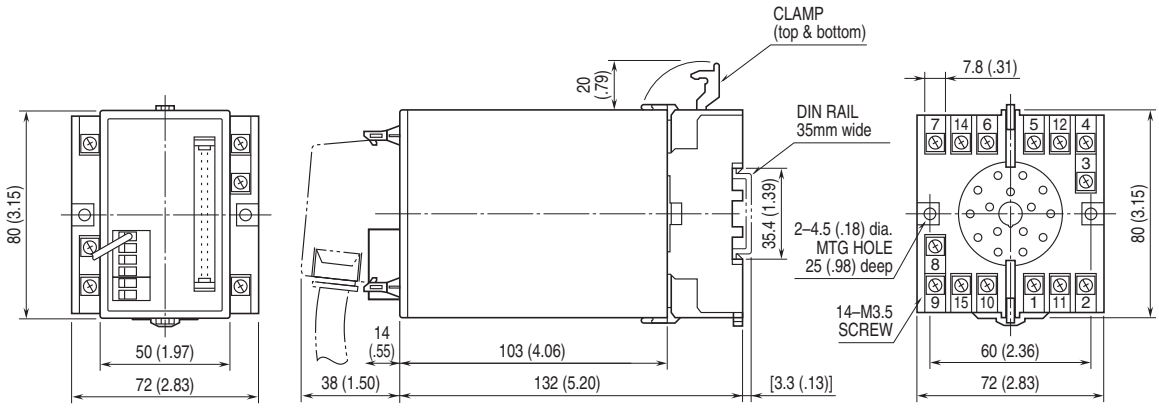
■ STANDARD TYPE



*Deleted with analog I/O modules.
LED5 through 8 deleted with the 22LA1-3P4 or -3U4.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

■ 22LA1-3A1, -3C1



•When mounting, no extra space is needed between units.

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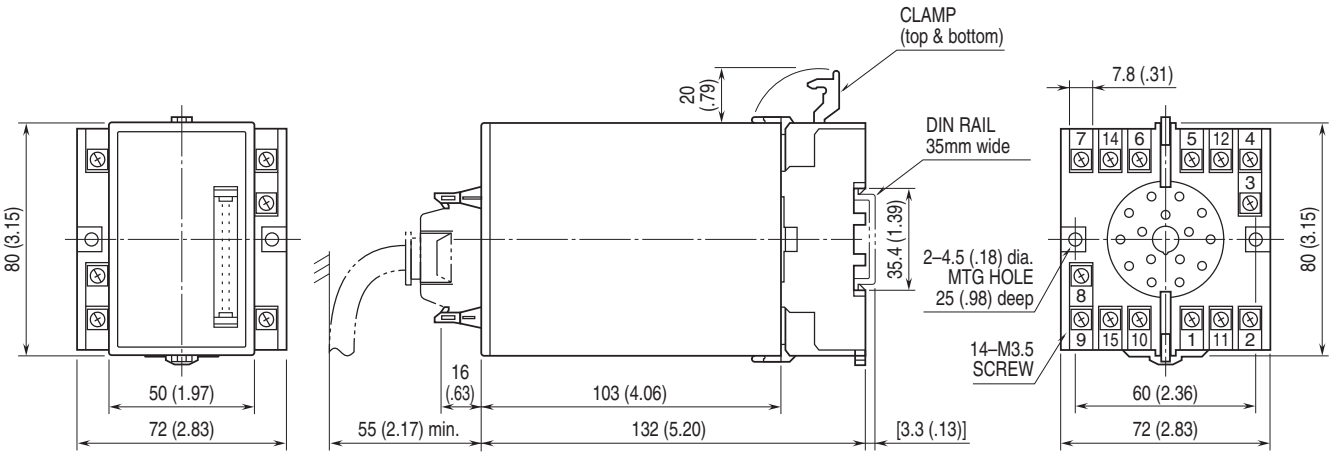
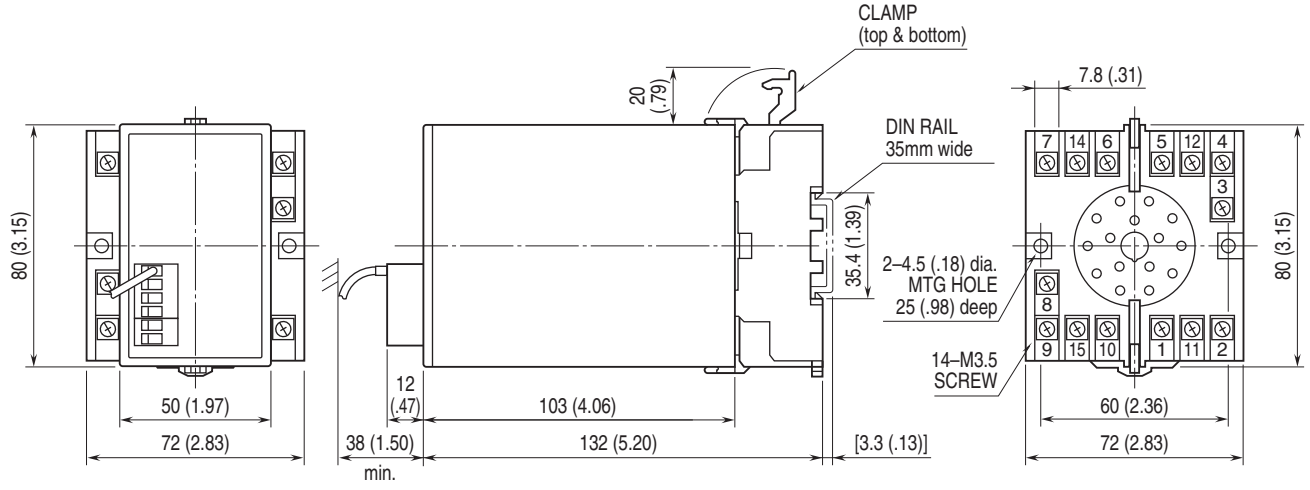
■ 22LA1-3A2, -3C2



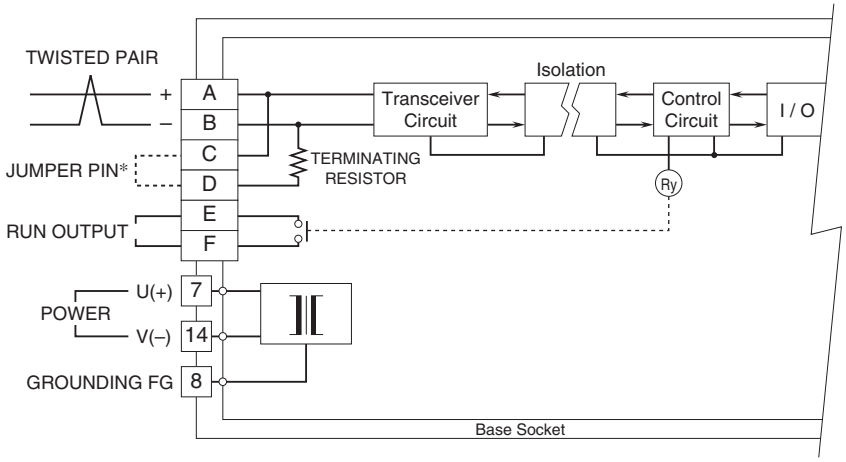
•When mounting, no extra space is needed between units.

■ STANDARD TYPE



•When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*When the unit is located at the end of transmission line via twisted-pair cable (= no cross-wiring), short across the terminals C – D with the jumper pin (or wire) provided with the unit. Remove the jumper pin for the one not located at the end.

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CONTACT INPUT MODULE (BCD)

MODEL: 22LA1–3A1–[1]

ORDERING INFORMATION

• Code number: 22LA1–3A1-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3A1-K)

GENERAL SPECIFICATIONS

Input connector: 34-pin connector
(OMRON XG4A-3434)
Usable connector type: OMRON XG4M-3430-T,
XG5M-343x-N)
Usable cover type: OMRON XG5S-3422
The special cable (model: MCN34), Connector Terminal Block (model: CNT) are available.

INPUT SPECIFICATIONS

Input: TTL level (5V-CMOS level); open collector or dry contact (saturation voltage ≤ 1 V, sink current 1 mA); negative logic
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

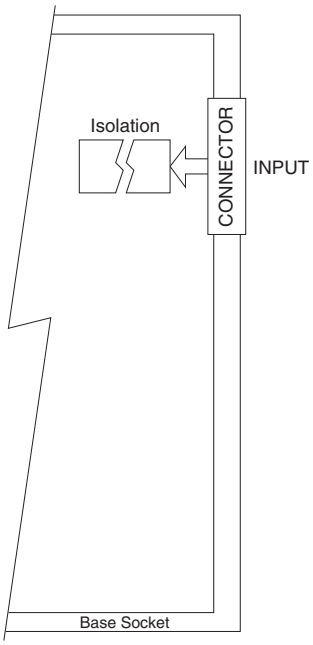
Multi-transmission time: 1.5 msec.
Input read time: 50 msec.

CONNECTOR PIN ASSIGNMENT

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	1×10^0 (B^0)	21	1×10^5 (B^{20})
2	2×10^0 (B^1)	22	2×10^5 (B^{21})
3	4×10^0 (B^2)	23	4×10^5 (B^{22})
4	8×10^0 (B^3)	24	8×10^5 (B^{23})
5	1×10^1 (B^4)	25	COM
6	2×10^1 (B^5)	26	COM
7	4×10^1 (B^6)	27	No connection
8	8×10^1 (B^7)	28	No connection
9	1×10^2 (B^8)	29	No connection
10	2×10^2 (B^9)	30	No connection
11	4×10^2 (B^{10})	31	No connection
12	8×10^2 (B^{11})	32	No connection
13	1×10^3 (B^{12})	33	No connection
14	2×10^3 (B^{13})	34	No connection
15	4×10^3 (B^{14})		
16	8×10^3 (B^{15})		
17	1×10^4 (B^{16})		
18	2×10^4 (B^{17})		
19	4×10^4 (B^{18})		
20	8×10^4 (B^{19})		

B^0 – B^{23} are inputs.

TERMINAL CONNECTION (INPUT)



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CONTACT INPUT MODULE (BCD)

MODEL: 22LA1–3A2–[1]

ORDERING INFORMATION

• Code number: 22LA1–3A2-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3A2-K)

GENERAL SPECIFICATIONS

Input connector: 26-pin connector (OMRON XG4A-2934)
Usable connector type: OMRON XG4M-2630-T, XG5M-263x-N)
Usable cover type: OMRON XG5S-2612
The special cable (model: MCN26), Connector Terminal Block (model: CNT) are available.

INPUT SPECIFICATIONS

Input: TTL level (5V-CMOS level); open collector or dry contact (saturation voltage ≤ 1 V, sink current 1 mA); negative logic
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

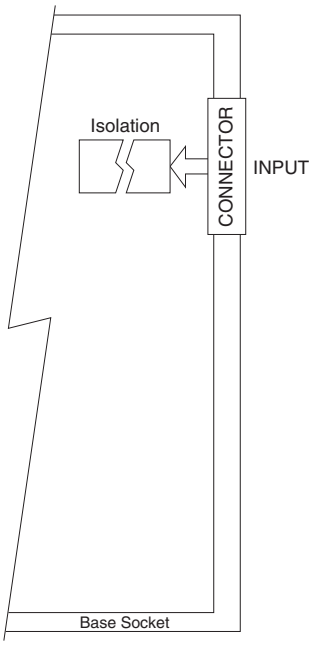
Multi-transmission time: 1.5 msec.
Input read time: 50 msec.

CONNECTOR PIN ASSIGNMENT

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	1×10^0 (B^0)	17	COM
2	2×10^0 (B^1)	18	COM
3	4×10^0 (B^2)	19	No connection
4	8×10^0 (B^3)	20	No connection
5	1×10^1 (B^4)	21	No connection
6	2×10^1 (B^5)	22	No connection
7	4×10^1 (B^6)	23	COM
8	8×10^1 (B^7)	24	COM
9	1×10^2 (B^8)	25	No connection
10	2×10^2 (B^9)	26	No connection
11	4×10^2 (B^{10})		
12	8×10^2 (B^{11})		
13	1×10^3 (B^{12})		
14	2×10^3 (B^{13})		
15	4×10^3 (B^{14})		
16	8×10^3 (B^{15})		

B^0 – B^{15} are inputs.

TERMINAL CONNECTION (INPUT)



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CONTACT INPUT MODULE

(Di 8 points)

MODEL: 22LA1–3A4–[1]

ORDERING INFORMATION

• Code number: 22LA1–3A4-[1]

Specify a code from power input options for [1].

(e.g. 22LA1-3A4-K)

INPUT SPECIFICATIONS

Input: Dry contact, 8 points

Commons: All negatives

Sensing: 12 V DC

≥ 3 mA at ON

≤ 1 mA at OFF

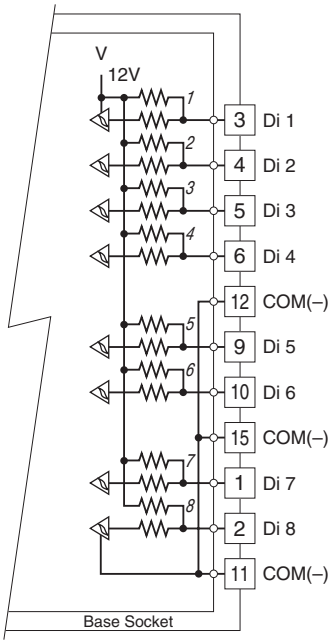
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

Multi-transmission time: 1.5 msec.

Input read time: 5 msec. per 8 points

TERMINAL CONNECTION (INPUT)



Italic figures indicate LED No. on the front panel.

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CONTACT OUTPUT MODULE (BCD)

MODEL: 22LA1–3C1–[1]

ORDERING INFORMATION

• Code number: 22LA1–3C1-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3C1-K)

GENERAL SPECIFICATIONS

Output connector: 34-pin connector (OMRON XG4A-3434)
Usable connector type: OMRON XG4M-3430-T, XG5M-343x-N)
Usable cover type: OMRON XG5S-3422
The special cable (model: MCN34), Connector Terminal Block (model: CNT) are available.
When driving an inductive load, external protection is recommended.

INPUT SPECIFICATIONS

Hold Input: TTL level (5V-CMOS level); open collector or dry contact (saturation voltage ≤ 1 V, sink current 1 mA); negative logic

OUTPUT SPECIFICATIONS

Output: Open collector
Maximum collector-emitter voltage: 30 V DC
Maximum collector current: 30 mA
Saturation voltage: ≤ 1.1 V; negative logic
DAV output (Data available): Same level as for the output code; negative logic
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

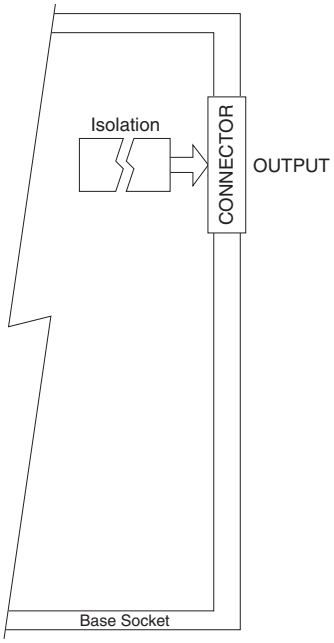
Output time: ≤ 20 msec.

CONNECTOR PIN ASSIGNMENT

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	1×10^0 (B^0)	21	1×10^5 (B^{20})
2	2×10^0 (B^1)	22	2×10^5 (B^{21})
3	4×10^0 (B^2)	23	4×10^5 (B^{22})
4	8×10^0 (B^3)	24	8×10^5 (B^{23})
5	1×10^1 (B^4)	25	COM
6	2×10^1 (B^5)	26	COM
7	4×10^1 (B^6)	27	DAV
8	8×10^1 (B^7)	28	HOLD
9	1×10^2 (B^8)	29	No connection
10	2×10^2 (B^9)	30	No connection
11	4×10^2 (B^{10})	31	No connection
12	8×10^2 (B^{11})	32	No connection
13	1×10^3 (B^{12})	33	No connection
14	2×10^3 (B^{13})	34	No connection
15	4×10^3 (B^{14})		
16	8×10^3 (B^{15})		
17	1×10^4 (B^{16})		
18	2×10^4 (B^{17})		
19	4×10^4 (B^{18})		
20	8×10^4 (B^{19})		

B^0 – B^{23} are inputs, DAV is an output, and HOLD is an input.

TERMINAL CONNECTION (OUTPUT)



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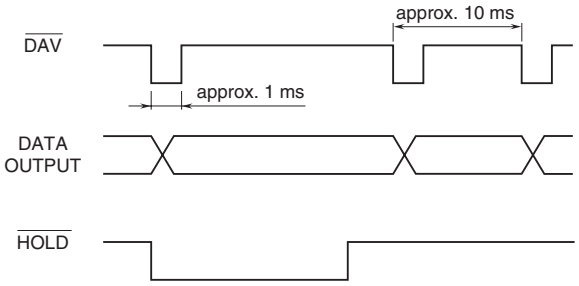
TIMING CHART



When the HOLD input signal is valid ("L"), the DAV output is not provided and the data output is held at the value before that.

CONTACT OUTPUT MODULE (BCD)

MODEL: 22LA1–3C2–[1]

ORDERING INFORMATION

• Code number: 22LA1–3C2-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3C2-K)

GENERAL SPECIFICATIONS

Output connector: 26-pin connector (OMRON XG4A-2634)
Usable connector type: OMRON XG4M-2630-T, XG5M-263x-N)
Usable cover type: OMRON XG5S-2612
The special cable (model: MCN26), Connector Terminal Block (model: CNT) are available.
When driving an inductive load, external protection is recommended.

INPUT SPECIFICATIONS

Hold Input: TTL level (5V-CMOS level); open collector or dry contact (saturation voltage ≤ 1 V, sink current 1 mA); negative logic

OUTPUT SPECIFICATIONS

Output: Open collector
Maximum collector-emitter voltage: 30 V DC
Maximum collector current: 30 mA
Saturation voltage: ≤ 1.1 V; negative logic
DAV output (Data available): Same level as for the output code; negative logic
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

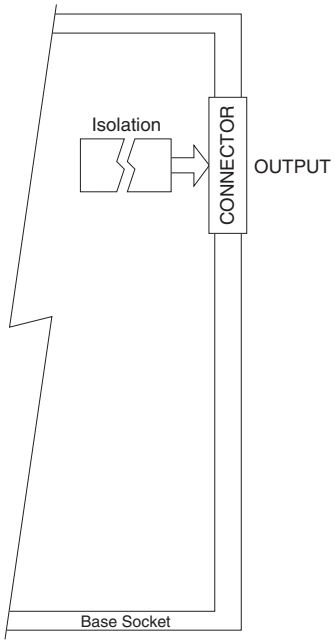
Output time: ≤ 20 msec.

CONNECTOR PIN ASSIGNMENT

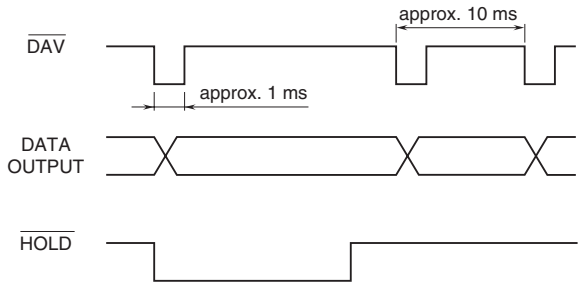
PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	1×10^0 (B^0)	17	COM
2	2×10^0 (B^1)	18	COM
3	4×10^0 (B^2)	19	No connection
4	8×10^0 (B^3)	20	No connection
5	1×10^1 (B^4)	21	DAV
6	2×10^1 (B^5)	22	HOLD
7	4×10^1 (B^6)	23	COM
8	8×10^1 (B^7)	24	COM
9	1×10^2 (B^8)	25	No connection
10	2×10^2 (B^9)	26	No connection
11	4×10^2 (B^{10})		
12	8×10^2 (B^{11})		
13	1×10^3 (B^{12})		
14	2×10^3 (B^{13})		
15	4×10^3 (B^{14})		
16	8×10^3 (B^{15})		

B^0 – B^{15} are inputs, DAV is an output, and HOLD is an input.

TERMINAL CONNECTION (OUTPUT)



TIMING CHART



When the HOLD input signal is valid ("L"), the DAV output is not provided and the data output is held at the value before that.

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RELAY OUTPUT MODULE

(Do 8 points)

MODEL: 22LA1–3C7–[1]

ORDERING INFORMATION

• Code number: 22LA1–3C7-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3C7-K)

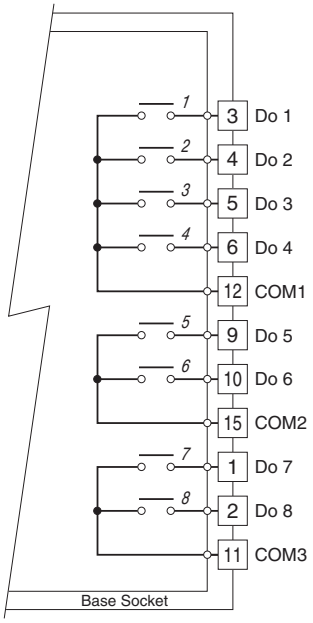
OUTPUT SPECIFICATIONS

Output: Relay contact, 8 points
Commons: Per 4 points, 2 points, 2 points
Contact rating: 125 V AC @ 0.5 A (cos ø =1)
30 V DC @ 0.5 A (resistive load)
Max. switching voltage: 250 V AC or 125 V DC
Max. switching power: 62.5 VA or 60 W
Min. load: 10 mV DC @ 1mA
Mechanical life: 5×10^7 cycles (rate 300/min.)
10^8 cycles (rate 180/min.)
When driving an inductive load, external protection is recommended.
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

Output time
OFF to ON: 8 msec. per 8 points
ON to OFF: 3 msec. per 8 points

TERMINAL CONNECTION (OUTPUT)



Italic figures indicate LED No. on the front panel.

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PHOTO MOSFET RELAY OUTPUT MODULE

(Do 8 points)

MODEL: 22LA1–3C8–[1]

ORDERING INFORMATION

• Code number: 22LA1–3C8-[1]

Specify a code from power input options for [1].

(e.g. 22LA1-3C8-K)

OUTPUT SPECIFICATIONS

Output: Photo MOSFET relay, 8 points

Commons: Per 4 points, 2 points, 2 points

Contact rating: 125 V AC/DC @ 50 mA (resistive load)

Max. ON resistance: 50 Ω

■ **Starion No.**: Match the number of input and output modules

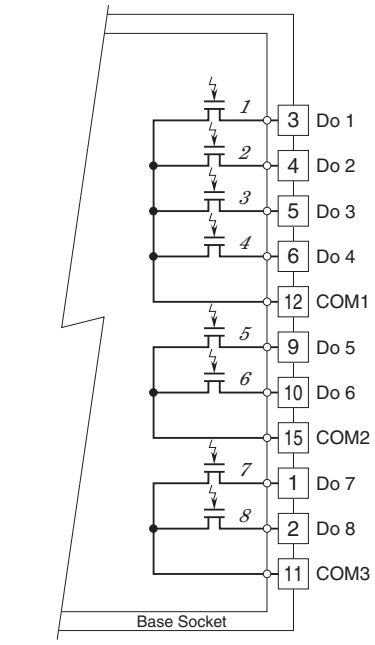
PERFORMANCE

Output time

OFF to ON: 8 msec. per 8 points

ON to OFF: 3 msec. per 8 points

TERMINAL CONNECTION (OUTPUT)



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CONTACT I/O MODULE

(Di & Do each 4 points; relay contact output)

MODEL: 22LA1–3E5–[1]

ORDERING INFORMATION

• Code number: 22LA1–3E5-[1]

Specify a code from power input options for [1].
(e.g. 22LA1-3E5-K)

INPUT SPECIFICATIONS

Input: Dry contact, 4 points
Commons: Per 4 points
Sensing: 12 V DC
≥ 3 mA at ON
≤ 1 mA at OFF

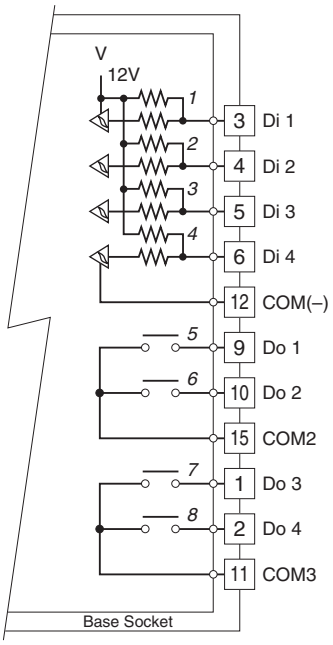
OUTPUT SPECIFICATIONS

Output: Relay contact, 4 points
Commons: Per 2 points
Contact rating: 125 V AC @ 0.5 A (cos ø = 1)
30 V DC @ 0.5 A (resistive load)
Max. switching voltage: 250 V AC or 125 V DC
Max. switching power: 62.5 VA or 60 W
Min. load: 10 mV DC @ 1 mA
Mechanical life: 5×10^7 cycles (rate 300/min.)
10^8 cycles (rate 180/min.)
When driving an inductive load, external protection is recommended.
■ **Starion No.**: set an even number to one unit and a consecutive odd number to the paired unit. (e.g. "02" and "03", "1A' and "1B")

PERFORMANCE

Multi-transmission time: 1.5 msec.
Input read time: 5 msec. per 4 points
Output time
OFF to ON: 8 msec. per 4 points
ON to OFF: 3 msec. per 4 points

I/O TERMINAL CONNECTION



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CONTACT I/O MODULE

(Di & Do each 4 points; photo MOSFET relay contact output)

MODEL: 22LA1–3E6–[1]

ORDERING INFORMATION

• Code number: 22LA1–3E6-[1]

Specify a code from power input options for [1].

(e.g. 22LA1-3E6-K)

INPUT SPECIFICATIONS

Input: Dry contact, 4 points

Commons: Per 4 points

Sensing: 12 V DC

≥ 3 mA at ON

≤ 1 mA at OFF

OUTPUT SPECIFICATIONS

Output: Photo MOSFET relay, 4 points

Commons: Per 2 points

Contact rating: 125 V AC/DC @ 50 mA (resistive load)

Max. ON resistance: 50 Ω

■ **Starion No.**: set an even number to one unit and a consecutive odd number to the paired unit. (e.g. "02" and "03", "1A' and "1B")

PERFORMANCE

Multi-transmission time: 1.5 msec.

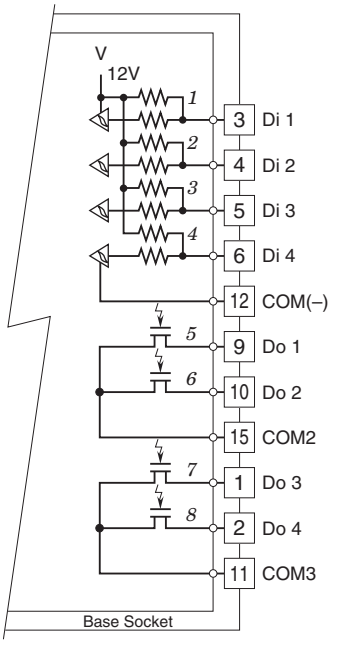
Input read time: 5 msec. per 4 points

Output time

OFF to ON: 8 msec. per 4 points

ON to OFF: 3 msec. per 4 points

I/O TERMINAL CONNECTION



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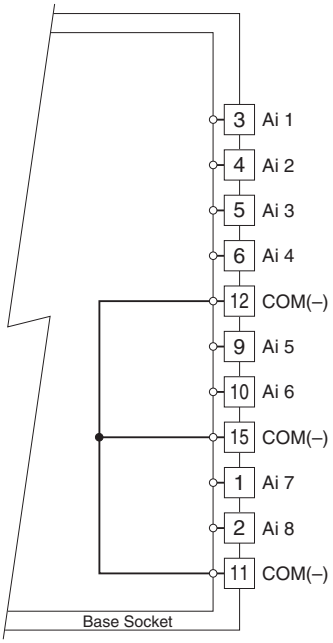
ANALOG INPUT MODULE
(Ai 8 points)

MODEL: 22LA1–3G3–[1]

ORDERING INFORMATION
• Code number: 22LA1–3G3-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3G3-K)

INPUT SPECIFICATIONS
Input: 1 – 5 V DC, 8 points
Operational range: 0.4 – 5.6 V DC
Commons: All negatives
Input resistance: 1 MΩ min.
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE in percentage of span
A/D conversion: ±0.2 %
Resolution: ≤ 0.025 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
A/D conversion cycle: 1 sec. max. per 8 points
Multi-transmission time: 12 msec.

TERMINAL CONNECTION (INPUT)


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ANALOG INPUT MODULE

(Ai 4 points)

MODEL: 22LA1–3G4–[1]

ORDERING INFORMATION

• Code number: 22LA1–3G4-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3G4-K)

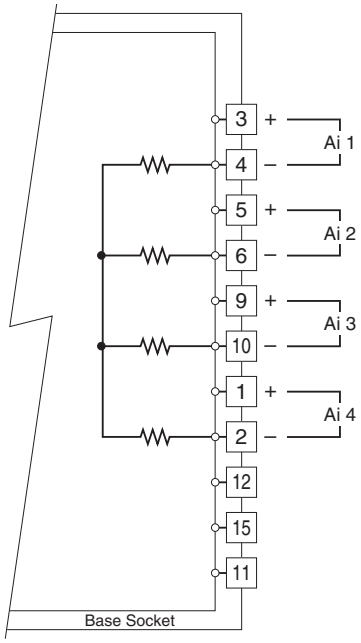
INPUT SPECIFICATIONS

Input: 1 – 5 V DC, 4 points
Operational range: 0.4 – 5.6 V DC
Commons: All negatives
Input resistance: 1 MΩ min.
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE in percentage of span

A/D conversion: ±0.2 %
Resolution: ≤ 0.025 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
A/D conversion cycle: 0.5 sec. max. per 4 points
Multi-transmission time: 6 msec.

TERMINAL CONNECTION (INPUT)



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ANALOG OUTPUT MODULE

(Ao 8 points)

MODEL: 22LA1–3M3–[1]

ORDERING INFORMATION

• Code number: 22LA1–3M3-[1]

Specify a code from power input options for [1].

(e.g. 22LA1-3M3-K)

OUTPUT SPECIFICATIONS

Output: 1 – 5 V DC, 8 points

Operational range: 0.4 – 5.6 V DC

Commons: All negatives

Load resistance: 10 kΩ min.

■ **Starion No.**: Match the number of input and output modules

PERFORMANCE in percentage of span

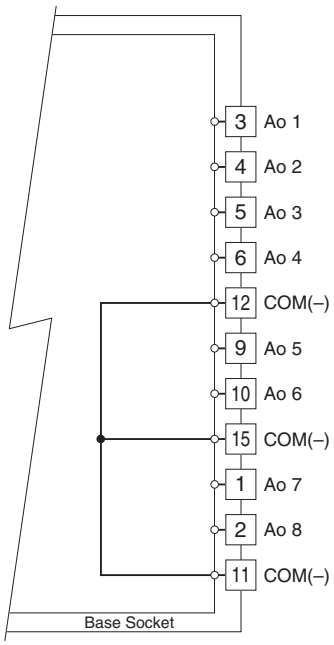
D/A conversion cycle: 1 sec. max. per 8 points

D/A conversion: ±0.2 %

Resolution: ≤ 0.025 %

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

TERMINAL CONNECTION (OUTPUT)



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ANALOG OUTPUT MODULE

(Ao 4 points)

MODEL: 22LA1–3M4–[1]

ORDERING INFORMATION

• Code number: 22LA1–3M4-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3M4-K)

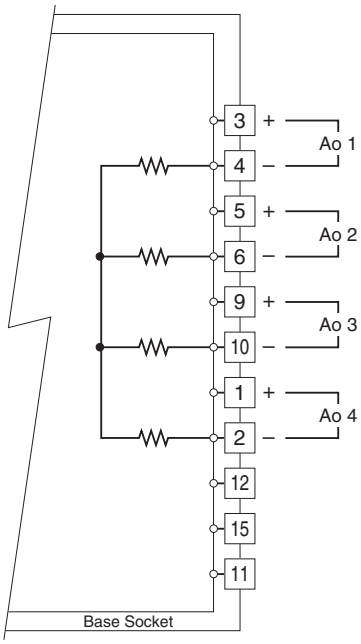
OUTPUT SPECIFICATIONS

Output: 1 – 5 V DC, 4 points
Operational range: 0.4 – 5.6 V DC
Commons: All negatives
Load resistance: 10 kΩ min.
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE in percentage of span

D/A conversion cycle: 0.5 sec. max. per 4 points
D/A conversion: ±0.2 %
Resolution: ≤ 0.025 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

TERMINAL CONNECTION (OUTPUT)



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PULSE INPUT MODULE

(Pi 4 points)

MODEL: 22LA1–3P4–[1]

ORDERING INFORMATION

• Code number: 22LA1–3P4-[1]
Specify a code from power input options for [1].
(e.g. 22LA1-3P4-K)

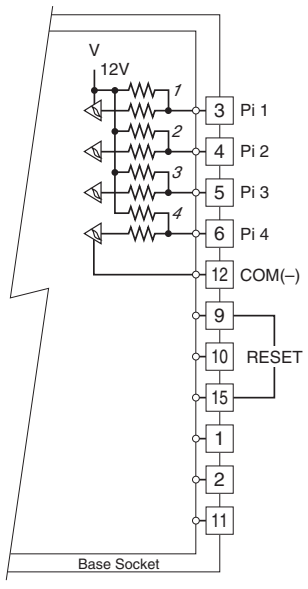
INPUT SPECIFICATIONS

■ **Pulse Input**: Dry contact, 4 points
Commons: All negatives
Frequency: 0 – 10 kHz (approx.)
Pulse width requirement: 20.0 msec. min. for both L and H levels
Sensing: 12 V DC
≥ 3 mA at ON; ≤ 1 mA at OFF
Counter: 0 – 16383 ($3FFF_{(16)}$); reset to zero at overflow.
■ **Reset input**: Closing across the terminals 9 – 15 at power startup initializes the counter values for Pi 1 thr. 4.
Close for at least 5 sec. after the power start up.
Reset the input unit counter first and then that of the output unit.
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

Multi-transmission time: 6 msec.
Input read time: 5 msec. per 4 points

TERMINAL CONNECTION (INPUT)



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PULSE OUTPUT MODULE

(Po 4 points)

MODEL: 22LA1–3U4–[1]

ORDERING INFORMATION

• Code number: 22LA1–3U4-[1]

Specify a code from power input options for [1].
(e.g. 22LA1-3U4-K)

INPUT SPECIFICATIONS

■ **Reset input**: Closing across the terminals 9 – 15 at power startup initializes the counter values for Po 1 thr. 4.
Close for at least 5 sec. after the power start up.
Reset the input unit counter first and then that of the output unit.

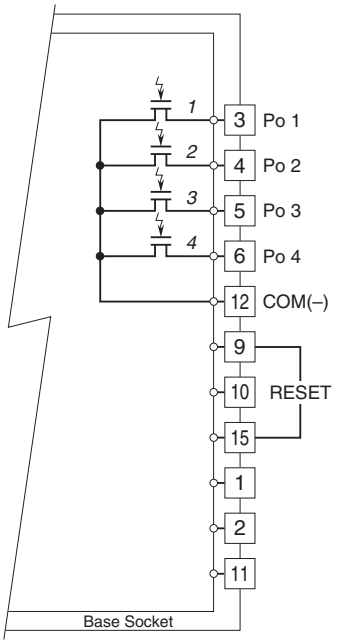
OUTPUT SPECIFICATIONS

Output: Photo MOSFET relay, 4 points
Commons: All negatives
Max. frequency: Approx. 10 kHz
Pulse width: Approx. 50 % duty ratio at the maximum frequency
Contact rating: 125 V AC/DC @ 50 mA (resistive load)
Max. ON resistance: 50 Ω
■ **Starion No.**: Match the number of input and output modules

PERFORMANCE

Output time
OFF to ON: 8 msec. per 4 points
ON to OFF: 3 msec. per 4 points

TERMINAL CONNECTION (OUTPUT)



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⚠ Specifications are subject to change without notice.

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