

High-current Waterproof Connector for Railway Vehicles

CONNECTOR

JK11 Series

MB-0375-4

Jan. 2025

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 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

| Electrical Performance | Item | Defined Value |
|------------------------|---------------------------------|--|
| | Dielectric Withstanding Voltage | AC 6000Vr.m.s. (per minute) |
| | 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. |

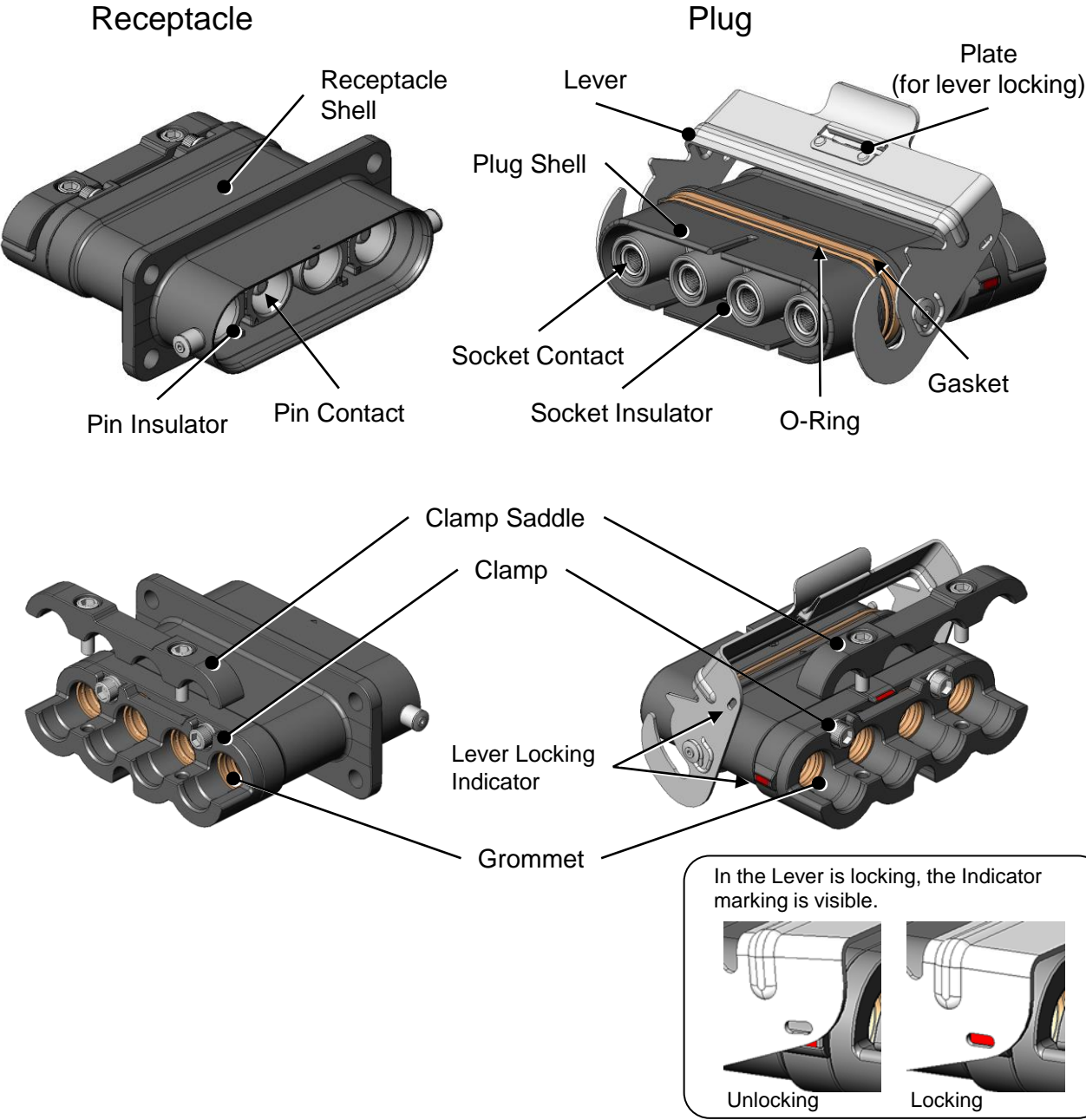
| Environmental Resistance | Item | Meets Function and Performance of the following test conditions |
|--------------------------|-------------------------------------|---|
| | Sine Wave Vibration | Frequency: 5 to 55Hz Acceleration: 1.52mm or 98m/s ² Duration: 1 minutes / cycle (5 → 55 → 5Hz) 2 hours 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: 71 Deg. C Relative humidity: 95% Applied period: 14 days |
| | Waterproof (When Mated) | Submerged in1m for 24hours |
| | Heat Shock (Heat Cycle) | Temperature range: -55 Deg. C to +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

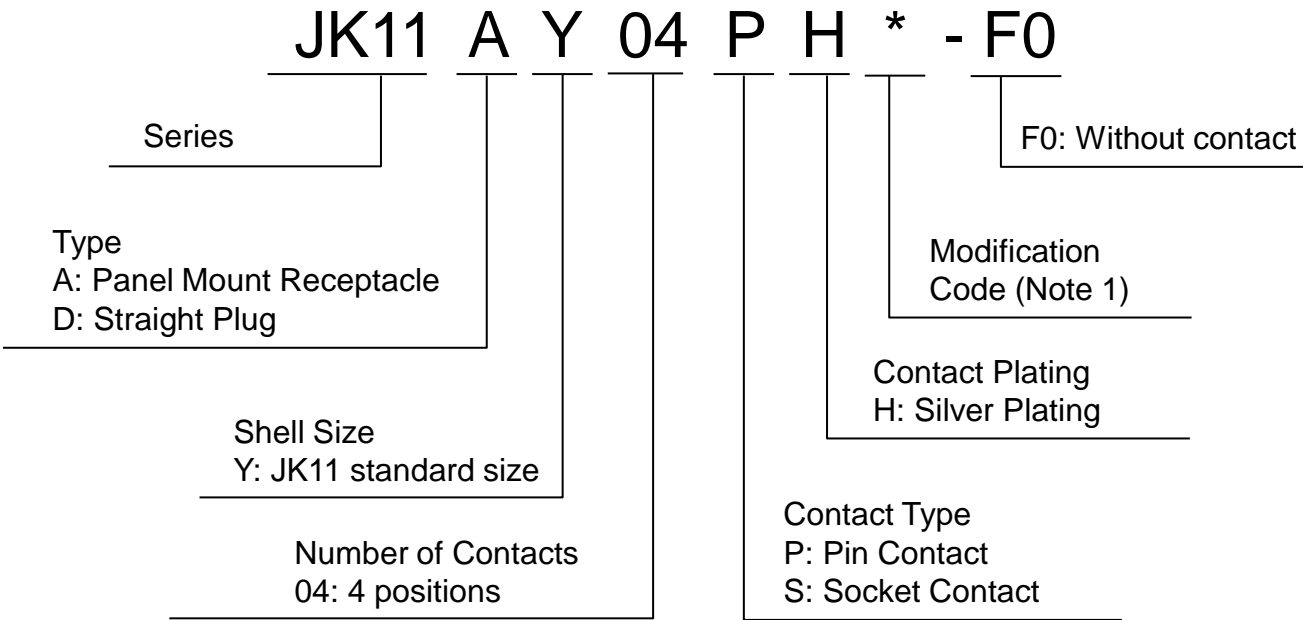
Components



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



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 |

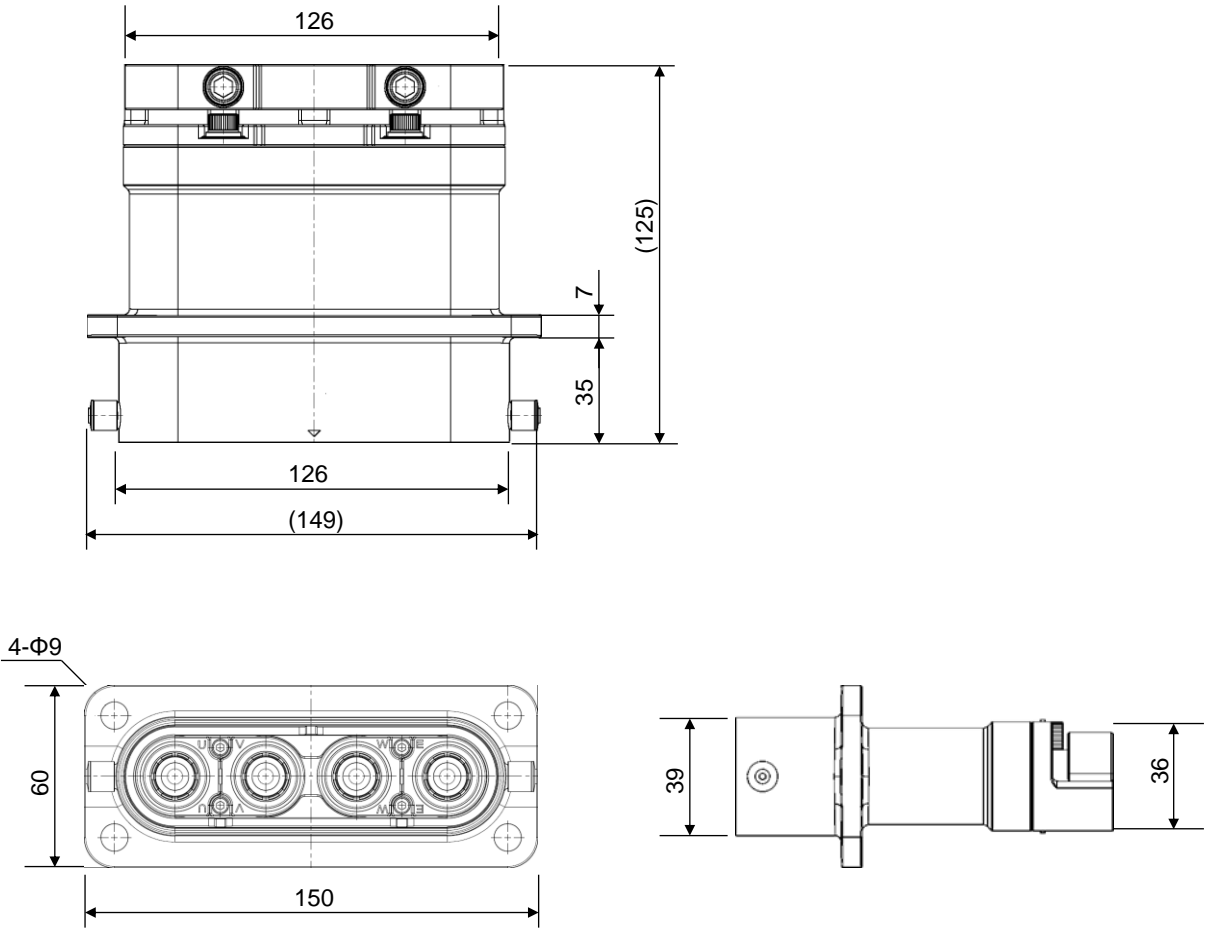
Following products with the Part Number ending in “-F0” are supplied without contacts and grommets. Contacts and grommets will need to be sourced separately. Please refer to Contact List and Grommet List (page 7)

| 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)

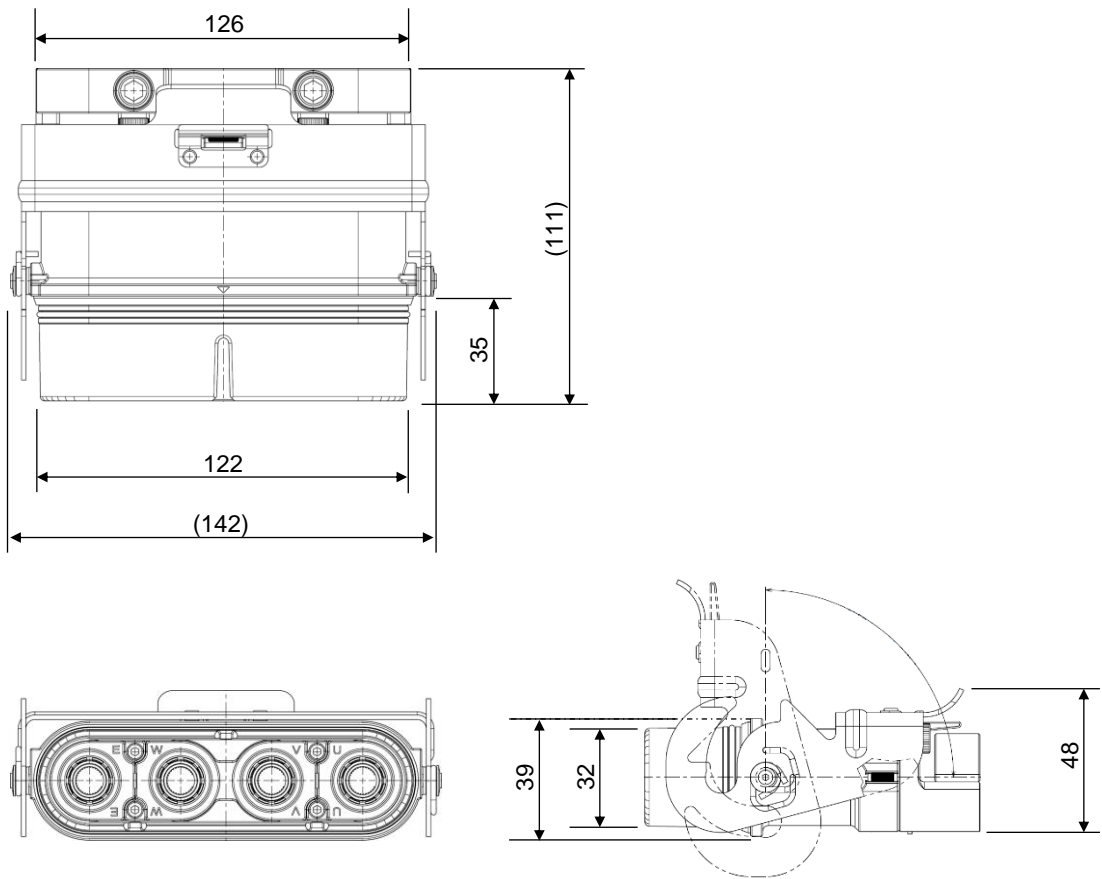
■Panel Mountable Receptacle



Outer Dimension

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

■Straight Plug



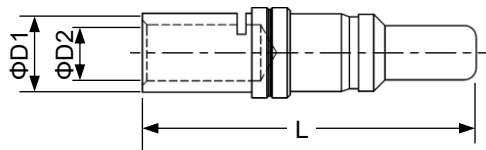
Applicable Contacts

■Crimp Contacts

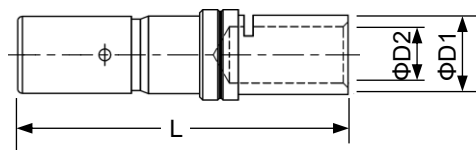
| Contact Size | Plating Finishes | Applicable Conductor Cross-sectional Area | Contact Type | Part Number | Drawing Number | Outer Dimension (Unit: mm) | | |
|--------------|------------------|---|--------------|---------------------|----------------|----------------------------|-------|------|
| | | | | | | 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

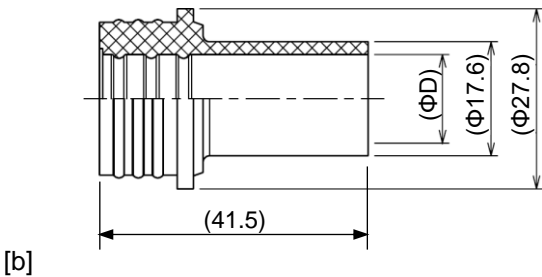
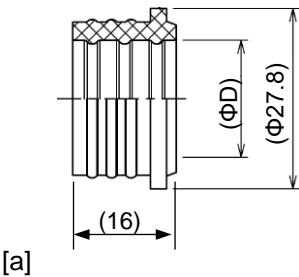


Socket Contact

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 |
| Φ15.6 ±0.8 | J351-60007-PKG10 | SJ130890 | [b] | 16 |
| Φ13.3 ±0.8 | J351-50441-PKG10 | SJ124789 | [b] | 13.7 |
| Φ9.0 ±0.7 | J351-50442-PKG10 | SJ124788 | [b] | 9.2 |

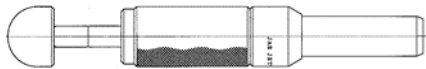


Note 1: Part number suffix “-PKG10” denotes ten pieces per package. (10pcs. / Unit).

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 :
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- (2) Recommended applications include:
Computers, office appliances, telecommunications devices (terminals, mobile units), measuring equipment, audiovisual equipment, home electric appliances, factory automation equipment, etc.

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