

# TUNNEL MANAGER

POWERED BY

**ACD** SEAMLESS  
RFID  
INTEGRATIONS

Reliable and Easy-to-Integrate  
Middleware for RFID Tunnel Management



# What is Tunnel Manager

Tunnel Manager is middleware for managing RFID tunnels, sitting between the WMS/ERP and tunnel devices (RFID, barcode, etc.). It includes a backend and a web-based UI, typically installed near the tunnel, to configure and administer it. The software enables real-time monitoring of readings, error analysis, and comparison between expected and actual data.

Tunnel Manager

Dashboard

Control Panel

DEVICES

Barcodes

Rfid Readers

Tunnels

EXPECTED MANAGEMENT

Expecteds

Parcels

SETTINGS

Settings

FTP

Cleanup Jobs

WEBHOOKS

Webhooks

USERS

DashboardControl PanelParcels

Home / Control Panel

TUNNEL TOTE 15Active

Barcode Reader: Barcode Tote 15Active

RFID Reader: R700 - Linea 15Active

StartStop

Tunnel Events

| Tunnel         | Parcel             | Quantity | Expected result | Error | Date                | Status |
|----------------|--------------------|----------|-----------------|-------|---------------------|--------|
| TUNNEL TOTE 15 | 001202207040002219 | 45       | OK              |       | 17/04/2025 18:02:25 |        |
| TUNNEL TOTE 15 | 001202209220001444 | 53       | OK              |       | 17/04/2025 18:01:51 |        |
| TUNNEL TOTE 15 | 001202203280000493 | 80       | KO              |       | 17/04/2025 18:01:42 |        |
| TUNNEL TOTE 15 | 001202211160001320 | 18       | OK              |       | 17/04/2025 18:01:32 |        |
| TUNNEL TOTE 15 | 001202207040002219 | 45       | OK              |       | 17/04/2025 18:01:22 |        |
| TUNNEL TOTE 15 | 001202210120001832 | 62       | OK              |       | 17/04/2025 18:01:13 |        |
| TUNNEL TOTE 15 | 001202206090001317 | 15       | OK              |       | 17/04/2025 18:00:50 |        |
| TUNNEL TOTE 15 | 001202301260000264 | 100      | OK              |       | 17/04/2025 18:00:40 |        |
| TUNNEL TOTE 15 | 001202209090002169 | 65       | OK              |       | 17/04/2025 18:00:14 |        |

Tunnel Manager © 2025

# Tunnel Manager covers four fundamental aspects of RFID tunnel management:

## Tunnel Configuration

An RFID tunnel includes readers, antennas, barcode scanners, and GPIOs. Tunnel Manager integrates and controls them all, turning the entire setup into a single logical RFID object that can be easily customized, monitored, and centrally managed

## Data Reading and Management

Once a parcel is identified, Tunnel Manager triggers the RFID reader, collects EPC/TID data, stores it, and applies both business rules and low-level RFID logic for tag communication

## Reading Outcomes

After tag detection, Tunnel Manager manages outcomes dynamically, activating outputs (traffic lights, alarms, actuators) based on user rules. It can distinguish between complete, incomplete, or erroneous parcels and assign specific responses. Collected data can also be exported via Webhooks, FTP, or API

## Event Monitoring

Tunnel Manager offers a centralized interface for real-time monitoring of tunnel activities, with clear visual indicators (OK/KO/Missing) and detailed diagnostics for quick troubleshooting. It can interface with PLCs or WMS and forward logs to external systems for centralized collection

# Key Features

1

## Multi-vendor support

Compatibility with different RFID readers (Impinj, Wirama\*) and any TCP/IP barcode reader, thanks to flexible and modular configuration.

2

## Event-based triggers

RFID reading start/stop based on GPIO signals, barcode scans or timers. Maximum accuracy in synchronizing with parcel transit.

3

## Configurable GPO logic

Activation of output signals (traffic lights, alarms, actuators) based on custom rules, ideal for PLC integration: Expected OK/KO outcomes, missing barcode/RFID, errors, double parcel detection.

4

## Expected data management

Ability to upload expected item lists in CSV or JSON format to automatically verify parcel content.

5

## Secure integration with external systems

Integration with external systems via FTP/SFTP protected by private keys and authenticated Webhooks (OAuth 2.0). Device Manager supports custom JSON mappings to adapt to any data structure. All interactions are fully logged to ensure traceability and security.

6

## Cleanup jobs and maintenance

Automatic database cleanup according to scheduled rules: outdated parcels, sent Webhook events, archived FTP files and more.



## Advantages and Benefits

A powerful set of features designed to optimize RFID tunnel operations for industrial and logistics environments.

### Smart local automation

Autonomous tunnel management with configurable logic, without manual intervention.

### Reduced errors

Automatic Expected vs. Read comparison to validate parcel contents in real time.

### Complete traceability

Logs of readings, errors, exported files, Webhook events, and activated GPOs.

### Easy integration:

Secure bidirectional communication with ERP/MES systems via FTP or REST API.





## Why Tunnel Manager

Tunnel Manager is a professional, robust, and scalable software solution designed for the intelligent management of RFID tunnels in industrial and logistics environments.

### High Performance & Security

Fine-tuned RFID reading with robust access control, key management, and authentication for maximum precision and protection.

### Flexible Integration

Multi-protocol and multi-channel support ensures seamless adaptation to diverse architectures.

### Comprehensive Configurability

Antennas, GPIOs, GPOs, and triggers can be customized to meet specific operational needs.



