

Connector Selection

# CONNECTOR SELECTION

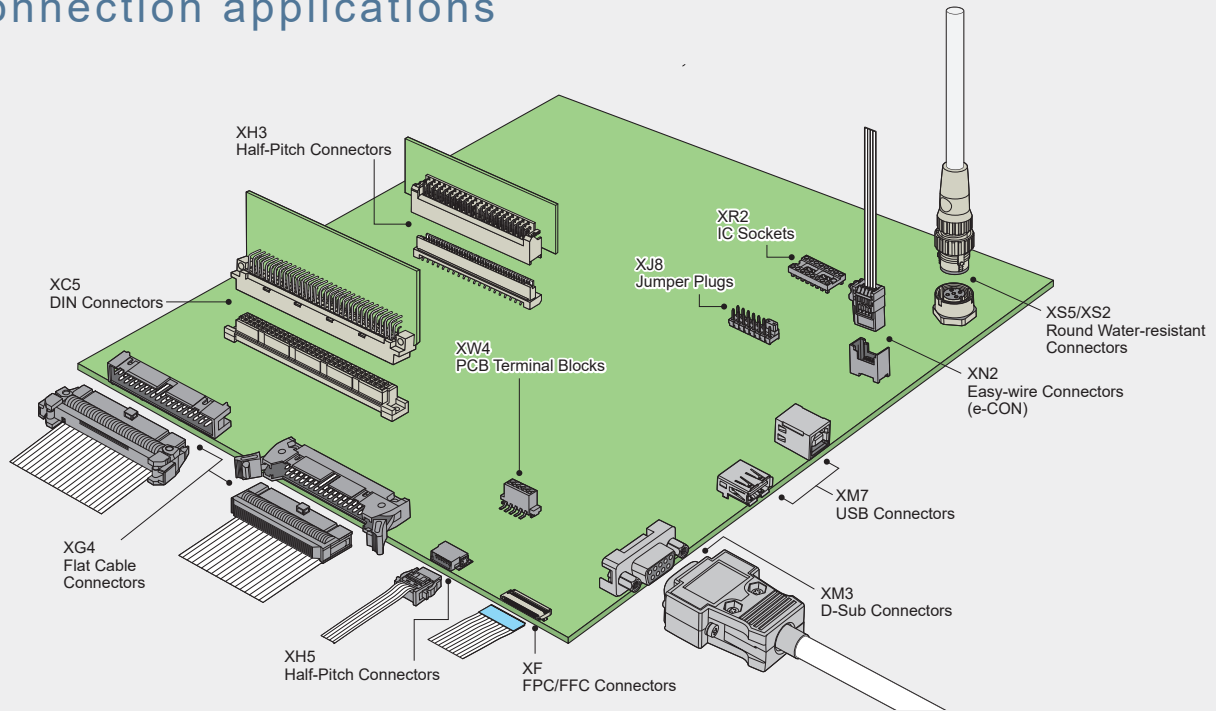
Excellent operability & wide variation suitable  
to your connection applications



Push-In Terminal Block PCB Connectors/ PCB Terminal Blocks/ Half-Pitch Connectors/ Flat Cable Connectors/ FPC/FFC Connectors/ DIN Connectors/ Half-Pitch Connectors/ D-Sub Connectors/ Round Water-resistant Connectors/ Easy-Wire Connectors (e-CON)/ USB Connectors/ IC Sockets

OMRON provides PCB Connector Series that meets the MIL, DIN, D-sub, and USB international standards. We also provide PCB Terminal Block Connectors and other connectors that help increase mounting density and reliability of PCB. Let OMRON handle your connector needs. You will find a model that perfectly matches your requirements.

## Excellent operability & wide variation suitable to your connection applications



### P.10 Board to Wire Connections

- XG4/XG2/XG8 ..... MIL Connectors (for flat cables)
- XG5 ..... MIL Connectors (for loose wires)
- XW4 ..... PCB Terminal Blocks
- XH5 ..... Half-pitch Connectors Cable connection type

### P.12 Board to FPC/FFC Connections

- XF ..... FPC/FFC Connectors

### P.13 Board-to-Board Connections

- XC5 ..... DIN Connectors (standard Type/ DIN-style/ Fine-fit Type/ Quadruple-row, 128-contact Type)
- XC7 ..... DIN Connectors (Sequence Type)
- XC4 ..... DIN Connectors (Medium/High-current Type)
- XH5/XH3/XH4/XH2 ..... Half-Pitch Connectors

### P.16 External Connections

- XM3/XM2 ..... D-Sub Connectors
- XS5/XS2/XS3 ..... Round Water-resistant Connectors
- XN2 ..... Easy-wire Connectors (e-CON)
- XM7 ..... USB Connectors
- XP2U ..... Testing Socket for Devices with USB Type C Connectors

### P.18 Other Connections

- XJ8/XG8S/XG8T ..... Jumper Plugs
- XR2 ..... IC Sockets

### P.20 Application Examples

# Board to Wire Connections

## P.10 Push-In Terminal Block PCB Connectors

Connectors to greatly improve the efficiency of connector inserting & removing and cable wiring.

- Easy insertion & removal and high contact reliability are achieved with the unique dual-spring structure\*1.
- Compatible with through-hole-reflow, good for reflow mounting
- Standard pin-number printed on the top surface of the socket
- Wiring efficiency is improved with the "hands-free" mechanism.
- A coding key for preventing erroneous insertion is available as an optional part.

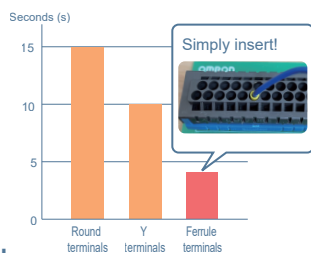
### What is a Push-in Terminal Block PCB Connector?

Push-in terminal block is a type of terminal Block that can be connected simply by inserting the wires. Its main feature is reduction of wiring workload.

#### Substantial reduction of connecting workload

Connecting workload can be reduced by over 60% when connecting round terminals and Y terminals with screws and connecting ferrule terminals by push-in insertion.

Notes: Determined by research conducted in February 2021 by Omron



#### No retightening required

If screw terminal blocks are used, it is said that retightening is required 3 times on average, at the time of manufacturing, transportation and installation. Since the push-in terminal block is supposed to have screws, it is possible to reduce the retightening workload to zero.

### Benefits of XW4M/XW4N

- Reduction of cycle time**
  - Easy insertion and removal by pushing the lever
  - Light insertion and removal force helps reduce troubles such as pin warpage due to twisting
  - Easy operation facilitates continuity check and shipping inspection in an official residence
- Save space and reduce workload**
  - If multiple terminal Blocks with a small number of poles have been added, space saving and cost reduction are achieved by combining multiple poles into one.
  - No additional processing is required due to the standard pin number marking
  - Reduced man-hours by supporting reflow
- Easy operation**
  - Connector type (plug/socket) allows you to perform wiring anywhere
  - One-touch wiring is made possible by simply inserting the wires with ferrule terminals
  - Push-in design is maintenance free, requiring no torque management and tightening as compared to screws

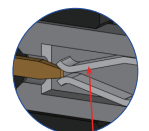
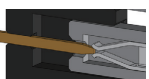
### Features of XW4M/XW4N

**Feature 1 Unique dual-spring structure\*1**  
Easy insertion & removal, high contact reliability

#### Unique dual-spring structure

##### Structure of conventional connectors

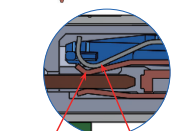
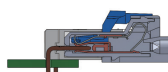
The contact parts of conventional products will receive the contact force needed for engaging the wings one by one on each side, thus making it difficult to reduce the insertion and removal force.



Spring (only the first spring referred to by OMRON)  
Inserting and removing/engaging contact.

##### OMRON's unique dual-spring structure

The unique dual-spring structure allows you to control the contact force, thus reducing the contact force of the connector and ensuring the contact force needed for engaging.

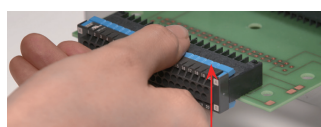


Spring 1  
Inserting and removing/engaging contact.

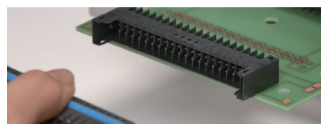
Spring 2  
Inserting and removing release. Engaging application of contact force.

**Feature 2 Single-handed action**  
Easy single-handed connector insertion and removal

With the detachable lever installed in the direction of the connector handle, you can easily insert and remove the connector with one hand.

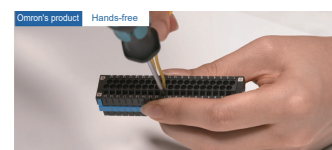


Detachable lever (blue part)



**Feature 3 Hands-free**  
Makes it easy to connect wires

With a release hole prepared for holding the screwdriver, it is possible to perform cable wiring with two hands.

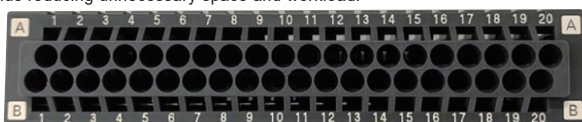


Round insertion hole (round hole)  
Release hole (square hole)



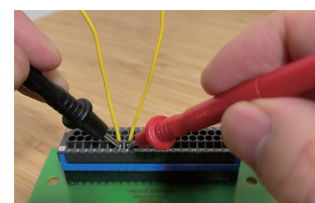
**Feature 4 The product comes standard with pin number markings\*2**

The product comes standard with pin number markings required for connector wiring, which eliminates the need for printing on other spaces such as a board, thus reducing unnecessary space and workload.



**Feature 5 Allows for checking continuity in the wired state**

By using the release hole, it is possible to check the continuity even when the cable is wired.



\*1 Unique dual-spring structure: A structure that ensures contact reliability through the combined contact force of the first and second springs when engaging, and reduces the insertion and removal force by operating the lever to open the second spring when inserting and removing. Determined by Omron research conducted in February 2021. Patent pending

\*2 Available for XW4N only.

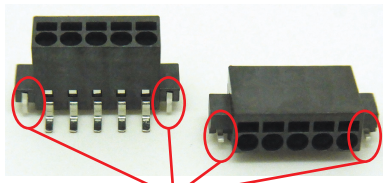
# Board to Wire Connections

## P.10 PCB Terminal Blocks

Ideal for control device interfaces

### XW4H/XW4K/XW4L SMT terminal type

- Push-in type with 2.54-mm pitch.
- Hold-downs are provided on both ends to achieve robust mounting by increasing solder mounting strength.



Hold-downs

- An active lock mechanism prevents the terminal blocks from coming off to provide superior vibration and shock resistance.



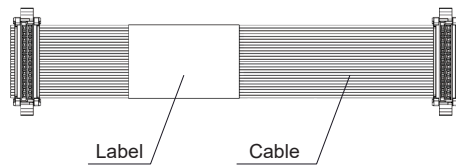
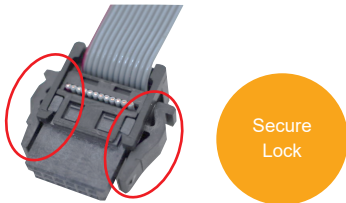
Active locks

## P.10 Half-Pitch Connectors

1.27-mm pitch Sockets with Cable

### XH5H-N Sockets with Cable (Sockets on both ends)

- Less work required by 1.27-mm pitch socket with cable, such as wire assembly, continuity check, etc.
- Cable length available with 100-mm / 200-mm / 300-mm.



- Please use the following plugs for mating.



XH5A-N  
Right-angle  
SMT



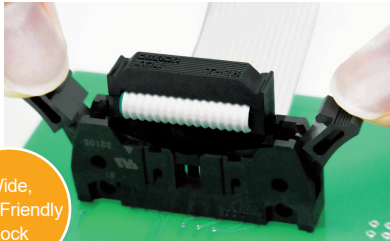
XH5E-N  
Straight  
SMT

## P.11 Flat Cable Connectors

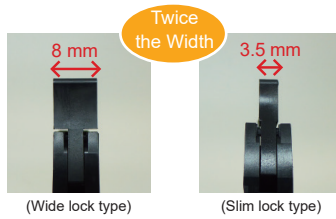
OMRON Flat Cable Connectors are compliant with MIL standards and provide high reliability and workability to support a broad range of requirements for board-to-wire connections.

### Flat Cable Connectors Plug

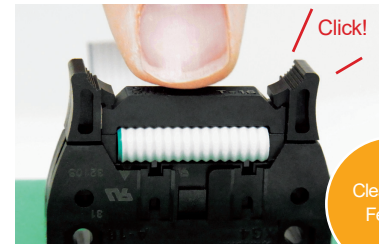
■ The user-friendly lock is wide enough to use your entire finger, which improves operability when connecting and disconnecting.



Wide, User-Friendly Lock



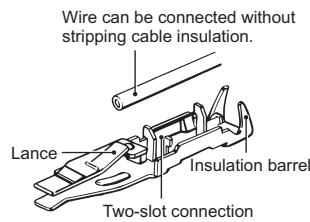
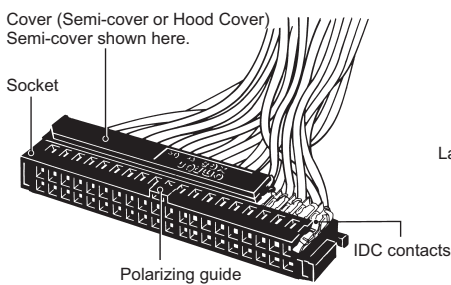
■ Ensures secure and stable connection.



Clear Lock Feeling

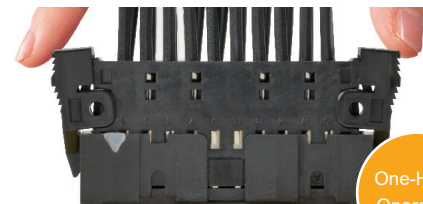
### XG5M IDC Socket for Discrete Wires

■ Easy connection for Discrete Wires



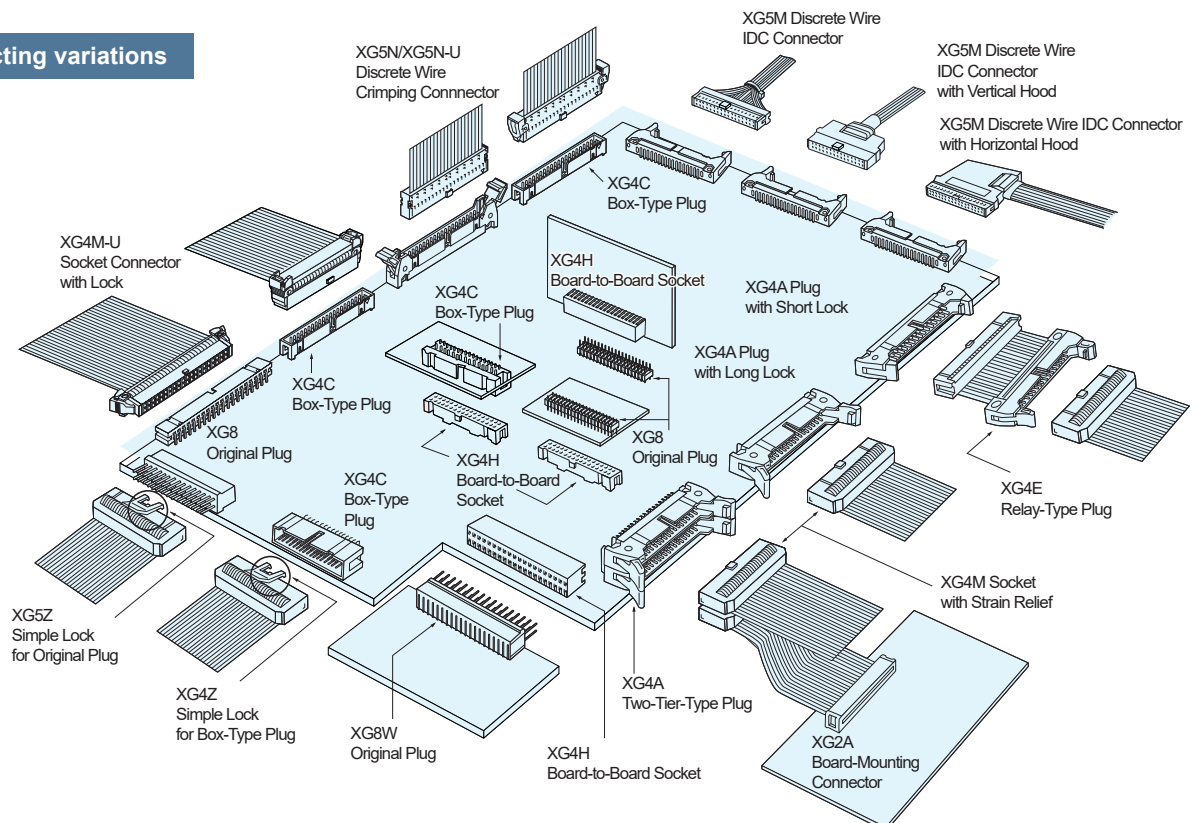
### XG5N-U Crimped Socket for Discrete Wires

■ Easy-to-use lock levers



One-Hand Operation

### Connecting variations



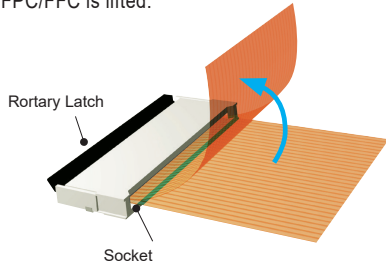
# Board to FPC/FFC Connections

## P.12 FPC/FFC Connectors

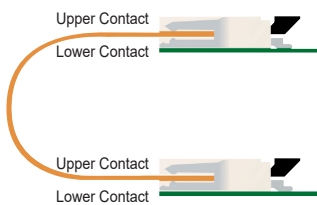
Improved insertion into FPC/FFC cable connectors with sure lock feeling to confirm proper connection.

### <Features of Rotary Backlock Mechanism>

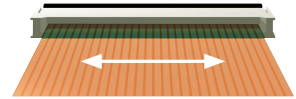
**1** Rotary latch is independent of the FPC/FFC socket. The rotary latch will not release if the FPC/FFC is lifted.



**2** Dual contact. There is no need to distinguish between the upper and lower FPC/FFC connection.

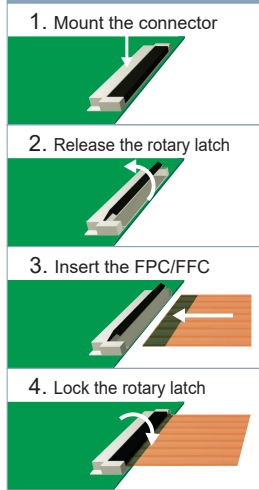


**3** Four-sided housing. Construction prevents FPC/FFC displacement.

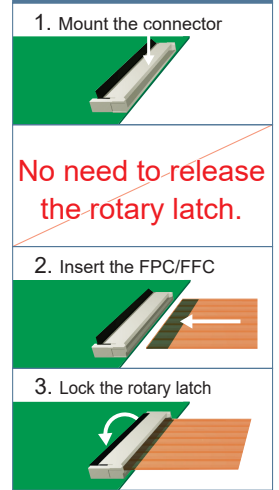


**4** Delivered with the rotary latch open. Less work required for FPC/FFC mounting.

#### Tradition Rotary connectors

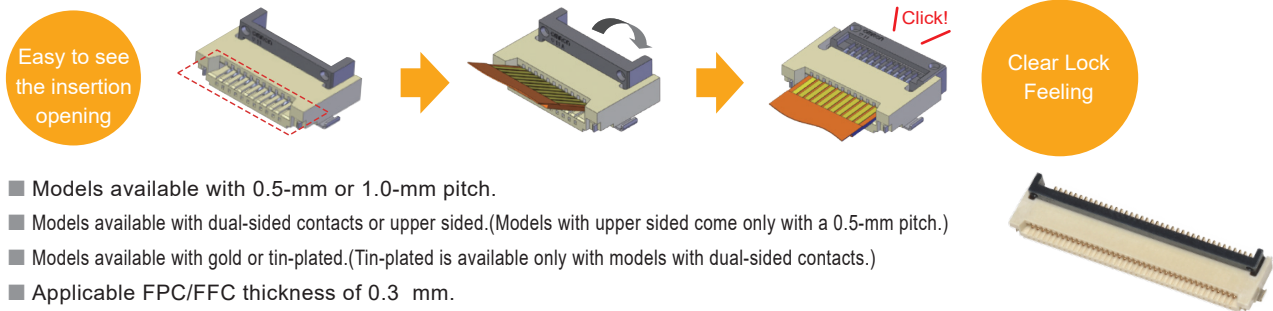


#### OMRON Back lock connectors



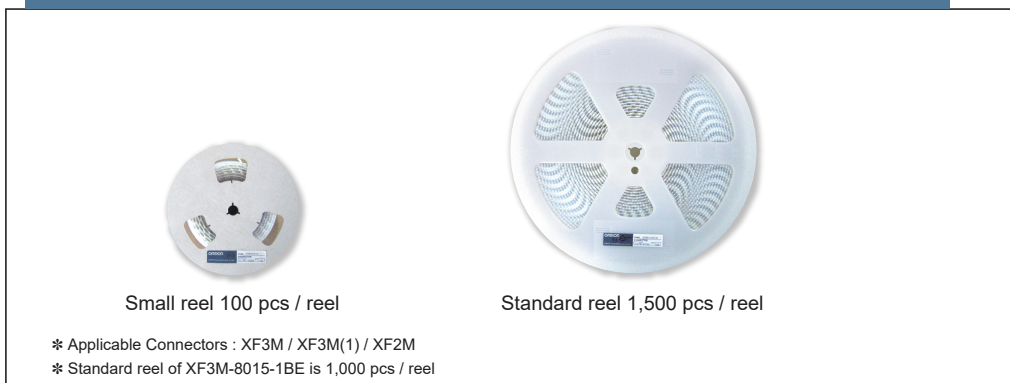
### XF3M FPC/FFC Connectors

■ Improved FPC/FFC insertion and lock feeling



- Models available with 0.5-mm or 1.0-mm pitch.
- Models available with dual-sided contacts or upper sided. (Models with upper sided come only with a 0.5-mm pitch.)
- Models available with gold or tin-plated. (Tin-plated is available only with models with dual-sided contacts.)
- Applicable FPC/FFC thickness of 0.3 mm.

Small reels are available with only 100 connectors to fit small-scale applications.



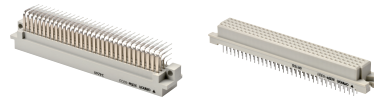
# Board to Board Connections




## P.13 | DIN Connectors

High-density, high-reliability connectors compliant with international standards.

### XC5 DIN-Style Connectors

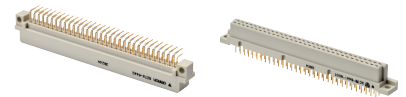
- Ideal for automated soldering because the connectors sit on top of the board.



	Standard DIN	DIN style 1	DIN style 2
PCB mounting	 Fixed at PCB edge	 PCB surface mounting	 PCB surface mounting

### XC7 Sequence Connectors

- A three-stage sequence is realized.
- Hot-swapping of daughter boards is possible by connecting the power line first and disconnecting the power line last.
- Insertion durability of 5,000 cycles, high reliability achieved by mated length of 4mm.

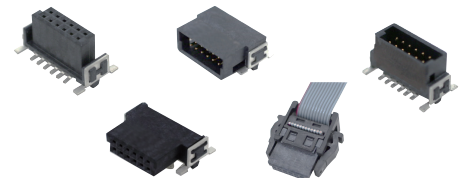


## P.15 | Half-Pitch Connectors

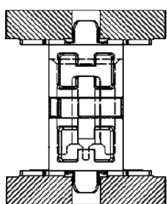
1.27mm pitch connectors for space-saving.

### XH5-N

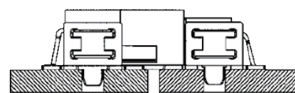
- SMT type. Back surfaces of circuit boards can be used for mounting the other components.
- Various BtoB and BtoW connecting solutions.
- Through-hole reflow hold-down types (THR type) are available for enhanced board mounting.



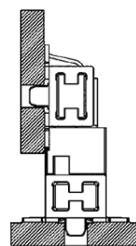
Stacking connection



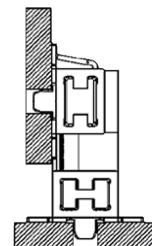
Horizontal connection



Vertical connection



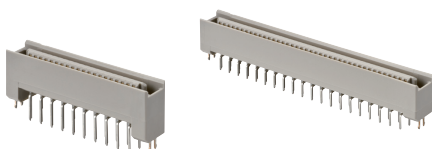
Right-angle Pins: Socket  
Straight Pins: Plug



Right-angle Pins: Plug  
Straight Pins: Socket

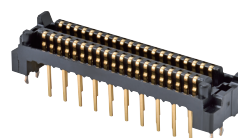
### XH3

- The stacking height can be exibly adjusted from 12 to 20 mm.



### XH4A

- Integrated male/female connectors with the stacking height from 5 to 11 mm.(Surface-mounted connectors can be adjusted from 5 to 9 mm.)



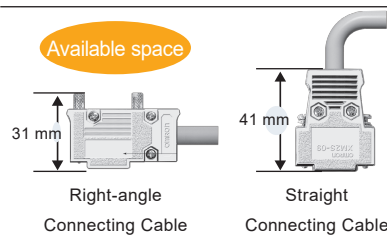
# External Connections

## P.16 D-Sub Connectors

Space-saving models also available.

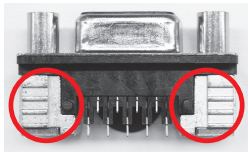
### XM2S Hood Covers

- Space-saving by right-angle connecting cable.

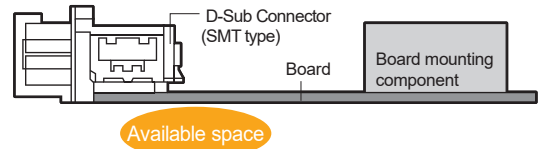


### XM3K-N/XM3L-N D-Sub SMT Connectors

- Hold-downs with rib structure provide enough pulling force performance.



- Through holes are not needed. Back surfaces of circuit boards can be used for mounting the other components.



## P.17 Round Water-resistant Connectors

IP67 protective structure. Ideal for waterproof connection between sensor/actuator and control panel.

### XS5/XS2/XS3 Round Water-resistant Connectors

- Connectors with cable, assembly type connectors, and connectors for panel mounting are available to meet various onsite connection needs.
- Smart Click connector for one-touch connection\*  
Smart Click XS5 contributes to reduction of work and maintenance man-hours

\* Smartclick is the registered trademark of Omron Corporation



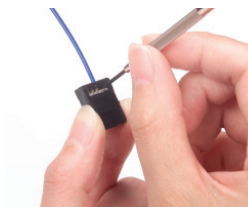
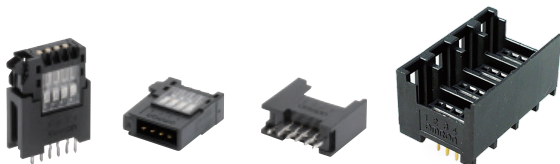
## P.17 Easy-Wire Connectors (e-CON)

Easy-wire connectors with *e-CON* specifications, ideal for connecting sensors.

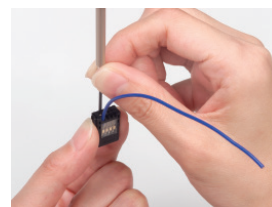
\* Specifications are being standardized by FA equipment and connector manufacturers. Connectors are open only when engagement is specified.

### XN2 Easy-wire Connectors (e-CON)

- No special tools required for easy wiring.
- Rewiring (repairing) is possible.
- Each connector accepts any wire size from stranded wire AWG 28 (0.08 mm<sup>2</sup>) to AWG 20 (0.5 mm<sup>2</sup>). (External sheath diameter: 1.5 mm max.)
- With the simple tool Jig (XW2Z-0001), assembly can be completed for 4 wires simultaneously, is available.



No special tools required for easy wiring.



Rewiring (repairing) is possible.



Tool Jig  
XW2Z-0001



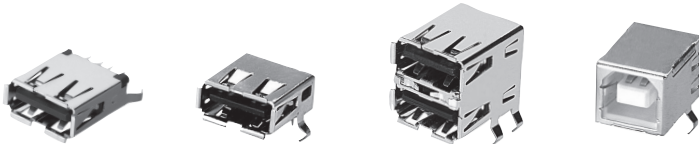
## P.17 | USB Connectors

Small interface connectors conforming to USB2.0 standards.

### XM7 USB Connectors

USB Connectors

- Insertion durability of 1,500 times.



### XP2U-001 Testing Socket for Devices with USB Type C Connectors



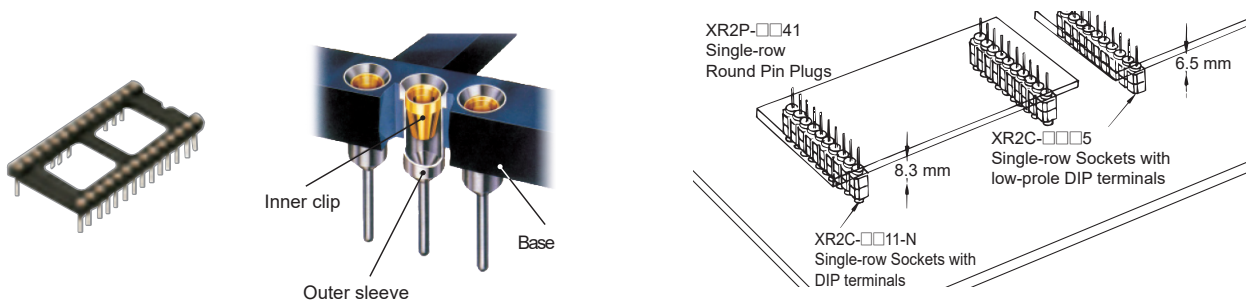
## Other Connections

## P.18 | IC Sockets

Excellent reliability and can tolerate momentary interruptions in power.

### XR2 IC Sockets

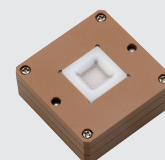
- Round pins and 4-point (4-finger) contact construction ensure long life and excellent shock and vibration durability.
- One-row connectors allow you to freely adjust the pitch between rows and can be divided into the required number of contacts.
- Low-profile stacking possible in combination with single-row IC sockets (XR2C and XR2P).



Need solution to improve pass rate and durability of pogo pin for semiconductor (IC) testing?  
Omron is here to solve through Omron's unique\* IC Test Sockets and Pins

Omron has a unique\* technology called EFC (Electro Formed Components) which enables limitless pin customization. Thanks to this technology, Omron can create pins and sockets tailored to the DUT (Device Under Test). Omron pins help the DUT to improve inspection performance (high pass rate, high durability, high reliability, stable low contact resistance) which is difficult to achieve with pogo pins. Omron provides various customized IC test sockets including SOP, Power IC, RF-IC, BGA, and more.

\* Holding two patents (US8337261; US2013/0045617) on electroforming technology to form contact structure and its manufacturing process.



# Board to Wire Connections



The products with this mark are also available in package reels of 100 pcs.

Classification	PCB Terminal Blocks			
	Push-In Terminal Block PCB Connectors		Push-in SMT Terminal Type	
Model	XW4M	XW4N	XW4K	XW4H/XW4L
Appearance				
Contact pitch	3.5 mm	3.5 mm	2.54 mm	2.54 mm
Type	Plug	Socket	Plug	Socket Board-mounting
No. of contacts	100			
	90			
	80			
	70			
	60			
	50			
	40	40	40	
30	30 32 34 36	30 32 34 36		
20	20 22 24 26 28	20 22 24 26 28		
10	10 11 12 13 14 15 16 17 18	10 11 12 13 14 15 16 17 18	10 11 12	10 11 12
Rated current	8 A	8 A	6 A <sup>*2</sup>	6 A <sup>*2</sup>
Rated voltage	150 VAC/160 VAC/ 300 VAC	150 VAC/ 160 VAC/ 300 VAC	160 VAC	160 VAC
Ambient operating temperature	-40 to +100°C	-40 to +100°C	-40 to +125°C	-40 to +125°C
Applicable wires	---	0.2 mm <sup>2</sup> to 1.5 mm <sup>2</sup>	---	Discrete wires AWG 26 to 20
Terminal shape		---		

\*1. XW4K and XW4L only.  
 \*2. This is the maximum value for the connector.  
 If the rated current of the cable is lower than the rated current of the connector, use the rated current of the cable.

Classification	Half-pitch Connectors		
	SMT Type	Cable with Connectors on Both Ends	Cable connection type
Model	XH5A-N/XH5E-N	XH5H-N	XH5M-N/XH5T-N
Appearance			 
Contact pitch	1.27 mm	1.27 mm	1.27 mm
Type	Plug	Socket	Socket
No. of contacts	100		
	90		
	80	80	80
	70		
	60	68	68
	50	50	50
	40	40	40
30	32	32	
20	20 26	20 26	
10	12	12	
Rated current	1 A	1 A	1 A
Rated voltage	100 VAC	100 VAC	100 VAC
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +105°C
Applicable wires	---	---	flat cable incorporating AWG 30 (7/0.1)
Terminal shape		---	

Terminal shape Straight DIP terminals Right-angle DIP terminals Wrapping terminals Solder cup terminals IDC contacts  
 Solder-free straight terminals Solder-free wrapping terminals SMT terminals Crimp contacts

Note: Inquire about the compliant standards for individual models.  
 For the latest No. of contacts information, please visit our website, which is noted on the last page.

Classification	Flat Cable Connectors					
	Flat Cable Connectors Plug				Flat Cable Connectors Sockets	
Model	XG4A-□□31/71 □□34/74	XG4A-□□32/72 □□35/75	XG4A-□□33/73 □□36/76	XG4A-□□39/79-A	XG4M	XG4M-U
Appearance						
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm
Type	Plug with long lock	Plug with short lock	Plug without lock	Two-tier plug	Socket	Socket with lock
No. of contacts	100					
	90					
	80					
	70					
	60	60 64	60 64	60 64	60 64	60 64
	50	50	50	50	50	50
	40	40	40	40	40	40
	30	30 34	30 34	30 34	30 34	30 34
	20	20 26	20 26	20 26	20 26	20 26
	10	10 14 16	10 14 16	10 14 16	10 14 16	10 14 16
Rated current	3 A	3 A	3 A	3 A	1 A	1 A
Rated voltage	300 VAC	300 VAC	300 VAC	300 VAC	250 VAC	250 VAC
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +105°C
Applicable wires	---	---	---	---	1.27 mm pitch flat cable incorporating (AWG 28)	1.27 mm pitch flat cable incorporating (AWG 28)
Terminal shape						

Classification	Flat Cable Connectors					
	IDC Plugs		Box-type Plugs	Board-to-Board Sockets	Flat Cable Connectors for PCBs	
Model	XG4E-□□31/71	XG4E-□□32/72	XG4C	XG4H	XG2A	
Appearance						
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	
Type	Plug with long lock	Plug with short lock	Plug	Socket	Standard terminal arrangement	Reverse terminal arrangement
No. of contacts	100					
	90					
	80					
	70					
	60	60 64	60 64	60 64	60 64	60 64
	50	50	50	50	50	50
	40	40	40	40	40	40
	30	30 34	30 34	30 34	30 34	30 34
	20	20 26	20 26	20 26	20 26	20 26
	10	10 14 16	10 14 16	10 14 16	10 14 16	10 14 16
Rated current	1 A	1 A	3 A	3 A	1 A	
Rated voltage	250 VAC	250 VAC	300 VAC	300 VAC	250 VAC	
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +85°C	
Applicable wires	1.27 mm pitch flat cable incorporating (AWG 28)	1.27 mm pitch flat cable incorporating (AWG 28)	---	---	1.27 mm pitch flat cable incorporating (AWG 28)	
Terminal shape						

Terminal shape Straight DIP terminals Right-angle DIP terminals Wrapping terminals Solder cup terminals IDC contacts  
 Solder-free straight terminals Solder-free wrapping terminals SMT terminals Crimp contacts

## Board to Wire Connections

Classification	Original Plugs		IDC Socket for Discrete Wires			Crimped Socket for Discrete Wires		
Model	XG8A/XG8V	XG8B/XG8W	XG5M	XG5S-□□01	XG5S-□□02	XG5N	XG5N-U	XG5W-0231/0232
Appearance								
Contact pitch	2.54 mm	2.54 mm	2.54 mm	---	---	2.54 mm	2.54 mm	---
Type	One-row plugs	Two-row plugs	Socket	Semi-cover	Hood-cover	Socket	Socket with lock	Crimp contact
No. of contacts	100	100						
	90							
	80							
	70							
	60		60	60 64		60	60 64	60 64
	50	50	50	50		50	50	50
	40	36	30 34	30 34	30 32	30 34	30 34	30 34
	30	20	20 26	20 26	20 25	20 26	20 26	20 26
20	10 12 13 15 16 17	10 14 16	10 14 16	10 13 15 17		10 14 16	10 14 16	
10	2 3 4 5 6 7 8			5 7 8				
Rated current	3 A	3 A	3 A max.	---	---	3 A max.	3 A max.	3 A max.
Rated voltage	300 VAC	300 VAC	300 VAC	---	---	250 VAC	250 VAC	250 VAC
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +85°C	-55 to +85°C	-55 to +85°C	-55 to +105°C	-55 to +105°C	-55 to +105°C
Applicable wires	---	---	Discrete wires AWG 24, 26, 28	---	---	Discrete wires AWG 22, 24, 26, 28	Discrete wires AWG 22, 24, 26, 28	Discrete wires AWG 22, 24, 26, 28
Terminal shape				---	---			

## Board to FPC/FFC Connections



The products with this mark are also available in package reels of 100 pcs.

Classification	FPC/FFC Connections					
Model	XF3M				XF2M	
Appearance						
Contact pitch	0.5 mm			1.0 mm		0.5 mm
Type	Side-entry			Side-entry		Side-entry
	Dual contact Au flash	Dual contact Sn	Upper contact Au flash	Dual contact Au flash	Dual contact Sn	Dual contact Au flash
No. of contacts <sup>*1</sup>	100					
	90	80				
	80					
	70					
	60	60				60
	50	50 51 53 54 55 57	(50)			50 54 55
	40	40 41 42 45	(40)(41)(42)(45)	40		40 42 45
	30	35 36 37 38	(35)(36)(37)(38)	(35)(36)(37)(38)	30 32	(30)(32)
20	20 21 22 23 24	(20)(21)(22)(23)(24)	20 21 22 23 24	25 26 28	(25)(26)(28)	20 22 24 26
10	15 16 17 18 19	(15)(16)(17)(18)(19)	15 16 (17) 18 (19)	15 16 (17) 18	(15)(16)(17) 18	10 12 14 18
	10 11 12 13 14	(10)(11)(12)(13)(14)	10 11 12 13 14	10 11 12 14	(10)(11) 12 (14)	
	4 5 6 7 8 9	(4)(5)(6)(7)(8) 9	(4)(5)(6) 7 8 9	4 5 6 7 8 9	(4)(5) 6 (7) 8 9	6 8
Rated current	0.5 VAC/VDC					0.5 A VAC/VDC
Rated voltage	50 VAC/VDC					50 V VAC/VDC
Ambient operating temperature	-30 to +85°C					-30 to +85°C
Applicable wires	0.3 ±0.05 mm					0.3 ±0.05 mm
Terminal shape						

\*1. ( ) Consult your OMRON representative for the marketing dates for the numbers of contacts in parentheses in the No. of contacts row.

Note: Inquire about the compliant standards for individual models. For the latest No. of contacts information, please visit our website, which is noted on the last page.

Terminal shape Straight DIP terminals Right-angle DIP terminals Wrapping terminals Solder cup terminals IDC contacts   
 Solder-free straight terminals Solder-free wrapping terminals SMT terminals Crimp contacts

# Board-to-Board Connections











Classification	DIN Connectors							
	DIN-standard Type				DIN-style			
Model	XC5A/XC5E- □□□□	XC5B/XC5F- □□□□	XC5C/XC5G- □□□□	XC5D/XC5H- □□□□	XC5A-□□□□-1 XC5E-□□□□-2/3	XC5B-□□□□-0/3 XC5F-□□□□-2	XC5C- □□□□-1	XC5D- □□□□-0
Appearance								
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm
Type	Double-row plugs	Double-row sockets	Triple-row plugs	Triple-row sockets	Double-row plugs	Double-row sockets	Triple-row plugs	Triple-row sockets
No. of contacts	100	100	96 *1	96 *1	100	100	96	96
	90							
	80							
	70							
	60	64 *1	64 *1	64 *1	64 *1	64	64	64
	50	50	50			50	50	
	40	44	44	48 *1	48 *1	44	44	
	30	32 *1	32 *1	32 *1	32 *1	30 32	30 32	
	20	20	20			20 24	20 24	
10					10 14 16	10 14 16		
Rated current	2 A	2 A	2 A	2 A	2 A	2 A	2 A	2 A
Rated voltage	300 VAC	300 VAC	AC 300 V	300 VAC	300 VAC	300 VAC	300 VAC	300 VAC
Ambient operating temperature	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C
Applicable wires	---	---	---	---	---	---	---	---
Terminal shape								













\*1. DIN 41612 and IEC 603-2 compliant.

Classification	DIN Connectors						
	Stacking-connect Type	Fine-fit Type (Press-fit)				Quadruple-row, 128-contact Type	
Model	XC5K	XC5E- □□□□P-11□□	XC5B- □□□□P-11□□	XC5G- □□□□P-11□□	XC5D- □□□□P-11□□	XC5M	XC5N
Appearance							
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm
Type	Double-row plugs	Double-row plugs	Double-row sockets	Triple-row plugs	Triple-row sockets	Quadruple-row plugs	Quadruple-row sockets
No. of contacts	100		100			128	128
	90				96	96	
	80						
	70						
	60		64	64	64	64	
	50						
	40				48	48	
	30	32	32	32			
	20	20					
10	16						
Rated current	2 A	2 A	2 A	2 A	2 A	2 A	2 A
Rated voltage	300 VAC	300 VAC	300 VAC	300 VAC	300 VAC	300 VAC	300 VAC
Ambient operating temperature	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C
Applicable wires	---	---	---	---	---	---	---
Terminal shape							










Terminal shape Straight DIP terminals Right-angle DIP terminals Wrapping terminals Solder cup terminals IDC contacts  
 Solder-free straight terminals Solder-free wrapping terminals SMT terminals Crimp contacts


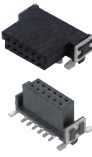






## Board-to-Board Connections

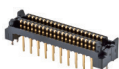





Classification	DIN Connectors					
	Sequence Type					
Model	XC7A	XC7B	XC7C	XC7D		
Appearance						
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm		
Type	Double-row plugs	Double-row sockets	Triple-row plugs	Triple-row sockets		
No. of contacts	100	100	96	96		
	90	90				
	80	64				
	70					
	60					
	50					
	40					
	30					
	20					
	10					
Rated current	2 A	2 A			2 A	2 A
Rated voltage	300 VAC	300 VAC			300 VAC	300 VAC
Ambient operating temperature	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C		
Applicable wires	---	---	---	---		
Terminal shape						










Classification	DIN Connectors													
	Medium/High-current Type													
Model	XC4A	XC4B	XC4E	XC4F	XC4G	XC4H	XC4K	XC4L						
Appearance														
Contact pitch	5.08 mm		5.08 mm		5.08 mm		5.08 mm							
Type	Plug	Socket	Plug	Socket	Plug	Socket	Plug	Socket						
No. of contacts	100													
	90													
	80													
	70													
	60													
	50													
	40								48	48	32	32		
	30								32					
	20								15					
	10													
Rated current	6 A	6 A	6 A	6 A	6 A	15 A	15 A							
Rated voltage	380 VAC	500 VAC	500 VAC	500 VAC	500 VAC	500 VAC	500 VAC							
Ambient operating temperature	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C							
Applicable wires	---	---	---	---	---	---	---							
Terminal shape								 (Faston tab terminals #250)						

Note: Inquire about the compliant standards for individual models. For the latest No. of contacts information, please visit our website, which is noted on the last page.

Terminal shape  Straight DIP terminals  Right-angle DIP terminals  Wrapping terminals  Solder cup terminals  IDC contacts  
 Solder-free straight terminals  Solder-free wrapping terminals  SMT terminals  Crimp contacts

Classification	Half-pitch Connectors			
	SMT Type		Board-to-Board Connectors	
Model	XH5A-N/XH5E-N	XH5F-N/XH5B-N	XH3A	XH3B
Appearance				
Contact pitch	1.27 mm	1.27 mm	1.27 mm	1.27 mm
Type	Plug	Socket	Plug	Socket
No. of contacts	100		100 120	100 120
	90	80		
	80		80	80
	70			
	60	68	68	60 68
	50	50	50	50
	40	40	40	40
	30	32	32	30
	20	20 26	20 26	20
	10	12	12	
Rated current	1 A	1 A	0.5 A	0.5 A
Rated voltage	100 VAC	100 VAC	125 VAC	125 VAC
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +105°C
Applicable wires	---	---	---	---
Terminal shape				

Classification	Half-pitch Connectors		
	Low-profile Stacking Connectors	Board-to-Board Connectors	
Model	XH4A	XH2A	XH2B
Appearance			
Contact pitch	1.27 mm	1.27 mm	1.27 mm
Type	Plug/Socket Integrated	Plug	Socket
No. of contacts	100	100	100
	90	80	80
	80		
	70		
	60	60	60 68
	50	50	50
	40	40	40
	30		30
	20		20
	10		
Rated current	0.5 A	0.5 A	0.5 A
Rated voltage	125 VAC	125 VAC	125 VAC
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +105°C
Applicable wires	---	---	---
Terminal shape			

Terminal shape  Straight DIP terminals  Right-angle DIP terminals  Wrapping terminals  Solder cup terminals  IDC contacts  
 Solder-free straight terminals  Solder-free wrapping terminals  SMT terminals  Crimp contacts

# External Connections







Classification	D-Sub Connectors				
	D-Sub Connectors		Hood Cover		
Model	XM3A/XM3C	XM3B/XM3D/XM3F	XM2S-□□1□	XM2S-□□2□	XM2S-E
Appearance					
Contact pitch	2.74 mm, 2.76 mm	2.74 mm, 2.76 mm	---	---	---
Type	Plug	Socket	Straight-angle connection	Right-angle connection	Straight-angle connection with ESD protection
No. of contacts	100				
	90				
	80				
	70				
	60				
	50				
	40				
37	37	37	37		
30	25	25	25	25	
20	15	15	15		
10	9	9	9	9	9
Rated current	3 A / 5 A	5 A	---	---	---
Rated voltage	300 VAC	300 VAC	---	---	---
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Applicable wires	AWG 22 max.	AWG 22 max.	---	---	---
Terminal shape			---	---	---





Classification	D-Sub Connectors	
	D-sub SMT Connectors	
Model	XM3K-N	XM3L-N
Appearance		
Contact pitch	2.76 mm	2.76 mm
Type	Plug	Socket
No. of contacts	100	
	90	
	80	
	70	
	60	
	50	
	40	
30	25	25
20		
10	9	9
Rated current	3 A	3 A
Rated voltage	300 VAC	300 VAC
Ambient operating temperature	-55 to +105°C	-55 to +105°C
Applicable wires	---	---
Terminal shape		

Note: Inquire about the compliant standards for individual models. For the latest No. of contacts information, please visit our website, which is noted on the last page.

- Terminal shape Straight DIP terminals Right-angle DIP terminals Wrapping terminals Solder cup terminals IDC contacts   
 Solder-free straight terminals Solder-free wrapping terminals SMT terminals Crimp contacts



Classification	Round Water-resistant Connectors					
	M12 Smartclick Connection	M12 Screw Connection	M8 Screw Connection	Panel-mounting/ Sensor-Embedded		
Model	XS5□	XS2□	XS3□	XS5P/M (M12 Smartclick Connection)	XS2P/M (M12 Screw Connection)	XS3P/M (M8 Screw Connection)
Appearance						
Contact pitch	---	---	---	---	---	---
Type	With cable Assembly type	With cable Assembly type	With cable	With electric cable/ Solder cup pins/ Front lock/ rear lock	DIP pins/ Solder cup pins/ Front lock/ rear lock	DIP pins/ Solder cup pins/ Front lock/ rear lock
No. of contacts	100					
	90					
	80					
	70					
	60					
	50					
	40					
	30					
	20					
10	4 8	4 5 8	3 4 5	4 5	4 5	4
Rated current	4A (1.5 A for 8 poles)	4A (1.5 A for 8 poles)	1A (3 A for 5 poles)	4 A	4 A	1 A
Rated voltage	250 VDC (36 VDC for 8 poles)	250 VAC/VDC (36 VDC for 8 poles)	125 VDC (30 VDC for 5 poles)	250 VDC	250 VDC	125 VDC
Ambient operating temperature	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
Applicable wires	---	---	---	AWG 20 to 28	AWG 20 to 28 (Socket) AWG 22 to 28 (Plug)	AWG 26 max. (Solder cup pins)
Terminal shape	---	---	---	---	---	---

Classification	Easy-wire Connectors for Industrial Components		USB Connectors	Testing Socket for Devices with USB Type C Connectors
	XN2A	XN2B/XN2D	XM7A/XM7B	XP2U-001
Model	XN2A	XN2B/XN2D	XM7A/XM7B	XP2U-001
Appearance				
Contact pitch	2.0 mm	2.0 mm	2.0 mm, 2.5 mm	---
Type	Plug	Socket	USB 2.0	Socket
No. of contacts	100			
	90			
	80			
	70			
	60			
	50			
	40			
	30			
	20			
10	3 4 5 6 8	3 4 5 6 8	4	
Rated current	3 A max.	3 A max.	1 A	1.25 ADC (USB Type-C, pin numbers A1, A4, A9, A12, B1, B4, B9, B12) 0.25 ADC (USB Type-C, pin numbers A2, A3, A5 to A8, A10, A11, B2, B3, B5 to B8, B10 to B11) Note) Check the Specifications for correlation with pin numbers
Rated voltage	32 VDC	32 VDC	30 VAC	20 VDC/VAC (ambient temperature 20°C)
Ambient operating temperature	-30 to +75°C	-30 to +75°C	-40 to +60°C	5 to 40°C (no icing or condensation)
Applicable wires	Discrete wires AWG 28 to 20	Discrete wires AWG 28 to 20	---	---
Terminal shape	---	T	T J	---

Terminal shape T Straight DIP terminals J Right-angle DIP terminals T Wrapping terminals T Solder cup terminals T IDC contacts  
 T Solder-free straight terminals T Solder-free wrapping terminals T SMT terminals T Crimp contacts

# Other Connections



Classification		Jumper Plugs/Sockets			
Model	XG8S/XJ8B	XG8T/XJ8C	XJ8D	XJ8A	
Appearance					
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm	
Type	Single-row plugs	Double-row plugs	Triple-row plugs	Jumper socket	
No. of contacts	100				
	90				
	80				
	70				
	60				
	50				
40					
30					
20		20	21 24		
10	12 14 16 18 2 3 4 5 6 7 8 9	10 12 14 16 18 2 4 6 8	12 15 18 3 6 9	2	
Rated current	2 A	2 A	2 A	2 A	
Rated voltage	300 VAC	300 VAC	300 VAC	300 VAC	
Ambient operating temperature	-55 to +105°C	-55 to +105°C	-55 to +105°C	-55 to +105°C	
Applicable wires	---	---	---	---	
Terminal shape					

Classification		IC Sockets				
Model	XR2A	XR2B	XR2T	XR2C	XR2P	
Appearance						
Contact pitch	2.54 mm	2.54 mm	2.54 mm	2.54 mm	2.54 mm	
Type	Open-frame sockets	Closed-frame sockets	Open-frame sockets with seal Tape	Single-row sockets	Round Pin plugs	
No. of contacts	100					
	90					
	80					
	70					
	60	64				
	50	50				
40	40 42 48	40	40 48			
30	32	32	32	32		
20	20 22 24 28	24 28	20 22 24 28	20	20	
10	14 16 18	16	14 16 18	10 16	10 16	
Rated current	1 A	1 A	1 A	1 A	1 A	
Rated voltage	300 VAC	300 VAC	300 VAC	300 VAC	300 VAC	
Ambient operating temperature	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C	
Applicable wires	---	---	---	---	---	
Terminal shape						

Note: Inquire about the compliant standards for individual models. For the latest No. of contacts information, please visit our website, which is noted on the last page.





Terminal shape Straight DIP terminals Right-angle DIP terminals Wrapping terminals Solder cup terminals IDC contacts  
 Solder-free straight terminals Solder-free wrapping terminals SMT terminals Crimp contacts



# Secure and easy connection with Omron connectors.


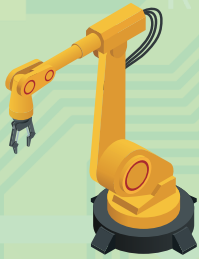
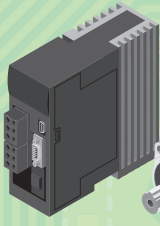
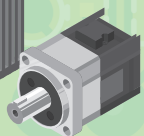

## Applications

### Energy infrastructure

- PV inverter**  

- Energy storage system**  

- EV charger**
  - AC  

  - DC  


Secure connection! /

### Factory automation

- Robot controller**  
  

- Servo controller  
Stepping controller**  
  

- Working machine  
Forming machine**  


Easy connection! /

Dual-sided contact mechanism for easy handling!

### Liquid crystal panel

- Semiconductor manufacturing equipment**  

- Financial machine**  

- Home appliances/  
small home appliances**  

- Building/home security devices**  
  


Connects reliably to your equipment and helps improve productivity.

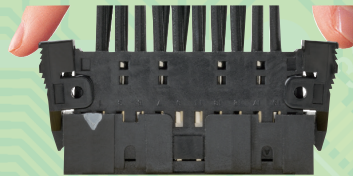
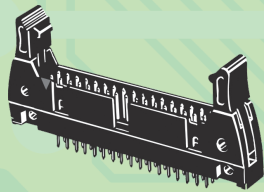
**Omron Solutions**

**Omron MIL Connectors**

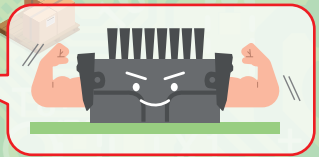
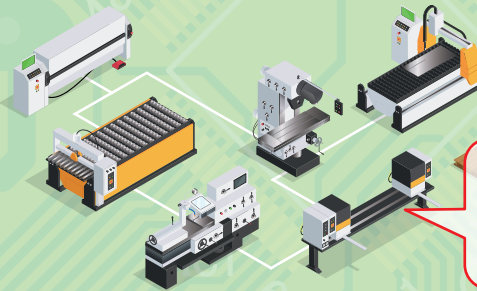
**XG4/XG5**

Simple and easy to operate!

Product details  
**P.11**



Vibration-resistant and safe for industrial equipment

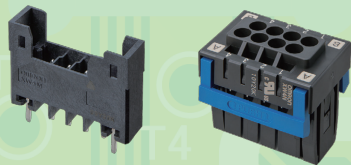


**Omron Push-In Terminal Block PCB Connectors**

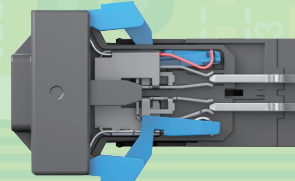
**XW4M/XW4N**

Hassle-free insertion and removal improves work efficiency

Works in what situation?  
**P.22**



Dual-spring structure



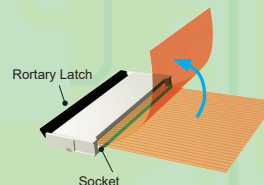
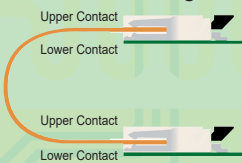
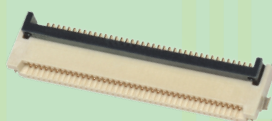
Product details  
**P.10**

**Omron FPC/FFC Connectors**

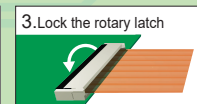
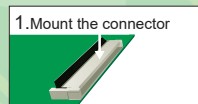
**XF3M/XF2M**

Dual-sided contact mechanism allows greater freedom in design

Product details  
**P.12**



Rotary backlock type contributes to improved production

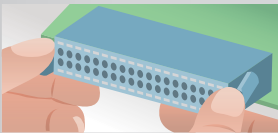
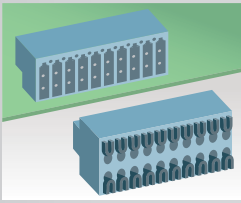


# Workers woes

Assembly, maintenance and inspection onsite workers want connectors which are easy to work with

## Various problems at assembly and maintenance sites

### Customers already using push-in type PCB connectors



With lever

**These connectors are so stiff! I'm afraid I'm going to damage them if I forcefully try to fit them together...**

Working with stiff connectors can be very difficult. If forcefully put together they can be easily damaged.

**Pushing the levers on both sides with both hands is so difficult!**

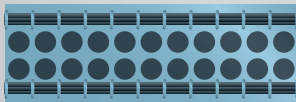
Pushing the connector levers on both sides with both hands after fitting. Isn't this difficult especially in a small space where you cannot change the layout?

**Screwdrivers, connectors, loose wires... How am I supposed to hold all these with only two hands?!**

Working while holding a screwdriver/connector/discrete wires. Won't it be difficult to do the wiring if you can't fix the wires properly?



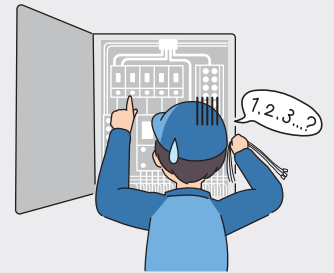
### Customers using push-in terminal blocks



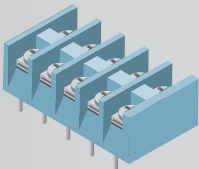
**The connectors aren't numbered... I don't know which one I'm supposed to connect to...**

The connectors aren't numbered. Won't it be difficult to know which connector you are supposed to connect to?

Won't this require extra work on the site like having to put a number sticker on the board or equipment side?



### Customers using terminal blocks (tighten screws)



**Loosening and tightening screws over and over again is so tiring...**

Loosening the screws with a screwdriver and tightening them again after wiring. Won't it be tedious and time-taking?



For example, in such cases

### During production line assembly in a factory

- Connecting robot controllers to a sensor
- Work without changing the layout significantly

\*Unique dual-spring structure: A structure that ensures contact reliability through the combined contact force of the first and second springs when engaging, and reduces the insertion and removal force by operating the lever to open the second spring when inserting and removing. Determined by Omron research conducted in February 2021, Patent pending

Omron's push-in terminal block PCB connectors are **easy and stress-free**.

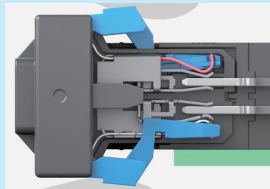


Click here to watch the video

## Omron Solutions

Feature 1

**Unique dual-spring structure\***



Feature 2

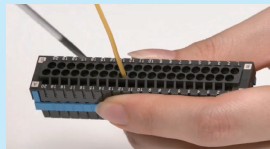
**Single-handed action**



Detachable lever (blue part)

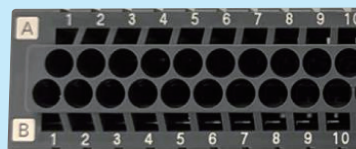
Feature 3

**Hands-free**



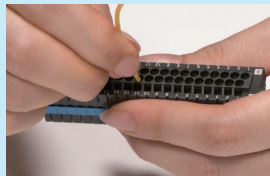
Feature 4

**The product comes standard with pin number markings**

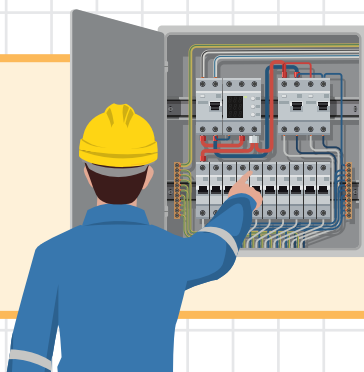


Feature 5

**Push-in type**



**Safe, comfortable and speedy site**



### During maintenance and inspection of security devices

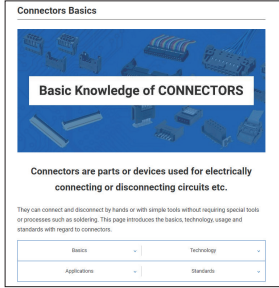
- Periodic inspection of receivers and repeaters
- Replacement work in case of sensor failure

We have many more easy connectors!

Special site



## Information of Related Products



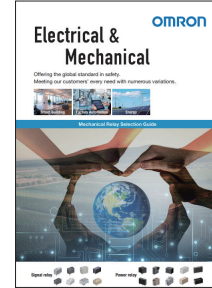
### Basic Knowledge of CONNECTORS



### Switch Selection Guide



Cat. No.  
Y272-E1



### Mechanical Relay Selection Guide



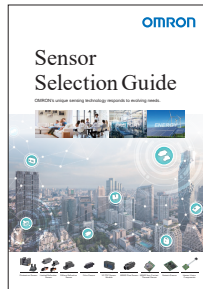
Cat. No.  
Y225-E1



### MOS FET Relays SELECTION GUIDE



Cat. No.  
Y112-E1



### Sensor Selection Guide



Cat. No.  
Y232-E1

Please check each region's Terms & Conditions by region website.

## OMRON Corporation Device & Module Solutions Company

### Regional Contact

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