Free

hands free system
for vehicles and people

electronic solutions for gates, doors
and access control

Applications manual for Free system

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1 Introduction

1.1 System description

The HANDS-FREE system will open all the doors without you having to press any control button.

The **Free**T group of products is designed for use with domestic, commercial and even industrial vehicles and for individual use by pedestrians in private and professional areas, allowing for the access control of people and goods.

FreeTH is a multi-use product, especially designed for controlling the movements of the people, locating people in buildings, presence control, emergency and evacuation plans, etc., in companies, offices, banks, sports centres, hospitals and geriatric centres, among others.

Introduction 1

System description 1.1

FreeT (TAG)

Nominal range: 100 meters.
Transmission frequency: 868 MHz.
Power: 1 x 3Vdc batteries type CR2032.
Batteries last for approximately 2 years.
Acoustic operating indicator for low battery, signal transmission and programming.
Push-button inlet for voluntary activations.
Operating temperature –20ºC a + 55ºC.
ABS plastic case.
Size: 65 x 55 x 10 mm.

FreeTH (TAG)

Nominal range 100 meters.
Transmission frequency 868 KHz.
Power: CR2032-type 3Vdc battery.
Batteries last for approximately 2 years.
LED operating indicator for low battery, signal transmission and programming.
Operating temperature -20°C a + 55°C.
PC IP66 plastic case.
Size: 48 x 48 x 12 mm.

1 Introduction

1.1 System description

Free15r - **Free**30r (TRIGGER)

Free15r nominal range: 1.5 metres.
Free30r nominal range: 3 metres.
Transmission frequency: 125 KHz.
Power: 12/24Vac/dc.
LED operations indicator.
Button input for channel and/or group programming.
Pre-wired connection.
Operating temperature -20°C a + 55°C.
ABS IP66 plastic case.
Size of Free30r: 205 x 183 x 14 mm.
Size of Free15r: 87 x 78 x 15 mm.
Stand alone (no connections between Free antennas and other devices)

Free50r - **Free**50rs (TRIGGER)

Triggers with activation input
Free50rs nominal range: 5 metres.
Free50rs nominal range: 5 metres. Fitted with an adjustable presence sensor capable of detecting a moving body from 2.5 to 6.5 metres.
Transmission frequency: 125 KHz.
Power: 230Vac.
LED operations indicator.
Button input for channel and/or group programming.
Pre-wired connection.
Operating temperature -20°C a + 55°C.
ABS IP66 plastic case.
Size of Free50r: 394,4 x 310,5 x 41,6 mm.
Size of Free50rs: 394,4 x 310,5 x 78,7 mm.
Stand alone (no connections between Free antennas and other devices)

These triggers allow a button which permits the programming with a constant pressure of this button. This allows the selection of the group of the trigger as well as the receiver activation channel. This information will be given by the TAG.

Introduction 1

Requirements of the normative 1.2

The applicable directives to this system are:

- **Radio and Terminal Telecommunications Equipments Directive 1999/5/CEE**
- **Low voltage Directive 2006/95/EC**
- **Electromagnetic compatibility Directive 2004/108/EC**

Some of the requirements of the applicable harmonized standards are shown below.
In accordance with the European low voltage directive, you are informed of the following requirements:

- For permanently connected equipment, an easily accessible connection device must be incorporated into the cabling.
- This equipment must always be installed in a vertical position and firmly fixed to the structure of the building.
- This equipment can only be handled by a specialist fitter, by maintenance staff or by a suitably trained operator.
- The instructions for use of this equipment must always remain in the possession of the user.

JCM TECHNOLOGIES, S.A. declares herewith that the products **Free**T, **Free**TH, **Free**15r, **Free**30r, **Free**50r, **Free**50rs, comply with the requirements of the **1999/5/CEE R&TTE Directive**, **2004/108/EC Directive on electromagnetic compatibility** and **2006/95/EC on low voltage**, insofar as the product is used correctly.

CE DECLARATION OF CONFORMITY
See website: www.jcm-tech.com

CE

2 Functionning

Hands Free functionning

Free system works as hands free. While entering with **Free**T/TH device in the activation area of the **Free**50r or **Free**50rs trigger, it activates itself sending a radio signal to the receiver.

To activate the Tag once inside the activation area, or to get out of it, you could always press the push button of FreeT if it is needed at any time.

The activation area of the trigger is about 1,5 meters in **Free**15, 3 meters in **Free**30 and 5 meters in **Free**50 version.

The tag range is up to 100 metres in open spaces.

Free50r can be installed both, with or without presence detector. If the choiced option is to install it without presence detector, to joint the presence cable with the mass cable (see Installation section) is compulsory in order to be transmitting all the time.

When the trigger is connected to a presence detector, either photocell or magnetic detector, they must be connected the presence cable and the mass cable (see Installation section). In that way, when the detector detects presence, the trigger starts trasnmitting and the Tag can be activated while entering in the activation area sending its signal to the receiver. By contrary, if presence is not detected, the trigger do not activates itself not allowing the Tag activation once in the trigger's activation area.

Free50rs version incorporates a sonar by default, that realizes the presence detector function. This sonar works with a non audible ultrasound at 42KHz. It can detect small objects a very few meters and big ones in longer distances. To optimize the detection, the obstacle should be at 90 degrees respect the sonar.

Sonar distances

PEOPLE	CARS	WALL
3,5 TO 5 METERS	IN FRONT 5,0 TO 5,5 METERS - SIDEWAYS 6,0 TO 6,5 METERS	7 METERS

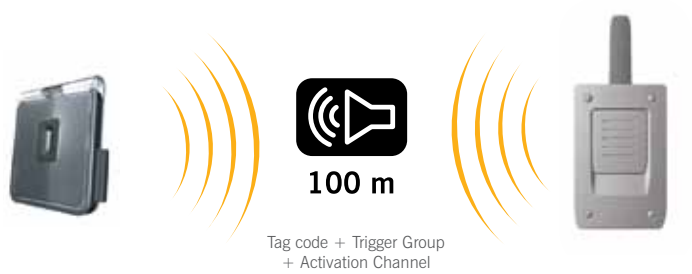
Functionning 2

FreeT tag also works though a push button in difference from **Free**TH. In this very case, the fuctionning is manual.

Manual functionning

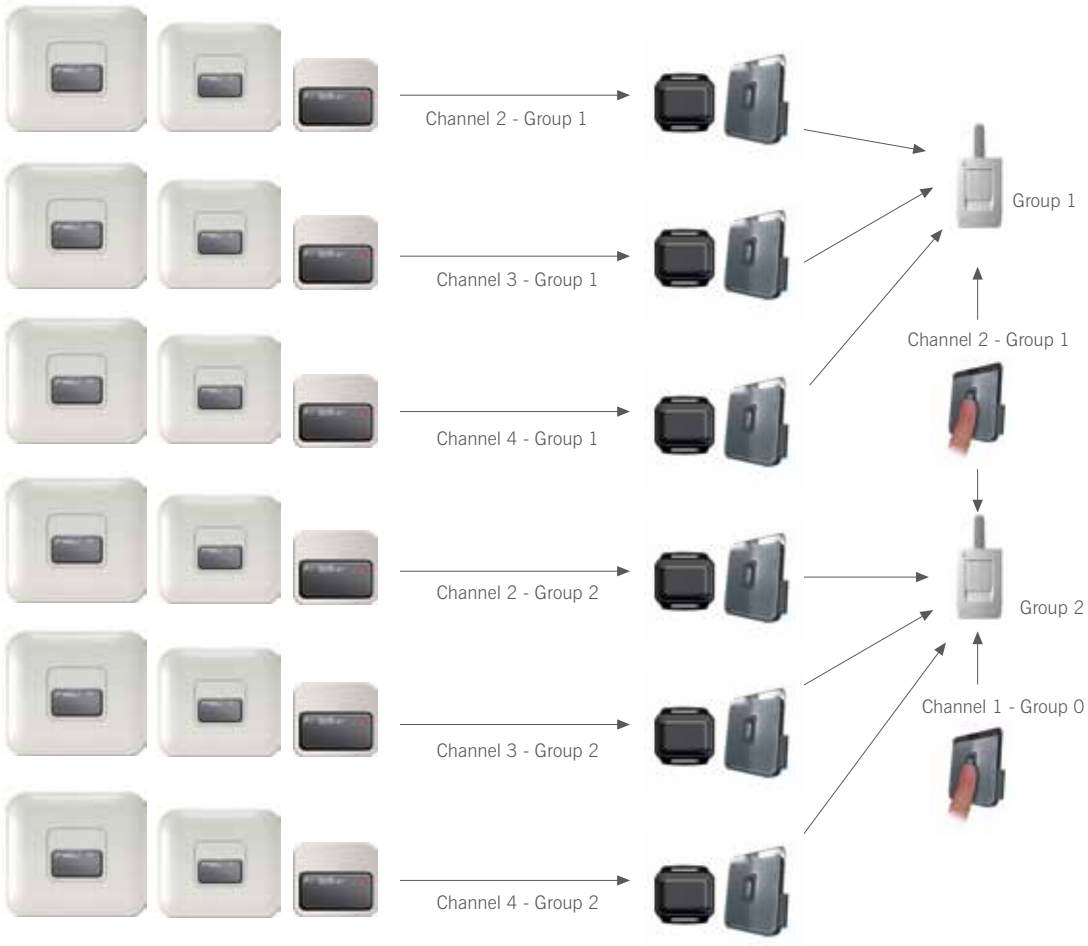
While pressing the button, tag works exactly the same as a traditional transmitter. It only sends the TAG code plus Open Group (Group 0 by default) and channel 1. So every receiver in which this information has been learned will accept the TAG information and will activate the outputs.

The difference between both ways of functionning of **Free** system lies on the quantity of information is transmitted by the TAG to the receiver. While working as hands free, trigger plus tag information are sent, but while working manually, only an open group plus tag information are sent.



Groups concept

FreeT is able to manage up to 21 diferent doors while Free TH is able of 28. Ideally for apllications of fast doors and wandering control.



3 Installation

3.1 Installation and connections Free15r, Free30r and Free50r/rs

Free system offers to the installer a fast and comfortable way to install the product.

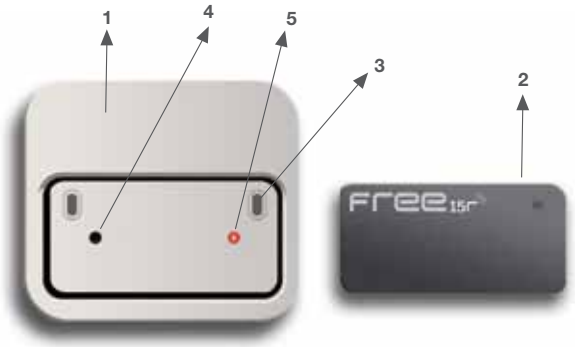
Trigger is made by a compact plastic housing in its front with a cable output in its rear part **(1)**.

A trim sticker **(2)** is given so that led and programming push are protected.

Free15r has been designed to be installed directly on the wall or built in. Fixation is made with two screws separated among themselves by 60mm **(3)**.

Trigger push button allows the programation of the groups and channels of activation **(4)**.

Trigger led is visible through the window of the sticker **(5)**.



Triggers dimensions are 87x78x15 mm (**Free**15r); 205x183x14 mm (**Free**30r); 394,4x310,5x41,6 mm (**Free**50r) and 394,4x310,5x78,7 mm (**Free**50rs). This allows **Free**15r to be installed in a standard electric box, either wall mounted as built in, both interior or exterior of the installation.

To a better adjustment of the activation area, **Free**30r is supplied together with an orientable wall support. This support is also compatible with **Free**15r, but in this very case, it must be acquired as accessory.

Free50r / rs are also delivered with an orientable wall support, but different from the previously mentioned support.

Free15r / **Free**30r support.

Free50r / **Free**50rs support.

Triggers are completely independant from the receiver. The unique thing they need for work is power.

There are two ways to install the triggers, as individual or collective.

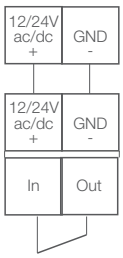
Installation 3

Installation and connections Free15r, Free30r and Free50r/rs 3.1

Individual installation

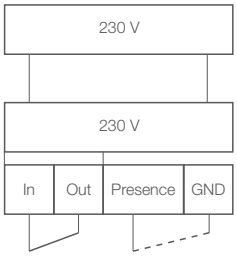
Free15r and Free 30r must be plug to a 12/24ac/dc power supply as shown in the following scheme. Free 50r / rs must use a 230V power supply instead.

Free15r
Free30r



Signal	Cable Color
+ (12/24V ac/dc)	Red
- (GND)	Black
Sync IN	Green
Sync OUT	White

Free50r
Free50rs



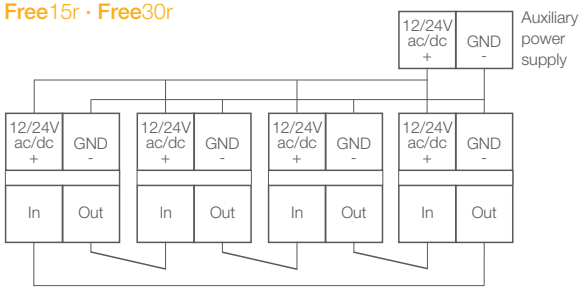
Signal	Cable Color
Presence	Red
- (GND)	Black
Sync IN	Green
Sync OUT	White

In **Free**50r, if a presence detector is not used, the presence detector cable (red) must be connected to the mass cable (black), that in this case simulates an all time presence detection. Moreover of shorting the syncronism signals of IN and OUT.

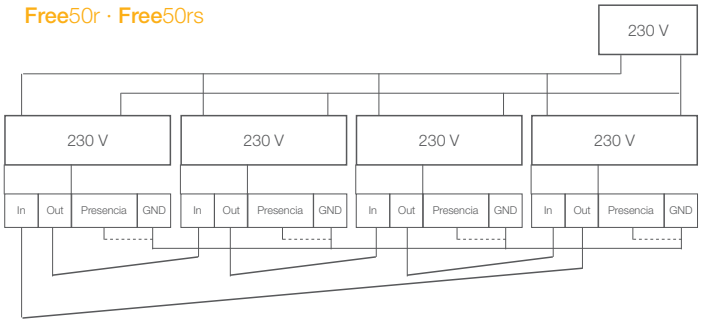
Collective Installation

In a collective installation of **Free**15r / **Free**30r, these must be connected in series and four units as maximum can be connected. To ensure a perfect functionning of these triggers, the OUT sincronism signal must be connected to the following IN one, and once we arrive to the last trigger, we have to link the IN signal of this last one to the OUT signal of the first one.

Free15r · **Free**30r



Free50r · **Free**50rs



Free50r and **Free**50rs triggers must be connected in series and a maximum of 4 can be connected. In order to get a proper funtioning, OUT sincronism signal must be connected to IN sincronism signal until the last trigger is connected, in which IN signal must be linked with OUT signal from the first trigger. In this version first trigger ground signal (GND) must be connected to the next trigger ground signal until the last one is connected. If a presence detector is not installed, presence signal must be linked to the ground cable (GND) of the same trigger.

3 Installation

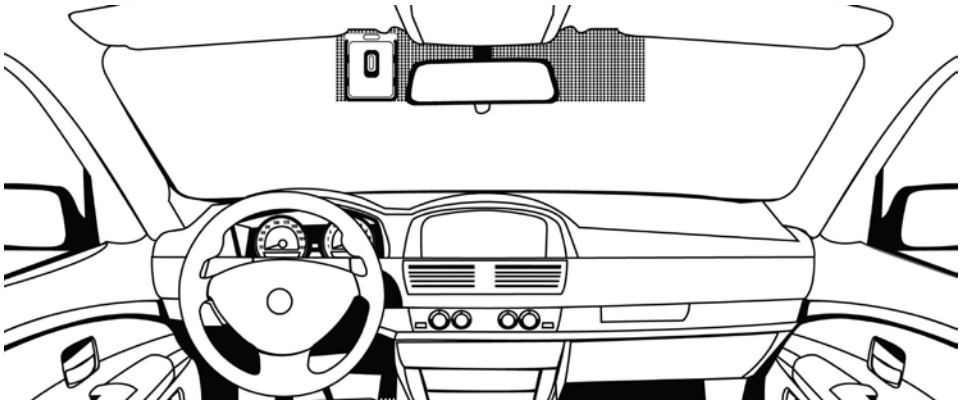
3.2 TAG **Free**T Installation

FreeT ofers to the user a very simple and comfortable way of installation, either vehicle, clothe or as keyholder.

To install it in the vehicle, there is a car holder. It must be sticked to the car by removing the sticker protection. We recommend to stick it in a plane surface.

For a correct application, the surface must be clean while sticking the car holder.

Just in case that the car holder is placed in the windshield, we recommend to allocate it in the dotted area to guaranty a better range in athermal windows.



To place the TAG in:

- Car Holder, only slide the Tag through the car holder guides.
- Clothes; pockets, belts... we facilitate a cloth holder that works as clamp between the Tag and the cloth. To subject the Tag to it, only to put the plastic of the clamp in the Tag is needed.

The Tag also can be used as keyholder. To do it, only to put a ring in the Tag slot is required.

Both, clothe and car holder are supplied with the **Free**T.

Programación 4

Programming TAG in receivers 4.1

TAG can be programmed in the receiver manually or by using the programming tool Assistant or PROG-MAN.

Manual Programming

To program or learn the **Free**T in a receiver, the programming function in the receiver must be activated by the Prog button. Once the receiver has emit one whistle, that means programming is open, the push button of the Tag must be pressed or also canbe aproach the Tag to a trigger in order to make the Tag to activate itself. The TAG emits the information to the receiver together with a whistle that confirms Tag programming in the receiver. To finish this operation, you can either press the Prgo button or wait to the receiver to get out of programming status automatically.

Programming with ASSISTANT or PROG-MAN

To program or learn the **Free**T in the receiver through programming tools it must be assigned to the receiver in the ASSISTANT or PROG-MAN the Tag code. By this, when Tag will get closer to the trigger o the push button of the Tag will be pressed, the receiver will recognize the **Free**T.

Also code reservation o substitution is valid.

4 Programming

4.2 Trigger programming

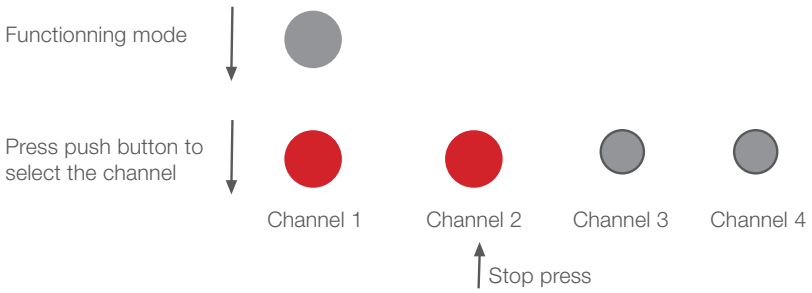
The trigger allaows to program Codes and Groups. Both are done thanks to the push button and following the color indications given by the led.

Channels: 4 channels maximum

To start to program the channels of the trigger, the push button of it must be pressed. Then the led will start blinking slowly and showing a red color. Each blink equals a channel. To selec the channel, it must be released the push button once we arrive to the desired channel.

Red led will remain in red showing that the channel has been selected.

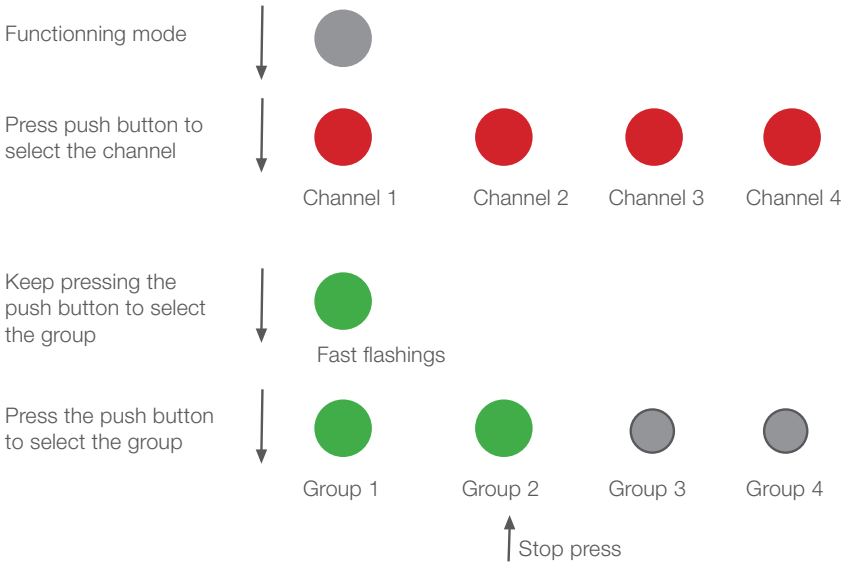
Channel 2 programming example:



Groups: 7 groups maximum

To program a group, the functionning is quite similar to the channels procedure. Push button of the trigger must be pressed. Led will show the red slowly blinkings of the channels configuration. But we must keep pressing, then led will show green blinkings in a really fast way. This meants that groups programming is comming. Once the fast green blinking are over, the slowly green blinking appears. Each slowly green blinking means a group. To select a group, it must be released the push button once the group desired is achived.

Green led will remain for a while indicating that the group has been selected properly.



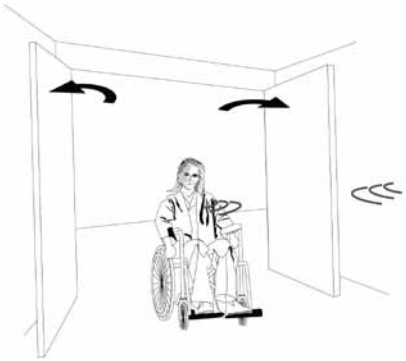
Applications 5

FreeT has been though to be used in applications such residential, community, shopping, offices, restaurants, industry, institutions and twon planning.

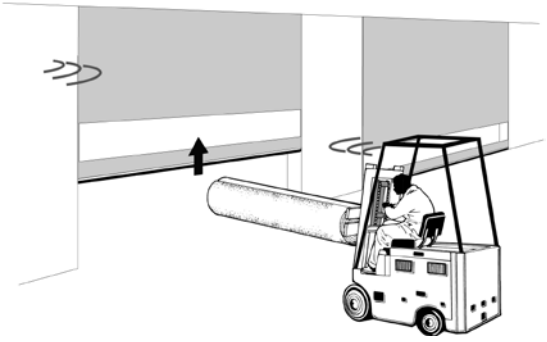
FreeTH has been though to be used in hospitals, offices, restaurants and industries.

Application in shops and hospitality 5.1

Application in offices 5.2

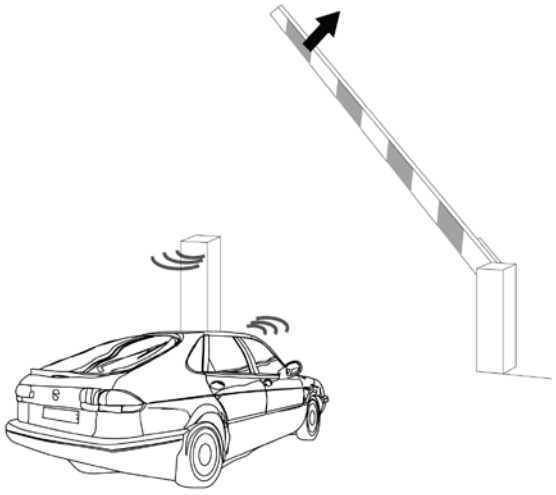


Application in Industry 5.3

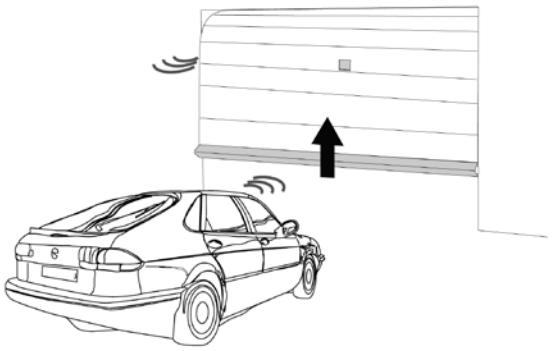


5 Applications

5.4 Application in barriers



5.5 Application in residential and community doors



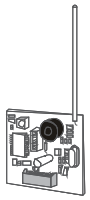
Recommendations 6

To ensure an optimal functionning of the **Free System**, from JCM we do recommend to follow the below advises

- Do not install the trigger in metallic surfaces. If so, the range can be affected.
- To change the batteries every 18 months or at least when the Tag point it out by acustic or lighting signal
- As in **Go**Pro, do not use **Go** transmitters in installations that a **Free**T / TH are installed as **Free**T / TH equals a **Go**Pro.

7 Receivers allowed for the groups

Resume of receivers which can work with FREE system GROUPS

RECEIVERS				
	MOTION JCM Receiver	Applications	Description	Compatible with GROUPS system
	BASE30	868 MHz radio receiver, 1 or 2 relays, 30 codes.	1 impulse relay channel. / 2 channel (Relay 1 impulse and relay 2 selectable impulse/bi-stable). Built-in antenna. Fixed 30 code memory. Power supply: 12/24Vac/Vdc	Transmitter group self-learning
	BASE500	868 MHz radio receiver, 1 or 2 relays, 500 codes.	1 impulse relay channel. / 2 channel (Relay 1 impulse and relay 2 selectable impulse/bi-stable). Built-in antenna. Removable 500-code memory. Power supply: 12/24 Vac/Vdc.	Compatible with groups
	STICK30	Pluggable receiver card, 2 channels, 30 codes.	2 channel (Relay 1 impulse and relay 2 selectable impulse/bi-stable). Built-in antenna. Fixed 30 code memory.Pluggable in control panel. Power supply: 12Vdc from the panel.	Transmitter group self-learning
	STICK500	Pluggable receiver card, 2 channels, 500 codes.	1 impulse relay channel (modificable a biestable con herramienta de programación ASSISTANT). Built-in antenna. Removable 500-code memory. Pluggable in control panel. Power supply: 12Vdc from the panel.	Compatible with groups
	ST500	Active antenna with built-in 868 MHz.	2 impulse relay channels (can be modified to bi-stable using the ASSISTANT programming tool). Removable 500-code memory. Antenna connector. Dead-man program for transmitters which work this way. Pluggable in ASSISTANT and PROGMAN programming tools.	Group self-learning
	CONNECT	Multi-protocol 868 MHz radio receiver.	Allows for the use of 868 MHz transmitters with any control panel operating with Wiegand or Clock&Data protocol. Allows for single or multi-channel configuration. Power supply: 12Vdc. Anti-passback input. Built-in antenna.	Group self-learning
	ACTIVA GO	Active antenna with built-in 868 MHz.	Allows for the reception points to be multiplied and to increase the range of the system, connecting several antennas in parallel. Works as a buffer, receiving codes and re-transmitting them to the receiver by cable. Can be used as an interface with DCS equipment. Power supply: 12Vdc. Maximum cable length: 200 m.	Group self-learning
	RBMOTION	Radio communication system for safety bands with built-in MOTION 868 MHz receiver.	Equipment comprising: RADIOBAND receiver (2 relays with selectable operating mode. Can behave like a safety edge or a closed safety contact). 6-RADIOBAND/TBX transmitter memory. MOTION 868 MHz receiver (2 relays (Relay 1 impulse and relay 2 selectable impulse/bi-stable), fixed 30 code memory. Power supply: 12/24Vac/dc.	Transmitter group self-learning

Receivers allowed for just one group 8

Resume of receivers which can work with just one FREE system GROUP.

RECEIVERS				
	MOTION JCM Receiver	Applications	Description	Compatible with GROUPS system
	WAVE500	868 MHz radio receiver. 1 or 2 channels, being extendible to 4 channels, 500 codes. BUS-LIN.	2 canales (relé 1 impulsional, relé 2 impulsional/bies-table modificables con herramienta de programación ASSISTANT). Built-in antenna. Removable 500-code memory. Power supply: 230 V o 12/24 Vac/Vdc. Acces control input.	Non compatible with groups
	ACCESS500	Stand-alone access control, 1 channel, being extendible to 4 channels, 500 codes.	Impulse/bi-stable relay channel. Power supply: 230 Vac. Removable 500-code memory. Built-in radio. Acces control input. 1000 eventos (opcional).	Non compatible with groups
	ACCESS1000	Stand-alone access control, 2 channels, being extendible to 4 channels, 1000 or 2000 codes.	2 Impulse/bi-stable relay channels. Dual power supply: 230Vac / 12Vdc. Removable 1000/2000-code memory. Built-in radio. Acces control input. 2000 eventos (opcional).	Non compatible with groups

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