## A Wide Range of Basic Input Units for High Speed Input and Different Applications

- Receive ON/OFF signals from external devices into the PLC System to update I/O memory in the CPU Unit.
- New high-speed input models CJ1W-ID212 and CJ1W-ID233 are now available. These units can help to increase system throughput.


CJ1W-ID212


CJ1W-ID233

## Features

- High-speed input models are available, meeting versatile applications.

ON Response Time: $15 \mu \mathrm{~s}$, OFF Response Time: $90 \mu \mathrm{~s}$

- Use 24-VDC, 100-VAC, and 200-VAC models to connect to devices with different types of outputs.
- The 24-VDC models can be connected to devices with either NPN or PNP outputs. There is no need to select the polarity. *1
- A digital filter in the Unit can be set from 0 to 32 ms to reduce the influence of external noise.
- Either a Fujitsu or MIL connector interface can be used. *2
- Several models of Terminal Block Conversion Units are available, making it easy to connect to external devices.
${ }^{*} 1$. The same polarity is used for the same common.
*2. For models with 32 or 64 inputs.


## Ordering Information

## International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.


## Input Units

| Unit type | Product name | Specifications |  |  |  |  | $\begin{aligned} & \text { Current } \\ & \text { onsumption } \end{aligned}$ <br> (A) |  | Model | Standards |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | I/O points | Input voltage and current | Commons | External connection | No. of words allocated | 5 V | 24 V |  |  |
| CJ1 Basic I/O Units | DC Input Units | 8 inputs | 12 to $24 \mathrm{VDC}, 10 \mathrm{~mA}$ | Independent contacts | Removable terminal block | 1 word | 0.09 | - | CJ1W-ID201 | $\begin{aligned} & \text { UC1, N, L, } \\ & \text { CE } \end{aligned}$ |
|  |  | 16 inputs | $24 \mathrm{VDC}, 7 \mathrm{~mA}$ | 16 points, 1 common | Removable terminal block | 1 word | 0.08 | - | CJ1W-ID211 |  |
|  |  | 16 inputs (High speed) | $24 \mathrm{VDC}, 7 \mathrm{~mA}$ | 16 points, 1 common | Removable terminal block | 1 word | 0.13 | - | CJ1W-ID212 | N, L, CE |
|  |  | 32 inputs | $24 \mathrm{VDC}, 4.1 \mathrm{~mA}$ | 16 points, 1 common | Fujitsu connector | 2 words | 0.09 | - | CJ1W-ID231 | $\begin{aligned} & \text { UC1, N, L, } \\ & \mathrm{CE} \end{aligned}$ |
|  |  | 32 inputs | $24 \mathrm{VDC}, 4.1 \mathrm{~mA}$ | 16 points, 1 common | MIL connector | 2 words | 0.09 | - | CJ1W-ID232 |  |
|  |  | 32 inputs (High speed) | $24 \mathrm{VDC}, 4.1 \mathrm{~mA}$ | 16 points, 1 common | MIL connector | 2 words | 0.20 | - | CJ1W-ID233 | N, L, CE |
|  |  | 64 inputs | $24 \mathrm{VDC}, 4.1 \mathrm{~mA}$ | 16 points, 1 common | Fujitsu connector | 4 words | 0.09 | - | CJ1W-ID261 | $\begin{aligned} & \text { UC1, N, L, } \\ & \text { CE } \end{aligned}$ |
|  |  | 64 inputs | $24 \mathrm{VDC}, 4.1 \mathrm{~mA}$ | 16 points, 1 common | MIL connector | 4 words | 0.09 | - | CJ1W-ID262 |  |
|  | AC Input Units | 8 inputs | $\begin{aligned} & 200 \text { to } 24 \mathrm{VAC}, 10 \mathrm{~mA} \\ & (200 \mathrm{~V}, 50 \mathrm{~Hz}) \end{aligned}$ | 8 points, 1 common | Removable Terminal Block | 1 words | 0.08 | - | CJ1W-IA201 |  |
|  |  | 16 inputs | $\begin{aligned} & 100 \text { to } 120 \mathrm{VAC}, 7 \mathrm{~mA} \\ & (100 \mathrm{~V}, 50 \mathrm{~Hz}) \end{aligned}$ | 16 points, 1 common | Removable Terminal Block | 1 words | 0.09 | - | CJ1W-IA111 |  |

## Accessories

Connectors are not included for models with connectors. Either use one of the applicable connector listed below or use an applicable ConnectorTerminal Block Conversion Unit or I/O Relay Terminal. For details on wiring methods, refer to External Interface.

## Applicable Connectors

Fujitsu Connectors for 32-input, 32-output, 64-input, 64-output, 32-input/32-output, and 16-input/16-output Units

| Name | Connection | Remarks | Applicable Units | Model | Standards |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 40-pin <br> Connectors | Soldered | FCN-361J040-AU Connector <br> FCN-360C040-J2 <br>  <br> Connector <br> Cover | Fujitsu Connectors: <br> CJ1W-ID231(32 inputs): 1 per Unit CJ1W-ID261 (64 inputs): 2 per Unit CJ1W-OD231 (32 outputs): 1 per Unit CJ1W-OD261 (64 outputs): 2 per Unit CJ1W-MD261 ( 32 inputs, 32 outputs): 2 per Unit | C500-CE404 |  |
|  | Crimped | FCN-363J040 Housing <br> FCN-363J-AU Contactor <br> FCN-360C040-J2 Connector <br>  Cover |  | C500-CE405 |  |
|  | Pressure welded | FCN-367J040-AU/F |  | C500-CE403 |  |
| 24-pin Connectors | Soldered | FCN-361J024-AU Connector <br> FCN-360C024-J2 <br> Connector <br> Cover  | Fujitsu Connectors: <br> CJ1W-MD231 (16 inputs, 16 outputs): 2 per Unit | C500-CE241 |  |
|  | Crimped |  FCN-363J024 <br> FCN-363J-AU Cousing <br> FCN-360C024-J2 Connector <br>  Cover |  | C500-CE242 |  |
|  | Pressure welded | FCN-367J024-AU/F |  | C500-CE243 |  |

MIL Connectors for 32-input, 32-output, 64-input, 64-output, 32-input/32-output, and 16-input/16-output Units

| Name | Connection | Remarks | Applicable Units | Model | Standards |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 40-pin Connectors | Pressure welded | FRC5-AO40-3TOS | MIL Connectors: <br> CJ1W-ID232/233 (32 inputs): 1 per Unit CJ1W-OD232/233/234 (32 outputs): 1 per Unit CJ1W-ID262 (64 inputs): 2 per Unit CJ1W-OD262/263 (64 outputs): 2 per Unit CJ1W-MD263/563 (32 inputs, 32 outputs): 2 per Unit | XG4M-4030-T | - |
| 20-pin Connectors | Pressure welded | FRC5-AO20-3TOS | MIL Connectors: CJ1W-MD232/233 (16 inputs, 16 outputs): 2 per Unit | XG4M-2030-T |  |

Applicable Connector-Terminal Block Conversion Units

| Type | Series | I/O | Number of poles | Terminal ype | Size |  |  | Mounting |  | Common terminals | Bleeder resistance | Indicators | Model | Standards |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Depth $(\mathrm{mm})$ | Height <br> (mm) | Width (mm) | $\begin{gathered} \hline \text { DIN } \\ \text { Track } \end{gathered}$ | Screws |  |  |  |  |  |
| Slim | XW2D | I/O | 20 | M3 | 39 | 40 | 79 | Yes | Yes | No | No | No | XW2D-20G6 | - |
|  |  |  | 40 |  |  |  | 149 |  |  |  |  |  | XW2D-40G6 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | XW2D-40C6 |  |
|  |  | Inputs only |  |  |  |  |  |  |  |  | Built-in |  | XW2D-40G6-RF |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | XW2D-40G6-RM |  |
| Through | XW2B | I/O | 20 | M3.5 | 45 | 45.3 | 112.5 | Yes | Yes | No | No | No | XW2B-20G5 |  |
|  |  |  |  | M3 <br> (European type) |  |  | 67.5 |  |  |  |  |  | XW2B-20G4 |  |
|  |  |  | 40 | M3.5 |  |  | 202.5 |  |  |  |  |  | XW2B-40G5 |  |
|  |  |  |  | M3 <br> (European type) |  |  | 135 |  |  |  |  |  | XW2B-40G4 |  |
| With common terminals | XW2C | 1/O | 20 | M3 | 39 | 40 | 149 | Yes | Yes | Yes | No | No | XW2C-20G6-IO16 |  |
|  |  | Inputs only | 20 | M3.5 | 50 | 38 | 160 |  |  |  |  | Yes | XW2C-20G5-IN16 |  |
| With common terminals, 3-tier | XW2E | Inputs only, 3 tiers | 20 | M3.5 | 50 | 53 | 149 | Yes | Yes | Yes | No | No | XW2E-20G5-IN16 |  |
| Screwless clamp terminals | XW2F | Inputs only | 20 | Clamp | 50 | 40 | 95.5 | Yes | Yes | Yes | No | No | XW2F-20G7-IN16 |  |
|  |  | Outputs only | 20 | Clamp | 50 | 40 | 95.5 | Yes | Yes | Yes | No | No | XW2F-20G7-OUT16 |  |
| e-CON | XW2N | Inputs only | 20 | e-CON connector | 50 | 40 | 95.5 | Yes | Yes | Yes | No | No | XW2N-20G8-IN16 |  |

Note: For the combination of Input Units with Connector-Terminal Block Conversion Units, refer to 2. Connecting Connector-Terminal Block Conversion Units.

## Applicable I/O Relay Terminals

| Type | Series |  | Specifications |  |  |  |  |  |  | Size (horizontal mounting) |  |  | Mounting |  | Model | Standards |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Classification |  | Polarity | Number of points | Rated ON current at contacts | Operation indicators | Terminal blockfor power supply wiring | Horizontal (mm) | Vertical (mm) | Height (mm) | $\begin{gathered} \text { DIN } \\ \text { Track } \end{gathered}$ | Screws |  |  |
| Spacesaving | G70D | Vertical type G70D-V | Outputs | Relay outputs | NPN | $\begin{aligned} & 16 \\ & (\text { SPST- } \\ & \text { NO } \times 16 \text { ) } \end{aligned}$ | 5A or 3A | Yes | Expandable | 135 | 46 | 81 | Yes | Yes | G70D-VSOC16 | $\begin{aligned} & \mathrm{U}, \mathrm{C}, \\ & \mathrm{CE} \end{aligned}$ |
|  |  |  |  | $\begin{array}{\|l} \hline \text { MOSFET } \\ \text { relay } \\ \text { outputs } \end{array}$ |  |  | 0.3A |  |  |  |  |  |  |  | G70D-VFOM16 |  |
|  |  | Flat type G70D |  | Relay outputs | NPN | $\begin{aligned} & 8 \text { (SPST- } \\ & \text { NO } \times 8 \text { ) } \end{aligned}$ | 5A | Yes | - | 68 | 93 | 44 | Yes | Yes | G70D-SOC08 | - |
|  |  |  |  |  |  | $\begin{array}{\|l} \hline 16 \\ \text { (SPST- } \\ \text { NO } \times 16 \text { ) } \end{array}$ | 3A |  |  | 156 | 51 | 39 |  |  | G70D-SOC16 |  |
|  |  |  |  |  | PNP | 16 (SPSTNO $\times 16$ ) | 3A |  |  |  |  |  |  |  | G70D-SOC16-1 |  |
|  |  |  |  | MOSFET relay outputs | NPN | $\begin{aligned} & 16 \\ & \text { (SPST- } \\ & \text { NO } \times 16 \text { ) } \end{aligned}$ | 0.3A |  |  |  |  |  |  |  | G70D-FOM16 |  |
|  |  |  |  |  | PNP |  |  |  |  |  |  |  |  |  | G70D-FOM16-1 |  |
| Highcapacity, spacesaving | G70R |  | Outputs | Relay outputs | NPN | $\begin{aligned} & 8 \text { (SPST- } \\ & \text { NO } \times 8 \text { ) } \end{aligned}$ | 10A | Yes | - | 136 | 93 | 55 | Yes | Yes | G70R-SOC08 | - |
| Standard | G7TC |  | Inputs | AC inputs | NPN | 16 (SPSTNO $\times 16$ ) | 1A | Yes | - | 182 | 85 | 68 | Yes | - | G7TC-IA16 | U, C |
|  |  |  | $\begin{aligned} & \hline D C \\ & \text { inputs } \end{aligned}$ | G7TC-ID16 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Outputs | Relay outputs | NPN | $\begin{aligned} & \hline 8 \text { (SPST- } \\ & \text { NO } \times 8 \text { ) } \end{aligned}$ | 5A |  |  | 102 |  |  |  |  | G7TC-0C08 |  |
|  |  |  | 16 (SPST$\mathrm{NO} \times 16$ ) |  |  | 182 |  |  |  | G7TC-OC16 |  |  |  |  |  |  |
|  |  |  | PNP |  | $\begin{aligned} & 16 \\ & (\text { SPST- } \\ & \text { NO } \times 16 \text { ) } \end{aligned}$ |  |  |  |  | G7TC-0C16-1 |  |  |  |  | - |  |
| Highcapacity socket | G70A <br> (Socket only) |  |  | Outputs | Relay outputs | NPN | 16 (SPDT $\times$ 16 possible with G2R Relays) | 10 A (Terminal block allowable current) | No | - | 234 | 75 | 64 | Yes | - | G70A-ZOC16-3 <br> (Socket only) + Relay/SSR/ MOSFET Relay/ Timer | $\begin{aligned} & \mathrm{U}, \mathrm{C}, \\ & \mathrm{CE} \end{aligned}$ |
|  |  |  | PNP |  |  | G70A-ZOC16-4 <br> (Socket only) + Relay/SSR/ MOSFET Relay/ Timer |  |  |  |  |  |  |  |  |  |  |  |

Note: For the combination of Input Units with I/O Relay Terminal and Connecting Cables, refer to 3. Connecting I/O Relay Terminals.

## Mountable Racks

| Model | NJ system |  | CJ system (CJ1, CJ2) |  | CP1H system | NSJ system |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | CPU Rack | Expansion Rack | CPU Rack | Expansion Backplane | CP1H PLC | NSJ Controller | Expansion Backplane |
| CJ1W-ID201 | 10 Units | 10 Units (per Expansion Rack) | 10 Units | 10 Units (per Expansion Backplane) | Not supported | Not supported | 10 Units (per Expansion Backplane) |
| CJ1W-ID211 |  |  |  |  |  |  |  |
| CJ1W-ID212 |  |  |  |  |  |  |  |
| CJ1W-ID231 |  |  |  |  |  |  |  |
| CJ1W-ID232 |  |  |  |  |  |  |  |
| CJ1W-ID233 |  |  |  |  |  |  |  |
| CJ1W-ID261 |  |  |  |  |  |  |  |
| CJ1W-ID262 |  |  |  |  |  |  |  |
| CJ1W-IA201 |  |  |  |  |  |  |  |
| CJ1W-IA111 |  |  |  |  |  |  |  |

## Specifications

## CJ1W-ID201 DC Input Unit (12 to 24-VDC, 8 Points)



- The signal names of the terminals are the device variable names. The device variable names are the names that use "Jxx" as the device name.

- Polarity of the input power supply can be connected in either direction.
- The signal names of the terminals are the device variable names.

The device variable names are the names that use "Jxx" as the device name.
*1. The ON response time will be $20 \mu$ s maximum and OFF response time will be $400 \mu \mathrm{~s}$ maximum even if the response time are set to 0 ms due to internal element delays.
*2. Terminal numbers A0 to A8 and B0 to B8 are used in the external connection and terminal-device variable diagrams. They are not printed on the Units.
Note: Although 16 I/O bits (1 word) are allocated, only 8 of these can be used for external I/O.

CJ1W-ID211 DC Input Unit (24 VDC, 16 Points)


- Polarity of the input power supply can be connected in either direction.
- The signal names of the terminals are the device variable names.

The device variable names are the names that use "Jxx" as the device name.
*1. The ON response time will be $20 \mu$ s maximum and OFF response time will be $400 \mu \mathrm{~s}$ maximum even if the response time are set to 0 ms due to internal element delays.
*2. Terminal numbers A 0 to A 8 and B 0 to B 8 are used in the external connection and terminal-device variable diagrams. They are not printed on the Units.

CJ1W-ID212 DC Input Unit (24 VDC, 16 Points)


- Polarity of the input power supply can be connected in either direction.
- The signal names of the terminals are the device variable names.

The device variable names are the names that use "Jxx" as the device name.
*1. The ON response time will be $15 \mu \mathrm{~s}$ maximum and OFF response time will be $90 \mu \mathrm{~s}$ maximum even if the response time are set to 0 ms due to internal element delays.
*2. Terminal numbers A 0 to A 8 and B 0 to B 8 are used in the external connection and terminal-device variable diagrams. They are not printed on the Units.

CJ1W-ID231 DC Input Unit (24 VDC, 32 Points)


- The input power polarity can be connected in either direction.
- Be sure to wire both pins A9 and A18 (COM0), and set the same polarity for both pins.
- Be sure to wire both pins B9 and B18 (COM1), and set the same polarity for both pins.
- The signal names of the terminals are the device variable names.

The device variable names are the names that use "Jxx" as the device name.

* The ON response time will be $20 \mu$ s maximum and OFF response time will be $400 \mu \mathrm{~s}$ maximum even if the response times are set to 0 ms due to internal element delays.
Note: Observe the following restrictions when connecting to a 2-wire sensor.
- Make sure the input power supply voltage is larger than the ON voltage ( 19 V ) plus the residual voltage of the sensor (approx. 3 V ).
- Use a sensor with a minimum load current of 3 mA min.
- Connect bleeder resistance if you connect a sensor with a minimum load current of 5 mA or higher

CJ1W-ID232 DC Input Unit (24 VDC, 32 Points)


- The input power polarity can be connected in either direction.
- Be sure to wire both pins 23 and 24 (COMO), and set the same polarity for both pins.
- Be sure to wire both pins 3 and 4 (COM1), and set the same polarity for both pins.
- The signal names of the terminals are the device variable names.

The device variable names are the names that use "Jxx" as the device name.

[^0]CJ1W-ID233 DC Input Unit (24 VDC, 32 Points)


- The input power polarity can be connected in either direction.
- Be sure to wire both pins 23 and 24 (COMO), and set the same polarity for both pins.
- Be sure to wire both pins 3 and 4 (COM1), and set the same polarity for both pins.
- The signal names of the terminals are the device variable names.

The device variable names are the names that use "Jxx" as the device name.

[^1]CJ1W-ID261 DC Input Unit (24 VDC, 64 Points)


## CJ1W-ID262 DC Input Unit (24 VDC, 64 Points)



[^2]CJ1W-IA201 AC Input Unit (200 VAC, 8 Points)


CJ1W-IA111 AC Input Unit (100 VAC, 16 points)

*3. Terminal numbers A0 to A8 and B0 to B8 are used in the external connection and terminal-device variable diagrams. They are not printed on the Units.

Bit Allocations for Input Unit
8-point Input Unit

| Allocated CIO word |  | Signal name (CJ/NJ) |
| :---: | :---: | :---: |
| CIO | Bit |  |
| Wd m <br> (Input) | 00 | IN0/Jxx_Ch1_In00 |
|  | 01 | IN1/Jxx_Ch1_In01 |
|  | $:$ | $:$ |
|  | 06 | IN6/Jxx_Ch1_In06 |
|  | 07 | IN7/Jxx_Ch1_In07 |
|  | 08 | - |
|  | 09 | - |
|  | $:$ | $:$ |
|  | 14 | - |
|  | 15 | - |

32-point Input Unit

| Allocated CIO word |  | Signal name (CJ/NJ) |
| :---: | :---: | :---: |
| CIO | Bit |  |
|  | 00 | INO/Jxx_Ch1_In00 |
|  | 01 | IN1/Jxx_Ch1_In01 |
|  | $:$ | $:$ |
|  | 14 | IN14/Jxx_Ch1_In14 |
| Wd m+1 <br> (Input) | 15 | IN15/Jxx_Ch1_In15 |
|  | 00 | INO/Jxx_Ch2_In00 |
|  | 01 | IN1/Jxx_Ch2_In01 |
|  | $:$ | $:$ |
|  | 14 | IN14/Jxx_Ch2_In14 |
|  |  | 15 |

16-point Input Unit

| Allocated CIO word |  | Signal name (CJ/NJ) |
| :---: | :---: | :---: |
| CIO | Bit |  |
|  | 00 | IN0/Jxx_Ch1_In00 |
|  | 01 | IN1/Jxx_Ch1_In01 |
|  | $:$ | $:$ |
|  | 14 | IN14/Jxx_Ch1_In14 |
|  | 15 | IN15/Jxx_Ch1_In15 |

64-point Input Unit

| Allocated CIO word |  | Signal name ( $\mathrm{CJ} / \mathrm{NJ}$ ) |
| :---: | :---: | :---: |
| CIO | Bit |  |
| Wd m (Input) | 00 | IN0/Jxx_Ch1_In00 |
|  | 01 | IN1/Jxx_Ch1_In01 |
|  | : | : |
|  | 14 | IN14/Jxx_Ch1_In14 |
|  | 15 | IN15/Jxx_Ch1_In15 |
| Wd m+1 (Input) | 00 | INO/Jxx_Ch2_In00 |
|  | 01 | IN1/Jxx_Ch2_In01 |
|  | : | : |
|  | 14 | IN14/Jxx_Ch2_In14 |
|  | 15 | IN15/Jxx_Ch2_In15 |
| Wd m+2 (Input) | 00 | IN0/Jxx_Ch3_In00 |
|  | 01 | IN1/Jxx_Ch3_In01 |
|  | : | : |
|  | 14 | IN14/Jxx_Ch3_ln14 |
|  | 15 | IN15/Jxx_Ch3_ln15 |
| Wd m+3 (Input) | 00 | IN0/Jxx_Ch4_In00 |
|  | 01 | IN1/Jxx_Ch4_In01 |
|  | : | : |
|  | 14 | IN14/Jxx_Ch4_In14 |
|  | 15 | IN15/Jxx_Ch4_In15 |

## External Interface

## 8-point/16-point Units (18-point Terminal Blocks)



## 32-point Units (Models with 40-point Fujitsu Connector or MIL Connector)



## 64-point Units (Models with Two 40-point Fujitsu Connectors or MIL Connector)



Wiring Basic I/O Units with Terminal Blocks

## Electric Wires

The following wire gauges are recommended.

| Terminal Block Connector | Wire Size |
| :---: | :---: |
| 18 -terminal | AWG 22 to $18\left(0.32\right.$ to $\left.0.82 \mathrm{~mm}^{2}\right)$ |

## Crimp terminals

Use crimp terminals (M3) having the dimensions shown below.


## I/O Unit Wiring Methods

An I/O Unit can be connected to an external device by any of the following three methods.

1. User-provided Cable

An I/O Unit can be directly connected to an external device by using a connector.


| A | User-provided cable |
| :---: | :--- |
| B | External device |
| C | Connector |

2. Connector-Terminal Block Conversion Unit

Use a Connecting Cable to connect to a Connector-Terminal Block Conversion Unit.
Converting the I/O Unit connector to a screw terminal block makes it easy to connect external devices.


| A | Connecting Cable for Connector-Terminal Block Conversion Unit <br> XW2Z |
| :---: | :--- |
| B | Connector-Terminal Block Conversion Unit <br> XW2 $\square$ |
| C | Conversion to a screw terminal block |

Conversion to a screw terminal block
3. I/O Relay Terminal

Use a Connecting Cable to connect to an I/O Relay Terminal.
The I/O specifications can be converted to relay outputs and AC inputs by connecting the I/O Relay Terminal to an I/O Unit.


| A | G79 I/O Relay Terminal Connecting Cable |
| :---: | :--- |
| B | G7 $\square \square$ I/O Relay Terminals <br> Or, conversion to relay outputs and AC inputs. |

## 1. Using User-made Cables with Connector

## Available Connectors

Use the following connectors when assembling a connector and cable.
32- and 64-point Basic I/O Units with Fujitsu-compatible Connectors
Applicable Units

| Model |  | Specifications |
| :--- | :--- | :--- |
| CJ1W-ID231 | Input Unit, 24 VDC, 32 inputs | Pins |
| CJ1W-ID261 | Input Unit, 24 VDC, 64 inputs | 40 |

Applicable Cable-side Connectors

| Connection | Pins | OMRON set | Fujitsu parts |
| :--- | :--- | :--- | :--- |
| Solder-type | 40 | C500-CE404 | Socket: FCN-361J040-AU <br> Connector cover: FCN-360C040-J2 |
| Crimped | 40 | C500-CE405 | Socket: FCN-363J040 <br> Connector cover: FCN-360C040-J2 <br> Contacts: FCNN-363J-AU |
| Pressure-welded | 40 | C500-CE403 | FCN-367J040-AU/F |

## 32- and 64-point Basic I/O Units with MIL Connectors

Applicable Units

| Model |  | Specifications |
| :--- | :--- | :---: |
| CJ1W-ID232 | Input Unit, 24 VDC, 32 inputs | Pins |
| CJ1W-ID233 | Input Unit, 24 VDC, 64 inputs | 40 |

Applicable Cable-side Connectors

| Connection | Pins | OMRON set | DDK parts |
| :---: | :--- | :--- | :--- |
| Pressure-welded | 40 | XG4M-4030-T | FRC5-A040-3T0S |

## Wire Size

We recommend using cable with wire gauges of AWG 24 or AWG $28\left(0.2 \mathrm{~mm}^{2}\right.$ to $\left.0.08 \mathrm{~mm}^{2}\right)$. Use cable with external wire diameters of 1.61 mm max.

## Crimping Tools

The following models are recommended for crimping tools and pressure-welding tools for Fujitsu connectors.
Tools for Crimped Connectors (Fujitsu Component)

| Product Name | Model |
| :--- | :--- |
| Hand Crimping Tool | FCN-363T-T005/H |
| Contact Withdrawal Tool | FCN-360T-T001/H |

Tools for Pressure-welded Connectors (Fujitsu Component)

| Product Name | Model |
| :--- | :--- |
| Hand Press | FCN-707T-T101/H |
| Cable Cutter | FCN-707T-T001/H |
| Locator Plate | FCN-367T-T012/H |

The following models are recommended for crimping tools for MIL connectors.
Tools for Crimped Connectors (OMRON)

| Product Name | Model |
| :--- | :--- |
| Crimping Tool | XY2B-0002 |
| Attachment | XY2B-1007 |

## 2．Connecting Connector－Terminal Block Conversion Units

Connection Patterns for Connector－Terminal Block Conversion Units

| Pattern | Configuration | Number of connectors | Branching |
| :---: | :---: | :---: | :---: |
| A |  | 1 | None |
| B |  |  | 2 branches |
| D |  | 2 | None |
| F |  |  | 2 branches |

Combination of I／O Units with Connector－Terminal Block Conversion Units

| Unit | I／O capacity | Number of connectors | Polarity | Connection pattern | Number of branches | Connecting Cable | Connector－Terminal Block Conversion Unit | Common terminal |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CJ1W－ID231 | 32 inputs | 1 Fujitsu connector | NPN／PNP | A | None | XW2Z－■ด口B | XW2D－40G6 | None |
|  |  |  |  | A | None | XW2Z－■ด口B | XW2D－40G6－RF＊2 | None |
|  |  |  |  | A | None | XW2Z－■ด口B | XW2B－40G5 | None |
|  |  |  |  | A | None | XW2Z－■ロロB | XW2B－40G4 | None |
|  |  |  |  | A | None | XW2Z－■ด口BU | XW2D－40C6 | None |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2D－20G6（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2B－20G5（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2B－20G4（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2C－20G6－IO16（2 Units） | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2C－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2E－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口D | XW2F－20G7－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－ロロロD | XW2N－20G8－IN16（2 Units）＊1 | Yes |


| Unit | I／O capacity | Number of connectors | Polarity | Connection pattern | Number of branches | Connecting Cable | Connector－Terminal Block Conversion Unit | Common terminal |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CJ1W－ID232 | 32 inputs | 1 MIL connector | NPN／PNP | A | None | XW2Z－■ดロK | XW2D－40G6 | None |
|  |  |  |  | A | None | XW2Z－■ดロK | XW2D－40G6－RM＊2 | None |
|  |  |  |  | A | None | XW2Z－■ด口K | XW2B－40G5 | None |
|  |  |  |  | A | None | XW2Z－■ดロK | XW2B－40G4 | None |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2D－20G6（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■पロN | XW2B－20G5（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2B－20G4（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2C－20G6－IO16（2 Units） | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2C－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■पロN | XW2E－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2F－20G7－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2N－20G8－IN16（2 Units）＊1 | Yes |
| CJ1W－ID233 | 32 inputs | 1 MIL connector | NPN／PNP | A | None | XW2Z－■ดロK | XW2D－40G6 | None |
|  |  |  |  | A | None | XW2Z－■ดロK | XW2D－40G6－RM＊2 | None |
|  |  |  |  | A | None | XW2Z－■ด口K | XW2B－40G5 | None |
|  |  |  |  | A | None | XW2Z－■ดロK | XW2B－40G4 | None |
|  |  |  |  | B | 2 | XW2Z－ดด口N | XW2D－20G6（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2B－20G5（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2B－20G4（2 Units） | None |
|  |  |  |  | B | 2 | XW2Z－■पロN | XW2C－20G6－IO16（2 Units） | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2C－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2E－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－ดด口N | XW2F－20G7－IN16（2 Units）＊1 | Yes |
|  |  |  |  | B | 2 | XW2Z－■ด口N | XW2N－20G8－IN16（2 Units）＊1 | Yes |
| CJ1W－ID261 | 64 inputs | 2 Fujitsu connectors | NPN／PNP | D | None | XW2Z－■ด口B | XW2D－40G6 | None |
|  |  |  |  | D | None | XW2Z－$\square \square \square \mathrm{B}$ | XW2D－40G6－RF＊2 | None |
|  |  |  |  | D | None | XW2Z－ดपดB | XW2B－40G5 | None |
|  |  |  |  | D | None | XW2Z－■ด口B | XW2B－40G4 | None |
|  |  |  |  | D | None | XW2Z－■ด口BU | XW2D－40C6 | None |
|  |  |  |  | F | 2 | XW2Z－ดด口D | XW2D－20G6（2 Units） | None |
|  |  |  |  | F | 2 | XW2Z－■ด口D | XW2B－20G5（2 Units） | None |
|  |  |  |  | F | 2 | XW2Z－■ด口D | XW2B－20G4（2 Units） | None |
|  |  |  |  | F | 2 | XW2Z－■ด口D | XW2C－20G6－IO16（2 Units） | Yes |
|  |  |  |  | F | 2 | XW2Z－ดด口D | XW2C－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | F | 2 | XW2Z－■ด口D | XW2E－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | F | 2 | XW2Z－■ด口D | XW2F－20G7－IN16（2 Units）＊1 | Yes |
|  |  |  |  | F | 2 | XW2Z－■ด口D | XW2N－20G8－IN16（2 Units）＊1 | Yes |
| CJ1W－ID262 | 64 inputs | 2 MIL connectors | NPN／PNP | D | None | XW2Z－■ดロK | XW2D－40G6 | None |
|  |  |  |  | D | None | XW2Z－■ดロK | XW2D－40G6－RM＊2 | None |
|  |  |  |  | D | None | XW2Z－■ดロK | XW2B－40G5 | None |
|  |  |  |  | D | None | XW2Z－■ดロK | XW2B－40G4 | None |
|  |  |  |  | F | 2 | XW2Z－ดด口N | XW2D－20G6（2 Units） | None |
|  |  |  |  | F | 2 | XW2Z－■पロN | XW2B－20G5（2 Units） | None |
|  |  |  |  | F | 2 | XW2Z－$\square \square \square \mathrm{N}$ | XW2B－20G4（2 Units） | None |
|  |  |  |  | F | 2 | XW2Z－■ด口N | XW2C－20G6－IO16（2 Units） | Yes |
|  |  |  |  | F | 2 | XW2Z－■ด口N | XW2C－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | F | 2 | XW2Z－■ด口N | XW2E－20G5－IN16（2 Units）＊1 | Yes |
|  |  |  |  | F | 2 | XW2Z－■ดロN | XW2F－20G7－IN16（2 Units）＊1 | Yes |
|  |  |  |  | F | 2 | XW2Z－ดपロN | XW2N－20G8－IN16（2 Units）＊1 | Yes |

＊1．The inputs are NPN．For PNP inputs，reverse the polarity of the external power supply connections to the power supply terminals on the Connector－Terminal Block Conversion Unit．
＊2．Bleeder resistance（ $5.6 \mathrm{k} \Omega$ ）is built in．

Types of Connecting Cables

| Cable lenght | XW2Z-■ $\square$ | XW2Z-■ ${ }^{\text {a }}$ | XW2Z-पПBU | XW2Z-■D | XW2Z-■]L | XW2Z-D] |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0.25 m | - | - | - | - | - | - |
| 0.5 m | XW2Z-050A | XW2Z-050B | XW2Z-050BU | - | - | XW2Z-C50X |
| 1.0 m | XW2Z-100A | XW2Z-100B | XW2Z-100BU | XW2Z-100D | XW2Z-100L | XW2Z-100X |
| 1.5 m | XW2Z-150A | XW2Z-150B | XW2Z-150BU | XW2Z-150D | XW2Z-150L | - |
| 2.0 m | XW2Z-200A | XW2Z-200B | XW2Z-200BU | XW2Z-200D | XW2Z-200L | XW2Z-200X |
| 3.0 m | XW2Z-300A | XW2Z-300B | XW2Z-300BU | XW2Z-300D | XW2Z-300L | XW2Z-300X |
| 5.0 m | XW2Z-500A | XW2Z-500B | XW2Z-500BU | XW2Z-500D | XW2Z-500L | XW2Z-500X |
| 10.0 m | XW2Z-010A | XW2Z-010B | - | XW2Z-010D | XW2Z-010L | XW2Z-010X |
| 15.0 m | XW2Z-15MA | XW2Z-15MB | - | XW2Z-15MD | XW2Z-15ML | - |
| 20.0 m | XW2Z-20MA | XW2Z-20MB | - | XW2Z-20MD | XW2Z-20ML | - |

## 3. Connecting I/O Relay Terminals

## Connection Patterns for I/O Relay Terminals

| Pattern | Configuration |
| :---: | :---: |
| A |  |
| B |  |

Combination of I/O Units with I/O Relay Terminal and Connecting Cables

| Model | I/O points | Number of connectors | Polarity | Connection pattern | Number of branches | Connecting Cable | I/O Relay Terminal |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CJ1W-ID231 | 32 inputs | 1 Fujitsu connector | NPN | A | 2 | G79-I $\square \mathrm{C}-\square$ | G7TC-ID16 |
|  |  |  |  | A | 2 | G79-I $\square \mathrm{C}-\square$ | G7TC-IA16 |
| CJ1W-ID232 | 32 inputs | 1 MIL connector | NPN | A | 2 | G79-O■-■-D1 | G7TC-ID16 |
|  |  |  |  | A | 2 | G79-O■-■-D1 | G7TC-IA16 |
| CJ1W-ID233 | 32 inputs | 1 MIL connector | NPN | A | 2 | G79-O■-■-D1 | G7TC-ID16 |
|  |  |  |  | A | 2 | G79-OD-■-D1 | G7TC-IA16 |
| CJ1W-ID261 | 64 inputs | 2 Fujitsu connectors | NPN | B | 2 | G79-I $\square \mathrm{C}-\square$ | G7TC-ID16 |
|  |  |  |  | B | 2 | G79-1■C- $\square$ | G7TC-IA16 |
| CJ1W-ID262 | 64 inputs | 2 MIL connectors | NPN | B | 2 | G79-OD-■-D1 | G7TC-ID16 |
|  |  |  |  | B | 2 | G79-OD-■-D1 | G7TC-IA16 |

## Types of Connecting Cables

| Cable lenght | G79-■C | G79-IロC | G79-I $\square$ C- $\square$ | G79-O $\square$ C | G79-O $\square$ C- $\square$ | G79-OD-■-D1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0.25m | - | G79-I25C | - | G79-O25C | - | - |
| 0.5 m | - | G79-I50C | - | G79-O50C | - | G79-O50-25-D1 |
| 1.0 m | G79-100C | - | G79-1100C-75 | - | G79-O100C-75 | G79-O75-50-D1 |
| 1.5 m | G79-150C | - | G79-I150C-125 | - | G79-O150C-125 | - |
| 2.0 m | G79-200C | - | G79-I200C-175 | - | G79-O200C-175 | - |
| 3.0 m | G79-300C | - | G79-I300C-275 | - | G79-O300C-275 | - |
| 5.0 m | G79-500C | - | G79-1500C-475 | - | G79-O500C-475 | - |

## Dimensions

8-point/16-point Units (18-point Terminal Blocks)
CJ1W-ID201
CJ1W-ID211
CJ1W-ID212
CJ1W-IA201
CJ1W-IA111


## 32-point Units (Input Units)

With Fujitsu-compatible Connector (40-pin $\times 1$ )
CJ1W-ID231


With MIL Connector (40-pin $\times 1$ )
CJ1W-ID232
CJ1W-ID233


## 64-point Units (Input Units)

With Fujitsu-compatible Connector (40-pin $\times 2$ )
CJ1W-ID261


With MIL Connector (40-pin $\times 2$ )

## CJ1W-ID262



## Related Manuals

| Name | Cat. No. | Contents |
| :---: | :---: | :---: |
| CJ-series CJ2 CPU Unit Hardware User's Manual CJ2H-CPU6■-EIP CJ2H-CPU6 CJ2M-CPU | W472 | Describes the following for CJ2 CPU Units: <br> - Overview and features <br> - Basic system configuration <br> - Part nomenclature and functions <br> - Mounting and setting procedure <br> - Remedies for errors <br> - Also refer to the Software User's Manual (W473). |
| SYSMAC CJ Series <br> CJ1H-CPU $\square \square H-R, C J 1 G / H-C P U \square \square H, ~ C J 1 G-C P U \square \square P, ~$ <br> CJ1G-CPU $\square$ , CJ1M-CPU $\square$ <br> Programmable Controllers Operation Manual | W393 | Provides an outlines of and describes the design, installation, maintenance, and other basic operations for the CJ-series PLCs. |
| NJ-series CPU Unit Hardware User's Manual NJ501- | W500 | An introduction to the entire NJ -series system is provided along with the following information on a Controller built with an NJ501 CPU Unit. <br> - Features and system configuration <br> - Introduction <br> - Part names and functions <br> - General specifications <br> - Installation and wiring <br> - Maintenance and inspection <br> Use this manual together with the NJ-series CPU Unit Software User's Manual (Cat. No. W501). |

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[^0]:    * The ON response time will be $20 \mu$ s maximum and OFF response time will be $400 \mu \mathrm{~s}$ maximum even if the response times are set to 0 ms due to internal element delays.
    Note: Observe the following restrictions when connecting to a 2-wire sensor.
    - Make sure the input power supply voltage is larger than the ON voltage ( 19 V ) plus the residual voltage of the sensor (approx. 3 V ).
    - Use a sensor with a minimum load current of 3 mA min.
    - Connect bleeder resistance if you connect a sensor with a minimum load current of 5 mA or higher.

[^1]:    * The ON response time will be $15 \mu$ s maximum and OFF response time will be $90 \mu \mathrm{~s}$ maximum even if the response times are set to 0 ms due to internal element delays.
    Note: Observe the following restrictions when connecting to a 2-wire sensor.
    - Make sure the input power supply voltage is larger than the ON voltage ( 19 V ) plus the residual voltage of the sensor (approx. 3 V ).
    - Use a sensor with a minimum load current of 3 mA min.
    - Connect bleeder resistance if you connect a sensor with a minimum load current of 5 mA or higher.

[^2]:    * The ON response time will be $120 \mu$ s maximum and OFF response time will be $400 \mu \mathrm{~s}$ maximum even if the response times are set to 0 ms due to internal element delays.
    Note: Observe the following restrictions when connecting to a 2 -wire sensor.
    - Make sure the input power supply voltage is larger than the ON voltage ( 19 V ) plus the residual voltage of the sensor (approx. 3 V ).
    - Use a sensor with a minimum load current of 3 mA min.
    - Connect bleeder resistance if you connect a sensor with a minimum load current of 5 mA or higher.

