• Manufacturing Operations

• Warehouse Operations

• Supply Chain Operations

• In-Transit Visibility

• Store Operations

• Field Service

Intermec RFID Readers

Meeting the scalable RFID challenge.

Intermec

How To Determine Which Reader is Right For You

Not all readers are created equal, and for good reason. The application, along with the information demands of your enterprise data systems, plays the biggest roles in determining the type of reader you need.

Your application may dictate the use of a sophisticated RFID reader capable of controlling peripheral devices based on data read from the tag, or you may need to attach your RFID reader to a separate local server or a programmable logic controller for local decision making.

The questions below have "either/or" options that can help you determine whether you need a simple reader or a smart reader.

1. Will filtering of redundant tag data need to be performed at the reader level **(smart)** or by a server or host **(simple)**?

2. Are Industrial PCs or PLCs currently used **(simple)** or will local decision making need to be handled by the reader **(smart)**?

3. Do you need integration of business processes at the point of activity to minimize RFID integration without disruption to existing business process and backend systems **(smart)**. Or, are you modifying your backend system to accommodate new RFID business processes **(simple)**?

4. Will manipulating the tag data format need to be performed at the reader level **(smart)** or by a server or host **(simple)**?

Readers: Simple versus Smart

With a primary function of collecting and passing on tag data, simple readers rely on a host system "up stream" for decision making. In deployments with access to a reliable, secure internal network, simple readers like the IF2 Network Reader may be the "smarter", most cost effective approach for passing RFID data onto middleware or other network applications. However, smart readers like the IF61 Enterprise Reader can solve some critical requirements and improve the RFID solution's ROI in certain deployment models.

Applications requiring storage of data at the reader for added performance and an additional layer of reliability
Most networked RFID applications are dependent on a reliable network to immediately pass the tag data to another network application to complete the transaction. In many industrial or harsh environments, network availability is inherently poor. Smart readers have the capability to store and forward the data either at specified intervals or once the network is restored. Additionally, a smart reader can be used for a fully closed-loop solution without the need to connect the reader to the enterprise network. Such a solution is not only cost effective, but processing the data right on the reader reduces or eliminates network security requirements and concerns.

Process Control applications requiring transaction processing close to the read points
An important metric in many applications is transactions-per-second. RFID readers are not only expected to communicate with multiple tags nearly simultaneously, but the system solution needs to react to the incoming data and process a full transaction with nearly the same performance as reading the raw tag data. Many transactions, such as those that include database authentication, require little or no latency in order to complete a response to the immediate tags being read, such as notifying an operator that a person or item has not been validated to pass the RFID check point. A smart reader with intelligence at the edge of the network may have advantages for such mission-critical applications.

Cost-effective, scalable multiple reader deployments
A simple reader provides a cost effective solution when a local controller or network host is part of the solution. The low price per performance of a simple reader improves the ROI and enables scalable deployments. Smart readers can host distributed applications, empowering customers to deploy RFID without an expensive, stand-alone middleware computer or separate controller device for each RFID reader or each physical location. To maximize the complete RFID solution's ROI, a smart reader can be used as a processing hub for simple RFID readers that do not have edge processing capabilities.

RFID Reader Options by Application

Application	70 Series RFID	IP30	IF61	IF2	IV7
Conveyor Item and case-level			•	•	
Dock Door or Portal Case and pallet-level			•	•	
Stretch Wrap Station Item and case-level, pallet association			•	•	
Overhead Reading Bulky single items and pallets-level			•	•	
Handheld Reading Item, case and pallet-level	•	•			
Forklift / Vehicle Mounted Case and pallet-level, location	•				•

RFID Reader Feature Comparison

Feature	70 Series RFID	IP30	IF61	IF2	IV7
Linux platform for Java, JavaScript, C#.NET and VB.NET applications	•		•		
Intermec Basic Reader Interface (BRI) support		•	•	•	•
EPC LLRP support			•	•	
Intermec Advanced RFID Extensions (ARX) Support			•	•	•
Additional memory options	•		•		
Wi-Fi (802.11) fixed reader option or on handheld computer	•	•	•		
Wireless WAN (cellular) option on handheld computer		•			
Ethernet support			•	•	
Power over Ethernet (PoE)				•	
Serial (RS-232) API support				•	•
Internal power supply			•		•
4 antenna ports			•	•	•
Bi-static antenna operation				•	
Forklift mounting option					•
Integrated feature of handheld computer	•				
Handheld computer snap-on	•	•			
Multi-regional options	•	•	•	•	•

Intermec RFID Readers

IF61 Enterprise RFID Reader

The Intermec™ IF61 Enterprise Reader is the most powerful combination of reader and network appliance for running RFID applications, delivering faster processing at the edge of the network and faster decision making at the point of activity. Applications written in Java, JavaScript, VB.NET, or C#.NET can run on the IF61 enabling it to filter, store and manipulate information from tags and send to a server in a required format. In addition, it can monitor external sensors and control audible and visual indicators without the expense, and potential additional point of failure, of a separate server.

Typical Applications: Dock door scanning and overhead scanning in supply chain management for retail operations, consumer goods and industrial manufacturing, and logistics.

Specifications
Dimensions: 12.74" L x 4.25" H x 8.9" W
(32.4 x 10.8 x 22.6 cm)
Operating Temperature:-13° F to 131° F (-25°C to 55°C)
Frequency Ranges: 865 or 915 MHz band
Connectivity: Ethernet 10/100 BaseT,
optional 802.11a/b/g Tag Air Interfaces EPCglobal UHF Gen 2, ISO 18000-6B, ISO 18000-6C
Certifications: Multiple regions
Environmental Protection: IP54
Shock and Vibration Protection: Meets or exceeds MIL-PRF-28800F, Class 2

IF2 Network RFID Reader

The IF2 is a compact, cost-effective network reader designed to support diverse passive UHF RFID applications in both enterprise and industrial environments. The IF2 supports Power over Ethernet, four mono- or bi-static RF ports, built-in powered general purpose input output (GPIO) control, and both standards-based LLRP and Intermec's easy to use Basic Radio Interface (BRI) application interfaces, enabling scalable low-cost deployments for improved return on investment (ROI). The IF2 is packaged in a durable enclosure for nearly any environment and is factory configured to operate in regions across the globe.

Typical Applications: Conveyor scanning, stretch wrap stations, work-in process monitoring in supply chain management for retail operations, industrial manufacturing, and logistics.

Specifications
Dimensions: 7.36" L x 1.70" H x 6.42" W x 1.70" H
(18.7 x 4.3 x 16.3 cm)
Operating Temperature:
-4 to 122° F (-20 to 50°C)
Frequency Ranges: 865 or 915 MHz band
Tag Air Interfaces EPCglobal UHF Gen 2,
ISO 18000-6B, ISO 18000-6C
Connectivity: 10/100 BaseT Ethernet, RS-232, USB OTG for configuration, PoE (803.2at) compliant
Certifications: Multiple regions
Environmental Protection: IP53

70 Series RFID

The Intermec 70 Series RFID is the no-compromise, next generation family of ultra-rugged mobile computers that add passive UHF reading to the already impressive feature set of 70 Series devices.

Adding RFID capability to 70 Series mobile computers has not come at the expense of size and weight. A fully integrated design utilizing Intermec's IM11 embedded module—along with an internally housed antenna—enables advanced RFID read performance while maintaining the already-compact form factor of the 70 Series. The result is a fully integrated mobile platform that meets or exceeds typical RFID read range requirements, in a design that is more compact and comfortable to use than competing devices.

Typical Applications: Retail (store operations and item level inventory), healthcare (asset management), heavy industrial and heavy asset (oil and gas equipment, cylinder/container/vehicle) tracking, government (asset and inventory management)

Specifications
CN70 RFID Specifications
Dimensions: 6.65" L x 3.15" W x 1.34" D
(16.9 x 8.0 x 3.4 cm)
Weight: 450 g (15.9 oz) with battery

CN70e RFID Specifications
Dimensions: 7.66" L x 3.15" W x 1.34" D
(19.5 x 8.0 x 3.4 cm)
Weight: 491 g (17.3 oz) with battery

CK70 RFID Specifications
Dimensions: 9.33" L x 3.16" W x 1.69" D
(23.7 x 8.0 x 4.3 cm)
Weight: 562 g (19 oz) with battery

Shared Specifications
Operating Temperature: -4F° F to +140° F
(-20° C to +60° C)
Frequency Range: 902-928 MHz (US/Canada) or 865-868 MHz (EU)
Connectivity: 802.11 a/b/g/n Dual Band WLAN, Integrated Bluetooth®
Certifications: Multiple regions
Antenna: Internal, orientation insensitive
Environmental Protection: IP67
Drop Specification: 8 ft. (2.4 m) to concrete across operating temperature range per MIL-STD 810G

IP30 Handheld RFID Reader

The Intermec IP30 add-on passive UHF RFID handle is a cost-effective, compact, EPCglobal-certified solution for adding mobile RFID read/write capability to Intermec's latest generation of mobile computers including the 70 Series, CN4/CN4e, CN3/CN3e, and CK3B/CK3X. The modularity of the IP30 and the RFID-readiness of the Intermec mobile computers mean the power of RFID can be literally added in a snap today or at any point in the future to support in-premises and in-field applications such as warehouse operations, enterprise asset management, retail and enterprise inventory management, field service, and exception handling.

Typical Applications: Mobile RFID scanning for both in-premise and in-field applications.

Specifications
Weight without handheld computer: 430 g with battery (0.95 lbs)
Weight with CN3 or CN4: 860 g with battery (1.90 lbs)
Weight with CN70 and CK3B: 880 g with battery (1.94 lbs)
Weight with CN70e: 921 g with battery (2.03 lbs)
Weight with CK3X: 929 g with battery (2.05 lbs)
Weight with CK70: 992 g with battery (2.19 lbs)
Weight with CK71: 1.01 kg with battery (2.24 lbs)
Operating Temperature: 5° F to 122° F (-15° C to 50° C)
Frequency Ranges: 865 or 915 MHz band
Air Interface: EPCglobal UHF Gen 2, ISO 18000-6B, ISO 18000-6C
Connectivity: Bluetooth or USB connection to mobile computer (computer dependent)
Certifications: Multiple regions
Antenna Polarity: Linear
Environmental Protection: IP64 compliant

IV7 Vehicle Mount RFID Reader

Specifically created for mobile mount applications, the IV7 is designed for bolt-in attachment to a forklift backrest and serial attachment to the Intermec CV30 or CV60 vehicle mount computers. Built to withstand the rigors of harsh industrial environments and sealed to IP65 ratings, the IV7 delivers the flexibility of "read where you need" and a cost advantage over portal reader systems wherever the number of dock doors is larger than the number of fork trucks.

Typical Applications: Pick and put-away, cross-docking, shipping and receiving.

Specifications
Dimensions: 13.75"L x 3.75"H x 9.3"L (34.9 x 9.5 x 23.6 cm)
Operating Temperature: -13°F to 131°F (-25°C to 55°C)
Frequency Ranges: 865 or 915 MHz band
Connectivity: 802.11b/g to network via the CV30, CV41, or CV61 Fixed Mount Computer, RS-232 connection to computer
Tag Air Interfaces: EPCglobal UHF Gen 2, ISO 18000-6B, ISO 18000-6C
Certifications: Multiple regions
Environmental Protection: IP65
Shock and Vibration Protection: Meets or exceeds MIL STD 810F

RFIDeploy^{SM} Services for Assured RFID Success

- Feasibility Analysis
- Process Analysis
- Site Analysis
- Site Installation

Even with standards, RFID is nothing close to being a plug-and-play technology. Many enterprises lack the expertise on staff to handle system design and implementation or to anticipate the complexities and consequences of the decisions to be made. With years of experience installing complete RFID systems around the world, Intermec is committed to working with companies to make sure each implementation of RFID technology is successful, today and tomorrow.

The long-term value, return on investment and total cost of ownership of an RFID system are all heavily dependent on the initial process design and implementation decisions. A solid business case, appropriate system architecture, and equipment that is optimized to satisfy both will provide the foundation of a successful project. Engaging Intermec RFIDeploy^{SM} Services early in the process increases the chances for success. The use of professionals also helps avoid roadblocks that can prolong implementation and undermine ROI.

Intermec's RFIDeploy Services help customers by evaluating RFID technology and integrating it seamlessly into their business processes. RFIDeploy is a suite of consultative and site engineering services that combine together to accomplish a fully integrated RFID system implementation by virtue of an inter-service feedback process.

These services—Feasibility Analysis, Process Analysis, Site Analysis, and Site Installation—support the end user with a level of confidence in his RFID-related business decisions derived through proof of concept. The process is completed when the Site Installation tests out the performance level of the system against success criteria specified in the Process Analysis and confirmed during the Site Analysis. When RFIDeploy services are engaged, performance of the RFID system is guaranteed to meet the criteria for success established in the Process Analysis for 18 months after hand off to the end user.

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