

Maximum Distance Between RFID Reader and Tag

Purpose: This application note demonstrates that the magnetic field of the MagneMoverLITE puck does not interfere with a specific RFID reader and explains the maximum distance the reader could be installed away from the RFID tag to communicate successfully.

Introduction

In this application a Datalogic Automation C0405-232-01 RFID reader was used. This reader complies with the limits of a Class B digital device with a built in antenna and communicates back using an RS-232.

Be aware that RFID devices can be negatively affected by the presence of metallic objects near its RF field. Avoid mounting the C0405 within **5cm (2 inches)** of metallic surfaces.

The RFID tag used was Allen-Bradley 56RF-TG-OTC2K 2 Kbytes read/write. This is an industrial RFID reusable tag that consist of at least one RFID transceiver connected to the control and information system with a network or backplane interface.

The RFID transceiver and RFID tag communicate via low energy radio waves transmitted by the transceiver. When the passive RFID tag is powered up by the transceiver's transmissions the tag responds with the information stored in its memory. Typical read is 0.4 ms/byte and write is + 5ms/byte.

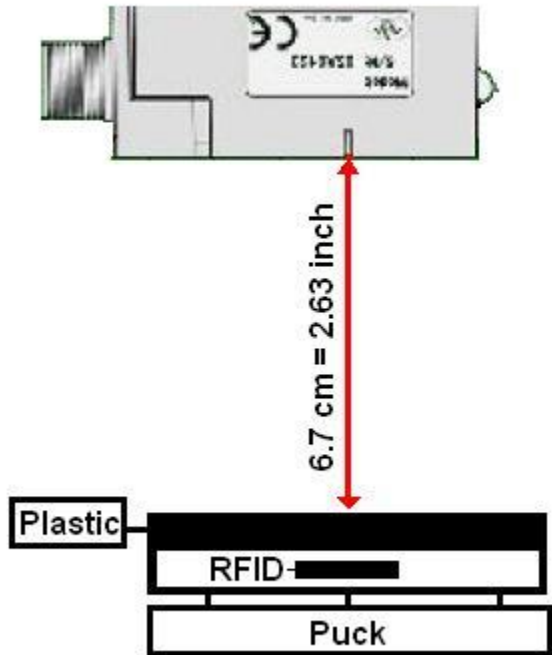
For information about installing and running the device please check the website below.
www.ems-rfid.com

Results

Below is a picture of a MagneMover lite puck being held in position after arriving at a commanded destination. The MagneMover LITE motor module is energized to hold the puck in place. The RFID reader read the tag successfully and there was no interference from the magnetic field.

The maximum distance that the reader could successfully read the tag was of 6.7 cm = 2.63 inch away from the tag. This included glass and plastic components in between the reader and the tag.

The setup used for these measurements was limited in distance and location. There are two ways to mount the reader/tag. The first one is as shown below having the reader on top of the puck and the tag under the black holder; the second is having the tag installed on the side of the holder and the reader parallel to it.



Summary

The magnetic field of the puck and energized motor does not affect the ability of the Data logic RFID reader to read the Allen Bradley RFID tag. Results may vary if using a different RFID reader or RFID tag.

More Information

MagneMotion website: www.magnemotion.com

Questions & Comments: <http://www.magnemotion.com/about-magnemotion/contact.cfm>
