

# Accutech BR20

DIN rail mounted base radio





At the heart of any Accutech™ wireless instrument network is the wireless base radio. The Accutech BR20 automatically communicates with deployed instrumentation field units attached to it in a local area star network and makes the field data available to an existing control system through a local serial Modbus interface. An optional integrated long-haul data radio, for links to centralised data collection sites, is available.

One base radio can communicate with up to a maximum 100 field units. With the capability to scale up to as many as 256 base radios, Accutech easily accommodates your expansion plans.

# Product Data Sheet Accutech Base Radio Specifications



## Accutech BR20

### Functional

|                 |   |
|-----------------|---|
| Device          | Base Radio  |
| Location        | Interfaced with long-haul radio, controller or PC |
| Frequency Range | 900MHz and 2.4GHz license-free bands              |
| Input Power     | 0.5W maximum, 30mA maximum (at 13.8VDC nominal)   |

### Features

#### Configuration Interface

|                    |  |
|--------------------|--|
| Local:             | LCD and Keypad   |
| Remote:            | Accutech Manager, Windows®-based GUI software, providing network-wide monitoring and performance-management features and field unit configuration capabilities   |
| RF Characteristics | <p>900MHz:</p> <ul style="list-style-type: none"> <li>• 902 to 928MHz Frequency Hopping Spread Spectrum (FHSS); FCC certified ISM license-free band</li> <li>• 915 to 928MHz (Australia)</li> <li>• Data Rates: 4,800, 19,200 or 76,800bps</li> </ul> <p>2.4GHz:</p> <ul style="list-style-type: none"> <li>• 2400 to 2483.5MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio</li> <li>• Typical Electrical Transmit Power: +10.6dBm</li> <li>• Typical Receive Sensitivity (0.1% BER): -102dBm @ 50kbps, -99dBm @ 100kbps</li> <li>• Typical CW Receiver Blocking Rejection: 64dB for CW @ +/- 5MHz, 74dB for CW @ +/- 30MHz</li> <li>• Data Rates: 50 and 100kbps (FSK Modulation), 200 kbps (GFSK Modulation)</li> </ul> |
| Output Options     | <ul style="list-style-type: none"> <li>• RS-485 digital communications with conversion to RS-232 or USB for interface with PC or server and Accutech Manager.</li> <li>• Serial Modbus RTU (Binary) over RS-485</li> <li>• Modbus over TCP/IP (via optional converter)</li> </ul>  |

#### Connections

|                   |  |
|-------------------|--|
| Data              | <ul style="list-style-type: none"> <li>• RS-232 or RS-485, RJ45</li> <li>• RS-232 ( DTE - Rx/D, Tx/D)</li> <li>• RS-485 (2 wires, Termination DIP switch enabled)</li> <li>• Tx, Rx LED</li> </ul> |
| Diagnostics       | <ul style="list-style-type: none"> <li>• RS-232 or RS-485, RJ45</li> <li>• RS-232 ( DTE - Rx/D, Tx/D)</li> <li>• RS-485 (2 wires, Termination DIP switch enabled)</li> <li>• Tx, Rx LED</li> </ul> |
| Antenna Type      | 1/2 wave dipole, 6dB maximum gain allowable  |
| Antenna Connector | RPSMA  |

### General

|                  |   |
|------------------|---|
| Input Voltage    | <ul style="list-style-type: none"> <li>• 11 to 30VDC, 30VDC maximum</li> </ul>  |
| Input Current    | 30mA maximum (at 13.8VDC nominal)   |
| Input Power      | 0.5W maximum (11 to 30VDC)  |
| Dimensions:      | <ul style="list-style-type: none"> <li>• 108mm (4.25in.) wide</li> <li>• 118mm (4.625in.) high</li> <li>• 44mm (1.75in.) deep</li> </ul>  |
| Packaging        | Corrosion-resistant zinc plated steel with black enamel paint   |
| Terminations     | <ul style="list-style-type: none"> <li>• 5-pole removable terminal block, 12-22AWG, 15A contacts</li> <li>• 8-pole RJ-45 style jacks</li> </ul>   |
| Environment      | <ul style="list-style-type: none"> <li>• 5% RH to 95% RH, non-condensing</li> <li>• -40°C to 70°C (-40°F to 158°F) operation</li> <li>• -40°C to 85°C (-40°F to 185°F) storage</li> </ul>   |
| LED Power Enable | LEDs can be disabled with DIP switch  |
| Certifications   | <p>North America HAZLOC:</p> <ul style="list-style-type: none"> <li>• cCSAus</li> <li>• Non-Incendive</li> <li>• Class I, Div. 2, Groups A, B, C &amp; D, T4</li> </ul> <p>ATEX/IECEx HAZLOC:</p> <ul style="list-style-type: none"> <li>• LCIE</li> <li>• ATEX II 3G, Ex nA IIC T4 per EN 60079-15, protection type n (Zone 2)</li> <li>• IECEx, Ex nA IIC T4 per IEC 60079-15, protection type n (Zone 2)</li> </ul> <p>EMC &amp; Radio:</p> <ul style="list-style-type: none"> <li>• North America: FCC, IC</li> <li>• Europe: CE Mark</li> <li>• Australia: C-Tick</li> </ul> |
| Warranty         | 3-Year parts and labor  |

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# Product Data Sheet Accutech Base Radio Specifications



Long-Haul Trio™ K-Series Radio (To be ordered at time of purchase. Radio cannot be retrofitted in field)

## Functional

|                       |   |
|-----------------------|---|
| Location              | Master, remote, repeater or network-bridge  |
| Radio Frequency Range | <ul style="list-style-type: none"> <li>• 902MHz - 928MHz band (FCC/IC)</li> <li>• 915MHz - 928MHz band (Australia)</li> </ul> |
| RF Channel Data Rate  | 32,000, 64,000, 128,000 or 256,000bps   |

## Features

|                          |  |
|--------------------------|--|
| Configuration Interface  | TView+: Windows®-based GUI software, providing configuration, network management and diagnostics |
| Radio Frequency Accuracy | ±2.5ppm  |

## Transmitter

|                |                                      |
|----------------|--------------------------------------|
| Power          | 0.01W - 1W (+30 dBm) in 0.5 dB steps |
| Protection     | Over-temperature and reverse power   |
| Modulation     | 2 Level GFSK                         |
| Tx Key-up Time | <50µS                                |

## Receiver

|                 |                  |
|-----------------|------------------|
| Selectivity     | Better than 50dB |
| Intermodulation | Better than 65dB |

## Connections

|                         |   |
|-------------------------|---|
| Data Ports              | 2 x RJ45 female port wired as DCE (modem)   |
| System/Diagnostics Port | 1 x RJ45 for diagnostic, configuration and re-programming   |
| Antenna                 | Two SMA   |
| Terminations            | <ul style="list-style-type: none"> <li>• 5-pole removable terminal block, 12-22AWG, 15A contacts</li> <li>• 8-pole RJ-45 style jacks</li> </ul> |
| LED Display             | Four Bi-color Red/Green LEDs: Power/Tx, Sync/NoRx, Port A Rx/Tx, Port B Rx/Tx   |

## Modem

|                         |   |
|-------------------------|---|
| Data Serial Port A      | RS-232 RJ45 (DCE - Rx/D, Tx/D, CTS, RTS, DTR, DCD)<br>Or RS-485 RJ45 (2 wires, Termination DIP switch-enabled)  |
| Data Serial Port B      | RS-232 RJ45 (DCE - Rx/D, Tx/D) Rx/D and Tx/D are 3.3V CMOS signals. (Shared with the System/Diagnostics connection)                                   |
| System/Diagnostics Port | RS-232 RJ45 (DTE - Rx/D, Tx/D) Rx/D and Tx/D are 3.3V CMOS signals. (Shared with Push to Talk (PTT) input.) (RJ45 Shared with the Port B connection.) |
| Flow Control            | Hardware or 3-wire interface  |
| Bit Error Rate          | <1 x 10 <sup>-6</sup> @ -109dBm   |
| Encryption              | 256-bit AES encryption (within North America/Australia only)  |
| Collision Avoidance     | Channelshare™ collision avoidance system  |
| Multistream™            | Simultaneous delivery of multiple data protocols  |

## General

|                              |   |
|------------------------------|---|
| Transmit Current             | 500mA (at 13.8VDC nominal)  |
| Receive Current              | <120mA (at 13.8VDC nominal)   |
| RSSI Output                  | Receive Signal Strength Indication analog output available on P1 connector  |
| Factory Default Input        | Restore Factory Defaults available on P1 connector  |
| 1PPS                         | 1PPS (pulse per second) input available on P1 connector   |
| Push-to-Talk                 | PTT input available on Port B/DIAG COM port connector. DIP Switch-enabled   |
| Power Supply Voltage Monitor | Yes   |
| Operating Modes              | <ul style="list-style-type: none"> <li>• 5% RH to 95% RH, non-condensing</li> <li>• -40°C to 70°C (-40°F to 158°F) operation</li> <li>• -40°C to 85°C (-40°F to 185°F) storage</li> </ul>   |
| Diagnostics                  | <ul style="list-style-type: none"> <li>• Network-wide operation from any remote terminal</li> <li>• Non-intrusive protocol - runs simultaneously with the application</li> <li>• Over-the-air re-configuration of parameters</li> <li>• Storage of data error and channel occupancy statistics</li> <li>• Built-in error rate testing capabilities</li> </ul> |

## Approvals and Certifications

|                                    |   |
|------------------------------------|---|
| IC                                 | RSS 139 (RSS 210)   |
| ACA                                | AS1468-2003   |
| Hazardous Locations North America: | <ul style="list-style-type: none"> <li>• CCSAUS Non-Incendive Electrical Equipment for use in Class I, Division 2 Hazardous Locations per CSA Std C22.2 No. 213-M1987 / UL1604 (3rd Ed.) Temperature Code T4</li> <li>• CAN/CSA Std. C22.2 No.0-M91 (R2001) and CSA C22.2 No. 142-M1987 and UL508 (17th Ed.) in Canada and USA</li> </ul> |
| Digital Emissions                  | <ul style="list-style-type: none"> <li>• FCC 47 CFR Part 15, Subpart B, Class A Verification</li> <li>• ICES-003 Issue 4 (Canada)</li> <li>• AS/NZS CISPR 22: 2996 (Australia)</li> <li>• C-Tick. Registration number N15744</li> </ul>   |
| Warranty                           | 3-Year parts and labor  |

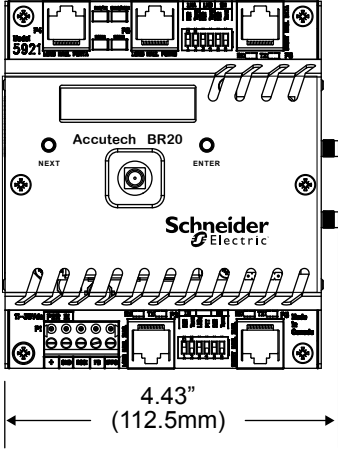
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## Product Data Sheet Accutech Base Radio

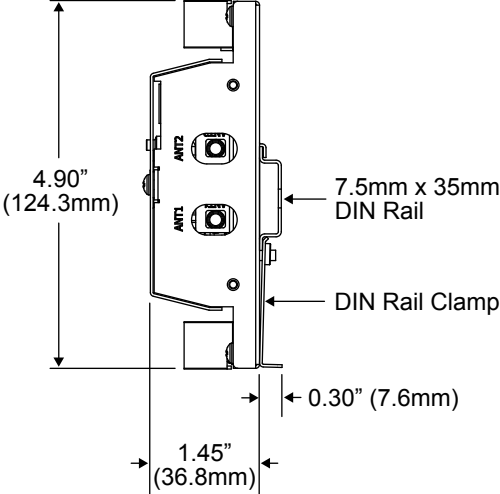
### Model Code and Dimensions

|              |   |
|--------------|---|
|              | TBUABR20-1000 represents a typical part number  |
| <b>Model</b> | <b>Type</b>   |
| TBUABR20     | Wireless Base Radio   |
| <b>Code</b>  | <b>Select: RF Module Type</b>   |
| 1            | 902MHz - 928MHz band (FCC / IC)   |
| 2            | 915MHz - 928MHz band (Australia)  |
| 5            | 2.4GHz (CSA certified) *  |
| 6            | 2.4GHz (ATEX & IECEx certified) *   |
| <b>Code</b>  | <b>Select: Long Haul Radio</b>  |
| 0            | None  |
|              | <b>900MHz Frequency Band (No antenna or cables included)</b>                          |
| B            | 900MHz Trio Spread Spectrum Radio with encryption, 902-928MHz (FCC / IC)              |
| C            | 900MHz Trio Spread Spectrum Radio with encryption, 915-928MHz (AUS)                   |
| D            | 900MHz Trio Spread Spectrum Radio, 915-928MHz (BRAZIL)                                |
| E            | 900MHz Trio Spread Spectrum Radio, 921-928MHz (NZ)                                    |
|              | <b>2.4 GHz Frequency Band (No antenna or cables included)</b>                         |
| K            | 2.4GHz Trio Spread Spectrum Radio with Encryption, 500mW (CANADA, USA & AUSTRALIA)    |
| L            | 2.4GHz Trio Spread Spectrum Radio, 500mW (OUTSIDE OF EUROPE, CANADA, USA & AUSTRALIA) |
| <b>Code</b>  | <b>Future Option</b>  |
| 0            | None  |
| <b>Code</b>  | <b>Future Option</b>  |
| 0            | None  |

\* A high gain antenna is recommended when selecting this option – see Accutech Accessories data sheet



4.43"  
(112.5mm)



4.90"  
(124.3mm)

7.5mm x 35mm  
DIN Rail

DIN Rail Clamp

0.30" (7.6mm)

1.45"  
(36.8mm)

#### Schneider Electric

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