Laird Connectivity

RAMP Line Card

Laird™ CONNECTIVITY

Range Amplified MultiPoint (RAMP™) modules provide the perfect solution for machine-to-machine (M2M) applications where the need is to transmit serial data or sensor data over long distances, wirelessly, with the highest degree of reliability. RAMP modules utilize FHSS technology to provide immunity to interference and multipath in industrial applications. They are capable of operating in a point-to-point or point-to-multipoint network and can support a virtually unlimited number of nodes in a network.

Modules not shown at actual size.

	FHSS MODULES				FHSS PACKAGED SOLUTIONS		
	RM024	AC4490	AC4790	LT1110	CL4490	CL4490-PRO	CL4790
Chipset	TI CC2510	TI CC1010	TI CC1010	TI CC1110	TI CC1010	TI CC1010	TI CC1010
Technology	FHSS	FHSS	FHSS	FHSS	FHSS	FHSS	FHSS
Protocol	Server/Client (P2P & P2MP)	Server/Client (P2P & P2MP)	Masterless (P2P & P2MP)	Server/Client (P2P & P2MP)	Server/Client (P2P & P2MP)	Server/Client (P2P & P2MP)	Masterless (P2P & P2MP)
Physical Interface	SMT or Pluggable	Pluggable	Pluggable	Pluggable	RS232 or RS485	RS232, RS485, and RS422 (configurable)	RS232 or RS485
Frequency	2.4 GHz	915 MHz	915 MHz	915 MHz	915 MHz	915 MHz	915 MHz
Range (Line of Sight)	Up to 4 km (US) Up to 1 km (EU)	Up to 5 km (-200 version) Up to 30 km (-1000 version) *via optional high-gain antenna	Up to 5 km (-200 version) Up to 30 km (-1000 version) *limited by masterless protocol	Up to 5 km *via 2 dBi antenna	Up to 30 km *via optional high-gain antenna	Up to 30 km *via optional high-gain antenna	Up to 30 km *limited by masterless protocol
Size	25.4 x 39 x 3.6 mm (min)	49 x 42 x 5 mm	49 x 42 x 5 mm	25 x 30 x 4 mm	111.76 x 68.58 x 35.56 mm	111.76 x 68.58 x 35.56 mm	111.76 x 68.58 x 35.56 mm
RF Rate	280 kbps/500 kbps	76.8 kbps	76.8 kbps	230 kbps/500 kbps	76.8 kbps	76.8 kbps	76.8 kbps
Output Power	Up to 21 dBm (US) 10 dBm (EU)	Up to 23 dBm (-200 version) Up to 30 dBm (-1000 version)	Up to 23 dBm (-200 version) Up to 30 dBm (-1000 version)	Up to 23 dBm	Up to 30 dBm	Up to 30 dBm	Up to 30 dBm
Receiver Sensitivity	500 kbps -88 dBm 280 kbps -92 dBm FEC 500 kbps -91 dBm FEC 280 kbps -95 dBm	AC4490-1000:-100 dBm AC4490LR-1000: -110 dBm	AC4790-1000: -100 dBm AC4790LR-1000: -110 dBm	-89 dBm	-100 dBm typical	-100 dBm typical	-100 dBm typical
Temp. Range (Operational)	-40° to +85°C	-40 to +80°C	-40 to +80°C	-40 to +80°C	-40 to +80°C	-40 to +80°C	-40 to +80°C
Software	Laird Config and Test Utility	Laird Config and Test Utility	Laird Config and Test Utility	Laird Config and Test Utility	Laird Config and Test Utility	Laird Config and Test Utility	Laird Config and Test Utility
Certifications	FCC, IC, RCM* (125 mW) CE, MIC, KC, NCC, UKCA, RCM* (10 mW)	FCC, IC, RCM*	FCC, IC, RCM*	FCC, IC	FCC, IC, RCM*	FCC, IC, RCM*	FCC, IC, RCM*
Interface Buffer	N/A	256 bytes	256 bytes	N/A	256 bytes ea. (input/output)	1600 bytes ea. (input/output)	256 bytes ea. (input/output)
Supply Voltage	2.3-3.6 V ± 50 mV ripple	200 Variant: VCC: 3.3 – 5.5 V, ±50 mV VPA: 3.3 – 5.5 V, ±50 mV 1000 Variant VCC: 3.3 – 5.5 V ±50 mV VPA: 3.3 ±3%, ±100 mV	200 Variant: VCC: 3.3 – 5.5 V, ±50 mV VPA: 3.3 – 5.5 V, ±50 mV 1000 Variant VCC: 3.3 – 5.5 V ±50 mV VPA: 3.3 ±3%, ±100 mV	2.0-3.6 VDC Logic level matches supply voltage	7-18 VDC 400mA	7-28 VDC 400mA	7-18 VDC 400mA

* Contact Laird Connectivity for Australia / New Zealand authorized purchasing channels for RCM

To learn more, visit lairdconnect.com/ramp

or contact us at sales@lairdconnect.com