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PRG_22-14 IDTRONIC LEUZE RFID SYSTEMS HF COMPACT PROFINET DATASHEET

RDH 348i 00

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Version	Date	Author	Changelist
01	12/02/2025	Fabrizio Picotto	First release
02	24/02/2025	Fabrizio Picotto	Added default settings and net weight in technical details Added device front view image in electrical connection Corrected the power supply connection details Added device top view image in status display Added STS0 and STS1 LEDs behaviour details
03	11/03/2025	Stefano Cengarle	Added note about caps on unused connectors to grant IP67 protection
04	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 348i 00 device.

3 Field of Application

This document applies to the Leuze RDH 348i 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


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 - PROFINET	
Protocol	PROFINET

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)

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

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


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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 PROFINET: 2 x LED, green/red Ethernet: 2 x LED, green/yellow

Electrical Connections	
Connector	Power supply: 1 × 5-poles male M12 L-coded Ethernet: 2 x 4-poles female M12 D-coded

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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

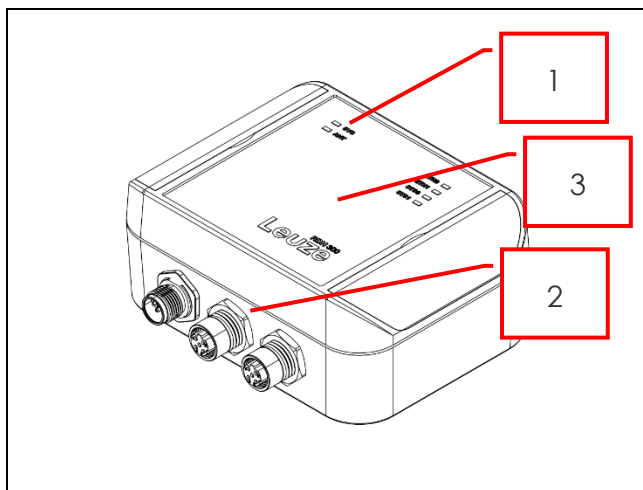
For installation:

- 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

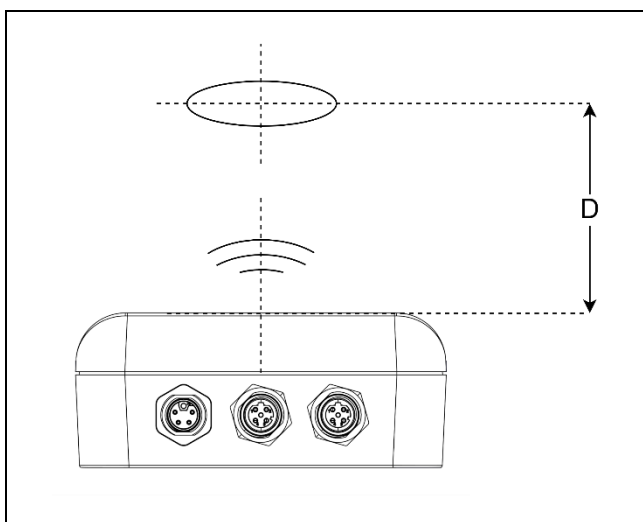


1. Status display
2. Electrical connections
3. Sensing element


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

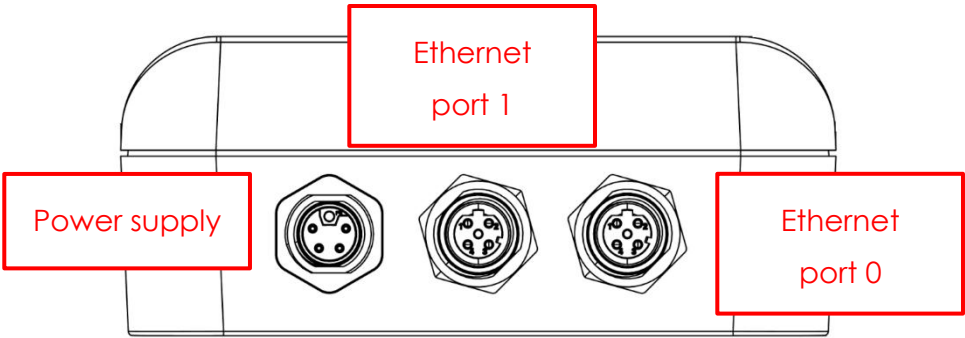
This section provides details on the connections of the device.
Observe the following instructions before electrical installation.



- 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.

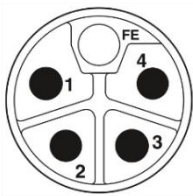
7.1 Electrical Connections

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 L-coded connector.



Pin	No	Description	DIN47100 Wire Cable Colour
VCC V1	1	DC power supply, VCC V1	Brown

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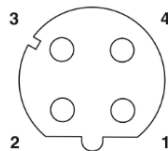
Pin	No	Description	DIN47100 Wire Cable Colour
GND V2	2	DC power supply return path, GND V2	White
GND V2	3	DC power supply return path, GND V1	Blue
VCC V2	4	DC power supply, VCC V2	Black
PE	5	Protected Earth	Gray



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

7.1.2 Ethernet Port 0 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

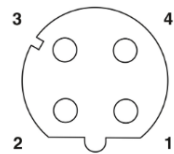


To ensure interference-free operation, the device must be connected to an earth potential free from external voltage.

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7.1.3 Ethernet Port 1 Connection

The Ethernet port 1 interface connection is designed as a 4-poles female M12 D-coded connector.



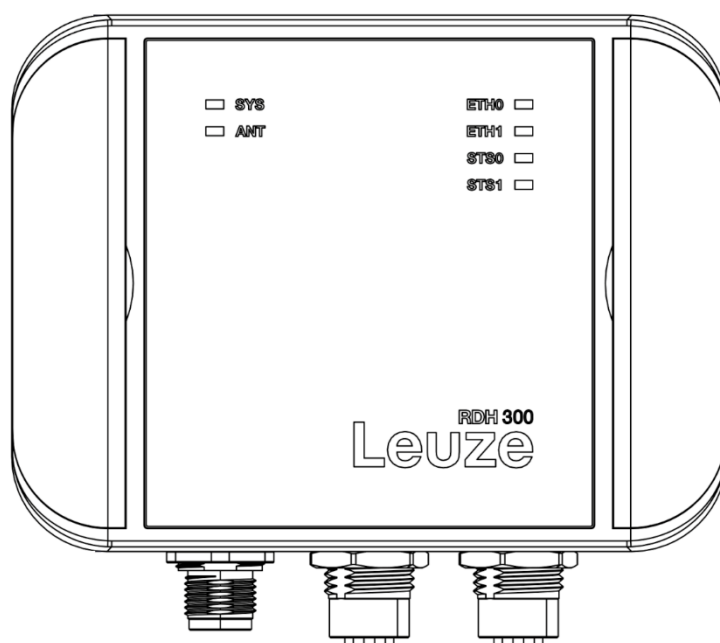
Pin	No	Description	DIN47100 Wire Cable Colour
TX+	1	Transmit data +	Brown
RX+	2	Receive data +	Blue
TX-	3	Transmit data -	White
RX-	4	Receive data -	Black























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

LED	Colour	State	Meaning
	 (off)	Static off	<ul style="list-style-type: none"> Power supply is missing Hardware defect
ETH0	 (green)	Static on	<ul style="list-style-type: none"> Link established on Ethernet port 0
	 (yellow)	Flickering	<ul style="list-style-type: none"> Data activity on Ethernet port 0
	 (off)	Static off	<ul style="list-style-type: none"> No link established on Ethernet port 0 Hardware defect
ETH1	 (green)	Static on	<ul style="list-style-type: none"> Link established on Ethernet port 1
	 (yellow)	Flickering	<ul style="list-style-type: none"> Data activity on Ethernet port 1
	 (off)	Static off	<ul style="list-style-type: none"> No link established on Ethernet port 1 Hardware defect
STS0: SF	 (red)	Static on	<ul style="list-style-type: none"> PROFINET system error
	 (red)	Flashing (1Hz, 3s)	<ul style="list-style-type: none"> DCP signal service is initiated via the PROFINET bus
	 (off)	Static off	<ul style="list-style-type: none"> No PROFINET system error Hardware defect
STS1: BF	 (red)	Static on	<ul style="list-style-type: none"> No PROFINET configuration PROFINET low speed physical link No PROFINET physical link
	 (red)	Flashing (2Hz)	<ul style="list-style-type: none"> No PROFINET data exchange
	 (off)	Static off	<ul style="list-style-type: none"> No PROFINET bus error 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.

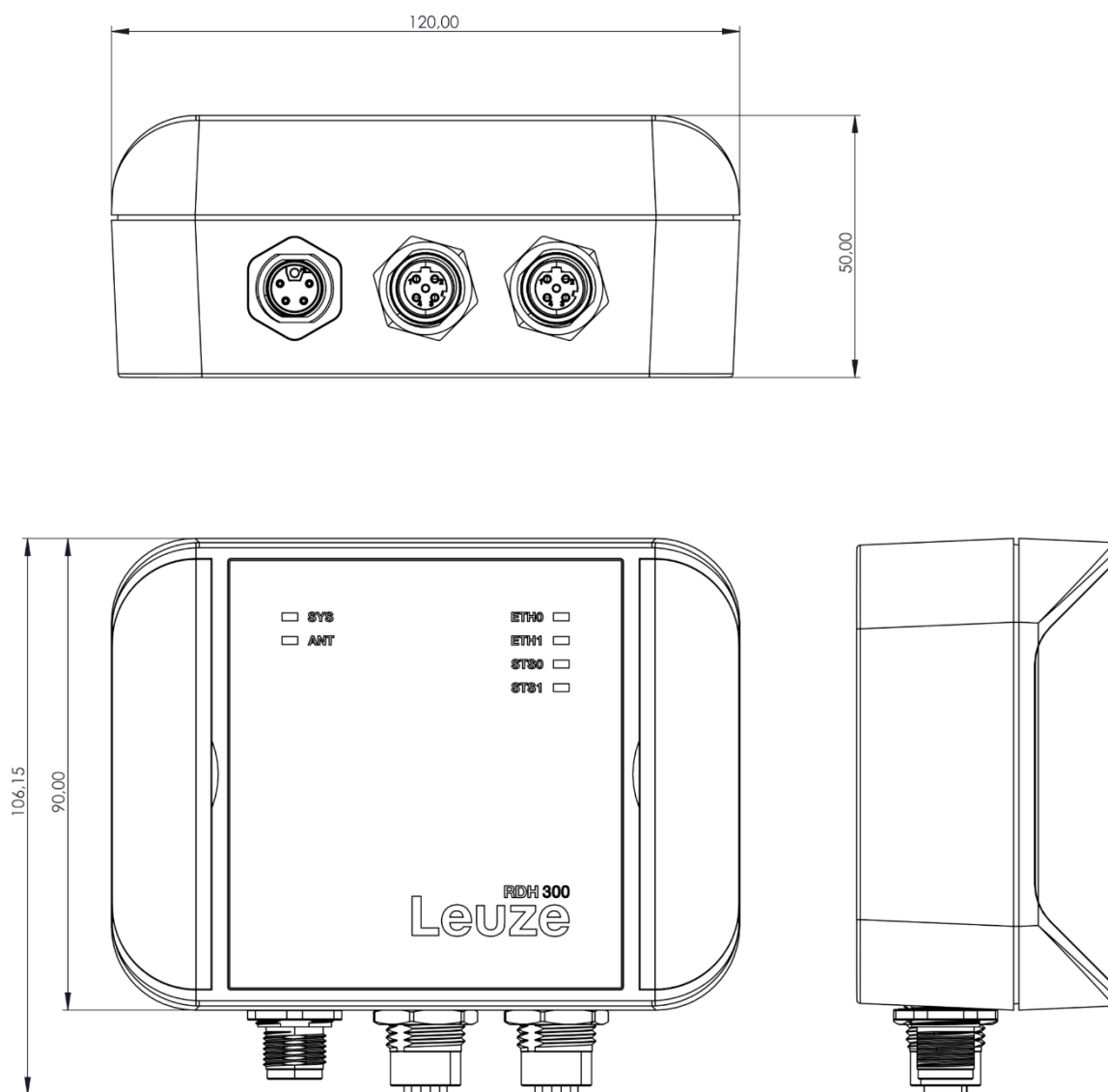
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10 Maintenance, Repair and Disposal

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.