RM4010
Cathodic Protection

Bullhorn Remote Monitoring Data Communication

American Innovations' **Bullhorn RM4010** monitors oil and gas assets in Cathodic Protection (CP) applications by utilizing the Inmarsat geostationary satellite network for global, low-latency, two-way communications. The 4-channel unit is capable of measuring rectifier volts and amps, pipe-to-soil potential and more. GPS synchronized interruption is available at time of purchase or as a field upgrade. The unit is configurable over the air via Bullhorn Asset Tracker (BAT™).

Applications

✓ **Rectifiers**
- Current Interruption
- Volts and amps
- Pipe-to-soil potential
- Additional shunts

Features	Benefits
Inputs: 4 analog, 2 digital channels	Measure rectifier volts and amps, pipe-to-soil potential and additional shunts
Two-way communication with field upgradeable GPS synchronized current interruption	Interruption parameters, reporting schedules, on-demand readings and updates configured remotely
Global coverage via low-latency, the Inmarsat geostationary satellite network	Satellite communications coverage eliminates need to estimate coverage (required with cellular-based products)
Built-in surge protection, rectifier interface and/or test point filtering	Long term product reliability
Power: AC or DC	Dependable power supply
Bullhorn Asset Tracker (BAT™) system communicates unit status by email, voice and/or text notifications; includes BAT™txt and BAT™mobile	Notifications on equipment status eliminate remote site visits; on-the-go access via smartphone
Configurable over the air via BAT or locally via USB	Easy to install. Configure from the office and send settings remotely or on-site. Save configuration settings and load to multiple units

RM4010	Specifications Summary
Inputs	**Analog channels:** •**1, 3, 4:** Analog (±5VDC), **2:** Analog (±100VDC) •**Accuracy**: 2% of reading, **Scan rate:** channels are sampled every 16 seconds •**Channel to Channel Isolation** >= 250VDC **Digital channels:** •**5:** Digital, Accumulator, or Contact Closure (0-15 VDC), **6:** Digital, Accumulator Reset or Contact Closure (0-15VDC), Logic 1 = 2Vmin, Logic 0=800mVmax •**Accumulator:** Max input = 1 cycle/2 sec., Max Width = 1 sec/state change •**Scan rate:** each channel is read once per second
Interruption Option	Relay Driver Maximum Current: 0.5A DC, Relay Driver Switching Cycle: Min. = 1 sec. On/off cycle increments = 100ms. Interruption modes include: daily, interference, start/stop or continuous.
Communications	Inmarsat geostationary satellite network
Software Interface	Bullhorn Asset Tracker website. AI network operations center.
Power Supply	• AC: 100-240 VAC • DC: 12 ± 2VDC w/ interruption, 5Vdc – 25VDC w/o interruption
Dimensions	Polycarbonate box enclosure (8.5 X 6.5 X 4 .5")
Data Integrity	Data stored in non-volatile (EEPROM) memory
Environment	Temperature: -30 degrees C to +70 degrees C. Humidity: 0-100% non-condensing.
Compliance	FCC Part 15. NEMA 4X compliant enclosure. ESD: 8kV Air/ 4kV Contact.

Services. American Technical Service Engineers provide: Technical support via phone and email | Bullhorn installation services |Customer training (on-site and in Austin, TX) | Bullhorn Asset Tracker (BAT™) data services

About American Innovations. American Innovations (AI) provides oil and gas companies with critical knowledge and decision support for assets and infrastructure via corrosion protection and integrity management services. The company supplies products and services to automate the collection, storage, and reporting of equipment and pipeline compliance data. Bass Engineering, a subsidiary of American Innovations, offers Cathodic Protection engineering services. American Innovations product lines include: Pipeline Compliance System (PCS™), Allegro Field Data PC®, Bullhorn® Remote Monitoring, MicroMax® Current Interrupters, and Integrity Management via Risk Intelligence™ Software and Integrity & Compliance Services.

Product	Application	Comm. Method	Features
Bullhorn RM2012	General purpose & Agriculture	Inmarsat satellite	7 wireless Digital Inputs, Solar & AC power with battery backup
Bullhorn RM2020	General purpose	Orbcomm satellite	4 Analog Inputs, 2 Digital Inputs, Solar & AC power with battery backup
Bullhorn RM4010	Cathodic Protection, two-way with interruption	Inmarsat satellite	Low-latency worldwide coverage, 4 Analog Inputs, 2 Digital Inputs, GPS- based current interruption, AC power with battery backup, two-way communication, over the air configuration
Bullhorn RM4012	Cathodic Protection, Current Density, Induced AC Voltage	Inmarsat satellite	4 Analog Inputs monitoring AC Amperage, AC & DC pipe-to-soil potentials, AC current density on test coupon
Bullhorn RM4020	Low-cost Cathodic Protection monitoring	Orbcomm satellite	Low-cost worldwide coverage, 4 Analog Inputs, 2 Digital Inputs, Solar & AC power with battery backup
Bullhorn AMR6	Gas measurement	Inmarsat & Orbcomm satellite Digital cellular	6 digital accumulator or Digital Input, Solar, AC, or Lithium battery power options
Bullhorn APM4AM	General purpose	Inmarsat satellite Digital cellular	Analog Inputs, 2 Digital Inputs, Solar & AC power with battery backup
Bullhorn SDT16	Compressor, oil & gas equipment	Inmarsat & Orbcomm satellite Digital cellular	Supports Modbus, Mercury, Dresser, and Reynolds protocols communication, up to 16, 6-bit registers or 8, 12-bit registers, 1 digital input

Contact: 512-249-3400 | rmdsales@aiworldwide.com
American Innovations • 12211 Technology Blvd. • Austin, TX • 78727