



Four-Faith



Transforming Factory Warehouses with LoRa®-Powered Intelligent Management

Semtech's LoRa® technology powers Four-Faith's Smart Warehouse Solution, replacing manual processes with precise material tracking, real-time environmental monitoring, and automated safety alerting — delivering efficiency, accuracy, and safety across the manufacturing warehouse floor.

QUICKFACTS

Company

Xiamen Four-Faith Communication Technology Co., Ltd.

www.four-faith.com

Customer Profile

Four-Faith is a global high-tech enterprise and leading LPWAN solutions provider, leveraging Semtech's LoRa® technology across 100+ countries and 20+ industries including electronics manufacturing, automotive, medical devices, and smart buildings.

Objectives

- Automate material tracking and reduce manual labor
- Sync real-time inventory data with ERP systems
- Continuously monitor environmental conditions
- Deliver immediate safety alerts for environmental anomalies
- Enable intelligent warehouse management without wired infrastructure

Results

- 40–50% reduction in material search time
- ~20% reduction in material management costs
- 99%+ inventory accuracy with real-time ERP sync
- Fully automated inbound and outbound operations
- Real-time multi-parameter environmental monitoring and safety alerting
- Intelligent electronic shelf labels with auto power control
- Deployed across electronics, automotive, and medical device manufacturing

Products and Services

- Semtech's [LoRa Connect™](#) SX1262



INTRODUCTION

As industrial IoT continues to reshape manufacturing, digital factory transformation has become an essential strategy for enterprises seeking to strengthen their competitive edge. At the heart of every factory's production chain lies the warehouse the critical hub connecting raw material procurement, production processing, and finished goods delivery. How efficiently a warehouse operates directly determines an enterprise's overall production rhythm, cost structure, and customer satisfaction.



Four-Faith, a globally leading LoRa® technology solutions provider, developed its Smart Warehouse Solution in response to the deep operational pain points of industrial warehousing. By placing LoRa® at the core of a full-chain architecture integrating intelligent terminals, electronic shelf labels, multi-dimensional sensors, and cloud-based management platforms. Four-Faith delivers a comprehensive solution that transforms traditional, manual-dependent warehouse operations into a digitalized, automated, and intelligent system built for the demands of modern manufacturing.



CHALLENGE

Traditional factory warehouses face four deeply entrenched operational challenges that LoRa® technology is uniquely positioned to solve.

The first is heavy reliance on manual labor. With large volumes of diverse materials moving in and out frequently, manual recording processes lead to low efficiency, frequent errors, and unreliable data accuracy creating a chronic drag on warehouse throughput.

The second is disorganized inventory management. Inaccurate data leads to poor decision-making, inventory buildup, and inefficient space utilization driving up costs and wasting resources across the production chain.

The third is uncontrolled environmental risk. Fluctuations in temperature, humidity, and gas concentration in warehouse environments can cause raw material deterioration, equipment failure, and serious safety incidents risks that manual inspection schedules are too slow and too infrequent to adequately address.

The fourth is information disconnection. Warehouse systems operating in isolation from ERP and production platforms result in delayed inbound and outbound data updates, undermining operational coordination and impacting customer delivery performance.

What all four challenges share is a need for reliable, low-power, wide-area wireless connectivity that can reach every shelf, every sensor, and every corner of a complex industrial facility — without the cost and disruption of running cables through active warehouse and production environments. That is precisely where LoRa® technology delivers.



SOLUTION

Four-Faith's Smart Warehouse Solution is built on LoRa® as its communication foundation, constructing a full-chain system across four integrated layers: perception, network, platform, and operations management.

At the perception layer, FTL500 LoRa Shelf Label Terminals are deployed across warehouse shelving to enable precise material location and real-time shelf status visibility. FST100 LoRa Temperature and Humidity Sensor Terminals and FST200 LoRa Multi-Sensor Terminals are distributed throughout the facility to continuously collect data on temperature, humidity, gas concentration, water immersion, and pressure covering warehouses, SMT process refrigerators, equipment rooms, workshops, and waste storage areas.

At the network layer, the F8926-L LoRa Industrial Indoor Gateway establishes a stable, secure wireless communication backbone across the entire facility. LoRa®'s long-range, deep-penetration characteristics allow a single gateway to support multi-node access across complex warehouse layouts including areas where Wi-Fi signals are weak and cellular coverage is unreliable without requiring any cable infrastructure on the warehouse floor.

At the platform layer, the Four-Faith Sensor Cloud Platform and Warehouse Management Platform aggregate all sensor data and synchronize it in real time with the enterprise ERP system. When the ERP issues a picking or replenishment task, the target shelf's LoRa terminal immediately activates the corresponding shelf indicator light and electronic shelf label, guiding staff directly to the correct location. Operators confirm via PDA barcode scan, and inbound/outbound information updates instantly across all connected systems forming a complete, automated management loop.





At the operations layer, the Four-Faith Cloud Device Management Platform enables remote configuration, batch firmware upgrades, fault alerting, and log management across all deployed LoRa® nodes eliminating the need for on-site technician visits and reducing ongoing maintenance overhead.



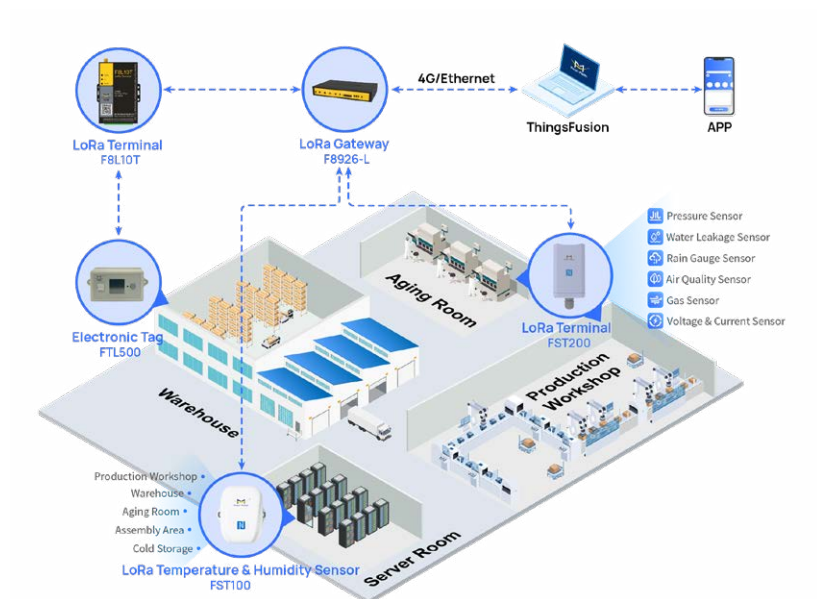
BENEFITS

- **LoRa® as the Low-Power Wireless Backbone for the Entire Warehouse**

LoRa®'s long-range, deep-penetration communication capability allows a single F8926-L Industrial Indoor Gateway to cover an entire warehouse facility through shelving, walls, and challenging indoor RF environments supporting hundreds of terminals simultaneously. This eliminates the need for dense Wi-Fi access points or costly cabling, making enterprise-wide intelligent warehouse coverage commercially viable even in large, complex facilities.

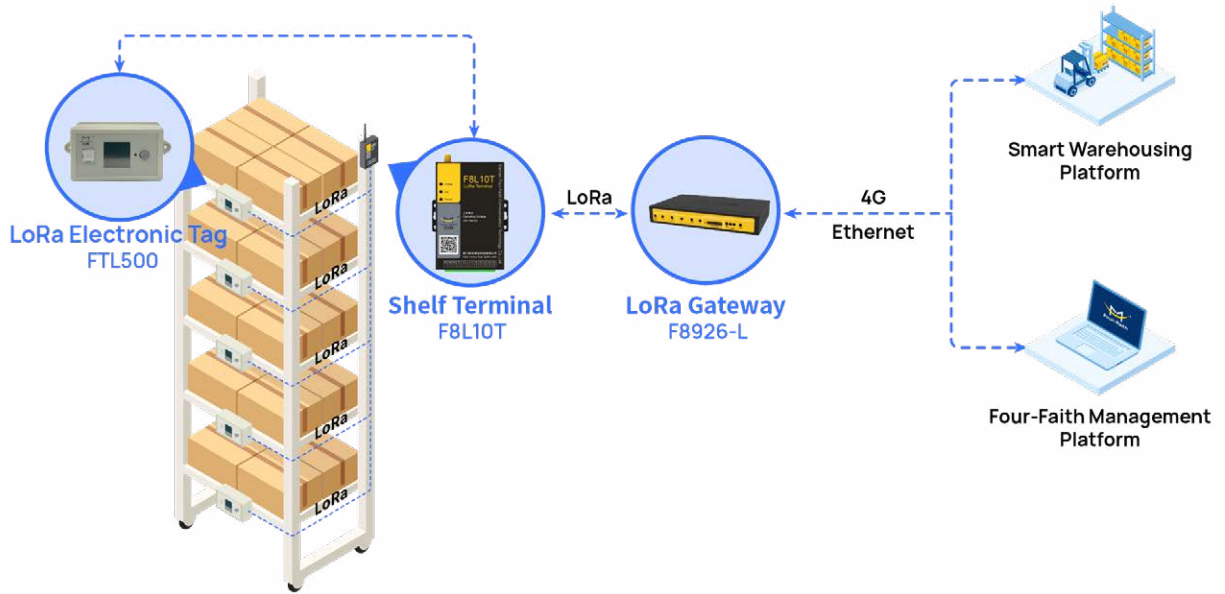
- **40–50% Reduction in Material Search Time**

LoRa®-enabled shelf terminals and electronic labels guide operators precisely to target locations, replacing manual search with automated, light-guided picking. Inbound and outbound operations are fully automated and synchronized with ERP in real time, significantly reducing labor intervention and human error.





- **99%+ Inventory Accuracy with Real-Time ERP Synchronization**
With every material movement captured and transmitted over LoRa® to the warehouse management platform and ERP, inventory data is always current and accurate supporting reliable decision-making, eliminating stock discrepancies, and enabling lean resource optimization.
- **Continuous Multi-Parameter Environmental Monitoring**
High-precision FST100 and FST200 LoRa® sensor terminals monitor temperature, humidity, gas concentration, smoke, water immersion, and pressure in real time across all critical facility areas. Anomalies trigger immediate platform alerts, enabling rapid response before environmental risks escalate into material losses or safety incidents.
- **Comprehensive Safety Alerting Across All Critical Zones**
In workshops, waste storage rooms, aging rooms, and other high-risk areas, LoRa®-connected smoke detectors and gas analyzers transmit continuous safety data to the platform. Automated anomaly detection and instant alerting allows personnel to identify and resolve hazards promptly protecting both people and assets.
- **Approximately 20% Reduction in Material Management Costs**
Remote, automated equipment operations and maintenance via the Four-Faith Cloud Device Management Platform reduce labor and product that competing BT, Wi-Fi, Zigbee, and FSK solutions cannot easily match on range and power efficiency. This positions Yueyueniao to defend and grow its market share even as domestic competitors continue to advance on cost.



About Semtech

Semtech Corporation (Nasdaq: SMTC) is a leading provider of high-performance semiconductors powering AI data center networking, IoT connectivity and intelligent connected devices worldwide. Our global teams are committed to empowering solution architects and application developers to develop breakthrough products for the infrastructure, industrial and consumer markets.

To learn more about Semtech technology, visit us at [Semtech.com](https://www.semtech.com) or follow us on [LinkedIn](#) or [X](#).

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