

**NEW WAVE**

**ANTENNA ATTIVA**

*ACTIVE ANTENNA*

**AKTIVE ANTENNE**

*ANTENNE ACTIVE*

**ANTENA ACTIVA**

*ANTENA ACTIVA*



**CE**

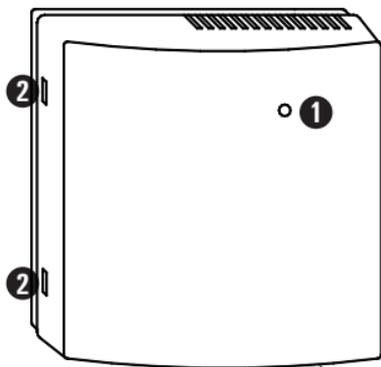


Fig. 1 - Abb. 1

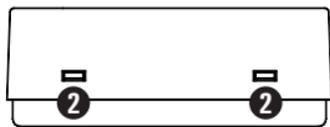
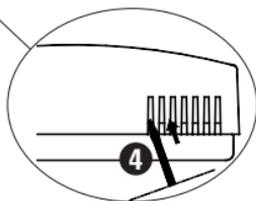


Fig. 2 - Abb. 2

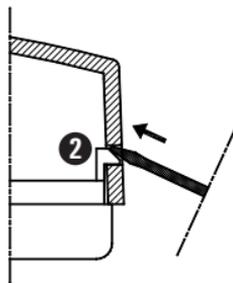


Fig. 3 - Abb. 3

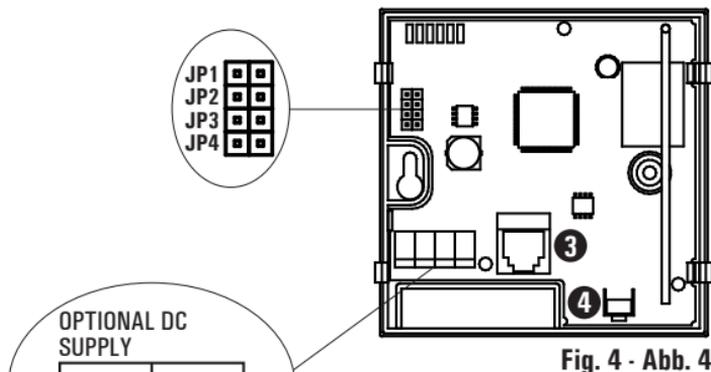


Fig. 4 - Abb. 4

- 1 - GND, negativo alimentazione
- 2 + +V, positivo alimentazione
- 3 A Conduttore A bus RS485
- 4 B Conduttore B bus RS485

Solo nel caso in cui il dispositivo non riceva alimentazione tramite il cavo dati, ovvero il dispositivo è usato come ripetitore o ricevitore, è necessario alimentare il dispositivo con tensione 12VDC. I morsetti 1- e 2+ sono gli ingressi per la tensione di alimentazione.

- 1 - GND, negative power supply
- 2 + +V, positive power supply
- 3 A Conductor A RS485 bus
- 4 B Conductor B RS485 bus

*Only when the device does not receive power supply through the data cable so when it is used as a repeater or PC receiver it must be powered with 12VDC voltage. Terminals 1 (-) and 2 (+) are the inputs for the power supply voltage.*

- 1 - GND, negativ Speisung
- 2 + +V, positiv Speisung
- 3 A Leiter A Bus RS485
- 4 B Leiter B Bus RS485

Es ist notwendig, das Gerät mit 12VDC Spannung zu speisen, nur wenn das Gerät durch keinen Datenkabel gespeist wird, bzw. das Gerät arbeitet als Relaisstelle oder Empfänger. Die Klemmen 1 - und 2 + sind die Eingänge für die Speisungsspannung.

- 1 - GND, négatif alimentation
- 2 + +V, positif alimentation
- 3 A Conducteur A bus RS485
- 4 B Conducteur B bus RS485

Seulement dans le cas où le dispositif ne reçoit pas d'alimentation à travers le câble de données ou lorsque le dispositif est utilisé comme répéteur ou récepteur, il est nécessaire d'alimenter le dispositif avec une tension de 12 VDC. Les bornes 1 - et 2 + sont les entrées pour la tension d'alimentation.

- 1 - GND, negativo alimentación
- 2 + +V, positivo alimentación
- 3 A Conductor A bus RS485
- 4 B Conductor B bus RS485

Sólo en caso de que el dispositivo no reciba alimentación mediante el cable datos, o bien el dispositivo sea usado como repetidor o receptor, es necesario alimentar el dispositivo con tensión 12VDC. Los bornes 1- y 2 + son los ingresos para la tensión de alimentación.

- 1 - GND, negativo da alimentação
- 2 + +V, positivo da alimentação
- 3 A Condutor A bus RS485
- 4 B Condutor B bus RS485

Somente no caso em que o dispositivo não receba alimentação por meio do cabo de dados, isto é, o dispositivo seja usado como repetidor ou receptor, é necessário alimentar o dispositivo com tensão de 12Vcc. Os terminais 1 - e 2 + são as entradas para a tensão de alimentação.

## **IMPOSTAZIONE JUMPER · JUMPER SETTINGS · EINSTELLUNG JUMPER RÉGLAGE BRETELLE · AJUSTE JUMPER · CONFIGURAÇÃO JUMPER**

**JP1 e JP2** selezionano il modo di funzionamento del dispositivo. I connettori **JP3** e **JP4** non sono usati.

Dopo un'eventuale modifica è necessario togliere e ridare alimentazione al dispositivo.

***JP1 and JP2** select the operating mode of the device. The connectors **JP3** and **JP4** are not used.*

***Disconnected and reconnect power supply in order to make changes effective.***

**JP1** und **JP2** wählen die Betriebsweise des Geräts aus. Die Verbinder

JP3 und JP4 sind nicht benutzt.

Nach ausgeführter Veränderung die Stromzufuhr abschalten und dann das Gerät wieder speisen.

*JP1 et JP2 sélectionnent le mode de fonctionnement du dispositif. Les bretelles JP3 et JP4 ne sont pas utilisées.*

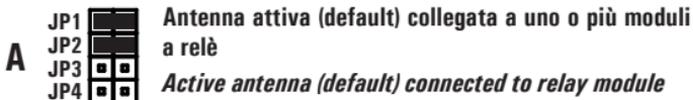
*Après une éventuelle modification, il faut couper et rétablir l'alimentation du dispositif.*

JP1 y JP2 seleccionan el modo de funcionamiento del dispositivo. Los conectores JP3 y JP4 no se usan.

Después de una eventual modificación es necesario quitar y dar la alimentación al dispositivo.

*JP1 e JP2 seleccionam o modo de funcionamento do dispositivo. Os conectores JP3 e JP4 não foram usados.*

*Após uma eventual modificação é necessário cortar e dar novamente alimentação ao dispositivo.*



Aktive Antenne (Default) an ein oder mehrere Relaismodule angeschlossen

*Antenne active (par défaut) connectée à un ou plusieurs modules à relais.*

Antena activa (default) conectada a uno o más módulos a relé

*Antena activa (por defeito) conectada a um ou mais módulos de relé*

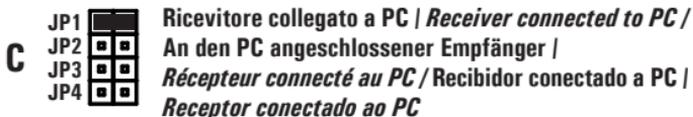


Fig. 5 - Abb. 5

## MAIN FEATURES

- Operating frequency 868.150 MHz
- Operating modes: Active antenna for relay modules  
Repeater  
Receiver for home automation

## TECHNICAL FEATURES

Power supply:	6 .. 14 VDC by data cable or terminals
Current absorption:	50mA max
Frequency:	868.150 MHz
Sensitivity:	-105 dBm
Modulation:	GFSK
Bandwidth (-3 dB):	100 KHz
Type of antenna:	internal
Protection rating:	IP 30
Operating temperature:	0°C .. 40°C
Storage temperature:	-10°C .. +50°C
Humidity limits:	20% .. 80% RH non-condensing
Enclosure:	Material: ABS V0 self-extinguishing Colour: Signal White (RAL 9003) Dimensions: 85 x 85 x 31 mm (W x H x D) Weight: ~ 220 g
Installation:	Wall mounted
EMC normative references:	ETSI EN 301 489-3 v1.4.1
LVD normative references:	EN 60730-1 (1996)
R&TTE normative references:	ETSI EN 300 220-2 v2.1.1

## OVERVIEW

This device is an active antenna with high sensitivity and selectivity intended for use in radio systems to regulate the temperature in home or industrial environments or offices.

Operating on a frequency of 868.150 MHz (LPD) provides the user with all the advantages of this band, such as the greatest freedom from interference and greater efficiency in the transmission of the signal.

## OPERATION

The active antenna, together with one or more relay modules, is the receiving part of a wireless system intended to be used for temperature regulation.

The device connects with the relay module through a 6-pin data cable and communicates with the RS485 bus. Every relay module can extend the communication bus module by means of additional modules and relevant data cables.

Up to a maximum of 10 relay modules can be connected to the same active antenna.

The device can be configured to work as a repeater, that is re-transmitting the radio commands received from one or more wireless devices that have difficulties in reaching the receiver. In this way, it is possible to solve problems of transmission distance in difficult environments or to double the distance that can usually be reached.

Alternatively, the device can be connected to a PC or a home automation controller instead of a relay module, with which it will communicate through the RS485 bus. In this way, it is possible to receive all the commands coming from the radio thermostats to the home automation controller, which will manage the control outputs of the heat regulation system and a user interface, if any.

The relay modules provide the power supply in direct current through the data cable. If the device is used as a repeater or receiver connected to a PC, it must receive the power supply through the two terminals duly shown with 1- and 2+ (Fig. 4).

### Working as a repeater

The device is factory configured to operate as an active antenna.

To configure the device as a repeater, remove the **JP1** jumper and leave **JP2** inserted (as shown with **B** in Fig. 5). The device works as a repeater and no longer communicates with the relay modules. In this configuration, 12VDC power supply must be supplied to terminals 1- and 2+.

Carry out the self-learning procedure of the device's address, on which you want to repeat the radio command:

- Turn on the thermostat or other transmitting device and set it up in "test" mode. (This means that it will continuously transmit an ON command,

- followed by an OFF command after 3 seconds).
- Press the “self-learning” key for a second, shown with ④ in Fig. 4. This enables the self-learning procedure and the LED ① in Fig. 1 will flash quickly in orange. The self-learning key can be pressed, even without removing the cover, using a small screwdriver through the slots on the front, as shown with ④ in Fig. 1.
  - As soon as a test radio command is received, the LED remains lit in orange and will stay lit for 7 seconds. During this time, the device waits for other test commands. If test commands are received from other radio devices, the device will save the command received with the highest power. This enables the learning of the address of the device that is physically the closest.
  - Once the time has expired in the previous point, the address learnt will be saved in a non-volatile memory and the LED will flash in a green-red-green-red sequence. The procedure ends automatically and the device starts to work as a repeater.
  - To complete the installation of the repeater, the self-learning procedure of the command address re-transmitted by the repeater must be also carried out on the receiver. To do this, just leave the transmitting thermostat in the test mode, whose commands will be repeated by the repeater just configured. In order for the receiver to learn the commands coming from the repeater and not from the thermostat, you need to make sure that the repeater has been positioned (even temporarily) halfway between the receiver and the thermostat or that the repeater has been positioned closer to the receiver. Check that the receiver receives the commands repeated by the device. The output relay should immediately start to enable and disable itself every three seconds, following the commands given by the transmitter.

Repeat the procedure for every transmitter on which you want to repeat the command. Up to 50 transmitting addresses can be saved and repeated.

If no address has been learnt in the memory, the LED flashes quickly in green to indicate an error status as the device will not repeat any command.

Once it has learnt at least one address, the LED remains lit in a fixed green colour to show that the device works regularly as a repeater.

The LED will light up in orange for a while to show that a command has been received; whereas it will light up in red for a while to show that a command

has been re-transmitted.

If there is a problem with radio communication during the self-learning, it will not be able to reach the third point of the procedure, the LED will continue to flash in orange and the procedure will be interrupted automatically after 30 seconds.

The procedure can be interrupted also by pressing the self-learning key again. It is recommended to repeat only the commands of the transmitters that effectively have a range problem in contributing towards keeping the band as free as possible.

### **Deleting a repeated address**

There are two possibilities if you want to delete an address that has been learnt, so that the commands of the corresponding transmitter are not repeated any more: deleting the last address that has been learnt or deleting all the memory.

To delete the last address, press the self-learning key and keep it pressed down, the LED flashes quickly in orange and release the key when the LED turns red. The deletion that has been executed is shown on the LED with a green-red-green-red sequence.

To delete all the memory press the self-learning key and keep it pressed down until you see the green-red-green-red sequence on the LED.

### **Working as a receiver for the PC**

The device can be connected to a PC or a home automation controller, with which it will communicate by means of the RS485 bus. To configure the device as a receiver, leave the **JP1** jumper inserted and remove **JP2** (as shown with **C** in Fig. 5). The device works as a receiver and no longer communicates with the relay modules. In this configuration, 12VDC power supply must be supplied to terminals 1- and 2+.

For further information on the operating mode and the communication protocol, please contact your local distributor.

### **LED**

The two-colour LED **1** usually remains on in green and fixed to shown that the device is powered and operational.

The LED may flash continuously to show that there is an error, for example, in working as an active antenna. If there is an error in one of the channels of the connected modules, this is also signalled by the device's LED.

The statuses shown by the two-colour LED vary according to the operating mode:

### Active antenna mode

**Fixed green:** device powered and ready to receive.

**Fixed orange (short):** a radio command was received and sent to the relay modules.

**Fixed red:** association mode ongoing in the relay modules.

**Flashing red (fast):** communication error with relay module.

**Any flashing colour (slow):** repetition of the most significant error coming from a relay module of the chain.

### Repeater mode

**Fixed green:** device powered and ready to receive/transmit.

**Fixed orange (short):** a radio command was received.

**Fixed red (short):** a radio command was re-transmitted.

**Flashing green (fast):** no address to be repeated was learnt.

**Flashing orange:** self-learning of the channels to be repeated.

### Receiver mode for PC

**Fixed green:** device powered and ready to receive.

**Fixed orange (short):** a radio command was received and sent to the PC.

**Flashing red (fast):** serial communication error.

## **INSTALLATION**

The receiving system consists of at least one active antenna and a relay module.

The best place to install the device should be decided based on the following points:

- The antenna was designed within a small enclosure so that it could be easily installed where the radio signal is the strongest.

It is often the case that the place where the relay module is installed is not a good position for the antenna.

- The worst case scenario is when the relay module is installed in a metal frame. The antenna must definitely be positioned completely outside the metal frame.
- As the radio signals are strongly reduced by metal shielding, the antenna should be positioned as far away as possible from metal grilles or objects.
- Attention must also be paid to the type of wall on which the antenna is fixed. It must not be metallic or have an inner metal structure.
- The radio signals within a building are reflected by walls, floors, furniture and other objects. Therefore it may be the case that some areas of a building have no reception, while other zones have a very good reception. Even moving the antenna only by half a meter can cause a considerable improvement in the reception. Once the position where the antenna will be installed has been chosen, you need to check the system to make sure that the signals are received from all the transmitters. Consult the documentation of the thermostats to carry out this operation. Once the system has been checked successfully, carry out the final installation of the device.

In order to finally install the device follow these directions:

- Remove the cover using the screwdriver as a lever on the plastic tabs, shown with ② in Fig. 1-2, pressing down lightly between the tab and the hole in the plastic, without pushing down directly on it to avoid it breaking. Fig. 2 shows the cross-section of the plastic enclosure to emphasize how to use the screwdriver correctly.
- Once the best place for installation has been identified, fix the bottom of the device onto the wall using two screws and the two holes spaced 60 mm apart.

When working with tools in the vicinity of the screw holes, be careful not to damage the internal electronic circuits.

- Select the operating mode of the device. (See the "OPERATION" paragraph.)
- Connect the device to the relay module, inserting one end of the connection cable provided on the data connector and the other end on the connector

marked with the label "SIGNAL IN" on the relay module.

- It is not necessary to connect the external power supply when the device is connected to a relay module as the latter supplies power through the data cable.
- If you only use the device as a repeater or receiver connected to a PC, that is to say not connected to a relay module, it is necessary to connect an external power supply to terminals 1 and 2, respecting the polarity. Use a mains adaptor with direct current output having voltage and output current as stated in the "Technical data" paragraph.
- Close the device by positioning the cover on the bottom and press down lightly until the four plastic tabs click.

### **WARNING**

- **When deciding on a correct position, make sure that the radio signals transmitted are received correctly by the receiving unit.**
- **Device installation and electrical connections must be carried out by qualified personnel and must comply with the laws in force.**
- **Before making any connections, make sure the mains power is disconnected.**

In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice. The consumer is guaranteed against any lack of conformity according to the European Directive 1999/44/EC as well as to the manufacturer's document about the warranty policy. The full text of warranty is available on request from the seller.

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