EPIC SAFETY

Rivo

Primary IP Fire Alarm Communicator

General Installation Guide

D1123A0000- 01/2025- V1.0

Firmware V1.0

Contents

1. Overview

a. Description

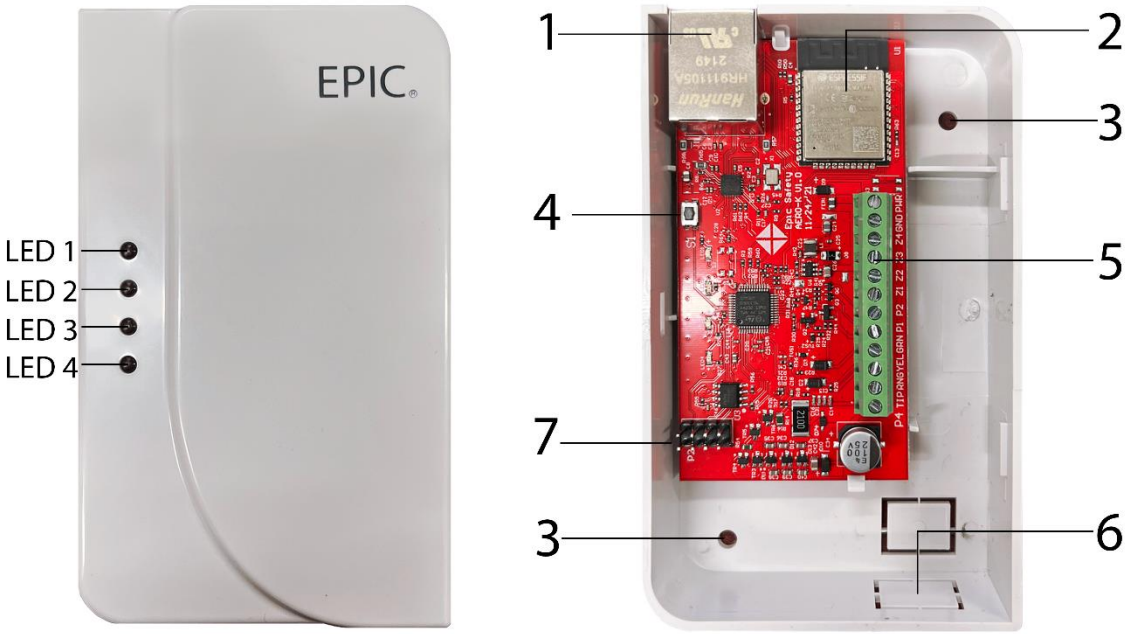
Rivo is a primary IP fire alarm communicator that can monitor the keybus of supported DSC and Honeywell panels in fire alarm systems, as well as provide dial capture monitoring for systems that communicate using CID or SIA formats. Rivo also includes three pre-defined zones for alarm monitoring, along with two PGMs for various applications (see section 7 PGM Output Functions).

Additionally, Rivo can connect directly to fire alarm control panels (FACPs) through tip and ring terminals for dial capture monitoring. With remote access through the Aryo Cloud platform, available in web browsers and dedicated iOS and Android apps, dealers can conveniently manage their systems from anywhere.

b.In the Box

- Rivo
- Quick Start Guide

c. Parts Identification



1) RJ45 connector

2) WiFi module

3) Mounting holes

4) Button

5) Terminal block (compliant with **UL1059** & **CAN/CSA C22.2 No. 158-10** standards)

6) Wire entrance

7) RF Expansion port

2. Introduction

a. Operational Scenarios

- Take-over any existing fire alarm system.
- Modernize old systems.
- Upgrade and replace traditional landline systems.
- New installations.

b. Device & Cloud Features

Rivo:

- UL/ULC Certified.
- Compact and lightweight design.
- **IP** connectivity options.
- Low-power consumption and energy-efficient design for cost-effective operation.
- Able to communicate directly with FACP through Tip & Ring terminals.
- Compatibility with DSC PowerSeries & Honeywell keybus, and CID & SIA formats for all other panels.
- Remote monitoring via Aryo Cloud platform.
- Partition and zone status monitoring.
- Remote programming for easy configuration.
- Flexible use of 2 PGMs for automation.
- Full supervision.
- Temperature monitoring for environmental control.
- Voltage detection for enhanced system reliability.
- Full event reporting to Aryo Cloud and Central Monitoring Station.
- Daily summary reports and remote diagnostics.
- Remote firmware updates for system enhancements.

Aryo Cloud platform:

- End-to-end device and user data encryption for enhanced protection.
- Multi-factor authentication options for enhanced verification.
- Support multiple languages for user interface.
- Centralized management of multiple fire alarm systems within a single web app.
- Advanced analytics and reporting tools for trend analysis and security insights.
- Customizable Push, Email, SMS, and Audible notifications.

3. Pre-Installation Requirements

- This product should be installed in accordance with Chapter 29 of the National Fire Alarm and Signaling Code, ANSI/NFPA 72, (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269).
- Installation must be in accordance with CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations; CAN/ULC S302, Standard for the Installation, Inspection and Testing of Intrusion Alarm Systems; and CAN/ULC S301, Standard for Signal Receiving.
- Wire methods are to be in accordance with National Electrical Code, ANSI/NFPA 70.
- Rivo is intended to be powered from the regulated output of a listed alarm panel rated

within the range of 9 – 16 VDC.

- DO the wiring when both Rivo and the alarm panel are powered down.
- DO NOT route any wire over the alarm panel or Rivo circuit boards.
- Install and program your alarm panel before connecting it to Rivo.
- DO NOT power up Rivo prior to user and device registration.
- Install and operate Rivo within its specified temperature range to prevent any possible damage.
- DO NOT install the unit close to a heating source, direct sunlight, or in a damp location.
- DO NOT connect Rivo to a phone line. This will damage the device.
- Always connect Rivo to an approved power source and battery backup.
- Use a relay when connecting panel PGM that supplies power to the Rivo zone. Otherwise, it will damage the device.

a. Cable Length

- To remain compliant with the applicable UL and ULC standards, do not connect cables longer than 98.5 feet (30 m).
- Otherwise, using Station Z or CAT 5 type wires. Rivo can be installed up to 1000 feet away from the alarm panel. Please note that the below table serves as a guideline only, and the maximum wire length could be different depending on the interference level generated by the environment, alarm panel, and other accessories in the system.

Cable Type & Size	Number of wires	Communication Format	Keybus & Tip/Ring	Tip/Ring & Power	Keybus & Tip/Ring & Power
Station Z 4 x 22AWG DO NOT CONNECT SPARE WIRES	One wire	Keybus	-	-	-
		CID	200ft	1000ft	-
		SIA	100ft	1000ft	-
	Two wires	Keybus	-	-	-
		CID	1000ft	1000ft	-
		SIA	1000ft	1000ft	-
	Three wires	Keybus	-	-	-
		CID	-	-	1000ft
		SIA	-	-	1000ft
CAT 5 8 x 24AWG DO NOT CONNECT SPARE WIRES Power +: Orange pair Power -: Blue pair Keybus GRN: Green Keybus YEL: White/Green	One wire	Keybus	-	-	-
		CID	1000ft	1000ft	200ft
		SIA	1000ft*	1000ft	200ft
	Two wires	Keybus	-	-	-
		CID	1000ft	1000ft	1000ft
		SIA	1000ft	1000ft	1000ft
		Keybus	-	-	-

TIP: Brown RING: White/Brown	Three wires	CID	-	-	1000ft
		SIA	-	-	1000ft

*For this specific configuration, power cable must not exceed 500ft.

4. Monitoring Options

- **Dial capture** allows Rivo to detect and capture CID and SIA events and monitor any FACP or alarm system that uses these two formats. Dial capture monitoring is available by connecting the TIP and RNG terminals of Rivo to any panel that can communicate in CID and SIA formats.
- **Keybus + Dial capture** enables Rivo to communicate with the alarm panel and keypads directly for faster status reporting. Keybus + dial capture is available by connecting the YEL and GRN terminals of Rivo to supported DSC PowerSeries and Honeywell Vista series panels as well as wiring for dial capture as described above.

5. Setup & Installation Steps

The required steps for setting up Cloud, device, and alarm panel are summarized in the following. Refer to section **3** for pre-installation requirements.

a. Add Device on Aryo Cloud

- Add the device to the Aryo Cloud platform.
- Assign a specific account number obtained from your CMS for the system.
- If required, assign additional account numbers to other partitions. If the corresponding sections are left blank, the alarm panel account number set at the previous step is considered for all partitions.

b.Install & Program Alarm Panel

Install, wire, and program the alarm panel, making sure it is in working condition prior to connecting Rivo to it.

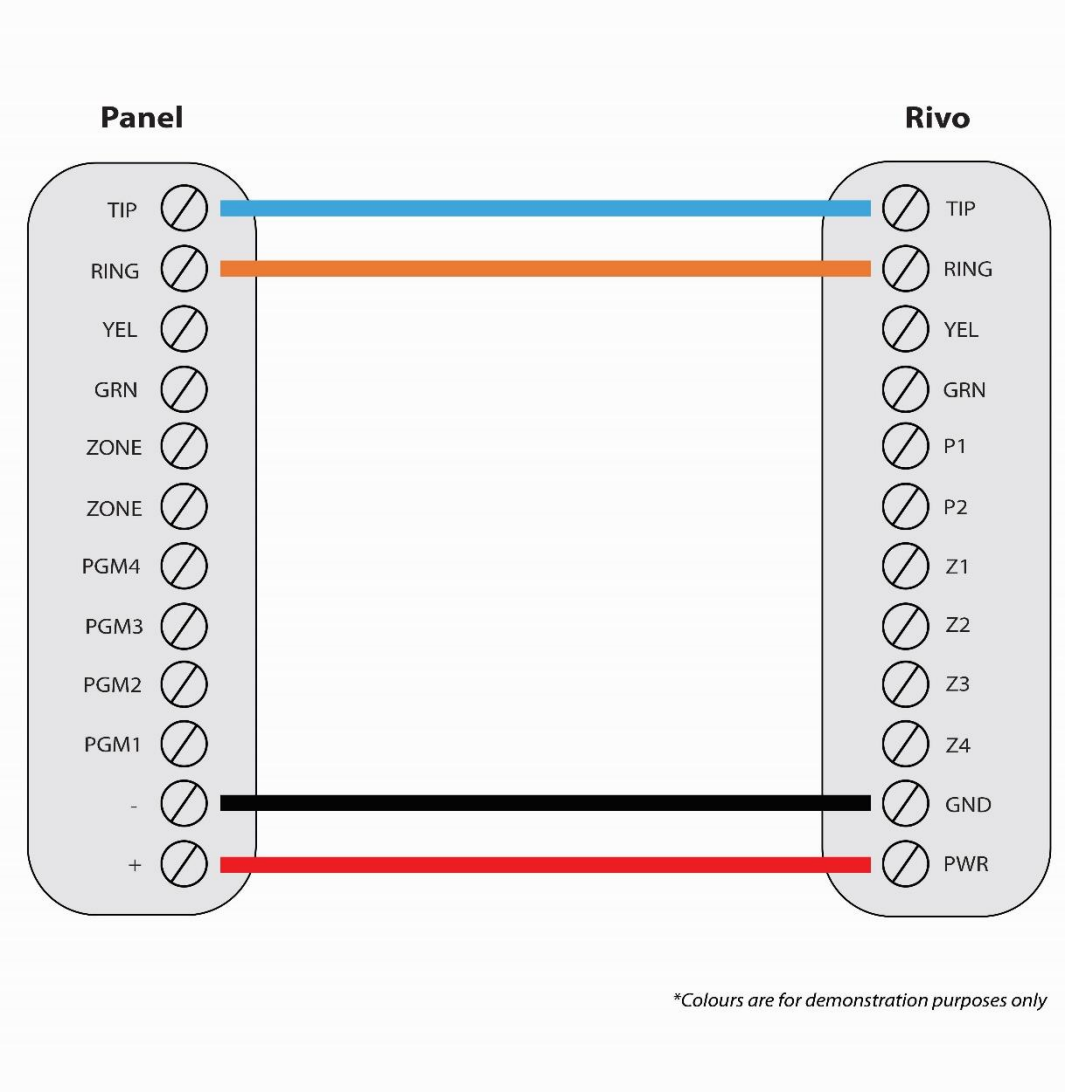
For alarm panel programming instructions suggested for Rivo functionality, refer to Epic's product manual corresponding to your alarm panel vendor and model number.

c. Connect Rivo to Alarm System

Refer to section **6.f** for further information on Rivo terminals.

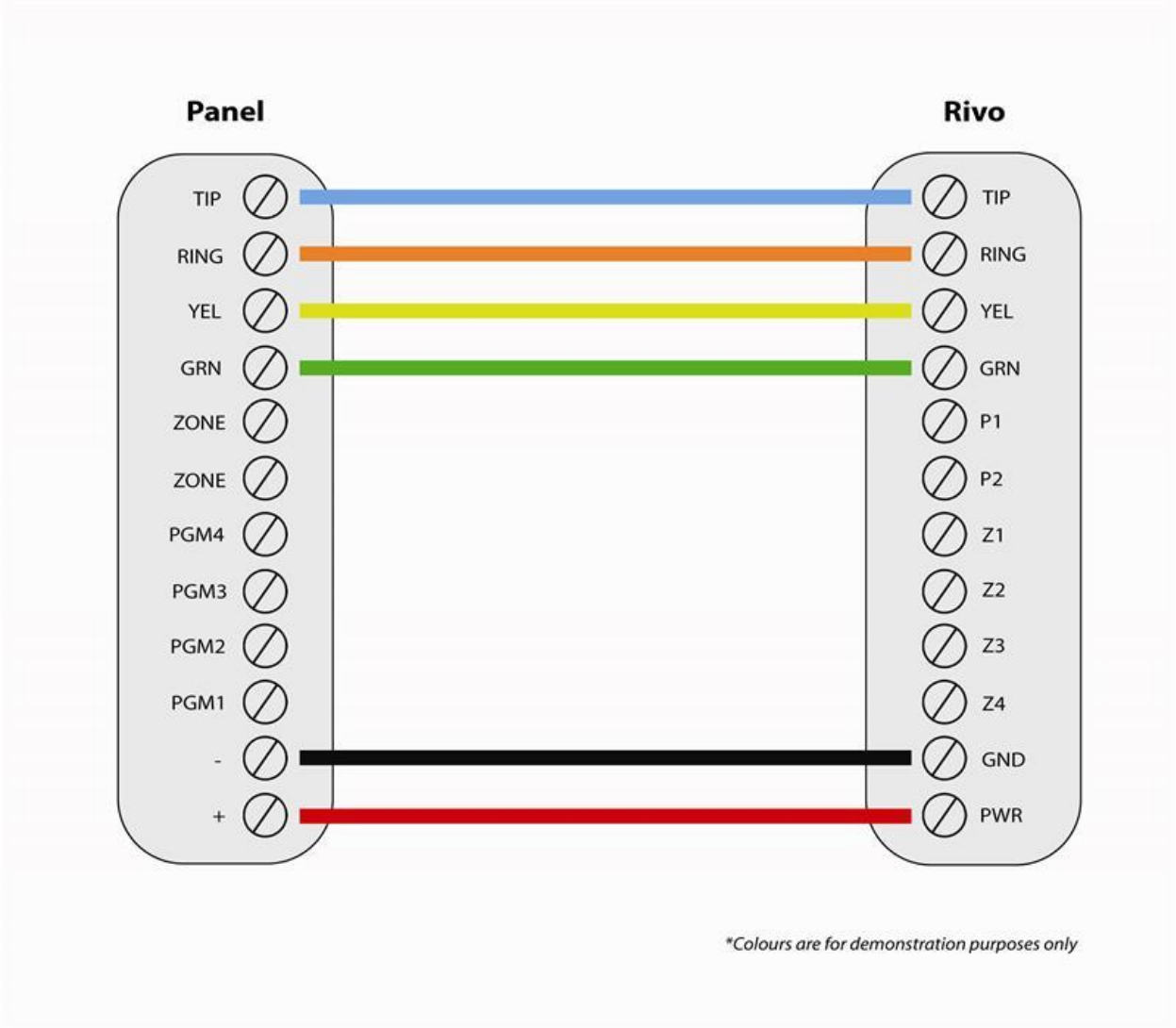
i. Dial Capture

If the FACP/security alarm panel utilizes CID and/or SIA formats over its dialer, Rivo can be connected directly to it via the TIP/RNG terminals to monitor events. Note that the communicator needs to be placed inside a UL-approved metal box for fire commercial installations.



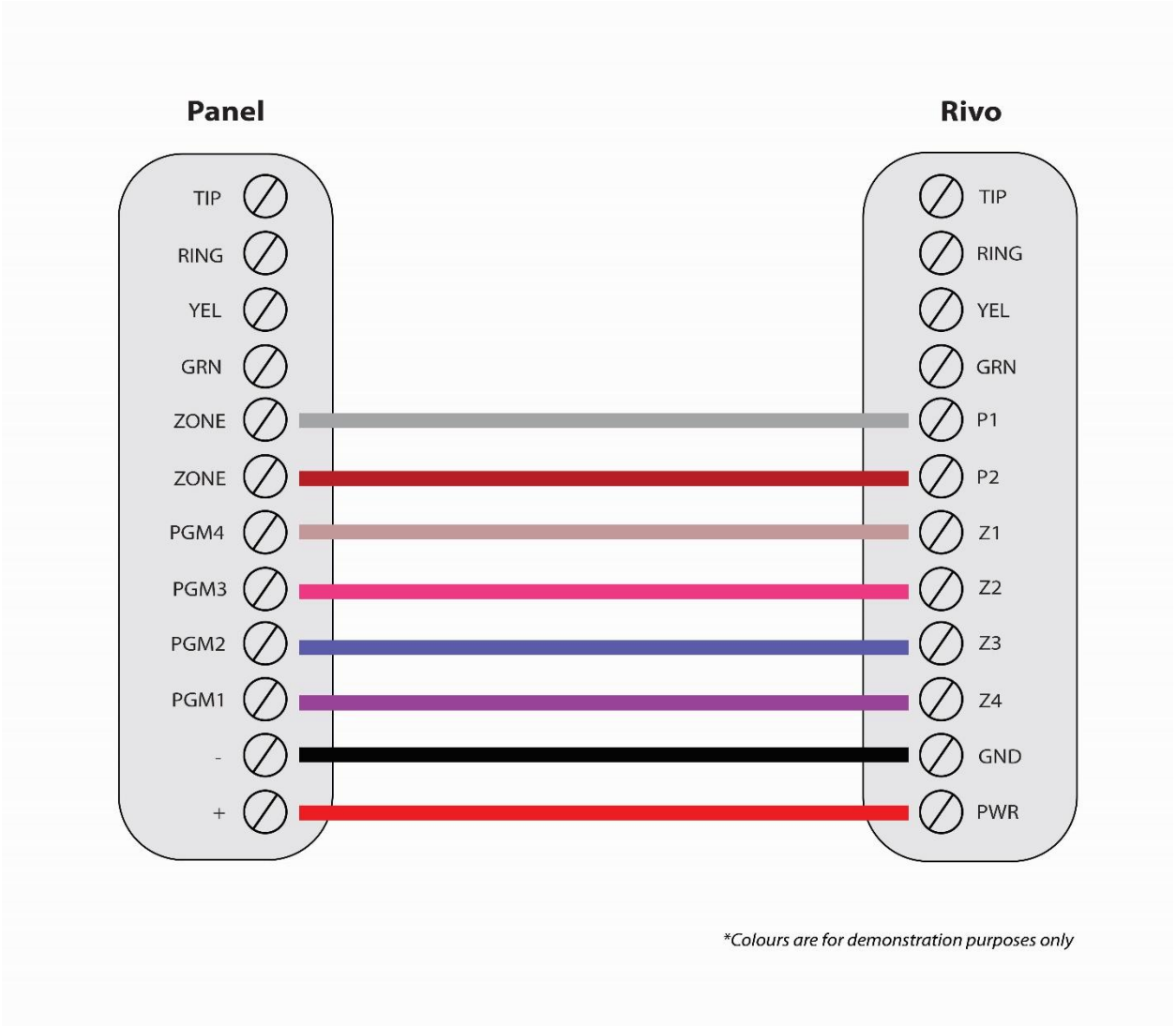
ii. Keybus + DTMF

Keybus + dial capture is available by connecting the YEL and GRN terminals of Rivo to supported DSC PowerSeries and Honeywell Vista series alarm panels as well as wiring for dial capture as described above. This mode provides panel control and monitoring of events as well as the near real-time status of the panel itself.



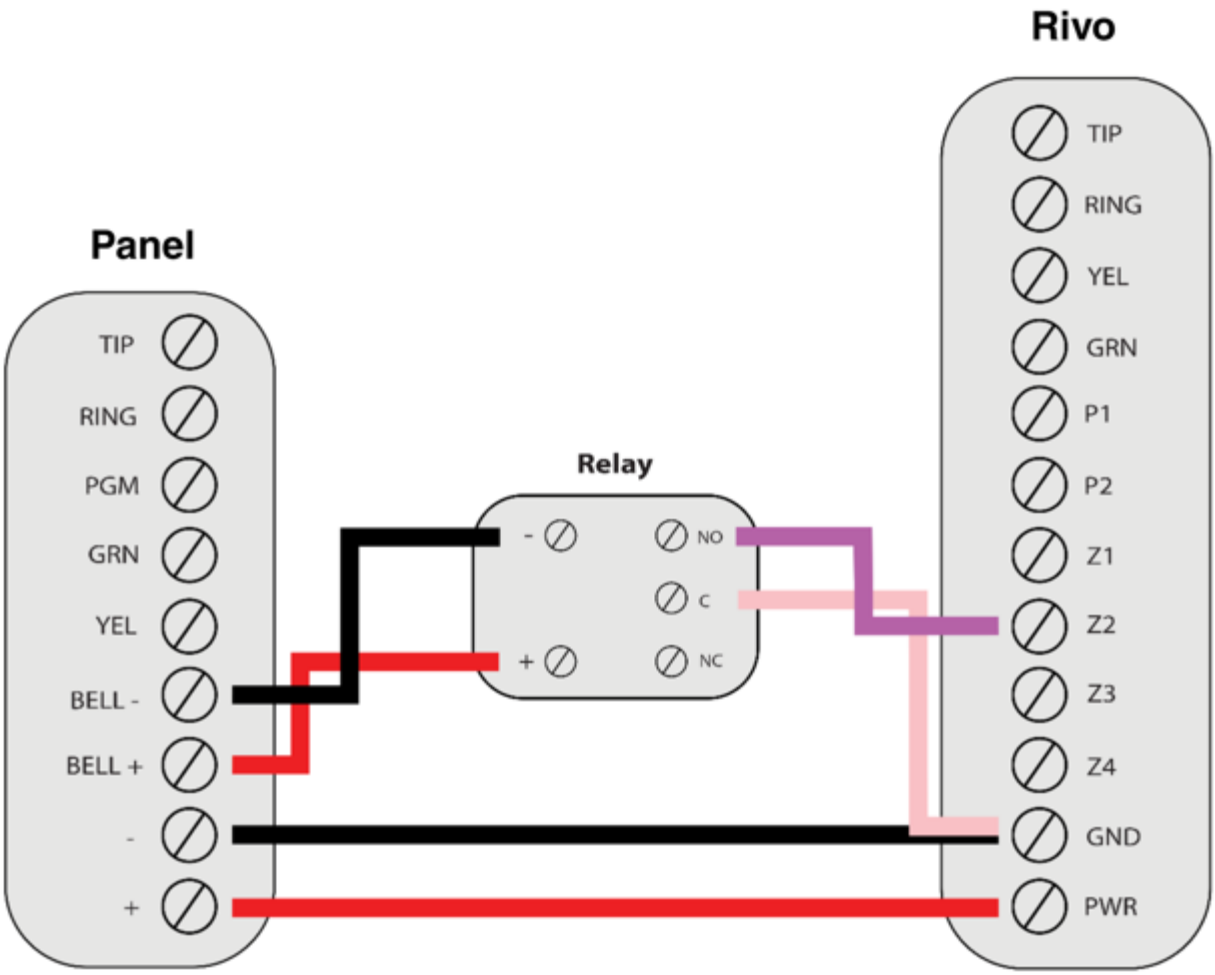
iii. 4 Zone Inputs

Rivo has 3 predefined input zones to monitor burglary (zone 2), fire (zone 3), and panic (zone 4) alarms. If connecting these zones to an alarm panel PGM/siren output that supplies voltage/current, a relay must be wired as described below to prevent damage to the device. Note that connection to zone 1 in the diagram below is for future use.



Relay Wiring

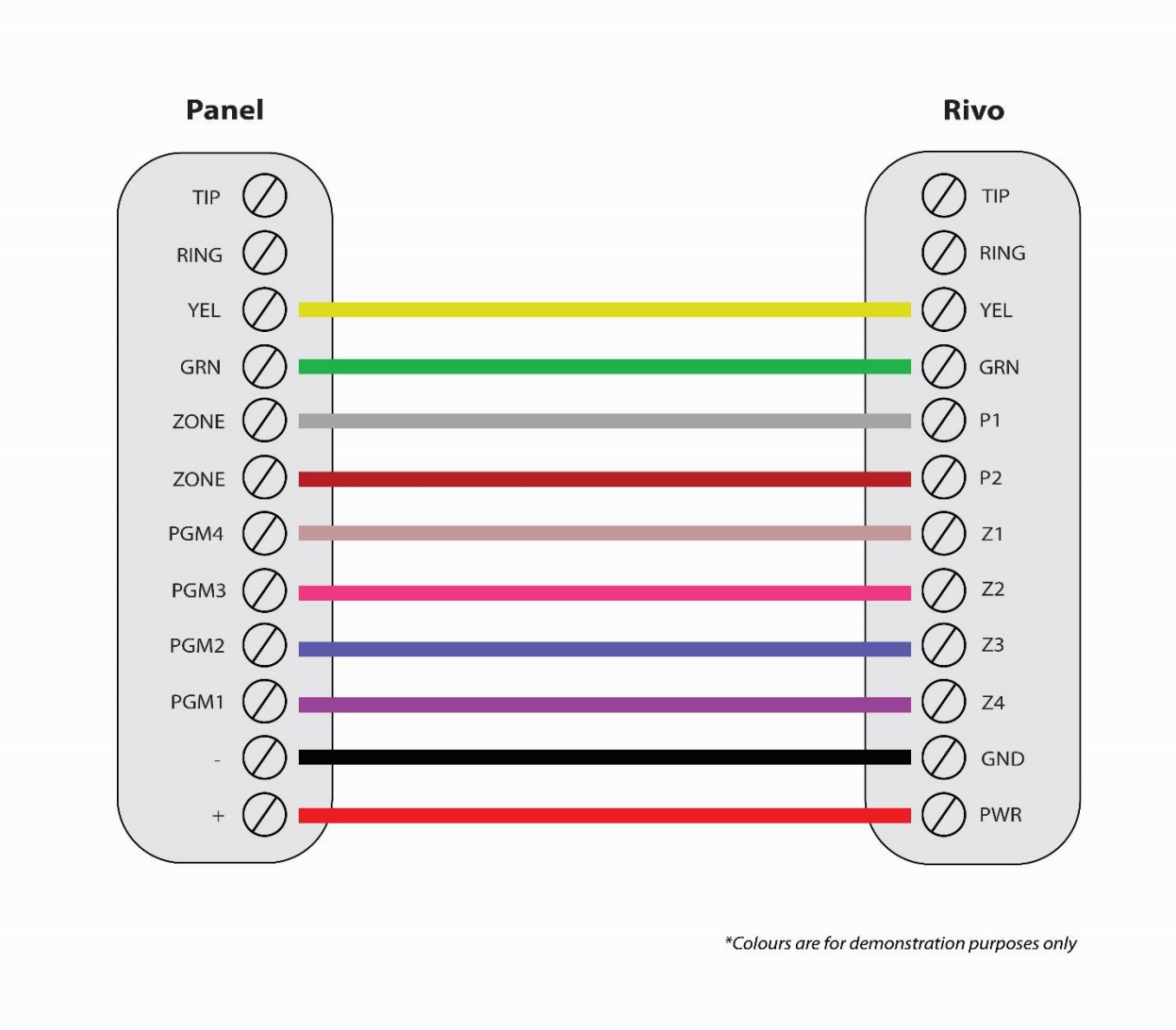
Connect the positive (+) and ground (-) of a 12 VDC relay to the corresponding panel siren/PGM terminals. Connect the N.O. output of the relay to Rivo input zone, as illustrated in the following diagram for siren terminals connected to one of the Rivo zones.



*Colours are for demonstration purposes only

4-zone inputs can be connected to the alarm panel along with the other forms of communication, that are DTMF and keybus as shown in the following:

*Colours are for demonstration purposes only



d.Complete Aryo Cloud Configurations

Complete the device and alarm panel configurations (if applicable) on Aryo Cloud. For further information, refer to our dealer portal.

6. Performance Guide

a. Signal Level

The signal level is reported using RSSI (Received Signal Strength Indicator) method which can be converted to dBm (decibel-milliwatts). The RSSI and corresponding signal strength can be seen in the table below:

RSSI	Signal Level (dBm)	Service Level
99	NA	No service
0-2	-113 ~-109	

3-11	-108 ~-91	Poor – Device will trigger signal strength trouble event.
12-16	-89~-81	Acceptable
17-21	-79~-71	Good
22-31	-69~-51	Excellent

This data is for reference only and may not be applicable in all situations.

b. Temperature

For proper operation, the system must be in the specified temperature range. The default temperature levels, and their corresponding interpretations are listed below. Dealers will be able to set high and low temperature thresholds and view the current temperature on the Aryo Cloud platform.

Rivo Temp. (°C)	Interpretation
< -5 °C	Low – Device will trigger low temperature trouble event.
-5 °C to 50 °C	Normal
> 50 °C	High – Device will trigger high temperature trouble event.

c. Voltage

Both alarm panel and Rivo should be powered by an approved power source within the recommended range to operate properly. Default voltage levels and their corresponding interpretations for the alarm panel are listed below.

Panel Voltage (VDC)	Interpretation
< 9	Low voltage - Device will trigger voltage trouble event.
10.1 – 13	Acceptable
13.1 – 14.5	Good
> 14.5	High voltage - Device will trigger voltage trouble event.

d. Button Functions

Rivo button functions described in the table below:

Button Press Time (sec)	Function Name	Function Use	Duration Time	LED Indicators
1 sec	Self-Test	1- To send device information such as signal level, voltage, and temperature to Aryo cloud.	Immediate	Blinks once

		2- Could be also used for exiting the Signal Level Mode, before the duration specified in the next row ends.		
5 sec	Signal Level Mode	To select the best mounting location based on the signal level of Rivo. **LED Indications** — **RSSI** LED 1 Blink — 0 ~ 13 LED 1 On — 14 ~ 15 LED 2 Blink — 16 ~ 17 LED 2 On — 18 ~ 19 LED 3 Blink — 20 ~ 22 LED 3 On — 23 ~ 25 LED 4 Blink — 26 ~ 28 LED 4 On — 29 ~ 31	30 sec	Slow blinking
10 sec	Reboot Device	If required for troubleshooting.	Immediately	Fast blinking
15 sec	Reset SSL	When a device is reused for a new client or moved to a new location.	Immediately	Alter blinking

e. LED Indications

Condition	Status	LED	Color	On	Off	Fast blink	1 blink	2 blinks
Power	DC power on	1	Red	X				
	DC power off	1	Red		X			
	Device not registered	1	Red				X	
	Device troubles	1	Red			X		
Network Status	Connected to a network via Ethernet	2	Green	X				
Server Network	Connecting to server	3	Green				X	
	Disconnected from server	3	Green		X			

	Communicating with server	3	Green			X		
	Connection with server is normal, but not communicating	3	Green	X				
Panel Communication	Dial Capture	4	Green				X	
	Dial Capture and Keybus	4	Green	X				
	4-Zone Inputs	4	Green		X			
	Firmware update in progress	All	Red/ Green	Alternating LEDs. LEDs 1&2 are on/off while LEDs 3&4 are off/on.				
LINK/ACT Network	Connected to the network (LINK)	5*	Green	X				
	Communicating with network (ACT)	5	Green			X		
	Not connected to the network	5	Green		X			
LINK100 Network	Connected with 100M network (Good speed)	6*	Yellow	X				
	Not connected to 100M network	6	Yellow		X			

*LEDs on RJ45 connector

f. Terminal Connections

iv. Rivo Terminals Description

Rivo terminals and their connections to the systems and sensors are described in the table below:

Rivo Terminal	Alarm panel Terminal	Description
Tip (TIP)	TIP	Rivo TIP/RNG terminals connect to the Tip/Ring interface of any FACP/security alarm panel that uses CID or SIA format to capture all generated signals and send them to Aryo Cloud and the CMS.
Ring (RNG)	RING	
Keybus Yellow (YEL)	YEL	Rivo supports DSC PowerSeries and Honeywell keybus interface. Yellow (YEL) and Green (GRN) terminals can be connected to Rivo YEL and GRN to allow interaction with DSC PowerSeries and Honeywell panels to monitor events and provide status of the alarm panel.
Keybus Green (GRN)	GRN	

<table>
<tr><td>PGM 1 (P1)</td><td rowspan="2">Used for automation</td><td rowspan="2">Rivo has two PGM outputs for automation functionality for variety of purposes, as outlined in section 7.</td></tr>
<tr><td>PGM 2 (P2)</td></tr>
<tr><td>Zone 1 (Z1)
(Dry contact only)</td><td rowspan="4">Always use a relay when connecting panel PGM or other output that supplies voltage/current to the Rivo zone. Otherwise, it will damage the device.</td><td>[future use]</td></tr>
<tr><td>Zone 2 (Z2)
(Dry contact only)</td><td>Rivo zone 2 is used as the common burglary input to monitor the burglary alarm signal received from the security alarm panel output. For DSC panels, this zone can be used for both fire and burglary detection when connected to the siren output.</td></tr>
<tr><td>Zone 3 (Z3)
(Dry contact only)</td><td>Rivo zone 3 is used as the common fire input to monitor the fire alarm signal received from the security alarm panel output.</td></tr>
<tr><td>Zone 4 (Z4)
(Dry contact only)</td><td>Rivo zone 4 is used as the common panic input to monitor the panic alarm signal received from the security alarm panel output. It can also provide arm/disarm status of partition 2 of the panel when not monitoring legacy panels</td></tr>
<tr><td>Ground (GND)</td><td>Ground</td><td rowspan="2">Rivo could be powered by an alarm panel auxiliary 9-16 VDC. Rivo monitors panel voltage and generates power trouble when voltage drops below 9 VDC or rises above 14.5 VDC.</td></tr>
<tr><td>Power (PWR)</td><td>9-16 VDC</td></tr>
</table>

v. Other Hardware Connections

- RF expansion port is for future use.

7. PGM Output Functions (Automation)

a. Features

Rivo provides 2 programmable outputs (PGMs) to be used for various use cases. Dealers will have access to two fully customizable PGMs. See the table below for the details.

b. PGM Output Function Table

Function	Time Duration
Garage Door	2s
Gates	2-300s
Door Strike	2-300s
Siren	2-300s
Strobe	2-300s
Mag Lock	2-300s
Custom	2-300s

8. Trouble Conditions & Troubleshooting

a. Trouble Conditions

Rivo monitors important parameters such as input power voltage, temperature, as well as communications with the alarm panel and Aryo cloud platform, for proper functionality and would report the troubles and restoral events, to Aryo cloud platform and CMS.

CID Code	*SIA Code*	*Event*	*Descriptions*
970-E	YU	Input Power Trouble	Improper input power voltage (above 14.5 V or below 9V) was detected by Rivo.
970-R	YL	Input Power Trouble Restore	Rivo's input power trouble has been restored.
973-E	WN	DTMF Communication Failure	Rivo is not receiving signals from the panel Tip and Ring terminals.
973-R	WG	DTMF Communication Restore	DTMF communication between Rivo and the panel has been restored.
975-E	NQ	Keybus Communication Failure	Rivo's communication with the panel keybus is lost (DSC PowerSeries & Honeywell).
975-R	NH	Keybus Communication Restore	Rivo's communication with the alarm panel keybus is restored.
976-E	ZO	Cloud Communication Failure	Rivo's communication with Aryo cloud platform is lost.
976-R	ZF	Cloud Communication Restore	Rivo's communication with Aryo cloud platform is restored.
977-E	KW	High Temperature	Rivo's temperature was over its operating temperature range.
977-R	KE	High Temperature Trouble Restore	Rivo's high temperature trouble has been restored.

978-E	KX	Low Temperature	Rivo's temperature was under its operating temperature range.
978-R	KF	Low Temperature Trouble Restore	Rivo's low temperature trouble has been restored.
980-E	NX	Ethernet Connection Failure	Rivo has no Ethernet network connection.
980-R	NI	Ethernet Connection Restore	Ethernet connection trouble has been restored.
981-E	NY	IP Network Failure	Rivo is not connected to any IP network.
981-R	NJ	IP Network Restore	IP network trouble has been restored.

a. Troubleshooting

Trouble Category	Trouble	Indication	Solution
Input Power Trouble	Panel Voltage below 9V or above 14.5V	First LED blinks quickly.	Check the output voltage of DC/Auxiliary terminals of the alarm panel.
DTMF Communication Failure	DTMF signals not received from the alarm panel	First LED blinks quickly.	1. Check if the Tip & Ring lines are connected properly to the alarm panel and Rivo. 2. Ensure programming instructions are followed.
Keybus Communication Failure	No data received from the keybus panel terminals, after a certain period	First LED blinks quickly.	Check if the keybus lines (Yellow, Green) are connected properly to the alarm panel and Rivo.
Cloud Communication Failure	No connection to Aryo cloud	1. First LED blinks quickly. 2. Second LED blinks quickly. 3. Third LED is off.	If it does not operate normally even after waiting for a while, check the following: 1.Check Ethernet connection. 2. Check that the device is properly registered in the Aryo cloud platform.
High/Low Temperature	Ambient temperature not within the operating range of Rivo	First LED blinks quickly.	Check the ambient temperature, identify the cause of the temperature abnormality, and eliminate the cause.

Ethernet Connection Failure	When the Ethernet IP is set but there is no LINK/ACT connection.	1. First LED blinks quickly. 2. Fifth LED is off.	1. Check both cable connections on both ends. Disconnect and reconnect cables if required. 2. Check the router and power it down and up, if required.
	When the Ethernet IP is set but there is no LINK100 connection.	1. First LED blinks quickly. 2. Sixth is off.	
IP Network Failure	When connection is not possible through Ethernet	1. First LED blinks quickly. 2. Second LED blinks quickly.	1. Check cable connections on both ends. Disconnect and reconnect cables. 2. Check the router and power it down and up, if required.

9. Specifications

Hardware	rivo
Dimensions	115mm*70mm*26.7mm
Weight	83g
Operating temperature	-5°C to 50°C
Humidity	86%
Input/Operating voltage	9-16 VDC
Mounting	2 screw holes
PGM current tolerance	350 mA
Standby current draw at 13.5V	70 mA
Peak current draw at 13.5V	95 mA
Keybus (DSC & Honeywell)	Y
Tip/Ring	Y
Zones	4
PGMs	2
Status LEDs	4
RF Expansion Port	1
Communication	Ethernet

10. Warranty

a. Product Warranty

Subject to the limitations set forth herein and in Epic's warranty policy document, Epic warrants that the Products sold by it to its authorized dealers shall be free, under normal use and service, from defects in material and workmanship for a period of twelve (12) months from the date of purchase. Epic does not warrant Products that do not have a serial number. This warranty shall also be void if there is a failure to maintain the Products and the systems in which they operate in proper working conditions. During the warranty period, Epic shall, at its option, repair or replace any defective product upon return of the Product by the dealer, to Epic, at no charge for labor and materials. This warranty is for the benefit of the authorized dealer only and is therefore non-transferable, non-assignable, and is voided when the Warranted Product is transferred to another party.

For more detailed information on Epic's warranty policy, refer to the Warranty Policy document.

b. Warranty Updates

Epic reserves the right to update or modify the terms and conditions of its warranty at any time, without prior notice. Any updates or modifications to the warranty will be communicated to the dealer through appropriate channels, such as official notifications or revised warranty documentation. It is the responsibility of the dealer to stay informed about any changes to the warranty and to ensure compliance with the updated terms.

c. Warranty Disclaimer

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, EPIC SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF EPIC CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW.

Epic's Limited Warranty is offered to its authorized dealers, only on the new Products according to Epic’s warranty policy that is published and updated from time to time. It includes replacement or repair of defective products returned in accordance with the Return Policy. Freight costs to the repair center are not covered. If repair attempts fail, replacement is the sole remedy. Epic holds no responsibility for the products manufactured by third parties. Epic also makes no assertion that its products are immune to compromise and/or circumvention.

All Epic’s services and information provided by Epic are offered on an “as is" basis. Epic shall not be held liable for any disruptions, errors, delays, or inaccuracies in the provision of its services, including Aryo Cloud and app. Occasional interruptions, maintenance periods, and technical issues may occur, and Epic shall not be responsible for any resulting damages or losses.

d. Limitations of Liability

Epic shall not be held liable for indirect, incidental, special, exemplary, punitive, or consequential damages of any kind, including but not limited to loss of profits, data, revenue, production, or use, business interruption, cost of substitute, or replacement equipment, facilities or services, downtime, the claims of third parties (including Users), property damage, or the procurement of substitute goods or services. This applies to any damages arising out of or related to the use of Epic’s services, the use or performance of any product, whether based on contracts, tort (including negligence), or any other legal theory, even if Epic has been advised of the possibility of such damages.

Epic shall not be liable for any loss and/or damage to the user’s premises and the contents thereof, any injury or death to any person, any failure of the system to function, any error in performance, any inaccuracies or issues in transmission, reception, or handling by the recipient of any alarm signal to react properly, for any reason whatsoever, and such circumstances shall not create any liability for Epic, whether in breach of contract, tort, or otherwise.

Epic's usage of services is not intended to establish obligations under the Health Insurance Portability and Accountability Act of 1996 (HIPAA), and no assurances are provided that the services fulfill HIPAA requirements. If the end User is (or becomes) a Covered Entity or Business Associate under HIPAA, Epic’s services cannot be employed for any involvement with Protected Health Information (as defined by HIPAA) without obtaining prior written consent from Epic.

Epic is not an insurer and assumes no responsibility for any damage, loss, or injury resulting from alarm system failures or signal monitoring, and the user must obtain their required insurance coverage. System failures may occur beyond Epic's control, and responses from authorities can be slow or ineffective. The system serves as a deterrent, not a comprehensive protection or substitute for insurance. Payment to Epic covers subscription services, not insurance. Epic’s charges are unrelated to User’s premises value. In case of loss, the User's reimbursement sources are their resources or insurers.

The total aggregate liability of Epic, its affiliates, and their respective officers, directors, employees, and agents, for damages of any nature, regardless of the form of action, shall not exceed the total amount paid by the authorized parties to Epic in the twelve (12) months preceding the event giving rise to the claim.

e. Repair Under Warranty

All the warranty claims must be accompanied by a Return Merchandise Authorization (RMA) number which must be obtained before merchandise can be returned for any warranty replacement or repair. To request an RMA number, the customer can contact Epic’s Technical Support Center via telephone. The Technical Support Center will provide troubleshooting assistance and if they find the product to be defective, will issue an RMA number. The RMA number must be displayed on the outside packaging of the returned item. Transportation charge, if any, incurred in connection with the return of a defective item to Epic shall be borne by the customer. Any collect shipments returned to Epic will be refused. Epic shall fix the goods without extra costs under the warranty period.

Epic shall pay any transportation charge incurred with the redelivery of a repaired or replacement item or ship the warranty item with customer’s next order. If, however, Epic reasonably determines that the item can function, the customer shall pay all the transportation charges. If Epic determines, at its sole discretion, that the allegedly defective

item is not covered by the terms of the warranty provided hereunder or that a warranty claim is made after the warranty period, the cost of repair by Epic, including all shipping fees, shall be paid by the customer.

Claims for damaged products or shortages when shipment arrived must be made by the customer immediately. If any goods are damaged on shipment arrival, it must be noted on the carrier's waybill prior to signing. Failure to note the shortages or damages on the carrier's waybill will result in the claim being denied. Epic will provide free replacement or credit note for the damaged products or product shortage claims.