Bullhorn RM4012
Current Density Monitor

BULLHORN WIRELESS REMOTE MONITORING

Bullhorn Remote Monitoring Data Communication

American Innovations' **Bullhorn RM4012** monitors oil and gas assets in Cathodic Protection (CP) applications by utilizing the Inmarsat geostationary satellite network for global, low-latency communications. The 6-channel unit features 4 analog inputs and 2 digital inputs. The RM4012 is ideal for measuring induced AC voltage, AC current and associated current density that can be present on pipelines co-located with high voltage AC power lines. Collected data can be utilized to monitor and optimize AC mitigation systems.

Measurements

- AC amperage
- DC voltage pipe-to-soil
- AC current density on test coupon
- AC voltage pipe-to-soil

Features	Benefits
4 analog inputs monitoring AC Amperage, AC & DC pipe-to-soil potentials, AC current density on test coupon	Ensures compliance and alerts pipeline personnel to hazardous conditions (i.e. AC voltages exceeding 15 VAC). Acquires data from test points, grounding mats, DC decouplers or similar devices
Global coverage via low-latency Inmarsat geostationary satellite network	Satellite communications coverage eliminates need to estimate coverage (required with cellular-based products)
Power: 5W solar panel, sealed lead-acid battery backup to facilitate hourly reporting	Eliminates need for onsite power source
Bullhorn Asset Tracker (BAT™) system communicates unit status by email, voice and/or text notifications	Notifications on equipment status, including threshold AC parameters, reduces remote site visits and protects personnel
Configurable locally via USB	Easy to install. Save configuration settings and load to multiple units

RM4012 Specifications

Inputs	**Analog channels:** **Ch. 1:** 0-30Aac, 0-60Aac, or 0-120Aac utilizing current transducer (included with RM4012), transducer converts current to 0-5VDC **Ch. 2:** +/-5VDC Pipe-to-Soil **Ch. 3:** 0-200 mAac Current Density utilizing external current transducer (included with RM4012), transducer converts current to 0-3Vac **Ch. 4:** 0-100Vac Pipe-to-Soil **Digital channels:** **Ch. 5:** Digital, Accumulator, or Contact Closure (0-15 VDC), Logic 1 = 2Vmin, Logic 0=800mVmax, Max input = 1 cycle/2 sec., Max Width = 1 sec/state change **Ch. 6:** Digital, Accumulator Reset or Contact Closure (0-15VDC), Logic 1 = 2Vmin, Logic 0=800mVmax •**Scan rate:** each channel is read once per second
Communications	Inmarsat geostationary satellite network
Software Interface	Bullhorn Asset Tracker website. AI network operations center.
Power Supply	Sealed lead-acid battery w/ 5W solar panel
Dimensions	Anodized aluminum enclosure (13" X 10" X 6" excl. antenna & solar panel)
Data Integrity	Data stored in non-volatile (EEPROM) memory
Environment	Temperature: -30 degrees C to +70 degrees C. Humidity: 0-100% non-condensing.
Compliance	NEMA 4X compliant enclosure.

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. 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. Product lines include: Pipeline Compliance System, 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 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
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 digit accumulator or digital input, Solar, AC, or Lithium battery power options
Bullhorn APM4AM	General purpose	Inmarsat satellite Digital cellular	4 Analog Inputs, 2 Digital Inputs, Solar & AC power with battery backup
Bullhorn APM4AM-SAT WS	General purpose & Agriculture	Inmarsat satellite	6 wireless digital inputs, 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

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