

RA-R436 Datasheet

Description

The RA-R436 “reelceiver” is a compact, cost-effective, plug-and-play active RFID transceiver. Reelceivers are connected in a daisy-chain configuration using ubiquitous Cat5e cables with RJ-45 plugs¹ to form a “reel”. Both power and communications are carried via this single cable. The RA-R436 decodes transmissions from broadcasting Bluetooth Smart (BLE) devices, consolidating this information as it is passed up the reel, toward the local or cloud-based server. Different reelceiver models supporting different radio protocols may coexist on the same reel.

Device Photos



← Downlink

Uplink (toward hub) →

¹ These are commonly known as Ethernet cables, however we avoid this misnomer as reelceivers employ a proprietary protocol.

reelyActive

Technical Specifications

Radio

Frequency:	2400MHz ISM band
Modulation:	GFSK (Gaussian Frequency Shift Keying)
Sensitivity:	-94dBm
Bitrate:	1Mbps
Receive-capable:	Yes
Transmit-capable:	Yes, with configurable power

Compliance

Canada:	IC (10707A-RAR42601)
USA:	FCC (QASRA-R426-01)
Europe:	ETSI (EN 300 328 V1.8.1 compliant)

Antenna

Type:	Internal ceramic antenna
Radiation pattern:	Omnidirectional
Peak gain:	0dBi

Reel Communication

Protocol:	RS-422
Maximum distance:	Limited only by DC transmission losses, 100 m or greater reel length: possible with typical power supplies

Connections

Reel uplink:	RJ-45 jack (power and communications)
Reel downlink:	RJ-45 jack (power and communications)



Human Interface

LED: High-brightness, red (630nm) and blue (470nm)
Max viewing angle: Approx. 80 degrees (from centre)

Security and Authentication

Unique identifier: 28-bit plus 36-bit implicit OUI (EUI-64)
Authentication: Challenge-response
Encryption: AES

Sensors

Temperature: -40C to +85C in 0.5C increments, $\pm 4\text{C}$ uncalibrated
Reel voltage: Undervoltage detection

Physical

Dimensions (LxWxH): 77mm x 32mm x 25mm
Weight: 32 g
Material: ABS plastic
Standard colour: White
Custom colours: Contact New Age Enclosures
<http://www.newageenclosures.com/>

Power

Voltage range: 5VDC to 45VDC
Power dissipation: 200mW typical (normal operation)
300mW maximum

Environmental

Temperature: -40C to +85C (Industrial grade)
Outdoor-capable: Yes, with waterproof enclosure (not supplied)

