

**NEW**



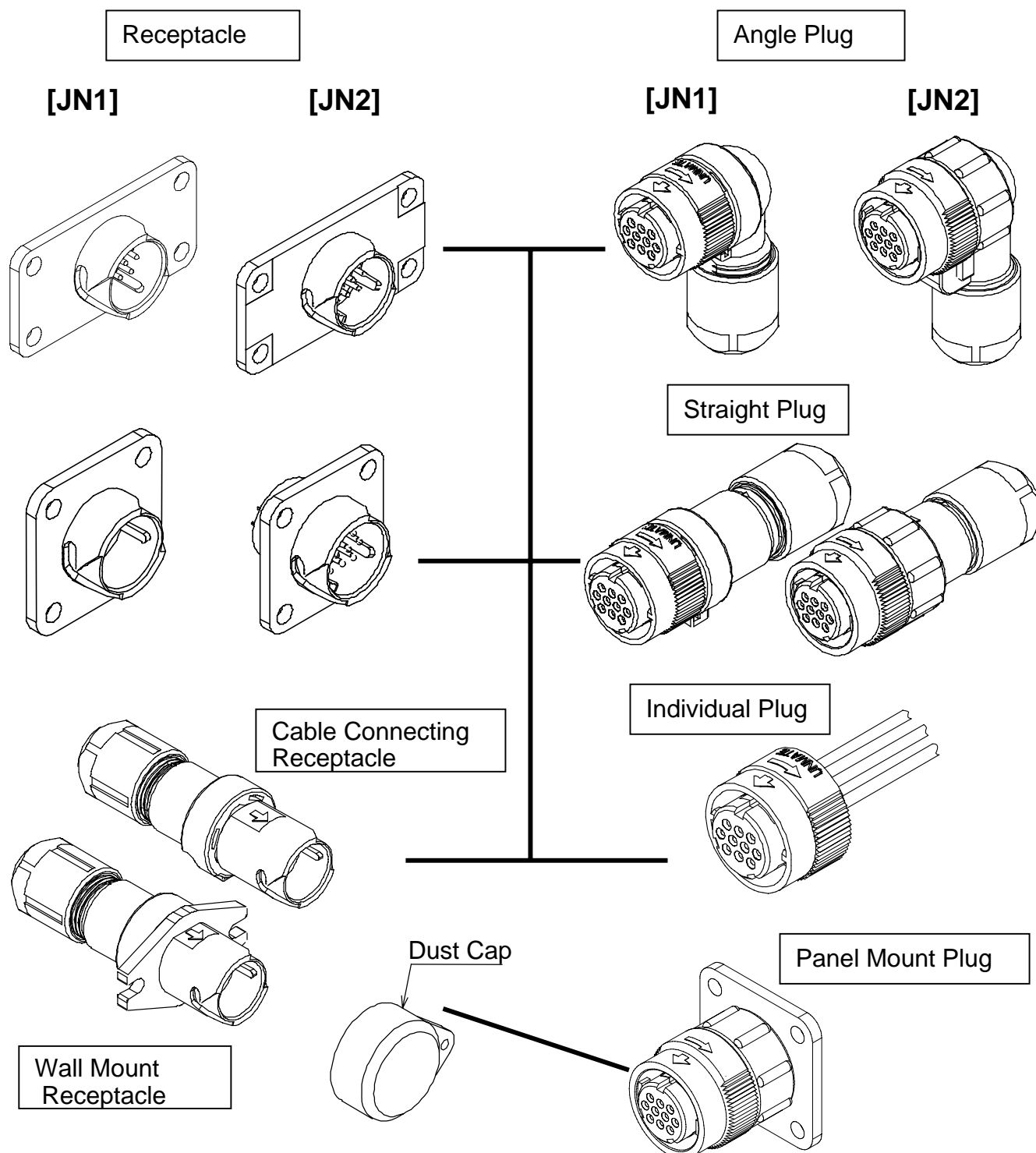
# Small Circular Connector

## JN1/JN2 Series

CONNECTOR

MB-0054-8

October 2009



This product is a waterproof circular connector with one-touch lock mechanism developed as an interface for industrial devices. It is available in the all-plastic type JN1, and the partially metal-reinforced robust type JN2. Both are compact designs and suitable for a variety of electronic devices. JN1 and JN2 are UL certified. The 4-contact JN2 is TUV certified. (Patent and design registration applications have been filed.)

## Features

### [JN1]

- All plastic lightweight connector.
- Easy and sure mating with push-and-twist type one-touch lock mechanism.
- Terminal specification for receptacle and plug differs by series and number of contacts, please refer to general specification for each product. Socket contact for 10 pos. plug is available in crimp and solder types.
- The 4-contact receptacle is not body grounded. Connection of ground contact and chassis is needed for grounding.
- Crimp connection relay receptacle is available in cable-connecting and wall-mounting receptacle types. (4 pos. and 10 pos.)
- Plug is available in straight, angle and individual types (10 pos. only). The cable direction of the angle plug can be set in four directions by rotating the plug in 90 degree increments.
- Mating height of angle plug is 30.8mm from panel surface (4 pos. and 10 pos.). Individual plug is low profile 16.9mm (10 pos.).
- Waterproof and dustproof conforming to IP67.
- Superb environment-proof performance such as vibration and oil resistance.
- Suitable for conduit mounting (cannot be attached to individual plug).

### [JN2]

- Compatible with JN1, considerably reinforced with metal material in part of the outer shell (strength increased three fold over JN1).
- Uses same crimp contact as the JN1.
- Terminal specification for receptacle and plug differs by series and number of contacts, please refer to general specification for each product. 4-contact receptacle body is grounded.
- 4-contact type is TUV qualified.
- Plug is available in straight and angle types. The cable direction of the angle plug can be set in four directions by rotating the plug in 90 degree increments.
- Contact variations: 4, 10 pos.
- Angle plug mating height is 31.3mm from cabinet surface (4, 10 pos.).
- Waterproof and dustproof conforming to IP67.
- Superb environment-proof performance such as vibration and oil resistance.
- Suitable for conduit mounting.

## General Specifications

### [JN1]

Item	Specification and Performance	
No. of Contacts	10 pins	4 pins
Rated Current	3A/pin (#22 size contact)	5A/pin (#20 size contact)
Rated Voltage	200VAC	200VAC
Withstanding Voltage	900VAC (per minute)	2000VAC (per minute)
Insulation Resistance	1000M ohm min.(DC500V energized )	1000M ohm min.(DC500V energized )
Waterproof	IP67	IP67
Airtightness (Individually Waterproofed)	$2.9 \times 10^4$ PA (per minute) without leakage	$2.9 \times 10^4$ PA (per minute ) without leakage
Operating Temperature	-20 Deg. C to +125 Deg.C	-20 Deg. C to +125 Deg.C
Specification of Wire Connection	Receptacle: Through-hole, solder connection 22AWG (0.3mm <sup>2</sup> ) max. Cable connecting receptacle: Crimp connection 20 to 28AWG Plug: Crimp connection 20 to 28AWG Solder connection 20AWG max.	Receptacle: Solder connection 18 AWG (0.75mm <sup>2</sup> ) max.  Cable connecting receptacle and plug: Solder connection 16 AWG (1.25mm <sup>2</sup> ) max.
Product Specification	JACS-5111	JACS-5111-2
Instruction Manual	JAHL-5111	JAHL-5111
Durability	500 mating cycles	500 mating cycles

**[JN2]**

Item	Specification and Performance	
No. of Contacts	10 pins	4 pins
Rated Current	3A/pin (#22 size contact)	5A/pin (#20 size contact)
Rated Voltage	200VAC	200VAC (degree of pollution 3, excess voltage category 3)
Withstanding Voltage	900VAC (per minute)	2000VAC (per minute)
Insulation Resistance	1000M ohm min. (DC500V energized)	1000M ohm min. (DC500V energized)
Waterproof	IP67	IP67
Airtightness (Individually Waterproofed)	2.9 X 10 <sup>4</sup> PA (per minute) without leakage	2.9 X 10 <sup>4</sup> PA (per minute) without leakage
Operating Temperature	-20 Deg. C to +100 Deg.C	-20 Deg. C to +100 Deg.C
Specification of Wire Connection	Receptacle: Through-hole, solder connection 22 AWG (0.3mm <sup>2</sup> ) max. Plug: Crimp connection 20 to 28 AWG Solder connection 20AWG max.	Receptacle: Solder connection 18AWG (Max.0.75mm <sup>2</sup> ) Plug: Solder connection (Max.1.25mm <sup>2</sup> )
Product Specification	JACS-5119	JACS-5119-2
Instruction Manual	JAHL-5119	JAHL-5119
Durability	500 mating cycles	500 mating cycles

Please refer to the drawings for each product for further information.

## Materials and Finishes

**[JN1]**

	Component	Material / Finish
Receptacle	Pin insulator	Synthetic resin
	Pin contact	Copper alloy / Au plating (10 pin), Ag plating (4 pin.)
Relay Receptacle	Insulator	Synthetic resin
	Assembly nut	Synthetic resin
	Straight endbell	Synthetic resin
	O Ring	Synthetic rubber
	Bushing*	Synthetic rubber (Color: black/gray/brick red/dark green)
	Grand nut	Synthetic resin
	Pin contact (#22)	Au plating
	Pin contact (#20)	Silver plating
Plug	Front insulator	Synthetic resin
	Rear insulator	Synthetic resin
	Coupling nut	Synthetic resin
	Assembly nut	Synthetic resin
	Angle endbell	Synthetic resin
	Straight endbell	Synthetic resin
	O Ring	Synthetic rubber
	Bushing (*)	Synthetic rubber (Color: black/gray/brick red/dark green)
	Grand nut	Synthetic resin
	Spring	Stainless steel
	Spring pin	Stainless steel
	Socket contact	Copper alloy / Au plating (10pin), Silver plating (4pin)

**[JN2]**

	Component	Material / Finish
Receptacle	Pin insulator	Synthetic resin
	Shell	Zinc die-cast / Zinc plating
	Pin contact	Copper alloy / Au plating (10 pin), Silver plating (4 pin.)
Plug	Front insulator	Synthetic resin
	Rear insulator	Synthetic resin
	Coupling nut	Zinc die-cast / Zinc plating (Black)
	Assembly nut	Zinc die-cast / Zinc plating (Black)
	Angle endbell	Synthetic resin
	Straight endbell	Synthetic resin
	O Ring	Synthetic rubber
	Bushing*	Synthetic rubber (Color: black/gray/brick red/dark green)
	Grand nut	Synthetic resin
	Spring	Stainless steel
	Spring pin	Stainless steel
	Socket contact	Copper alloy / Au plating (10 pin), Silver plating (4 pin)

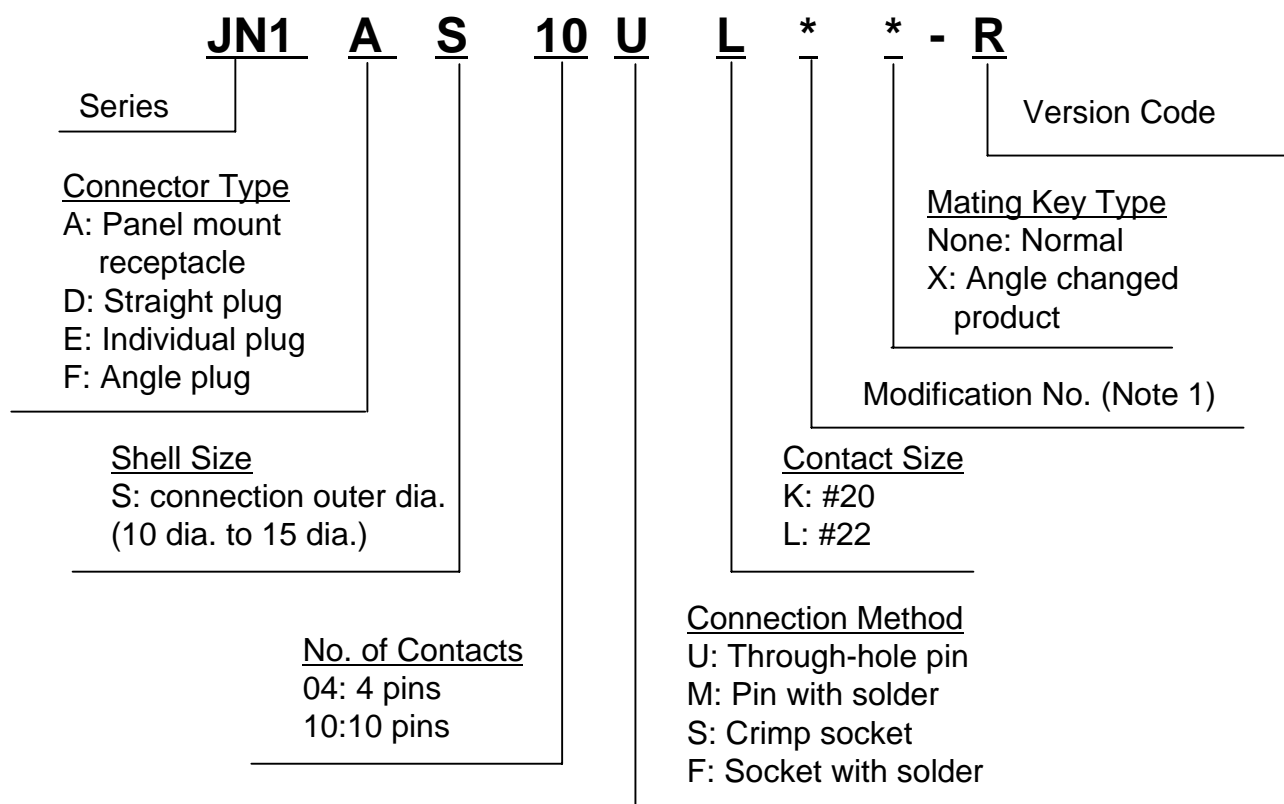
\*Color of bushing is determined by applicable wire size. (Same for JN1, JN2)

Color of Bushing	Applicable Cable
	4, 10 pos.
Gray	6.5 to 8.0 Dia.
Black	5.7 to 7.3 Dia.
Dark Green	4.7 to 5.7 Dia.
Brick Red	3.5 to 5.0 Dia.

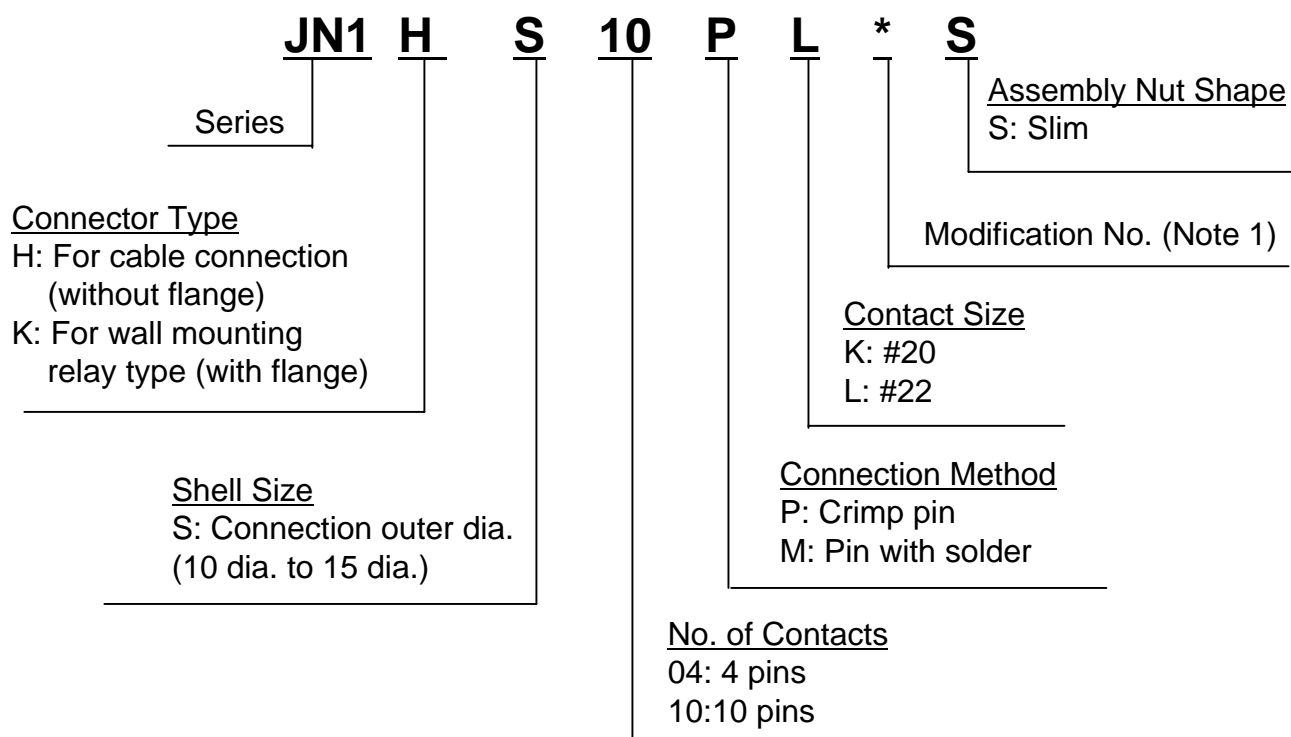
## Ordering Information

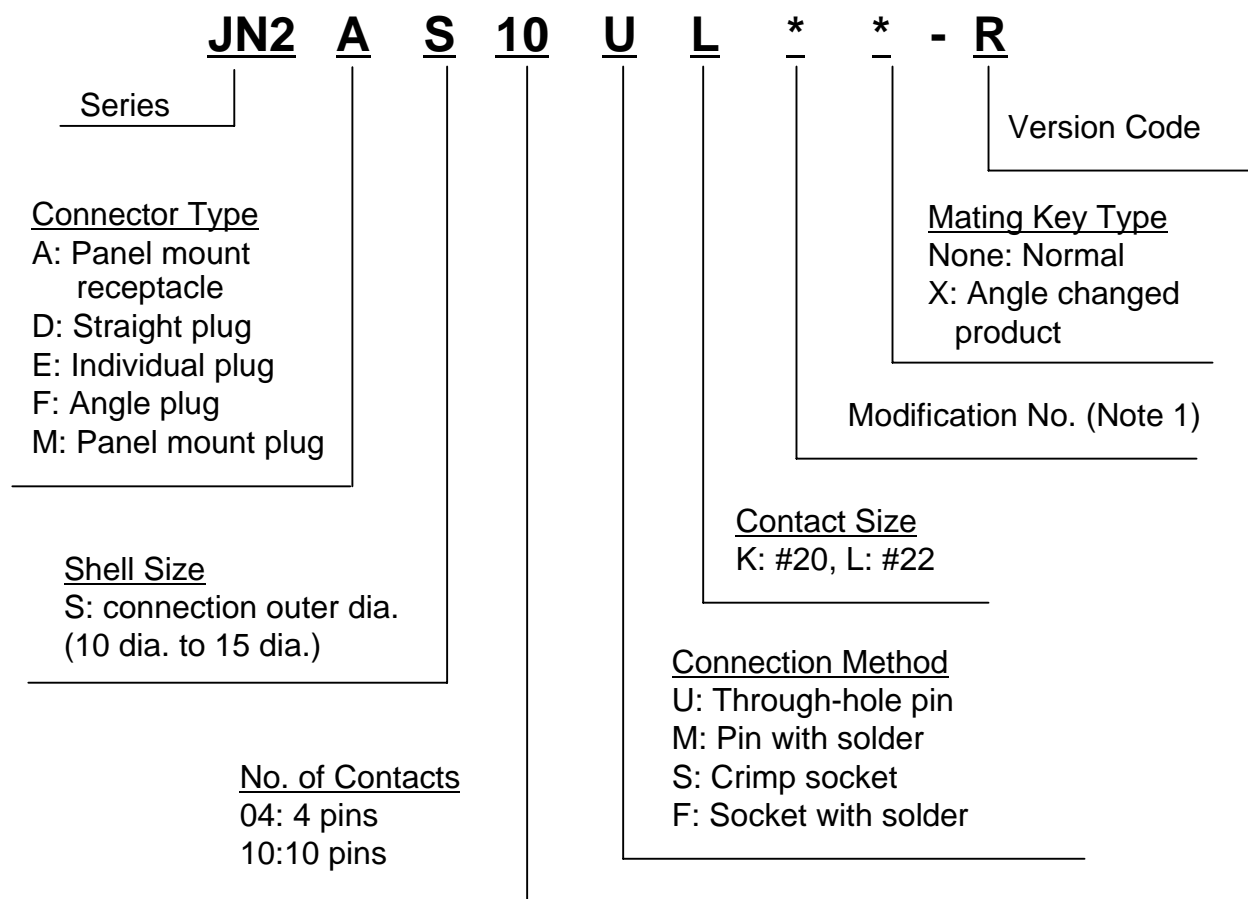
**[JN1]**

### Receptacle / Plug



### Relay Receptacle



**[JN2]**Receptacle / Plug

Note 1: Please refer to product drawings for Modification Number.

# ■ Part Number List

	No. of Con tacts	Type	Part Number	SJ Drawing	Performance / Shape
JN1	4	Square Flange Receptacle	JN1AS04MK1	035649	Individually waterproofed, solder pin
			JN1AS04MK1X	035649	Individually waterproofed, solder pin, X position
		Cable Connecting Receptacle	JN1HS04MK1-R	105206	Waterproof (when mated), solder pin, cable dia. 5.7 to 7.3
			JN1HS04MK2-R	105206	Waterproof (when mated), solder pin, cable dia. 6.5 to 8.0
			JN1HS04MK4S	105841	Waterproof (when mated), solder pin, cable dia. 4.7 to 5.7, Outer diameter: 20 dia. max.
			JN1HS04MKKS	107658	Waterproof (when mated), solder pin, cable dia. 20 max., kit type (with four types of rubber bushing)
		Wall Mount Receptacle	JN1KS04MK1-R	105207	Waterproof (when mated), solder pin, cable dia. 5.7 to 7.3
			JN1KS04MK2-R	105207	Waterproof (when mated), solder pin, cable dia. 6.5 to 8.0
		Straight Plug	JN1DS04FK1	035666	Waterproof (when mated), solder socket cable dia. 5.7 to 7.3
			JN1DS04FK1X	035666	Waterproof (when mated), solder socket cable dia. 5.7 to 7.3, X position
			JN1DS04FK2	035666	Waterproof (when mated), solder socket cable dia. 6.5 to 8.0
			JN1DS04FK2X	035666	Waterproof (when mated), solder socket cable dia. 6.5 to 8.0, X position
			JN1DS04FKK	035969	Waterproof (when mated), solder socket kit type (with two types of rubber bushing)
			JN1DS04FKKX	035969	Waterproof (when mated), solder socket kit type (with two types of rubber bushing), X position
			JN1DS04FKB	037181	Waterproof (when mated), solder socket, individual wire type
		90 Degree Angle Plug	JN1FS04FK1	035610	Waterproof (when mated), solder socket cable dia. 5.7 to 7.3
			JN1FS04FK1X	035610	Waterproof (when mated), solder socket cable dia. 5.7 to 7.3, X position
			JN1FS04FK2	035610	Waterproof (when mated), solder socket cable dia. 6.5 to 8.0
			JN1FS04FK2X	035610	Waterproof (when mated), solder socket cable dia. 6.5 to 8.0, X position
			JN1FS04FKK	035968	Waterproof (when mated), solder socket kit type (with two types of rubber bushing)
			JN1FS04FKKX	035968	Waterproof (when mated), solder socket kit type (with two types of rubber bushing), X position
		Waterproof Cap	J025-52209	035565	JN1, 2 Receptacle (4, 10pos.) for waterproof, IP67



	No. of Con tacts	Type	Part Number	SJ Drawing	Performance / Shape
JN1	10	Rectangular Flange Receptacle	JN1AS10UL1	034676	Waterproof (when mated), through-hole pin
		Square Flange Receptacle	JN1AS10ML1-R	105743	Waterproof (when mated), solder pin
			JN1AS10ML2-R	105745	Individually waterproofed, solder pin
		Cable Connecting Receptacle	JN1HS10PL1	037293	Waterproof (when mated), crimp pin cable dia. 5.7 to 7.3
			JN1HS10PL2	037293	Waterproof (when mated), crimp pin cable dia. 6.5 to 8.0
			JN1HS10PL3	037293	Waterproof (when mated), crimp pin cable dia. 3.5 to 5.0
			JN1HS10PL3S	105842	Waterproof (when mated), crimp pin cable dia. 3.5 to 5.0, outer diameter: 20 dia. max.
			JN1HS10PL4S	105842	Waterproof (when mated), crimp pin cable dia. 5.7 to 7.3, outer diameter: 20 dia. max.
			JN1HS10PLKS1	107656	Waterproof (when mated), crimp pin cable dia. 5.7 to 7.3, kit type (with rubber bushing and 10 contacts)
			JN1HS10PLKS2	107656	Waterproof (when mated), crimp pin cable dia. 5.7 to 7.3, kit type (with rubber bushing and 10 contacts)
			JN1HS10PLKS3	107656	Waterproof (when mated), crimp pin cable dia. 5.7 to 7.3, kit type (with rubber bushing and 10 contacts)
		Wall Mount Receptacle	JN1KS10PL1	037294	Waterproof (when mated), crimp pin cable dia. 5.7 to 7.3
			JN1KS10PL2	037294	Waterproof (when mated), crimp pin cable dia. 6.5 to 8.0
		Individual Plug	JN1ES10SL1	034677	Non-waterproof, crimp socket, individual block
		Straight Plug	JN1DS10SL1	034679	Waterproof (when mated), crimp or solder socket (sold separately) cable dia. 5.7 to 7.3
			JN1DS10SL2	034679	Waterproof (when mated), crimp or solder socket (sold separately) cable dia. 6.5 to 8.0
			JN1DS10SL3	034679	Waterproof (when mated), crimp or solder socket (sold separately) cable dia. 3.5 to 5.0
			JN1DS10SLK	034679	Waterproof (when mated), crimp socket, kit type (with 10 contacts and two types of rubber bushing)
		90 Degree Angle Plug	JN1FS10SL1	034678	Waterproof (when mated), crimp or solder socket (sold separately) cable dia. 5.7 to 7.3
			JN1FS10SL2	034678	Waterproof (when mated), crimp or solder socket (sold separately) cable dia. 6.5 to 8.0
			JN1FS10SLK	034678	Waterproof (when mated), crimp socket, kit type (with 10 contacts and two types of rubber bushing)
		Waterproof Cap	J025-52209	035565	JN1, 2 Receptacle (4, 10pos.) for waterproof, IP67

	No. of Con tacts	Contact Type	Connection Type	Figuration	Part Number	SJ Drawing	Performance / Shape
JN1	10	Socket Contact	Crimp	In pieces (100pcs.)	JN1-22-20S-R- PKG100	SJ035503	20-21AWG Outer Dia. 1.5 max.
					JN1-22-22S-PKG100	SJ035503	21-25AWG Outer Dia. 1.5 max.
					JN1-22-26S-PKG100	SJ035503	26-28AWG Outer Dia. 1.1 max.
				In reels (10,000 pcs.)	JN1-22-20S-R-10000	SJ035504	20-21AWG Outer Dia. 1.5 max.
					JN1-22-22S-10000	SJ035504	21-25AWG Outer Dia. 1.5 max.
					JN1-22-26S-10000	SJ035504	26-28AWG Outer Dia. 1.1 max.
			Solder	In pieces	JN1-22-22F-PKG100	SJ109855	In pieces(10pcs.), AWG#20 max. Outer Dia. 1.5 max.
					JN1-22-22F-PKG10	SJ109855	In pieces(10pcs.), 20AWG max. Outer Dia. 1.5 max.
		Pin Contact	Crimp	In pieces (100pcs.)	JN1-22-20P-R- PKG100	SJ037430	20-21AWG Outer Dia. 1.5 max.
					JN1-22-22P-PKG100	SJ037430	21-25AWG Outer Dia. 1.5 max.
					JN1-22-26P-PKG100	SJ037430	26-28AWG Outer Dia. 1.1 max.
				In reels (10,000 pcs.)	JN1-22-20P-R-10000	SJ037431	20-21AWG Outer Dia. 1.5 max.
					JN1-22-22P-10000	SJ037431	21-25AWG Outer Dia. 1.5 max.
					JN1-22-26P-10,000	SJ037431	26-28AWG Outer Dia. 1.1 max.

\* JN2 contact is in common with JN1.

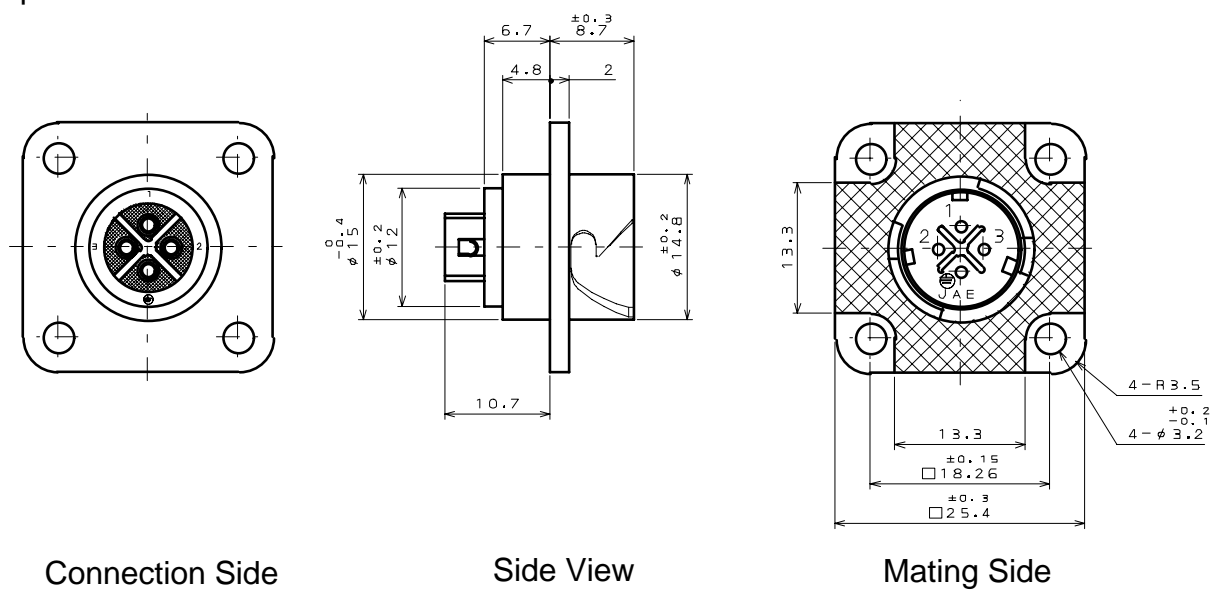
# ■ Part Number List

	No. of Con tacts	Type	Part Number	SJ Drawing	Performance / Shape
JN2	4	Square Flange Receptacle	JN2AS04MK2-R	105530	Individually waterproofed, solder pin, body earth structure
			JN2AS04MK2X-R	105530	Individually waterproofed, solder pin, body earth structure, X position
		Straight Plug	JN2DS04FK1-R	105532	Waterproof (when mated), solder socket, cable dia. 5.7 to 7.3
			JN2DS04FK1X-R	105532	Waterproof (when mated), solder socket, cable dia. 5.7 to 7.3, X position
			JN2DS04FK2-R	105532	Waterproof (when mated), solder socket, cable dia. 6.5 to 8.0
			JN2DS04FK2X-R	105532	Waterproof (when mated), solder socket, cable dia. 6.5 to 8.0, X position
			JN2DS04FKK-R	105536	Waterproof (when mated), solder socket, kit type (with two types of rubber bushing)
			JN2DS04FKKX-R	105536	Waterproof (when mated), solder socket, kit type (with two types of rubber bushing), X position
		Angle Plug	JN2FS04FK1X-R	105531	Waterproof (when mated), solder socket, cable dia. 5.7 to 7.3
			JN2FS04FK1X-R	105531	Waterproof (when mated), solder socket, cable dia. 5.7 to 7.3, X position
			JN2FS04FK2-R	105531	Waterproof (when mated), solder socket, cable dia. 6.5 to 8.0
			JN2FS04FK2X-R	105531	Waterproof (when mated), solder socket, cable dia. 6.5 to 8.0, X position
			JN2FS04FKK-R	105535	Waterproof (when mated), solder socket, kit type (with two types of rubber bushing)
			JN2FS04FKKX-R	105535	Waterproof (when mated), solder socket, kit type (with two types of rubber bushing), X position
	Waterproof Cap		J025-52209	035565	JN1, 2 Receptacle (4, 10pos.) for waterproof, IP67

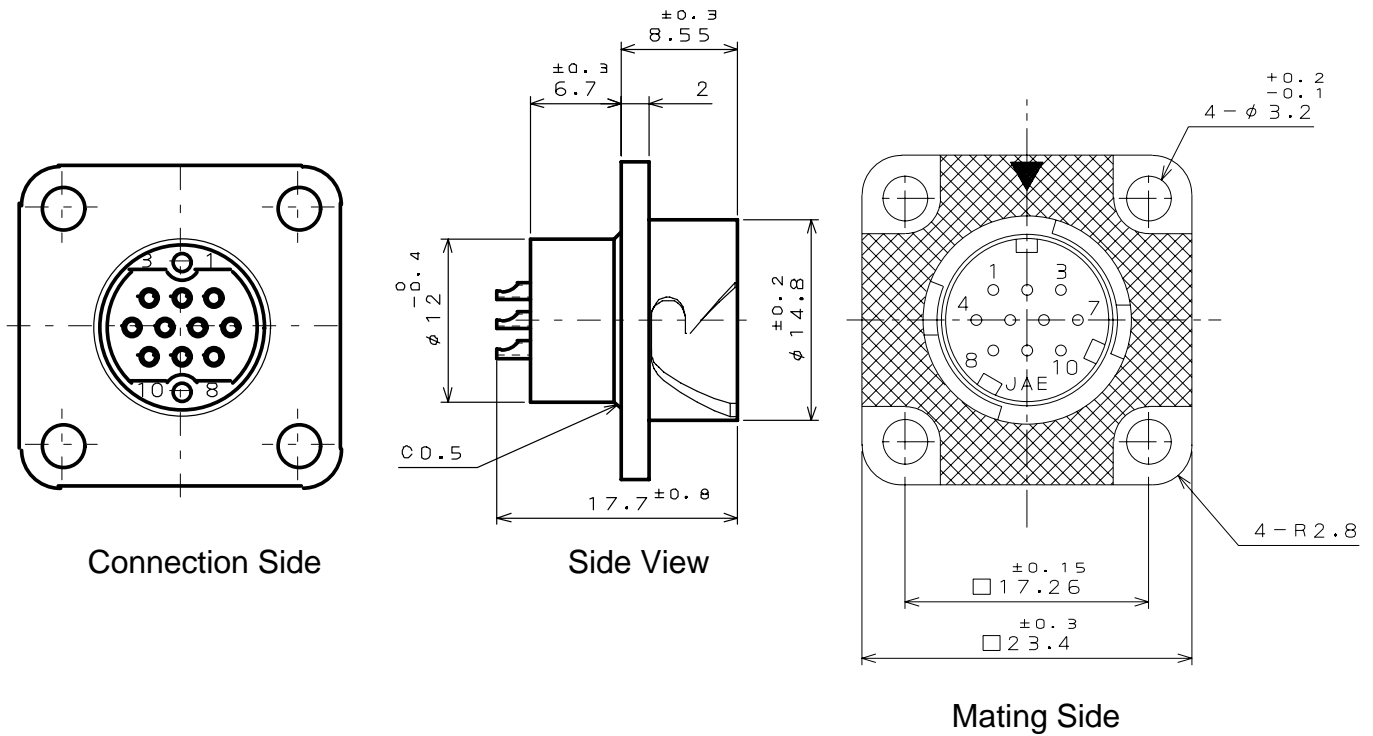
	No. of Con tacts	Type	Part Number	SJ Drawing	Performance / Shape
JN2	10	Square Flange Receptacle	JN2AS10ML1-R	105537	Waterproof (when mated), solder pin
			JN2AS10ML2-R	105538	Individually waterproofed, solder pin
		Panel Mount Plug	JN2MS10SL1-R	105544	Waterproof (when mated), crimp socket
			JN2MS10SLK-R	105996	Waterproof (when mated), crimp socket kit type (with 10 contacts)
		Rectangular Flange Receptacle	JN2AS10UL1-R	105527	Waterproof (when mated), through-hole pin
		Straight Plug	JN2DS10SL1-R	105529	Waterproof (when mated), crimp socket cable dia. 5.7 to 7.3
			JN2DS10SL2-R	105529	Waterproof (when mated), crimp socket cable dia. 6.5 to 8.0
			JN2DS10SL3-R	105529	Waterproof (when mated), crimp socket cable dia. 3.5 to 5.0
			JN2DS10SLN-R	105529	Waterproof (when mated), crimp socket, without bushing
			JN2DS10SLK-R	105534	Waterproof (when mated), crimp socket, kit type (with 10 contacts and two types of rubber bushing)
		Angle Plug	JN2FS10SL1-R	105528	Waterproof (when mated), crimp socket cable dia. 5.7 to 7.3
			JN2FS10SL2-R	105528	Waterproof (when mated), crimp socket cable dia. 6.5 to 8.0
			JN2FS10SL3-R	105528	Waterproof (when mated), crimp socket cable dia. 3.5 to 5.0
			JN2FS10SLN-R	105528	Waterproof (when mated), crimp socket, without bushing
			JN2FS10SLK-R	105533	Waterproof (when mated), crimp socket, kit type (with 10 contacts and two types of rubber bushing)
		Waterproof Cap	J025-52209	035565	JN1, 2 Receptacle (4, 10pos.) for waterproof, IP67

\* Please contact us when considering bushing.

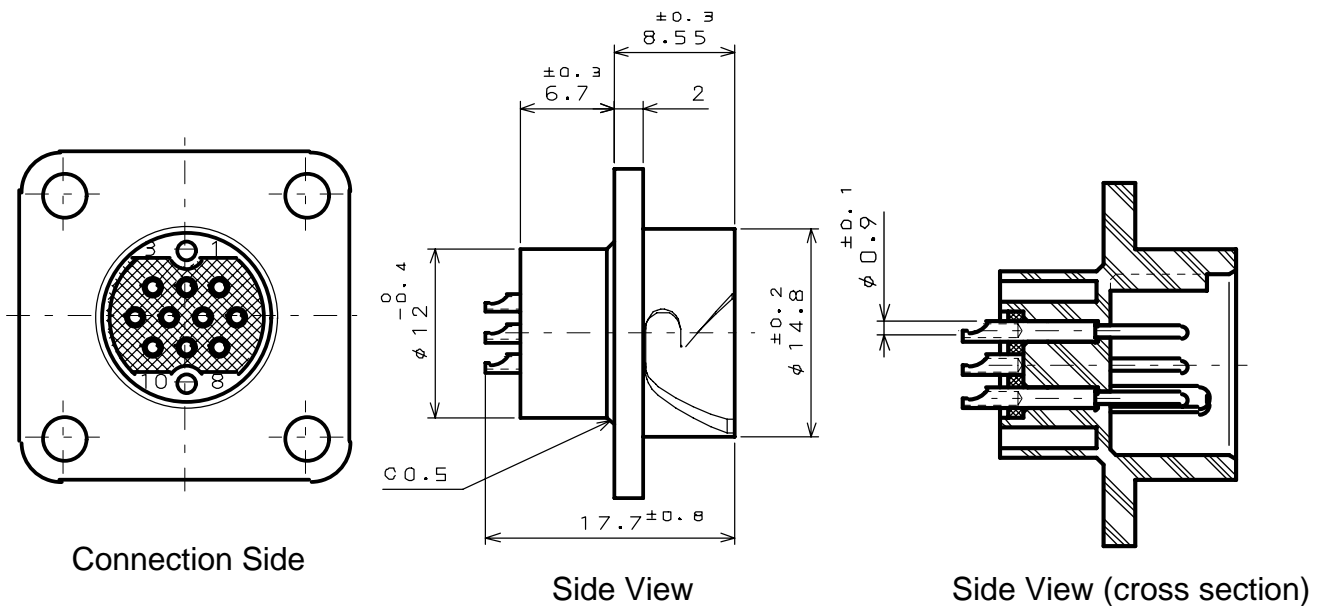
■ Receptacle JN1AS04MK1\*



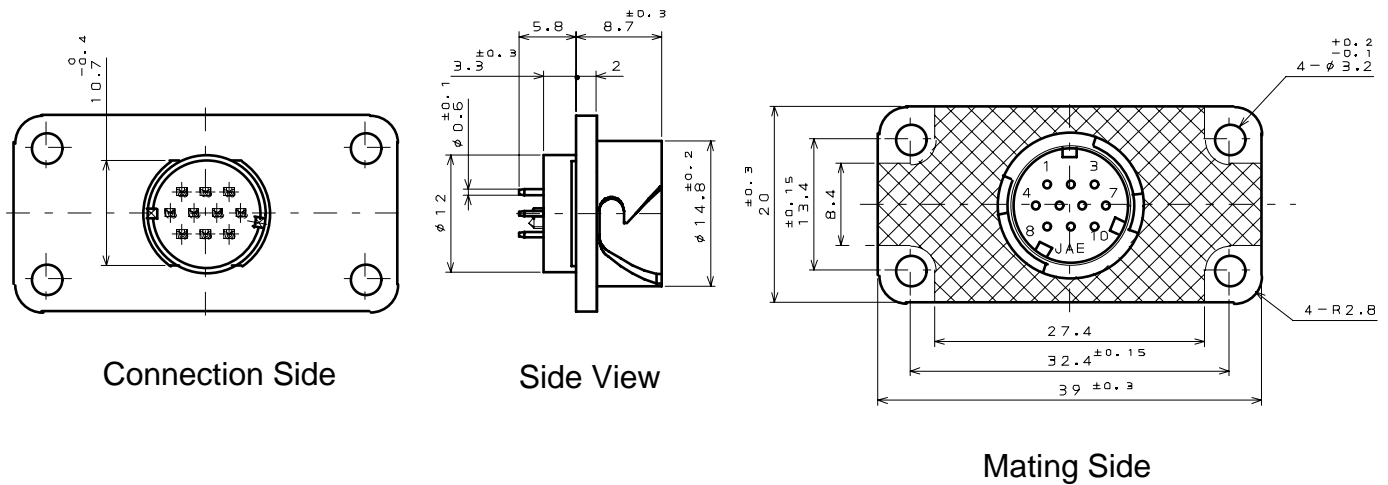
■ Receptacle JN1AS10ML1-R



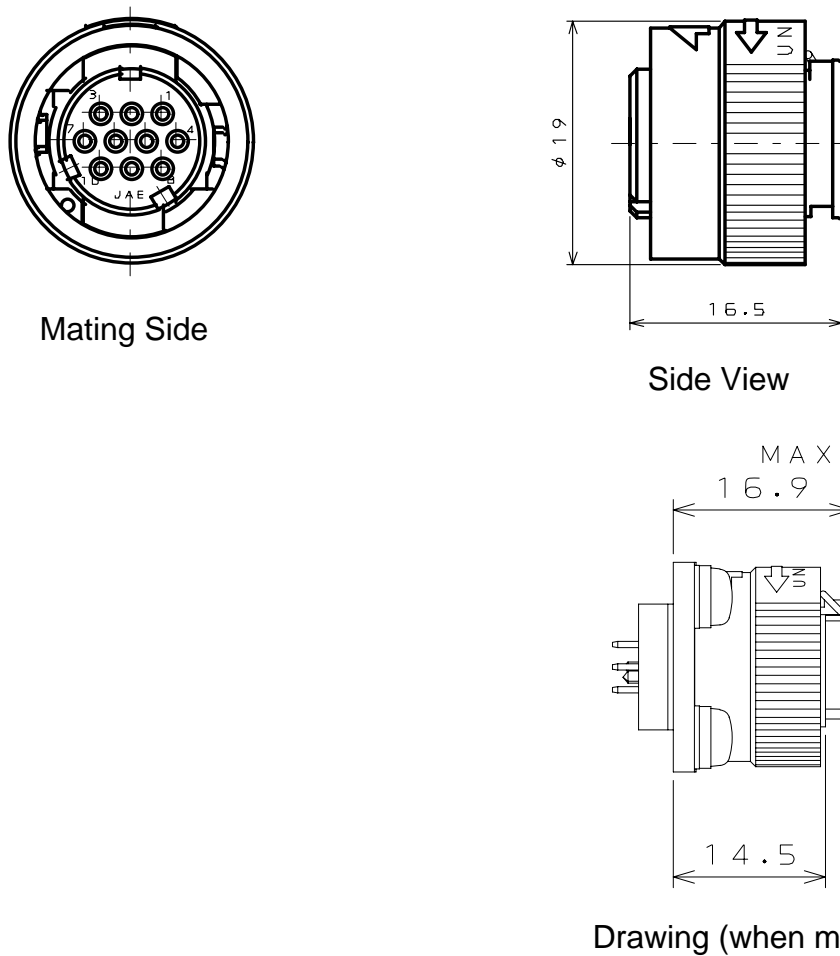
■ Receptacle JN1AS10ML2-R



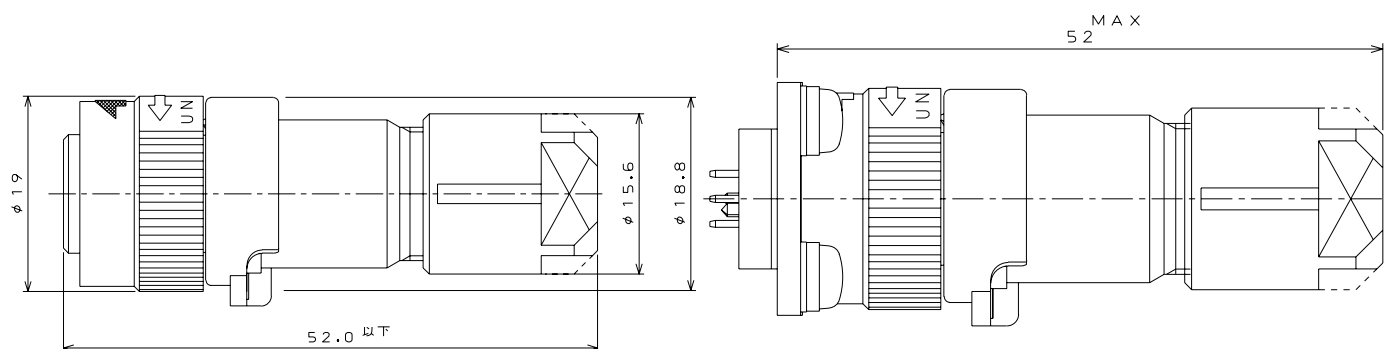
# ■ Receptacle JN1AS10UL1



# ■ Individual Plug JN1ES10SL1

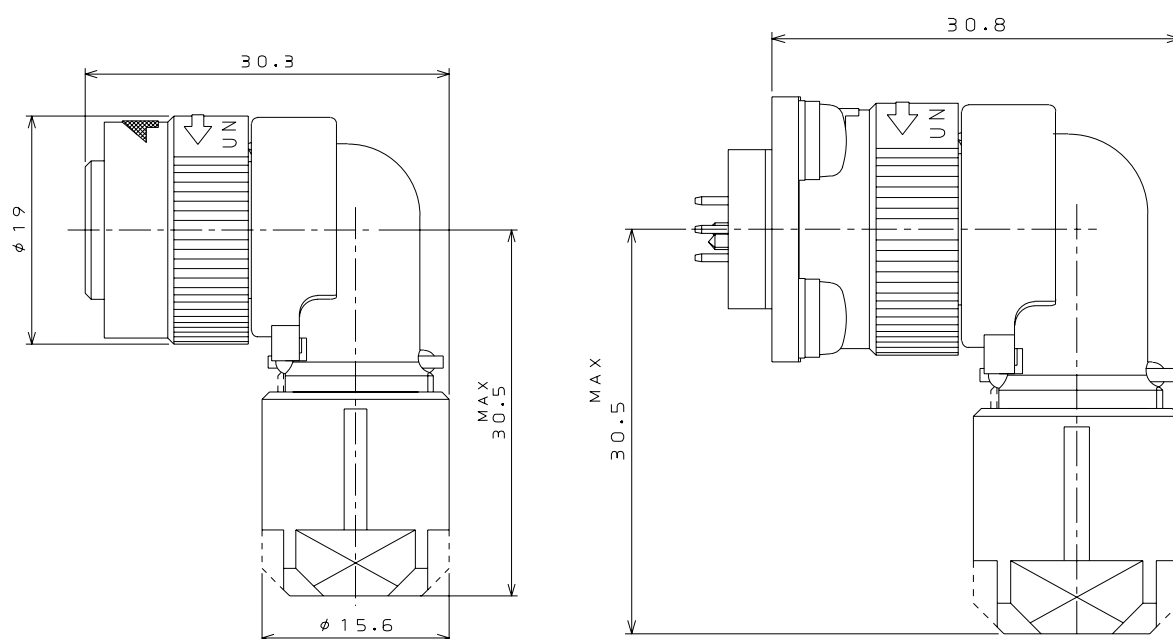


■ Straight Plug JN1DS10SL\*  
JN1DS04FK\*\*



Drawing (when mated)

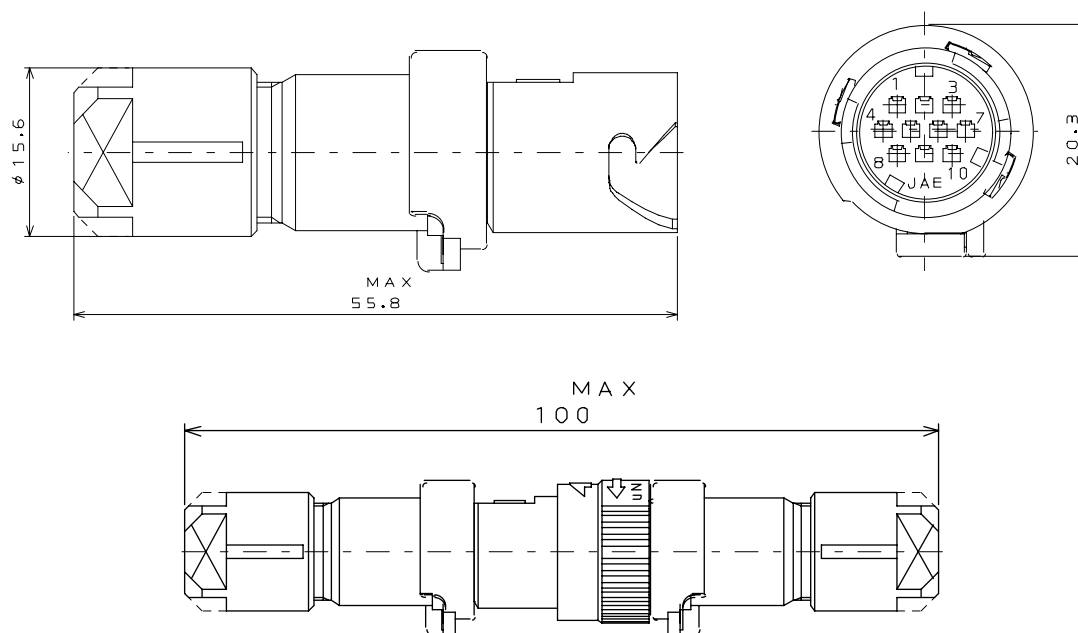
■ Angle Plug JN1FS10SL\*  
JN1FS04FK\*\*



Drawing (when mated)

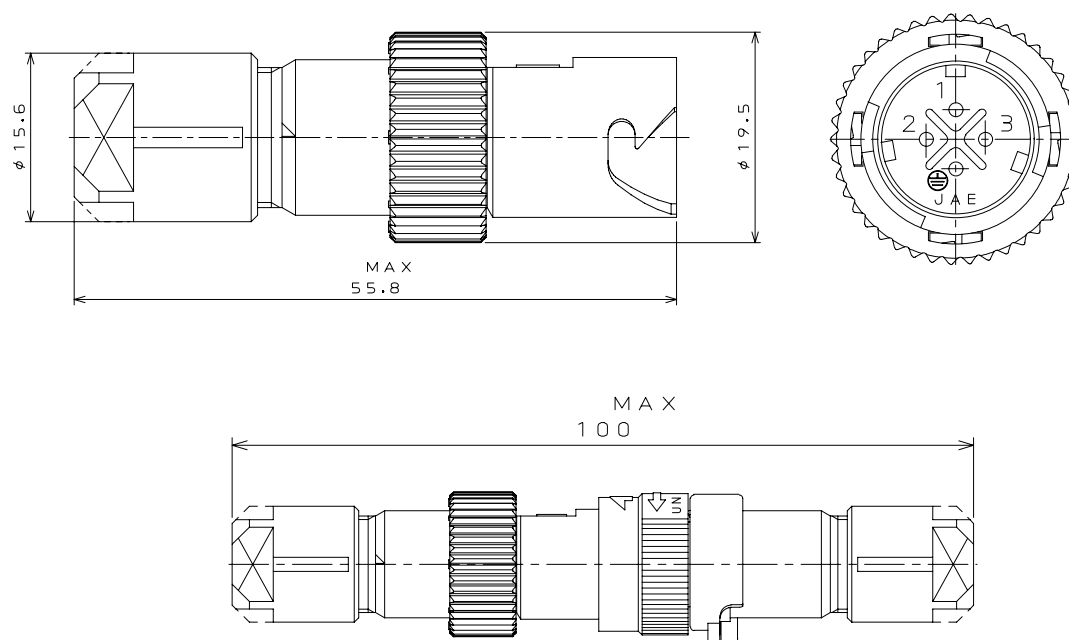


■ Cable Connecting Receptacle JN1HS04MK\*-R  
JN1HS10PL\*



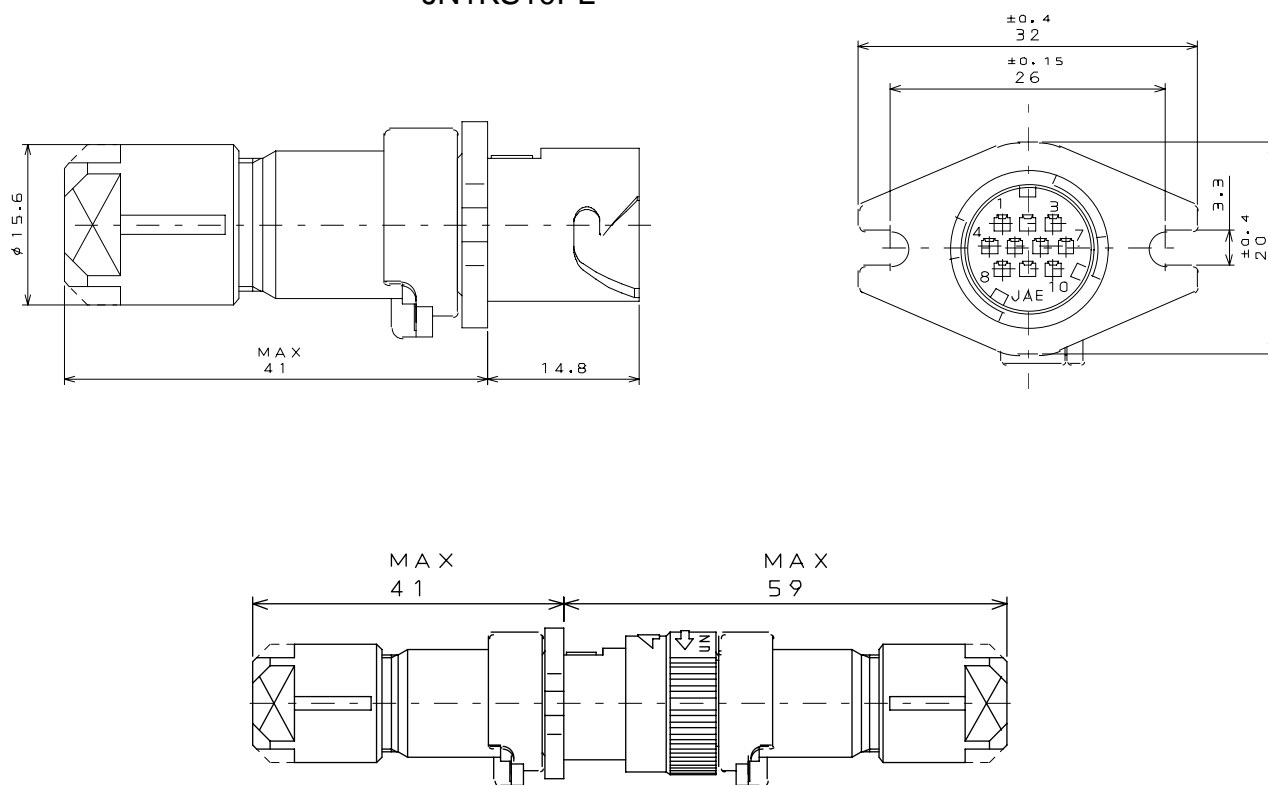
Drawing (when mated)

■ Cable Connecting Receptacle JN1HS04MK\*S  
JN1HS10PL\*S



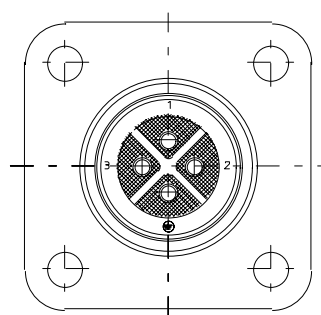
Drawing (when mated)

■ Wall Mounting Receptacle JN1KS04MK\*-R  
JN1KS10PL\*

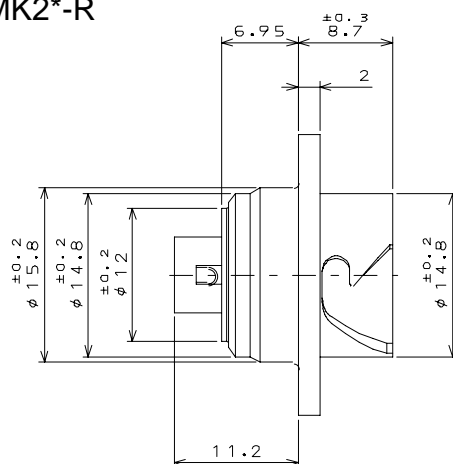


Drawing (when mated)

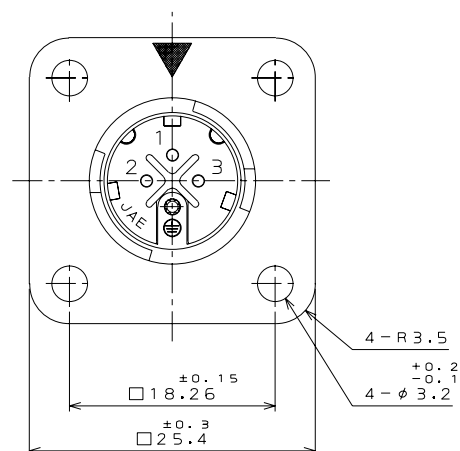
### ■ Receptacle JN2AS04MK2\*-R



Connection Side

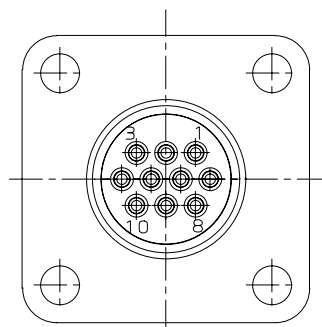


Side View

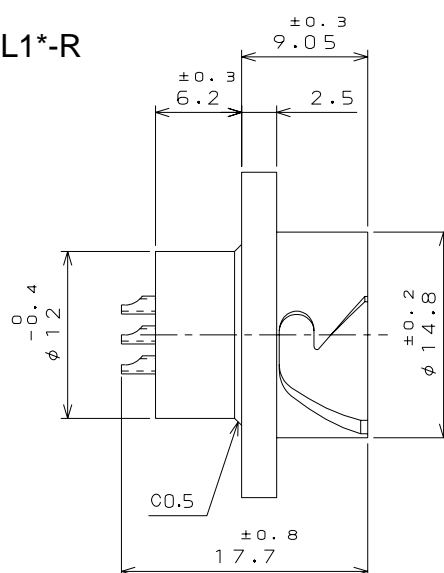


Mating Side

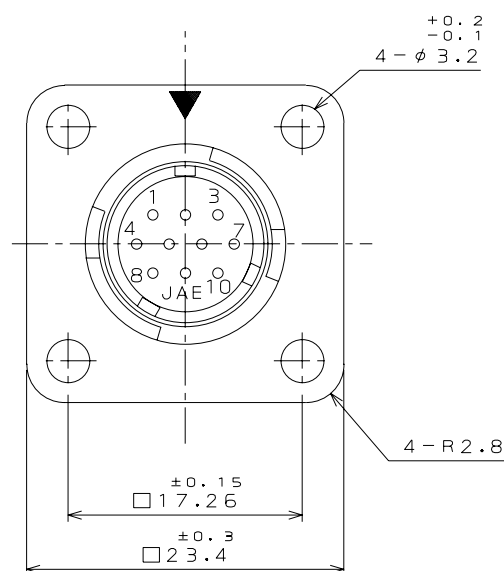
### ■ Receptacle JN2AS10ML1\*-R



Connection Side

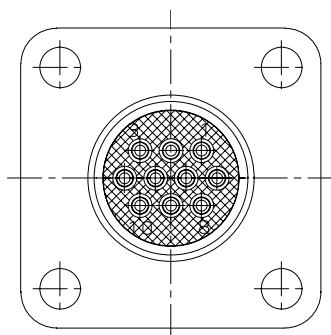


Side View

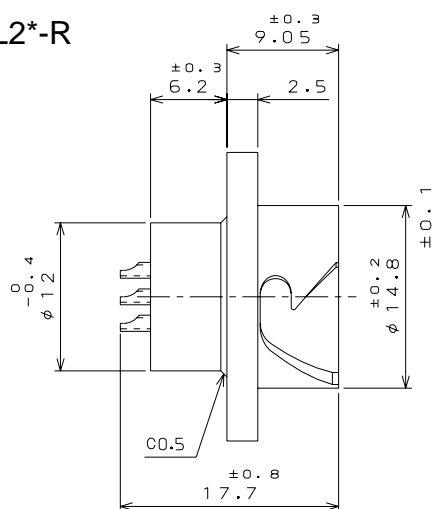


Mating Side

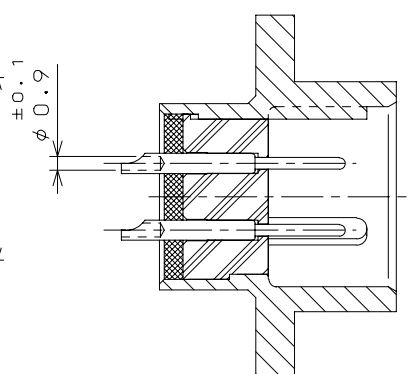
### ■ Receptacle JN2AS10ML2\*-R



Connection Side

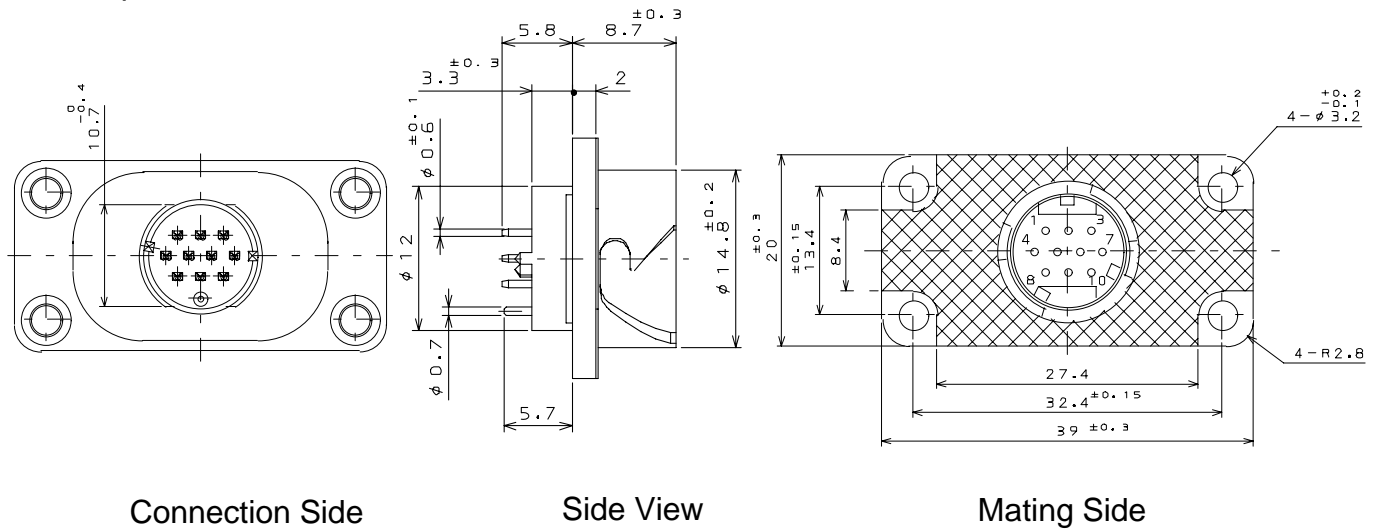


Side View

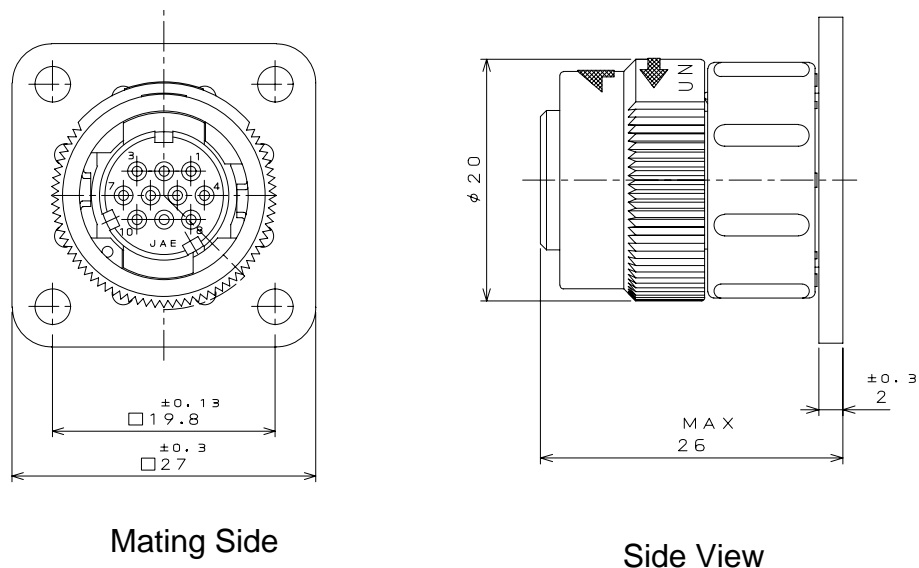


Side View (cross section)

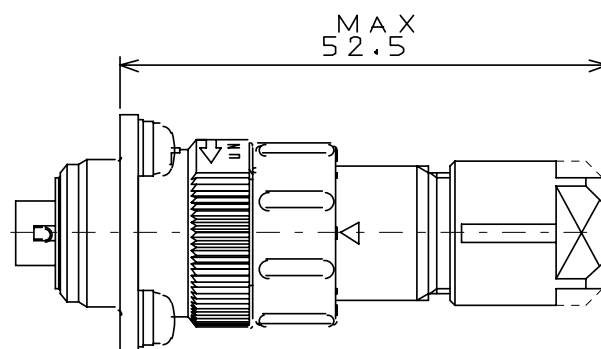
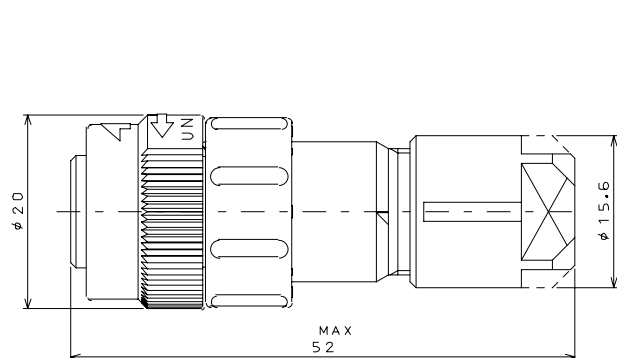
# ■ Receptacle JN2AS10UL1-R



# ■ Panel Mount Plug JN2MS10SL\*-R

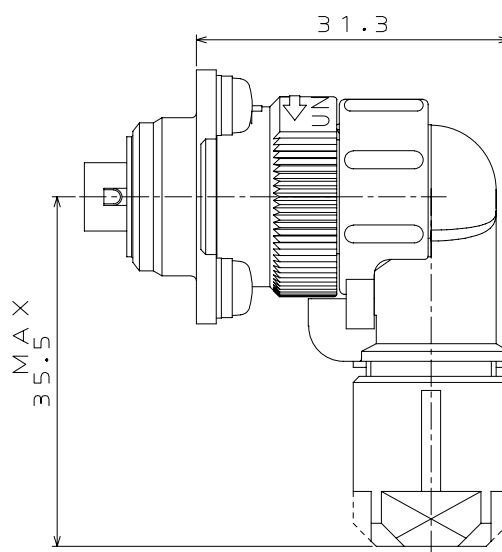
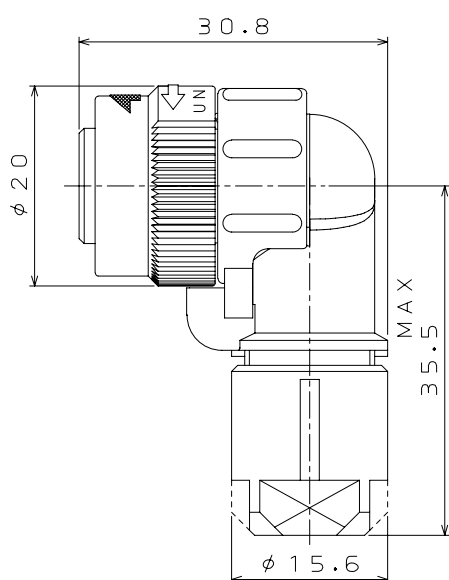


■ Straight Plug JN2DS04FK\*\*-R  
JN2DS10SL\*-R



Drawing (when mated)

■ Angle Plug JN2FS04FK\*\*-R  
JN2FS10SL\*-R



Drawing (when mated)

## [Chart of Applicable Wires and Tooling]

Type of Tool	Instruction Manual for Tooling	Applicable Tooling	Applicable Wire	Outer Diameter	Part Number of Applicable Contact (Note 1)
Hand crimp (for contacts in pieces)	T700253	CT150-2-JN1-D	20, 21AWG	Dia. 1.3 to 1.5	JN1-22-20*-R-PKG100
			25AWG	Dia. 0.8 to 1.0	JN1-22-22*-PKG100
		CT150-2-JN1-E	21, 23AWG	Dia. 1.0 to 1.5	JN1-22-22*-PKG100
			25AWG	Dia. 0.8 to 1.0	
	T700238	CT150-2-JN1-B	22, 24AWG	Dia. 1.0 to 1.3	JN1-22-22*-PKG100
			26, 28AWG	Dia. 0.8 to 1.0	JN1-22-26*-PKG100
Semi-Automatic crimp (for reel contacts)	T703294	350-JN1-2C	20 to 28AWG	Dia. 0.8 to 1.5	JN1-22-20*-R-10000 JN1-22-22*-10000 JN1-22-26*-10000

Note 1: The \* in the part number will stand for P: Pin contact, S: Socket contact.

Note 2: Please contact us concerning connection tool, contact removal tool and the RoHS compliance of tools for the JN1 and 2 series.

## ■ Suggested Conduit

	Model
Neoflex	RQJN-M13-9, RQJN-M13-16
Daiwa Dengyo	PCJN-12-M13F
Sankei Seisakusho	N2KY16-FN3

Please consult with conduit manufacturer regarding use of each conduit.

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**Notice:** Products shown in this leaflet are made for the applications listed below. However, if the above-mentioned products are to be used in aerospace devices, marine cable-connection devices, atomic power control systems, medical equipment for life-support systems, or any other specific application requiring extremely high reliability, please contact JAE for further information.  
Recommended applications: Computers, Office machines, Measuring devices, Telecommunication devices (Terminals, Mobile devices), AV devices, Household applications, FA devices, etc.

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