



DynAmp

BRP

Advanced Rectifier Protection With Proprietary Magnetic Shielding



Description

The new, BRP rectifier protection system is a specialized modular system designed to sense reverse events on high current DC bus bars. This next generation system is DynAmp's next-generation technology developed to replace the older BCMR systems. BRP utilizes a pair of sensors, mounted on opposite sides of the DC bus bar. These advanced sensors incorporate 30 years of experience and new proprietary magnetic shielding technology to dramatically improve signal to noise ratios and practically eliminate chances of false alarms.

Application

The new, BRP protects rectifiers against reverse current by providing alarm signals and optional load switching relays to drive rectifier and power conversion equipment protection systems.

BRP provides the dependable signal needed to prevent catastrophic damage to rectifiers in parallel installations and minimize dangerous conditions for personnel.

Key Features

- **New Proprietary Magnetic Shielding** Minimizes impact of external magnetic fields to reduce false alarms.
- **New ASIC based current sensor** Dramatically improves signal to noise ratio for high dependability
- **Direct Bus Mounting** Simplifies installation and allows application to a wide variety of bus bar sizes
- **Variety of Configurations and Available Outputs**
System can be configured to provide the following :
 - 24V logic reverse alarm output
 - Latching reverse alarm output with LED indication and manual reset button
 - Power Relay for direct activation of protection equipment
- **Simple and Straightforward Configuration**
Dramatically simplified as compared to BCMR.

Technical Overview

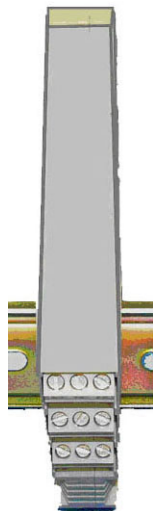
Sensing is based on a special integrated ASIC which is Hall based but utilizes a fourth generation quadrature-switched element. This ASIC incorporates on-board temperature compensation as well as signal conditioning and amplification to stabilize measurement over a wide measurement range and improve the signal to noise ratio.

BRP consists of two electrically isolated, sensors that attach directly to the bus. The BRP sensor pair utilizes both 'comparative-cancellation' and DynAmp's new proprietary magnetic shielding to further minimize the influence of external fields dramatically reducing the chance of false trips.

BRP triggers when it detects a reverse current event. In the basic configuration, triggers are signaled via a fail-safe 24V output signal dropping to 0V. This output can be used to directly drive power relays and/or provide a logic signal for PLCs. Regardless of the duration of the reverse current event, this signal will drop to 0V for a minimum of 200mS to ensure connected protection systems have time to sense and act upon the event.

BRP Versions

- **BRP** : Sensor Pair with 24V signal output including 30m signal cable and connector.
- **BRP L** : Sensor Pair + Latching function Module. Adds output signal latching and LED indication to the reverse current detection function. This ensures that users are able to identify which specific rectifier caused the reverse current trip, which must be manually reset before continuing. DIN rail mount.



Optional Power Relay

Special high-power, electro-mechanical relay to provide reliable switching of higher power loads, particularly those controlled by 120VDC. This optional relay can be directly driven by the BRP reverse current signal in all versions as well as the lighter duty over current relays in the BRP PE version. DIN rail mount.

Optional Universal Power Supply

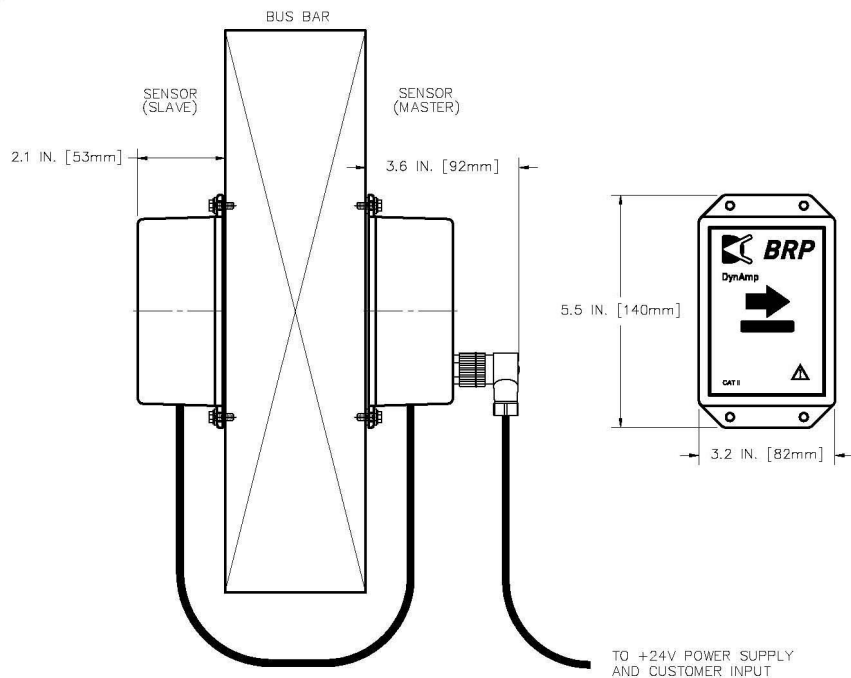
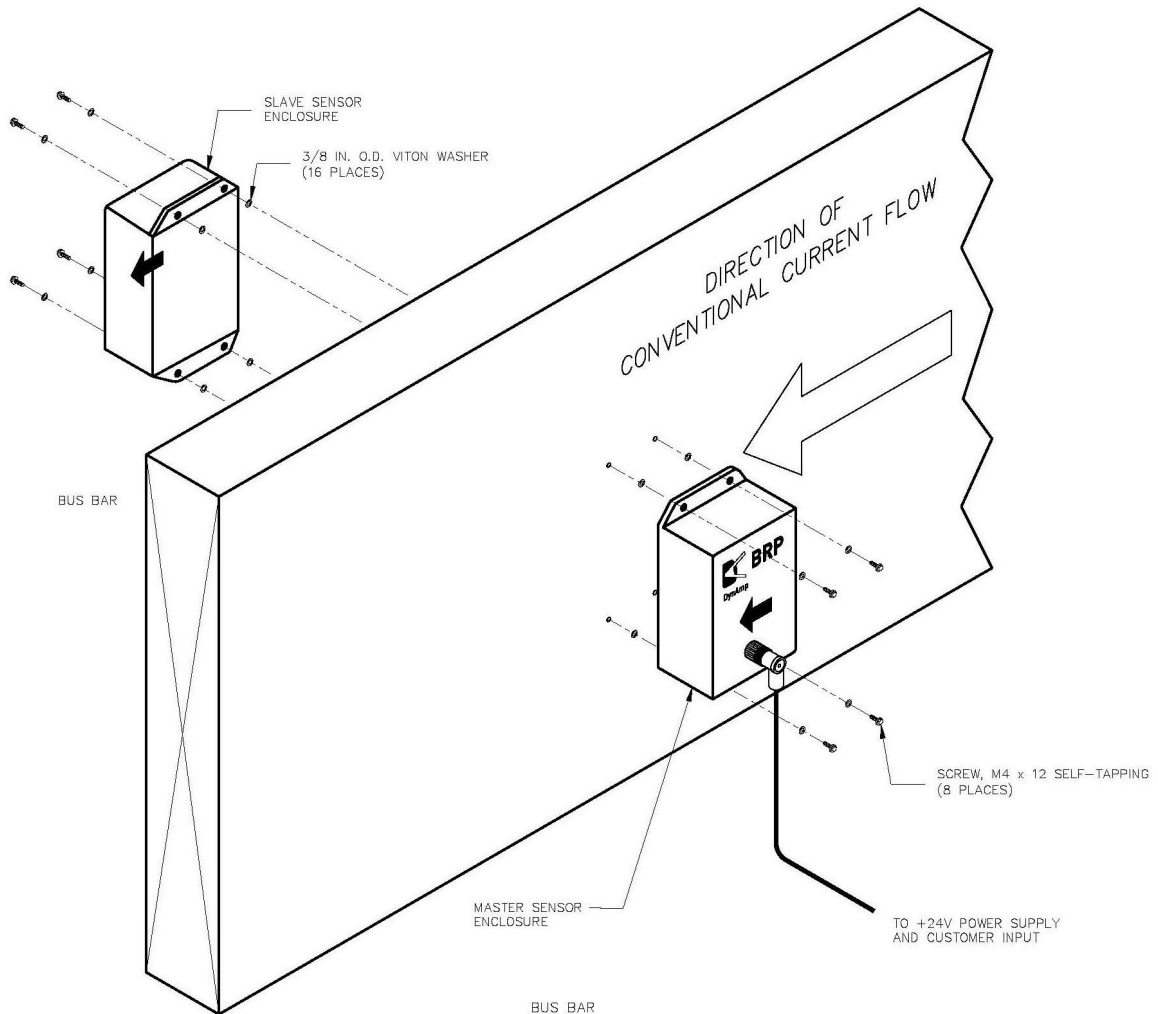
Provides the main 24V DC power required by all BRP systems in applications where 24V DC is not already available.

Optional IP67 Enclosure

For protecting BRP Modules, Power Relays and Universal Power Supply when installed in demanding environmental conditions.

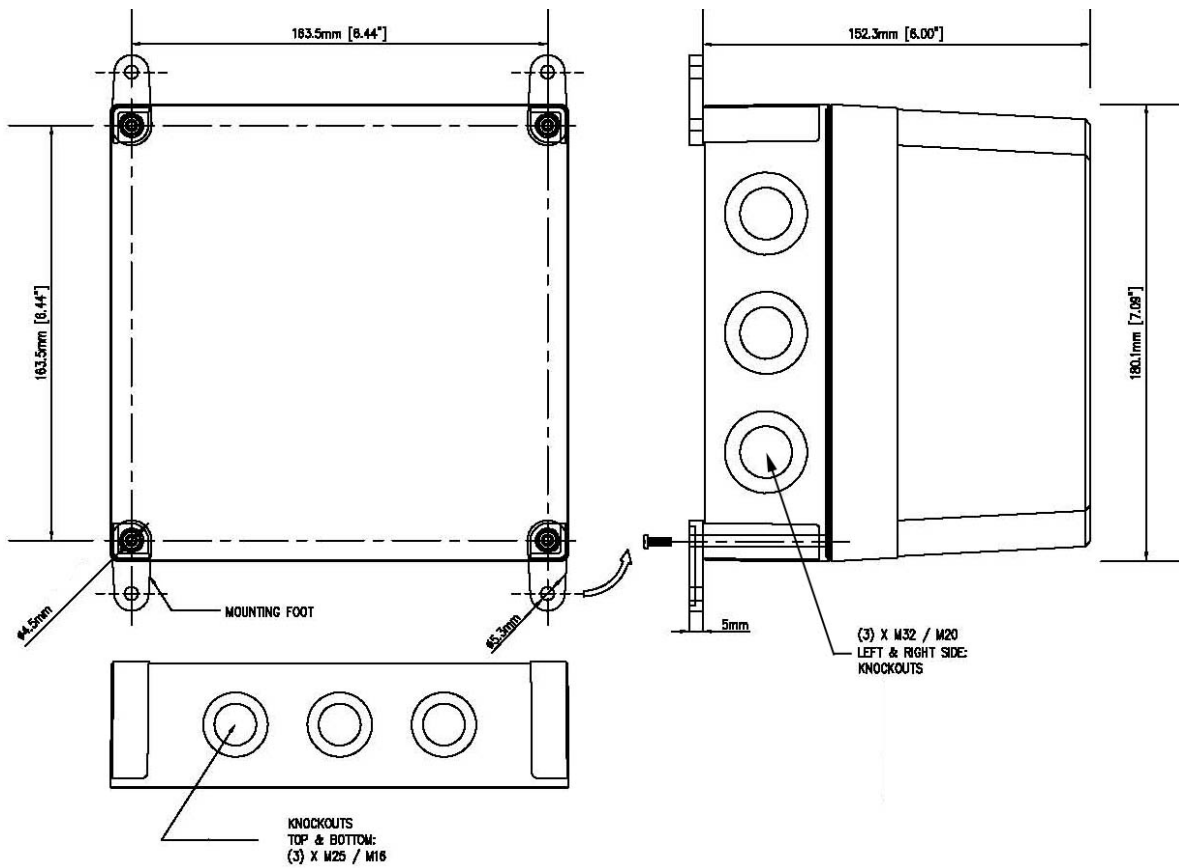


General BRP Outline & Mounting Diagram





Optional Environmental Enclosure
Outline and Mounting Diagram





Specifications

BRP : Basic Rectifier Protection

Trip point	-7.5kA ±2.5kA
Response time	< 1mS
Signal Output	Fail-safe Logic +24VDC 100mA max. drops to 0 VDC upon reverse alarm returns to +24VDC 200mS after reverse current event ends
Mains Power Protection	22...26Vdc, 25mA, <1.0W nominal <i>Output</i> : over-current, short circuit <i>Power Input</i> : reverse polarity, over-voltage, ESD
Isolation	5kV bus bar to output
Protection Class	IP67
Operating Temp.	-20 to +95°C (-4 to 203°F) (higher temp. operation possible via 'stand-off' sensor pair mounting
Humidity	0-95% non-condensing (max)
Storage Temp.	-40 to +95°C (-40 to 203°F)
Storage Humidity	95%, non-condensing
Input / Output	M12 Receptacle on Master Sensor
Interconnect Cable	Right angle M12 plug (one end) un-terminated (other end) 18AWG, foil shield, FEP Jacket, 30m (98.4 ft)
Sensor Size	140mm x 82mm x 53mm x 2 sensors (5.5"H x 3.2"W x 2.1"D)
Weight	2.3kg (5 lbs) total (sensor pair)
Sensor Mounting	Screw mount directly to bus

BRP L : Basic Rectifier Protection with Latching Reverse Current Alarm Module

*Adds the following features and specifications to
Basic Rectifier Protection Sensor Pair*

Signal Output	LED indication and reverse alarm Manual push button required to clear LED and alarm signal
Mains Power	22...26Vdc, 25mA, (excluding load) <1.0W (same as Sensor Pair)
Signal Input	Interconnect cable from Sensor Pair to screw terminals on module
Signal Output	Via screw terminals on module
Environmental	IP21
Module Size	42 x 99 x 115mm
Mounting	Standard DIN rail

Option Specifications

Optional Power Relay for Reverse Alarm

*(specially designed for reliable operation with higher
power AC and DC loads)*

Response time :	<1mS
Power handling :	2A at up to 150VDC / 300VAC
Environmental :	IP21
Relay Size	44 x 44 x 77mm high including socket

Optional Universal Power Supply

(provides 24VDC to BRP if not available on-site)

Input :	90...350 VDC and 85...264 VAC 47...440Hz
Output :	24VDC
Environmental :	IP21
Module Size	23 x 99 x 115mm

Optional IP 67 Enclosure

(improves IP rating of IP21 rated components)

Size	254mm H x 175mm W x 112mm D
Environmental	IP21
Mounting	Screw mount directly to wall or panel

Suggested Support Services

- **On-Site Commissioning:** Factory trained technicians and specialized equipment on-site to verify correct operation in application during start-up.

Required Ordering Information

Select BRP system version : 1 or 2

- 1) Basic Rectifier Protection
BRP Specify Item 44304
- 2) Basic Rectifier Protection with
Latching Reverse Current Alarm Module
BRP L Specify Item 44305

Add Desired Options

Optional Power Relay
(one per alarm output as desired)
Specify Item 44306

Optional Universal Power Supply :
Specify Item 44307

Optional IP 67 Enclosure for Optional Modules, Relays
and Universal Power Supply
Specify Item 44540

Complete BRP Worksheet BEN082