

High-current Waterproof Connector for Railway Vehicles

CONNECTOR

JK11 Series

MB-0375-3

Feb 2024

RoHS Compliant

Overview

The JK11 Series is a high-current waterproof connector developed for railway vehicles and related electronic equipment.

The JK11 shell, with the high-current contacts arranged horizontally, provides a slimmer profile compared to conventional circular connectors. JK11's lever mating system simplifies mating operations. This connector is also compliant with FST (Fire, Smoke, Toxicity) standards for railway vehicles and can be safely considered for global railway projects.

The JK11 Series is also suited for use in other industrial applications that require a rugged and secure connection.

Application

Railway vehicles and electrical equipment, industrial equipment

Features

- Flat layout and Lower-profile rectangular design saves space over conventional circular connector solutions.
- The lever mating system offers smooth mating and unmating operation.
- The lever's built-in lock protects from accidental disengagement.
- IP67 rated in mated condition (waterproof in 1m depth for 24hours)
- Able to rearrange the insulator to customize wiring sequence. Free order of pin numbers by reassemble the insulator
- Compliant with the FST (Fire, Smoke, Toxicity) standards for railway vehicles. (EN45545-2, NFPA130)

General Specifications

	Item	Defined Value
Electrical Performance	Dielectric Withstanding Voltage	A.C.6000Vrms
	Rated Current	Individual Contacts: 150A(Wire Size: 50mm ² (AWG#0)) 150A(Wire Size: 38mm ² (AWG#1)) 60A (Wire Size: 14mm ² (AWG#6))
	Insulation Resistance	5000MΩ min.
	Contact Resistance	0.14mΩ max.

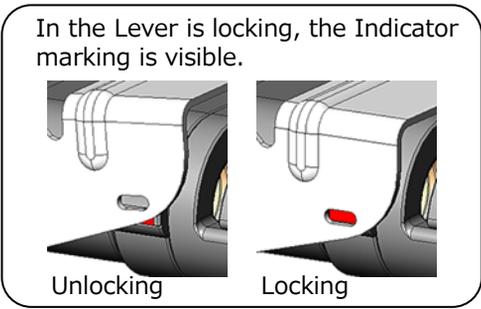
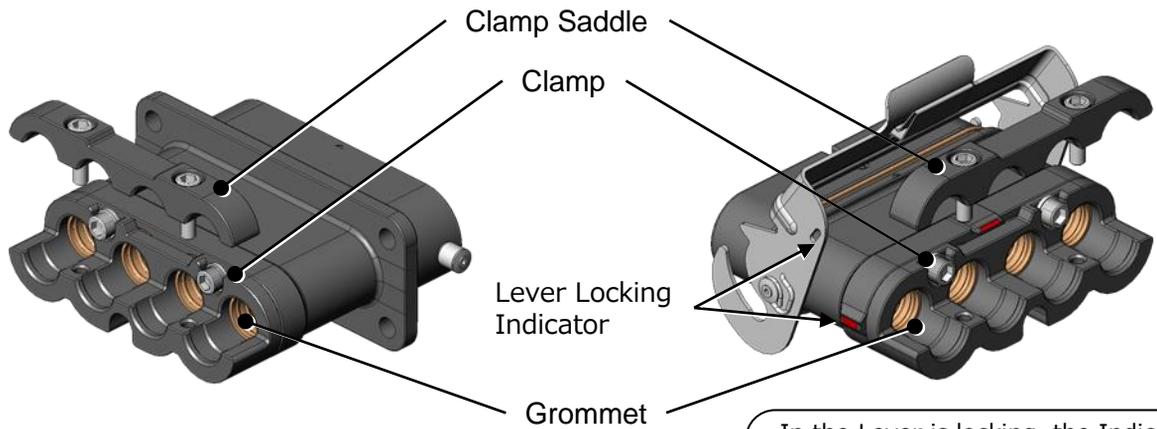
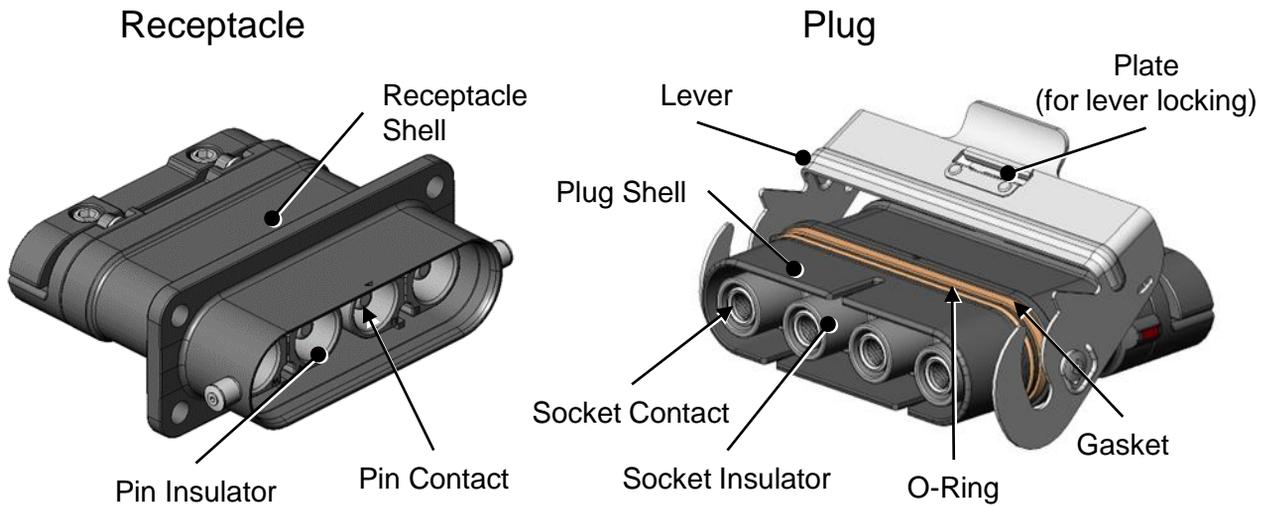
	Item	Meets Function and Performance of the following test conditions
Environmental Resistance	Sine Wave Vibration	Frequency: 5 ~ 55Hz Acceleration: 19.6m/s ² Duration: 1 minutes / cycle (5 → 55 → 5Hz) 2 hours for each axis
	Vibration Durability	Frequency : 20Hz Acceleration: 28m/s ² Duration: 40 hours for each axis.
	Shock Resistance	Impact strength: 490m/s ² Half-sine wave 11msec
	High-temperature High-humidity Test	Temperature: 72 Deg. C Relative humidity: 95% Applied period of time: 14 days
	Waterproof (When Mated)	Submerged in1m for24hours
	Heat Shock (Heat Cycle)	Temperature range: -55 Deg. C ~ +85 Deg. C, 25 Cycles
	Mating Durability	500 cycles
	Corrosion (Salt Spray)	Saltwater concentration: 5% Test tank temperature: 35 Deg. C Exposure time: 48h

• Please refer to the documents below for specification and handling instructions.

Specifications JACS-50129

Handling Instructions JAHL-50129

Components



Materials and Finishes

Components	Material and Finish
Insulator	Synthetic plastic
Shell, clamp, clamp saddle	Aluminum alloy / zinc plating
Lever, plate	Stainless steel
Grommet, O-ring, gasket	Synthetic rubber
Contact	Copper alloy / Ag plating

Ordering Information

JK11 A Y 04 P H * - F0

Series

F0: Without contact

Type

A: Panel Mount Receptacle
D: Straight Plug

Modification
Code (Note 1)

Contact Plating
H: Silver Plating

Shell Size

Y: JK11 standard size

Contact Type

P: Pin Contact

S: Socket Contact

Number of Contacts

04: 4 position

Note 1: The modification code is an alphanumeric character indicating product specifications. For more information, please refer to product drawings or Part Number List of this document.

Part Number List

Following products are supplied with contacts and grommets.

Connector Type	Part Number	Contact Type	Applicable Cable		Drawing Number
			Wire P/N	Diameter[mm]	
Panel Mount Receptacle	JK11AY04PH1	Pin	HF-WL2 38mm ² ×3 (AWG#1)	Φ13.3±0.8 ×3	SJ120949
			HF-WL2 14mm ² ×1 (AWG#6)	Φ 9.0±0.7 ×1	
Straight Plug	JK11DY04SH1	Socket	HF-WLC2 38mm ² ×4 (AWG#1)	Φ17.6±0.8 ×4	SJ120950
	JK11DY04SH2	Socket	HF-WLC2 50mm ² ×4 (AWG#0)	Φ18.8±1 ×4	SJ124491

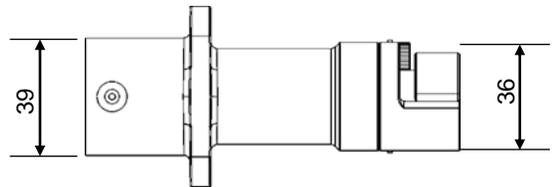
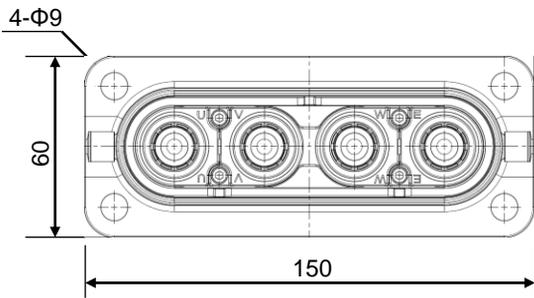
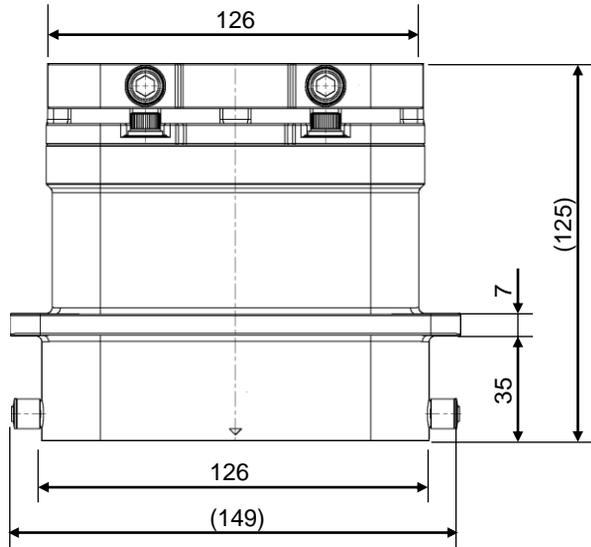
Following products with the Part Number ending in “-F0” are supplied without contacts and grommets. Contacts and grommets will need to be sourced separately. Please refer to Contact List and Grommet List (page 7)

Connector Type	Part Number	Contact Type	Drawing Number
Panel Mount Receptacle	JK11AY04PH2-F0	Pin	SJ124782
Straight Plug	JK11DY04SH3-F0	Socket	SJ124783

Outer Dimension

Outer shape and dimensions are for reference only, please refer to individual drawings for further product information. (Unit: mm)

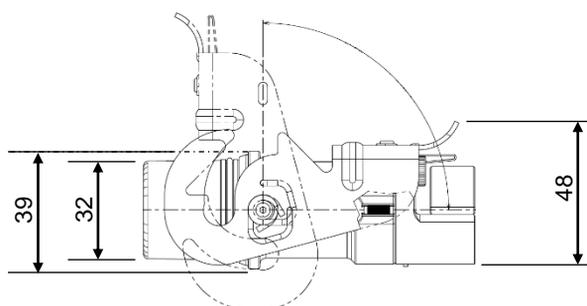
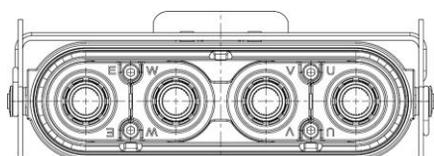
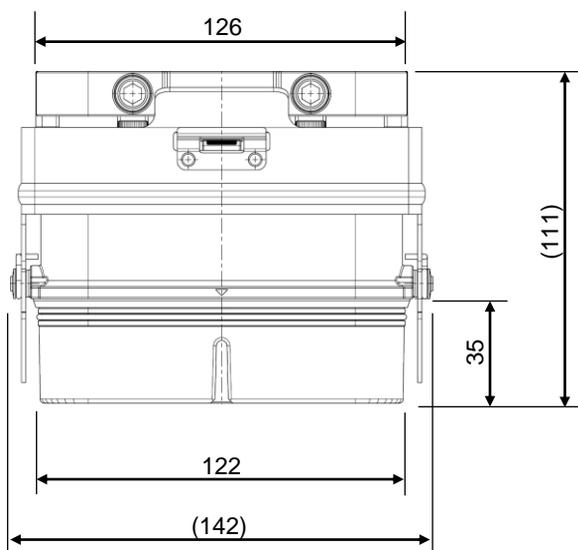
■Panel Mountable Receptacle



Outer Dimension

Outer shape and dimensions are for reference only, please refer to individual drawings for further product information. (Unit: mm)

■ Panel Attachment Receptacle



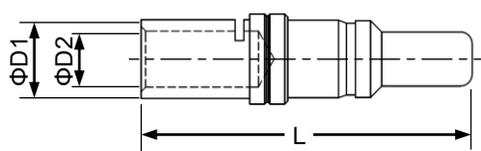
Applicable Contacts

■Crimp Contacts

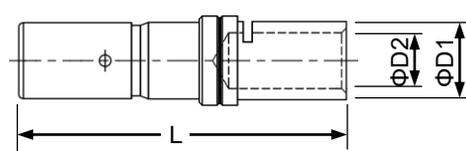
Contact Size	Plating Finishes	Applicable Conductor Cross-sectional Area	Contact Type	Part Number	Drawing Number	Outer Dimension (Unit: mm)		
						ΦD1	ΦD2	L
#0	Ag	50mm ² (AWG#0)	Pin	J030-59072-PKG10-NT	SJ124784	14.27	11.52	56.4
			Socket	J031-58293-PKG10-NT	SJ124786			55.7
		38mm ² (AWG#1)	Pin	J030-58920-PKG10-NT	SJ125176	13.2	9.4	56.4
			Socket	J031-57717-PKG10-NT	SJ125177			55.7
		14mm ² (AWG#6)	Pin	J030-59212-PKG10-NT	SJ124785	9	6	55.9
			Socket	J031-58299-PKG10-NT	SJ124787			55.2

Note 1: Part number suffix “-PKG10” denotes ten pieces per package. (10pcs. / Unit).

Note 2: Please refer to individual product drawings for further information.



Pin Contact

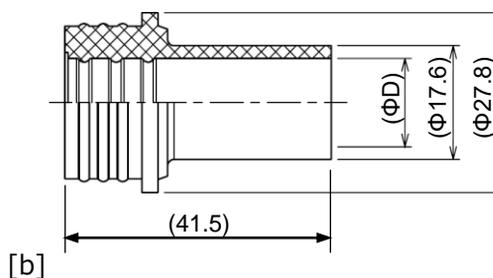
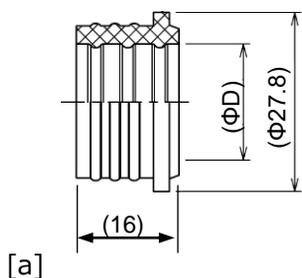


Socket Contact

Grommet

Following grommets are required for waterproofing to wire of "-F0" products separately

Applicable Cable Diameter[mm]	Part Number	Drawing Number	Outer Dimension (Unit: mm)	
			Figure	ΦD
Φ18.8 ±1.0	J351-50505-PKG10	SJ124791	[a]	19.2
Φ17.6 ±0.8	J351-50436-PKG10	SJ124790	[a]	18
Φ13.3 ±0.8	J351-50441-PKG10	SJ124789	[b]	13.7
Φ9.0 ±0.7	J351-50442-PKG10	SJ124788	[b]	9.2



Note 1: Part number suffix “-PKG10” denotes ten pieces per package. (10pcs. / Unit).

Note 2: Please refer to individual product drawings for further information.

Tools

Crimp Tool	Contact Extraction Tool
JISC-9711 compliant, or equivalent 1 indent crimp tool	JET-DBK-0-1

**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, 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.

Japan Aviation Electronics Industry, Limited

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