

StreamCaster™ 3822

2x2 MIMO Radio — Dual Band

Overview



The SC3822 is the smallest MIMO enabled radio specifically designed for mesh networking in harsh environments. It measures a mere 4.5" x 3.5" x 1.0" in size and delivers connectivity where traditional single antenna radios fail. This radio utilizes the advanced MN-MIMO waveform to enable true self-adaptive ad-hoc mesh networking without any user involvement. The SC3822 automatically self-adapts to deliver data rates as high as 80Mbps UDP across a single link and is fully interoperable with other radios in the StreamCaster family.

The SC3822 boasts a unique band flexible RF section providing dual band capability across a wide range of frequencies, in a highly compact design. A lower band is provided within the range 400 MHz to 2.7 GHz, and an upper band falls between 4 and 6 GHz. Refer to the specifications section for a complete list of supported bands.

Additional SC3822 features include:

- Dramatically reduced form factor in a 2x2 design
- USB support
- Expansion module to add capability such as Bluetooth, WiFi and analog to IP video encoding

The SC3822 transceiver, a stand-alone IP based packet MIMO radio, will surpass the capabilities of traditional SISO (single antenna) solutions and will deliver:

- Connectivity in extreme NLOS (non-line-of-sight) multipath rich environments such as urban canyons and within buildings
- Connectivity under highly mobile conditions on the ground, water, and in the air
- High data throughput rates
- Mesh network (self-forming, or managed)
- GPS and Multicast Support

Compared to conventional single antenna solutions, field trials have validated the benefits of MN-MIMO:

- 4.5x coverage increase in dense urban terrain
- 10x less transmit power for same range and throughput
- 2x increase in LOS range
- 2-4x increase in data rate



Missions Benefitting from the SC3822

The SC3822 is ideal for cost-sensitive applications that require an aggressive form factor with superior communications of voice/video/data in NLOS multipath rich environments such as:

- Broadcast/ENG
- Covert surveillance
- Air-to-air & air-to-ground (manned, or unmanned)
- Urban ops, requiring video links within a building and with units outside the building
- Autonomous convoy
- Ship-to-shore high data rate transfer / comms
- First Responder urban network / relay
- Connectivity within mines / tunnels / caves

Ease of Use

Each transceiver enables bidirectional networking to simplify logistics. As an Ethernet bridge, the SC3822 can be interfaced with countless third party applications, and a multitude of configurations are accessible via web pages within the radio.

The radio comes equipped with the powerful StreamScape™ network management tool that allows for real-time management and control of all radio parameters in the network such as TX power, frequency, channel bandwidth, link adaptation and other parameters.

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Technical Specifications



General

• Waveform	Mobile Networked MIMO (MN-MIMO™)
• Modulation	C-OFDM; BPSK, QPSK, 16-QAM, 64-QAM
• Channel Bandwidth	5 & 20 MHz (1.25*, 2.5*, 10* MHz)
• Encryption	DES Standard, AES 128/256 Optional (FIPS 140-2)
• Frequency Stability	1 PPM over temp -40° - +85° C
• Tuning Step Size	1 KHz
• Data Rates	Max 80 Mbps UDP & 65 Mbps TCP
• MAC Protocols	CSMA, TPMA, TDMA
(Medium Access Control)	
• Error Correction	1/2, 2/3, 3/4, 5/6
• MIMO Diversity	2x2
• MIMO Techniques	Spatial Multiplexing, Space-Time Coding, Eigen Beam Forming
• No. of Spatial Streams	1-2
• No. of Antennas	2
• Total Power Output	10mW – 500mW (variable)

Performance

• Latency	7 ms average
• Sensitivity	Varies with MCS index Maximum = -99 dBm (5 MHz BW, MCS 0)
• Frequency Bands	Dual Band; Bands from 400MHz to 6GHz Available

Ordering Information

There are two mechanical versions of the SC3822: standard and OEM PCB.

Additionally, bands must be specified at time of order in accordance with the table shown under 'Frequency Band Specifics' below. If your band of interest is not listed, please contact your sales person.

Frequency Band Specifics

Please note: this table reflects standard frequency bands available, additional bands are frequently added as demands dictate. If your band of interest is not listed, please contact your sales person. (All bands listed in MHz)

Low Band		High Band	
UHF	400-450 *	C-1 Band	4400-4700
ISM 900	902-928 *	C-2 Band	4700-4994
JTRS	1350-1390	C-3 Band	4900-5275 *
BAS	1980-2200 *	C-4 Band	5727-5852
Federal 'S'	2200-2500		
ISM2400	2400-2500 *		

(*) in development

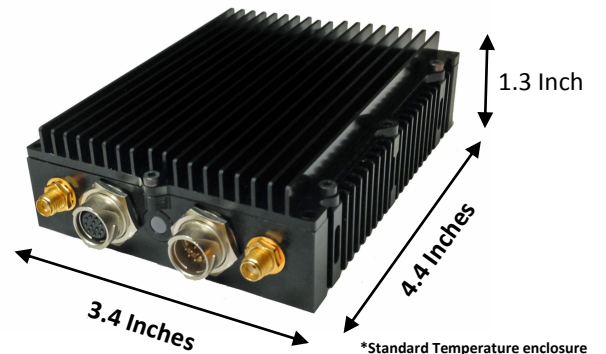
Environmental

	Standard Temperature	Extended Temperature
• Operating Temp.	-40° - +55° C	-40° - +65° C
• IP Rating (Ingress Protection)	IP-67 (Dust / Immersion in water up to 1m)*	*Must have all connectors mated

Mechanical – Chassis

In addition to the physical system package described here, Silvus offers the core board-stack for integration into an OEM product

	Standard Temperature	Extended Temperature
• Dimensions	4.4" x 3.4" x 1.3"	4.4" x 3.4" x 2.0"
• Weight	1.0 Pounds	1.2 Pounds
• Color Options	a. Black anodized b. FED-STD-595B-34094 (Green 383)	
• Mounting	4-hole mounting patterns (Through-hole)	



*Standard Temperature enclosure shown. Extended Temp has height of 2"

Connectors

• RF	SMA (f) (2 each)
• Data / Control	Ethernet (Gigabit for OEM, 100 Base-T for Enclosed), RS232, USB
• Power	Hirose LF Series Circular Connector (Front Panel) Samtec QSH (Expansion)

Controls and Indicators

• Status Indicator	Tri-Color LED
• Web Browser	Center Frequency, Channel Bandwidth, Output Power, MCS Index, Link Distance, Link Adaptation, StreamScape™ Network Management Utility

Power Requirements

• Voltage	9 – 32 VDC
• Consumption	6 W – 16 W (frequency & duty cycle dependent)

Mechanical – OEM Board Stack

• Dimensions	3.3" x 2.9" x 0.5" L x W x H
• Weight	3 oz
• RF Connectors	SMP (m)

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Part Numbering Scheme

