



# OMRON CONNECTOR SELECTION



# OMRON Connectors: A Perfect Match for Your Requirements

OMRON's PCB Connectors enable high-density mounting and high reliability with a lineup that includes Flat Cable Connectors, D-Sub Connectors, DVI Connectors, as well as Terminal Blocks for Printed Circuit Boards.

Let OMRON handle your connector needs. You will find a model that perfectly matches your requirements.

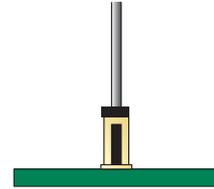
## Board to FPC/FFC Connectors

### Connection examples

- XF2M
- XF2W
- XF2J



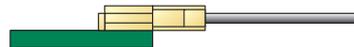
Side entry



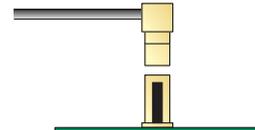
Top entry

## Board to Wire Connectors

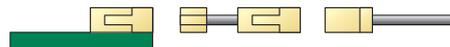
- XG2
- XG4
- XG5
- XG8
- XW4A/B/E



Horizontal connection



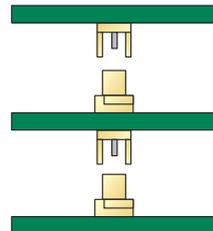
Vertical connection



Relay connection

## Board to Board Connectors

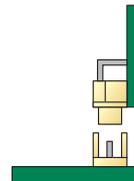
- XH3
- XH4
- XC4
- XC5
- XC6
- XC7



Stacking connections



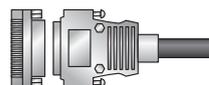
Horizontal connection



Vertical connection

## External Connectors

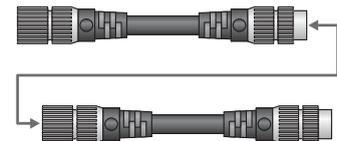
- XM2/3/4
- XM4M
- XM7
- XM2
- XS5
- XS2
- XS3
- XW3D
- XS5/6
- XW2B/C/D/E
- XW2F/N
- XW2Z



Interfaces



Cables with connectors on one end



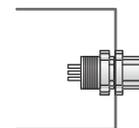
Relay connection



Cables with connectors on both ends



Assembly connectors



Panel-mounting connectors

# Connector Selection

## Application examples

Displays and connection inside various devices for consumer, business, and industrial use.

Home electrical appliances (e.g., washing machines and coffee makers).

Security (e.g., monitoring cameras and access control).

Industrial devices (e.g., touch panels and controllers).

Power meters.

Fish detectors.

Healthcare devices (e.g., blood glucose level meters).



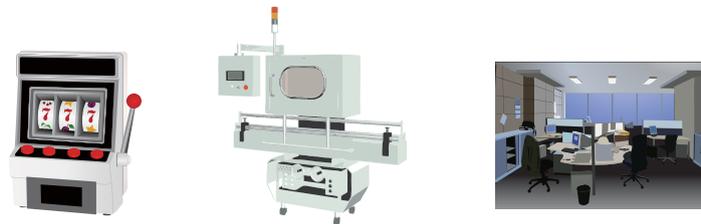
All types of industrial devices (e.g., robots, machine tools, and board computers).

Amusement devices.

Building automation.

Security.

LED display devices.



Measurement devices (e.g., oscilloscopes and testers).

Medical devices (e.g., X-ray equipment and ultrasonography diagnostic equipment).

PLCs and motor controllers.

Communications devices (e.g., base stations and switching equipment).

Servers and computers.



All types of industrial sensors, such as photoelectric sensors, proximity sensors, and rotary encoders.

Solenoid valves.

PLCs and network controllers.

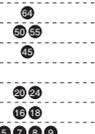
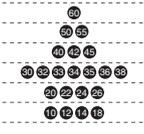
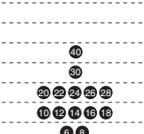
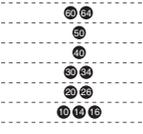
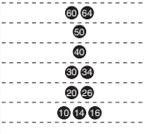
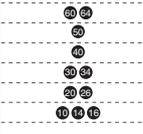
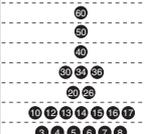
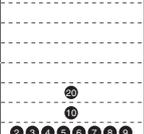
Touch panels and monitors.

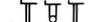
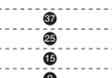
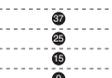
All types of industrial devices (e.g., robots, machine tools, and manufacturing machines).

Control panels and all types of manufacturing equipment (e.g., semiconductors, electronic components, FPDs, automobiles, machining processes, conveying, and packaging).



# Comprehensive Lineup of OMRON Connectors

Application		Boards to FPC/FFC Connections			Board to Wire Connections				
Classification		FPC/FFC Connectors			Flat Cable Connectors			PCB Terminal Blocks	
Model		XF2W	XF2M	XF2J	XG4	XG2	XG5M/N	XG8	XW4A/B/E
Type		Side-entry	Side-entry	Top-entry	Flat Cable	Flat Cable	Discrete Wire	Original Plugs	PCB Terminal Blocks and Connector Terminal Blocks
Appearance		 For FPC/FFC	 For FPC/FFC	 For FPC					
Contact pitch		0.5 mm	0.5 mm	0.5 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	
Terminal shape									
Applicable FPC/FFC thickness and applicable wire		0.3±0.05 mm	0.3±0.05 mm	0.3±0.05 mm	Flat cable with 1.27-mm pitch (AWG28)	Flat cable with 1.27-mm pitch (AWG28)	Discrete wires of AWG24, AWG26, or AWG28	—	—
International standards		—	—	—	UL (for some models)	—	UL/cUL (for some models)	UL (for some models)	UL/cUL (for some models)
No. of contacts									

Application		External Connections							
Classification		D-Sub Connectors			DVI Connectors	USB Connectors	e-CON Connectors	Round Water-resistant Connectors	
Model		XM3	XM2S	XM2-L/XM3-L	XM4K/L	XM4M	XM7	XN2	XS5
Type		Shielded-type	—	Shielded-type	Shielded-type	Sockets with Right-angle DIP Terminals	Sockets with DIP Terminals	Easy-wire Connectors for Industrial Components	M12 Smartclick
Appearance									
Contact pitch		2.74 mm, 2.76 mm	—	2.77 mm	2.29 mm	—	2.0 mm, 2.5 mm	2.0 mm	—
Terminal shape			—					—	
Applicable wires		AWG22 max.	—	—	—	—	—	0.08 to 0.5 mm <sup>2</sup> (AWG28 to AWG20)	0.18 to 0.75 mm <sup>2</sup>
International standards		UL/cUL	—	UL (for some models)	UL (for some models)	—	—	UL/cUL (for some models)	UL/cUL (for some models)
No. of contacts									

Terminal shape  Straight DIP terminals  Right-angle DIP terminals  Wrapping terminals  Solder cup terminals

Board to Board Connections							
Half-pitch Connectors		DIN Connectors					
XH3	XH4A	XC5	XC5	XC5	XC6	XC7	XC4
—	—	Twin-contact-type (DIN-standard)	Twin-contact-type (DIN-style)	Fine-fit W-pin-type	Cable-connected-type	Sequence-type	Mid-current and High-current-type
1.27 mm	1.27 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	5.08 mm
					(W)		
—	—	—	—	—	Flat cable with 1.27-mm pitch (AWG28) or flat cable with 0.847-mm pitch (AWG30) and discrete wires of AWG24, AWG26, or AWG28.	—	—
UL (for some models)	UL (for some models)	UL/CSA	UL/CSA	UL	—	—	UL

External Connections							Other Applications	
Round Water-resistant Connectors			Industrial Ethernet Connectors	Terminal Block Conversion Units			IC Sockets	Jumper Plugs
XS2	XS3	XW3D	XS5/6	XW2B/C/D/E	XW2F/N	XW2Z	XR	XJ8/XG8S/XG8T
M12	M8	Relay Boxes	M12 and RJ45	Connectors with Screws-type	Clamp and e-CON	Special Cables	Round Pin Sockets, Round Pin Clamps, and Shrink-type	One-row Plugs, Two-row Plugs, and Three-row Plugs
—	—	—	—	7 mm, 7.5 mm	5.08 mm	—	2.54 mm, 1.778 mm	2.54 mm
Connectors with cables, screw wiring	—	—	—	Round terminals or Y terminals	Ferrules or e-CON	—		
0.18 to 0.75 mm <sup>2</sup>	—	—	—	AWG22 to AWG16	AWG24 to AWG14	—	—	—
UL/cUL (for some models)	—	—	UL/cUL (for some models)	UL/cUL (for some models)	—	UL/cUL (for some models)	UL (for some models)	UL (for some models)

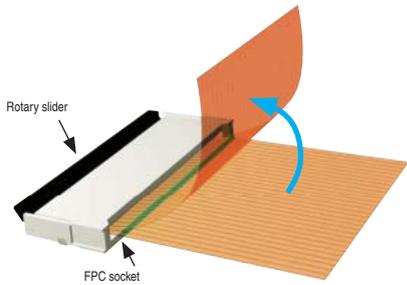
Crimp contacts    
 Solder-free straight terminals    
 Solder-free wrapping terminals    
 SMT terminals    
 Crimp contacts

## Wide Variety Ranging from Locking Connectors to the N-ZIF

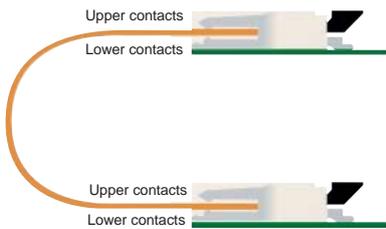
### XF2-series FPC/FFC Connectors

#### ■ Features of Rotary Backlock Mechanism

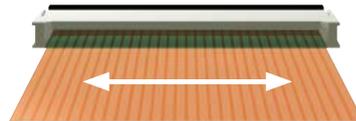
**1** The rotary latch does not release even if the FPC is lifted.



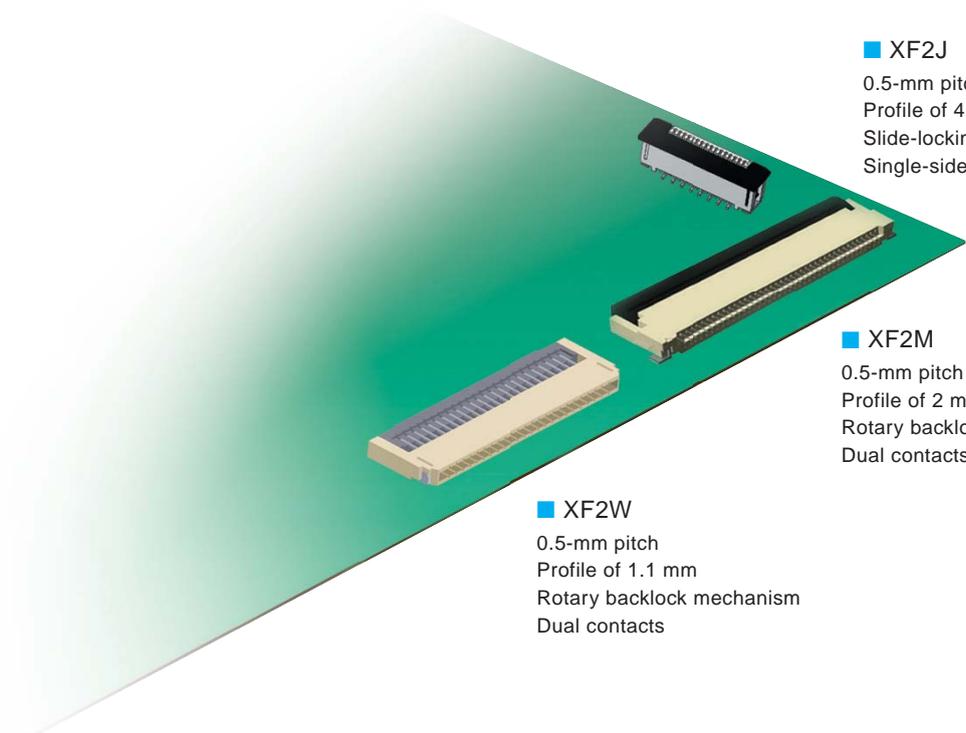
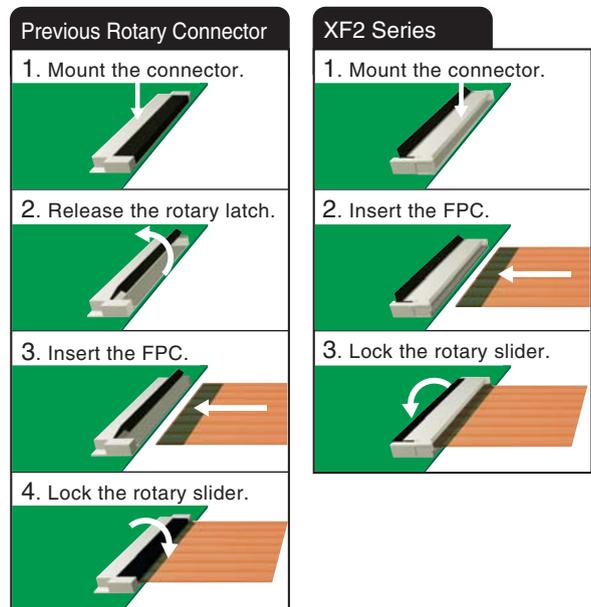
**2** There is no need to distinguish between the upper and lower FPC connections.



**3** Construction with four-sided housing prevents FPC displacement.



**4** Delivered with the rotary latch open.



■ XF2J  
0.5-mm pitch  
Profile of 4.15 mm  
Slide-locking mechanism  
Single-sided contacts

■ XF2M  
0.5-mm pitch  
Profile of 2 mm  
Rotary backlock mechanism  
Dual contacts

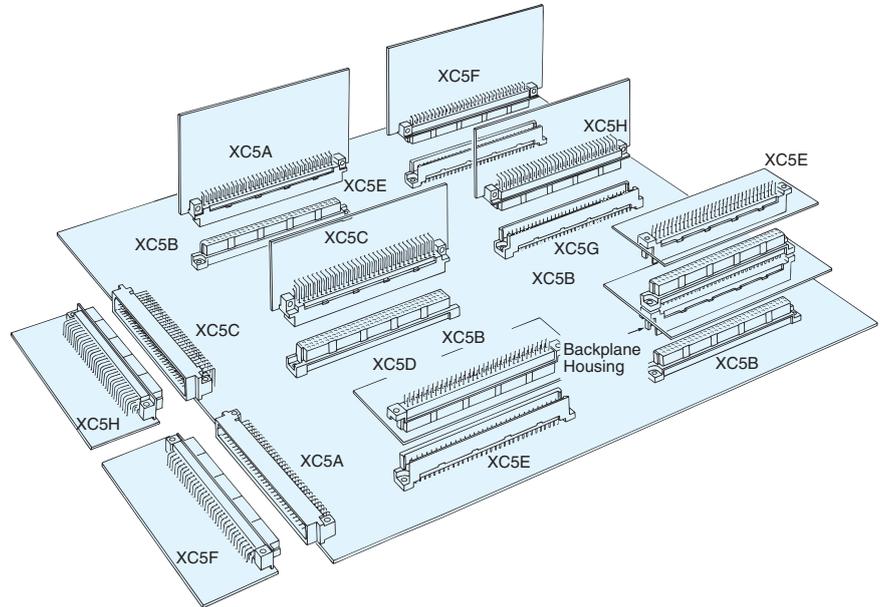
■ XF2W  
0.5-mm pitch  
Profile of 1.1 mm  
Rotary backlock mechanism  
Dual contacts



## High-density High-reliability Connectors Compliant with International Standards

### XC5/XC6/XC7/XC4 DIN Connector Series

- Comprehensive product lineup based on the international DIN standard, such as standard DIN, DIN-style, and DIN Fine-fit Connectors.
- Meets a variety of industrial needs.
- A wide assortment of accessories is available.

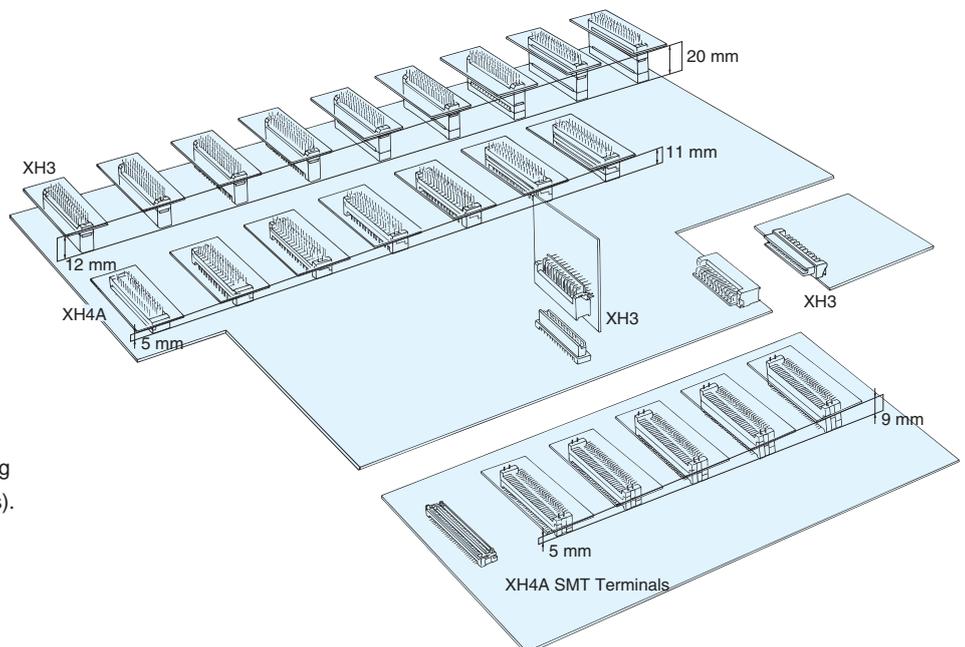


# Boards to Board Connections: Half-pitch Connectors

## Contact Pitch of 1.27 mm. Effective for High-density Mounting and Downsizing of Electronic Devices.

### XH3/XH4 Half-pitch Connector Series

- Supports increments of 1 mm for stacking heights of 5 to 20 mm.
- Use of leaf contact structure enables strong resistance to twisting and smooth insertion and removal.
- Gold/palladium-plated contacts with an engagement length of 3.1 mm ensure high-reliability contact (XH3).
- Equipped with a lock pin as a standard feature, the Connectors can be mounted to a board in one simple operation.
- Housing with standoff construction for improved soldering quality and easier cleaning (except +1-mm and +2-mm increment models).
- Certified for EN, IEC, UL, and CSA (XH3 and XH4 DIP models).

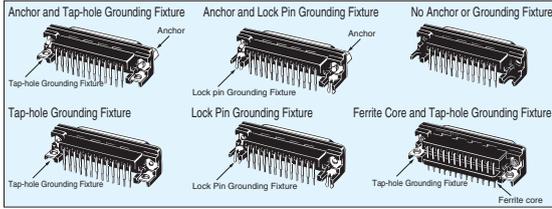


## D-Sub Connectors That Are Ideal for Office Equipment Interfaces

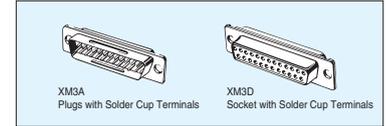
### XM2/XM3 D-Sub Connectors

- Shielded against EMI.
- Noise can be suppressed effectively by using the XM2S Plastic Hood with Metallic Finish.
- XM3B-F Multi-hole Ferrite-core Connectors are also available. These Connectors are useful in suppressing high-frequency noise and saving PCB mounting space.
- Compact, robust connectors with metal shells.
- Anchors and Grounding Fixtures are available.

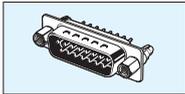
#### ● XM3B Sockets with Right-angle DIP Terminals



#### ● XM2A/XM3D Solder Cup Terminals



#### ● XM2E Plugs with Straight DIP Terminals



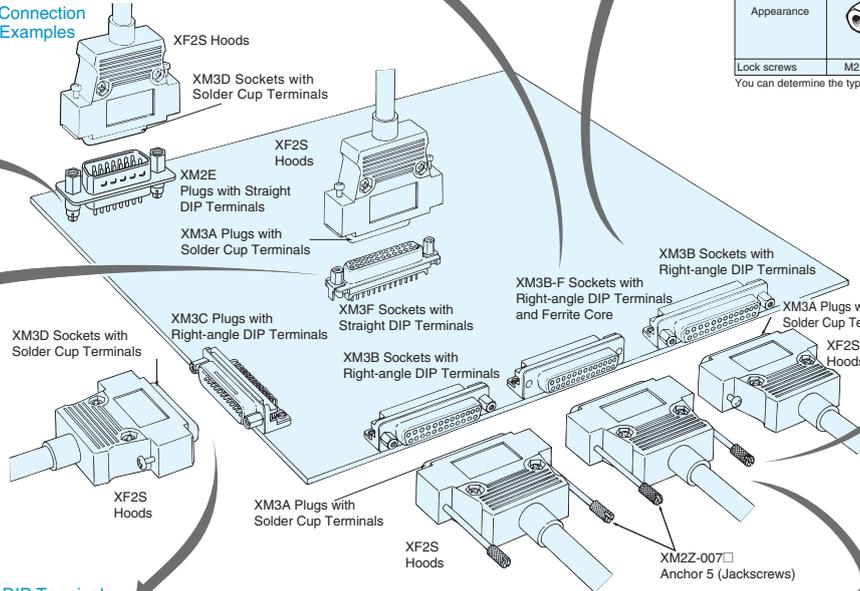
#### ● XM3F Sockets with Straight DIP Terminals



#### ● XM3C Plugs with Right-angle DIP Terminals



#### ■ Connection Examples



#### ● XM2Z Anchors

● "Easy-to-use" OMRON connectors

Appearance			
Lock screws	M2.6x0.45	M3x0.5	#4-40 UNC

You can determine the type of lock screw from the appearance.

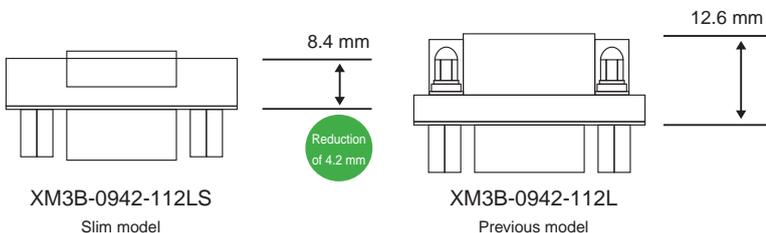
### XM2-L/XM3-L D-Sub Connectors

- Determine anchor screw diameters at a glance.
- Greatly simplified anchor combinations.
- Standard models are certified for UL (file No. E103202) (except the XM4Z).



#### Space-saving 9-pin Slim D-sub Socket Connectors for Boards

Board mounting area is reduced by 33% (compared with previous models) using depth of 8.4 mm. Mounting bar thickness of 1.6 mm or 1.0 mm on both sides (from difference in lock pin height).



D-Sub Connectors		
XM3B-L	XM2C-L	XM2E-L
Sockets with Right-angle DIP Terminals	Plugs with Right-angle DIP Terminals	Plugs with Straight DIP Terminals

D-Sub Connectors	High-density D-Sub Connectors	
XM2F-L	XM4K	XM4L
Sockets with Straight DIP Terminals	Plugs with Right-angle DIP Terminals	Sockets with Right-angle DIP Terminals

High-density D-Sub Connectors	Anchors
XM4L	XM4Z
Sockets with Straight DIP Terminals	Anchor 2 or 3

# External Connections: Round Water-resistant Connectors

## One-step Smartclick Connectors Eliminate the Problems of Screw Connectors

### XS5 M12 Smartclick Connectors

- New Next-generation M12 Smartclick Connectors with One-step Connection
- IP67 protective structure equivalent to M12 Connectors.
- Connectors with cables are certified for UL.

#### 1 One-step Connection

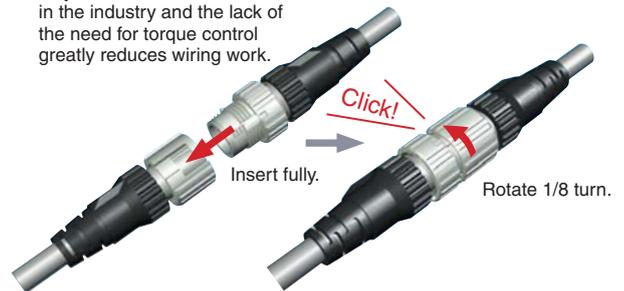
An improved lock structure enables easy connection. The lock mechanism is on the inside, and so sputter and dirt will not cause connection failures. Also, use of movable lock hooks enables connection with screw M12 connectors.

All combinations can be connected.

	XS5 Smartclick Plug Connector	M12 Plug Connector
XS5 Smartclick Socket Connector	One-step connection	Screw connection
M12 Socket Connector	Screw connection	Screw connection

#### 3 Connection is completed with a rotation of approximately 1/8.

Successful connection with only 1/8 rotation the shortest in the industry and the lack of the need for torque control greatly reduces wiring work.



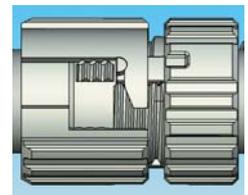
#### 2 A click lets you know that the Connectors are connected.

To ensure locking, a distinct clicking sensation tells you that connection has been completed.

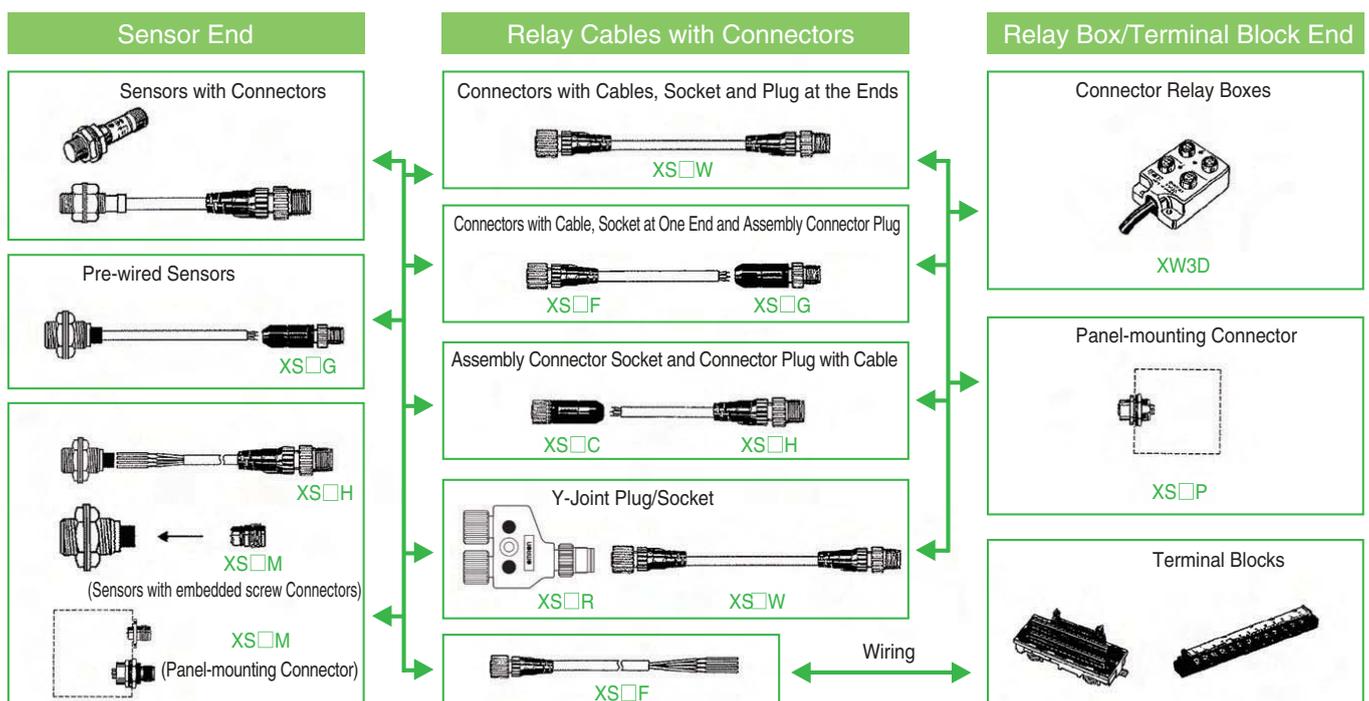


#### 4 Bayonet Lock Mechanism

Application of the widely used bayonet mechanism for the lock eliminates worrying about loose connections.



### Wiring System Configuration Examples with Round Water-resistant Connectors



Smartclick is registered trademark of OMRON Corporation.

Connectors for Increasingly Common Industrial Networks Based on Ethernet, such as Ethernet/IP and EtherCAT

## XS5/XS6 Industrial Ethernet Connectors

- Product lineup with robust RJ45 Connectors for use outside a control panel and Environment-resistance Connectors (M12) with IP 67 protection.
- RJ-45 Connector Assembly for easy wiring at worksite.
- Environment-resistance Connectors (M12) provide one-step connection (1/8 rotation) with SmartClick connectors that are also compatible with previous screw connectors.
- AWG22 cable used as standard feature for wiring outside a control panel.



### Standard Models

Appearance	Type		Cable length (m)	Model
	Cable with Connector on One End (M12)		0.5	XS5H-T421-BM0-K
			1	XS5H-T421-CM0-K
			2	XS5H-T421-DM0-K
			3	XS5H-T421-EM0-K
			5	XS5H-T421-GM0-K
			10	XS5H-T421-JM0-K
			15	XS5H-T421-KM0-K
	Cable with Connectors on Both Ends (M12/M12)		0.5	XS5W-T421-BM2-K
			1	XS5W-T421-CM2-K
			2	XS5W-T421-DM2-K
			3	XS5W-T421-EM2-K
			5	XS5W-T421-GM2-K
			10	XS5W-T421-JM2-K
			15	XS5W-T421-KM2-K
	Cable with Connectors on Both Ends (M12/RJ45)		0.3	XS5W-T421-AMC-K
			0.5	XS5W-T421-BMC-K
			1	XS5W-T421-CMC-K
			2	XS5W-T421-DMC-K
			3	XS5W-T421-EMC-K
			5	XS5W-T421-GMC-K
			10	XS5W-T421-JMC-K
			15	XS5W-T421-KMC-K
	Cable with Connectors on Both Ends (RJ45/RJ45)		0.3	XS5W-T421-AMD-K
			0.5	XS5W-T421-BMD-K
			1	XS5W-T421-CMD-K
			2	XS5W-T421-DMD-K
			3	XS5W-T421-EMD-K
			5	XS5W-T421-GMD-K
			10	XS5W-T421-JMD-K
15	XS5W-T421-KMD-K			
	RJ45 Assembly Connector		-	XS6G-T421-1
	M12 Connector for Panel Mounting	Rear locking	0.5	XS5P-T426-5
		Front locking	0.5	XS5P-T427-5
	M12 Panel-mounting PCB Straight Terminals		-	XS5P-T426-1 (Available soon.)

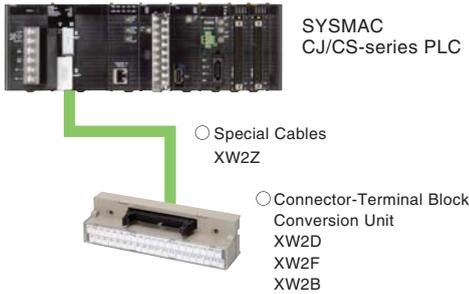
Combine Conversion Units with PLC I/O Units with connectors to reduce wiring work.

## XW2 Connector-Terminal Block Conversion Unit

### Application Examples

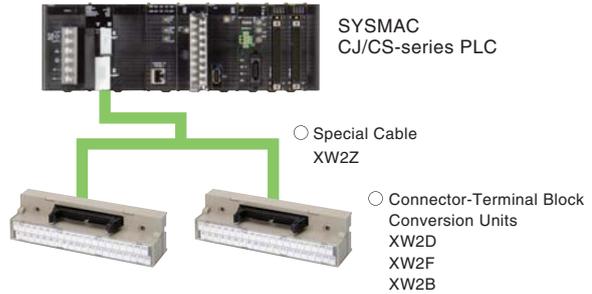
#### 1:1 Wiring

The connector pin arrangement is converted to the terminal block just as it is.



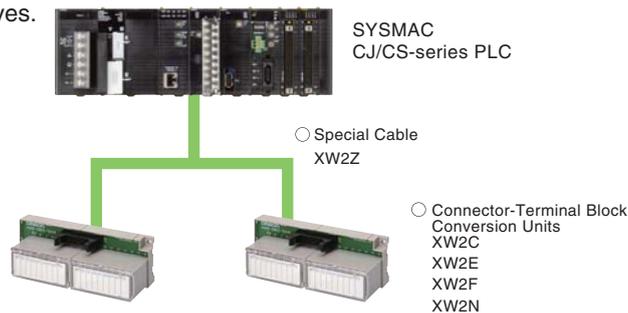
#### Branch Wiring

Wiring can be divided between two terminal blocks, enabling separated installation.



#### Terminal Block with Power Supply

Power can be supplied to sensors and valves.



### Product Lineup

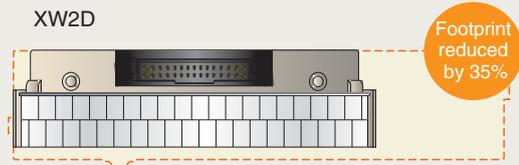
Terminal block screw size	<p><b>XW2B (M3.5)</b></p> <ul style="list-style-type: none"> <li>● M3.5 screws for easy wiring.</li> </ul>	<p><b>XW2C (M3.5)</b></p> <ul style="list-style-type: none"> <li>● Equipped with power wiring terminals.</li> <li>● LED operation indicators</li> </ul>
	<p><b>XW2E (M3)</b></p> <ul style="list-style-type: none"> <li>● Equipped with power supply terminals.</li> <li>● Three-tier (+, -, signal) terminal block.</li> </ul>	<p><b>XW2C (M3)</b></p> <ul style="list-style-type: none"> <li>● Equipped with power wiring terminals.</li> <li>● I/O terminal block</li> </ul>
		<p><b>XW2D</b></p> <ul style="list-style-type: none"> <li>● Slim model of standard screw terminal block</li> </ul>
	<p><b>XW2F (spring clamp mechanism)</b></p> <ul style="list-style-type: none"> <li>● Equipped with power supply terminals.</li> <li>● One-step connection with spring clamp mechanism</li> </ul>	<p><b>XW2N (e-CON)</b></p> <ul style="list-style-type: none"> <li>● e-CON connections</li> <li>● Connecting input devices with connectors</li> </ul>
	Space savings	

# Helps reduce wiring, decrease labor, and save space. Features of Connector-Terminal Block Conversion Units

## Downsizing

Slim models enable downsizing of control panels and automated machines.

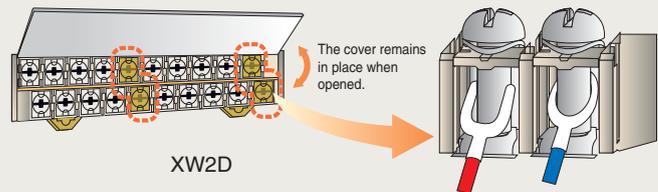
A footprint reduced by 35% (compared with the XW2B) enables the downsizing of control panels with narrow spaces between wiring ducts and the downsizing of automated machines.



## Easy operation

Reduction in incorrect wiring increases the efficiency of wiring work.

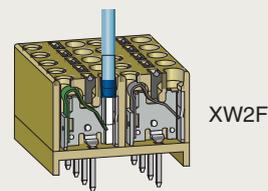
With easier wiring work, terminal screws with differing colors are arranged to enable easily counting the terminal numbers. The terminals are structured to prevent wires from falling off and allow the usage of either forked or round crimp terminals. Also, the cover remains in place when opened.



## Reduced work

Push-in Connectors greatly contribute to reducing wiring work.

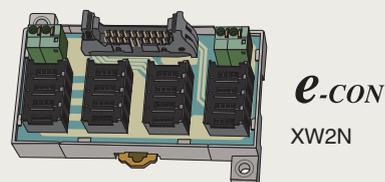
Lineup includes Push-in Connectors for AWG24 to AWG14 wires. Easier wiring reduces overall work.



## Standardization

Comprehensive series to support a broad range of applications.

A wide variety of requirements are met by the product lineup including Connectors with common terminals for power supply (XW2C, XW2E, and XW2F) and Connectors with industrial device standard e-CON connectors (XW2N).



## *e-CON*\* Is Ideal for Sensor Connections. Specification-based Easy Wire Connectors

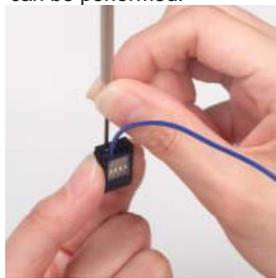
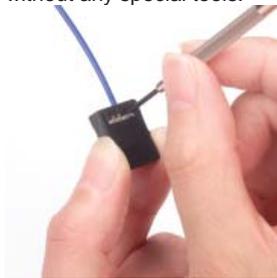
### XN2 Easy-wire Connectors for Industrial Components

- The popular spring clamp mechanism is used for wiring.
- Wiring can be performed easily without any special tool.
- Repeated wiring (repairs) can be performed.
- A single Connector is compatible with wires ranging from AWG28 (0.08mm<sup>2</sup>) to AWG20 (0.5 mm<sup>2</sup>) (outer sheath diameter: 1.5 max.).

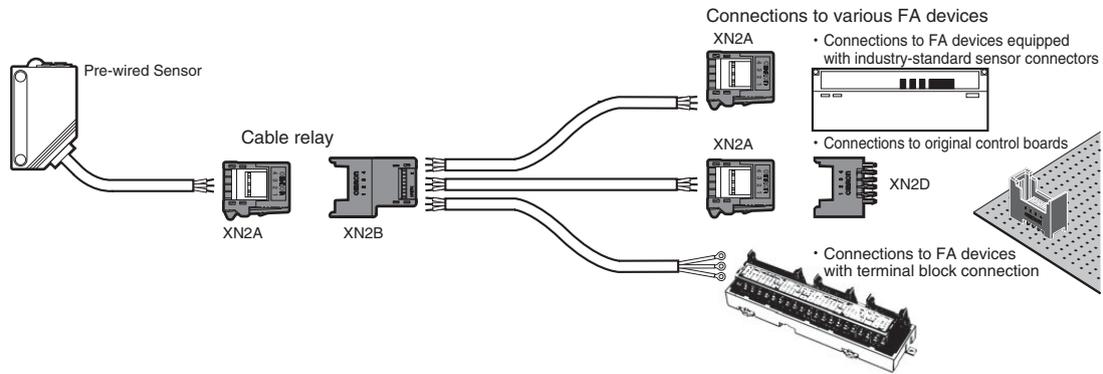
\* Manufacturers of FA devices and connectors promote these specifications for standardization. The connectors are open-specification as far as mating specifications.



- Wiring can be performed easily without any special tools.
- Repeated wiring (repairs) can be performed.



### ■ Wiring Configuration Examples



### ■ Standard Models

Type	Cable Plug Connector	Cable Socket Connector	Single-socket PCB Socket Connector	Four-socket PCB Socket Connector
Appearance				
No. of contacts	Model	Model	Model	Model
3	XN2A-1370	—	XN2D-1371	—
4	XN2A-1470	XN2B-1470	XN2D-1471	XN2D-4471
5	XN2A-1570	—	XN2D-1571	—
6	XN2A-1670	—	XN2D-1671	—
8	XN2A-1870	—	XN2D-1871	—



**Note: Do not use this document to operate the Unit.**

**OMRON Corporation Electronic and Mechanical Components Company**

**Contact: [www.omron.com/ecb](http://www.omron.com/ecb)**

**OMRON ELECTRONIC COMPONENTS EUROPE B.V.**  
Wegalaan 57, 2132 JD Hoofddorp, THE NETHER LANDS  
Tel: (31)23-568-1200/Fax: 31-23-568-1212

**OMRON ELECTRONIC COMPONENTS LLC**  
55 East Commerce Drive, Suite B, IL 60173 U.S.A.  
Tel: (1)847-882-2288/Fax: 1-847-882-2192

**OMRON ELECTRONIC COMPONENTS PTE LTD.**  
438A Alexandra Road #05-05/08 Alexandra  
Technopark Singapore 119967  
TEL:(65)6376-3200/FAX:(65)6376-3211

**OMRON ELECTRONIC COMPONENTS TRADING  
(SHANGHAI) LTD. SHANGHAI OFFICE**  
27F Xin Mei Union Square, 999 Pudong South Road,  
Pudong New Area, Shanghai, CHINA 200120  
Tel: (86)21-6859-5919/Fax: 86-21-6859-5911

**OMRON ELECTRONIC COMPONENTS CO., LTD.**  
307, Teheran Office Bldg. #707-38,  
Yeoksam-dong, Gangnam-gu, Seoul, Korea  
Tel:(82)2-567-5020/Fax:(82)2-567-5804

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