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PRG_22-14 IDTRONIC LEUZE RFID SYSTEMS HF COMPACT TCP DATASHEET

RDH 308i 00

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Version	Date	Author	Changelist
01	24/02/2025	Fabrizio Picotto	First release
02	11/03/2025	Stefano Cengarle	Added note about caps on unused connectors to grant IP67 protection
03	16/04/2025	Stefano Cengarle	Operating voltage updated as per spec & UL, NEMA level, max. altitude, tightening torques and main switch suggestion added.

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2 Scope


This document refers to the Leuze RDH 308i 00 device.

3 Field of Application

This document applies to the Leuze RDH 308i 00 device with firmware version v1.0.0.

4 Definitions and Abbreviations

Term / Abbreviation	Definition
TBD	To Be Determined
UID	Unique Identifier

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5 Technical Details

This section provides details on the technical data of the device.

Electrical Data	
Operating Voltage	24 ± 6 V _{DC}
Power Ratings	4 W
Protection Class	III
Operating Frequency	13.56 MHz ±7 kHz
RFID Antenna	1 × integrated
RFID Standard	ISO 15693, ISO 14443 A

Detection Zone	
Distance Read Head Front	200 mm ¹


Outputs	
Operating Voltage	24 Vdc
Max Current per Output	60 mA

Inputs	
Operating Voltage	24 Vdc
Max Current per Input	8 mA

Interfaces	
Communication Interface	Ethernet
Factory Settings	IP address: 192.168.60.101 Subnet mask: 255.255.255.0 Gateway IP address: 0.0.0.0

Ethernet – TCP/IP	
Protocol	TCP/IP

¹ Reading distance depends on transponder type, antenna and environmental conditions.

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Operating Conditions	
Operating Temperature	-32 °C ... +60 °C
Storage Temperature	-40 °C ... +85 °C
Relative Humidity	Up to 95 %, non condensing
Degree of Protection	IP67 / NEMA 6 ²
Maximum altitude	2000m (sea level)

Test / Approvals	
Radio Approval for	USA, Canada, EU/RED
Shock Resistance	EN 60068-2-27, Test Ea EN 60068-2-27, Test Eb
Vibration Resistance	EN 60068-2-6, Test Fc


Mechanical Data	
Design	Rectangular
Dimensions	120 x 90 x 50mm
Net Weight	300g
Housing Material	Plastic
Housing Colour	Aluminium, RAL 9006 Red, RAL 3000
Type of Fastening	Through-hole mounting

Displays	
Display	Power supply: 1 × LED, green/red RFID Antenna: 1 x LED, green/red Ethernet: 1 x LED, green/yellow

Electrical Connections	
Connector	Power supply and I/O: 1 × 5-poles male M12 A-coded Ethernet: 1 x 4-poles female M12 D-coded

² In order to grant IP67 protection, unused connectors must be capped with compliant protection covers (e.g. PXMBNI12CAM).

 The logo for Kronotech, featuring a stylized red 'K' followed by the text 'kronotech' and 'LUTECH GROUP' below it.	DOCUMENT: 03.2 PRG_22-14 - IDTronic Leuze RFID Systems - HF Compact TCP Datasheet - Specifications Mod.8.2.07 20250416 v03eng.docx	DATE: 16/04/2025	VERSION: 03
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6 Installation

6.1 General Instructions

- Several devices installed next to each other interfere if they are not correctly configured.
- Installing a device in or on metal reduces the read and write distance.
- Keep the device away from direct sunlight, high humidity, extreme temperatures, and sources of electromagnetic interference. Any combination of these conditions might degrade performance or shorten the life of the device.
- Connect the device by using a suitable cable and proper mating connector, as defined in the electrical connections section, with 0.29-0.39Nm mating torque, as per supplier [specification](#).
- Power the device using a suitable external power supply as defined in electrical connections section. The boot sequence begins in either case when power is supplied to the device. This sequence typically completes within 5 seconds. After the boot sequence finishes, the device accepts commands, not before.

As the device is always active, please consider installing a main switch between the power supply and the device to turn the latter off, when needed.

6.2 Avoiding Interference

The device generates a modulated electrical field with a frequency of 13.56 MHz.

To avoid interference of the data communication:

- No other devices generating interference emission in this frequency band must be operated in its vicinity.
- Such devices are for example frequency converters and switched-mode power supplies.

If there are other devices in the same frequency band in the vicinity:

- The mounting distances between the devices should be as large as possible.
- Use the devices in alternating operation.
- Switch the HF field of the device on/off.

6.3 Notes on Device Mounting

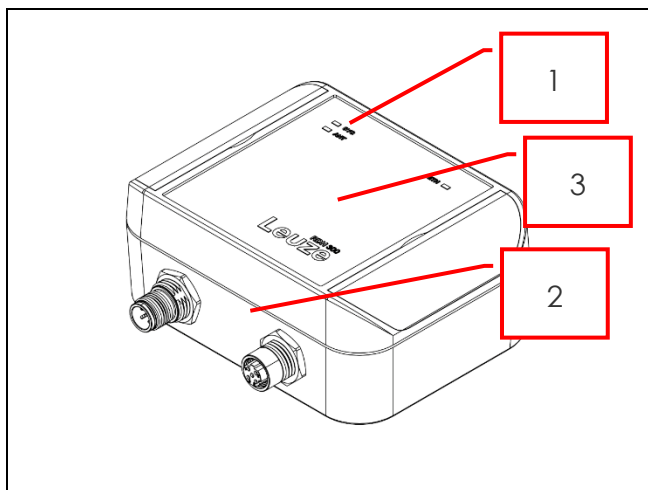
For installation:

- Use the existing four holes and choose suitable screws (M5) – tightening torque as per ISO 898/1, screw and bolt grade. Use a level to ensure the device is mounted horizontally (electrical connectors facing downwards).

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- The required screws are not supplied with the device.

6.4 Mechanical Design

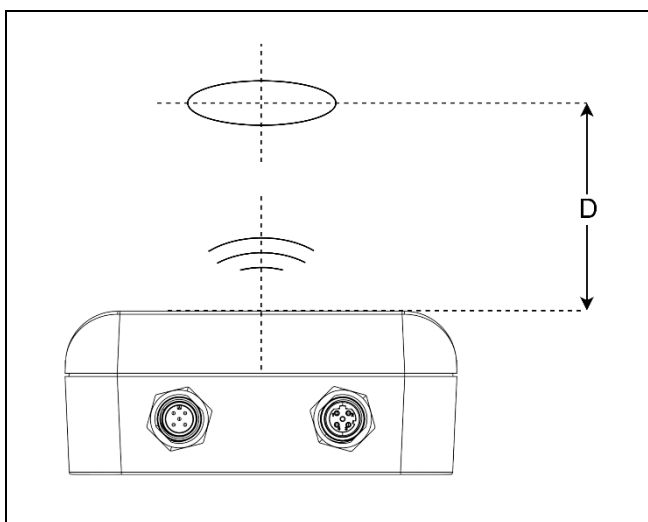


1. Status display
2. Electrical connections
3. Sensing element

6.5 Notes on Tag Mounting

- For installation in and on metal tags provided for this purpose must be used.
- The tag must be placed in the reading area of the device antenna. The angle of aperture and the operating distance must be adhered to.
- The orientation of the device antenna axis must correspond with the axis of the tag for best performance.

6.6 Positioning of the Tags



- Align the tag on the antenna central axis.
- The distance "D" is indicated in the "Antenna" section.

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7 Connections

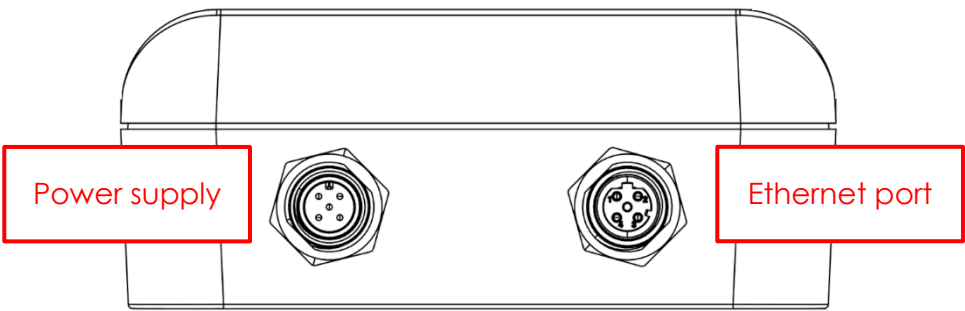
This section provides details on the connections of the device.
Observe the following instructions before electrical installation.



- The device must be connected by a skilled qualified person.
- Device of protection class III.
- Electric supply via PELV/SELV circuits only.
- Disconnect power before connecting the device.
- Connect the device according to the indicated pin connection.

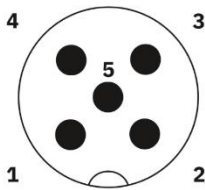
7.1 Electrical Connections

This section provides details on the electrical connections of the device.




7.1.1 Power Supply Connection

The power supply connection is designed as a 5-poles male M12 A-coded connector. This connector is shared with inputs/outputs.



Pin	No	Description	DIN47100 Wire Cable Colour
VCC	1	DC power supply, VCC	Brown

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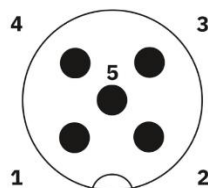
Pin	No	Description	DIN47100 Wire Cable Colour
SWIO 1	2	Input 1, a clean contact or PNP transistor has to be connected between VCC and this pin, max applicable current is 8 mA or Output 1, the load has to be connected between this pin and VCC, max applicable current is 60 mA	White
GND	3	DC power supply return path, GND	Blue
SWIO 2	4	Input 2, a clean contact or PNP transistor has to be connected between VCC and this pin, max applicable current is 8 mA or Output 2, the load has to be connected between this pin and VCC, max applicable current is 60 mA	Black
PE	5	Protected Earth	Gray



To ensure interference-free operation, the device must be connected to an earth potential free from external voltage.


7.1.2 Inputs/Outputs Connection

The inputs/outputs connection is designed as a 5-poles male M12 A-coded connector. This connector is shared with power supply.



Pin	No	Description	DIN47100 Wire Cable Colour
VCC	1	DC power supply, VCC	Brown
SWIO 1	2	Input 1, a clean contact or PNP transistor has to be connected between VCC and this pin, max applicable current is 8 mA	White

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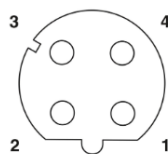
Pin	No	Description	DIN47100 Wire Cable Colour
		or Output 1, the load has to be connected between this pin and VCC, max applicable current is 60 mA	
GND	3	DC power supply return path, GND	Blue
SWIO 2	4	Input 2, a clean contact or PNP transistor has to be connected between VCC and this pin, max applicable current is 8 mA or Output 2, the load has to be connected between this pin and VCC, max applicable current is 60 mA	Black
PE	5	Protected Earth	Gray



To ensure interference-free operation, the device must be connected to an earth potential free from external voltage.

7.1.3 Ethernet Port Connection

The Ethernet port 0 interface connection is designed as a 4-poles female M12 D-coded connector.



Pin	No	Description	DIN47100 Wire Cable Colour
TX+	1	Transmit data +	Brown
RX+	2	Receive data +	Blue
TX-	3	Transmit data -	White
RX-	4	Receive data -	Black

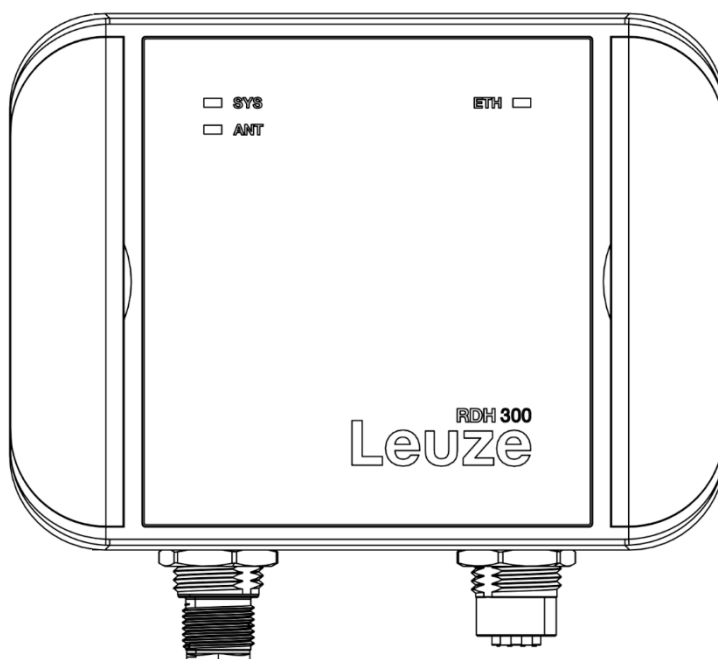
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To ensure interference-free operation, the device must be connected to an earth potential free from external voltage.





8 Status Display


This section provides details on the status display of the device.



LED	Colour	State	Meaning
SYS	 (red)	Static on	<ul style="list-style-type: none"> System error System initialization
	 (green)	Static on	<ul style="list-style-type: none"> Device ready
	 (off)	Static off	<ul style="list-style-type: none"> Power supply is missing Hardware defect
ANT	 (red)	Static on	<ul style="list-style-type: none"> Antenna error
	 (green)	Static on	<ul style="list-style-type: none"> Antenna not active
	 (yellow)	Blinking 4 Hz	<ul style="list-style-type: none"> Antenna active, tag detected
	 (yellow)	Static on	<ul style="list-style-type: none"> Antenna active, no tag detected

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LED	Colour	State	Meaning
	 (off)	Static off	<ul style="list-style-type: none"> • Power supply is missing • Hardware defect
ETH	 (green)	Static on	<ul style="list-style-type: none"> • Link established on Ethernet port
	 (yellow)	Flickering	<ul style="list-style-type: none"> • Data activity on Ethernet port
	 (off)	Static off	<ul style="list-style-type: none"> • No link established on Ethernet port • Hardware defect


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9 Antenna

This section provides details on the antenna of the device.

The device integrates the RFID antenna inside the case.

The read range of an RFID system always depends on various factors like antenna size, transponder size, transponder IC type, orientation between transponder and reader antenna, position of the transponder versus the reader antenna, noise environment, metallic environment, etc. Therefore, all data about read ranges can only be typical values measured under laboratory conditions. In real live applications the read range may differ from the data mentioned in the datasheet.

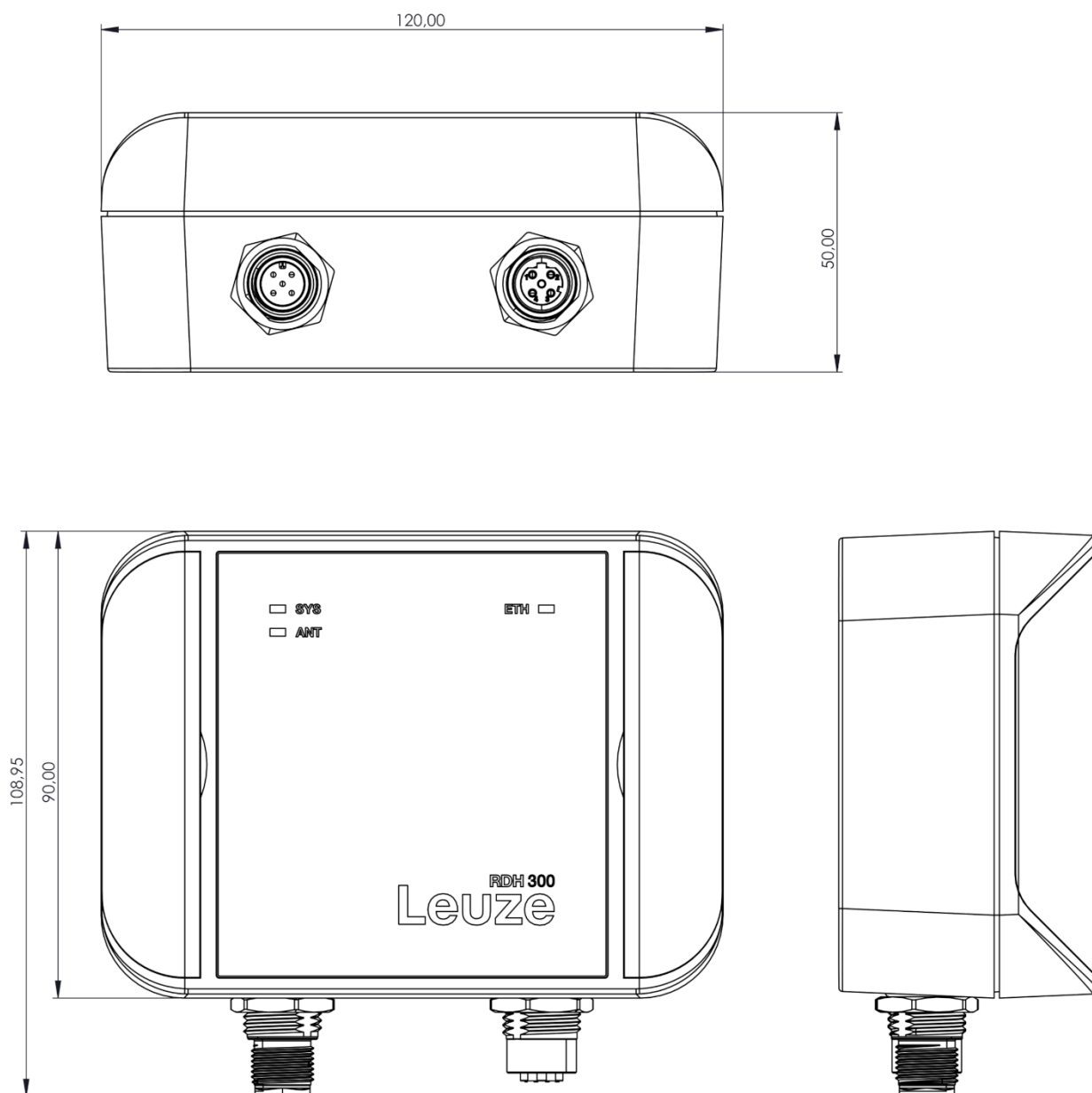
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10 Maintenance, Repair and Disposal

If used correctly, no maintenance and repair measures are necessary

- The device must only be repaired by the manufacturer.
- After use dispose of the device in an environmentally friendly way in accordance with the applicable national regulations.
- Keep the device free from soiling.

11 Mechanical Drawings



Dimensions in mm.