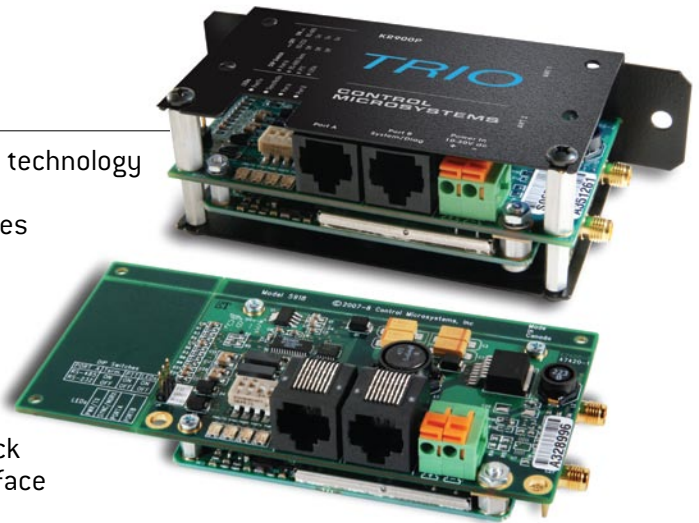


# Trio KR900P & KR240P Spread Spectrum Data Radio

## Features:

- 900MHz and 2.4GHz frequency-hopping spread spectrum technology
- Advanced security with AES 256-bit encryption
- High data throughput with up to 256kbps over-air data rates
- Powerful 1 Watt transmitter (900MHz model)
- Ultra long range high-performance receiver
- Dual antennas with independent power settings
- Multistream™ simultaneous data stream support
- KwikStream™ high-speed single radio repeater mode
- LinkXtend™ network bridge functionality
- Flexible mounting options for panel, din-rail and SOLARPack
- TView+ - user friendly configuration and diagnostics interface
- 3-Year Warranty (parts and labor)



Trio KR900P & KR240P data radios are Control Microsystems' most cost-effective and compact data radios operating in the license-free 900MHz and 2.4GHz ISM bands. The KR900P & KR240P radios are strategically placed far ahead of the competition thanks to many unique features, including LinkXtend™ network bridging and KwikStream™ high-speed repeater capabilities, MultiStream™ simultaneous data stream support and ChannelShare™ collision-avoidance for spontaneous remote transmissions.

The KR900P & KR240P also boast a powerful 1W (900MHz), 0.5W (2.4GHz), 100mW (2.4GHz Europe ETSI) transmitter, a highly sensitive long-range receiver and two independently-powered antenna connections. For added flexibility, the KR900P & KR240P radios are available in a standard board-only version for stand-off installation (standoffs not included) or within the SOLARPack 210 and 410, or with an optional metal enclosure for panel or din-rail mounting.

The radios make use of advanced digital modulation and signal-processing techniques to achieve exceptionally high data throughput efficiency and with its advanced frequency-hopping technology, satisfies the most demanding SCADA requirements. The KR900P & KR240P radios are available in a wide range of frequency bands and carries the best warranty in the industry.

As with all Trio radio solutions, the KR900P and KR240P can be rapidly deployed as a permanent or temporary alternative to wired communication networks which are costly to install and difficult to modify. When integrated into legacy systems or used as the communications backbone of a new system, Trio radios instantly bring up-to-date communication technology and performance to your network.

### Applications

Trio K-Series radios are used across a wide range of industrial markets in point-to-point and point-to-multipoint applications. They are often used for remote interconnection of PLCs, RTUs, data loggers, and other data monitoring and control devices. The radios are compatible with the powerful Trio E-Series Base Station and Hot-Standby unit and is a CSA Class I, Division II-compliant product (900MHz only, 0.5W 2.4GHz pending approval).

### Features

Designed for maximum value and functionality, Control Microsystems has incorporated a wide range of state-of-the-art features in the KR900P & KR240P:

**Data modem:** Advanced technology GFSK digital data modem featuring error-checked high data throughput and true 256Kbps over-the-air data rates. User-configurable data ports offer simultaneous data streams, collision avoidance, 256-bit AES encryption (North America/Australia only) and support for

Industry-standard protocols including Modbus, DNP3.0 and IEC 60870-5-101.

**Radio:** High-frequency stability and accuracy digital synthesizer providing rapid Tx-Rx turnaround times and greater system capacity with optimized data quality. These highly flexible radios are universally applicable with compliance to FCC and ETSI radio communication regulatory requirements.

### Configuration & Management

All Trio radios offer maximum versatility by providing local and over-the-air configuration options.

**TView+:** As the Network Management and Remote Diagnostics environment for all Trio radios, this tool helps to eliminate system down-time and reduce maintenance costs. The software incorporates a wide range of efficient network management utilities including error rate testing, channel occupancy statistics, and data error statistics. TView+ also includes a diagnostics utility that permits monitoring and logging of radio performance parameters for all units in the network.

### Design, Environmental and Power

The KR900P & KR240P are built using compact, lightweight housings, ensuring maximum reliability together with ease-of-installation and serviceability. Full specification operation is guaranteed over the entire -40 to +70°C (-40 to 158°F) temperature range. Overall power consumption is optimized with a user-controlled smart sleep mode.

## Specifications

Functional	
<b>Location</b>	Master, remote, repeater or network-bridge
<b>Unlicensed Radio Frequency Range</b>	902-928MHz region-specific and 2.4GHz ISM band versions available
<b>Operational Modes</b>	Half-duplex, full-duplex
<b>RF Channel Data Rate</b>	32,000/64,000/128,000 or 256,000bps
Features	
<b>Configuration Interface</b>	TView+: configuration, network management and diagnostic windows GUI software
<b>Radio Frequency Accuracy</b>	±2.5ppm
<b>Transmitter</b>	Power: +30dBm, 0.01 - 1W (900MHz) +27dBm, 0.01 - 0.5W (2.4GHz), limited to 20dBm max., 100mW (ETSI version) 0.5db steps, user-configurable Modulation: 2 Level GFSK Tx Key-up Time: <50µS Tx Spurious: <= -50 dBc
<b>Receiver</b>	Selectivity: Better than 50dB Intermodulation: Better than 65dB Spurious Response: Better than 70 dB
<b>Connections</b>	User Data Port: 2 x RJ45 wired as DCE (modem) (Port B shared with System/Diagnostics connection) System/Diagnostics: 1 x RJ45 wired as DTE (Shared with Push-to-Talk (PTT) input) (Shared with the Port B connection) Antennas: 2 x female type SMA connectors LED Display: Multimode Indicators for Power/Tx, Sync/NoRx, Port A Rx/Tx and Port B Rx/Tx
<b>Modem</b>	Data Serial Port A: RS-232 or RS-485, RJ45 600-230,000bps asynchronous Data Serial Port B: RS-232, RJ45 300-38,400bps asynchronous Bit Error Rate: <1 x 10 <sup>-6</sup> @ -109dBm Encryption: 256-bit AES encryption (North America/Australia only) Collision Avoidance: Channelshare™ collision avoidance system Firmware: Field-upgradeable Flash memory
<b>General</b>	Temperature Range: -40 to +70°C, [-40 to 158°F] operation Power Supply: 10-30Vdc (13.8Vdc nominal) Transmit Current: 400mA (at 13.8Vdc nominal) Receive Current: <110mA (at 13.8Vdc nominal) Enclosure: Corrosion resistant zinc plated steel with black enamel paint DIN rail mounting clips: 42.5 x 19mm (1.675 x 0.75 inch) Dimensions: 103 x 58 x 41mm (4.03 x 2.27 x 1.60 inches)
<b>Diagnostics</b>	Network-wide operation from any remote terminal Non-intrusive protocol - runs simultaneously with the application Over-the-air re-configuration of all parameters Storage of data error and channel occupancy statistics In-built error rate testing capabilities
<b>Approvals and Certifications</b>	IC: RSS 139 (RSS 210) Hazardous Locations – North America: cCSA US, suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations (900MHz only, 0.5W 2.4GHz pending approval) Temperature Code T4 per CSA Std C22.2 No. 213-M1987 / UL1604 Europe: ATEX: II 3G Ex nA IIC T4 per EN 60079-15, protection type n (Zone 2) (2.4GHz 100mW ETSI version only) Safety: CSA C22.2 No. 142-M1987 and UL916 in Canada and USA. Digital Emissions: FCC Part 15, Subpart B, Class A Verification EN61000-6-4: 2007 Electromagnetic Compatibility Generic Emission Standard Part2: Industrial Environment C-Tick compliance. Registration number N15744 Immunity: EN61000-6-2: 2005 Electromagnetic Compatibility Generic Standards Immunity for Industrial Environments
<b>Warranty</b>	3-Year parts and labor

## Model Code

Tyxx-wxyz represents the part number matrix

Code T	Select: Model Type
K	K-Series
Code y	Select: Unit Type
R	Remote Station
Code xx	Select: Model Number
900	900 MHz
240	2.4GHz
Code w	Select: Enclosure Type
0	Board-only version for standoff (not included) and SOLARPack 210 or 410 mounting
1	Enclosure option for panel or DIN rail mounting
Code x	Select: Frequency (900MHz and 2.4GHz bands)
B	License-free band 902 to 928 MHz (FCC/IC for North America) - Encryption
C	License-free band 915 to 928 MHz (Australia) - Encryption
D	License-free band 915 to 928MHz (Brazil) - No Encryption
E	License-free band 921 to 928 MHz (New Zealand) - No Encryption
J	License-free band 2.4GHz (ETSI, ATEX for Europe) - No Encryption
K	License-free band 2.4GHz no Hazloc (North America, Australia) - Encryption
L	License-free band 2.4GHz no Hazloc (Outside of Europe, Canada, US, Australia) - No encryption

Code y	Future Use
H	No Options
Code z	Future Use
0	No Options

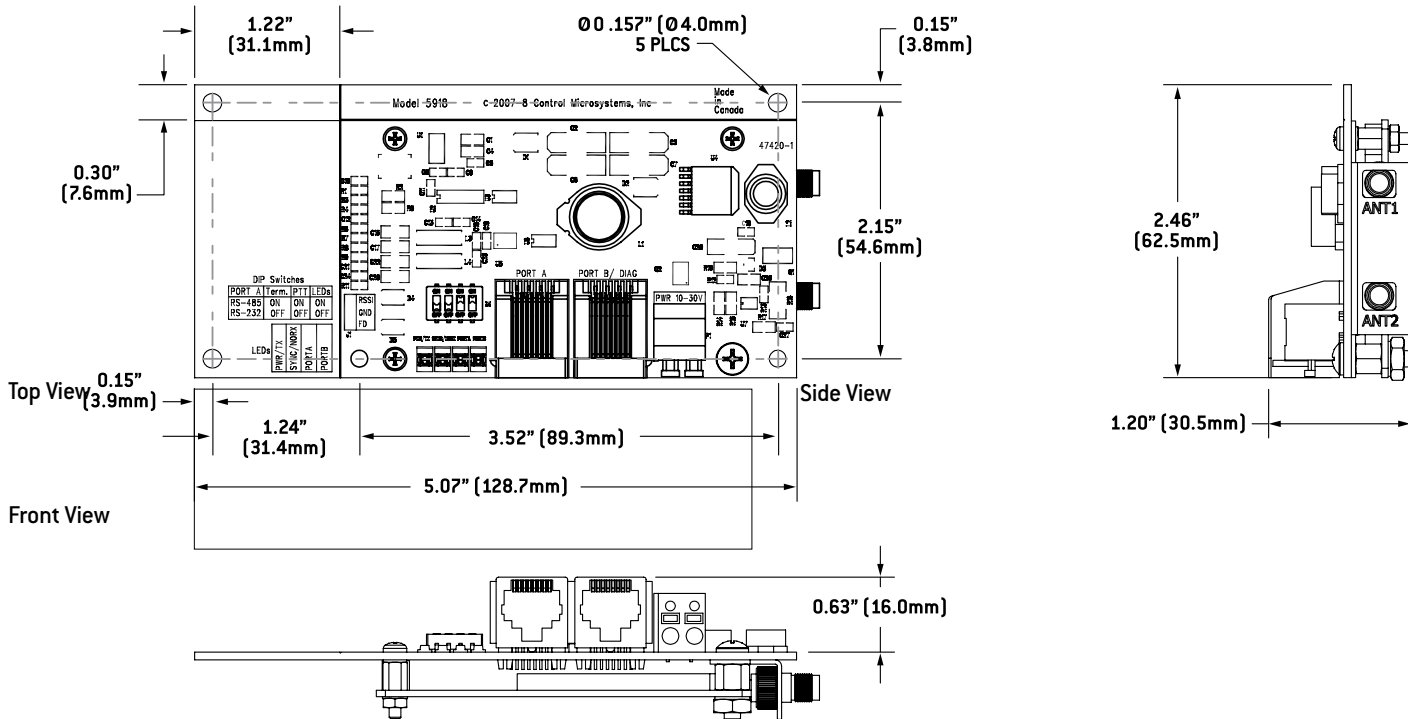
**Example: KR30-1BH0** specifies: Trio K-Series KR900 Remote Station, mounted within enclosure, 900MHz band radio with a specific frequency range of 902 to 928MHz.

## Accessories (Contact Sales Support Department for up-to-date list)

Description	Part Number
<b>Programming and Communication Cables</b>	
KR90OP & KR24OP Port A/DIAG Port (RJ45) to SCADAPack/PC (DE-9F), 10 feet (3m)	297217
KR90OP & KR24OP Port B (only) to SCADAPack/PC (DE-9F), 10 feet (3m)	297488
<b>Other</b>	
TView+ Configuration/Diagnostics software package	297826

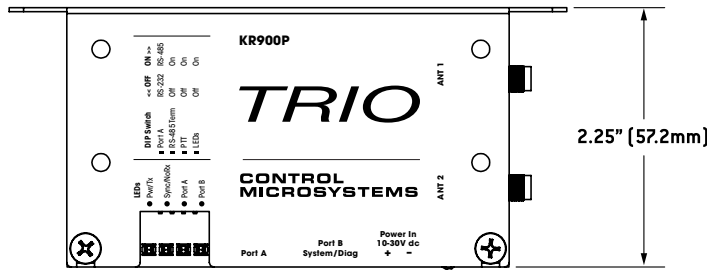
Physical Dimensions - Spread Spectrum Data Radio - KR900P | KR240P

Board-Only Version



Optional Enclosure Version

Top View



Front View

