



# Foundation Fieldbus Redundant Junction Box

Catalog Number 1788-FJB4R

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## About the Junction Box

The 1788-FJB4R provides a simple and fault tolerant means of connecting a field bus network. The unit comprises a Bus-Input port, Bus-Output and four Field Device Drop-Line ports. Each Drop-Line port's bus current is continuously monitored and if a fault is detected, the current to that specific segment is limited to a safe current. Even with one of the segments shorted, all the other field devices on the bus are able to communicate. Useful field bus diagnostic information is displayed by means of LEDs.

## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

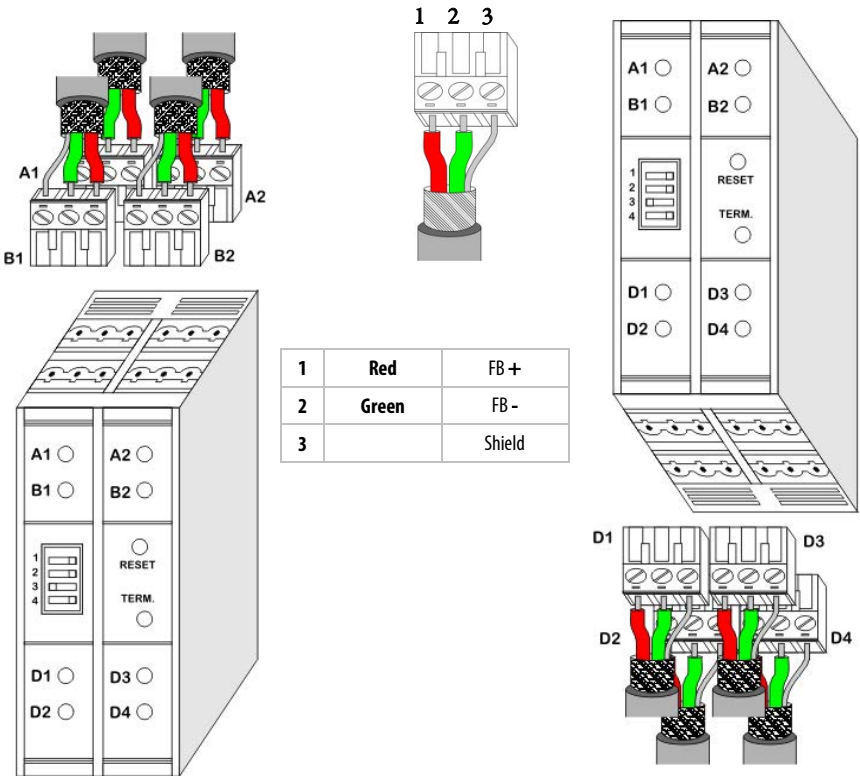
Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley® distributor or Rockwell Automation® sales representative.

# Installation Requirements

## Hardware Requirements

- **Fieldbus:** Using the IEC61158-2 cable color coding.

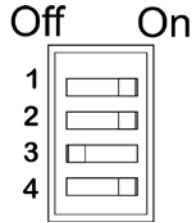


- **A1 & B1:** Redundant input pair.
- **A2 & B2:** Redundant output pair.
- **D1...D4:** Field device drop (current protected).
- **TERM:** Indicating that the junction box is terminated.
- **RESET:** Push-button to reset fault indication.

## Configuration

### DIP Switches

- 1: Enable the Bus terminator.
- 2: Reserved
- 3: Auto-reset in 1 hour
- 4: Auto balance in ring topology



### Reset Button

Press the reset button to reset all indication of trips on a drop line.

## Operation

### LEDs

There are five different LED states:

- • **OFF:** There is no current being drawn. There is nothing on the drop or the device is not operational.
- (green) • **GREEN:** The device on the drop is operating in the allowed current band.
- (red) • **RED:** The drop is in over-current protection mode. This is because of a faulty field device or a short on the drop.
- (white and red) • **OFF-RED:** There is no current being drawn, but the drop was previously in over-current protection. This might indicate a field device that went faulty and then offline or a short that has gone open-circuit.
- (green and red) • **GREEN-RED:** The device on the drop is operating in the allowed current band, but the drop was previously in over-current protection. This might indicate an intermittent fault on the field device or the drop cable.

### Drop Trip

If the junction box detects that there is too much current being drawn, it will isolate that drop and keep the rest of the bus operating. The junction box will then indicate which drop is in over-current protection with a constant RED LED indication. Once the short/faulty device is removed the constant red will become OFF-RED. Indicating there was a fault. If the problem has been rectified the user can press the reset button to remove all indication that there was a drop in over-current protection.

## Trunk Trip

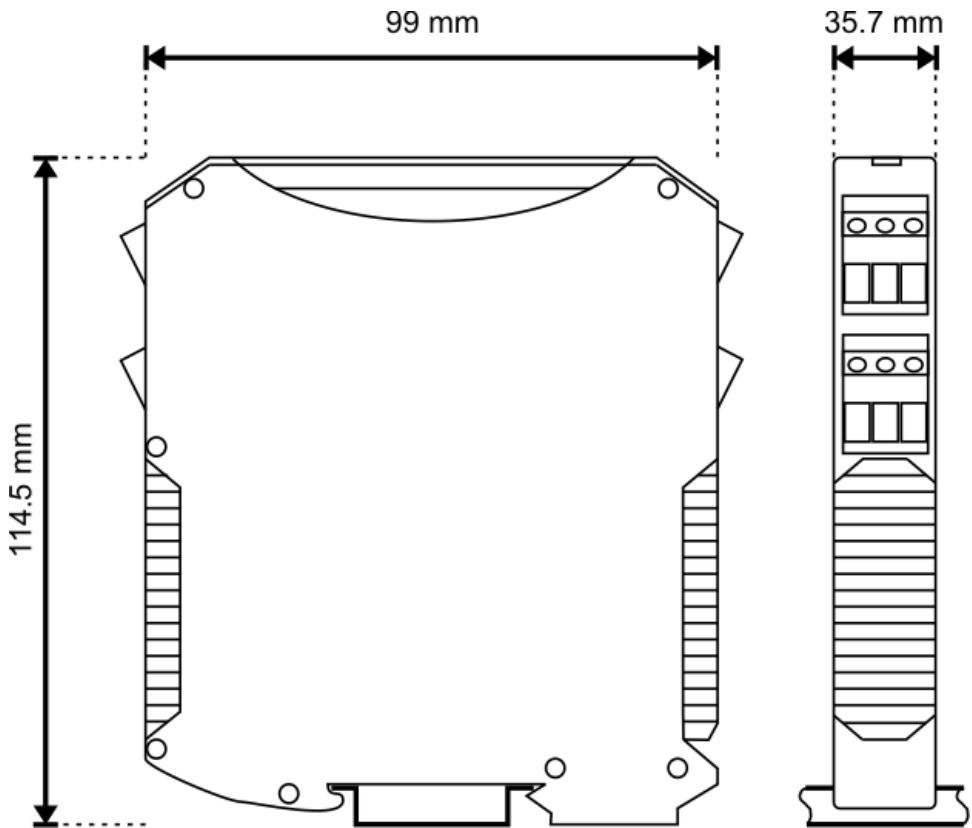
If the trunk goes into over-current it will trip the specific trunk whilst keeping the rest of the redundant bus active. The trip will remove the supply from the over-current trunk and indicate to the user via the RED LED. The fault latch does **not** unlatch when the fault has been removed. The user will have to reset the trunk trip by either pressing the reset button or setting DIP 3 & 4 to auto-reset.

## Specifications

### Electrical

Specification	Value
Power Requirements	Power will be connected to the 1788-FJB4R using the 3 way phoenix connector.
Power Consumption	Operating Voltage: 12...32V DC 40 mA at 24V (max)
Trunk Trip Current	490 mA
Operating Temperature	0...50 °C (32...122 °F)
Storage Temperature	0...50 °C (32...122 °F)
Enclosure Type Rating	IP20
Fieldbus	18 AWG (0.75 sq.mm) maximum, 24 AWG (0.25 sq.mm) minimum copper wire

## Mechanical



**Notes:**

**Notes:**

## Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.

At <http://www.rockwellautomation.com/support>, you can find technical manuals, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools. You can also visit our Knowledgebase at <http://www.rockwellautomation.com/knowledgebase> for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect<sup>SM</sup> support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

## Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the <a href="#">Worldwide Locator</a> at <a href="http://www.rockwellautomation.com/support/americas/phone_en.html">http://www.rockwellautomation.com/support/americas/phone_en.html</a> , or contact your local Rockwell Automation representative.

## New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

## Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication RA-DU002, available at <http://www.rockwellautomation.com/literature/>.

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