Compliance Statement Insert

Device Name: RFID Reader Module **Model Number: Model IM5**

The responsible party for the compliance of this device is:

Intermec Technologies Corporation
6001 36th Avenue West
Everett, WA 98203 USA
(425) 348-2600

This product conforms to the following approvals. The user(s) of this product are cautioned to use accessories and peripherals approved by Intermec Technologies Corporation. The use of accessories other than those recommended, or changes to this product that are not approved by Intermec Technologies Corporation, may void the compliance of this product and may result in the loss of the users authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Digital Emissions Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the radio or television receiving antenna.
- Increase the separation between the computer equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the radio or television receiver is connected.
- Consult the dealer or an experienced radio television technician for help.

Canadian Digital Apparatus Compliance

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

WARNING: Per the FCC and Canada radio frequency (RF) exposure requirements,

(1) Antennas must be supplied and installed as recommended by Intermec Technologies Corporation to insure compliance to RF exposure requirements. The antennas approved for use are sold by Interme. Correct antenna mounting is fully described within the Intermec IM5 Users Guide.

(2) When installing and using Intermec approved remote antennas associated the RFID tag reader, a 23-cm (9-inch) passing distance must be maintained from any body part of the user or nearby persons and the remote antenna. The antenna must not be touched during transmitter operation.

(3) Cables attached to the remote antennas must have a minimum length as provided from Intermec to insure the proper losses to control RF exposure.

(4) RF safety requirements mandate this device cannot be co-located with other transmitters.

This radio is approved as a "module." Therefore, the unit can be placed within any enclosure for use. As an approved module, the following restrictions apply:

1. **The module must use the Intermec-approved antennas.**
2. **The unit must display "Contains TX FCC ID: EHA-xxxxxxx" with xxxxxx designating the FCC ID of the IM5 module, per the labeling requirements of Parts 2 and 15 of the FCC rules.**
3. **The power supply used with the module must be the Intermec unit tested with the module or the integrator must verify that their supply meets the FCC class B emissions limits when used with this module.**
4. **Integrators are responsible for insuring that the unintentional emissions of the resulting system meets the requirements of Part 15 of the FCC rules.**

If any system integrator wishes to make changes, use their own antennas, or change the FCC ID, they will have to follow Parts 2 and 15 of the FCC rules for changes to a radio with module approval. Any changes to Intermec approved equipment will require proper notification to the FCC.

Intermec

Quick Start Guide

IF4 915 MHz Reader

Packing List

Check to ensure that you receive these items:

- Intermec® IF4 915 MHz Reader
- Compliance Insert
- Warranty Card

Host Communication

Host communication comes through the 9-pin female D-sub connector. RS-232 standards are supported as ordered from the factory or service center.

- The maximum data rate is 115.2K baud, with 8 data bits, no parity bit, and 1 stop bit.
- The maximum RS-232 distance from the reader to the host, modem, or other physical controller interface is 50 feet (15.2 meters).

RS-232 Connections

Pin Number	Definition
2	TXD (Transmit Data) to the host
3	RXD (Receive Data) from the host
5	Ground
7	CTS (Clear to Send) from the host
8	RTS (Request to Send) to the host

Power Requirements

Power comes in from 8 to 10 volts DC. Your 915 MHz Reader uses less than 2.4 amps. Intermec supplies 9 volts DC at 2.4 amps from Intermec power supply, p/n: 851-067-002.

User I/O

A general purpose I/O (Input/Output) connector provides signal lines in and out of the reader allowing monitoring and/or control of external devices or functions.

The connector for this is a 13-pin female circular DIN. The mating male connector you need for mating with this is an Intermec p/n: 351-184-001.

I/O Pin-outs

Pin Number	Definition
1	GPIO IN0
2	GPIO IN1
3	GPIO IN2
4	GPIO IN3
5	GPIO OUT0
6	GPIO OUT1
7	GPIO OUT2
8	GPIO OUT3
9 through 13	Ground through individual 10 ohm resistors

Outputs and inputs have 12 volt transient suppression devices to ground at the connector. Output signals are driven by 2N3904 NPN transistors (low level) with a 100 kohm pull-up to +5 volts through a silicon diode, giving about a 4.3 volt high level. An output can be pulled high from an external source as high as 12 volts. This will however tend to pull the other outputs higher (through two 100k resistors). The low level will be about 0.1 volt up to about 30 mA. The output low voltage will climb higher as the sink current increases. There is no protection on this. You need to ensure that their load won't require the reader to sink more than 50 mA.

Input signals should be 0 to +1.5 volt for a low input and +3.5 to +5 volts for a high input. Each input has a 1.1 kohm resistor in series with clamping diodes, but only about 1 μA is used until the input exceeds the 0 to +5 volt input range. There is also a weak (100 kohm) pull-up to +5 volt on each input.

Connecting and Getting Started

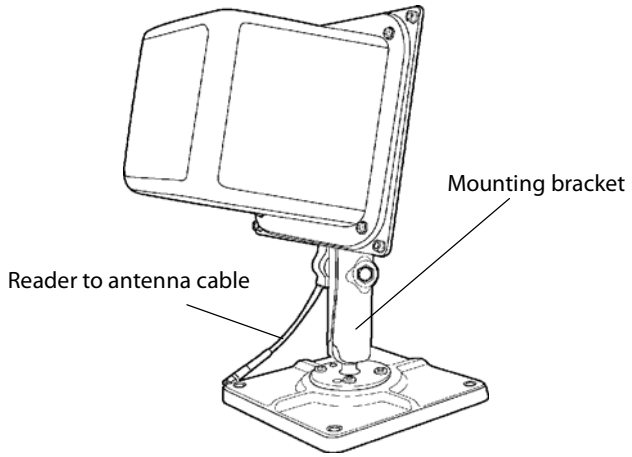
Warning

FCC and Industry Canada regulations limit exposure to radiofrequency (RF) radiation. To comply with these regulations, operators of this device must maintain a distance of at least 23 cm. (9 inches) from the cover on the antenna assembly (The cover on the antenna is the dome shaped surface). While the device is on, the operator's body and parts of the body such as eyes, hands, or head, must be 23 cm. (9 inches) or farther from the cover of the antenna assembly.

FCC and Industry Canada regulations also require that the antenna assembly of this device be installed in accordance with the installation procedures to allow the operator to comply with the limit. Use of antennas and accessories not authorized may void the compliance of this product and may result in RF exposures beyond the limits established for this equipment.

Antenna Installation

Ensure that you read the above warning before installing the antennas and using your Reader product.



1 Review the locations where the Reader products are placed. Ensure that you have carefully considered the safe distances for product placement for workers and any other personnel that may get in the RF path.

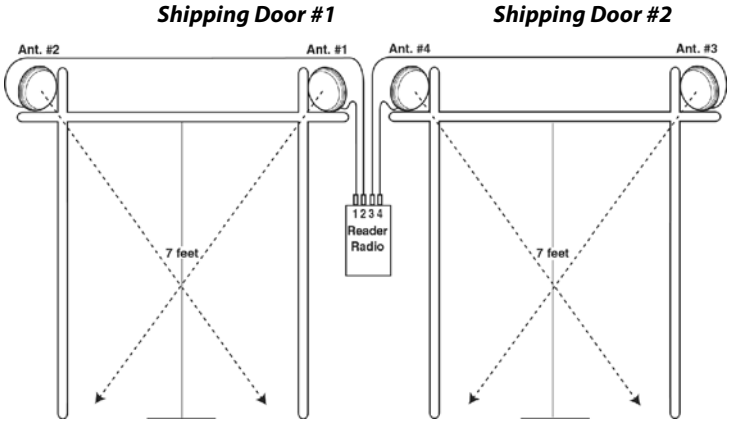
2 Mount the antenna.

3 Attach the antenna to one of the four antenna ports on the back of the Reader.

The following illustration is an example of a typical Reader installation.

Example: Shipping Dock Door, showing two antennas at each shipping door. Two antennas in a crossing pattern provide angular diversity to improve read capability when tag orientation is unknown.

While the device is on, the operator's body and parts of the body such as eyes, hands, or head, must be 23 cm. (9 inches) or farther from the cover of the antenna assembly.



A single antenna in a portal may be sufficient in applications where there is a known tag orientation.

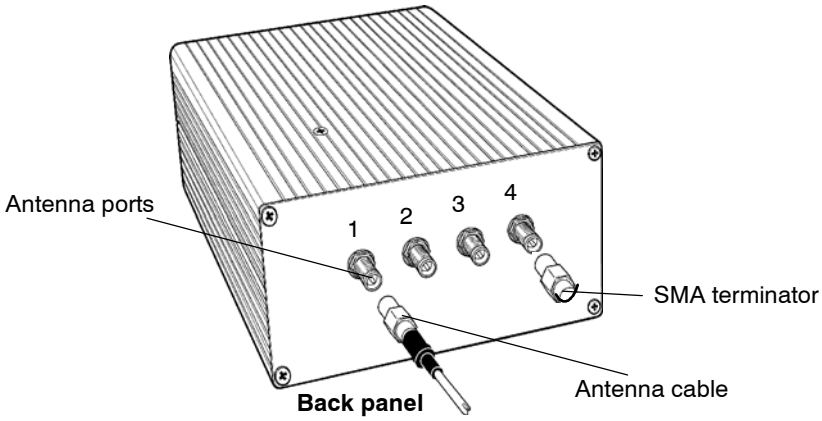
Connecting the Antenna to the Reader

1 Connect the antenna cable to a port.

2 Connect a reverse polarity SMA terminator (Intermec p/n 345-004-001) to any port that does not have an antenna attached.

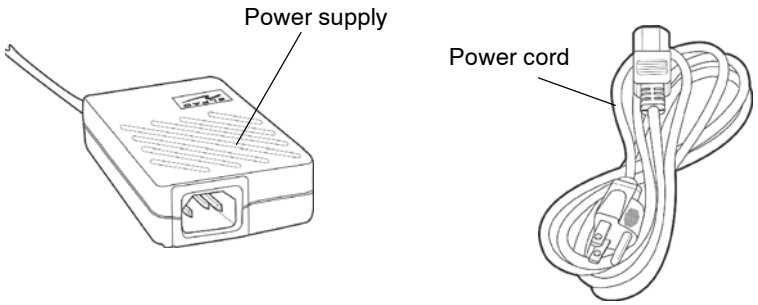
Caution

Each port must have either an antenna or a terminator connected. Do not apply power to the Reader unless an antenna cable or terminator is installed on each antenna port.

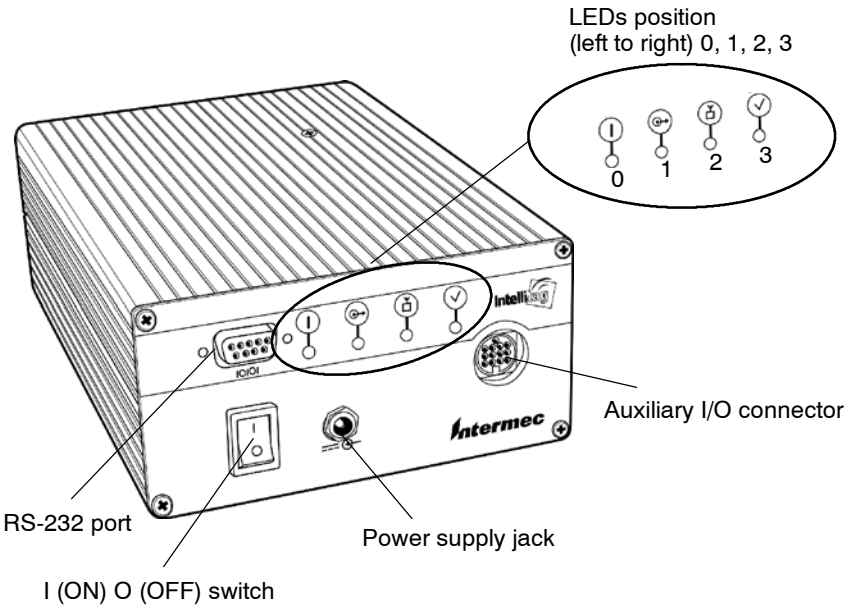


3 Connect the Reader to a power source using power supply p/n 851-067-002 and country dependent AC power cord.

4 Turn on your reader.



5 Review the front panel LEDs to become familiar with the status indications you will receive from your Reader.



Reader LED Explanation

LED	Meaning
0	Power On
1	Reader communicating with host, LED flashes as data transfer occurs.
2	Reader searching for tags
3	Reader communicating with a tag, LED flashes as transfer occurs.

Troubleshooting

Troubleshooting

Doesn't Recognize Tag
1. Ensure antenna is properly connected. 2. Ensure reader is connected to your computer. 3. Ensure computer is plugged into AC outlet and computer is On. 4. Ensure tag is within range of antenna. 5. Call Intermec Technical Support 1-800-755-5505 (option 2).

Product Specifications

Dependent upon operating conditions and demands expected. If used in a normal office environment with good read conditions, you could expect to read up to 60 tags per second. Tags located too far away or in poor locations, with respect to interfering objects, provides poor results.

Firmware Architecture

Firmware	Spec Detail
Protocol/Compatibility	Communicates in three modes: Application Peripheral Interface (API) and Basic Reader Interface (BRI). ANSI CCITS 256.2000 for API, part 2, part 3-1

General Specifications

Receiver	Spec Detail
Protocol	ISO 180006B
Tag data rates	32 kbps
Transmitter	**Spec Detail**
Protocol	ISO 180006B
Transmitter type	On/Off Keying
Frequency stability	<± 100 ppm from -25° to +55°C
RF Antenna Connections	**Spec Detail**
Number of antennas	up to 4, electronically switched
Antenna port isolation	≥22 dB

General Specifications (continued)

Physical Specifications	Spec Detail
Size	8.25 in. x 5.30 in. x 2.9 in.
Weight	38.4 oz. (1.1 kg)
Frequency reference Source	**Spec Detail**
Frequency of operation	902-928 MHz
Usable channels	50
Transmitter	**Spec Detail**
Output power	1.00 Watt maximum
Occupied frequency bandwidth	<250 KHz

Environmental Specifications

Temperature	Spec Detail
Operating	-4°F to +131°F (-20°C to +55°C)
Storage	-31°F to +158°F (-35°C to +70°C)
Humidity	**Spec Detail**
Operating	95% Relative

Overall Performance

Dispatch Rates	Spec Detail
RFID tag identification rate	60 tags per second
RFID tag data exchange rates	Read a tag containing 8 bytes of data within 12 mS. Perform a verified write to a tag at an average rate of 31 mS per byte per tag.
Write Range	**Spec Detail**
Write range	Distances up to 70% of the read distance under the same conditions.

Reliability

Safety and Regulatory Approvals	Spec Detail
Reader module	US/C UL recognized component TÜV Bauart approval CB Report for international product safety.
Serial Reader	US/C UL Listed TÜV Bauart approval CB Report for international product safety.
Electromagnetic Compatibility	**Spec Detail**
Serial Reader	EN55022 (CISPR 22) Class B digital emissions EN55024 Immunity EN61000-3-2, -3 AC Power Harmonic Emissions and Flicker
Radio Frequency Device Approval	**Spec Detail**
Serial Reader	FCC Part 15.247 Industry Canada RRS 210

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at http://www.intermec.com and click **Service & Support**. The Intermec Global Sales & Service page appears. From the **Service & Support** menu, move your pointer over **Support**, and then click **Warranty**.

Web Support

Visit the Intermec web site at http://www.intermec.com to download our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at http://intermec.custhelp.com to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec Technologies Corporation.

Service	Description	In the U.S.A. and Canada call 1-800-755-5505 and choose this option
Factory Repair and On-site Repair	Request a return authorization number for authorized service center repair, or request an on-site repair technician.	1
Technical Support	Get technical support on your Intermec product.	2
Service Contract Status	Inquire about an existing contract, renew a contract, or ask invoicing questions.	3
Schedule Site Surveys or Installations	Schedule a site survey, or request a product or system installation.	4
Ordering Products	Talk to sales administration, place an order, or check the status of your order.	5

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **Contact**.

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