



**R4 Series  
Master Development System  
Evaluation Module  
User's Guide**

**Wireless made simple®**



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**All RF products are susceptible to RF interference that can prevent communication.** Lack of good sight of the GPS satellites (open sky) can affect the accuracy of a position fix or prevent a fix entirely.

**Do not use any Linx product over the limits in this data guide.**

Excessive voltage or extended operation at the maximum voltage could cause product failure. Exceeding the reflow temperature profile could cause product failure which is not immediately evident.

**Do not make any physical or electrical modifications to any Linx product.** This will void the warranty and regulatory and UL certifications and may cause product failure which is not immediately evident.

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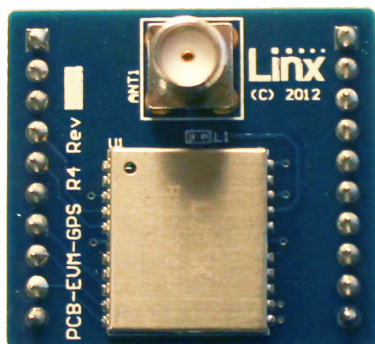


Figure 1: R4 Series Master Development System Evaluation Module

## Introduction

The R4 Series GPS receiver module is a self-contained high-performance GPS receiver with an on-board LNA and SAW filter. Based on the SiRFstar IV chipset, it provides exceptional sensitivity, even in dense foliage and urban canyons. The module's very low power consumption helps maximize runtimes in battery powered applications. With over 200,000 effective correlators, the R4 Series receiver can acquire and track up to 48 satellites simultaneously in just seconds, even at the lowest signal levels. These features, along with the module's standard NMEA data output, make it easy to integrate, even by engineers without previous RF or GPS experience. The Linx R4 Series GPS modules offer a simple, efficient and cost-effective method of adding GPS capabilities to any product.

The Master Development System evaluation module contains the surface mount R4 Series GPS module, SMA connector and a ferrite bead (used to supply power to an external active antenna, such as the Linx SH Series active GPS antenna) on a single board with through-hole headers. This small board makes prototyping with the R4 Series module very easy.

## Ordering Information

| Ordering Information |                                                       |
|----------------------|-------------------------------------------------------|
| Part Number          | Description                                           |
| EVM-GPS-R4           | R4 Series Master Development System Evaluation Module |
| RXM-GPS-R4           | R4 Series GPS Receiver Module                         |

Figure 2: Ordering Information

## Electrical Specifications

| Ordering Information                       |             |      |          |      |              |       |
|--------------------------------------------|-------------|------|----------|------|--------------|-------|
| Parameter                                  | Designation | Min. | Typ.     | Max. | Units        | Notes |
| POWER SUPPLY                               |             |      |          |      |              |       |
| Supply Voltage                             | $V_{CC}$    | 3.0  | 3.3      | 3.6  | VDC          |       |
| Supply Current                             | $I_{CC}$    |      |          |      |              |       |
| Peak                                       |             |      |          | 122  | mA           | 1     |
| Acquisition                                |             |      | 56       |      | mA           | 1     |
| Tracking                                   |             |      | 33       |      | mA           | 1     |
| Hibernate                                  |             |      | 0.43     |      | mA           | 1     |
| Backup Battery Voltage                     | $V_{BAT}$   | 2.0  |          |      | VDC          |       |
| Backup Battery Current                     | $I_{BAT}$   |      | 660      | 830  | $\mu$ A      | 2     |
| 2.85V Output Voltage                       | $V_{OUT}$   |      | $V_{CC}$ |      | VDC          |       |
| 2.85V Output Current                       | $I_{OUT}$   |      | 2        |      | mA           |       |
| ANTENNA PORT                               |             |      |          |      |              |       |
| RF Input Impedance                         | $R_{IN}$    |      | 50       |      | $\Omega$     |       |
| ENVIRONMENTAL                              |             |      |          |      |              |       |
| Operating Temperature Range                |             | -40  |          | +85  | $^{\circ}$ C |       |
| Storage Temperature Range                  |             | -40  |          | +85  | $^{\circ}$ C |       |
| Notes:                                     |             |      |          |      |              |       |
| 1. $V_{CC}$ = 3.3V, without active antenna |             |      |          |      |              |       |
| 2. $V_{CC}$ = 0V                           |             |      |          |      |              |       |

Figure 3: Electrical Specifications



**Warning:** This product incorporates numerous static-sensitive components. Always wear an ESD wrist strap and observe proper ESD handling procedures when working with this device. Failure to observe this precaution may result in module damage or failure.

# Pin Assignments

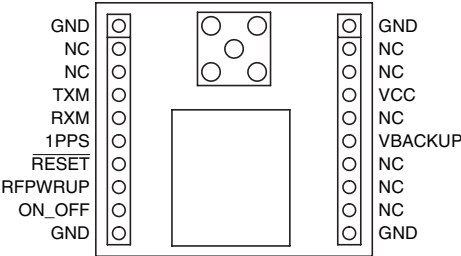


Figure 4: EVM-GPS-R4 Pin Assignments

# PCB Layout

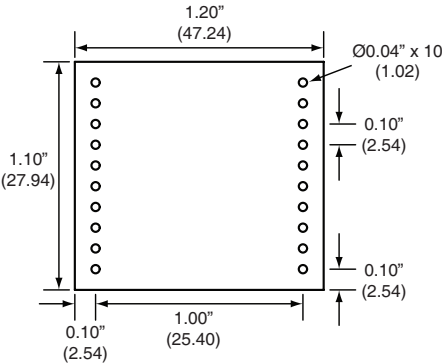


Figure 5: EVM-GPS-R4 PCB Layout Dimensions

# Schematic

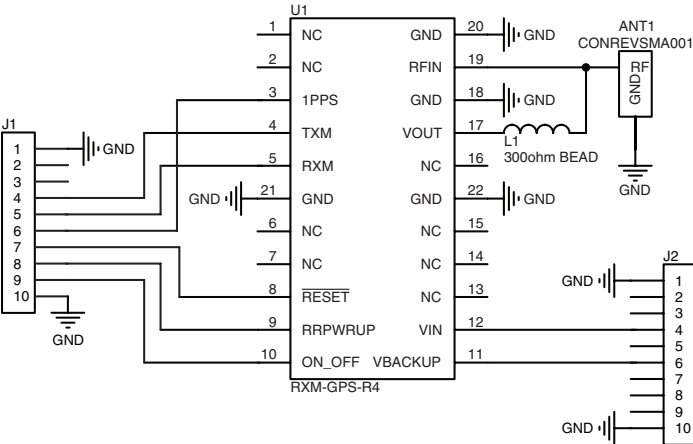


Figure 6: EVM-GPS-R4 Schematic



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