

# UHF Reader

## RFLine

### RFID Reader 4CH

### Hardware Description

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# 1 Introduction

## 1.1 Reference Documents

Communication Protocol:	RFLine_UHF_Communication Protocol_EN_x.y.pdf
Software Library Description:	RFLine_UHF_ReaderLibraryDescription_EN_x.y.pdf
Test and Configuration Software:	TBD

## 1.2 Signal - TBD

### Multi-Colour LED

Colour, Action	Description
Blue, steady ON	Normal Function

After Power on the LED lights in sequence: red, red + blue, red + blue + green (white), blue + green, green, off  
Then, after a short pause, it should light steady blue.

## 1.3 Avoiding Interference

The device usually operates without any interference caused by radio communication if it is

- used as intended and,
- correctly installed.

This is an RFID device. It is part of its normal functions to emit radio waves. The operation free of radio disturbance cannot be guaranteed for each application.

If the device causes radio disturbance in an application, the following instructions will help:

- Realign the antenna.
- Change the position of the antenna.
- Increase the distance between the device and the antenna.
- Change the power supply of the device.
- Contact the support of the manufacturer.

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## 1.4 Emitted Frequencies During Normal Operation

Region	Frequencies
Europe (ETSI)	865.7, 866.3, 866.9, 867.5 MHz
USA (FCC)	The FCC specifies frequency hopping between 902.75–927.25 MHz in 500 kHz steps. This specification states that no listen-before-talk is performed. The maximum continuous transmit time on a channel is 0.4 seconds.

**According to ETSI EN 302208-1 only channels 4, 7, 10 and 13 (internal numerated as 1, 4, 7 and 10) could be used at high power! Other RF channels are present only for test purposes and should not be used in normal operation!**

## 1.5 Initial Operation

Initial operation is done using the test and demo software.

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## 2 Mechanical Drawings – TBD



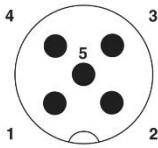
2.1 Overall Dimensions – TBD

2.2 Mounting – TBD

2.3 Position of Ports – TBD

## 3 Pinout

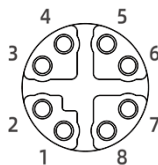
### 3.1 Power Supply



M12 A-coded 5 pin male connector

Pin	Signal	Description	Colour
1	PE	Protective Earth	Brown
2	+PWR	10...27 Vdc	White
3	-PWR	GND	Blue
4			Black
5			Grey

### 3.2 Ethernet

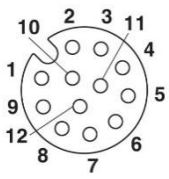


M12 X-coded 8 pin female connector

Pin	Signal	Description	Pin on RJ45	Colour
1	D1+		1	White/Orange
2	D1-		2	Orange
3	D2+		3	White/Blue
4	D2-		6	Blue
5	D4+		7	White/Green
6	D4-		8	Green
7	D3+		5	White/Brown
8	D3-		4	Brown

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### 3.3 GPIO



M12 A-coded 12 pin female connector

Pin	Signal	Description	Pairs	Colour
1	OUT2 NO	Relay 2 NO contact connection	2	Brown
2	IN2	Input 2 connection		Blue
3	IN1	Input 1 connection		White
4	–PWR	GND		Green
5	–PWR	GND		Pink
6	OUT4 NO	Relay 4 NO contact connection	4	Yellow
7	OUT4 COM	Relay 4 COM contact connection	4	Black
8	OUT3 NO	Relay 3 NO contact connection	3	Grey
9	OUT3 COM	Relay 3 COM contact connection	3	Red
10	OUT1 NO	Relay 1 NO contact connection	1	Purple
11	OUT1 COM	Relay 1 COM contact connection	1	Grey/Pink
12	OUT2 COM	Relay 2 COM contact connection	2	Red/Blue

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## 4 Maintenance, Repair and Disposal

### 4.1 Maintenance

The electronics are maintenance-free. Protect it against dirt and liquids.

### 4.2 Repair

There are no user-serviceable parts. Do not attempt repairs. Do not allow any unauthorized service centre or personnel to repair or modify the product.

In the event your electronics fails, contact iDTRONIC GmbH via the service e-mail address:

[helpdesk@idtronic.de](mailto:helpdesk@idtronic.de)

### 4.3 Disposal

After use dispose of the device in an environmentally friendly way in accordance with the applicable national regulations.

Do not dispose of this device in normal household waste. Contact your local council for information on disposal options for electronic devices in your area.



## 5 Technical Data

## Radio Specifications

Operating Frequency	840...960 MHz, Configurations for USA: 902...928 MHz (FCC), EU: 865...868 MHz (ETSI)
RF TX Power	+5...33 dBm, adjustable in steps of 1 dB
RF Sensitivity	-87 dBm
RF Channel Isolation	32 dB
Reading Range	Up to 10 meters* with internal antenna, write distance is half of the reading distance
RF impedance	50 $\Omega$
Antenna	1 internal antenna 3 TNX connectors for external antennas

### Supported Standards / Tags

ISO Standard	ISO 168000-63 (EPC Class 1 Generation 2)
Read Rate	≥ 900 tags/s
Tag Cache	≥ 1000 Tags @ 12 Bytes EPC size
Reader IC	Impinj E710

## Electrical Specifications

Power Supply	10...24 Vdc, M12 male connector, 5 pin, A-coded OR POE power supply 802.3af or 802.3at
Power Consumption	Max. 10 W
Communication Interface	Ethernet, M12 female connector, 8 pin, X-coded
GPIO	4 Inputs TTL Levels:            Logic low: < 0.8 V, minimum 0V Logic high: > 2 V, maximum 3.3 V  4 Output via relay:                  1 A, 125 Vac, 24 Vdc Relay life time: > 100.000 electrical switching operations

## Mechanical Specifications

Overall Dimensions	TBD
Weight	1.6 kg
Material	Aluminium, TBD

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### Environmental Conditions

Operating Temperature	-25 °C ... +55 °C
Storage Temperature	-40 °C ... +85 °C
Humidity	up to 95 %, non-condensing

### SDK Information

Supported OS	Windows, Linux, Android
Supported Languages	C, C#/.NET, Java
Demo Software	Windows

\* Reading distance depends on tag, antenna and environmental conditions

Other functions and details to be continued and upgraded.