UHF-RFID Reader WRTZ-2000 User's Manual

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1 Revision Control

1.1 Revision History

Content changes to this document from its previous version to the current level are indicated by Microsoft Word track changes bars (|) in the left margin of the document unless a complete rewrite is indicated. Accept all tracked changes to the current document before updating it. This procedure highlights the new changes made to the document by the author thus facilitating efficient review of the document.

Revision #	Revision Date	Change Description and Explanation	Created/Changed By
00	02/04/15	CR2648	Hans-Günter Meuthen

2 Basic safety information

- Read these operating instructions before using the UHF-RFID READER WRTZ-2000 for the first time! Make yourself completely familiar with the installation and operation of the UHF-RFID READER WRTZ-2000! Retain these operating instructions for later reference.
- The UHF-RFID READER WRTZ-2000 is used for contact less reading of RFID (Radio Frequency Identification) Tags. Only use the UHF-RFID READER WRTZ-2000 in the manner described in these operating instructions!
- Note all the detailed safety information given within the individual work steps. All safety information in these operating instructions is identified with the warning symbol shown here.
- Never use the UHF-RFID READER WRTZ-2000 in areas where there is a danger of explosion.
- Note that the electric installation of the UHF-RFID READER WRTZ-2000 may only be done by a professional.
- It is essential to comply with the electrical, mechanical and climatic specifications given in the Technical Data section. For further information see Chapter Technical data.
- Do not make any changes or modifications to the UHF-RFID READER WRT2000. If changes or modifications are made, all guarantee claims are voided. Furthermore, the radio approval required for its operation is void!
- Have a faulty UHF-RFID READER WRTZ-2000 inspected and repaired by our repair center. Never make any repairs yourself under any circumstances.
- Dispose of the UHF-RFID READER WRTZ-2000 properly after taking out of service. Never put the UHF-RFID READER WRTZ-2000 into the normal household waste.

Federal Communications Commission (FCC) Approval Note:

This device complies with Part 15 of the FCC Rules and standard(s). 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.

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 the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada Approval Note:

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.2 Note about the disposal of old units

Within the member countries of the European Union In accordance with the European Union guideline 2002/96/EC, Checkpoint Systems takes back old devices within the member countries of the European Union and disposes of them in an appropriate way. The devices concerned by this are marked with the symbol shown aside.

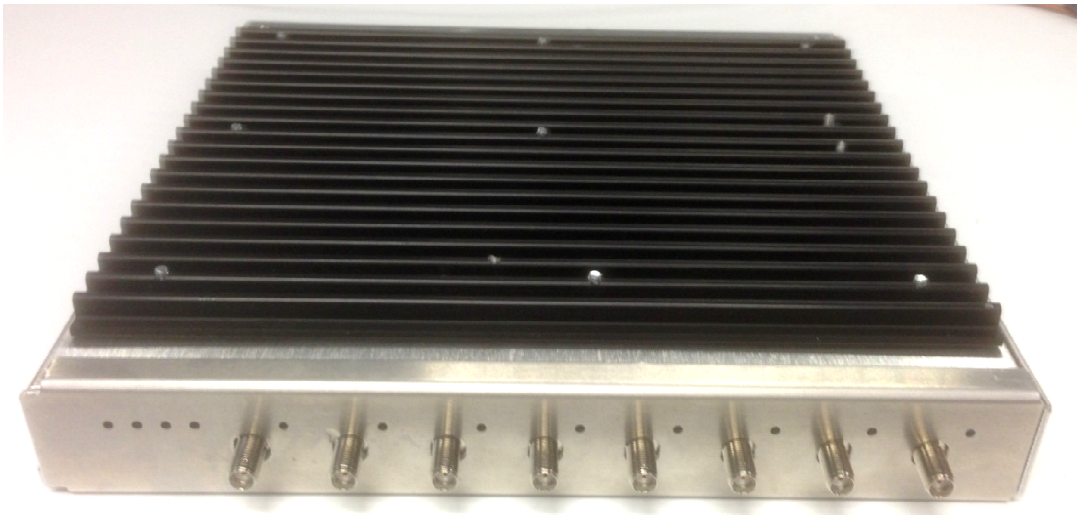
- For further information on the return procedure, please contact your local sales contact. You will find the addresses of all sales partners in the internet on www.checkpointsystems.com. Please take into consideration also the national implementation of the EU guideline 2002/96/EC of your country.

For all other countries

- Dispose of the WRTZ-2000 properly after taking out of service.
- Observe the regulations valid in your country for the disposal of electronic devices.
- Never put the WRTZ-2000 into the normal household waste.

3 Introduction

UHF-RFID Reader WRTZ-2000 is the electronics system of an Ultra High Frequency (UHF) radio frequency identification (RFID) system (typically called an interrogator or reader) which communicates with targets that are applied to or incorporated into an item. The targets (typically referred to as tags or labels) serve to identify the item to which it is attached based on a unique ID stored on the target.



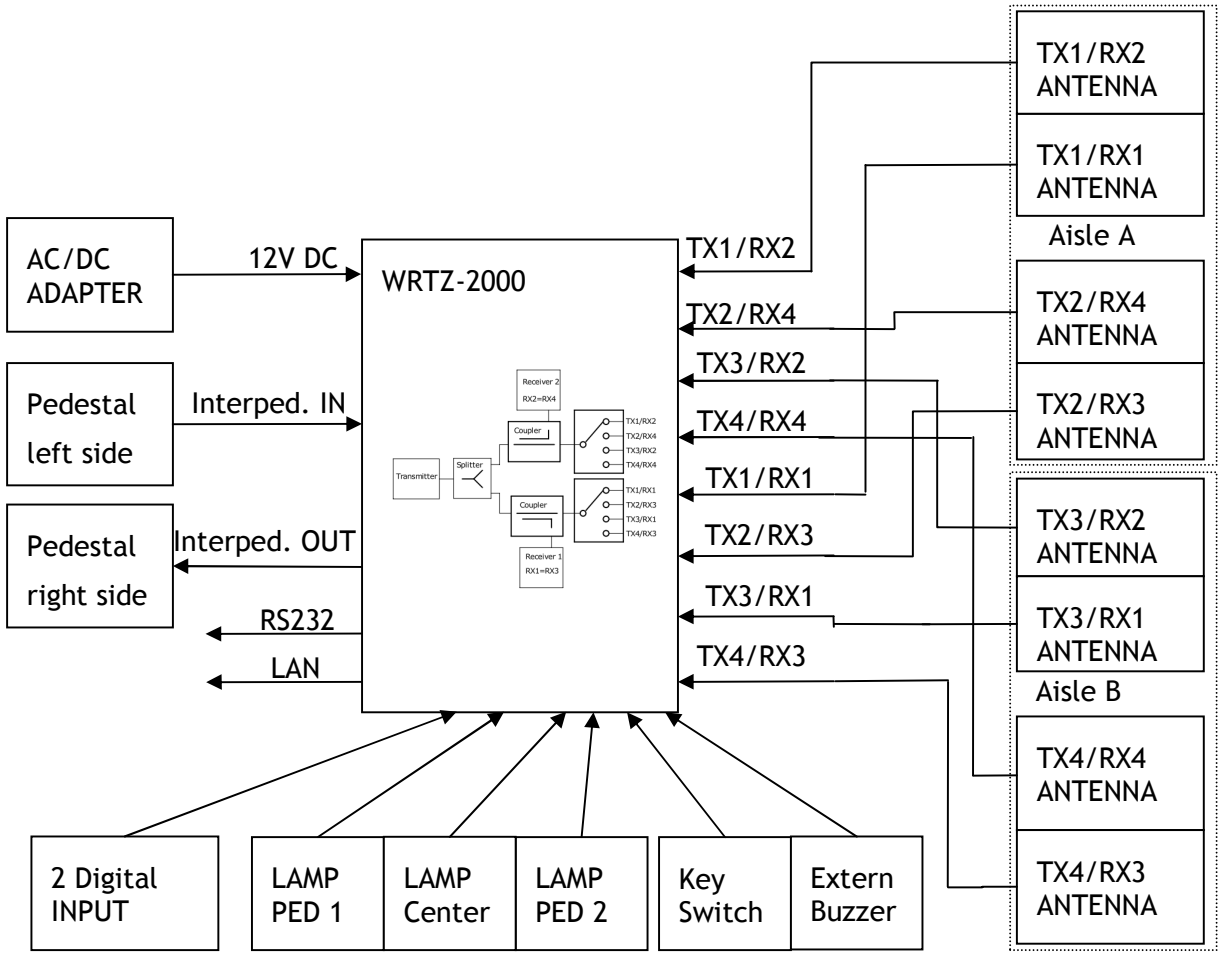
ATTENTION

The UHF-RFID READER WRTZ-2000 antenna ports may be susceptible to damage from static discharge or other high voltage. Use proper Electrostatic Discharge (ESD) precautions to avoid static discharge when handling or making connections to the WRTZ-1500 antenna or communication ports. Equipment failure can result if the antenna or communication ports are subjected to ESD.

3.1 Installation

The UHF-RFID READER WRTZ-2000 is build in a Pedestal System, for the installation guidelines refer to the **User Manual 10034763 E10 RF-RFID Pedestal.**

Block Diagram of Pedestal System with Dual Aisle.



4 Technical Data

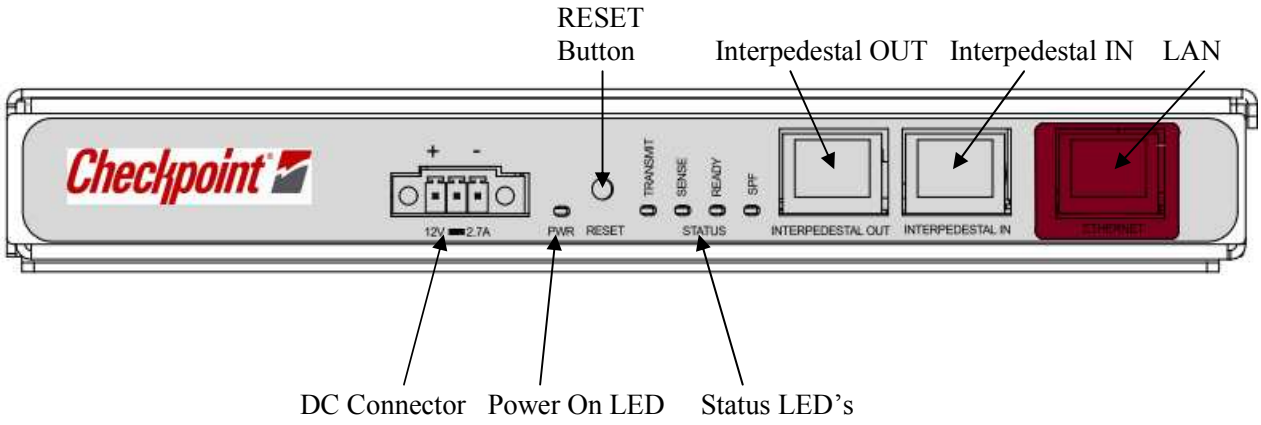
4.1 Mechanical Data

Size :	8.2 x 8.7 x 1.5 in (208 x 221 x 38 mm)
Weight:	2.6 lbs (1.2 Kg)
Case material	Aluminum

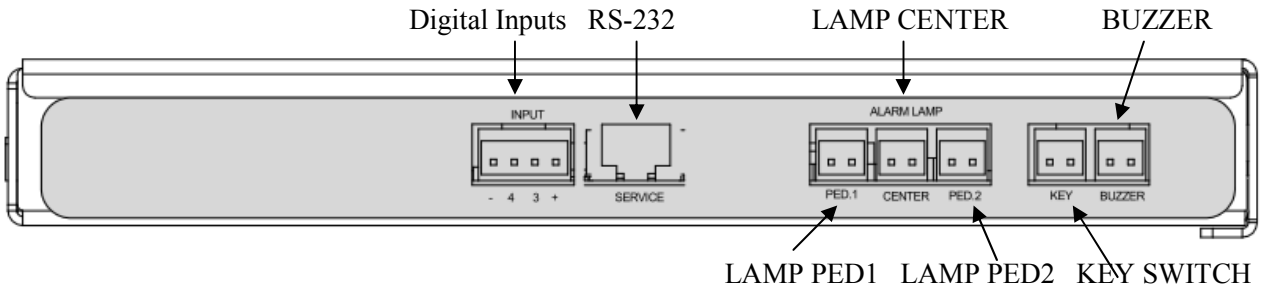
Connectors

Ethernet	RJ45
Interpedestal IN	Rj45
Interpedestal OUT	RJ45
RS232	RJ45
DC-Input	3 pol
Digital IN Connector	4 pol
LAMP PED 1	2 pol
LAMP Center	2 pol
LAMP PED 2	2 pol
Key Switch	2 pol
Buzzer	2 pol
RF ANT 1-8	SMA

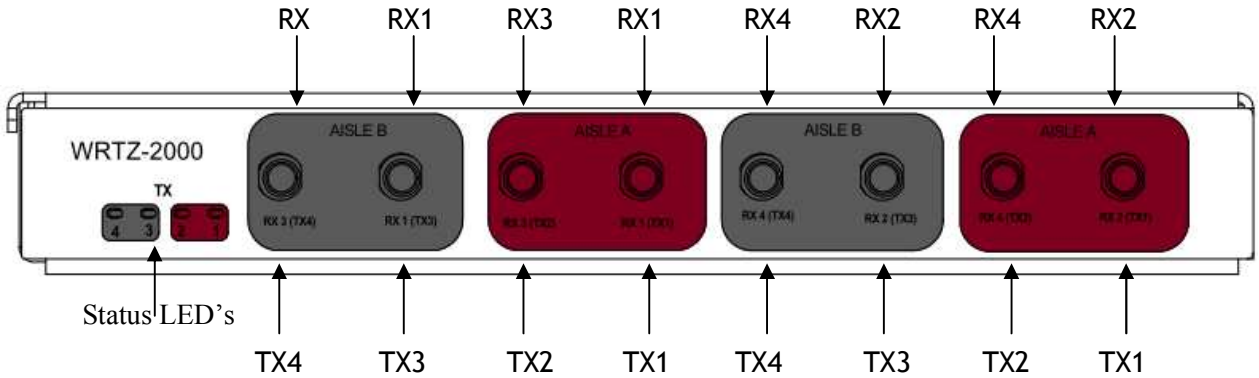
4.2 Front view



4.3 Side view



4.4 Rear view



4.5 Reader Specifications

Power Connection

Input Voltage	10,2-13,8 Vdc
Input current	2.7 A at 12 Vdc
Power Consumption	12W (typical while idle)
	33 W (typical at 0.5 W conducted RF output power and Lamps driving)

The WRTZ-2000 can be powered by suitable AC/DC-Adapter.

Usable Power Supply's

- LFZVC60NP12E4, Part Number: 7284242
- AEB70US12, Part Number: 7421850

WRTZ-2000 does not have power switch. If it is necessary to switch off power, simply unplug 12V DC connector.

RF Connection

RX/TX Antenna Ports	8 SMA connectors, TX power is halved by internal power splitter and distributed by internal switches to TX1, TX2, TX3, TX4 Impedance 50 Ohm
Frequency Range	865-868 MHz 902-928 MHz
TX RF Output Power	10mW – 0.5 W conducted (10 - 27 dBm)
RX RF Input Power	100mW max. (20 dBm)

Caution: *This device has been designed to operate with no more than 1 Watt into the antenna and an antenna gain of no more than 6 dBic. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada, unless power into the antenna is decreased to compensate for the increased antenna gain. The required antenna impedance is 50 ohms.*

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropic radiated power (EIRP) is not more than that required for successful communication.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit an RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website at www.hc-sc.gc.ca

4.6 Environment Specifications

Operating temperature	32° F to 131° F (0° C to 55° C)
Storage temperature	- 40° F to 185° F (-40° C to 85° C)
Relative Humidity	5% to 95 % non-condensing

4.7 Digital Input Specification

Connector RIACON Part Number: 31182104 (1x4)

Input 12 Vdc, 10 mA, Optically Isolated

Signals Pin 1 -- +12V

Pin 2 – D_IN3 (Digital Input 3)

Pin 3 – D_IN4 (Digital Input 4)

Pin 4 -- GND

4.8 Interpedestal IN Specification

Connector RJ-45

Ethernet 10/100 BaseT

Indicators Yellow - Indicates link is operational

Green - Indicates network traffic detected.

Signals Pin 1 – TXD+ (Transmit Data +)

Pin 2 – TXD- (Transmit Data -)

Pin 3 – RXD+ (Receive Data +)

Pin 4 – LAMP1_DRIVE

Pin 5 – LAMP2_INCOME

Pin 6 – RXD- (Receive Data -)

Pin 7 – GND

Pin 8 – SYNC_IN (optically isolated)

4.9 Interpedestal OUT Specification

Connector RJ-45

Ethernet 10/100 BaseT

Indicators Yellow - Indicates link is operational

Green - Indicates network traffic detected.

Signals Pin 1 – TXD+ (Transmit Data +)

Pin 2 – TXD- (Transmit Data -)

Pin 3 – RXD+ (Receive Data +)

Pin 4 – LAMP1_INCOME

Pin 5 – LAMP2_DRIVE

Pin 6 – RXD- (Receive Data -)

Pin 7 – GND

Pin 8 – SYNC_OUT +12V, 10mA

4.10 Ethernet LAN Specification

Connector	RJ-45
Ethernet	10/100 BaseT
Indicators	Yellow - Indicates link is operational
	Green - Indicates network traffic detected.
Signals	Pin 1 – TXD+ (Transmit Data +)
	Pin 2 – TXD- (Transmit Data -)
	Pin 3 – RXD+ (Receive Data +)
	Pin 4 – Termination
	Pin 5 – Termination
	Pin 6 – RXD- (Receive Data -)
	Pin 7 – Termination
	Pin 8 – Termination

4.11 RS-232 Specifications

Connector	RJ45		
Baud rate	600 - 115200 (Default = 115200)		
Parity	None		
Data bits	8		
Stop bits	1		
Signals	Pin 1	TXD	Processor
	Pin 2	RXD	Processor
	Pin 3	GND	
	Pin 4	NC	
	Pin 5	GND	
	Pin 6	NC	
	Pin 7	TXD	FPGA
	Pin 8	RXD	FPGA

4.12 LAMP PED 1 Specification

Connector	RIACON	Part Number: 31182102 (1x2)
Signals	Pin 1	+11V/200mA
	Pin 2	GND

4.13 LAMP CENTER Specification

Connector	RIACON	Part Number: 31182102 (1x2)
Signals	Pin 1	+11V/200mA
	Pin 2	GND

4.14 LAMP PED 2 Specification

Connector	RIACON	Part Number: 31182102 (1x2)
Signals	Pin 1	+11V/200mA
	Pin 2	GND

4.15 KEY SWITCH

Connector	RIACON	Part Number: 31182102 (1x2)
Signals	Pin 1	switch contact
	Pin 2	switch contact

4.16 Buzzer

Connector	RIACON	Part Number: 31182102 (1x2)
Signals	Pin 1	+12V/10mA
	Pin 2	GND

5 Ordering Information

The UHF-RFID Reader is available with the following number

Order Number: 70034075 WRTZ-2000

6 Glossary

RFID Radio Frequency Identification.

EPC Electronic Product Code, a unique item identification number

EPC Global A new global standard that combines RFID technology, existing communications network infrastructure and the Electronic Product Code to enable immediate and automatic identification and tracking of an item through the whole supply chain globally, resulting in improved efficiency and visibility of the supply chain.

7 Annex Declaration of Conformity

EMC limits and radio approvals

EMV for Short Range Device ETSI EN 301 489-3

Safety of equipment of low voltage device EN 60950-1

Approval for Short Range Device; Europe ETSI EN 302 208

Approval for Short Range Device; USA FCC 47 CFR Part 15

Approval for Short Range Device; Canada RSS 210 Issue 8