



Discontinued as of September 30, 2010

# Panasonic

ideas for life

## SIMPLE WIRE-PRESS CONNECTORS (AXF1, 2)

### SIMPLE WIRE-PRESS CONNECTORS

SIMPLE WIRE-PRESS CONNECTORS  
(Compliant with e-CON)

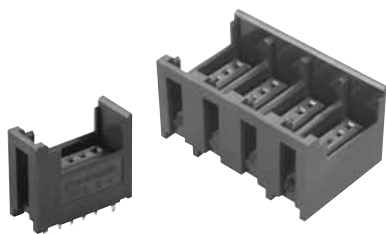
New



Wire connection plug



Wire connection socket



4 contacts × 1 row

4 contacts × 4 row

PC board-mount socket

#### • What's e-CON (Easy & Economy Connector)?

e-CON is an industry standard for wire-press connectors for wiring sensors to PLCs that has been promoted by connector manufacturers and factory automation equipment manufacturers since 2001.

The name "e-CON" is used in Japan only.

#### Compliance with RoHS Directive

### FEATURES

**1. Wires can be easily crimped without any special tools, contributing to reduction of the total setup time and cost.**

This wire-press system only requires "wire insertion", "pressing", and "check of the finish", significantly facilitating wiring work as compared with the conventional wiring system that requires "wire-cover stripping", "terminal crimping", "screwing", and "check of the finish".

#### • Simple wire-press system



Insert the wire to be connected.

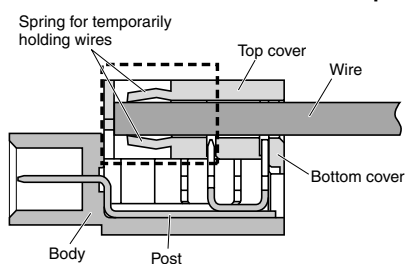


Wires can be easily crimped without the need for special tools.

**2. The structure is designed to temporarily hold inserted wires before crimping, allowing for high workability.**

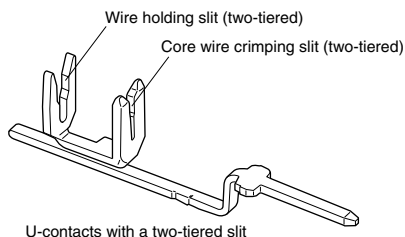
The top and bottom molded covers have a spring to temporarily hold the inserted wire, facilitating the positioning of the wire.

(Cross section of the wire connection plug)



**3. Since each single model supports a wider range of wire types, there will be a reduction of connector part numbers to control and inventory.**

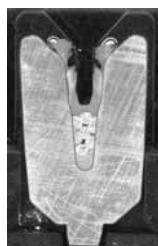
Since the wire holding slit and the core wire crimping slit have a two-tiered structure, only two connector models are required to support a wide range of wire cover diameters from 0.7 to 2.0 mm.



U-contacts with a two-tiered slit



Cross section of wire crimped in the upper tier

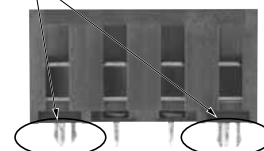


Cross section of wire crimped in the lower tier

**4. The wide selection of the PC board-mount type four-row sockets includes a self-standing bracket type and a flux-tight type.**



PC board-mount socket (standard type)  
Self-standing brackets are provided for two sections.

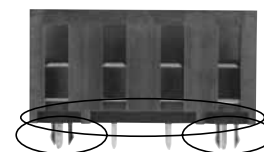


PC board-mount socket  
(with self-standing brackets)



The socket bottom surface is sealed with resin.

PC board-mount socket (flux-tight type)



PC board-mount socket  
(flux-tight type with self-standing brackets)

### APPLICATIONS

**1. Semiconductors, LCD panel devices (IT equipment market), carrier devices, etc.**

**2. Wire-saving systems, terminal sockets, sensors, etc.**

Color of cover	Nominal cross-sectional area	Wire cover diameter	AWG No.
Red	0.08 to 0.2mm <sup>2</sup>	0.7 to 1.2mm dia.	AWG #28 to 24
Blue	0.3 to 0.5mm <sup>2</sup>	1.2 to 2.0mm dia.	AWG #22 to 20

# SIMPLE WIRE-PRESS CONNECTORS (AXF1, 2)



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## ORDERING INFORMATION

### 1. Wire connection type (compliant with e-CON)

**AXF1**

AXF1: Simple wire-press connector  
Wire connection type (compliant with e-CON)

Type  
1: Socket  
2: Plug

Number of rows  
1: 1 row

Number of contacts  
4: 4 contacts

Applicable cable  
2: 1.2 to 2.0 dia.  
6: 0.7 to 1.2 dia.

Packing  
C: 5-connector package  
T: Tray package (50 pieces)

### 2. PC board-mount type (compliant with e-CON)

**AXF2**

AXF2: Simple wire-press connector  
PC board-mount type (compliant with e-CON)

Type  
1: Socket (straight type)

Number of rows  
1: 1-row  
4: 4-row

Number of contacts  
4: 4 contacts

Self-standing brackets / Flux-tight  
1: Without self-standing brackets / Not flux-tight (4-row type only)  
2: Without self-standing brackets / Flux-tight (4-row type only)  
3: With self-standing brackets / Not flux-tight  
4: With self-standing brackets / Flux-tight

Packing  
C: 5-connector package  
T: Tray package

### 3. Special tool for wire-press connector

**AXY6**

## TYPES

### 1. Wire connection socket

Number of contacts	Wire cover diameters supported (AWG No.)	Part number	Color of cover	Packing	
				Inner package (Carton/Tray)	Outer carton
4 contacts	0.7 to 1.2 dia. (AWG 28 to 24)	AXF11146*	Red	Asterisk "*" mark on end of Part No.; C: 5 pieces (Package) T: 50 pieces (Tray package)	Asterisk "*" mark on end of Part No.; C: 200 pieces (Package) T: 200 pieces (Tray package)
	1.2 to 2.0 dia. (AWG 22 to 20)	AXF11142*	Blue		

- Notes: 1. If you order five connectors, then we will deliver them in one box.  
2. Order the five-piece packs in units of five pieces, and the tray packs in units of 50.  
3. The wire cover diameters supported may change depending on the wire conductor composition.  
4. Some wires with a cover made of a hard material, such as fluorine resin, cannot be used even if they meet the cover diameter requirements. Please contact us for details before use.  
5. We recommend that Sn-plated wires be used.

### 2. Wire connection plug

Number of contacts	Wire cover diameters supported (AWG No.)	Part number	Color of cover	Packing	
				Inner package (Carton/Tray)	Outer carton
4 contacts	0.7 to 1.2 dia. (AWG 28 to 24)	AXF12146*	Red	Asterisk "*" mark on end of Part No.; C: 5 pieces (Package) T: 50 pieces (Tray package)	Asterisk "*" mark on end of Part No.; C: 200 pieces (Package) T: 200 pieces (Tray package)
	1.2 to 2.0 dia. (AWG 22 to 20)	AXF12142*	Blue		

- Notes: 1. If you order five connectors, then we will deliver them in one box.  
2. Order the five-piece packs in units of five pieces, and the tray packs in units of 50.  
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# SIMPLE WIRE-PRESS CONNECTORS (AXF1, 2)

## 3. PC board-mount socket

Number of contacts	Self-standing brackets and Flux-tight type	Part number	Packing	
			Inner package (Carton/Tray)	Outer carton
4 contacts × 1 row	With self-standing brackets type	AXF21143T	100 pieces (Tray package)	200 pieces (Tray package)
	Flux-tight type with self-standing brackets	AXF21144T		
4 contacts × 4 rows	Standard type	AXF21441*	Asterisk "*" mark on end of Part No.; C: 5 pieces (Package) T: 50 pieces (Tray package)	Asterisk "*" mark on end of Part No.; C: 200 pieces (Package) T: 200 pieces (Tray package)
	Flux-tight type	AXF21442*		
	With self-standing brackets type	AXF21443*		
	Flux-tight type with self-standing brackets	AXF21444*		

Notes: 1. If you order five connectors, then we will deliver them in one box.

2. Order the five-piece packs in units of five pieces, the tray packs of the single-row type in units of 100, and the tray packs of the four-row type in units of 50.

## SPECIFICATIONS

### 1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	AWG20: 3A/contact, AWG22: 2A/contact, AWG24: 1A/contact, AWG26: 0.5A/contact, AWG28: 0.5A/contact	
	Rated voltage	Max. 32V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Measured after one minute of voltage application by a 500 V DC megger.
	Breakdown voltage	1,000V AC for 1 min.	Rated voltage is applied for one minute and check for short circuit or damage with a detection current of 1mA.
	Contact resistance	Max. 30mΩ (initial)	Measured based on the HB4338B measurement method of JIS C 5402
Mechanical characteristics	Insertion force	Max. 11N	Including insertion resistance of the lock lever
	Removal force	Min. 0.4N	Measured the removal force with the lock released.
	Vibration resistance	10 to 55 Hz at the double amplitude of 1.52mm There must be no current interruption exceeding 1 μs during two hours of application in each of the three axis directions.	MIL-STD-202F, METHOD204G Max. 100mA carrying current
	Shock resistance	490m/s <sup>2</sup> , There must be no current interruption exceeding 1 μs during three times in each of the three axis directions.	MIL-STD-202F, METHOD202G Max. 100mA carrying current
Lifetime characteristics	Insertion and removal life	500 times, Contact resistance increase: Max.25mΩ	Repeat insertions and removals of the plug and the socket. Insertion/removal speed: 200 times/hour max.
Environmental characteristics	Ambient temperature	−35 to +75°C	With no freezing or condensation Restricted by the ambient temperature limit of the cable.
	Thermal shock resistance (mated)	50 cycles, Contact resistance increase: Max. 25mΩ, Insulation resistance Min. 100MΩ	Sequence 1. −55 <sup>+3</sup> / <sub>−3</sub> °C, 30 minutes 2. 25 <sup>+10</sup> / <sub>−3</sub> °C, Max. 5 minutes 3. 85 <sup>+3</sup> / <sub>−3</sub> °C, 30 minutes 4. 25 <sup>+3</sup> / <sub>−3</sub> °C, Max. 5 minutes To be tested at 85°C or the upper limit of the ambient temperature, whichever is lower.
	Heat resistance (mated)	85°C, 240 hours, Contact resistance increase: Max. 25mΩ, Insulation resistance Min. 100MΩ	To be tested at 85°C or the upper limit of the ambient temperature, whichever is lower. Avoid continuous use at the maximum rated current at high temperature.
	Humidity resistance (mated)	96 hours, Contact resistance increase: Max. 25mΩ, Insulation resistance Min. 100MΩ	Bath temperature: 40°C±2°C, humidity: 90 to 95 %R.H.
	Temperature and humidity cycles (mated)	10 cycles, Contact resistance increase: Max. 25mΩ, Insulation resistance Min. 100MΩ	Follow JIS C0028.
	Saltwater spray resistance (mated)	48 hours (continuous), Contact resistance increase: Max. 25mΩ, Insulation resistance Min. 100MΩ	Bath temperature: 35°C±2°C, Saltwater concentration: 5%±1%

### 2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Body: PBT resin (UL94V-0) Top cover: Polycarbonate resin (UL94V-0) Bottom cover: PBT resin (UL94V-0)	—
Contact	Copper alloy	Contact portion: Ni plating on base, Au plating on surface, Pressured portion: Ni plating

# SIMPLE WIRE-PRESS CONNECTORS (AXF1, 2)



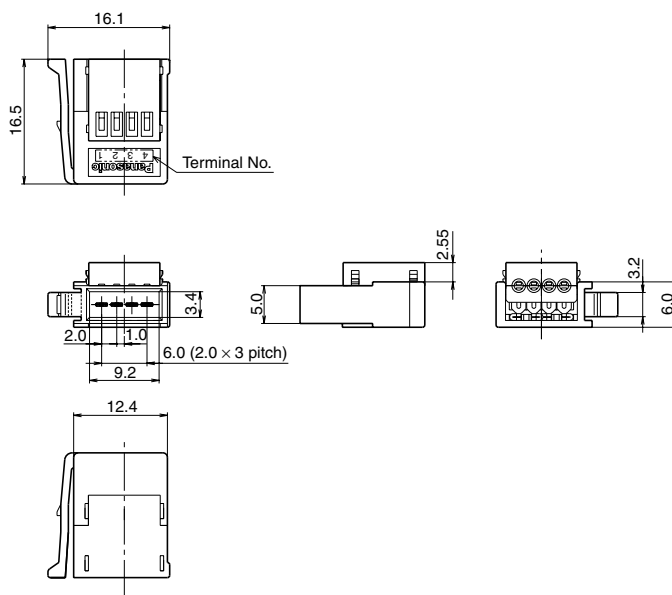
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## DIMENSIONS (unit: mm)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://panasonic-electric-works.net/ac>

### 1. Plug

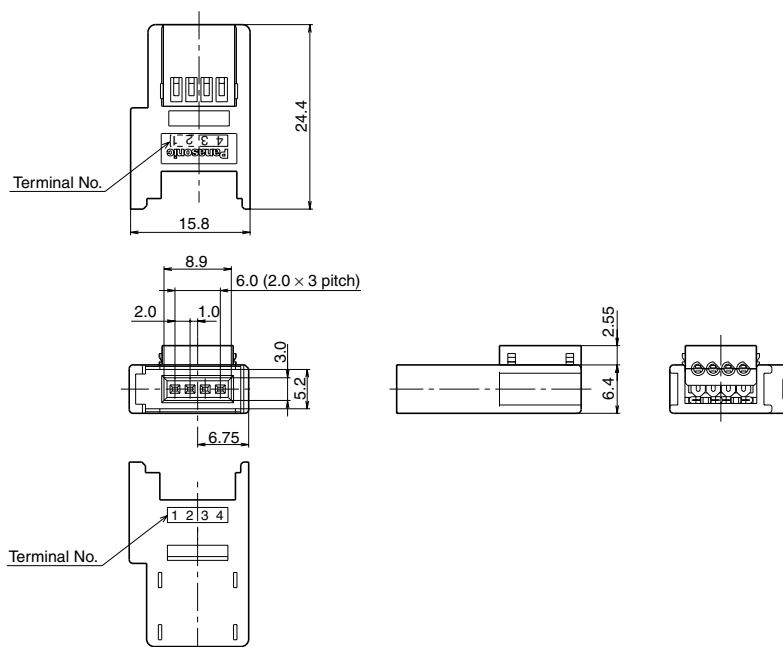
#### CAD Data



General tolerance:  $\pm 0.2$

### 2. Socket

#### CAD Data



General tolerance:  $\pm 0.2$



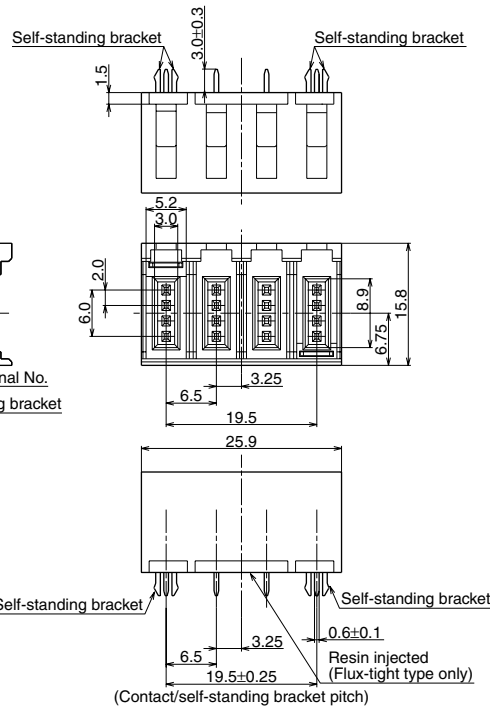
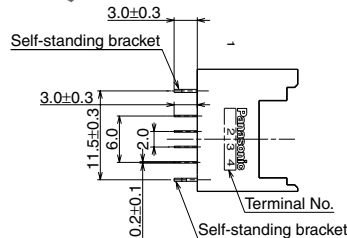
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# SIMPLE WIRE-PRESS CONNECTORS (AXF1, 2)

## 3. PC board-mount socket with self-standing brackets

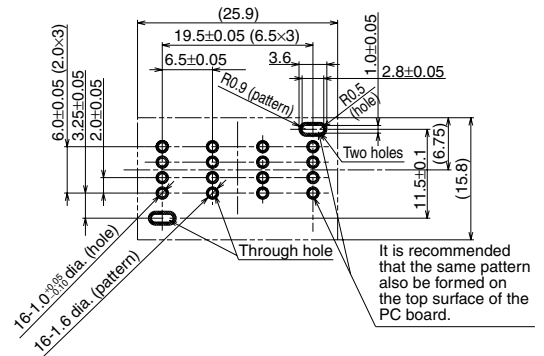
1) 4 contacts × 4 rows

### CAD Data



General tolerance:  $\pm 0.2$

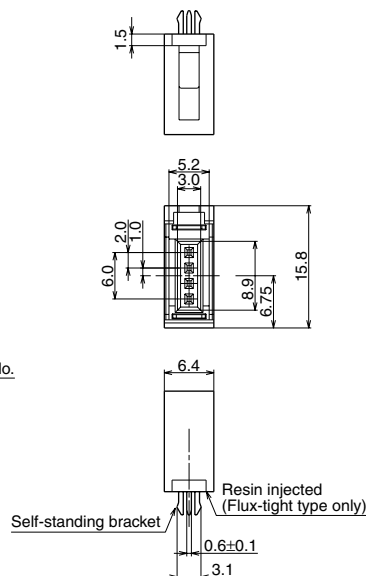
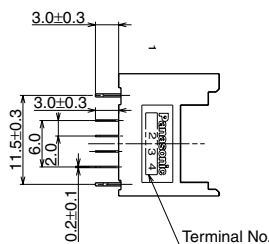
### Recommended PC board pattern (Bottom view)



- Notes: 1. When using a socket without self-standing brackets, the two holes are not required.  
2. The dimensions of the flux-tight and non-flux-tight types are identical.

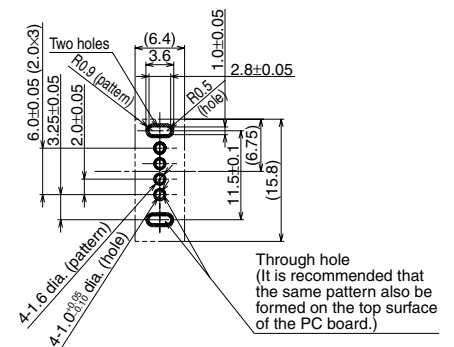
2) 4 contacts × 1 row

### CAD Data



General tolerance:  $\pm 0.2$

### Recommended PC board pattern (Bottom view)



Note: The dimensions of the flux-tight and non-flux-tight types are identical.



## NOTES

### 1. Connector insertion/removal

1) Hold the connector body during insertion/removal of the connector.

2) When inserting the plug, do not touch the lock lever of the plug. Keep it parallel to the connector and insert it until the lock lever makes a clicking sound.

After inserting the plug, pull it in the removal direction to confirm that it will not be disconnected.

### 2. Do not pull the cable or locked connector.

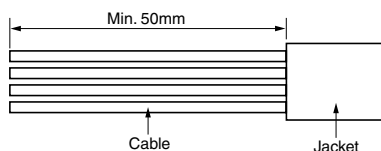
### 3. Wire pressing method

Follow the wire-pressing procedures below.

1) Choose a plug and socket with a part number that matches the target wire.

2) Jacketed wire processing

When using a jacketed wire, strip the wire cover by 50 mm or more.

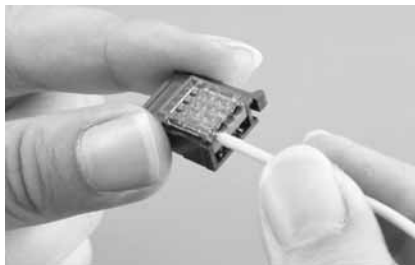


### 3) Wire cutting

If the wire end is crushed, it is difficult to insert it into the connector. Cut the wire end to give it a round shape. (Do not strip the wire.)

4) Insert the wire.

Check the terminal number marked on the housing and insert the wire through the wire inlet between the top cover (semi-transparent) and the bottom cover (white and gray) as far as it will go.



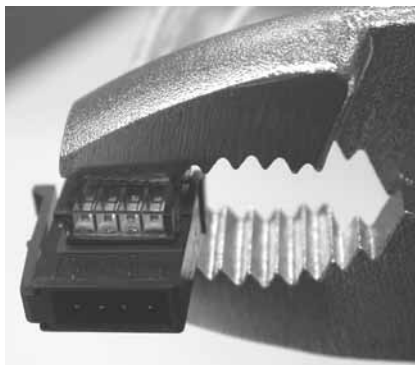
Fully inserted wire will be temporarily held.

Check that all wires are inserted into the specified position from the top of the connector.

5) Press the connector.

Press the connector with parallel pliers (commercially available).

Note: Set the pliers from the side of the connector as shown in the picture.



Press the connector until the four convex points of the cover are inserted into the concave points of the housing.

Ensure the following points when pressing the connector.

- Press the connector until the four convex points of the cover are inserted into the concave points of the housing.
- If the pressing cannot be completed in one action, position the pliers from the other side and then press the connector to complete the pressing.
- Press the center part of the cover uniformly with 10mm or wider pliers.
- It is important to insert the cover in parallel to the housing. Be careful not to tilt the cover during pressing.
- Do not apply an excessive load exceeding 1,000N to the connector during pressing.

\*If any pressing error occurs, the connector must not be reused.

### 4. Soldering of the PC board-mount sockets

Please also solder the self-standing pins to secure adequate strength of the joint between the socket and the board.

**For other details, please verify with the product specification sheets.**