

REDYREF Smart RFID Refrigerated Fresh Food Kiosk Technical Deep-Dive & FAQ



How It Works: RFID Technology Explained

The Technology Behind the Experience

Radio Frequency Identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects. In our fresh food fridge, every product contains a small RFID tag that communicates wirelessly with readers inside the unit.



The Complete Process



Restocking

Operators use a handheld scanner to activate RFID-enabled labels and automatically inventory items with the click of a button



Customer Experience

Customers tap their payment card, open the fridge, take what they want, and close the door



Automatic Detection

RFID readers throughout the unit detect exactly which items were removed



Instant Payment

Payment is processed automatically for only the items taken

Why RFID vs. Other Technologies

More reliable than cameras

Works regardless of lighting,

More accurate than weight sensors

Tracks individual items precisely, not affected by package variations

Faster than barcode scanning

No need for customers to scan each item

Proven technology

Used extensively in retail, logistics, and inventory management worldwide

The Result:

A simple refrigerator becomes a secure, automated retail environment that tracks every item, processes payments automatically, and prevents theft—all while providing customers with a frictionless "grab and go" experience.



Security & Reliability Features

Multi-Layer Security System

- Secure Lock Mechanism: Kiosks remain locked during power failures or system shutdowns, ensuring product safety
- Payment Pre-Authorization: Credit cards are authorized before the fridge unlocks, preventing fraud from declined payments
- Transaction Photography: Built-in camera captures each transaction to prevent disputes and theft
- Real-Time Monitoring: 24/7 system monitoring with immediate alerts for any unusual activity
- Tamper Detection: Multiple sensors detect attempts to damage or bypass the system

Operational Reliability

- Temperature Monitoring: Continuous monitoring with health department regulation compliance alerts
- Predictive Maintenance: System alerts prevent issues before they impact operations
- Remote Diagnostics: Most problems can be diagnosed and resolved without site visits

Data Security & Compliance

- PCI DSS Compliant: Secure payment processing meeting industry standards
- Encrypted Transactions: All payment data encrypted during transmission and storage
- Secure Cloud Platform: Enterprise-grade data security and backup systems
- Access Controls: Role-based permissions for different user levels

Business Case & ROI Analysis

1

Revenue Model Breakdown

Typical Performance Metrics:

- Average transaction value: \$6-12
- Daily transactions: 15-50+ (location dependent)
- Monthly revenue potential: \$2,700-18,000+
- Customer satisfaction: 95%+ (grab-and-go convenience)

2

Cost Structure Analysis

One-Time Costs:

- Unit cost: ~\$7,500
- Remote training and setup included

Ongoing Monthly Costs:

- Service fee: ~\$200 (support, cellular, software updates)
- Transaction fees: \$0.28 per sale
- RFID tags: ~\$0.18 per item
- Product costs: 40-60% of retail (typical food service margins)
 - 3rd party merchant services fees not included

ROI Scenarios

High-Traffic Location:

40 transactions/day × \$8 average =
\$7,040/month revenue

Operating costs: ~\$604.80/month
(excluding product costs)

Gross margin before product costs:
86%

Gross margin after product costs:
51% (assumption = product costs
40%)

**Typical payback after product
costs: 2.1 months**

Low-Traffic Location:

15 transactions/day × \$8 average =
\$2,640/month revenue

Operating costs: ~\$351.80/month
(excluding product costs)

Gross margin before product costs:
87%

Gross margin after product costs:
47% (assumption = product costs
40%)

**Typical payback after product
costs: 6 months**

Low-Traffic with Managed Location Fee:

15 transactions/day × \$8 average +
\$600 location fee = \$3,240/month
revenue

Operating costs: ~\$351.80/month
(excluding product costs)

Gross margin before product costs:
89%

Gross margin after product costs:
49% (assumption = product costs
40%)

**Typical payback after product
costs: 4.7 months**

Competitive Advantages

vs. Traditional Vending Machines:

- Fresh, refrigerated food options vs. shelf-stable only
- No mechanical dispensing failures
- Modern user experience with contactless payments
- Real-time inventory management and reporting
- Flexible product sizing not constrained by vending slots

vs. Mini-Markets or Cafeterias:

- 24/7 operation without staffing costs
- Significantly reduced theft and shrinkage
- Minimal space requirements
- No scheduling, benefits, or HR management
- Lower insurance and liability exposure

vs. Basic Smart Refrigerators:

- Proven RFID technology vs. experimental camera systems
- Complete solution with manufacturing, service, and support
- Enterprise-grade reporting and multi-location management
- Established track record with major corporate clients

Technical Specifications

Hardware Components

- Refrigeration Unit: 19.4 cubic ft capacity, commercial-grade refrigeration
- Display: 7" commercial touchscreen with tempered glass
- Computer: Windows 11 IoT embedded system with industrial-grade components
- Payment System: EMV-certified reader supporting swipe, insert, and NFC/tap payments
- RFID System: Multi-antenna setup with complete unit coverage
- Connectivity: LTE cellular (primary) with Ethernet backup capability
- Additional Features: LED lighting, security camera, custom vinyl wrap

Physical Specifications

- Capacity: 80-120 items (varies by product mix)
- Dimensions: Compact footprint suitable for high-traffic indoor areas
- Power: Standard 110V connection, energy-efficient operation
- Temperature Range: 35-70°F (commercial food service standards)
- Construction: Powder-coated steel with tamper-resistant design
- Compliance: UL listed

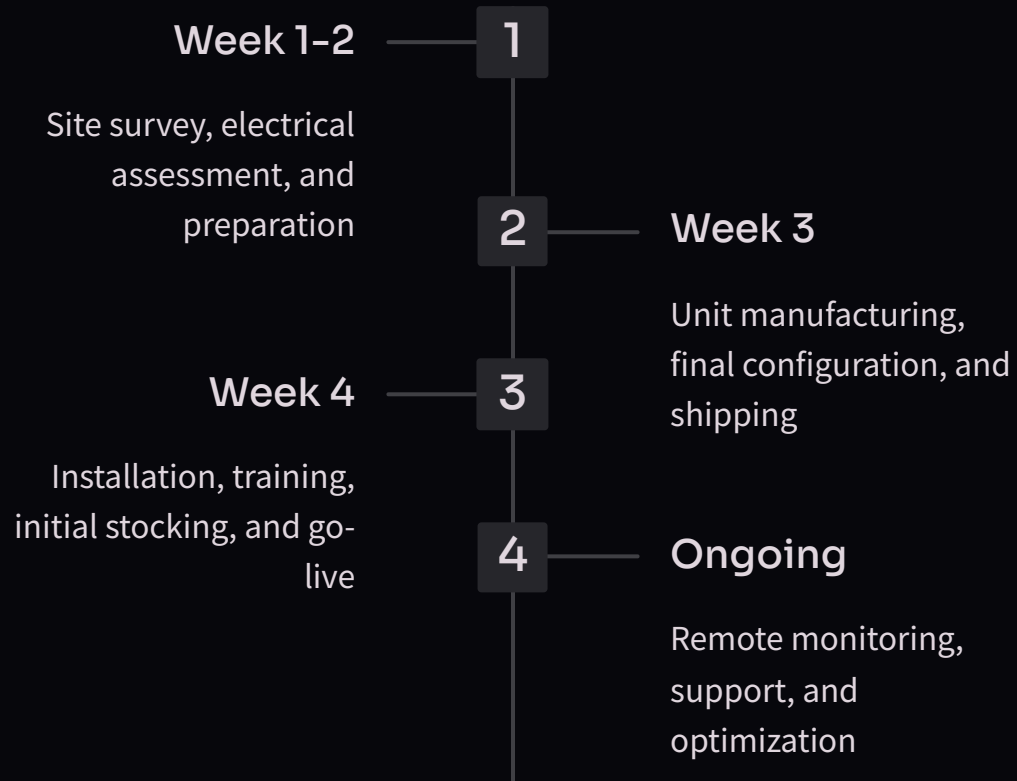


Software Platform

- Cloud-Based Management: Accessible from any internet-connected device
- Real-Time Dashboard: Inventory, sales, alerts, and performance metrics
- Flexible Pricing: Individual product pricing, promotions, discounts, time-based offers
- Multi-Location Support: Centralized management for enterprise deployments
- Reporting & Analytics: Comprehensive sales, inventory, and performance reporting
- Integration Ready: APIs available for POS, inventory, and employee systems

Implementation & Support

Deployment Process



What's Included

- Remote training session for up to 5 staff members
- Comprehensive operations manual and quick-reference materials
- Remote monitoring and technical support
- Software updates and feature enhancements
- Basic troubleshooting and remote problem resolution

Site Requirements

- Electrical: Standard 110V outlet within 6 feet
- Space: 36" door opening for delivery; level floor with adequate door clearance
- Environment: Climate-controlled indoor location
- Access: Sufficient space for restocking and maintenance

Support Structure

- Remote Diagnostics: Most issues resolved without site visits
- Parts Replacement: Shipping with guided installation support
- Technical Support: Phone, email, and remote access during business hours
- Optional Upgrades: Onsite technical labor



Frequently Asked Questions

Investment & ROI Questions

Q: What financing options are available?

A: Our financing partner offers 3-5 year terms with competitive rates, subject to credit approval. We can often accommodate existing equipment financing relationships as well.

Q: How quickly can we expect ROI?

A: Most locations become cash-flow positive within the first month of operation. Full ROI typically occurs within 2-6 months depending on location traffic and product margins. We provide custom ROI modeling for your specific scenario.

Q: Are there any hidden costs?

A: No. The only additional fees are merchant services fees for credit card processing. Our pricing is transparent with no setup fees, activation charges, or surprise costs. The monthly service fee includes cellular connectivity, software updates, technical support, and system monitoring.

Location & Suitability Questions

Q: What makes a good location?

A: High-traffic locations or managed locations where you can charge a monthly fee (\$400-800) work best. Ideal venues include corporate offices, hospitals, universities, hotels, and transit hubs.

Q: Can it work in low-traffic areas?

A: Yes, if you can implement a location management fee to supplement transaction revenue. Many clients use this model for employee convenience in smaller offices or residential communities.

Q: How does it compare to traditional vending?

A: Higher initial investment but significant advantages: fresh food capability, no mechanical failures, modern user experience, real-time management, and flexible product sizing.

Technology & Reliability Questions

Q: How reliable is RFID technology?

A: RFID is proven technology used extensively in retail and logistics. Our multi-antenna system provides redundant coverage, and unlike camera-based systems, RFID works consistently regardless of lighting.

Q: How secure is the payment processing?

A: Fully PCI DSS compliant with encrypted transactions, pre-authorization to prevent fraud, and transaction photography for dispute resolution. Payment data is never stored locally on the unit.

Implementation Questions

Q: How long does installation take?

A: Total timeline is 3-4 weeks from order to go-live. Self-installation by our customers is typically completed within an hour.

Q: What site preparation is needed?

A: Minimal - just a standard electrical outlet within 5 feet of the unit and level floor space. We provide detailed site requirements after initial consultation and handle coordination with your facilities team.

Q: Is training difficult?

A: No. The system is designed for simplicity. We provide remote training for your team, comprehensive documentation, and ongoing support. Most operators are fully comfortable within a few days. We do offer onsite training for an additional fee.

Support & Maintenance Questions

Q: What's included in ongoing support?

A: Remote monitoring, technical support during business hours, software updates, cellular connectivity, and remote problem resolution. Most issues are resolved without site visits.

Q: What about hardware failures?

A: We provide remote diagnostics, parts shipping, and guided installation support. For complex issues, we dispatch certified technicians.

Q: Can we get priority support?

A: Yes. We offer expedited support SLAs with 1 business day response.

Risk Mitigation Questions

Q: Can we start with a pilot program?

A: Absolutely. Many clients start with a single unit to validate performance before expanding.

Q: What if it doesn't work for our location?

A: We work with you to optimize performance through product mix adjustments, pricing strategies, and operational improvements. Relocation assistance is available if needed.

Q: Do you guarantee performance?

A: While we can't guarantee specific sales volumes (they depend on your location and product choices), we do provide extensive support to optimize performance and can build success criteria into agreements.

Next Steps

Ready to move forward with detailed evaluation?

1

Technical Assessment

- Requirements analysis
- Custom ROI modeling with your specific variables
- Integration planning with existing systems
- Detailed implementation timeline

2

Program Design

- Deployment strategy
- Success metrics and evaluation criteria
- Performance monitoring and optimization plan
- Expansion roadmap based on initial results

3

Full Deployment

- Multi-unit rollout planning
- Staff training and change management
- Ongoing optimization and support
- Performance reporting and analysis

Contact our solutions team:

Let's build a detailed implementation plan tailored to your specific requirements and success criteria.

📞 1-800-628-3603

✉ sales@redyref.com

🌐 redyref.com