

# RA-R432 Datasheet

## Description

The RA-R432 “reelceiver” is a compact, cost-effective, plug-and-play active RFID reader. Reelceivers are connected in a daisy-chain configuration using ubiquitous Cat5e cables with RJ-45 plugs<sup>1</sup> to form a “reel”. Both power and communications are carried via this single cable. The RA-R432 decodes RA-T411 reelyActive tags, 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) →

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



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## Technical Specifications

### Radio

Frequency:	915MHz ISM band
Modulation:	GFSK (Gaussian Frequency Shift Keying)
Sensitivity:	-93dBm
Bitrate:	250kbps
Receive-capable:	Yes
Transmit-capable:	Yes, with configurable power

### Compliance

Canada:	IC (compliant, certification pending)
USA:	FCC (compliant, certification pending)

### Antenna

Type:	Internal ceramic antenna
Radiation pattern:	Omnidirectional
Peak gain:	2dBi

### 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 green (570nm)
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, $\pm 4$ C uncalibrated
Reel voltage:	Undervoltage detection
LQI:	Radio link quality indication

## Physical

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

## 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)

