



# SentryPoint™ Cathodic Protection Rectifier Monitor and Controller

## Bullhorn™ RM4160

The American Innovations Bullhorn RM4160 measures rectifier AC and DC voltage and amperage, and transmits that data to the utility daily over the FlexNet® communication network. Configure high and low threshold limits to identify and transmit instantaneous alarms when out-of-range values are detected. You can also configure the rectifier monitor and controller to execute time-synchronized current interruption for PHMSA instant-off testing of protected pipe sections.

### FEATURES:

- Sealed, waterproof polycarbonate or NEMA cover options
- Slim body attaches to rectifier enclosure
- Built-in surge protection and optional high-energy surge arrester
- Measures AC and DC voltage with one percent reading accuracy

### BENEFITS:

- Installs quickly and discretely
- Generates more timely, actionable intelligence
- Improves operational efficiency
- Cost effective solution
- Rapid payback

The Bullhorn RM4160 is the result of a partnership with Sensus and American Innovations, a technology firm specializing in products and services that help protect pipeline infrastructure.

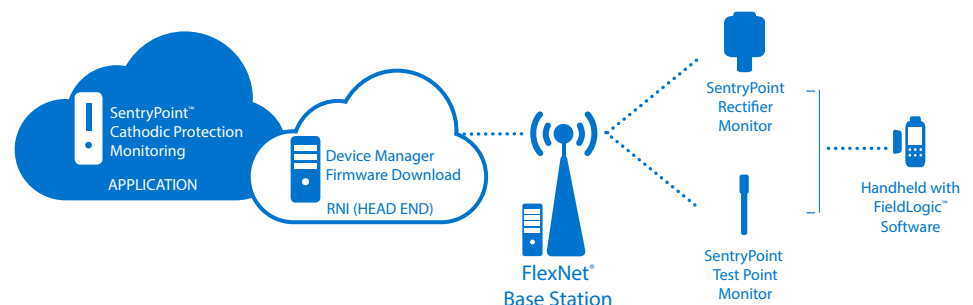
### Capability

The Bullhorn RM4160 collects data from cathodic protection rectifiers associated with impressed current protected pipe sections, and supports the following features:

- Mains AC Voltage Input
- Rectified DC Voltage
- DC Current Output
- Configurable High and Low Alarm Thresholds
- Back-up battery status
- Time-synchronized current interruption for Instant Off Tests

### Construction

- Mounts to inside or outside of rectifier enclosure
- Sealed, water proof polycarbonate or NEMA 4 housing
- Class 1 Div. 2 intrinsically safe



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### Inputs

DC voltage range	±150 V with accuracy of 1% of reading
AC voltage range	±150 V with accuracy of 1% of reading
Input impedance	10 MΩ
Scan rate	Once every 30 seconds
Channel-to-channel isolation	≥ 250 V DC

### 2 Digital Channels

Functions	Digital input, accumulator, accumulator reset, or contact closure (0 - 24 V DC)
Minimum logic	1 = 2 V
Maximum logic	0 = 1 V
Scan rate	20 scans per second
Minimum pulse width	250 ms

### Instant Off

Configuration	GPS-synchronized measurement using configurable on, off, and delay settings
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### Interruption

Switch Out channel	
Maximum current	500 mA DC
Output voltage	10-14 V DC
Minimum switching cycle	1 sec. / 11 sec. 2 sec. / 10 sec. or 3 sec. / 9 sec.
On/off cycle selections	100 ms
Relay types	NO or NC, solid state or mechanical

### Dimensions

Internal mount	Polycarbonate enclosure (7.9" x 5.0" x 2.2")
External mount	NEMA 4X compliant enclosure (4.0" x 7.3" x 12.4")

### Communications

Broadcast power	Two watts
Frequency range	896-960MHz
Channels	8000 x 6.25kHz steps
Capabilities	Poll, reconfigure, set alarm thresholds and update firmware over-the-air
Modulation	Proprietary narrow band
Memory	Non-volatile
Warranty	1 year

### Approvals

United States	Canada
FCC CFR 47: Part 24D, Part 101C, Part 15 licensed operation	Industry Canada (IC) RSS-GEN RSS-119, RSS-210

### Power Supply

AC	100 - 240 V AC with included AC/DC converter
DC	10 - 14 V DC (9 - 36 V DC with optional external DC/DC supply)
Backup	internal sealed rechargeable battery

### Environment

Temperature	-30° C to +70° C
Humidity	0-95% non-condensing

### Safety and Compliance

Certification mark	TUV
Tested safety standards	EN61010-1:2010 EN61010-2-030:2010 CAN/CSA C22.2 No. 61010-1-2012 CAN/CSA C22.2 No. 61010-2-030:2010 UL61010-1:2012 supplemented by UL61010-2-030:2012
Emissions	FCC Part 15
Surge	IEC61000-4-5



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