

## Active vs Passive RFID Tags

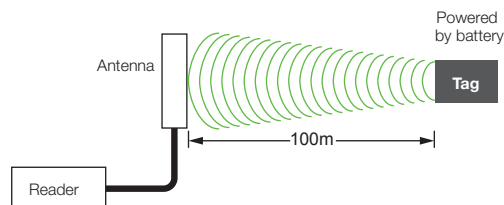
# STRENGTHS AND CHALLENGES OF USING ONE OVER THE OTHER

What is the difference between active and passive RFID tags?

How it works

### Active Tags

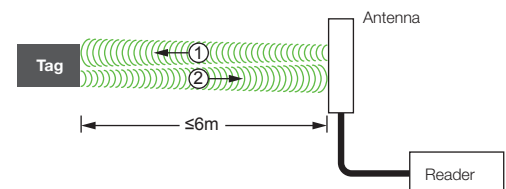
Requires an internal battery to power the tag



Tags “talk” first using the power of the on-board battery.

### VS Passive Tags

Requires energy from the transmitter in order to “wake up” the tag



1 Reader “talks” first and powers the tag.

2 The tag uses power from the antenna to “talk” back.

Strengths

- Long read range, ~100m
- Capable of penetrating liquids and Metal
- Large memory capacity

- Lower cost
- No battery to replace
- Various sizes

Challenges

- Much Higher cost relative to passive tags
- Battery must be replaced every 4 to 8 years
- Relatively large form factor

- Read range is limited to ~6m
- Limited data capacity
- Susceptible to interference

Common applications

### Active System

- Vehicle detection (toll ways)
- Real-time locating
- Evacuation systems
- Container tracking
- Yard inventory management

### Passive System

- Work-in-Process tracking
- Asset/inventory management
- Automated replenishment (E-Kanban)
- Logistics
- Access control