

RFID Reader - Model # TR-001-44

User Guide

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Introduction

The RFID Reader is a compact module designed for use within a host device for short range reading of high frequency (HF) tags. The module consists of a radio module, loop antenna, and a UART host interface on a single footprint of 40 mm x 40 mm x 6.5 mm.

Figure 1 RFID Reader - Model # TR-001-44

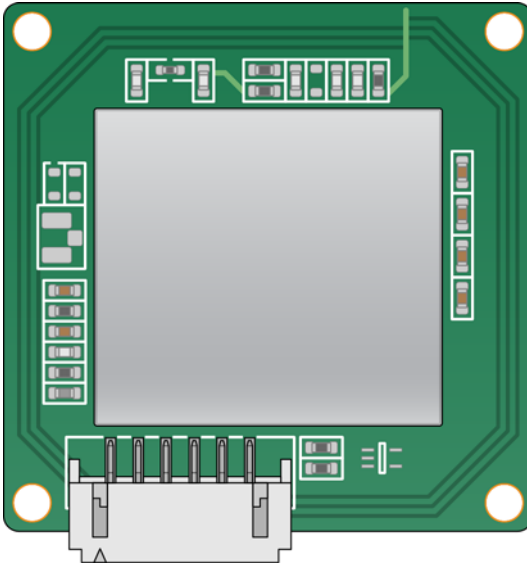


Figure 2 Host UART Interface Connections

J2	1	VCC
	2	TX
	3	RX
	4	RTS
	5	CTS
	6	Gnd

Specifications

Power Specification	Value
Input Voltage	2.7–5.5 VDC
Supply Current	120 mA

Environmental Specification	Value
Operating Temperature	0°C to 35°C (32°F to 95°F)
Storage Temperature	-20°C to 85°C (-4°F to 185°F)

Radio Frequency (RF) Specification	Value
RF Operating Frequency	13.56 MHz
RF Output Power	200 mW

FCC Compliance

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.
- 2 This device must accept any interference received, including interference that may cause undesired operation.



NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.



CAUTION

Modifications to this unit not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.



NOTE

The antennas used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Host Device Labeling

If the RFID Reader is not visible when installed in the host device, the host device must include one of the following exterior labels:

- ▶ Contains Transmitter Module FCC ID: ZWF-TR00144
- ▶ Contains FCC ID: ZWF-TR00144

Human Exposure to Radio Frequency

This equipment complies with maximum permissible exposure (MPE) limits for the general population per Title 47 CFR § 1.1310 Table 1.

This equipment complies with the limitations of human exposure to electromagnetic fields (EMFs) for devices operating within the frequency range 0 Hz to 10 GHz used in radio frequency identification (RFID) within an occupational or professional environment per EN 50364:2001 sections 4.0.

IC Compliance

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

This device complies with Industry Canada licence-exempt RSS standards. Operation is subject to the following two conditions:

- 1 This device may not cause interference.
- 2 This device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter (IC ID: 9859A-TR00144) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Conformité IC

Le dispositif numérique Classe A répond à toutes les exigences des Règlements canadiens sur le matériel brouilleur.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1 L'appareil ne doit pas produire de brouillage.
- 2 L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada.

Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio (IC ID: 9859A-TR00144) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Precautions of Use

Read the following precautions before using the RFID Reader and card. Adhere to the precautions to avoid malfunctions and failures caused by misuse.

- 1 Avoid using the RFID Reader in the presence of strong electromagnetic waves.**
The RFID Reader supplies power to the card or tag using an electromagnetic wave to communicate with the card or tag. The presence of strong electromagnetic waves affects communication between the RFID Reader and card or tag, causing reduced access area or inability to access the card. Test the RFID Reader using the actual power source in the installation location environment before use.
- 2 Keep precision devices that might be affected by electromagnetic waves away from the RFID Reader.**
Because the RFID Reader constantly emits an electromagnetic wave of about 13.56 MHz, placing precision devices that might be affected by electromagnetic waves near the reader can cause malfunction or failure of the devices. When operating the reader, keep precision devices away from the RFID Reader. If such precision devices must be located near the RFID Reader, shield the precision devices with a metal cover and test the devices to check for any influence.
- 3 Avoid using multiple RFID Readers in proximity to each other.**
The RFID Reader supplies power to the card or tag using an electromagnetic wave to communicate with the card or tag and constantly emits an electromagnetic wave of about 13.56 MHz. Using multiple readers in proximity to each other causes interference, interrupts communication between the card and reader, and prevents access to the card.

Safety Information

To maintain compliance with the FCC RF exposure guidelines, install and operate this equipment with a minimum distance of 20 cm between the radiator and your body.

Use only with the supplied antenna. Unauthorized antenna, modification, or attachments can damage the transmitter and violate FCC regulations.

Technical Assistance

For technical assistance, contact Illumina Customer Support.

Table 1 Illumina General Contact Information

Illumina Website	http://www.illumina.com
Email	techsupport@illumina.com

Table 2 Illumina Customer Support Telephone Numbers

Region	Contact Number	Region	Contact Number
North America	1.800.809.4566	Italy	800.874909
Austria	0800.296575	Netherlands	0800.0223859
Belgium	0800.81102	Norway	800.16836
Denmark	80882346	Spain	900.812168
Finland	0800.918363	Sweden	020790181
France	0800.911850	Switzerland	0800.563118
Germany	0800.180.8994	United Kingdom	0800.917.0041
Ireland	1.800.812949	Other countries	+44.1799.534000

MSDSs

Material safety data sheets (MSDSs) are available on the Illumina website at <http://www.illumina.com/msds>.

Product Documentation

Additional product documentation in PDF is available for download from the Illumina website. Go to <http://www.illumina.com/support>, select a product, and then click **Documentation & Literature**.



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