


# BULLHORN PRODUCT SPECIFICATIONS


	<b>AMR6-GSM AMR6-ORB AMR6-SAT</b>	<b>APM4AM-GSM APM4AM-ORB APM4AM-SAT</b>	<b>APM4AMCP-ORB APM4AMCP-SAT</b>
<b>Data Inputs</b>	<p>1 Dry Contact Closure or Active Digital</p> <p>Accumulates up to a 6 digit reading</p> <p>Dry Contact: 22 <math>\mu</math>A source current Max rate = 2.5 cycle/sec. Min. Width = 100 Millisec/state change</p> <p>Active Digital: Logic 1 = 2Vmin Logic 0 = 800mV max</p> <p>Accumulators: Max Input Rate of 2.5 cycles/sec. Min Width=100 millisec/state change</p>	<p><i>Channel &amp; Function Choices</i></p> <ol style="list-style-type: none"> <li>1 Analog (<math>\pm</math> 5VDC, <math>\pm</math>50 mVDC or 4-20 mA) or Active Digital</li> <li>2 Same as Channel 1</li> <li>3 Same as Channel 1</li> <li>4 Same as Channel 1</li> <li>5 Digital, Accumulator or Active Digital</li> <li>6 Digital, Accumulator, Active Digital or Acc. reset</li> </ol> <p>Analog Inputs (Ch. 1 – 4) are isolated</p> <p>Active Digital: Ch. 1 - 6 Logic 1 = 2Vmin Logic 0 = 800mV max</p> <p>Accumulators: Ch. 5 &amp; 6 Max Input Rate of 2.5 cycles/sec. Min Width=100 millisec/state change</p> <p>Digital = Form A contact closure Ch. 5 &amp; 6: Dry contact closure, 40<math>\mu</math>A source current</p>	<p><i>Channel &amp; Function Choices</i></p> <ol style="list-style-type: none"> <li>1 Analog (<math>\pm</math> 5VDC, <math>\pm</math>50 mVDC or 4-20 mA) or Active Digital</li> <li>2 Analog (<math>\pm</math> 100 VDC) or Active Digital</li> <li>3 Same as Channel 1</li> <li>4 Same as Channel 1</li> <li>5 Digital, Accumulator or Active Digital</li> <li>6 Digital, Active Digital or Acc. Reset</li> </ol> <p>Analog Inputs (Ch. 1 – 4) are isolated</p> <p>Active Digital: Ch. 1 - 6 Logic 1 = 2Vmin Logic 0 = 800mV max</p> <p>1 Accumulator: Max input rate = 1 cycle/2 sec. Min Width = 1 sec/state change</p> <p>Digital = Form A contact closure</p> <p>Dry contact closure 40<math>\mu</math>A source current See bottom of page for more notes</p>
<b>Outputs</b>	N/A	N/A	N/A
<b>Config. Parameters</b>	Meter factor; Initial meter index reading; Daily accounting time; Number of daily health checks	Description of each input; Alarm conditions per input; Number of daily health checks	Description of each input; Alarm conditions per input; Number of daily health checks
<b>Supporting Products</b>	Requires configuration kit; Contact closure not included; Optional high gain antenna	Requires configuration kit; Contact closure not included; Optional high gain antenna, Rectifier Interface, Test Point Filter, Surge Protector and AC Monitor	Standard w/ built-in surge protection, select from built-in rectifier interface functionality and/or test point filtering; Requires configuration kit; Optional AC Monitor
<b>Power Supply</b>	Sealed Lead-acid gel cell battery w/ solar or AC charger; Optional lithium battery for cellular model only	Sealed Lead-acid gel cell battery w/ solar or AC charger; Optional lithium battery for cellular model only	Sealed Lead-acid gel cell battery w/ solar or AC charger
<b>Physical Description</b>	Cellular version: anodized aluminum can (3.66 X 5.5" w/o antenna); sealed, self-contained unit includes antenna, power supply & mounting bracket; also available in plastic box enclosure (8.5 X 6.5 X 4.5"). Satellite unit in plastic box enclosure only.	Cellular version: anodized aluminum can (3.66 X 5.5" w/o antenna); sealed, self-contained unit includes antenna, power supply & mounting bracket or plastic box enclosure (8.5 X 6.5 X 4.5"). Satellite unit in plastic box enclosure only.	Plastic box enclosure only: 8.5 X 6.5 X 4.5"
<b>Data Integrity</b>	Data stored in non-volatile (EEPROM) memory	Data stored in non-volatile (EEPROM) memory	Data stored in non-volatile (EEPROM) memory
<b>Environment</b>	Temp: -30 degrees C to +70 degrees C; Humidity: 0-95% non-condensing	Temp: -30 degrees C to +70 degrees C; Humidity: 0-95% non-condensing	Temp: -30 degrees C to +70 degrees C; Humidity: 0-95% non-condensing
<b>Compliance</b>	Aluminum can enclosure: UL CUL Class 1, Div II; Hazardous Certifications; All enclosures: NEMA; 4X compliant for all Bullhorn types; FCC Part 15	FCC Part 15; Enclosure: NEMA 4X compliant for all models and enclosures.	FCC Part 15; Enclosure: NEMA 4X compliant for all models and enclosures.
<b>Software Interface</b>	Bullhorn secure website. Standard web browsers. AI Network operations center	Bullhorn secure website. Standard web browsers. AI Network operations center	Bullhorn secure website. Standard web browsers. AI Network operations center
<b>Comm.</b>	GSM Digital Cellular; Orbcomm Satellite; Inmarsat D+ Satellite	GSM Digital Cellular; Orbcomm Satellite; Inmarsat D+ Satellite	Orbcomm Satellite; Inmarsat D+ Satellite

Note 1: On analog channel

Note 2: All 6 channels transmit in one packet on 4AM-GSM, 4AM-ORB and 4AMCP-ORB; For 4AM-SAT and 4AMCP-SAT, channels 1-4 produce one packet of information and channels 5-6 produce another. If all 6 packets are requested or if a channel from 1-4 and channels 5 and 6 are requested, 2 packets will be sent.

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	<b>SDT16-GSM</b> <b>SDT16-ORB</b> <b>SDT16-SAT</b>	<b>ICP+</b>
<b>Data Inputs and Outputs</b>	User Selectable Inputs: Up to 16 6-digit register readings, 8 12-digit register readings or a combination of both via RS232 direct connection.  1 Digital alarm contact closure  Protocols: <ul style="list-style-type: none"> <li>• Modbus (RTU or ASCII)</li> <li>• Mercury</li> <li>• Dresser</li> <li>• Reynolds</li> </ul>	Up to 4 Analog channels in standard product. Available analog input ranges: +/- 250 VDC +/- 100 VDC +/- 10 VDC +/- 100 mVDC +/- 25mVDC  Analog inputs are isolated, Inputs specified at time of order Available I/O Module: <ul style="list-style-type: none"> <li>• 1 Analog Output, 5 Discrete Inputs, 2 Discrete Outputs</li> <li>• Up to 3 DI's can be used as accumulators (Max pulse rate = 1 pulse/sec.)</li> </ul>
<b>Config. Parameters</b>	Description of each input; Alarm conditions per input; Number of daily health checks	Configuration via web interface and local configuration possible via program port using the Universal Config. Tool
<b>Supporting Products</b>	Requires configuration kit	Optional MicroMax GPS80 Interrupter, I/O Module, AC Monitor, ICP Isolator
<b>Power Supply</b>	Sealed Lead-acid gel cell battery w/ solar or AC charger; optional lithium battery for cellular model only	AC (Line power supplied by customer) w/ nominal voltage of 110VAC. DC (line power supplied by customer) with input voltage of 12-26VDC. Backup battery has a nominal voltage of 12 VDC and 7AH Capacity. Solar power option available for additional fee
<b>Physical Description</b>	Cellular version: anodized aluminum can (3.66 X 5.5" w/o antenna); sealed, self-contained unit includes antenna, power supply & mounting bracket; optional 3" PVC enclosure or plastic box enclosure (8.5 X 6.5 X 4.5"). Satellite version in plastic box enclosure only	Aluminum or fiberglass enclosure available: Height:13.5 inches, Width: 11.5 inches, Depth: 7.125 inches
<b>Data Integrity</b>	Data stored in non-volatile (EEPROM) memory	Data stored in non-volatile (EEPROM) memory
<b>Environment</b>	Temp: 30 degrees C to +70 degrees C; Humidity: 0-95% non-condensing	Temp: -40 degrees C to +85 degrees C; Humidity: 0-95% non-condensing
<b>Compliance</b>	Aluminum can enclosure: UL CUL Class 1, Div II; Hazardous Certifications; All enclosures: NEMA; 4X compliant for all Bullhorn types; FCC Part 15	TUV Certified; FCC Part 15; Enclosure designed to NEMA 4X standard
<b>Software Interface</b>	Bullhorn secure website. Standard web browsers. AI Network operations center	Bullhorn secure website. Standard web browsers. AI Network operations center
<b>Comm.</b>	GSM Digital Cellular; Orbcmm satellite; Inmarsat D+ Satellite	Orbcmm satellite

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Products protected by one or more of the following patents:

AI Specs Sheet: 2/23/2009 U.S. D437,243 S

Canadian No. 92670

U.S. 5,933,092

U.S. 5,785,842

U.S. 7,027,957

## About American Innovations:

Based in Austin, Texas, American Innovations (AI) is a fast growing provider of products and services for the oil & gas, water & wastewater and agriculture industries, including web-based remote monitoring & equipment control, total survey solutions for corrosion monitoring, automatic meter reading, alarm point monitoring and integrity management. AI product lines include: Bullhorn® Remote Monitoring, MicroMax® Current Interrupters, CP Loggers, Allegro Field PC®, Pipeline Compliance System (PCS) and Risk Intelligence™ Platform and Solutions. AI also offers cathodic protection services via Bass Engineering.

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