

## Find the Right Bullhorn for Your Test Stations

### SATELLITE

### CELLULAR







Click for Detailed Specifications:

**RM4210**

**RM4211**

**RM4250**

**RM4251**

	RM4210	RM4211	RM4250	RM4251
<b>Application</b>	AC Monitoring	Test Point & Bonds	AC Monitoring	Test Point & Bonds
<b>Analog Channels</b>	5	3	5	3
<b>Digital Channels</b>	0	0	0	0
<b>Typical Measurements</b>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> AC Current Density</li> <li><input checked="" type="checkbox"/> DC Current Density</li> <li><input checked="" type="checkbox"/> Pipe-to-Soil</li> <li><input checked="" type="checkbox"/> Drain Current</li> <li><input checked="" type="checkbox"/> IR Free Instant Off</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Pipe-to-Soil</li> <li><input checked="" type="checkbox"/> Bond Negatives</li> <li><input checked="" type="checkbox"/> IR Free Instant Off</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> AC Current Density</li> <li><input checked="" type="checkbox"/> DC Current Density</li> <li><input checked="" type="checkbox"/> Pipe-to-Soil</li> <li><input checked="" type="checkbox"/> Drain Current</li> <li><input checked="" type="checkbox"/> IR Free Instant Off</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Pipe-to-Soil</li> <li><input checked="" type="checkbox"/> Bond Negatives</li> <li><input checked="" type="checkbox"/> IR Free Instant Off</li> </ul>
<b>Interruption</b>	No	No	No	No
<b>Communication</b>	Two-Way	Two-Way	Two-Way	Two-Way
<b>Mounting</b>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Test Head</li> <li><input checked="" type="checkbox"/> Flat-Base</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Test Head</li> <li><input checked="" type="checkbox"/> Flat-Base</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Test Head</li> <li><input checked="" type="checkbox"/> Flat-Base</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Test Head</li> <li><input checked="" type="checkbox"/> Flat-Base</li> </ul>
<b>Surge Immunity</b>	In-circuit Protection	In-circuit Protection	In-circuit Protection	In-circuit Protection
<b>Power Source</b>	Battery	Battery	Battery	Battery
<b>Backup Power</b>	Solar	Solar	Solar	Solar
<b>Warranty</b>	Standard	Standard	Standard	Standard
<b>Download Datasheet</b>				

## INPUTS

<b>Readings:</b>	AC current density, DC current density, AC pipe-to-soil, DC pipe-to-soil, PCR AC current drain or voltage, instant off
<b>DC Voltage Range:</b>	±100 V
<b>AC Voltage Range:</b>	0 - 100 V
<b>AC Current Range:</b>	0 - 200 mA
<b>Input Impedance</b>	10 MΩ
<b>Channel-to-channel isolation</b>	≥ 200 V DC

## INSTANT OFF

<b>IR Drop Edge Delay:</b>	IR drop edge delay: 200 ms
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## CONFIGURATION

<b>Bullhorn Tools Mobile</b>	via Bluetooth Low Energy
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## SOFTWARE INTERFACE

<b>Bullhorn Web</b>	
<b>Bullhorn Tools for IOS and Andriod</b>	

## COMMUNICATIONS

<b>Satellite:</b>	IsatData Pro Satellite (Inmarsat)
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## POWER SUPPLY

Internal, field-replaceable primary and secondary batteries

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

Additional solar or DC input voltage: 10-24 V DC

## DIMENSIONS

<b>RM4210</b>	Ø 6.06" x 3.96" H (8.22" H with test station adapter)
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## 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)

## ENVIRONMENTAL SPECS

<b>Temperature</b>	-30° C to +60° C
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## SAFETY AND COMPLIANCE

<b>Certification Mark</b>	TUV
<b>Tested Safety Standards</b>	CAN/CSA C22.2 No. 61010-1-2012 CAN/CSA C22.2 No. 61010-2-030:2012 UL61010-1:2012 UL61010-2-030:2012

## INPUTS

**Readings:** Three analog measurements; any combination of AC & DC pipe-to-soil, On and Off Potentials, Rectifier Volts and Amps (with external shunt), and Bond Negatives. Instant off through Coupon. One percent reading accuracy through the range with auto-calibration and auto-zero for every measurement. 1 mV measurement will be accurate within  $\pm 10$  microvolts

**DC Voltage Range:**  $\pm 100$  V

**AC Voltage Range** 0-100 V

**Input Impedance** 10 M $\Omega$

**Channel-to-channel isolation**  $\geq 200$  V DC

## INSTANT OFF

**IR Drop Edge Delay** Configurable IR drop edge delay: 200 ms default

**Logic Levels** minimum Logic 1 = 2 V; maximum Logic 0 = 800 mV

**Scan Rate** 16 scans per second

**Accumulator maximum cycle rate:** 1 cycle/2 s

**Minimum state change period:** 1 s

**Minimum pulse width:** 250 ms

## CONFIGURATION

**Bullhorn Tools** via Bluetooth Low Energy

## SOFTWARE INTERFACE

**Bullhorn Web**

**Bullhorn Tools for IOS and Andriod**

## COMMUNICATIONS

**Satellite** IsatData Pro (Inmarsat)

## POWER SUPPLY

**Internal Battery** Field Replaceable Primary and Secondary Battery

**Additional Power Input:** 10-24 V DC Input

Solar Panel

## DIMENSIONS

**RM4211**  $\varnothing 6.06$ " x 3.96" H (8.22" H with test station adapter)

## DATA INTEGRITY

**Memory** EEPROM  
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)

## ENVIRONMENTAL SPECS

**Temperature**  $-30^{\circ}$  C to  $+60^{\circ}$  C

## SAFETY AND COMPLIANCE

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## INPUTS

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**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 DC

## INSTANT OFF

**IR Drop Edge Delay:** IR drop edge delay: 200 ms

## CONFIGURATION

**Bullhorn Tools Mobile** via Bluetooth Low Energy

## SOFTWARE INTERFACE

Bullhorn Web

Bullhorn Tools for IOS and Andriod

## COMMUNICATIONS

**Cellular:** LTE Cat-M Cellular (AT&T)

## POWER SUPPLY

Internal, field-replaceable primary and secondary batteries

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

Additional solar or DC input voltage: 10-24 V DC

## DIMENSIONS

**RM4210** Ø 6.06" x 3.96" H (8.22" H with test station adapter)

## DATA INTEGRITY

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<b>DC Voltage Range:</b>	$\pm 100$ V
<b>AC Voltage Range</b>	0-100 V
<b>Input Impedance</b>	10 M $\Omega$
<b>Channel-to-channel isolation</b>	$\geq 200$ V DC

## INSTANT OFF

<b>IR Drop Edge Delay</b>	Configurable IR drop edge delay: 200 ms default
<b>Logic Levels</b>	minimum Logic 1 = 2 V; maximum Logic 0 = 800 mV
<b>Scan Rate</b>	16 scans per second
<b>Accumulator maximum cycle rate:</b>	1 cycle/2 s
<b>Minimum state change period:</b>	1 s
<b>Minimum pulse width:</b>	250 ms

## CONFIGURATION

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## SOFTWARE INTERFACE

**Bullhorn Web**  
**Bullhorn Tools for IOS and Andriod**

## COMMUNICATIONS

**Satellite** IsatData Pro (Inmarsat)

## POWER SUPPLY

<b>Internal Battery</b>	Field Replaceable Primary and Secondary Battery
<b>Additional Power Input:</b>	10-24 V DC Input Solar Panel

## DIMENSIONS

**RM4211**  $\varnothing 6.06'' \times 3.96''$  H (8.22'' H with test station adapter)

## DATA INTEGRITY

**Memory** EEPROM  
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)

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