

# Downsize your control panels

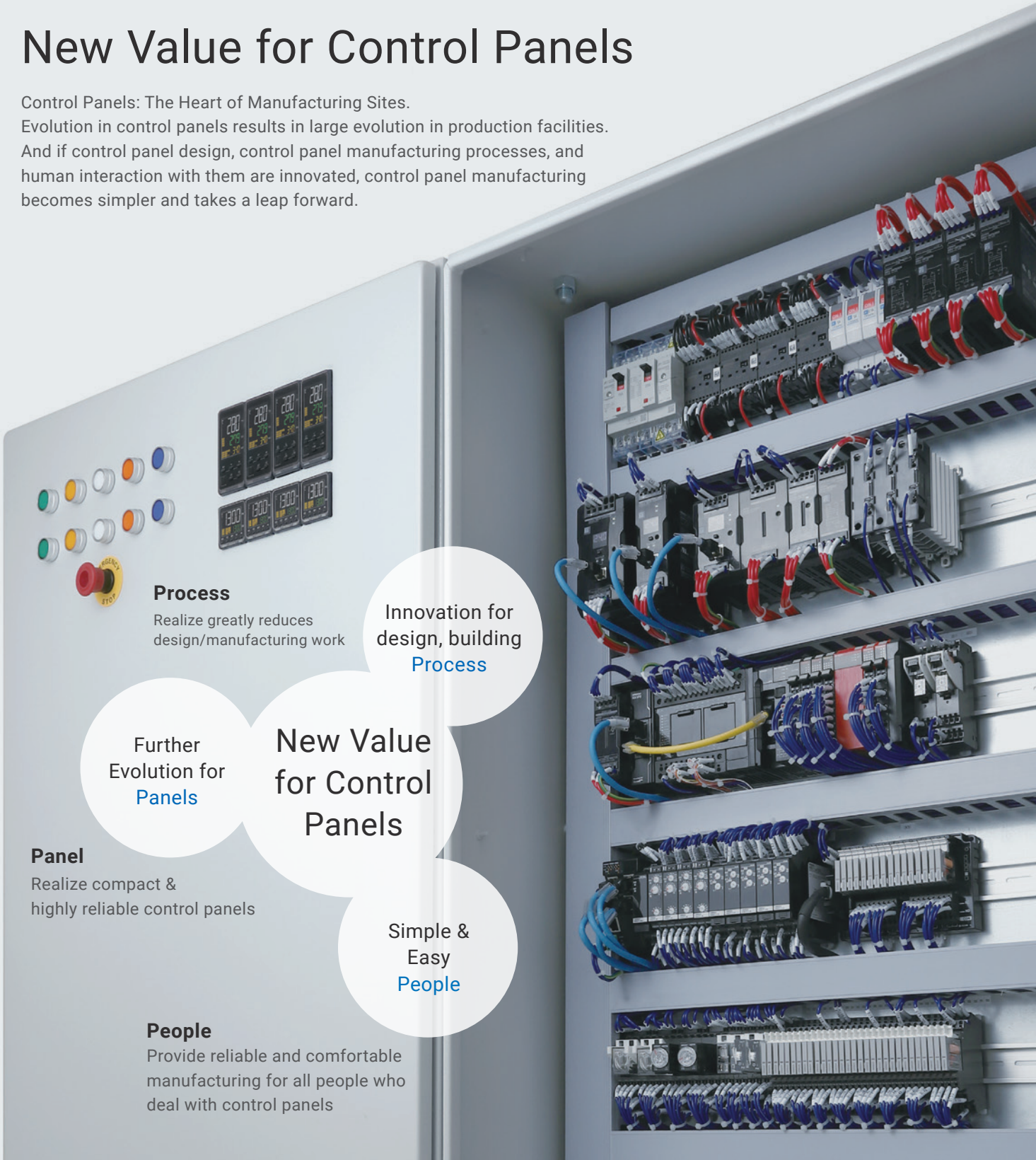


# New Value for Control Panels

Control Panels: The Heart of Manufacturing Sites.

Evolution in control panels results in large evolution in production facilities.

And if control panel design, control panel manufacturing processes, and human interaction with them are innovated, control panel manufacturing becomes simpler and takes a leap forward.



## Process

Realize greatly reduces design/manufacturing work

Innovation for design, building  
Process

Further Evolution for  
Panels

New Value for Control  
Panels

## Panel

Realize compact & highly reliable control panels

Simple & Easy  
People

## People

Provide reliable and comfortable manufacturing for all people who deal with control panels



## Innovation for Control Panels Building with Value Design




Our shared concept for the specifications of products used in control panels, "Value Design for Panel" (herein after referred to as Value Design) will create new value to our customer's control panels. Combining multiple products that share the Value Design concept will further increase the value provided to control panels.



# Overwhelming Line up That Innovates Your Control Panel Manufacturing



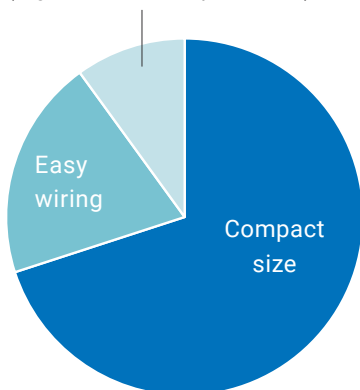
## New Interface wiring system products that let you save even more in-panel space

<p><b>NEW</b></p> <p>Ultra-Compact Interface Wiring System</p> 	<p><b>NEW</b></p> <p>Ultra-Compact Interface Wiring System (Integrated Common Terminal Type)</p> 	<p><b>NEW</b></p> <p>Ultra-Compact Common Terminal Blocks (for Sensor Power Supply)</p> 
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## Resolves issues in downsizing interface wiring system

Customer requirements for wiring system

PLC compliance (organized address placement)



\* According to OMRON investigation in March 2022

**Previous** Screw-type wiring system

- Equipment needs to be enhanced but not enough space is available for additional devices (all industries)
- Ancillary equipment that can be retrofitted to existing equipment always come with space restrictions (all industries)
- Compact equipment required to improve production efficiency per unit area (especially in semiconductor industry)

**NEW** XW2K series

- Can be mounted vertically on DIN rail to reduce width by 70%, making space for parts that provide additional functions
- A single model can be mounted in two directions (vertical and horizontal), allowing for effective use of existing space to enable panel downsizing

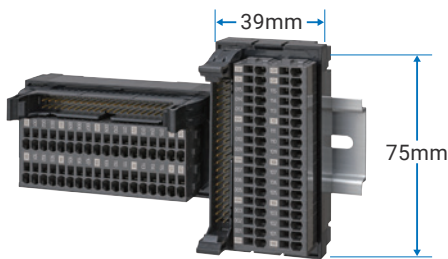
# Saving Space and More-advanced Control Panels

The interface wiring system of the smallest size industry\*1 help delivering more compact control panels with additional functionality.



## Smallest size in industry\*1 and 2-way vertical/horizontal mounting feature allow for effective use of space

XW2K Value Design for Panel interface wiring system are the smallest in the industry and can be mounted both vertically and horizontally (2-way mounting feature). This reduces dead space, allowing you to downsize your control panel and enhance your equipment while maintaining its size.



Smallest in industry\*1

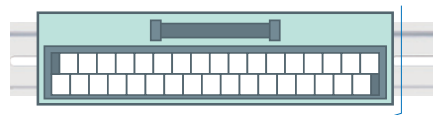
2-way mounting

Can be mounted vertically or horizontally, according to location

\*1. According to OMRON investigation in March 2022

Previous

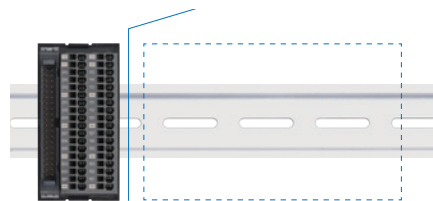
Screw  
(7 mm pitch)



Approximately 70% less space

XW2K

Push-In Plus  
(3.5 mm pitch)  
vertical mount



### Not enough space in height direction

Horizontal mount: Save vertical space by installing the wiring system only

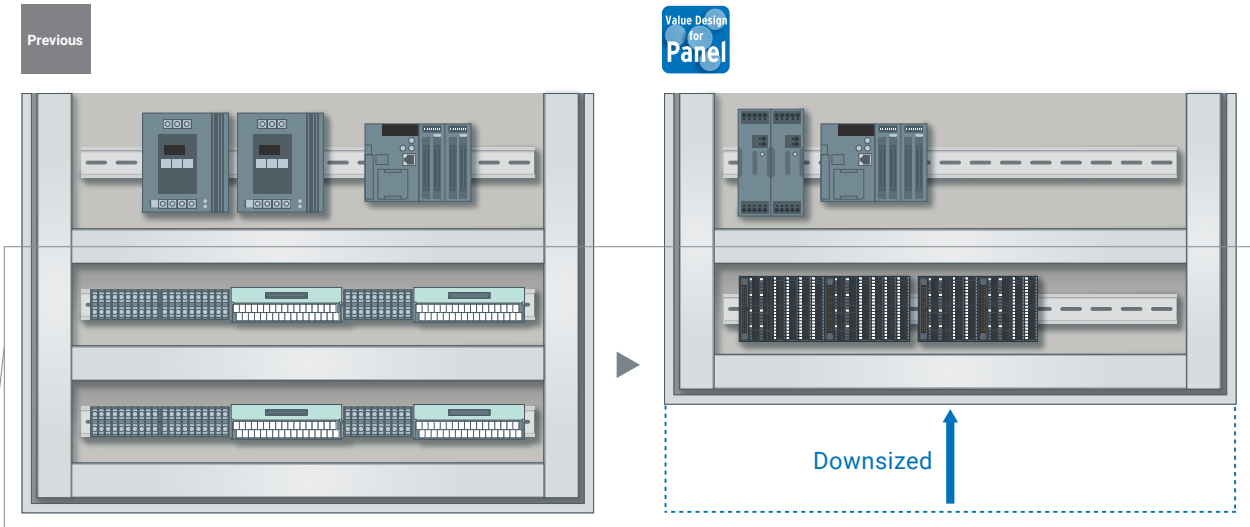


### Not enough space in width direction

Vertical mount: Save horizontal space by installing in same row as other devices



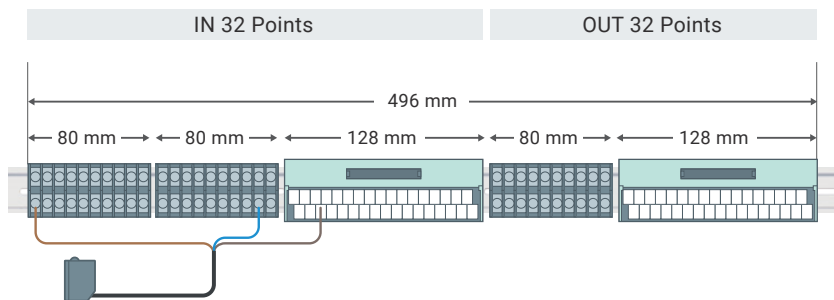
# Space-saving example (switching from screw wiring system)



Previous

Screw-type wiring system  
Requires significant horizontal space

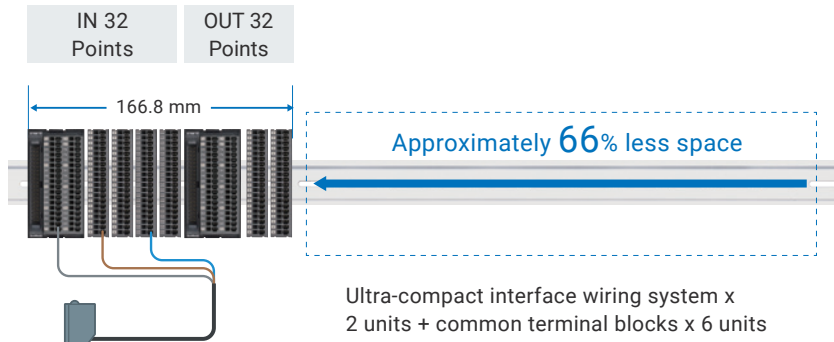
Note: 32 input points and 32 output points



XW2K

**Ultra-compact interface wiring system**

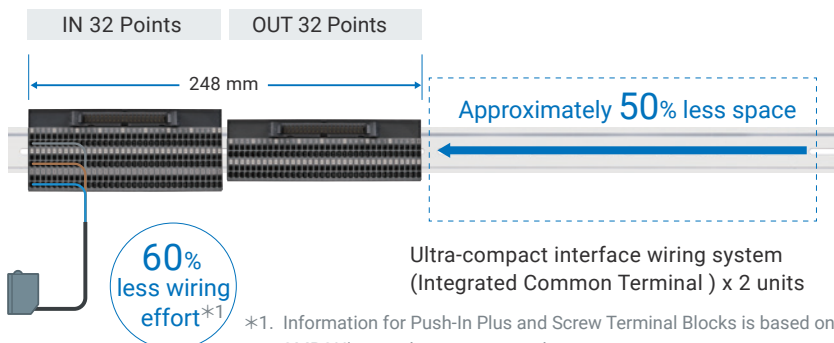
Flexibly minimize space consumption by combining with common terminal blocks



XW2K

**Ultra-compact interface wiring system (Integrated common terminal type)**

Save both space and wiring effort (no need to strip sensor lines)



\*1. Information for Push-In Plus and Screw Terminal Blocks is based on OMRON's actual measurement data



# Shortening Lead Time for Control Panel Building

Web selection tool and unique product specifications, accelerating an entire process of control panel manufacturing.

## Issues on control panels process

Our response is required to meet customer needs by increasing process speed...

### Design

## eCAD library provided for all models greatly reduces design work

OMRON provides the libraries for over 48,000 models\*1, highest in the industry, to achieve the great reduction of works for electrical design drawing and data creation.

Up to  
**50%**\*2

Value Design  
for  
Panel

\*1. In the case of EPLAN, based on OMRON's investigation as of 2020 December  
\*2. In the case of ZUKEN E3 series

### eCAD Partners

By cooperating with various partners, we offer you more choices for your eCAD solutions.

E3.series is a product name of Zuken Inc. for their Electrical and Control Cable Design Solution.  
EPLAN is a registered trademark of EPLAN Software & Service GmbH & Co. KG.



Zuken Inc.

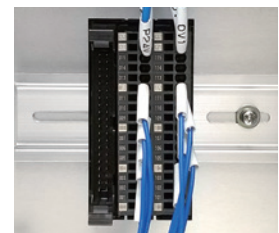
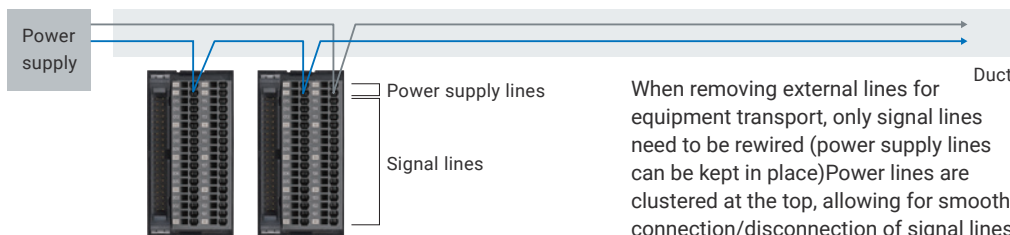


EPLAN

### Assembly/Wiring

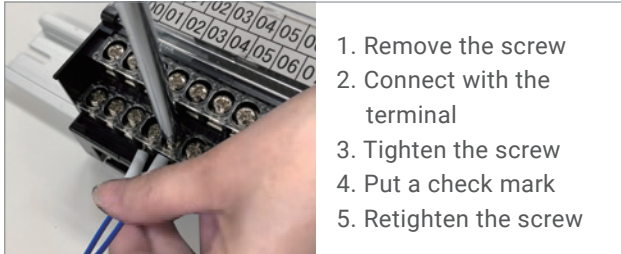
## Reduce wiring by passing over power supply using common terminal provided for device power supply

Specialized board separates signal / power supply lines for easier wiring.

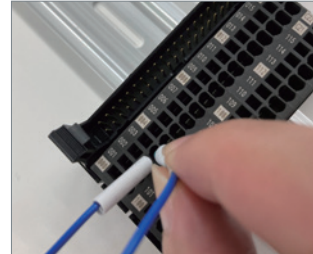


Reduction of approx. 60%\*1

## Push-In Plus technology requires only a single step, greatly reducing wiring work



1. Remove the screw
2. Connect with the terminal
3. Tighten the screw
4. Put a check mark
5. Retighten the screw



1. Insert the terminal

**Previous** A lot of steps are required to complete wiring for the screw terminal...

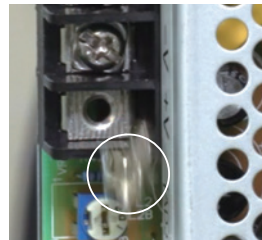
**Value Design for Panel** Push-In Plus technology completes by a single step

\*1. Information for Push-In Plus and Screw Terminal Blocks is based on OMRON's actual measurement data

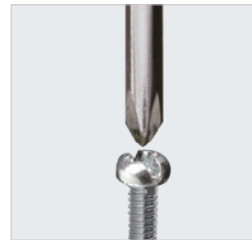
### Shipment/Operation

## No need for retightening, even when vibration is applied on terminals

The pressure of the clamp spring holds the ferrule or wire securely with Push-In Plus technology, eliminating worries about screws loosening or disconnection due to vibration.



**Previous** The screw is loosened and dropped by vibration...



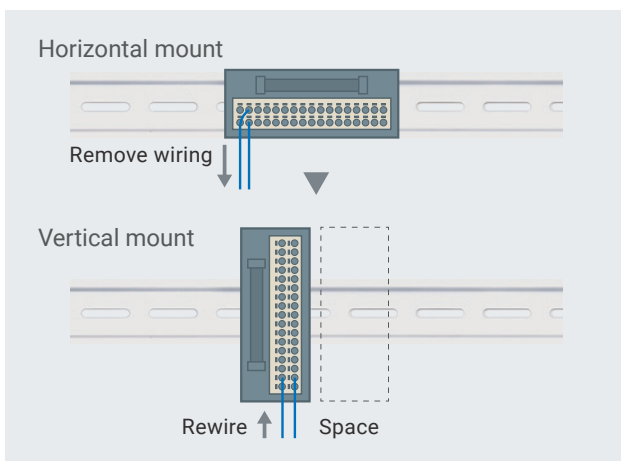
Retightening is needed before export and shipment...



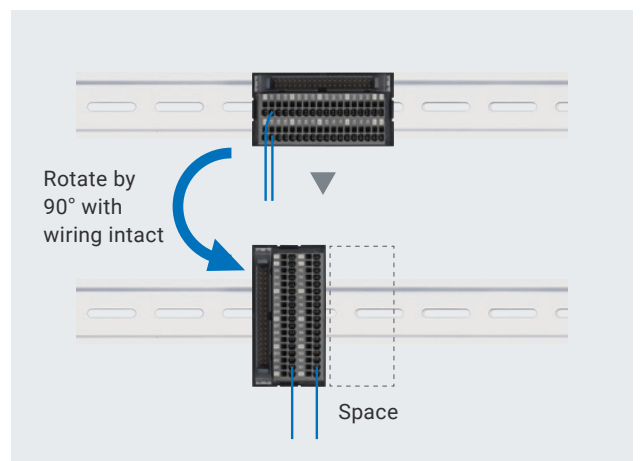
**Value Design for Panel** No drop-off or retightening of screws

## Make space for additional I/O just by rotating XW2K

Space can be made for additional terminal blocks without rewiring a vertical mount terminal block.



**Previous** Requires wiring removal and rewiring of vertical mount terminal block



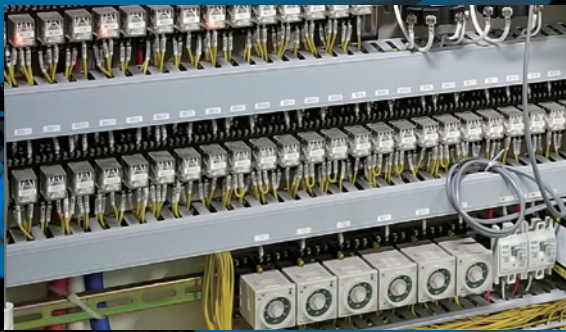
**XW2K** A single model allows for 2-way mounting, eliminating need for rewiring

# Reducing Wiring Work

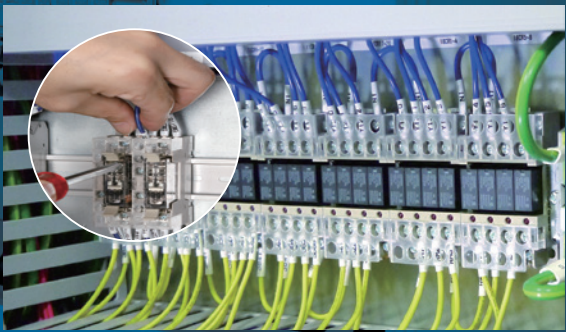
Push-In Plus technology and Front-in / Front-release Wiring allow wiring work easier and speedier.

## Issues on control panels wiring

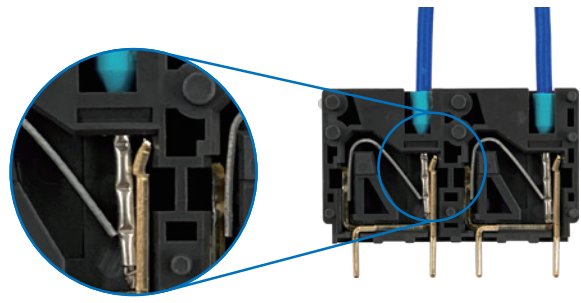
Increasing devices in accordance with more advanced control panels require much time for wiring with screw terminals...



Screw terminals, which require wiring in vertical direction, will impose workers additional hassle for caring wiring order...



## Push-In Plus technology with both reliability and ease of insertion



IEC standard*1	Push-In Plus*2	Screw *2
20 N min.	125 N	112 N

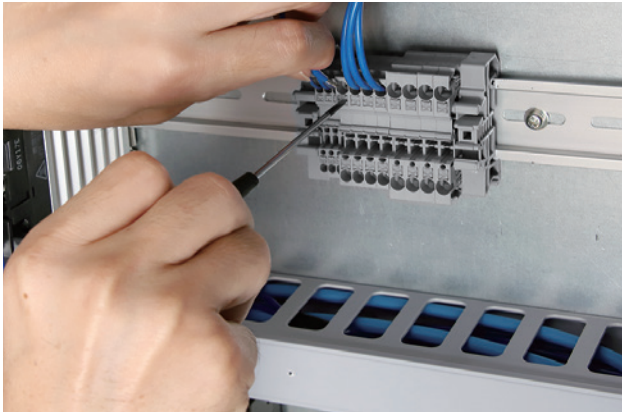
OMRON's Push-In Plus technology is as easy as inserting to an earphone jack. This reduces the load on workers.

Even though less insertion force is required, the wires are held firmly in place by a unique spring structure that ensures reliability.

\*1. In the case that a cable diameter is AWG20, 0.5 mm<sup>2</sup> \*2. OMRON's actual measurement value data.



## Easy wiring with both hands for stranded wires with holding screwdriver



Previous

One hand wiring with the other hand holding the screwdriver...



Stranded wires, single wires, and Ferrules are supported

Value Design for Panel

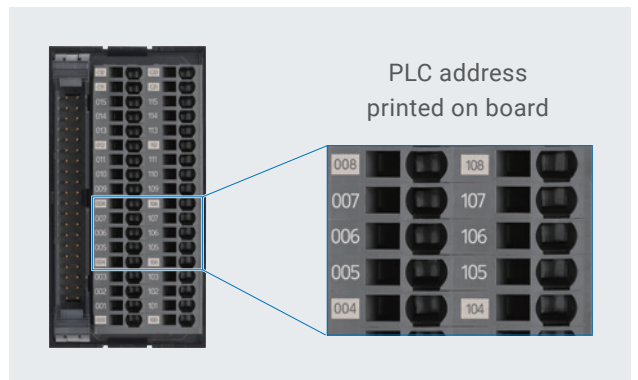
Wiring with both hands, because the screwdriver is held in the release hole

## Terminals lined up in a way that is easy to understand, making wiring easier

Terminals, each labeled with its PLC address, are organized from left to right on a specialized board, enabling the same work efficiency for different PLCs (supports PLCs manufactured by OMRON, Mitsubishi Electric, Keyence, Yokogawa Electric, Hitachi Industrial Equipment Systems, and Fuji Electric).

Note. Caution must be exercised when connecting to Yokogawa Electric, Hitachi Industrial Equipment Systems, and Fuji Electric PLCs. The PLC addresses are aligned from the left. However, the PLC addresses printed on the top surface of the terminal block are shown by the representative manufacturer.

- For Yokogawa Electric and Hitachi Industrial Equipment System PLCs ⇒ Address notation for Omron PLCs
- For Fuji Electric PLC ⇒ Address notation for Mitsubishi Electric PLC



PLC address printed on board

Address numbers printed in white outline to enable easy wiring and counting

## Wiring system can be mounted/removed without tools, making wiring easier even when installed in places that are difficult to access

Terminal blocks mounted on the side of the panel were often difficult to wire. XW2K can be removed, without tools, and easily wired while held in your hand.



# Selections

## Ultra-Compact Interface Wiring System (For PLC Connection)



Applicable PLCs	Circuit	I/O Points	Model	Dimension W×H×D (mm)	
				Vertical mount	Horizontal mount
OMRON, Yokogawa Electric, Hitachi Industrial Equipment Systems	Circuit pattern A	32 Points	XW2K-40G-032A	39×75×40.8	75×39×40.8
	Circuit pattern B		XW2K-40G-032B		
	Circuit pattern C		XW2K-40G-032C		
Mitsubishi Electric, Fuji Electric	Mixed I/O		XW2K-40G-M32		
KEYENCE	Mixed I/O		XW2K-34G-K32		

## Ultra-Compact Interface Wiring System (For PLC Connection • Integrated Common Terminal Type)



Applicable PLCs	Circuit	I/O Points	Model	Dimension W×H×D (mm)	
				Vertical mount	Horizontal mount
OMRON	Input	16 Points	XW2K-20G-016A-IN	52.7×75×40.8	75×52.7×40.8
	Output		XW2K-20G-016B-OUT	39×75×40.8	75×39×40.8
OMRON, Yokogawa Electric, Hitachi Industrial Equipment Systems	Input(Circuit pattern A)	32 Points	XW2K-40G-032A-IN	52.7×124×40.8	124×52.7×40.8
	Input(Circuit pattern C)		XW2K-40G-032C-IN		
	Output(Circuit pattern B)		XW2K-40G-032B-OUT	39×124×40.8	124×39×40.8
	Output(Circuit pattern C)		XW2K-40G-032C-OUT		
Mitsubishi Electric, Fuji Electric	Input		XW2K-40G-M32-IN	52.7×124×40.8	124×52.7×40.8
	Output		XW2K-40G-M32-OUT	39×124×40.8	124×39×40.8
KEYENCE	Input	XW2K-34G-K32-IN	52.7×124×40.8	124×52.7×40.8	
	Output	XW2K-34G-K32-OUT	39×124×40.8	124×39×40.8	

## Ultra-Compact Interface Wiring System (General-Purpose)



Circuit	Connector poles	Model	Dimension W×H×D (mm)	
			Vertical mount	Horizontal mount
Straight wiring(1:1 Circuit)	20 poles	XW2K-20G-T	39×56×40.8	56×39×40.8
	34 poles	XW2K-34G-T	39×75×40.8	75×39×40.8
	40 poles	XW2K-40G-T	39×75×40.8	75×39×40.8
	50 poles	XW2K-50G-T	39×92.5×40.8	92.5×39×40.8

## Ultra-Compact Common Terminal Blocks (For Sensor Power Supply)



Connector poles	Application	Model	Dimension W×H×D (mm)	
20 poles	For + common	XW2K-COM20P	14.8×75×29.4	
	For - common	XW2K-COM20N		
	+/- mix	XW2K-COM20		

Note. It is a small model that is ideal for sensor power supply, but it can also be used for uses other than sensor power supply (e.g. AC circuit).

### ■Applicable PLCs

- OMRON: CS, CJ and NX series
- Mitsubishi Electric: MELSEC L, Q and iQ-R series
- KEYENCE: KV-1000, 3000, 5000, 5500 and Nano series
- Yokogawa Electric: FA-M3 series
- Hitachi Industrial Equipment Systems: EH-150/EHV series
- Fuji Electric: MICREX-SX series

Note: For compliant PLC unit models and other information, refer to the XW2K Ultra-Compact Interface wiring system Datasheet (catalog no. G152-E1).

## Wiring models other than Push-In Plus models also available

Circuit Wiring method	For PLC Connection	For PLC Connection Integrated Common Terminal Type	Units for General-purpose
Push-In Plus	XW2K 	XW2K 	XW2K 
Phillips screws (with M3 Screws)	XW2R-J 	XW2C 	XW2D 
Slotted screws (rise up)	XW2R-E 	—	XW2R-E 
e-CON	—	XW2R-N 	—

Connecting Cables for wiring system  
Conversion Units (Shielded)  
XW2Z

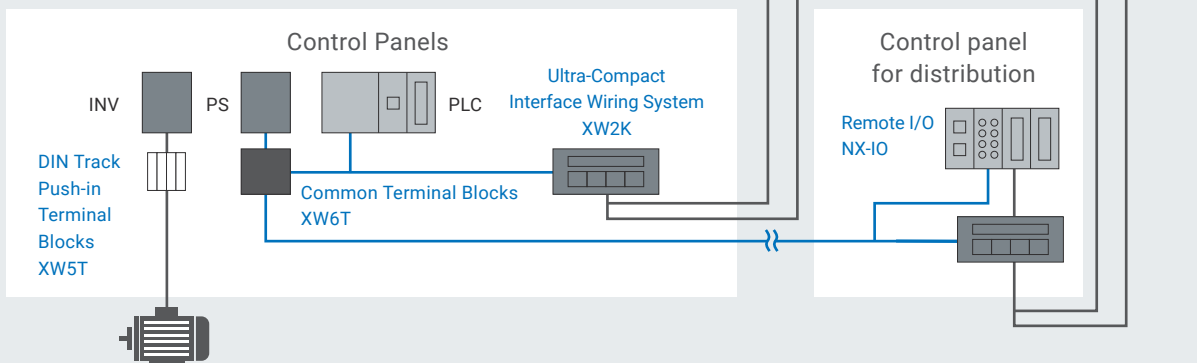


Connecting Cables for wiring system  
Conversion Units (Unshielded)  
XW2Z-L



## Other ways you can save in-panel space

For large equipment with sensors located far from the control panel and many I/O points, we recommend the use of remote I/O. You can save even more space and wiring effort by replacing common terminals blocks for power distribution installed inside the control panel and relay terminal blocks for external lines with push-in models.



## OMRON's wide variety of products compliant with the "Value Design for Panel" concept



Common Terminal Blocks  
XW6T

Cat. No.G139-E1



DIN Track Push-in Terminal Blocks  
XW5T

Cat. No.G123-E1



NXseries I/O system

Cat. No.R183-E1





## New Value for Control Panels

Cat. No. Y218-E1

Omron's control panel solutions revolutionize control panel building. This catalog provides recommendations to help you resolve issues in control panel building, customer use case examples, and other content to alleviate any concerns you may have in adopting our solutions.

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