Green Premium™ Product

Life Is On Schneider Electric

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Product at a glance

At the heart of any Accutech™ wireless instrument network is the wireless base radio. The Accutech BR20 and BR21 base radios automatically communicate with deployed instrumentation field units attached to them in a local area star network and make the field data available to an existing control system through a local serial or Ethernet Modbus™ interface interface. An optional integrated long-haul data radio, for links to centralized 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 wireless instrumentation easily accommodates your expansion plans.

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Specifications Accutech BR20 | BR21

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	900 MHz • 902...928 MHz Frequency Hopping Spread Spectrum (FHSS); FCC certified ISM license-free band • 915...928 MHz (Australia) • Data Rates: BR20: 4,800, 19,200 or 76,800 bps, BR21: 76,800 bps 2.4 GHz • 2400...2483.5 MHz ISM license-free band Frequency Hopping Spread Spectrum (FHSS) Radio • Typical Electrical Transmit Power: +10.6 dBm • Typical Receive Sensitivity (0.1% BER): - 102 dBm @ 50 kbps, - 99 dBm @ 100 kbps • Typical CW Receiver Blocking Rejection: 64 dB for CW @ +/- 5 MHz, 74 dB for CW @ +/- 30 MHz • Data Rates: 50 and 100 kbps (FSK Modulation)
Output Options	BR20 • **Accutech Base Radio Data**: Modbus RTU protocol via Short Haul serial RS-232/RS-485 port • **Accutech Configuration and Diagnostics**: Accutech Manager via serial RS-232/RS-485 port. • **Trio Radio Data**: Modbus RTU protocol via two serial RS-232/RS-485 Long Haul Data Ports • **Trio Configuration and Diagnostics**: TView+ via serial RS-232/RS-485 Long Haul Data Port BR21 • **Accutech Base Radio Data**: Modbus/TCP protocol via Ethernet port. Supports 16 simultaneous Modbus/TCP connections • **Configuration and Diagnostics**: Accutech Manager via serial RS-232 or RS-485 port

Connections	
Modbus Data	BR20 • 1, **Accutech Base Radio Short Haul Data Port**: RS-232/RS-485 serial: 5-wire (RS-232: GND, RxD, TxD or RS-485: Rx/Tx+, Rx/Tx-), 8-pin RJ45 modular connector. DIP switch-selectable for RS-485 termination resistors and either RS-232 or RS-485 serial port mode. • 1, **Trio K-Series Long Haul Data Port A**: RS-232/RS-485 serial: 7-wire (RS-232: DTR, DCD, GND, RxD, TxD, RTS, CTS or RS-485: Rx/Tx+, Rx/Tx-), 8-pin RJ45 modular connector. DIP switch-selectable for RS-485 termination resistors and either RS-232 or RS-485 serial port mode. • 1, **Trio K-Series Long Haul Data Port B**: RS-232/RS-485 serial: 7-wire (RS-232: DTR, DCD, GND, RxD, TxD, RTS, CTS or RS-485: Rx/Tx+, Rx/Tx-), 8-pin RJ45 modular connector. DIP switch-selectable for RS-485 termination resistors and either RS-232 or RS-485 serial port mode BR21 • 1, **Ethernet Modbus Port**: 10/100 BASE-T LAN Ethernet port, 8-pin RJ45 modular connector, Modbus/TCP protocol
Configuration and Diagnostics	BR20 Accutech Manager: • 1, **Accutech Base Radio Short Haul DIAG Port**: RS-232/RS-485 serial: 3-wire (RS-232: GND, RxD, TxD or RS-485: Rx/Tx+, Rx/Tx-), 8-pin RJ45 modular connector. DIP switch-selectable for RS-485 termination resistors and either RS-232 or RS-485 serial port mode Trio TView+: • 1, **Trio K-Series Long Haul DIAG Port**: RS-232/RS-485 serial: 3-wire (RS-232: GND, RxD, TxD or RS-485: Rx/Tx+, Rx/Tx-), 8-pin RJ45 modular connector. DIP switch-selectable for RS-485 termination resistors and either RS-232 or RS-485 serial port mode BR21 Accutech Manager: • 1, **Accutech Base Radio Serial Port**: RS-232: 3-wire (GND, RxD, TxD), 8-pin RJ45 connector • 1, **Accutech Base Radio Serial Port**: RS-485: 3-wire (GND, A+, B-) screw terminal connections DIP switch-selectable for RS-485 termination resistors and either RS-232 or RS-485 serial port mode.
Antenna Connector	RPSMA

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Specifications BR20 | BR21

General

Input Voltage	11...30 Vdc, 30 Vdc maximum
Input Current	30 mA maximun (at 13.8 Vdc nominal)
Input Power	• BR20: 30 mA max (at 13.8 Vdc nominal) • BR21: 90 mA max (at 13.8 Vdc nominal)
Dimensions	•108 mm (4.25 in.) wide • 118 mm (4.625 in.) high • 44 mm (1.75 in.) deep
Packaging	Corrosion-resistant zinc plated steel with black enamel paint
Terminations	• 5-pole terminal block, 12...22 AWG, 15 A contacts • 8-pole RJ45-style jacks
Environment	• 5...95% RH, non-condensing • -40...70 °C (-40...158 °F) operation • -40...85 °C (-40...185 °F) storage
Certifications	North America HAZLOC • cCSAus • Non-Incendive • Class I, Div. 2, Groups A, B, C & D, T4 ATEX/IECEx HAZLOC • LCIE • ATEX II 3G, Ex nA IIC T4 per EN 60079-15, protection type n (Zone 2) • IECEx, Ex nA IIC T4 per IEC 60079-15, protection type n (Zone 2) EMC & Radio • North America: FCC, IC • Europe: CE Mark • Australia: RCM
Warranty	3-Year parts and labor

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Specifications - Long-Haul Trio™ K-Series Radio (Available as an option on 900 MHz BR20 base radio only)

Functional	
Location	Master, remote, repeater or network-bridge
Radio Frequency Range	• 902...928 MHz band (FCC/IC) • 915...928 MHz band (Australia) • Also available in 2.4 GHz version, contact factory for specifications
RF Channel Data Rate	32,000, 64,000, 128,000 or 256,000 bps

Features	
Configuration Interface	TView+™: Windows®-based GUI software, providing configuration, network management and diagnostics
Radio Frequency Accuracy	±2.5 ppm
Transmitter	
Protection	Over-temperature and reverse power
Modulation	2 Level GFSK
Tx Key-up Time	<50 µS
Receiver	
Selectivity	Better than 50 dB
Intermodulation	Better than 65 dB
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	• 5-pole removable terminal block, 12-22 AWG, 15 A contacts • 8-pole RJ-45 style jacks
LED Display	Four bi-color Red/Green LEDs: Power/Tx, Sync/NoRx, Port A Rx/Tx, Port B Rx/Tx

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Specifications - Long-Haul Trio K-Series Radio (Available as an option on 900 MHz BR20 base radios only)

Features	
Modem	
Data Serial Port A	RS-232 RJ45 (DCE - RxD, TxD, CTS, RTS, DTR, DCD) Or RS-485 RJ45 (2 wires, Termination DIP switch-enabled)
Data Serial Port B	RS-232 RJ45 (DCE - RxD, TxD) RxD and TxD are 3.3V CMOS signals. (Shared with the System/ Diagnostics connection)
System/Diagnostics Port	RS-232 RJ45 (DTE - RxD, TxD) RxD and TxD 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 10-6 @ –109 dBm
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	500 mA (at 13.8 Vdc nominal)
Radio Frequency Accuracy	<120 mA (at 13.8 Vdc 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	• 5...95% RH, non-condensing • -40...70 ºC (-40...158 ºF) operation • -40...85 ºC (-40...185 ºF) storage
Diagnostics	• Network-wide operation from any remote terminal • Non-intrusive protocol - runs simultaneously with the application • Over-the-air re-configuration of parameters • Storage of data error and channel occupancy statistics • Built-in error rate testing capabilities

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Specifications - Long-Haul Trio K-Series Radio (Available as an option on 900 MHz BR20 base radios only)

General	
Approvals and Certifications	
IC	RSS 139 (RSS 210)
Hazardous Locations North America:	• 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 • CAN/CSA Std. C22.2 No.0-M91 (R2001) and CSA C22.2 No. 142-M1987 and UL508 (17th Ed.) in Canada and USA
Digital Emissions	• FCC 47 CFR Part 15, Subpart B, Class A Verification • ICES-003 Issue 4 (Canada) • AS/NZS CISPR 22: 2996 (Australia) • C-Tick. Registration number N15744
Warranty	3-Year parts and labor

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Model Code - Accutech BR20

TBUABR20-1000 represents a typical part number

Model	Type
TBUABR20	Wireless Base Radio
Code	**Select: RF Module Type**
1	902...928 MHz band (FCC / IC)
2	915...928 MHz band (Australia)
5	2.4 GHz band (CSA certified) [1]
6	2.4 GHz band (ATEX & IECEx certified) [1]

Code	Select: Long Haul Radio
0	None
	900 MHz Frequency Band (No antenna or cables included)
B	900 MHz Trio Spread Spectrum Radio with encryption, 902...928 MHz (FCC / IC)
C	900 MHz Trio Spread Spectrum Radio with encryption, 915...928 MHz (AUS)
	2.4 GHz Frequency Band (No antenna or cables included)
K	2.4 GHz Trio Spread Spectrum Radio with Encryption, 500 mW (CANADA, USA & AUSTRALIA)
L	2.4 GHz Trio Spread Spectrum Radio, 500 mW (OUTSIDE OF EUROPE, CANADA, USA & AUSTRALIA)

Code	Select: Future Option
0	None

Code	Select: Future Option
0	None

Code	Select: Protocol Option
5	DNP3 Serial/IP master/slave/peer-to-peer, IEC 60870-5-101/104 slave, Modbus RTU/TCP master/slave, TCP/IP

Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Model Code - Accutech BR21

TBUABR21-1000 represents a typical part number

Model	Type
TBUABR21	Wireless Base Radio

Code	Select: RF Module Type
1	902...928 MHz band (FCC / IC)
2	915...928 MHz band (Australia)
5	2.4 GHz band (CSA certified) [1]
6	2.4 GHz band (ATEX & IECEx certified) [1]

Code	Select: Long Haul Radio
0	None

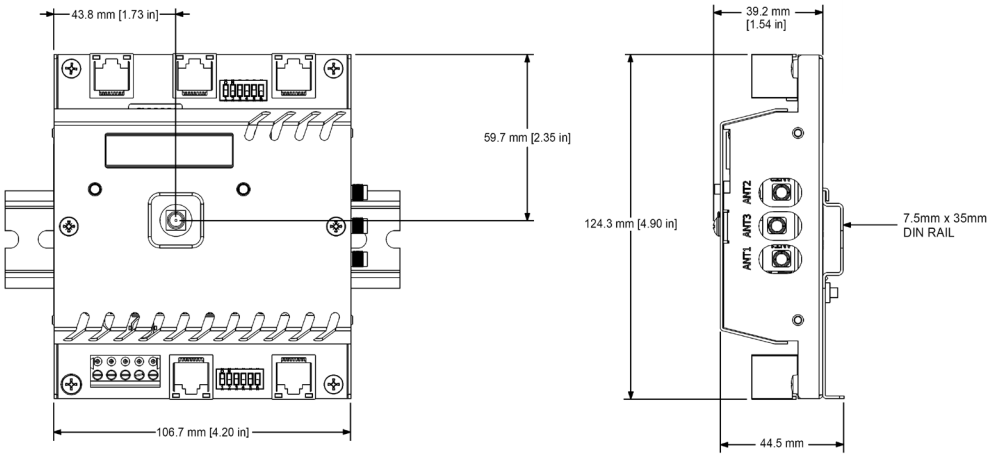
Code	Select: Future Option
0	None

Code	Select: Future Option
0	None

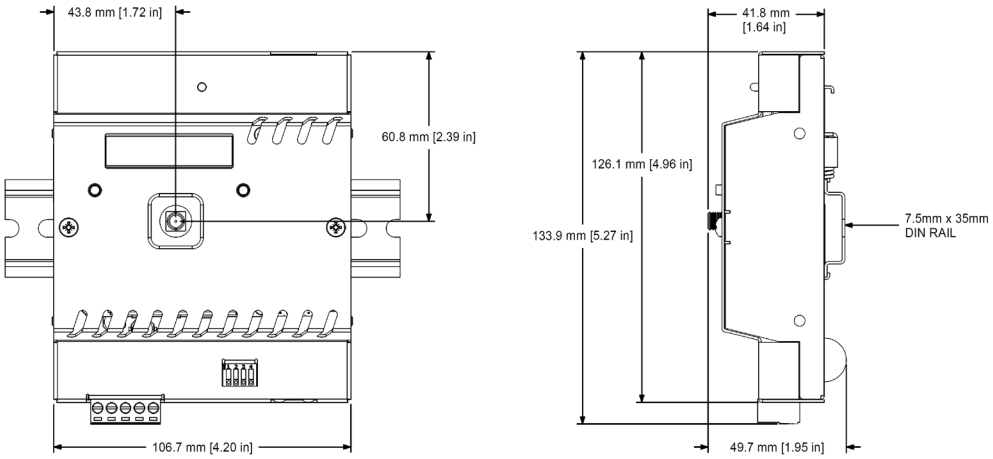
Accutech BR20 | BR21

DIN Rail Mounted Base Radios

Dimensions BR20



Dimensions BR21



Footnotes: 1- A high gain antenna is recommended when selecting this option – see Accutech Accessories data sheet.

Disclaimer: Not all product features are available in every mode of operation. Schneider Electric reserves the right to change product specifications. For ordering information call direct worldwide: +1 (613) 591-1943; Toll Free within North America: +1 (888) 267-2232 or Email: orderstrss@schneider-electric.com. For more information visit www.schneider-electric.com

Foxboro by Schneider Electric
38 Neponset Avenue,
Foxboro, Massachusetts 02035 USA
Direct Worldwide: +1 (508) 549-2424
Email: systems.support@schneider-electric.com
Toll Free within North America: +1 (866) 746-6477
www.schneider-electric.com

Life Is On Schneider Electric

Part Number TBULM08002-25 v22

© 2018 Schneider Electric. All Rights Reserved. Schneider Electric, Life is On Schneider Electric, Accutech, ChannelShare, Green Premium, Modbus, Multistream, Trio and TView+ are trademarks and the property of Schneider Electric SE, its subsidiaries and affiliated companies. All other trademarks are the property of their respective owners. February 2018