

Two beams active infrared barrier



1.Introduction

The ABT series detector are double beam active detector for outdoor and indoor operations. The detector is composed by a transmitter and a receiver. The alarm condition is generated from the interruption of the two beams for a programmable period. This in order to avoid false alarm due to the passage of small animals. The detection range is assured by an Automatic Gain Control special circuit allowing the operativeness of the detector also with environmental disturbances. The optics can rotate allowing the installation of the fixed units on non parallel surfaces. The alignment is facilitated by an optical LED signalling the received level, present both on the receiver and transmitter units. The units can be addressed to allow the installation of more barriers on the same plant, and can be selected up to 8 different frequencies to avoid interferences.

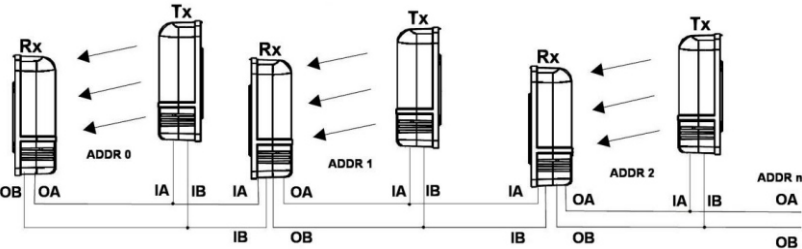
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5	OA	RS485 Bus output A
6	OB	RS485 Bus output B
7	C/CN	Alarm relay output NC/NO
8	COM	Alarm common relay output
9	TAMPER	Tamper switch
10	TAMPER	Tamper switch

3.2 Tx Unit
Wire terminals: In the top of the unit there is a 6 pole wire terminals for connections:

N	Nome - Name	Descrizione - description
1	POWER	Supply voltage input (non polarized)
2	POWER	Supply voltage input (non polarized)
3	TAMPER	Tamper Switch
4	TAMPER	Tamper Switch
5	IA	RS 485 input A
6	IB	RS 485 input B

The RS485 BUS is used to synchronise the barriers and to have the signal level indication also on the transmitter unit. If you have to install some barriers proceed with BUS connection as shown:



4.Setting

4.1 Rx unit
In the Rx unit is present a five position DIP SWITCH and one potentiometer to adjust the response time, from 50mS to 240mS. The DIP SWITCH functions are described on the table below:

N	Nome	Descrizione
1	FREQ1	Frequency setup x1
2	FREQ2	Frequency setup x2
3	FREQ3	Frequency setup x4
4	NO/NC	Alarm NO/NC contact selection
5	BUZZER	Signal BUZZER ON/OFF

Frequency: The beam frequency can be set to avoid interferences with other barriers, for installations with multiple barriers. Every barrier must be set to a different frequency, and the Tx and Rx couple must have the same frequency. See the table below:

frequenza	1 (default)	2	3	4	5	6	7	8
DIP SWITCH								
FREQ1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
FREQ2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
FREQ3	OFF	OFF	OFF	OFF	ON	ON	ON	ON

NO/NC: The wire terminals has one alarm output. This switch allow to select in normal conditions (not alarm) if the output has to be open or close:

alarm output	NO/NC	Description
normally open	ON	The output between terminals COM and C/NC is open in normal conditions.
normally closed	OFF (default)	The output between terminals COM and C/NC is closed in normal conditions.

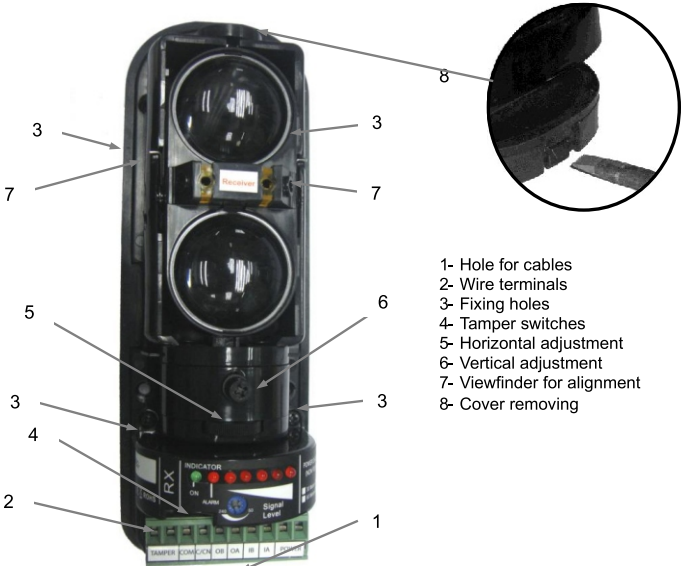
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2. Installation

The detector can be fixed into flat wall or fixed on pole supports using the bracket supplied. The maximum optical axis misalignment of the units depends on the distance between Tx and Rx : at 30m the maximum axis misalignment is +/-1m, at 60m is +/- 1.5m, at 100m is 2.5m.

ATTENTION! Do not install subject to strong direct lights, direct sunlight or lamps, assure that there are no obstructions between the Tx and Rx units, do not install on a unstable support, do not install near to electric power cables, avoid installations on dusty places or where accidental splashes can dirty the detector optics.

The detector can be installed from 0,7m to 1,0m of height. To obtain the optical alignment the detector can be adjusted +/-90 horizontal and +/-10 vertical.
1. Remove the cover of the units pushing the hook closure and open the holes for cables.
2. Mark the fixing points on the support where the equipment units will be mounted and drill the holes. For pole mounting, use the bracket supplied. Two units can be mounted on the same pole, back to back. The units must be two transmitters.
3. Put the cable through the hole for wiring. Use shielded cable, also for the connection between Tx and Rx units.
4. Connect the cables on the wire terminals. The shield connection must be connected to the earth terminal on the control panel.
5. Proceed with settings and beam alignment.



3.Wiring

For the connections must be used shielded cable. The cable must be placed correctly over the terminal block, to avoid they do not disturb the operation of the tamper switches. The maximum distance for connections of the barriers depends by the wire cross section. See the table below for details.
ATTENTION!the connections must be made with the plant powered off.

3.1 Rx Unit
Wire terminals: In the top of the unit there is a 10 pole wire terminals for connections:

N	Name	description
1	POWER	Supply voltage input (non polarized)
2	POWER	Supply voltage input (non polarized)
3	IA	RS485 Bus input A
4	IB	RS485 Bus input B

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BUZZER: The receiver has a buzzer that sounds when the detector is in alarm state. The buzzer also indicates the state of the detector when in programming mode.

BUZZER	Description
ON(default)	The buzzer will sound when alarm state
OFF	The buzzer is off.

RESPONSE TIMEThe response time can be adjusted according to the installation and to the movement that must be detected. Higher is the detection speed, higher is the sensibility of the detector. See the table below for standard conditions:

Response time	Speed	Condition
50mS	6m/s	jumping
100mS	4 m/s	fast running
150mS	1.2 m/s	fast walking
200mS	0.7 m/s	walking
240mS	0.4 m/s	slow walking

4.2 Tx Unit
A unit Tx conta com um DIP SWITCH com quatro posies, como ilustra a figura seguinte:
In the Tx unit is present a four position DIP SWITCH. The DIP SWITCH functions are described on the table below:

N	Name	Description
1	FREQ1	Frequency setup x1
2	FREQ2	Frequency setup x2
3	FREQ3	Frequency setup x4
4	LED	Led indicators ON/OFF

Frequency: The beam frequency must be set on the same frequency as the Rx unit (see Rx frequency table).

LED: The LED indicators can be enabled or disabled setting SW 4:

LED	SW 4	Description
enable	ON (default)	The LEDs indicates alarm condition and alignment.
disable	OFF	The led does not light

5. Led indicators

The detector has light indicators (LED) on the Tx unit and on the Rx unit. These indicates the different conditions of the detector. After closing the cover, ten seconds later the indicators will be power down.



Unidade Rx

Unidade TX

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5.1 Rx Unit
The indications of the LEDs in the different conditions are:

LED	Colour	Condition	Notes
ON	green	Power supplied	-
ALARM	red	alarmed	Alarm output active
Signal level	red	alinhamento	The LEDs indicates the alignment level:
1			LEVER0 - no signal
2	red	alignment	LEVER1
3	red	alignment	LEVER2
4	red	alignment	LEVER3
5	red	alignment	LEVER4
off - off - off - off - off	red	alignment	LEVER5
blink - off - off - off - off	red	alignment	LEVER6
on - off - off - off - off	red	alignment	LEVER7
blink - on - off - off - off	red	alignment	LEVER8
on - on - off - off - off	red	alignment	LEVER9
blink - on - on - off - off	red	alignment	LEVER10
on - on - on - off - off			
blink - on - on - on - off			
on - on - on - on - off			
blink - on - on - on - on			
on - on - on - on - on			
ADDRESS 1-2-4-8-16	red	addressing	The LEDs indicates the address of the detector.

5.2 Tx Unit
The indications of the LEDs in the different conditions are:

LED	Colour	condition	Notes
ON	green	Power supplied	-
SIGNAL LEVEL	red	alignment	LEDs indicate level signal.
SIGNAL LEVEL	verde	alignment	Indicates the power transmitting signal of Tx unit:
	green	alignment	high power
	red	alignment	middle power
	orange	alignment	low power

6. Addressing
When all the connections and settings are made, power up the barrier without covers. The addressing of the barrier is made in the Rx unit. The buzzer will sound few times and ALARM LED flash for 10 seconds. In this period, the LEDs will show the actual address of the barrier. After this, the buzzer will sound longer that indicates the entering in normal running mode. Then the LEDs will indicates the signal level; if the barrier will not be aligned the ALARM LED will turn on. See the next table for address calculation:

LED	1	2	3	4	5	LED	1	2	3	4	5	LED	1	2	3	4	5
00	off	off	off	off	off	11	on	on	off	on	off	22	off	on	on	off	on
01	on	off	off	off	off	12	off	off	on	on	off	23	on	on	on	off	on
02	off	on	off	off	off	13	on	off	on	on	off	24	off	off	off	on	on
03	on	on	off	off	off	14	off	on	on	on	off	25	on	off	off	on	on
04	off	off	on	off	off	15	on	on	on	on	off	26	off	on	off	on	on
05	on	off	on	off	off	16	off	off	off	off	on	27	on	on	off	on	on
06	off	on	on	off	off	17	on	off	off	off	on	28	off	off	on	on	on
07	on	on	on	off	off	18	off	on	off	off	on	29	on	off	on	on	on
08	off	off	off	on	off	19	on	on	off	off	on	30	off	on	on	on	on
09	on	off	off	on	off	20	off	off	on	off	on	31	on	on	on	on	on
10	off	on	off	on	off	21	on	off	on	off	on	-	-	-	-	-	-

To enter address program mode, press the tamper switch three times in 3 seconds. The buzzer will sound two times and LEDs will show the actual address of the barrier. At each press of tamper switch the address will be increase by

one; when address reach 31 it will be cleared to 0. After setting the address, wait for 10 seconds and the barrier will enter normal functioning mode.

7. Alignment

The distance between Rx and Tx units must be on the range specified for the model in use. If the covered distance is out of the specified range of the barrier, the alignment can be difficult and for outdoor installations the barrier can produce false alarms of loss of signal in particular weather conditions. To align the beams observe the collimation effect at a distance of 5cm from the viewer situated in the middle of the lenses of the Rx and Tx units; set the vertical and horizontal knob to move the optics to get the image of the opposite detector into the central part of the viewing holes. Then adjust the units, one at time, to obtain the maximum signal level. Is suggested to adjust the units until signal is at least level 7. In the order to make a better alignment is possible to connect one multimeter on the output terminals LIVELLO SEGNALE on the Rx unit, as figure shown. The voltage level must be 1.85 volts or higher. Adjust to have the maximum output voltage.

8. Technical Specifications

Model		ABT-30	ABT-60	ABT-80	ABT-100
Distance	Outdoor	30m	60m	80m	100m
	Indoor	90m	180m	240m	300m
No. of beams		2 beams			
Detection mode		2 beams blocked simultaneously			
optical source		Infrared pulse beam			
Response		50 ~ 240mS			
adjustments		20 (+/- 10)			
adjustments		180 (+/- 90)			
Supply voltage		12-24V,DC			
Power Consumption					
standby:		120mA @ 12.0VDC			
max:		180mA @12.0VDC			
Alarm output					
Relay type :		solid state photoMOS			
contacts :		COM, NO, NC			
max.voltage :		30VDC			
max.current:		100mA			
Ron resistance:		< 10 ohm			
Tamper output					
Relay type :		mechanical switch			
contacts :		COM, NC			
max.voltage :		30VDC			
max.current:		50mA			
RON resistance		< 10 ohm			
dimensions		73mm x 80mm x 205mm (L x W x H)			
Temperatura de funcionamento		-10C ~ +50C			
Humidity		5 ~ 95% RH			
IP		IP54			