

# Eaton® Relay Interface Card

User's Guide  
for X-Slot® and BestDock™ Models



*Powering Business Worldwide*

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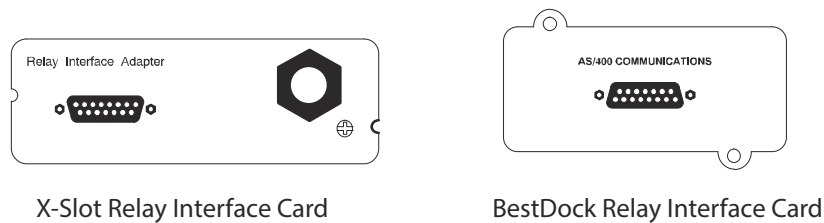
## The Relay Interface Card

The Relay Interface Card provides the essential dry-contact interface between your uninterruptible power system (UPS) and any relay-connected computer, such as the AS/400®, as well as a variety of industrial applications.

The Relay Interface Card is available in two models: the X-Slot® version and the BestDock version. The X-Slot and BestDock Relay Interface Cards are compatible with Powerware UPS products equipped for X-Slot or BestDock communication, respectively. Refer to your UPS installation manual for relay interface card compatibility.

In addition, the Relay Interface Card has the following features:

- Provides isolated dry contact (Form-C) relay outputs for UPS status: Utility failure, Low battery, UPS alarm/OK, or On bypass
- User-selectable normally-open (NO) or normally-closed (NC) contacts
- Shutdown function to remotely shutdown the UPS
- Hot-swappable for easy installation
- DB-15 output connection; terminal block outputs on the X-Slot card
- Cables available for AS/400 applications
- Increases reliability and system availability



**Figure 1. The Relay Interface Card**

### Installation

With the hot-swappable feature, the Relay Interface Card can be installed easily without turning off the UPS or disconnecting the load.

To install the Relay Interface Card, perform the following steps:

1. Remove the X-Slot or BestDock cover on the UPS rear panel. Retain the screws.

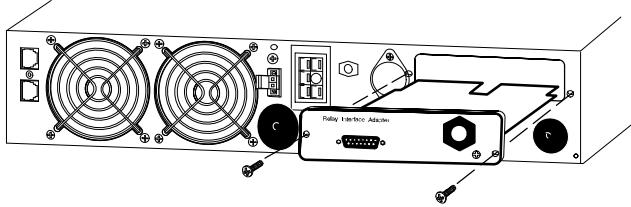
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**NOTE** If another card is already installed with an attached communication cable, disconnect the cable and then remove the card.

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## The Relay Interface Card

- To prevent electrostatic discharge (ESD), place one hand on a metal surface such as the UPS rear panel. Slide the Relay Interface Card into the open slot and secure with the screws removed in Step 1.



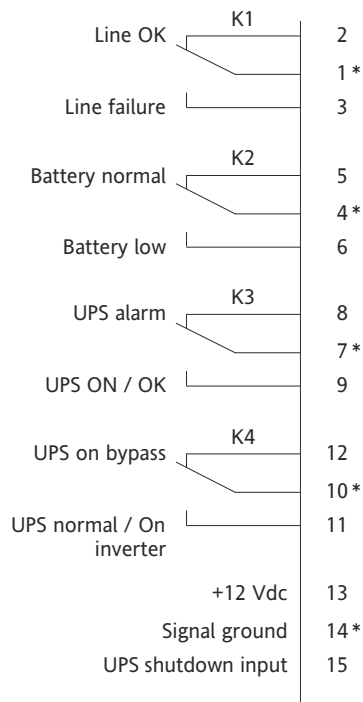
- Connect the communication cable from your computer to the DB-15 port on the Relay Interface Card.

### Pinouts and Contacts

This section describes:

- the Relay Interface Card DB-15 port
- the relay contacts and supported UPSs
- the shutdown function

The pinout of the Relay Interface Card DB-15 port and TB-X4 is listed below:



\* = Galvanically isolated common.

**Figure 2. DB-15 and TB-X4 Pinout**

**Table 1. Relay Interface Card Pins and Relays**

Relay # on board	System State	DB-15 Pin Connection	NC/NO*
K1: AC Line	AC line okay	1-2	NC
	AC line failure	1-3	NO
K2: Battery	Battery normal	4-5	NC
	Battery low	4-6	NO
K3: UPS Alarm	UPS alarm	7-8	NC
	UPS on/okay	7-9	NO
K4: Bypass	UPS on bypass	10-12	NC
	UPS normal/on inverter	10-11	NO
--	UPS shutdown**	13-15	--

\*Normally-open (NO) or Normally-closed (NC)

\*\*Pin 15, the shutdown pin, needs a minimum of 5 seconds high level signal (connection to +12 Vdc) to perform the UPS shutdown.

 **CAUTION**

The relay contacts must not be galvanically connected to any mains connected circuits. DO NOT use +12 Vdc (Pin 13) of the Relay Interface Card for any power supply purposes for external devices. Reinforced insulation to the mains is required for equipment and cables connected to these connections.

**NOTE** Form-C contact ratings: 1A @ 30 Vdc or 200 mA/60 Vdc. All relay outputs are galvanically isolated from the other circuits of the UPS (IEC 950, EN 50091-1).

**Table 2. BestDock Relay Interface Card Shutdown Function**

UPS	Function	JP1 (default)	JP2	JP3
PW 9120	UPS Normal	--	Immediate output off; back online when shutdown pins are opened	Immediate output off
	On Battery	Shut down as in RS-232 port. Output off after 120 seconds; back online when power returns	--	Immediate output off
PW 9170+	UPS Normal	--	--	Immediate output off
	On Battery	--	Immediate output off	Immediate output off

## Service and Support

If you have any questions or problems with the Relay Interface Card, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a Relay Interface Card technical representative.

United States: **1-800-356-5737** or **1-608-565-2100**  
Europe, Middle East, or Africa: **+44-17 54 608 700**  
Asia: **+852-2830-3030**  
Australia: **+61-3-9706-5022**

Please have the following information ready when you call the Help Desk:

- Model number
- Date of failure or problem
- Symptoms of failure or problem
- Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the Help Desk or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warranted units.

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**NOTE** For critical applications, immediate replacement may be available. Call the Help Desk for the dealer or distributor nearest you.

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## Two-Year Limited Warranty (USA and Canada)

### Connectivity Devices

**WARRANTOR:** The warrantor for the limited warranties set forth herein is Eaton (“Company”).

**LIMITED WARRANTY:** This limited warranty (this “Warranty”) applies only to the original End-user (the “End-user”) of any 3, 5 and 9 series Connectivity Devices (the “Product”) purchased on or after June 1, 2004, and cannot be transferred. This Warranty applies even in the event that the Product is initially sold by Company for resale to an End-user.

**LIMITED WARRANTY PERIOD:** The period covered by this Warranty for the Product installed [and currently located] in the fifty (50) United States, the District of Columbia, and Canada is twenty-four (24) months from the date of purchase.

**WHAT THIS LIMITED WARRANTY COVERS:** The warrantor warrants that the Product (the “Warranted Item”) is free from defects in material and workmanship. If, in the opinion of Company, a Warranted Item is defective and the defect is within the terms of this Warranty, Company’s sole obligation will be to repair or replace such defective Warranted Item (including by providing service, parts and labor, as applicable), at the option of Company.

**PROCEDURES FOR REPAIR OR REPLACEMENT OF WARRANTED ITEMS:** The Warranted Item will be repaired or replaced at a Company site or such other location as determined by Company.

If the Warranted Item is to be replaced by Company, and the End-user supplies a credit card number or purchase order for the value of the replacement Product, Company will use commercially reasonable business efforts to ship (via standard ground shipment and at no cost to the End-user) the replacement Warranted Item to the End-user within one (1) business day after Company receives notice of the warranty claim. In such case, the End-user must return (at Company’s expense) the defective Warranted Item to Company in the same packaging as the replacement Warranted Item received by the End-user or as otherwise instructed by Company. If Company does not receive the defective Warranted Item, Company will either charge the End-user’s credit card, or send the End-User an invoice (which the End-user agrees to pay), for the value of the replacement Product.

If the Warranted Item is to be replaced by Company, but the End-user is unwilling or unable to supply a credit card number or purchase order for the value of the replacement Product, Company will use commercially reasonable business efforts to ship (via standard ground shipment and at no cost to the End-user) the replacement Warranted Item to the End-user within one (1) business day after Company receives the defective Product from the End-user.

In any case, Company will provide shipping instructions and will pay its designated carrier for all shipping charges for return of defective equipment and replacement of Warranted Items. Any returned Warranted Item or parts that are replaced may be new or reconditioned. All Warranted Items returned to Company and all parts replaced by Company shall become the property of Company.

**WHAT THIS LIMITED WARRANTY DOES NOT COVER:** This Warranty does not cover any defects or damages caused by: (a) failure to properly store the Product before installation; (b) shipping and delivery of the Product if shipping is FOB Factory; (c) neglect, accident, abuse, misuse, misapplication or incorrect installation; (d) repair or alteration not authorized in writing by Company personnel or performed by an authorized Company Customer Service Engineer or Agent; (e) improper testing, operation, maintenance, adjustment or modification of any kind not authorized in writing by Company personnel or performed by an authorized Company Customer Service Engineer or Agent; or (f) use of the Product under other than normal operating conditions or in a manner inconsistent with the Product’s labels or instructions.

This Warranty is not valid if the Product’s serial numbers have been removed or are illegible. Any Warranted Items repaired or replaced to this Warranty will be warranted for the remaining portion of the original Warranty subject to all the terms thereof.

Company shall not be responsible for any charges for testing, checking, removal or installation of Warranted Items.

**COMPANY DOES NOT WARRANT EQUIPMENT NOT MANUFACTURED BY COMPANY. IF PERMITTED BY THE APPLICABLE MANUFACTURER, COMPANY SHALL PASS THROUGH SUCH MANUFACTURER'S WARRANTIES TO END-USER.**

**COMPANY SHALL PASS THROUGH SUCH MANUFACTURER'S WARRANTIES TO END-USER. COMPANY DOES NOT WARRANT SOFTWARE (IF APPLICABLE TO THE PRODUCT), INCLUDING SOFTWARE EMBEDDED IN PRODUCTS, THAT IS NOT CREATED BY COMPANY. WITHOUT LIMITING THE FOREGOING, COMPANY SPECIFICALLY DOES NOT WARRANT SOFTWARE (SUCH AS LINUX) THAT WAS CREATED USING AN "OPEN SOURCE" MODEL OR IS DISTRIBUTED PURSUANT TO AN OPEN SOURCE LICENSE.**

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**THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY OFFERED BY COMPANY WITH RESPECT TO THE PRODUCTS AND SERVICES AND, EXCEPT FOR SUCH FOREGOING WARRANTY COMPANY DISCLAIMS ALL OTHER WARRANTIES INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, NON-INFRINGEMENT AND FITNESS FOR A PARTICULAR PURPOSE. CORRECTION OF NON- CONFORMITIES IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE SHALL CONSTITUTE COMPANY'S SOLE LIABILITY AND END- USER'S EXCLUSIVE REMEDY FOR FAILURE OF COMPANY TO MEET ITS WARRANTY OBLIGATIONS, WHETHER CLAIMS OF THE END-USER ARE BASED IN CONTRACT, IN TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY), OR OTHERWISE.**

**LIMITATION OF LIABILITY:** The remedies of the End-user set forth herein are exclusive and are the sole remedies for any failure of Company to comply with its obligations hereunder. In no event shall Company be liable in contract, in tort (including negligence or strict liability) or otherwise for damage to property or equipment other than the Products, including loss of profits or revenue, loss of use of Products, loss of data, cost of capital, claims of customers of the End-user or any special, indirect, incidental or consequential damages whatsoever. The total cumulative liability of Company hereunder whether the claims are based in contract (including indemnity), in tort (including negligence or strict liability) or otherwise, shall not exceed the price of the Product on which such liability is based.

Company shall not be responsible for failure to provide service or parts due to causes beyond Company's reasonable control.

**END-USER'S OBLIGATIONS:** In order to receive the benefits of this Warranty, the End-user must use the Product in a normal way; follow the Product's operation and maintenance manual; and protect against further damage to the Product if there is a covered defect.

**OTHER LIMITATIONS:** Company's obligations under this Warranty are expressly conditioned upon receipt by Company of all payments due to it (including interest charges, if any). During such time as Company has not received payment of any amount due to it for the Product, in accordance with the contract terms under which the Product is sold, Company shall have no obligation under this Warranty. Also during such time, the period of this Warranty shall continue to run and the expiration of this Warranty shall not be extended upon payment of any overdue or unpaid amounts.

**COSTS NOT RELATED TO WARRANTY:** The End-user shall be invoiced for, and shall pay for, all services not expressly provided for by the terms of this Warranty, including without limitation, site calls involving an inspection that determines no corrective maintenance is required. Any costs for replacement equipment, installation, materials, freight charges, travel expenses or labor of Company representatives outside the terms of this Warranty will be borne by the End-user.

**OBTAINING WARRANTY SERVICE:** In the USA, call the Customer Reliability Center 7x24 at 800.356.5737. Outside of the USA, contact your local Eaton product sales or service representative for units purchased from those countries, or call the Customer Reliability Center in the USA at 919.845.3683 for units purchased in the USA that were shipped overseas. For comments or questions about this Warranty, write to the Customer Quality Representative, 8609 Six Forks Road, Raleigh, North Carolina 27615 USA.

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