

# RF SENSORS

## Receive Antenna Monitor

### 4046E RX

## Remote RX Monitoring Simplified

The Bird 4046E RX Antenna Monitor provides real-time visibility into receive antenna performance—enabling early detection of degradation without disrupting communications. Installed between the receive antenna and base station, it monitors return loss and alerts users when conditions deviate from defined baselines.

In addition to antenna health monitoring, the 4046E can scan for strong in-band interfering signals (RSSI), helping identify unexpected carriers that may degrade receive performance.

The compact, Ethernet-enabled sensor integrates with SNMP-based systems and can be configured remotely via a built-in web interface. User-defined thresholds, frequency scheduling, and remote firmware updates provide reliable, customizable monitoring in a rugged, field-ready design. When paired with Bird's transmit-side monitoring solutions, the 4046E delivers complete RF system visibility.

### KEY FEATURES & BENEFITS

- **Return Loss Monitoring:** Scheduled, in-line return loss measurements detect antenna/feedline degradation over time.
- **Interference Detection (RSSI):** Standby-mode RSSI scans identify strong in-band interferers; user-set thresholds trigger WebUI/SNMP alarms.
- **Clear, Actionable Data:** Reports real-time results and alarms for quick detection of receive-path issues before performance is affected.
- **Remote Access and Alarm Management:** Integrates with SNMP v2c/v3 and a built-in web interface for remote setup and centralized alarm handling—no site visit required.
- **Flexible Deployment:** User-defined frequency lists, schedules, and thresholds adapt to site needs, with remote updates for easy adjustments.



**RX Monitoring Isn't Optional.  
Visibility Without  
Complexity.**

### APPLICATIONS

- **Public Safety:** Police, fire, EMS, and emergency response
- **Transportation:** Rail, transit, and aviation systems
- **Utilities & Energy:** Substations, smart grid, and SCADA
- **Industrial:** Factory automation and RF-linked operations
- **Telecom & Broadcast:** Base stations and RF infrastructure
- **Military & Government:** Secure, mission-critical RF networks

## SENSOR CHARACTERISTICS

<b>Measurement Type</b>	In-Line, switched reflectometer, single or swept frequency
<b>Frequency Range</b>	101 MHz to 1000 MHz
<b>Return Loss, Measurement Range</b>	-26 dB to 0 dB
<b>Test Signal Output (to antenna)</b>	-10 dBm, nominal
<b>Test Signal Leakage (to radio)</b>	-30 dBm, max
<b>Measurement Duration</b>	250ms per measurement frequency, max.
<b>Test Signal Application Interval</b>	User selectable, time window
<b>Impedance, Nominal</b>	50 Ohms
<b>Insertion Loss, Max</b>	0.7 dB, max
<b>Insertion VSWR</b>	1.3:1, typical
<b>Input power limit for the signal path</b>	Max: 36 dBm (4W) @ VSWR 1:1

## MEASUREMENT CHARACTERISTICS

<b>RSSI, max Signal Level</b>	-10 dBm
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## INTERFERING SIGNAL DETECTOR

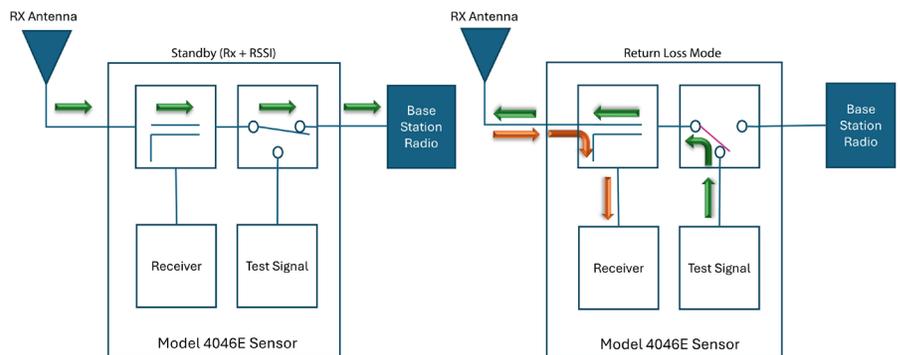
<b>Max. Signal Level</b>	-10 dBm
<b>Frequency Range</b>	101 MHz to 1000 MHz
<b>RSSI, Measurement Bandwidth</b>	25 kHz
<b>RSSI Interference Detection Threshold Level</b>	User selectable from -55 dBm to -35 dBm

## SENSOR SELECTION GUIDE

Model Number	Frequency Range (ff)	Communication Interface (xx)	RX Antenna (IN) (yy)	Radio (OUT) (zz)
4046E-1-ffxx-yyzz	43 = 101 to 1000 MHz	0003 = Ethernet	01 = N(f) 02 = N(m)	01 = N(f) 02 = N(m)

## RF SIGNAL FLOW DIAGRAM

- Standby (RX + RSSI)**  
Inline receive operation; RSSI/interference scans run in this mode (no test-signal injection).
- Active (<1 sec)**  
Briefly switches to inject the test signal and measure return loss, then returns to standby.
- Timing**  
Schedule tests during low-traffic windows for non-intrusive monitoring.



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## SYSTEM

<b>Power Supply</b>	5.5-25 VDC, 3.5 W max, 0.08 in (2 mm) power input. 15V AC adapter included
<b>Indication</b>	Via WebUI display and via SNMP trap

## CONNECTORS

<b>Interface</b>	Ethernet 10/100BASE-T (auto-sense) IEEE 802.3
<b>RF Connectors</b>	N(f), N(m)

## ENVIRONMENTAL

<b>Humidity</b>	95% max, noncondensing
<b>Altitude</b>	15,000 ft (4,572 m) max
<b>Operating Temperature</b>	0 °C to 50 °C (32 °F to 122 °F)
<b>Storage Temperature</b>	-40 °C to 80 °C (-40 °F to 176 °F)

## PHYSICAL

<b>Size (with connectors)</b>	5.4 in x 3.8 in x 1.4 in (137 mm x 97 mm x 36 mm)
<b>Weight</b>	0.6 lb (0.27 kg)

## CERTIFICATIONS

<b>Certifications</b>	CE, ROHS, UKCA
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