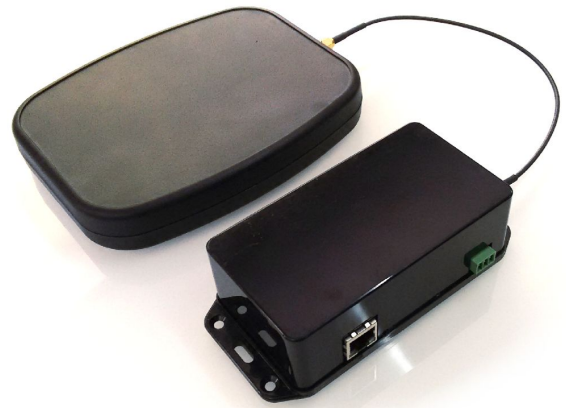




**Machine To Cloud  
Solutions**

# **RFID UHF Reader**

**Asset Tracking Solution**



**Datasheet**  
Ref. ds\_rfid\_en  
Rev. 1.0

**Machine To Cloud Solutions, S.L.**  
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## Applications:

Tracking, Access control

### Features

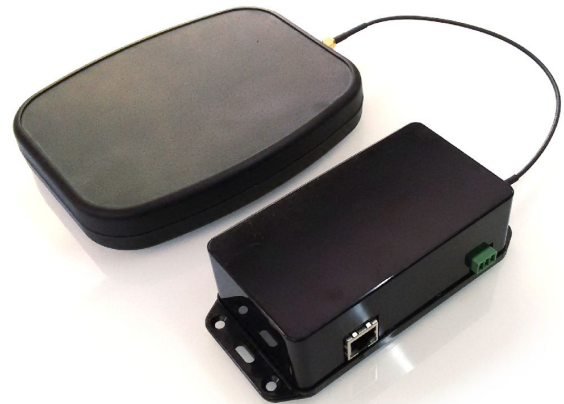
- Multiple communication interfaces:
  - Wireless mesh 868/915MHz.
  - Ethernet
  - RS485 /ModBUS
  - NB-IoT<sup>1</sup>
- Optional POE power supply
- Adjustable Gain and duty cycle

### Characteristics

- Range: 7m
- Frequency: 868-915 MHz
- EPC gen2 support
- Power: 12-24 VDC
- Consumption: 100 mA @ 12V idle

### Wireless interface

- ISM wireless
- 868 MHz (Europe) / 915 MHz
- Maximum RF power: 14dBm
- RF data range: Max. 200m. line of sight



### Mechanicals

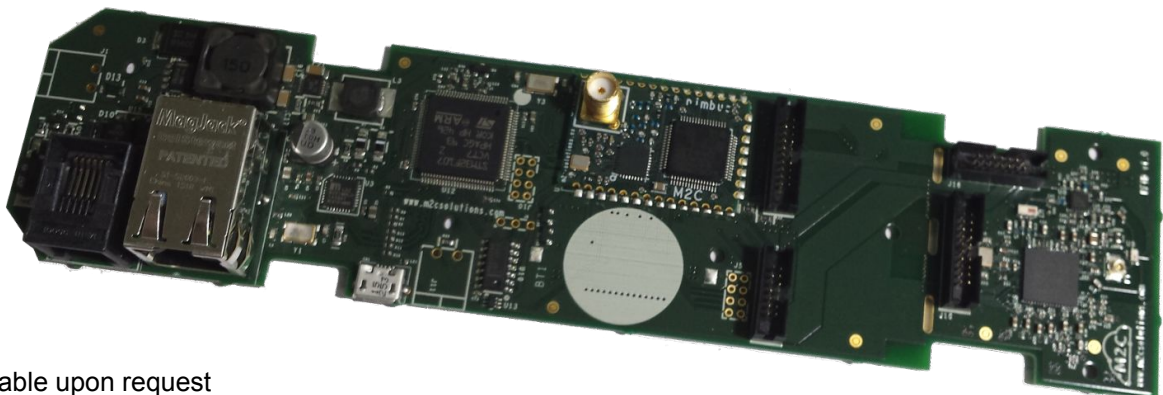
- Dimensions: 140x67x41 mm
- Weight: 150 gr
- Protection level: IP50

### Operating environment

- Operating temperature: -15°C to +60°C
- Operating humidity: 10% to 90% RH

### Part numbers

- I-RFID-B: RFID reader
- I-RFID-M: RFID reader, module
- I-RFID-A: RFID external antenna
- I-RFID-PS: 110/220Vac. external power supply



<sup>1</sup> Available upon request

## Introduction

The M2C RFID reader is designed to provide an easy installation, wireless network RFID solution. Typical RFID readers are used alone, but with the M2C RFID reader it is possible to integrate several readers in one wireless network, which provides a better solution for tracking. I.e: assets, personnel, goods, etc. All the information generated by each reader is sent to a gateway and then stored in the cloud for future analysis. Besides this feature, the M2C RFID reader can also communicate over ethernet and RS485 ( ModBUS protocol), which also allows to create a wired network if necessary. Shown below are images of different possible applications.

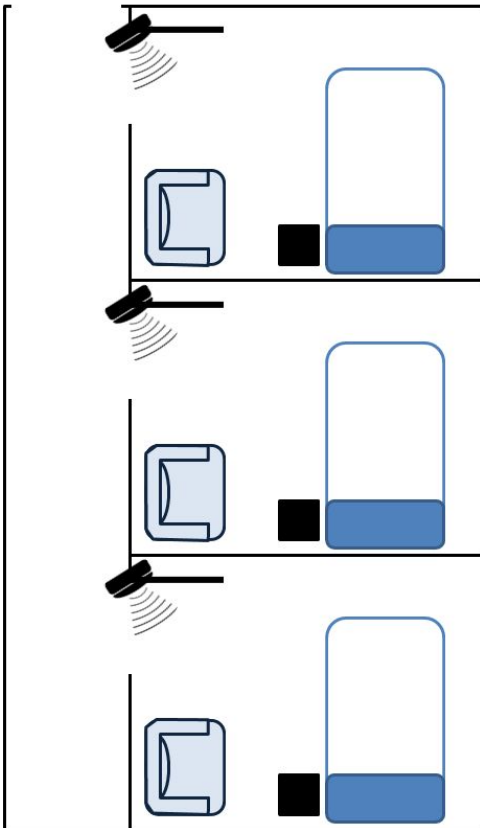


Fig 1. Hospital or rest room

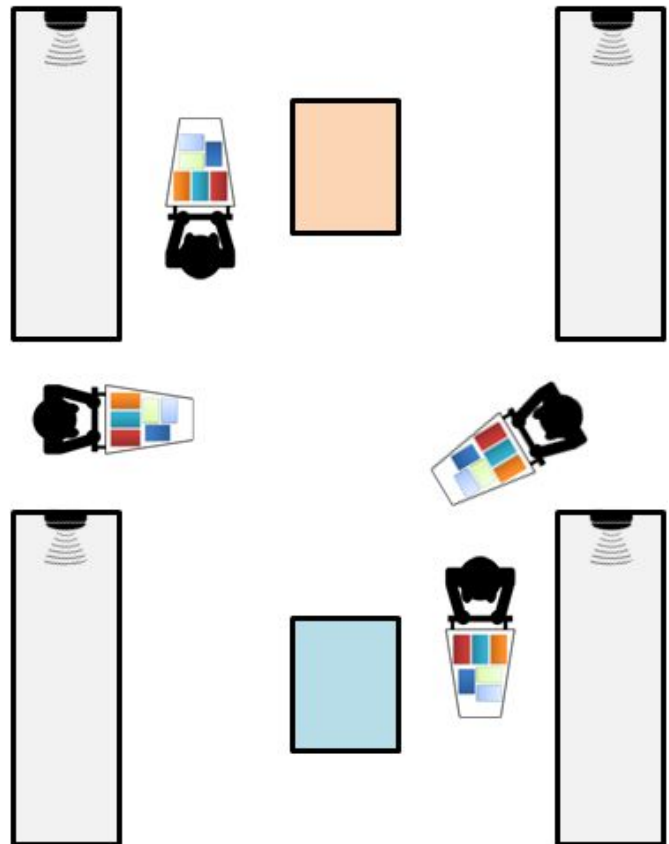


Fig 2. Supermarket

Fig 1. Shows objects and person tracking in hospitals, rest homes, etc. With RFID readers in the room's entrance it is possible to check whether or not an object or a person has left the place. This is useful for patients and medical equipment tracking, or checking food service.

Fig 2. Shows products tracking in supermarkets and stores. It is possible to check whether or not a product is in its intended shelves.

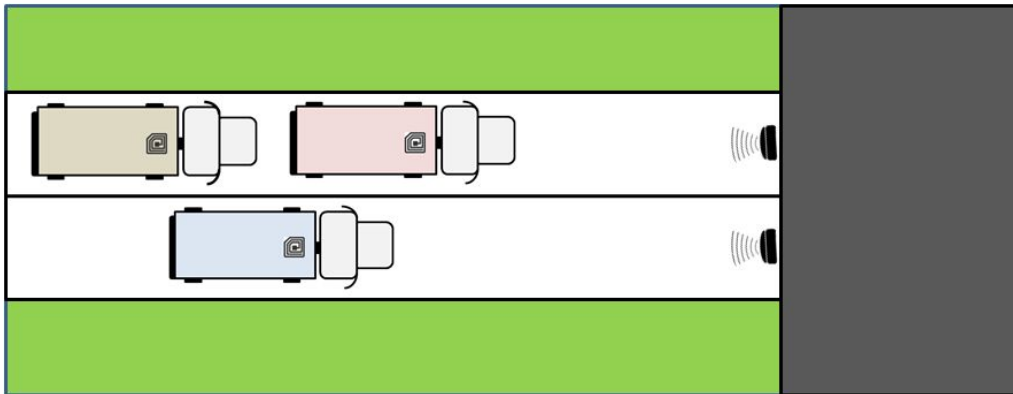


Fig 3. Entrance control

Fig 3. Shows goods management or entrance control. RFID readers can help in warehouses to track trucks and goods. It is also possible to organize traffic by checking what kind of vehicle arrives and then to indicate where it should go.

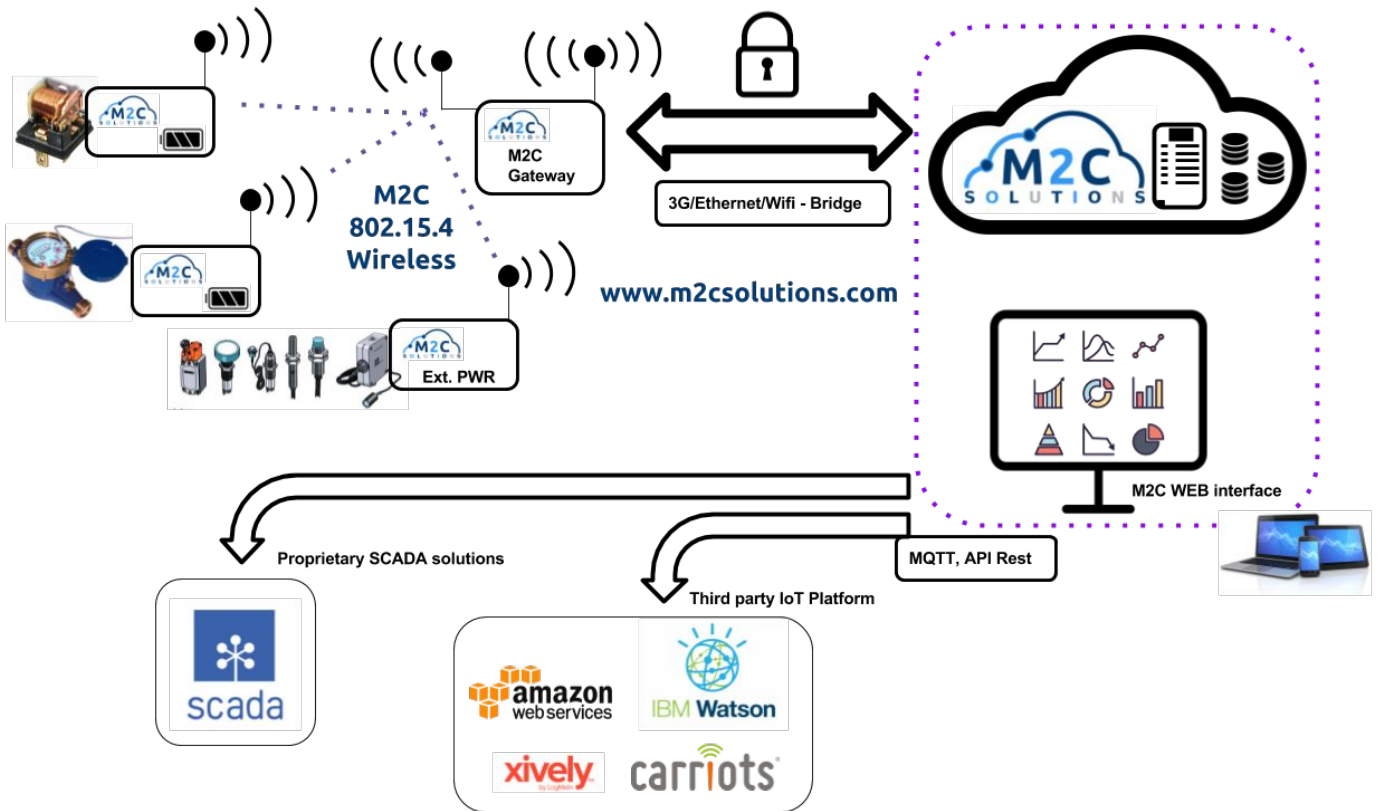
## Features

The M2C RFID reader is an integrated RFID solution that provides protocol handling for ISO180006c/b 900MHz. Different tag operations such as reading/writing, enable, disable or killing tags are supported. It offers improved receive sensitivity to -86dBm, programmable Rx Dense Reader Mode and EPC filters. Due its operational frequency and its output power up to +27dBm it is ideal for long range applications. Different parameters can be configured such as duty cycle, gain, delay between measurements and measuring time. The duty cycle is the percent of the measuring time that the device is actually sending energy, whereas delay and measuring time defines whether or not the device is working. For example, a certain application can consist on one second of measurement time each ten minutes with a 50% duty cycle.

## Technical specifications

Parameter	Min	Typ	Max	Unit
Operating ambient temperature range	-40	-	85	°C
Operating supply voltage	6	-	24	V
RFID frequency	860	-	868	MHz
RFID Protocol	EPC global Gen 2 (ISO 18000-6C)			
Antenna connector	One 50 ohm UFL			
RF Power output	5	-	27	dBm
DC Power required	1,2	-	10 <sup>(1)</sup>	W
Idle power consumption	-	1,2	-	W
Max Read Rate	-	-	100	tags/s
Max Read distance	-	-	7	m
Communication interfaces	Ethernet, RS485, RF <sup>(2)</sup>			

1. Depends on duty cycle and output power. This is the maximum for 100% duty cycle and +27dBm
2. The RF interface is based on the M2C Nimbus mote. Please check the corresponding datasheet for more information



## Key features and benefits:

These devices may be integrated with the M2C Solutions IoT platform. By this way, you get:

- Easy **management of remote IoT devices**
- **Secure communication** between remote devices and the cloud
- Data storage
- Several levels for **data grouping**
- **Dashboards** and reports
- **Alarm** management
- **Private version** in your IT infrastructure, instead of the cloud version
- **Interoperability**. Several protocols are supported: MQTT, Modbus RTU/TCP, SNMP. This fact allows an easy connection with proprietary SCADA or third party cloud services like: Amazon AWS IoT, Carriots...
- **Configuration**: the desired configuration is easily applied using a user-friendly web interface running on a embedded web server.
- **Programmable & Customizable**: the tools provided by M2C Solutions allow high levels of customization, enabling advanced software functionality.
- Ultra low power design for **Battery power** usage.
- **Compact design**.



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