

Active RFID technology Products and solutions

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Overview

LeghornGroup offers ICT (Information and Communication Technology) products based on **RFId** (Radio Frequency Identification), **RTLS** (Real Time Location System) and **WSN** (Wireless Sensor Network) technologies.

It is able to offer a wide range of products with **2.45 GHz radio frequency** data transmission in active technology (battery-powered).

Areas of application:

- Real Time Location System (RTLS)
- Asset tracking
- Logistics operations
- Monitoring of production
- Access control
- Information security
- Activation of services
- Collision alert
- Detection of environmental parameters
- Patient monitoring

Features:

- Long reading distance
- Reliability
- Modular systems
- HW / FW integration and possible customization
- Tag with sensors
- Smart tags with on-board intelligence
- Wide range of readers and tags
- Made in Italy

- Gate readers, gates, on-board mobile devices, tags and antennas in **2.45 GHz active RFId technology**
- Firmware, Middleware and Embedded Software

Active Systems

Main system components

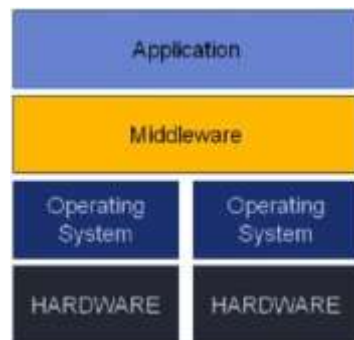


ANTENNA



**TAG
S**

MIDDLEWARE



READERS



ACTUATORS

Active RFID solutions Applications

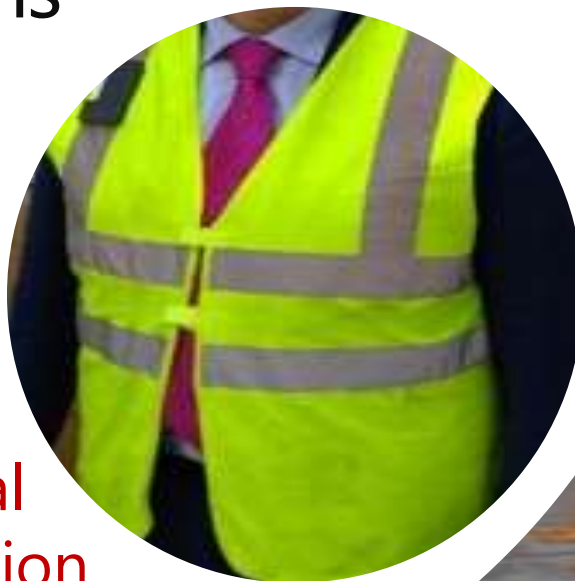


Presence Detection &
Asset Tracking



LOGISTICS
Gates Automatic Reading

Active RFID solutions Applications



Personal
Identification
and Safety Aid
Systems

Hazardous Area
Access Control

LeghornGroup®
Active
RFID
solutions
Applications



Systems
integrated with
other
technologies

Active RFID solutions Applications

Integrated
systems on
trolleys or
mobile
vehicles



AFR245 Reader



Specifications

Frequency Range	2.4 -2.5 GHz
Radio sensitivity	From -82 a -51 dBm to 2Mbps From -94 to -63dBm a 250Kbps programmable with 32 step of 1 dBm
Input/Output	2 opto isolated programmable entrances 2 programmable exits with relay
Memory management	1 users list (management up to 30000 users/tags code) 7 different type of users
Connection interface	Mini-USB 2.0 High Speed
Connector	1x antenna connector 50 Ω SMA-F-Optional 1 connettori N-F a 50 Ω
Material	Alluminium case
Size	120 x 112 x 35 mm
Weight	<280 g
Operative temperature	From -20°C to +70°C
Storage temperature	From -40°C to +85°C
Supply (V)	12/24 VDC ±5% absorption max 1 A

2.45GHz Industrial RFID Reader

AFR245 operates in the 2.4-2.5 GHz frequency band, which allows tag reading up to a distance of 20 meters.

Easy to install and use, it is able to meet many needs in the civil and industrial sectors thanks also to the offline working mode that allows autonomous management of devices (photocells, sensors, door openers, lights, alarms, etc.).

AFR245 is equipped with one external antenna connector, two optoisolated inputs and a programmable relay output, mini USB communication.

Proprietary communication protocol.

Fixing brackets, DIN rail hooking and waterproof Industrial box for outdoor installations are available.

AFR600 Reader



2.45GHz Industrial RFID Reader

AFR600 is a highly professional-grade RFID reader of active TAGs. The device has the possibility of connecting two independent external antennas in order to optimize the coverage range and the reading distance of the tag (up to 20m with omnidirectional antenna and up to 80m with directional antenna). The device has two programmable optoisolated inputs and two programmable relay outputs.

Communication via mini USB port, RJ45 ethernet (optional PoE) or Wi-Fi. Proprietary communication protocol.

Fixing brackets, DIN rail hooking and waterproof Industrial box for outdoor installations are available.

Specifications

Frequency Range	2.4 -2.5 GHz
Radio sensible	From -82 to -51 dBm to 2Mbps From -94 to -63dBm to 250Kbps Programmable with 32 steps of 1 dBm
Input/Output	2 programmable opto isolated inputs; 2 programmable output with relay
Memory management	1 users list (management up to 30000 users/tags codes) 7 different types of users 4 different daily time slots
Connection interface	Mini-USB 2.0 High Speed (AFR600-U2) Optional: Ethernet 10/100 BaseT (AFR600-E2) Optional: WiFi (AFR600-W2)
Connectors	2x Antenna's connector 50 Ω SMA-F Optionally 2 connectors N-F a 50 Ω
Material	Aluminium case
Size	120 x 112 x 45 mm
Weight	<350 g
Operating temperature	From -20°C to +70°C
Storage temperature	From -40°C to +85°C
Supply	12/24 VDC \pm 5% electrical absorption max 1 A Optional POE(Power Over Ethernet) with external splitter
Other	IP65 optional

ALR245-DG Reader



Specifications

Frequency Range	2.4 -2.5 GHz
RF power	From -85 to -54 dBm
Channel number	1
Connection interface	USB 2.0
Connectors	Integrated omnidirectional antenna
Material	ABS case
Size	80 x 20 x 12 mm
Weight	20g
Operating temperature	From -20°C to +60°C
Supply	Directly from USB port

Active tag reader operating at 2.45 GHz, USB-stick type

RFID reader with integrated omnidirectional monopole antenna for readings at distances

programmable up to 8 m. Power supply and USB communication interface (virtual COM port).

Portable and compact, reliable and high-performance player, compatible with Android, Linux and Windows operating systems.

DANT12 Antenna



Specifications

Frequency Range	2.4 – 2.5 GHz
Gain	8.5 dBi
VSWR	Tip < 1.3
Polarization	Circular
HPBW	50°
Impedance	50 Ohm
Input power	10W
Connector	type N-Female
Operating temperature	From -30°C to +80°C
Storage temperature	From -40°C to +85°C
Humidity range	0-95%
Material	Housing in ABS e chassis in alluminio
Weight	300g
Dimension	122 x 122 x 34 mm
Installation	N°1 M8 bolt

High gain directional antenna, circular polarization

Thanks to the IP65 degree of protection, it is ideal for outdoor installations and with accessories such as fixing brackets it can be mounted both on the wall and on a pole. The N-type connector ensures a robust and durable connection. Made with shockproof ABS housing (which also guarantees resistance to UV rays) and an aluminum base, it is particularly suitable for working in industrial environments.

OANT16 Antenna



Specifications

Frequency Range	2.4 – 2.5 GHz
Gain	6.5 dBc
Polarization	Linear – vertical
HPBW	Horizontal: 360° Vertical: 27°
Impedence	50 Ohm
Connector	N female
Operarting temperature	From -20°C to +65°C
Storage temperature	From -30°C to +70°C
Material	Glass fiber covering Zinc base
Weight	170g
Size	21 x 420 mm

Omnidirectional antenna, vertical polarization

Thanks to its high gain, this RFID omnidirectional antenna offers good levels of coverage. The IP65 degree of protection allows it to be fixed, on a pole or wall, both indoors and outdoors. The N connector, suitable for industrial applications, provides a robust and durable connection.

ABG Tag series



Active RFID tags with industrial and rugged case, equipped with long autonomy with replaceable battery and suitable for any type of application. The tags of the IDN ABG series are available in various versions.

- Unique UID code
- Brightness sensor
- Temperature, acceleration, and humidity sensors
- Powerful battery for very long battery life
- Air programming function
- LED high brightness
- Anti-tampering

Specifications

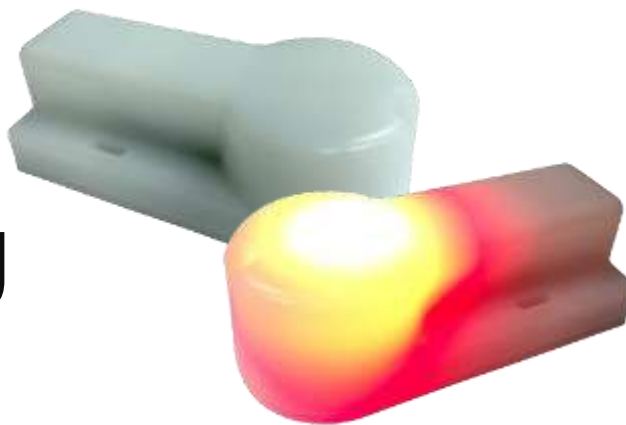
Frequency Range	2.4 -2.5 GHz
Operating mode	ID dispatch in Radio Frequency Set up On Air
RF power	Set up from -18dBm to 0 dBm
Reading distance	From 10 cm up to 80 m (depending on the reader and environment conditions)
Approximate lasting	battery 5 years (@ 0dBm; blink 1.5s; 25°C) – duration can change depending on setting and use conditions
Material	ABS case
Size	86 x 35 x 22 mm
Weight	<200g
Operating temperature	From -35°C to +85°C (90%RH)
Electricity supply	7 mA 3V (blink 1.5s)
Supply	1 AA-high-temp. (changeable) Lithium battery
Warning	Low battery level
Protection	IP65

(*) The de

model

ABG245-R-AP-L

Tag with active blinking



ABG245-R-AP-L

- It is an active tag operating in the 2.4-2.5 GHz frequency band.
- The device can be read from considerable distances (up to 80 m).
- The tag has a bright LED that can be controlled remotely and is equipped with the Full Programming function, i.e. it is possible to change the operating settings of the radio module and to send the LED power on command.
- It is characterized by low consumption (linked to customizable parameters) and tvery long battery life.
- Thanks to the high degree of protection provided by the polycarbonate case, the tag can be safely used in harsh environments and outdoors.

Specifications

Frequency Range	2.4 -2.5 GHz
Operating mode	ID dispatch in Radio Frequency Set up On Air
RF power	Set up from -18dBm to 0 dBm
Reading distance	From 10 cm up to 80 m (depending on the reader and environment conditions)
Approximate lasting	5 years (@ 0dBm; blink 1.5s; 25°C) – duration can change depending on setting and use conditions
Material	ABS case
Size	86 x 35 x 22 mm
Weight	<200g
Operating temperature	From -35°C to +85°C (90%RH)
Electricity supply	7 mA 3V (blink 1.5s)
Supply	1 AA-high-temp. (changeable) Lithium battery
Warning	Low battery level
Protection	IP65

ABG245-T-JU

Tag



Specifications

Frequency Range	2.4 -2.5 GHz
Operating mode	ID dispatch in Radio Frequency
RF Power	Set up from -18 dBm to 0 dBm
Reading distance	From 10 cm up to 80 m (depending on the reader and environment conditions)
Approximate battery lasting	3 years (@ 0dBm; blink 1.5s; 25°C) – duration can change depending on setting and use conditions
Material	ABS case
Size	86 x 54 x 8 mm
Weight	<20 g
Operating temperature	From -20°C to +60°C (90%RH)
Electricity supply	7 mA 3V (blink 1.5s)
Supply	2 lithium batteries
Warning	Low battery level

ABG245-T-JU

- Robust and compact RFID tag of easy application operating in the 2.4-2.5 GHz frequency band.
- Despite its small size, it can be read from a distance of up to 80 meters and is equipped with a lithium battery with an approximate duration of 3 years.
- The ABG245-T-JU tag is suitable for use in industrial and harsh environments thanks to the protection offered by the durable ABS case. Shape, size and graphics of the tag can be customized according to the customer's needs.

ABG245 PLUS Tag



Specifications

Frequency Range	2.4 -2.5 GHz
Operating mode	ID dispatch in Radio Frequency Proprietary protocol Programmable on air
RF Power	Set up from -18 dBm to 0 dBm
Reading distance	From 50 cm up to 80 m (depending on the reader and environment conditions)
Approximate battery lasting	>5 years
Material	ABS case
Size	40 x 145 x 65 mm
Weight	180 g
Operating temperature	From -25°C to +75°C (90%RH)
Electricity supply	7 mA 3V (blink 1.5s)
Supply	3.6 V 2600 mA/ 5200 mA/ 7800 mA
Warning	Low battery level
Industrial Protection	IP65

Rugged TAG in RFID technology 2.45 GHz

Rugged active RFID tag for use in harsh and heavy-duty industrial environments with a high-capacity battery for a long service life. Active tag operating in the 2.4- 2.5 GHz frequency band. It can be read up to 80 m away. ABS housing with IP65 degree of protection.

ABST series Industrial Tag

- Characterized by extremely small dimensions, they maintain the performance and reliability of previous versions with an optimization of autonomy and performance due to new chipsets and new embedded firmware.
- Available in tag, keychain and wearable as adjustable bracelets.
- The sturdy plastic case allows use in any industrial and civil application.
- Data communication is always in high frequency at 2.45 GHz and can take place both with the proprietary protocol and with the Bluetooth protocol.
- Replaceable battery.



ABST series Industrial Tag



Housing

- Tag
- Keychain
- Wearable Bracelet

Communication

- Proprietary Protocol
- Bluetooth Protocol
- Air Programming Function

Battery

- Replaceable

Optional

- Signal Leds
- Buzzer
- Buttons
- HW /FW Customizations
- NFC Tag

Sensors

- Temperature - Humidity
- Acceleration
- Pressure
- Shock
- Man-down
- Fall

Specifications

Frequency	2.4 – 2.5 GHz
Operating mode	Sending unique ID via RF On-air programming
RF Power	Programmable from –18 dBm to 0 dBm
Reading distance	from 1 to 50 mt (*)
Battery life	3 years (@ 0 dBm at 25°C) (**)
Material	Plastic - Rubber
Dimensions	mm 46.5 x 13.5 (diameter x height)
Weight	g 16
Operating Temperature	– 25 °C to +55 °C
Storage Temperature	– 30 °C to +70 °C (90% RH)
Operating current	7 mA 3V
Supply	CR2032 non-rechargeable battery
Reports	Battery Level
Protection	Waterproof

ABST series Wearable Tag



- Modern design
- Robust and compact
- Adjustable strap
- Anti-removal clip (optional)
- Protection from dust and water
- Hermetic closure (4 screws)
- Case color white
- Grey bracelet colour

Specifications

Frequency	2.4 – 2.5 GHz
Operating mode	Sending unique ID via RF On-air programming
RF Power	Programmable from –18 dBm to 0 dBm
Reading distance	from 1 to 50 mt (*)
Battery life	3 years (@ 0 dBm at 25°C) (**)
Material	Plastic - Rubber
Dimensions	Case : mm 46,50 x 12 (diameter x height) with strap : mm 252 x 22
Weight	g 28
Operating Temperature	– 25 °C to +55 °C
Storage Temperature	– 30 °C to +70 °C (90% RH)
Operating current	7 mA 3V
Feeding	CR2032 non-rechargeable battery
Reports	Battery Level
Protection	Waterproof

(*) depending on the reading systems and conditions of use

(**) depending on the parameters and conditions of use

ABST series Fashion Tag



New range of active tags from the Fashion series

- Characterized by an extremely attractive and elegant design and compact dimensions, they maintain technical and functional characteristics ideal for use in any industrial sector.
- Advanced performance and reliability are the strong point of this new line of tags/sensors.
- Available in tag, key ring, tag with pocket clip for attachment and wearable as adjustable bracelets. Sturdy plastic case and replaceable battery. Data communication is in high frequency at 2.45 GHz and can take place both with the proprietary protocol and with the Bluetooth protocol.

ABST series Fashion Tag



Housing

- Tag
- Keychain
- Tag With Pocket Clip
- Wearable Bracelet

Communication

- Proprietary Protocol
- Bluetooth Protocol
- Air Programming Function

Battery

- Replaceable

Optional

- Signal Leds
- Buzzer
- Buttons
- HW /FW Customizations
- NFC Tag

Sensors

- Temperature
- Humidity
- Acceleration
- Pressure
- Shock
- Immobile Man
- Fall
- Man Down

Specifications

Frequency	2.4 – 2.5 GHz
Operating mode	Sending unique ID via RF On-air programming
RF Power	Programmable from –18 dBm to 0 dBm
Reading distance	from 1 to 50 mt (*)
Battery life	3 years (@ 0 dBm at 25°C) (**)
Material	UV-resistant ASA TPE sealing ring
Dimensions	mm 55 X 46 X 17 (L x W x H)
Weight	g 20
Operating Temperature	– 25 °C to +55 °C
Storage Temperature	– 30 °C to +70 °C (90% RH)
Operating current	7 mA 3V
Feeding	CR2032 non-rechargeable battery
Reports	Battery Level
Protection	IP65

(*) depending on the reading systems and conditions of use

(**) depending on the parameters and conditions of use

ABST Fashion Wearable Tag



- Elegant design with mirror-polished surfaces
- robust and compact
- Adjustable smooth black silicone strap
- Replaceable strap
- Stainless steel buckle
- Anti-removal clip (optional)
- IP65 industrial protection
- Airtight seal (4 Tork stainless steel screws)
- case color white
- Orange sealing ring color



Specifications

Frequency	2.4 – 2.5 GHz
Operating mode	Sending unique ID via RF On-air programming
RF Power	Programmable from –18 dBm to 0 dBm
Reading distance	from 1 to 50 mt (*)
Battery life	3 years (@ 0 dBm at 25°C) (**)
Material	UV-resistant ASA TPE sealing ring
Dimensions	mm 55 X 46 X 17 (L x W x H) with strap : mm 250 x 18
Weight	g 35
Operating Temperature	– 25 °C to +55 °C
Storage Temperature	– 30 °C to +70 °C (90% RH)
Operating current	7 mA 3V
Feeding	CR2032 non-rechargeable battery
Reports	Battery Level
Protection	IP65

(*) depending on the reading systems and conditions of use

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