



SPEC SHEET

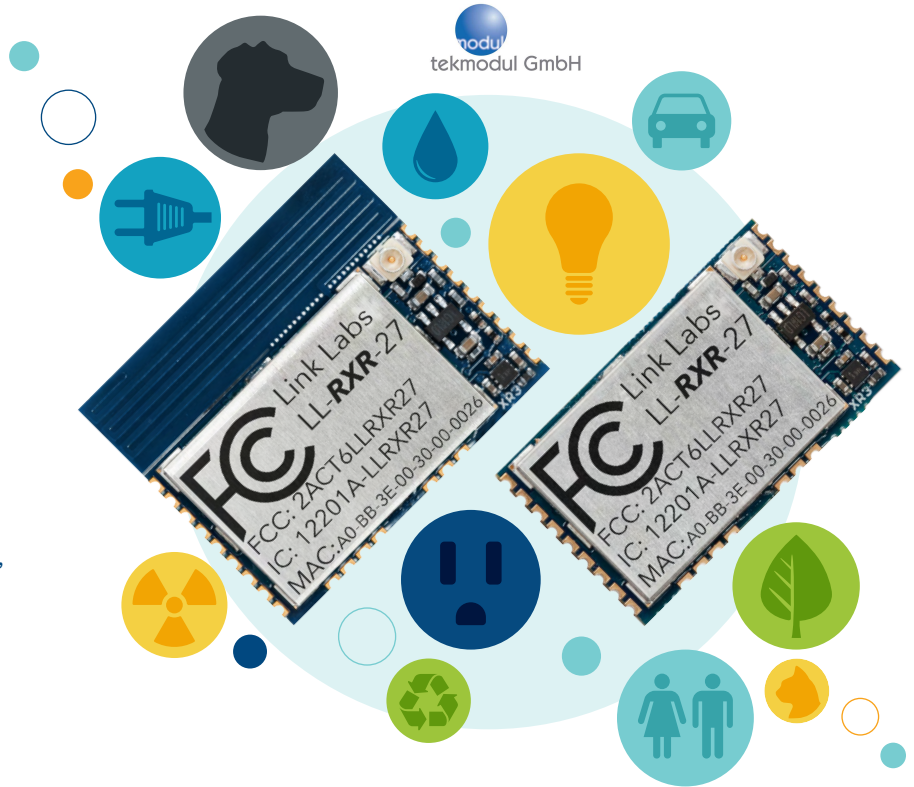
Symphony Module LL-RXR-27

This Symphony Module is a highly-integrated, high power, bi-directional radio transceiver module optimized for use in the 915 MHz ISM and the 868 MHz ETSI frequency bands. The module uses Semtech's LoRa™ modulation to maximize range while minimizing power consumption and interference. The modules use a Renesas chip to provide, not only processing power at the edge for applications, but also the lowest sleep current of any LoRa module to deliver the longest battery life.

Model Numbers

w/ Trace Antenna	w/o Trace Antenna
Symphony Link	
LL-RXR-27-915-SYM-A	LL-RXR-27-915-SYM-B
LL-RXR-27-868-SYM-A	LL-RXR-27-868-SYM-B
LoRaWAN	
LL-RXR-27-915-LRW-A	LL-RXR-27-915-LRW-B
LL-RXR-27-868-LRW-A	LL-RXR-27-868-LRW-B
NoMAC	
LL-RXR-27-915-NOM-A	LL-RXR-27-915-NOM-B
LL-RXR-27-868-NOM-A	LL-RXR-27-868-NOM-B

For ordering, or additional questions:
info.link-labs.com/contact
 +1 (202) 524-1390
 Additional product info:
link-labs.com/symphony-module/
 Warranty and repair info:
link-labs.com/warranty



Communication Protocols	LoRaWAN 1.0; Symphony Link; NoMAC
Interfaces	2 digital I/Os (1 also serves as an analog input); I2C, SPI, UART (Rx, Tx), Renesas FINE interface
Dimensions	24.5 x 29 mm (with trace antenna); 15.8 x 29 mm (without antenna)
Modulation	LoRa Digital Spread Spectrum; FSK (future use)
Frequency	137 – 1020 MHz
MCU	Renesas - R5F51116ADNE#UA
Max Clock	32 MHz
Flash Memory	256 KB
RAM	32 KB
Max. Transmitter Power Output	26 dBm
Max. Receive Sensitivity	-132 dBm (spreading factor 10 – 125 kHz)
Link Budget	158 dB point to multi-point
Maximum EIRP	19.9 dBm (dipole antenna), 15 dBm (trace antenna)
Operating Temperature	-20° to +70°C
Storage Temperature	- 40° to +85°C
EMC Compliance	FCC Part 15 Class B
Radio Compliance	FCC 15.247
Safety Compliance	UL/cUL 60950-1 2nd Ed.

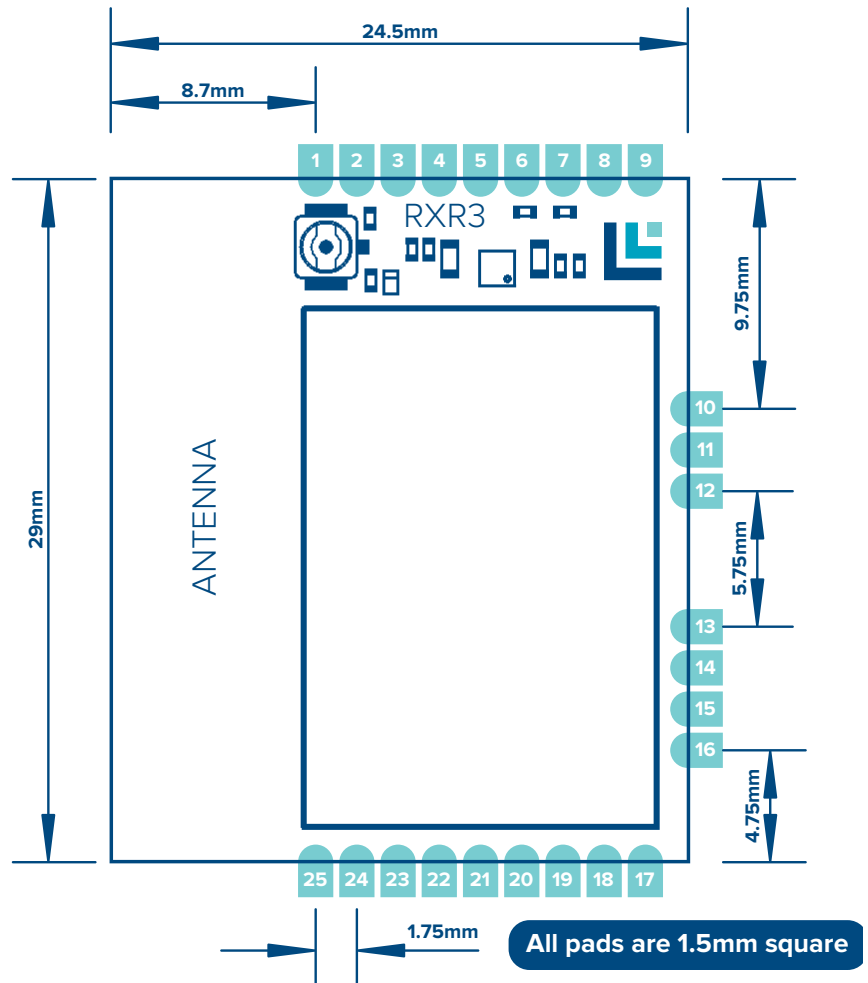


PINOUT

Symphony Module LL-RXR-27

Notes:

1. RF connection is via U.FL connector on upper left side of the module or Pin 2
2. RF output is 50 Ω , DC blocking capacitor not required
3. ALL I/O signals must be 3.3 V. If necessary, pin 4 (3.3 OUT) may be used to supply an off-module level shifter
4. Default UART baud rate is 115,200 8n1
5. If possible, keep area under module free of copper. If not possible, ensure all features are masked.
6. If using VBAT, you must tie LDO_OUT to VCC



Pin #	Name	Type	Description
2	ANT ^{1,2}	RF I/O	RF path if not using U.FL connector
3	VBAT	Input Voltage	Optional unregulated supply voltage 3.5 to 5.5V
4	LDO_OUT ⁵	Output Voltage	Power digital. 3.3V
5	VCC	Input Voltage	Regulated supply voltage. 2.5 - 3.3V
6	MD/FINED	IO	FINE interface
7	nRESET	I	External reset pin, active low
8	HOST_IO0	O	Status message indicator
10	SDA0 ⁶	IO	I ² CO: serial data
11	SCL0 ⁶	IO	I ² CO: serial clock
12	SMISO1/SSCL1 ⁶	IO	SPI1: master in slave out

Pin #	Name	Type	Description
13	SMOSI1/SSDA1 ⁶	IO	SPI1: master out slave in
15	SCK1 ⁶	IO	SPI1: serial clock
17	BOOT	I	NC = Boot normally, GND = Bootloader
18	nSS1 ⁶	IO	SPI1: slave select
19	FINEC	IO	FINE interface
22	Analog Input ⁶	I	0 – VCC
23	HOST_RXIN ⁴	I	UART interface: module Rx
24	HOST_TXOUT ⁴	O	UART interface: module Tx
1, 9, 25	GND	Ground	–
14, 16, 20, 21	Reserved	–	–

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