

*INfinity 510*



# *INfinity 510*

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**F**requently  
**A**sked  
**Q**uestions

# Preface

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This document provides a list of those common Frequently Asked Questions related to the *INfinity* 510.

# Performance Questions

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## How fast can the reader read a tag?

The terminology of “read a tag” can be interpreted in a few different ways, and some interpretations lead to an artificial representation of the system performance. Sirit feels that a good metric for performance is the singulation rate.

Singulation is the process of identifying a specific tag, as represented by its EPC ID or UID, in the reader’s field of view. A tag must be singulated prior to accessing any data on that tag other than the EPC ID or UID, which can be determined during the singulation process itself.

Singulation rates are dependent on a number of variables such as the number of tags in the field of view, the configuration settings for the specific protocol, the overall configuration settings of the reader, and the local RF environment.

When configured appropriately, the INfinity 510 can achieve singulation rates with a single Gen2 tag of approximately 530 tags per second in single interrogator mode, singulation rates of 200 tags per second in FCC Dense mode and singulation rates of 220 tags per second in ETSI Dense mode. Singulation rates of approximately 200 tags per second in FCC Dense mode and 220 tags per second in ETSI Dense mode are typical for a multi-tag population of 48 Gen2 tags.

## How fast can the reader write a tag?

There are several factors which combine to determine the amount of time consumed to write to a tag. These factors include the command processing overhead, the time needed to singulate a tag (all tags must first be singulated prior to performing a write action), whether the request is targeted for the first tag found or a specific tag, and the actual protocol specific write action.

The protocol specific write action duration is dependent on many factors including the amount of data being written, the silicon implementation in the tag, the options utilized in the write request (lock, verify, secure access), the configuration settings for the specific protocol, the overall configuration settings of the reader, and the local RF environment.

When configured appropriately, the Infinity 510 can write 16 bits of data to user memory on the first Gen2 tag found, based on the Impinj silicon, in the open state and without locking or read verify cycle in approximately 25 milliseconds, from when receiving the request to sending the command response. Actual protocol encode time is less than this.

# Installations and Cabling Questions

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## What are the configuration settings for communicating over the serial port?

Serial ports should be configured as follows:

- Bits Per Second: 115200
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

## Why can I not communicate with the reader using my USB-Serial connector?

Some USB-Serial connectors do not work well with HyperTerm. Try connecting to an integrated serial port on your host computer. Or, try using TeraTerm Pro as a terminal emulator.

## Where can I get the DIO connector?

The DIO connector is a Phoenix Contact PN 1881422 and can be obtained from Digi-Key with PN 277-1440-ND.

## What is the best setup for Portal installations?

The INfinity 510 provides several high level configuration settings which are used to optimize the reader performance for a particular application. For Portal applications, best performance will be attained with the configuration variable **setup.install\_type** equal to **Portal** and **setup.tag\_volume** equal to the approximate number of tags presented to the reader.

## What is the best setup for Conveyor installations?

The INfinity 510 provides several high level configuration settings which are used to optimize the reader performance for a particular application. For conveyor applications, best performance will be attained with the configuration variable **setup.install\_type** equal to **Conveyor** and **setup.tag\_volume** equal to the approximate number of tags presented to the reader.

## What antennas can I use with the reader?

The INfinity 510 is compatible with any antenna that has a 50-ohm input impedance. Use of antennas with a VSWR above 1.5 can result in reduced performance. The INfinity510 has (4) RP-TNC connectors.

## How long does the reader transmit on a given antenna?

When inventorying for tags the INfinity 510 will complete an entire inventory cycle on a single antenna and then evaluate which antenna to use for the next inventory cycle.

When executing a specific tag operation, the user has the option of specifying the use of a particular antenna for the operation. If no antenna is specified in the command request, the reader will attempt execution of the command on each antenna configured for use until the command executes successfully, or all antennae have been tried without successful command completion.

## Can I change the amount of time the reader spends on an antenna?

Operations can be weighted or biased to a specific antenna or antennas via the configuration variable **antennas.mux\_sequence**.

A mux\_sequence of **1 2 3 4** will result in equal usage of all 4 antennas.

A mux\_sequence of **1 1 2 2 3 4** will result in twice the usage of antennas 1 and 2 relative to antennas 3 and 4.

# Hardware Questions

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## **What happens when the reader gets too hot?**

The INfinity 510 is rated for operation up to 60C. The 510 constantly monitors its internal temperature and if the internal temperature exceeds a preset threshold, the reader will turn off the RF interface in order to reduce power consumption and as a result heat generation.

## **Is there an IP rated version of the reader?**

No, the INfinity 510 does not currently have an IP rating.

## **Is the reader made for use in outside applications?**

No, the INfinity 510 is not designed to be placed directly outdoors without some kind of protective enclosure.

## **Is there an industrial grade power connector?**

No, the INfinity 510 does not currently have an industrial grade power connector.

## **What are the dimensions of the reader?**

The INfinity 510 reader is  
11 13/16" (300mm) X 8 11/16" (220mm) X 2 3/16" (56mm).

The mounting tabs increase the overall length to 13.5" (342.9mm).

The dimensions to the center of the holes in the mounting tabs are  
12 15/32" (316mm) X 6 3/16" (157.2mm).

## **The reader feels very hot to the touch, is this normal?**

The INfinity 510 is designed to efficiently dissipate heat energy via its housing. It is perfectly normal to notice a difference between the housing temperature and the surrounding air temperature. When operating at the extremes of the operational range, the housing can become very hot. Under normal room temperature conditions the housing can feel very warm to the touch but will never get hot enough to cause harm.

# General Questions

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## Why did the Fault LED come on?

The Fault LED is illuminated whenever the INfinity 510 encounters a condition that has or still is interrupting operation of the reader. The reader level log will contain an entry describing the error condition.

This log can be viewed via the reader web pages at <http://<the reader's IP address>/status/viewlogs.html>.

## Can the user passwords be changed?

Yes. The command `reader.set_pwd` can be used by an **admin** user to modify the **guest** or **admin** user passwords. A **guest** user can only modify the "guest" password.





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