

# USER MANUAL

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RFID tag



## Version history

Version	Date	Author	Description
v.1	2025/03/19	jroser	Initial version

## Purpose

The purpose of this document is to explain how to install and set up the RFID tag.

## Device ID

The unique ID can be retrieved by reading the tag EPC code over RFID.

EPC code is 12 bytes length.

Full unique ID is 6 bytes length.

Wirepas ID is 4 bytes length.

### Example:

RFID EPC: 0x000000000000D862EE93EFB

Full unique ID: 0xD862EE93EFB

Wirepas ID: 0x2EE93EFB

## Device configuration

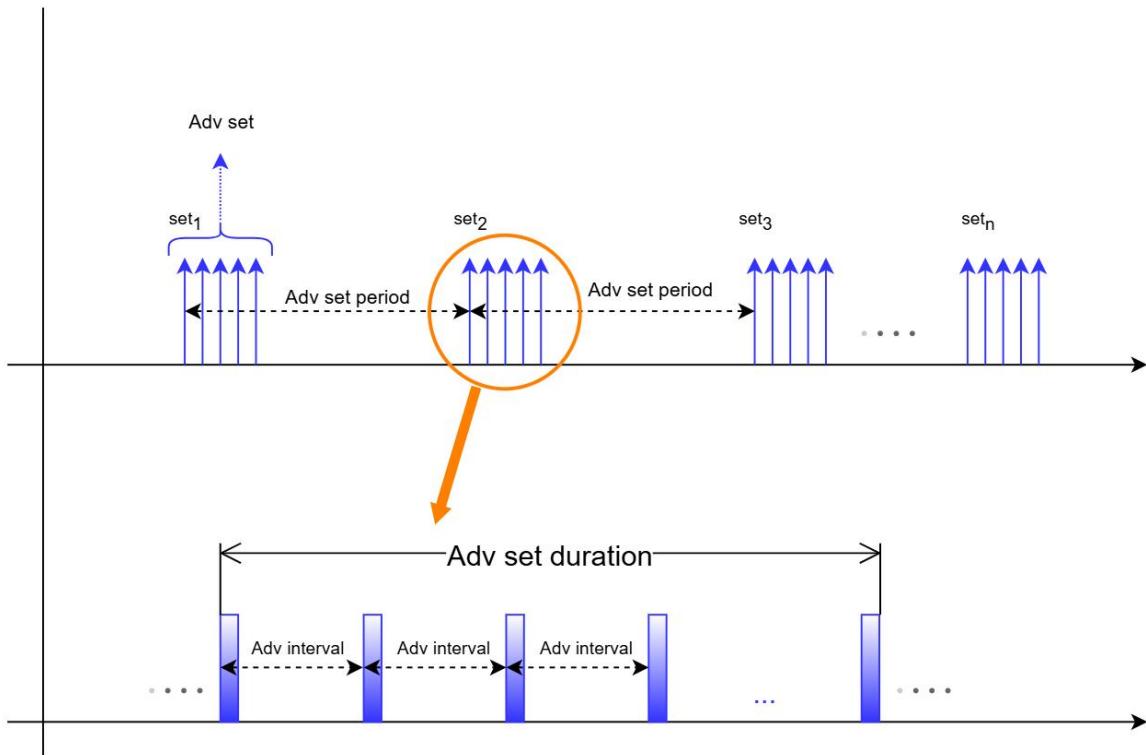
By default the tag is not configured, therefore no BLE beacon transmissions will happen.

In order to enable transmission, configuration data must be transmitted over RFID.

Here is the parameters list:

Name	Default value	Valid values	Units	Description
Enable	0x00	0x00: OFF 0x01: ON	-	Enable or disable BLE transmissions.
Adv continuously	0x01	0x00: One shot 0x01: Continuous	-	If configured to "One shot", the tag will only send one advertising set after "Enable" has been set to 0x01.. If configured to "Continuous", the tag will send advertising sets each "Adv set period" (see below).
Adv set period	30000	[1000, 60000]	ms	Time between each advertising set.
Adv set duration	2100	[50, 5000]	ms	Duration of an advertising set.
Adv interval	100	[20, 10240]	ms	Time between each BLE packet transmission within an advertising set.
Channel mask	0x20	0x20: channel 37 0x40: channel 38 0x80: channel 39	-	Select the BLE channel(s) for advertising.

See below schematic for further details.



### Memory layout

Advertising parameters are stored in the User Memory bank, starting at **address 0**.

Parameter	Size (byte)	Address	R/W
Enable	1	0 (MSB)	R/W
Adv continuously	1	0 (LSB)	R/W
Adv set period	2	1	R/W
Adv set duration	2	2	R/W
Adv interval	2	3	R/W
Channel mask	1	4	R/W

### Configuration example:

Raw configuration: 01-01-75-30-08-34-00-64-20-00

Decoded configuration:

- Enable: true (0x01)
- Adv continuously: true (0x01)
- Adv set period: 30000ms (0x7530)
- Adv set duration: 2100ms (0x0834)
- Adv interval: 100ms (0x0064)
- Channel mask: 37 (0x20)

The following configuration: 01-01-75-30-08-34-00-64-20-00 can be used to enable the tag with default advertising parameters.

## Installation

Configure the tag and retrieve the unique ID over RFID interface, then mount it on the asset to track.

## Firmware update

The RFID tag firmware can be updated using a JTAG or over the air via Bluetooth. But the firmware update can only be achieved during production or later by a qualified person.

## FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. 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.

## RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

## ISED Statement

English: This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

French: Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada.

L'exploitation est soumise aux deux conditions suivantes :

- (1) Cet appareil ne doit pas provoquer d'interférences.
- (2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

L'appareil numérique du ciem conforme canadien peut - 3 (b) / nmb - 3 (b).

This device meets the exemption from the routine evaluation limits in section 6.6 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

cet appareil est conforme à l'exemption des limites d'évaluation courante dans la section 6.6 du cnr - 102 et conformité avec rss 102 de l'exposition aux rf, les utilisateurs peuvent obtenir des données canadiennes sur l'exposition aux champs rf et la conformité.

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux rayonnements du Canada établies pour un environnement non contrôlé.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed with the maximum permissible gain indicated. Antenna types not included in this

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list, having again greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.