

# Bullhorn RM4210<sup>®</sup> Remote Monitoring Unit



The RM4210 AC/DC coupon remote monitoring unit (RMU) monitors oil and gas assets in cathodic protection (CP) applications. Located at coupon test stations, it measures the induced AC voltage, AC current, and associated current density that can be present on pipelines that are co-located with high-voltage AC power lines. The RM4210 uploads these measurements via satellite to Bullhorn Web, a web-based asset manager, so you can diagnose AC current issues, monitor them over time, and optimize your AC corrosion mitigation systems.

## Remote Monitoring for:

- AC coupons
- AC and DC current density
- AC and DC pipe-to-soil
- Native pipe-to-soil
- PCR AC current

# Bullhorn RM4210 Remote Monitor

## Key Benefits

### Form factor

The RM4210 is a fully integrated unit that can be mounted on any AC/DC coupon test station. All components, including the antenna, are internal so it is easier to transport and install. It's also less likely to incur damage that will require a future repair visit.

### Ease of installation and setup

Installing the RM4210 normally takes just a few minutes. Simply connect the pigtail to the test points, affix it to the top of the test station, and establish communications using Bullhorn® Tools Mobile via Bluetooth. You can then use the Bullhorn Web asset manager to apply detailed configurations from the comfort of your office.

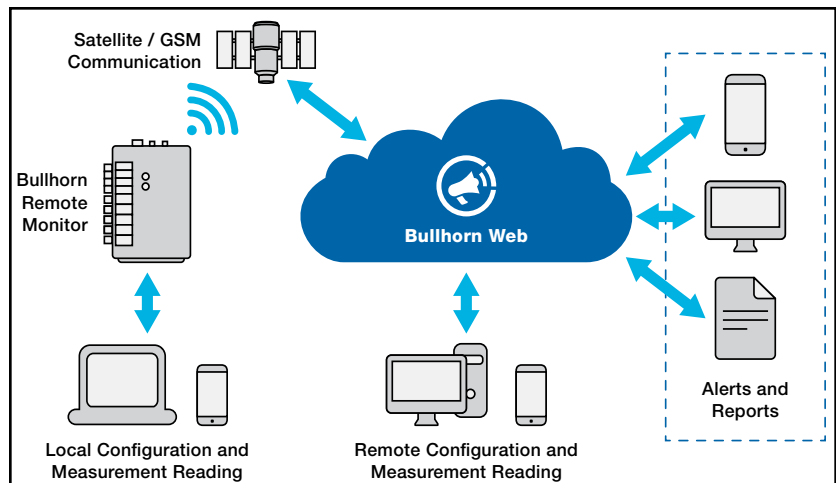
### Accuracy

The RM4210 measures with one percent of reading accuracy all the way through the range with auto-calibration and auto-zero for every measurement. For example, a 1 mV measurement will be accurate within  $\pm 10$  microvolts. Accuracy is especially critical when using a small AC coupon, as small errors are magnified when the current density is calculated.

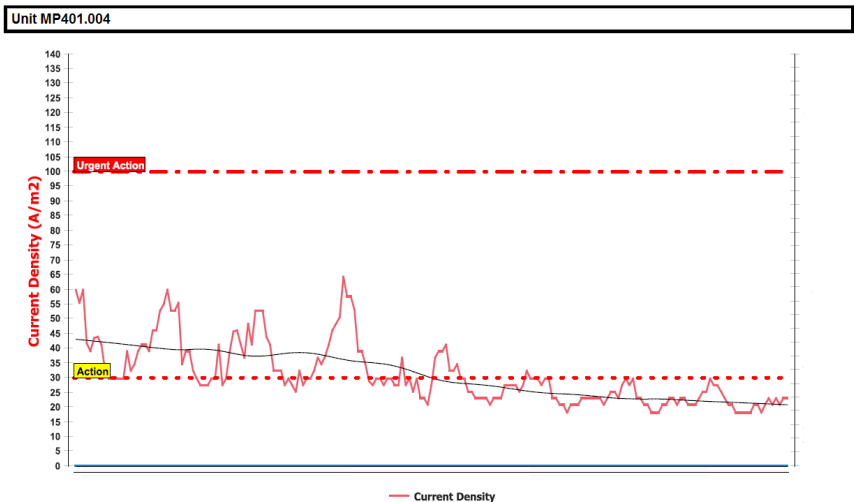
### Reporting

Quickly identify problem areas and ensure mitigation effectiveness using flexible reports and graphs.

Mounted on a test station, the RM4210 measures induced AC voltage, AC current, and associated current density. It also measures DC voltage, DC current, instant-off and current flowing through a decoupling device. These measurements are automatically uploaded to Bullhorn Web via satellite communication. Once uploaded, you can easily monitor them and use them to design and optimize your AC mitigation systems.



*The RM4210 integrates with Bullhorn Web, allowing you to access your measurements or update configurations from nearly anywhere.*



*With easy-to-read reports and graphs, Bullhorn Web helps you monitor important risk factors like AC current density over time.*

# Bullhorn RM4210 Specifications

## Inputs

**Readings: AC current density, DC current density, AC pipe-to-soil, DC pipe-to-soil, PCR AC current drain, instant off**

DC voltage range:	±100 V
AC voltage range:	0-100 V
AC Current Range:	0-200 mA
Input impedance:	10 MΩ
Channel-to-channel isolation:	> 200 V

## Instant Off

IR drop edge delay:	IR drop edge delay: 200 ms
---------------------	----------------------------

## Configuration

Bullhorn Tools Mobile via Bluetooth low energy

## Communications

SkyWave – Inmarsat satellite

## Software Interface

Bullhorn Web

Bullhorn Tools mobile for IOS

## Power Supply

Internal, field-replaceable primary and secondary batteries

3-7 year replacement when recording measurements hourly or daily with weekly transmissions

Additional DC input voltage: 10-24 V DC

## Dimensions

Test point length:	6' 6"
Test point diameter:	3"
Lead length:	30 ft.
RM4210 with a test point adapter:	6.06" W, 8.22" H, 17" circumference

## Data Integrity

Data stored in nonvolatile (EEPROM) memory

Queued two-way communication (communication to the RMU is queued in Bullhorn Web and is sent the next time the unit wakes up to transmit)

## Environment

Temperature:	-30° C to +70° C
--------------	------------------

## Safety and Compliance

Certification mark:	TUV
Tested safety standards:	CAN/CSA C22.2 No. 61010-1-2012 CAN/CSA C22.2 No. 61010-2-030:2012 UL61010-1:2012 UL61010-2-030:2012