Trio K-Series

License-free serial data radio

KR900 | KR240 | KP900 | KP240 | KB900 | KB240

Schneider Electric

Trio K-Series frequency-hopping, spread-spectrum data radios set the standard for reliable and secure serial data communication in the license-free 900MHz and 2.4GHz ISM bands. With unique features like LinkXtend™ for single radio store-and-forward, and ChannelShare™ collision-avoidance for support of spontaneous SCADA messages, K-Series radios provide the flexibility to allow implementation of even the most complex wireless solutions with virtually unlimited expansion capability.

The industrial strength K-Series is ideally suited for the most demanding Point-to-Multipoint, Point-to-Point, and SmartPath™ mesh-like wireless Telemetry and remote SCADA applications, and is available in a fully enclosed housing (KR) as well as small-format DIN rail-mountable (KP), board-only (KB), and OEM module (OM) variants.

Product Data Sheet Trio KR900 | KR240
Specifications

>	Trio KR900 | KR240
Radio	
Frequency Range	902-928MHz or 2.4-2.48335GHz, (region-specific versions available)
Frequency Accuracy	±2.5ppm (900MHz) ±3.0ppm (2.4GHz)
Radio Modes	Half Duplex, Pseudo Full Duplex
Configuration	All configuration via Windows based software
Selectivity	Better than 50dB
Spurious Response	Better than 70dB
Tx Power	• 900MHz : 0.01 - 1W (+30dBm) 0.5dB steps configurable with over-temperature and high VSWR protection • 2.4GHz : 0.01 - 500mW (+27dBm) 0.5dB steps configurable with over-temperature protection.
Modulation	2 Level GFSK
Connections	
Serial Data Port A	1 x RS232/RS485 RJ-45. 600-230,000bps asynchronous
Serial Data Port B	1 x RS232 DB9 female DCE. 300-38,400bps asynchronous
Serial Data Port Flow Control	Configurable hardware / 3-wire interface
Serial Data Port DCD Control	Configurable DCD operation : activated on Master synchronisation or from user data output.
System Port	1 x RS232 RJ45: 19,200bps, for configuration and diagnostics
Antenna	2 x TNC female bulkhead connectors for LinkXtend or separate TX/RX antennas
Power	2-pin locking, mating connector supplied
LED Display	Multimode Indicators for Pwr, Tx, Rx, Sync, TxD and RxD data LEDs (for both port A and B)
Modem	
RF Channel Data Rate	32,000/64,000/128,000 or 256,000bps
Bit Error Rate	Max sensitivity < $1x10^{-6}$ @ -108dBm
Operating Modes	Master, remote, repeater or network-bridge
Network Types	Point-to-Point, Point-to-Multipoint, Point-to-Multipoint with Repeaters / Store n' Forward, Mesh
Channelshare™	Trio's unique supervisory collision avoidance system
MultiStream™	Simultaneous data stream delivery allows for multiple vendor devices/protocols to be transported on the one radio network
SmartPath™	Technology for enhanced redundancy in network configuration (Mesh)
Firmware	Local and over-the-air flash-based firmware
Security	
Encryption*	256-bit AES
Password Protection	Password protected configuration sessions
Trusted Unit	Optional Trusted Access point-Trusted Remote operation

* Export restrictions may apply. Contact factory for details.

Specifications continue on the next page.

Product Data Sheet Trio KR900 | KR240
Specifications

>	Trio KR900 | KR240
Diagnostics	

Diagnostics Overview	• TView+ configuration, network management and diagnostic Windows GUI software
	• Spectrum Analyser and Channel Lockout facilities
	• Network-wide operation from any remote terminal
	• Non intrusive protocol – runs simultaneously with the application
	• Over-the-air re-configuration of user parameters.
	• Storage of data error and channel occupancy statistics
	• In-built Error Rate testing capabilities
	• Diagnostics parameters available
	  • Transmitter Power
	  • Received Signal Strength
	  • DC Supply Voltage
	  • Received Frequency Error
	  • Radio Temperature

General	
Operating Temperature Range	-40 to + 70°C (-40 to +158°F)
Power Supply	10-30Vdc (13.8Vdc nominal)
Transmit Current	• 900MHz : 500mA nominal @ 1W • 2.4GHz : 800mA nominal @ 0.5W
Receive Current	• 900MHz: <120mA nominal @ 13.8Vdc • 2.4GHz: <100mA nominal @ 13.8Vdc
Sleep Mode	Software Controlled
Housing & Dimensions	Rugged die-cast, 100 x 34 x 165mm (4.0 x 1.4 x 6.5in.)
Mounting	Integrated Mounting Holes or DIN Rail mounting (optional)
Weight	0.5kg (1.1lbs.)
Warranty	3 years on parts and labor
Approvals and Certifications	
Europe (ETSI)	ETSI EN60950, EN50392 EN300328 EN301489 (2.4GHz only)
FCC	FCC PART 15
Industry Canada	IC RSS210
Australia	ACMA AS/NZS 4268
Hazardous Locations	• 900MHz : CSA Class I, Division II, Groups (A,B,C,D) for Hazardous Locations ANSI/UL equivalent) • 2.4GHz : ATEX II 3G Ex nA IIC T4

Note: Not all product features are available in every mode of operation.

Disclaimer: Schneider Electric reserves the right to change product specifications. For more information visit www.schneider-electric.com.

Product Data Sheet Trio KP & KB-Series
Specifications

>	Trio KP900 | KP240 | KB900 | KB240
Radio	
Frequency Range	902-928MHz or 2.4-2.48335GHz, (region-specific versions available)
Frequency Accuracy	±2.5ppm (900MHz) ±3.0ppm (2.4GHz)
Radio Modes	Half Duplex, Pseudo Full Duplex
Configuration	All configuration via Windows based software
Selectivity	Better than 50dB
Spurious Response	Better than 70dB
Tx Power	• 900MHz : 0.01 - 1W (+30dBm) 0.5dB steps configurable with over-temperature and high VSWR protection • 2.4GHz : 0.01 - 500mW (+27dBm) 0.5dB steps configurable with over-temperature protection.
Modulation	2 Level GFSK
Connections	
Serial Data Port A	1 x RS232/RS485 RJ-45. 600-230,000bps asynchronous
Serial Data Port B	1 x RS232 RJ-45. 300-38,400bps asynchronous (shared with System Port)
Serial Data Port Flow Control	Configurable hardware (Serial Data Port A only) / 3-wire interface
Serial Data Port DCD Control	Configurable DCD operation : activated on Master synchronisation or from user data output.
System Port	1 x RS232 RJ45: 19,200bps, for configuration and diagnostics (shared with Serial Data Port B)
Antenna	2 x SMA female bulkhead connectors for LinkXtend or separate TX/RX antennas
Power	2-pin locking, mating connector supplied
LED Display	Multimode Indicators for Pwr, Tx, Rx, Sync, TxD and RxD data LEDs (for both port A and B)
Modem	
RF Channel Data Rate	32,000/64,000/128,000 or 256,000bps
Bit Error Rate	Max sensitivity < $1x10^{-6}$ @ -108dBm
Operating Modes	Master, remote, repeater or network-bridge
Network Types	Point-to-Point, Point-to-Multipoint, Point-to-Multipoint with Repeaters / Store n' Forward, Mesh
Channelshare™	Trio's unique supervisory collision avoidance system
MultiStream™	Simultaneous data stream delivery allows for multiple vendor devices/protocols to be transported on the one radio network
SmartPath™	Technology for enhanced redundancy in network configuration (Mesh)
Firmware	Local and over-the-air flash-based firmware
Security	
Encryption*	256-bit AES
Password Protection	Password protected configuration sessions
Trusted Unit	Optional Trusted Access point-Trusted Remote operation

* Export restrictions may apply. Contact factory for details.

Specifications continue on the next page

Product Data Sheet Trio KP & KB-Series
Specifications

>	KP900 | KP240 | KB900 | KB240
Diagnostics	

Diagnostics Overview	• TView+ configuration, network management and diagnostic Windows GUI software
	• Spectrum Analyser and Channel Lockout facilities
	• Network-wide operation from any remote terminal
	• Non intrusive protocol – runs simultaneously with the application
	• Over-the-air re-configuration of user parameters.
	• Storage of data error and channel occupancy statistics
	• In-built Error Rate testing capabilities
	• Diagnostics parameters available
	  • Transmitter Power
	  • Received Signal Strength
	  • DC Supply Voltage
	  • Received Frequency Error
	  • Radio Temperature

General	
Operating Temperature Range	-40 to + 70°C (-40 to +158°F)
Power Supply	10-30Vdc (13.8Vdc nominal)
Transmit Current	• 900MHz : 500mA nominal @ 1W • 2.4GHz : 800mA nominal @ 0.5W
Receive Current	• 900MHz: <110mA nominal @ 13.8Vdc • 2.4GHz: <100mA nominal @ 13.8Vdc
Sleep Mode	Software Controlled
Housing & Dimensions	• KPxxx : Corrosion resistant zinc plated steel with black enamel paint 130 x 39 x 56mm (5.1 x 1.5 x 2.2in.) • KBxxx : Bare board 129 x 31 x 55mm (5.08 x 1.22 x 2.17in.)
Mounting	Integrated Mounting Holes or DIN Rail mounting (optional)
Weight	0.5kg (1.1lbs.)
Warranty	3 years on parts and labor
Approvals and Certifications	
IC	RSS 139 (RSS 210)
Hazardous Locations – North America	CSA_{US}, suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations (900MHz only) 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
EMC	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

Note: Not all product features are available in every mode of operation.

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Product Data Sheet Trio KR900 | KR240 | KP900 | KP240 | KB900 | KB240
Model Code

	TBURKyxxx-aabbbcde represents the part number matrix
Model	**Model Type**
TBURK	K-Series
Code	**Select: Unit Type**
R	Remote station with full enclosure for panel or DIN rail mounting (DIN rail mounting bracket sold separately)
P	Remote station with compact enclosure for panel or DIN rail mounting (DIN rail clips sold separately)
B	Remote station, board-only version for standoff mounting (standoffs not included)
Code	**Select: Generic Frequency Band**
900	900MHz
240	2.4GHz
Code	**Select: Frequency**
	900MHz Frequency Band
00	License-free band 902 to 928 MHz (FCC/IC)
01	License-free band 915 to 928 MHz (ACMA)
05	License-free band 921 to 928 MHz (New Zealand)
06	License-free band 902 to 907.5MHz and 915 to 928MHz (Brazil)
	2.4 GHz Frequency Band
00	License-free band 2.4GHz, 500mW (FCC/IC/AUS)
01	License-free band 2.4GHz, 100mW (ETSI)
Note: Other frequency bands available upon request.	
Code	**Select: RF Channel Data Rate & Bandwidth (Internal Modem)**
001	32Kbps to 256Kbps
Code	**Select: Encryption (subject to country of use)**
D	No encryption* (standard on all shipments outside of USA, Canada and Australia)
E	Encryption* (standard within USA, Canada and Australia)
Code	**Select: Approvals**
H	CSA Hazardous Environment Class 1, Div 2 (standard on KR900 I KP900 I KB900)
A	ATEX II 3G, Ex nA IIC T4 compliance (standard on KR240 I KP240 I KB240)
Code	**Future Option**
0	None

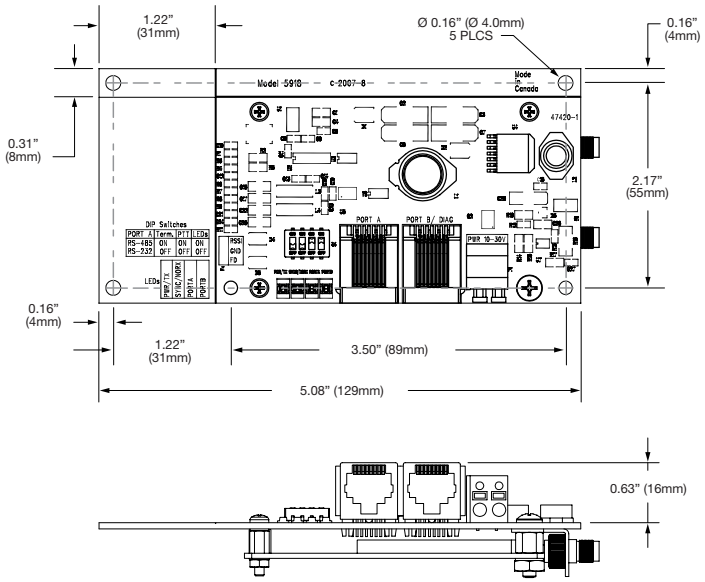
* Export restrictions may apply. Contact factory for details.

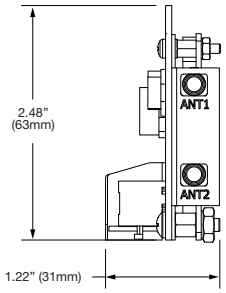
Example: TBURKR900-00001EH0 specifies Trio KR900 Remote Station, License-free band 902 to 928 MHz (FCC/IC), 32kbps to 256kbps, Encryption and CSA Hazardous Area Approved

Communications Standards:
FCC – Federal Communications Commission (USA)
IC – Industry Canada
ETSI – European Telecommunication Standards Institute
ACMA – Australian Communications Authority

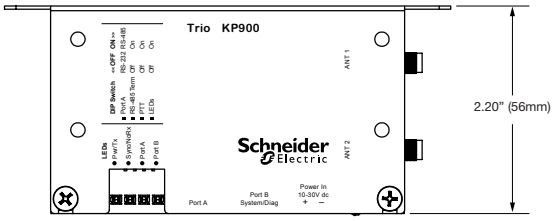
Product Data Sheet Trio KP & KB-Series
Dimensions

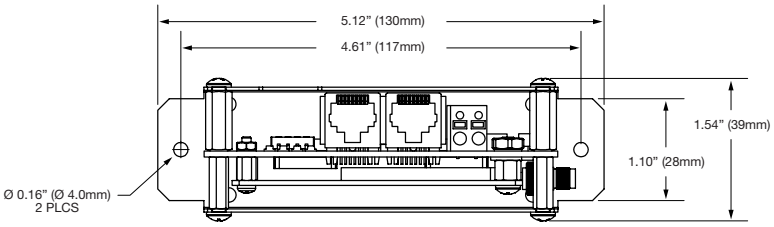
KB900 | KB240 (board only)

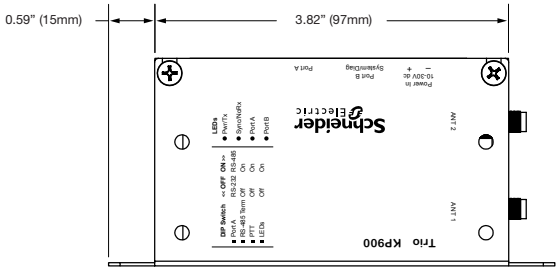




KP900 | KP240 (compact enclosure)

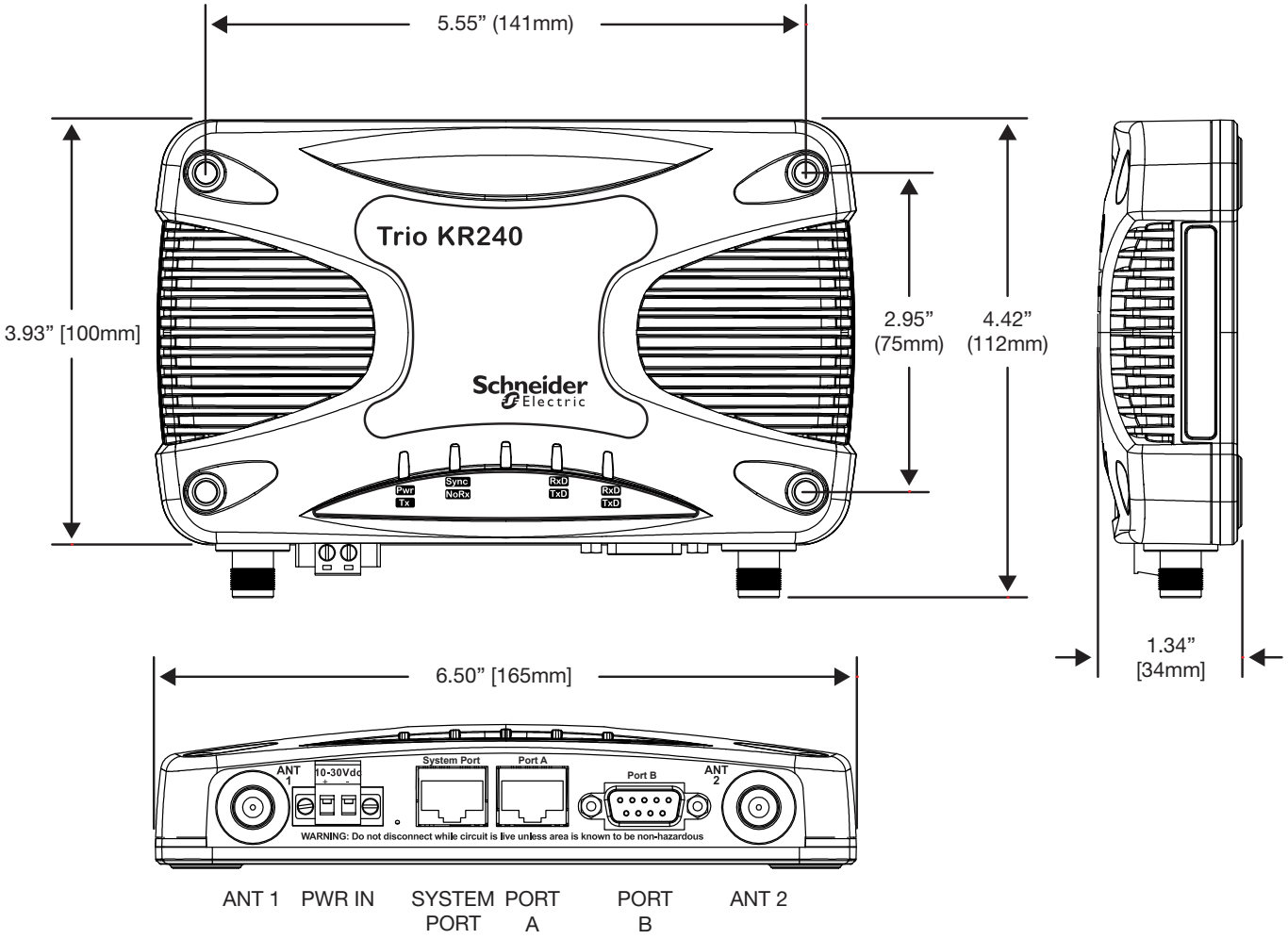






Product Data Sheet Trio KP900 | KP240 | KB900 | KB240
Dimensions

KR900 I KR240



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