

# High-density, Waterproof Rectangular Connector KN01 Series

CONNECTOR  
MB-0316-3  
Oct.2023

## RoHS Compliant



The KN01 Series is a large yet light weight and high-density waterproof rectangular connector. This connector is ideal for industrial equipment such as robotics, automated machinery and machine tools, which require to be resilient against environmental conditions. The KN01 Series can be used for a wide range of applications with an insert structure that can be customized to comply with various pin counts by configuring the different insulator blocks.

The rack and pinion system locking lever enables mating and unmating with minimum effort. The KN01 Series can be used as an I/O connector for a wide range of general devices over various markets requiring multi-contact wiring.

## Applicable Markets

- Factory automation equipment, such as robotics, automation machine and other machine tools, requiring to be environmentally resilient.
- Industrial and communication devices, medical equipment and general devices requiring multi-contact wiring connection.
- Industrial equipment, communication devices, rail car and ground-level construction that require vibration resistance and waterproofing.

## Features

- Rack and pinion lever structure reduces operating force for engagement.
- The lever is held in the unlocked position before mating and the dual lock structure prevents incomplete mating and incorrect operation.
- Multiple insulator blocks and insertion orientation flexibility allows for various pin counts and cabling arrangements.
- An optional insulator block with EMI shielding allows the combination of power and signal in a single connector.
- Aluminum outer shell allows for a lightweight and high-density connection.
- Superior cable retention through a thread-fastening saddle clamp.

## General Specifications

Connector Size	Insulator Block *=_Pin or _Socket	Contact Configuration	Rated Voltage	Over voltage category	Pollution degree	Rated Current		Insulator Compatibility Block slot (Shell, Barrel)					
						per contact	total current capacity	A	B	C	D	E	F
M	KN01M16*H	#16×16	250VAC		3	16A	115.2A		×	×	×		
	KN01M16*K	#20×16	250VAC		3	3A	21.6A	×					
			24VDC	-	-								
	KN01M14*K	#20×14	24VDC	-	-	3A	21.6A	×			×		
L	KN01L04*F 1	#8×4	500VDC		3	30A	91.2A						
	KN01L12*G	#12×12	250VAC		3	23A	124.2A						
	KN01L12SGW	#12×12	250VAC		3	23A	124.2A						
	KN01L12*G-B	#12×12	250VAC		3	23A	124.2A						
	KN01L18*K	#20×18	24VDC	-	-	3A	24.3A						
	KN01L18*K	#20×18	24VDC	-	-	3A	24.3A	×					×
	KN01L42*M	#22×42 circular	24VDC	-	-	2A	37.8A						
	KN01L50*L	#22×50 circular	24VDC	-	-	3A	67.5A						

: compatible, ×: not compatible

:1: When installing in slots A or F slots,

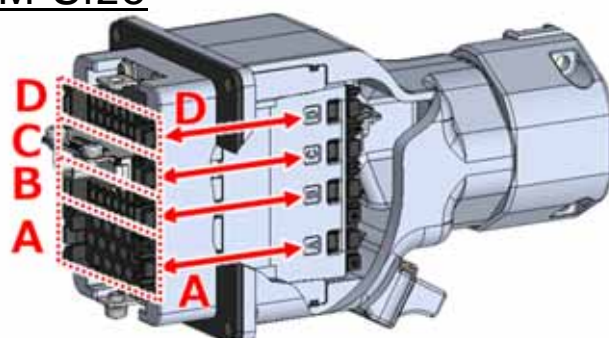
(some block combinations may cause difficulty in wire installation)

☑ : Size M connector accepts 4 insulator blocks

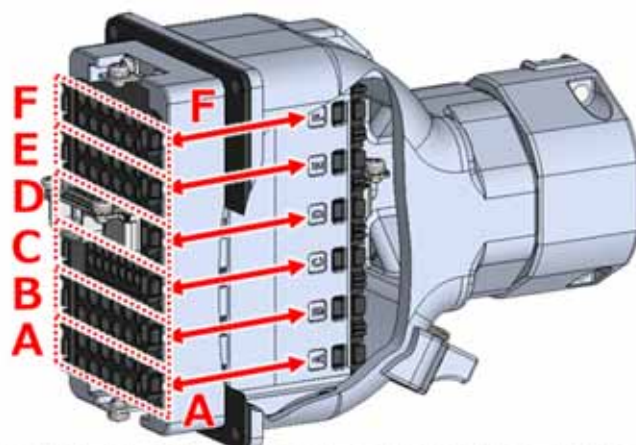
Dielectric Withstanding Voltage	Power	1500VAC for 1 minute
	Signal	500VAC for 1 minute
Insulation Resistance		1000 M Ω min. (Power: 500VDC applied, Signal: 100VDC applied)
Durability		100 cycles
Cable Retention Force		300 N min.
Operating Temperature Range		-20°C ~ +105°C
Waterproof		IP67 (in mated condition)
Standard Certification 2		TÜV、UL/cUL

2: Some products may not be certified to the standard  
(Please contact JAE for specific certification)

### M Size

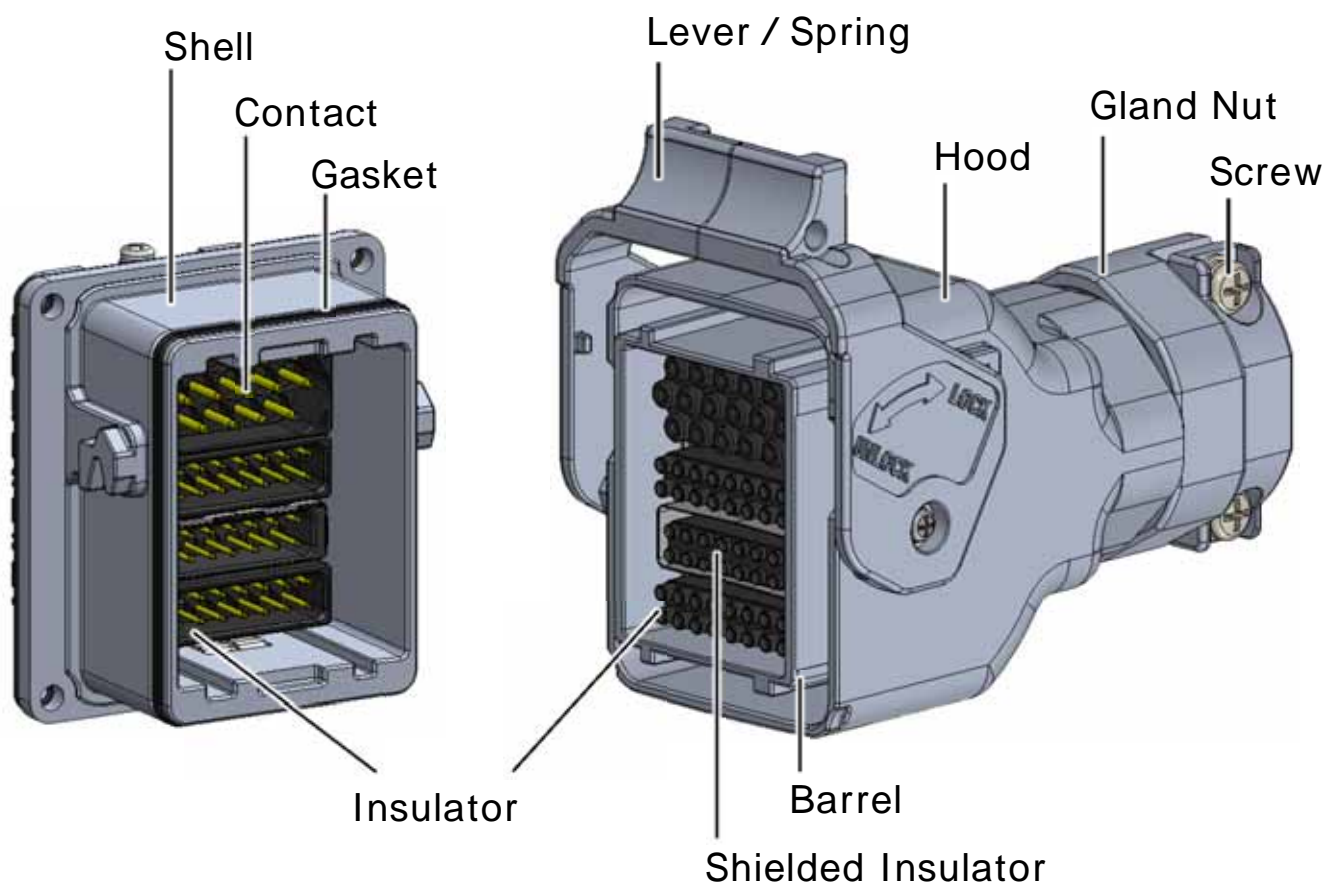


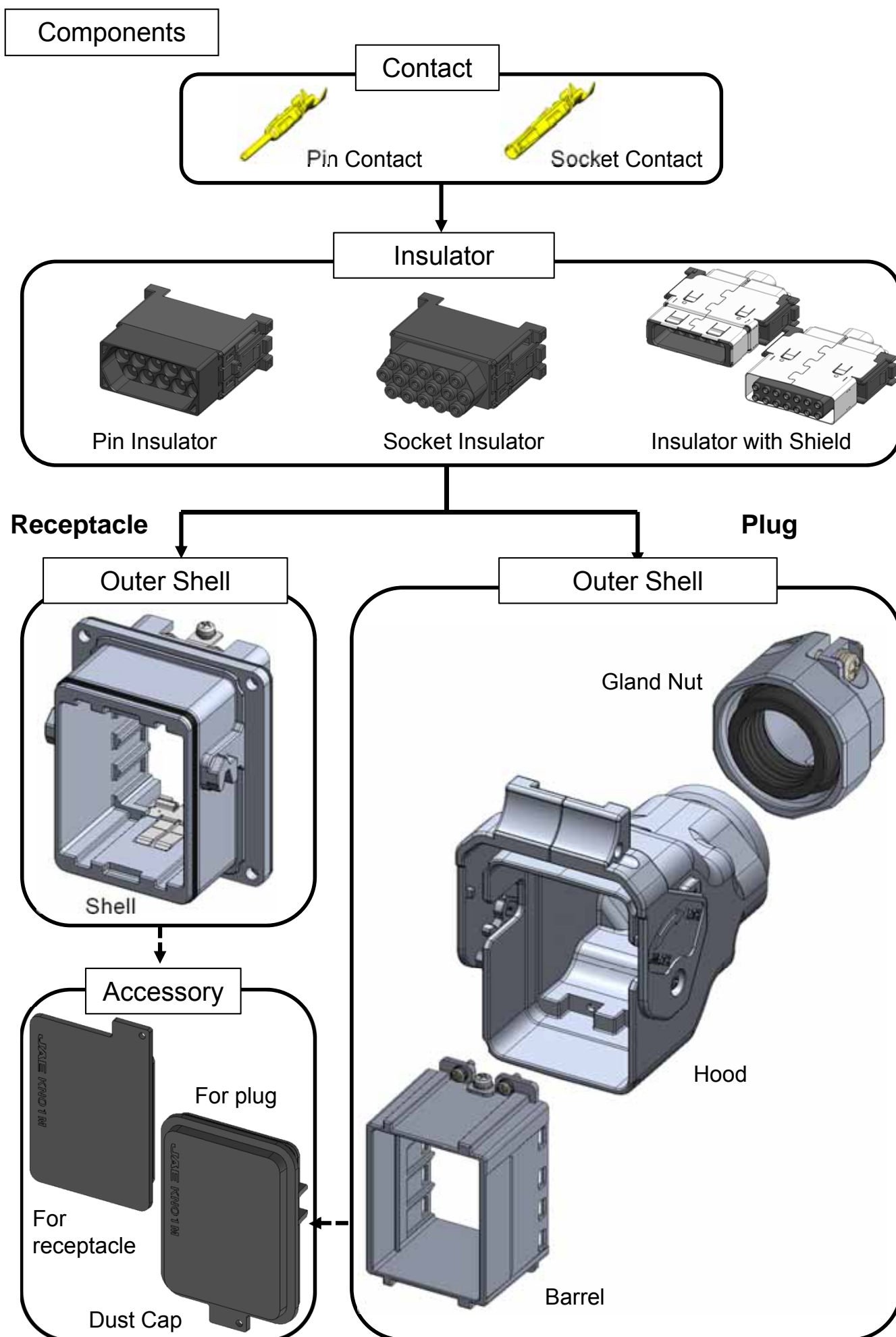
### L Size



## Materials and Finishes

Components	Material	Finish
Shell	Aluminum alloy	-
Barrel	Aluminum alloy	Ni plating
Hood	Aluminum alloy	-
Lever	Aluminum alloy	-
Gland Nut	Aluminum alloy	-
Insulator	Synthetic resin	-
Shield (Insulator)	Copper alloy	Ni plating
Gasket	Synthetic rubber	-
Bushing	Synthetic rubber	-
Contact	Copper alloy	Au plating over Ni
Spring (Lever)	Stainless steel	-
Screw	Stainless steel	-





## Ordering Information

### Outer Shell

KN01	A	M	-	SHL	-	A
Series		M: M size L: L size		SHL: Shell		Mating Key Type A: Type A B: Type B
Type A: Panel-mount Type						

### Barrel

KN01	M	-	BBL	-	A
Series	M: M size L: L size		BBL: Barrel		Mating Key Type A: Type A B: Type B

### Hood

KN01	M	-	HOOD	-	ST
Series	M: M size L: L size		HOOD: Hood		Type ST: Straight Type AN: Angle Type

### Gland Nut

KN01	M	-	GNUT	-	25
Series	M: M size L: L size		Gland Nut		Applicable Wire Diameter 25 : $\phi$ 25mm 32 : $\phi$ 32mm 36 : $\phi$ 36mm

Type	Outer Shell Size	Part Number	Drawing No.	Remarks
Shell	M	KN01AM-SHL-A	SJ116541	A: Mating Key Type
		KN01AM-SHL-B	SJ122026	B: Mating Key Type
	L	KN01AL-SHL-A	SJ117433	A: Mating Key Type
		KN01AL-SHL-B	SJ117573	B: Mating Key Type
Barrel	M	KN01M-BBL-A	SJ116933	A: Mating Key Type
		KN01M-BBL-B	SJ122027	B: Mating Key Type
	L	KN01L-BBL-A	SJ117435	A: Mating Key Type
		KN01L-BBL-B	SJ117567	B: Mating Key Type
Hood	M	KN01M-HOOD-ST	SJ116934	
		KN01M-HOOD-AN	SJ117790	Angle type 3
	L	KN01L-HOOD-ST	SJ117437	
		KN01L-HOOD-AN	SJ117789	Angle type 3
Gland Nut	M	KN01M-GNUT-25	SJ116935	
	L	KN01L-GNUT-32	SJ118659	3
		KN01L-GNUT-36	SJ117439	

3: Have not been TÜV and UL/cUL certified, please consult with a JAE representative.

## Insulator

KN01	M	14	P	K	S
Series					Modification Code
M: M size L: L size					None: Standard type S: Type with Shield W: Flow-diverter type
Number of Contacts					
Contact Type			Contact Size		
P: Crimp Pin Contact S: Crimp Socket Contact			F: #8, G: #12, H: #16, K: #20, L: #22		

Type	Part Number	Drawing No.	No. of Contacts	Applicable Contact Size	Applicable Outer Shell Size	Remarks
Pin	KN01M16PH	SJ116937	16 pos.	#16	M	
	KN01M16PK	SJ116939	16 pos.	#20	M	
	KN01M14PKS	SJ116941	14 pos.	#20	M	with shield
	KN01L04PF	SJ121825	4 pos.	#8	L	
	KN01L12PG	SJ117440	12 pos.	#12	L	
	KN01L12PG-B	SJ121827	12 pos.	#12	L	FMLB Grounding
	KN01L18PK	SJ117447	18 pos.	#20	L	
	KN01L18PKS	SJ117449	18 pos.	#20	L	with shield
	KN01L50PL	SJ117008	50 pos.	#22	L	Square contact
	KN01L42PM	SJ121829	42 pos.	#22	L	Round contact
Socket	KN01M16SH	SJ116943	16 pos.	#16	M	
	KN01M16SK	SJ116945	16 pos.	#20	M	
	KN01M14SKS	SJ116947	14 pos.	#20	M	with shield
	KN01L04SF	SJ121826	4 pos.	#8	L	
	KN01L12SG	SJ117442	12 pos.	#12	L	
	KN01L12SG-B	SJ121828	12 pos.	#12	L	FMLB Grounding
	KN01L18SK	SJ117448	18 pos.	#20	L	
	KN01L18SKS	SJ117450	18 pos.	#20	L	with shield
	KN01L12SGW	SJ117451	12 pos.	#12	L	
	KN01L50SL	SJ117009	50 pos.	#22	L	Square contact
	KN01L42SM	SJ121830	42 pos.	#22	L	Round contact

## Contact

KN01

P

03K

K

P

1

Series

Modification Code

Contact Type

P: Crimp Pin

S: Crimp Socket

Contact Finish Code

Contact Size

F: #8, G: #12, H: #16, K: #20

Reeled Number of Pieces

03K: 3000pcs., 01K: 1000pcs., 10K: 10000pcs.

12H: 1200pcs., 15H: 1500pcs., 25H: 2500pcs.

Type	Contact Size	Part Number	Drawing No.	Applicable Wire Size	Applicable Wire Dia.
Pin	#8	KN01P12HFH1	SJ121831	AWG10	φ4.0 ~ 6.8
	#12	KN01P15HGP1	SJ116958	AWG12~AWG14	φ3.5~4.4
		KN01P15HGP2	SJ116956	AWG14~AWG17	φ2.8~3.5
	#16	KN01P25HHP1	SJ116954	AWG16~AWG20	φ1.7~2.4
		KN01P25HHP2	SJ116956		φ2.4~3.2
	#20	KN01P03KKP1	SJ116948	AWG18~AWG22	φ1.3~2.0
		KN01P03KKP2	SJ116950		φ2.0~2.8
		KN01P03KKP3	SJ116952	AWG22~AWG26	φ1.0~1.8
		KN01P03KKP4	SJ117065		φ1.8~2.8
	#22 Round Contact	KN01P19KLH5	SJ121833	AWG22 ~ AWG24	φ0.9~1.5
	#22 Square Contact	JN1-22-20P-R-10000	SJ037431	AWG20~AWG21	φ1.5 max.
		JN1-22-22P-10000		AWG21~AWG25	φ1.5 max.
		JN1-22-26P-10000		AWG26~AWG28	φ1.1 max.
Socket	#8	KN01S12HFH1	SJ121832	AWG10	φ4.0 ~ 6.8
	#12	KN01S15HGP1	SJ116959	AWG12~AWG14	φ3.5~4.4
		KN01S25HHP2	SJ116957	AWG14~AWG17	φ2.8~3.5
		KN01S01KGPW1	SJ116960	AWG10~AWG12	φ4.0~4.7
	#16	KN01S25HHP1	SJ116955	AWG16~AWG20	φ1.7~2.4
		KN01S25HHP2	SJ116957		φ2.4~3.2
	#20	KN01S03KKP1	SJ116949	AWG18~AWG22	φ1.3~2.0
		KN01S03KKP2	SJ116951		φ2.0~2.8
		KN01S03KKP3	SJ116953	AWG22~AWG26	φ1.0~1.8
		KN01S03KKP4	SJ117066		φ1.8~2.8
	#22 Round Contact	KN01P10KLHS	SJ121833	AWG22 ~ AWG24	φ0.9~1.5
	#22 Square Contact	JN2V-22-20S-10000	SJ116974	AWG20~AWG21	φ1.5 max.
		JN2V-22-22S-10000	SJ116972	AWG21~AWG24	φ1.1~1.5
		JN2V-22-26S-10000	SJ116973	AWG25	φ0.8~1.0

Note: Please check tool manuals for applicable wire and cable diameter details.

Dust Cap

KN01

M

-

DC

1

-

ST

Series

Dust cap

Modification Code

Type

1: For Receptacle

2: For Plug

M: M size

L: L size

Type	Outer Shell Size	Part Number	Drawing No.	Remarks
Dust Cap	M	KN01M-DC1	SJ117545	For Receptacle
		KN01M-DC2	SJ117547	For Plug
	L	KN01L-DC1	SJ117546	For Receptacle
		KN01L-DC2	SJ117548	For Plug
		KN01L-DC1-ST	SJ120816	For Plug with strap



Custom Tools

## Contact Crimp Tools

### Semi-automatic Crimp Applicator

Contact Size	Contact	Applicable Tool	Applicable Wire Size	Applicable Wire Dia.	Tool manual
#8	KN01*12HFH1	350-KN01-10B	AWG10	φ3.5~4.4	T703606
#12	KN01*15HGP1	350-KN01-10	AWG12~AWG17	φ3.5~4.4	T703551
	KN01*15HGP2			φ2.8~3.5	
	KN01S01KGPW1	350-KN01W-10	AWG10~AWG12	φ4.0~4.7	T703553
#16	KN01*25HHP1	3502-KN01-2B	AWG16~AWG20	φ1.7~2.4	T703537
	KN01*25HHP2			φ2.4~3.2	
#20	KN01*03KKP1	3502-KN01-2	AWG18~AWG22	φ1.3~2.0	T703536
	KN01*03KKP2			φ2.0~2.8	
	KN01*03KKP3		AWG22~AWG26	φ1.0~1.8	
	KN01*03KKP4			φ1.8~2.8	
#22 Round contact	KN01*10KLH5	3502-KN01-2C	AWG22~AWG24	φ0.9~1.5	T703598
#22 Square contact	JN2V-22-20S-10000 JN2V-22-22S-10000 JN2V-22-26S-10000 JN1-22-20P-R-10000 JN1-22-22P-10000 JN1-22-26P-10000	3502-JN1-2C	AWG20~AWG28	φ0.8~1.5	T703294

### Manual Crimp Tool

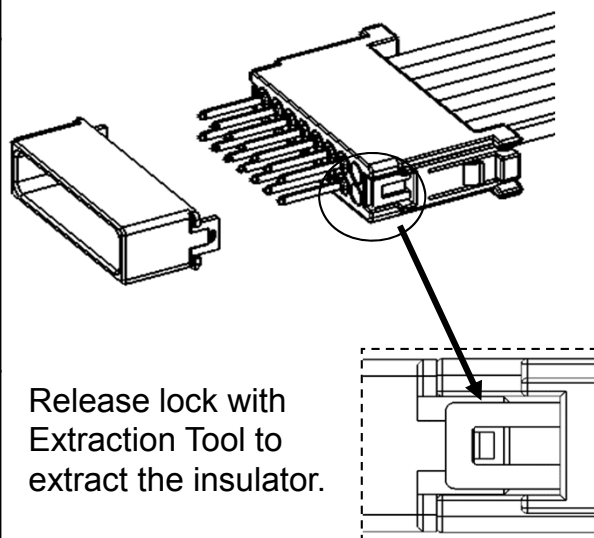
Contact Size	Contact	Applicable Tool	Applicable Wire Size	Applicable Wire Dia.	Tool manual
#8	KN01*12HFH1	CT160-23D-KN01	AWG10	φ4.0 ~ 6.8	T700447
#12	KN01*15HGP1	CT170-21J-KN01	AWG12 ~ AWG17	φ3.5 ~ 4.4	T700400
	KN01*15HGP2			φ2.8 ~ 3.5	T700416
#16	KN01*25HHP1	CT150-19-KN01-16	AWG16 ~ AWG20	φ1.7 ~ 2.4	T700411
	KN01*25HHP2			φ2.4 ~ 3.2	
#20	KN01*03KKP2	CT150-19B-KN01-20	AWG18 ~ AWG22	φ2.0 ~ 2.8	T700410
	KN01*03KKP3	CT150-19B-KN01-20	AWG22 ~ AWG26	φ1.0 ~ 1.8	
	KN01*03KKP4	CT170-14D-KN01		φ1.8 ~ 2.8	T700414
#22 Round contact	KN01*10KLH5	CT150-19-KN01-22	AWG22 ~ AWG24	φ0.9 ~ 1.5	T700450
#22 Square Contact	JN2V-22-20S-10000	CT150-2C-JN2V	AWG20,21	φ1.5 max	T700406
	JN2V-22-22S-10000	CT150-2C-JN2V	AWG20,21	φ0.8 ~ 1.5	
	JN2V-22-26S-10000	CT150-2-JN2V	AWG26,28	φ1.1 max	
	JN1-22-20P-R-10000	CT150-2C-JN2V	AWG20,21	φ1.5 max	T700406
		CT150-4-JN1-E	AWG21,23,25		T700248
	JN1-22-22P-10000	CT150-2C-JN2V	AWG20,21	φ1.5 max	T700406
		CT150-4-JN1-D	AWG20,21,26,28		T700248
	JN1-22-26P-10000	CT150-2-JN2V	AWG26,28	φ1.1 max	T700406
		CT150-4-JN1-B-1	AWG22,24,26,28		T700248

Note1: \*=Pin or Socket

Note2: Please check tool manuals for applicable wire and cable diameter details.

## Insulator Extraction Tools

Insulator	Extraction Tool Part Number	Tool manual
KN01M16PH KN01M16SH	WT-KN01-16	T714371
KN01M16PK KN01M16SK	WT-KN01-20	
KN01M14PKS KN01M14SKS		
KN01L04PF KN01L04SF KN01L12PG KN01L12SG KN01L12SGW KN01L12PG-B KN01L12SG-B KN01L18PK KN01L18SK KN01L18PKS KN01L18SKS KN01L42PM KN01L42SM	WT-KN01-12	T714383



Release lock with  
Extraction Tool to  
extract the insulator.

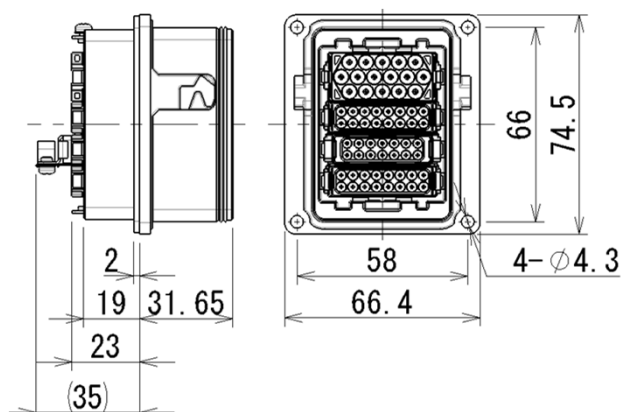
## Contact Extraction Tool

Contact Size	Extraction Tool Part Number	Tool manual
#8	ET-KN01-8	T711255
#12	ET-KN01-12	T711209
	ET-KN01W-12	T711210
#16	ET-KN01-16	T711204
#20	ET-KN01-20	
#22 Round contact	ET-KN01-22	T711256
#22 Square contact	ET-JN1	T711133

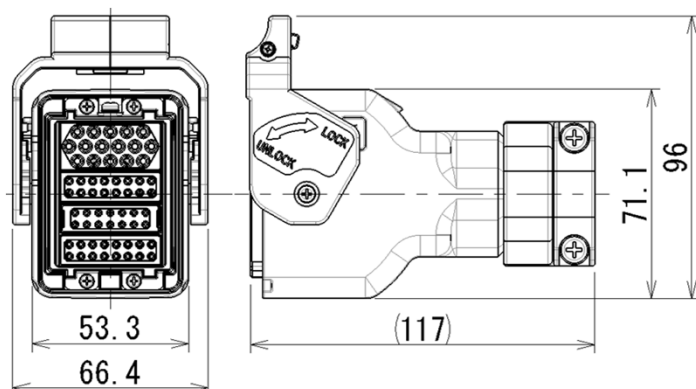
Note) When extracting a miss-wired contact, first unlock and extract insulator from connector with Insulator Extraction Tool before using the Contact Extraction Tool.

## Product Drawings

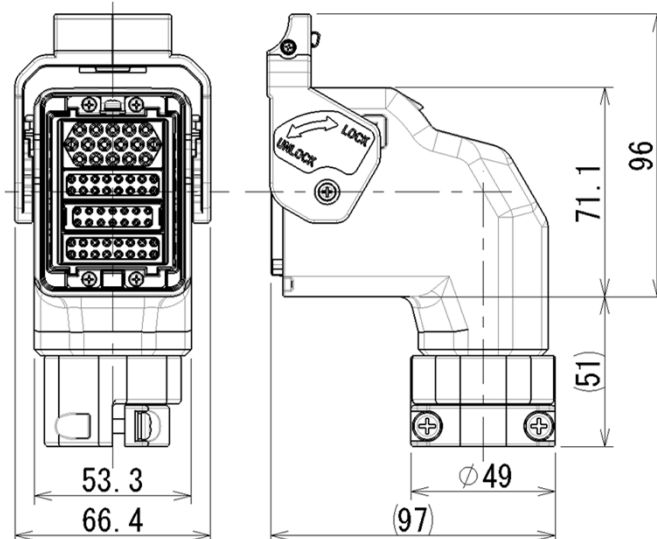
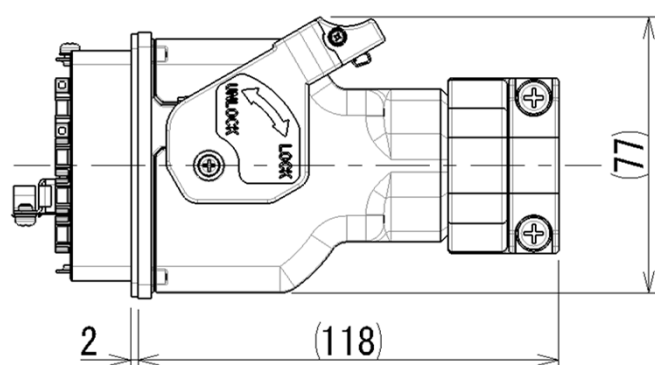
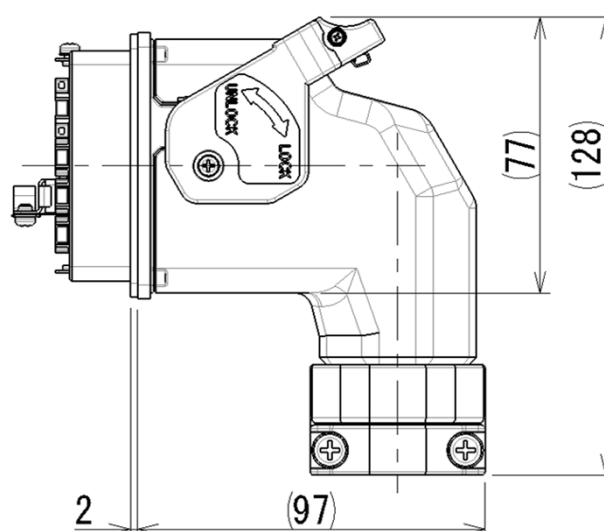
## Receptacle ( M size )



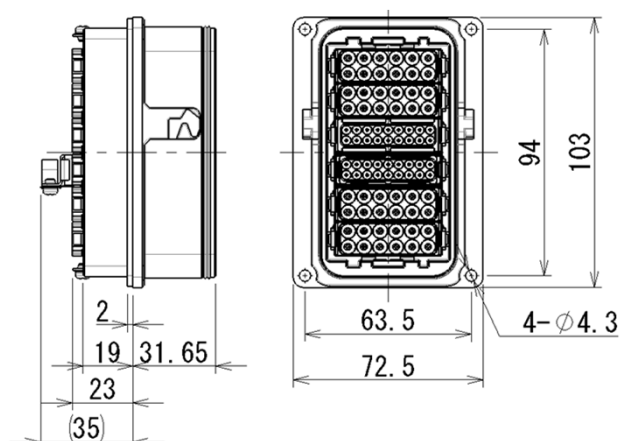
## Straight Plug ( M size )



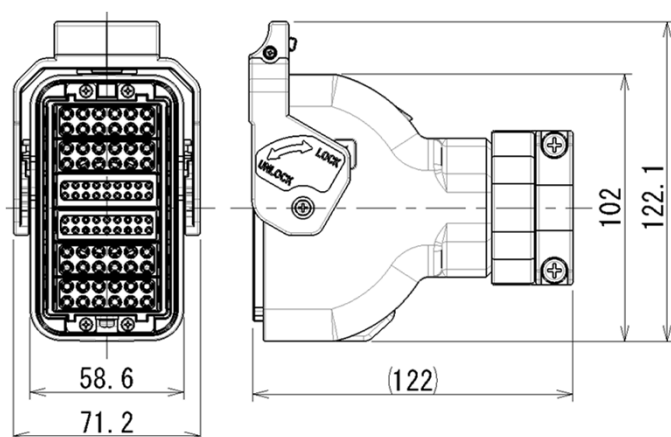
## Angle Plug ( M size )

Straight mating condition  
( M size )Angle mating condition  
( M size )

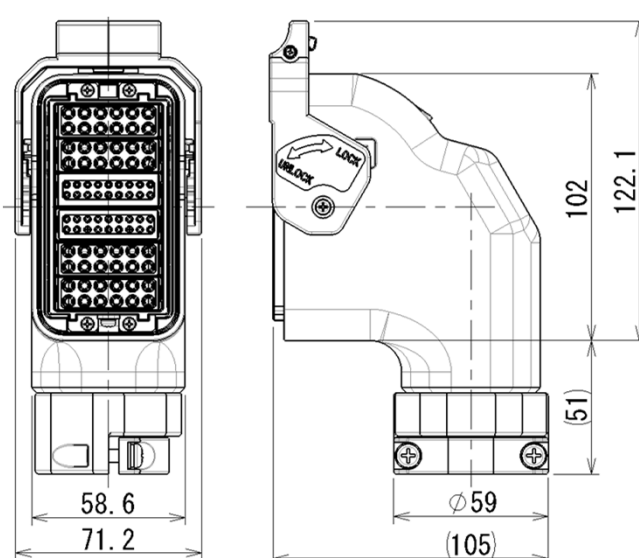
# Receptacle ( L size )



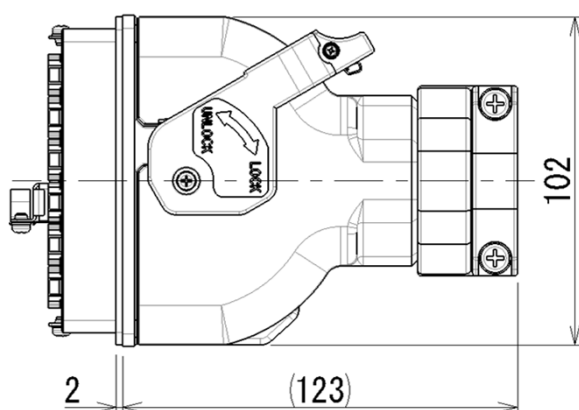
## Straight Plug ( L size )



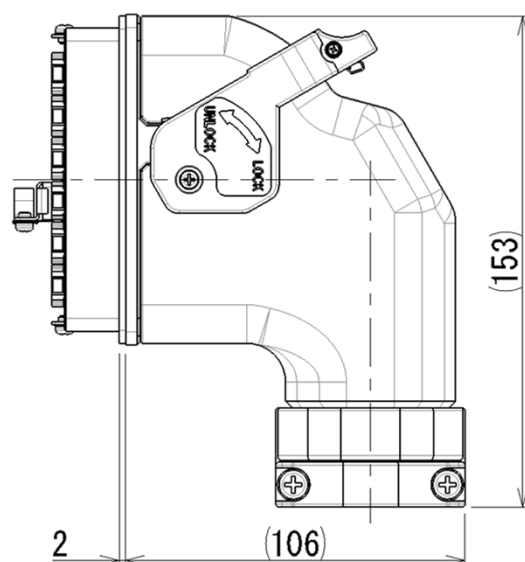
## Angle Plug ( L size )



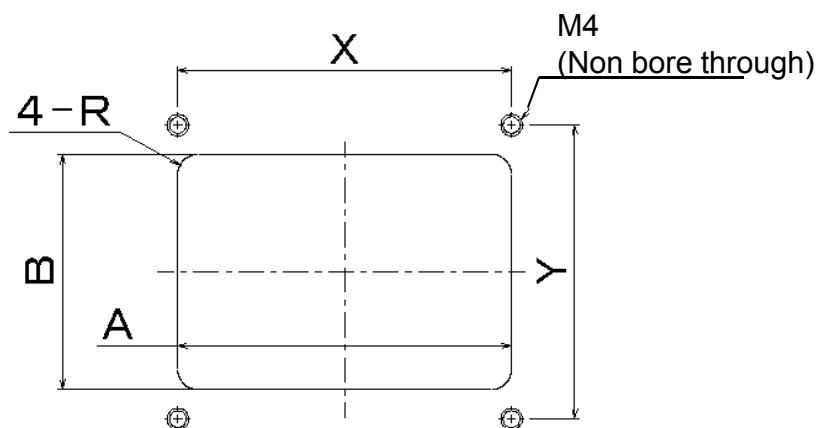
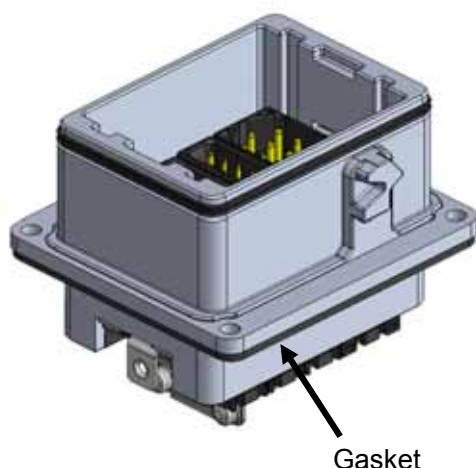
## Straight mating condition ( L size )



## Angle mating condition ( L size )



## Receptacle Panel Mount Dimensions



Outer Shell Size	Panel Cutout Dimensions					Applicable Screw (for reference)
	A	B	R	X	Y	
M	66 [+0.5/0]	46.4 [+0.5/0]	R4 [± 0.3]	66 [± 0.13]	58 [± 0.13]	M4
L	96 [+0.5/0]	53.4 [+0.5/0]	R4 [± 0.3]	94 [± 0.13]	63.5 [± 0.13]	M4

## Technical Documents

Specification	JACS-50116
Instruction Manual	JAHL-50116

### Notice:

1. The values specified in this brochure are only for reference. The products and their specifications are subject to change without notice. Contact our sales staff for further information before considering or ordering any of our products. For purchase, a product specification must be agreed upon.

2. Users are requested to provide protection circuits and redundancy circuits to ensure safety of the equipment, and sufficiently review the suitability of JAE's products to the equipment.

3. The products presented in this brochure are designed for the uses recommended below. We strongly suggest you contact our sales staff when considering use of any of the products in any other way than the recommended applications or for a specific use that requires an extremely high reliability.

(1) Applications that require consultation:

(i) Please contact us if you are considering use involving a quality assurance program that you specify or that is peculiar to the industry, such as:

Automotive electrical components, train control, telecommunications devices (mainline), traffic light control, electric power, combustion control, fire prevention or security systems, disaster prevention equipment, etc.

(ii) We may separately give you our support with a quality assurance program that

you specify, when you think of a use such as :

Aviation or space equipment, submarine repeaters, nuclear power control systems, medical equipment for life support, etc.

(2) Recommended applications include:

Computers, office appliances, telecommunications devices (terminals, mobile units), measuring equipment, audiovisual equipment, home electric appliances, factory automation equipment, etc.