

# DT1000

Indoor DT detector with digital PIR sensor for intrusion detection systems



Recipients of the instructions:  User |  Installer

## 1. DESCRIPTION

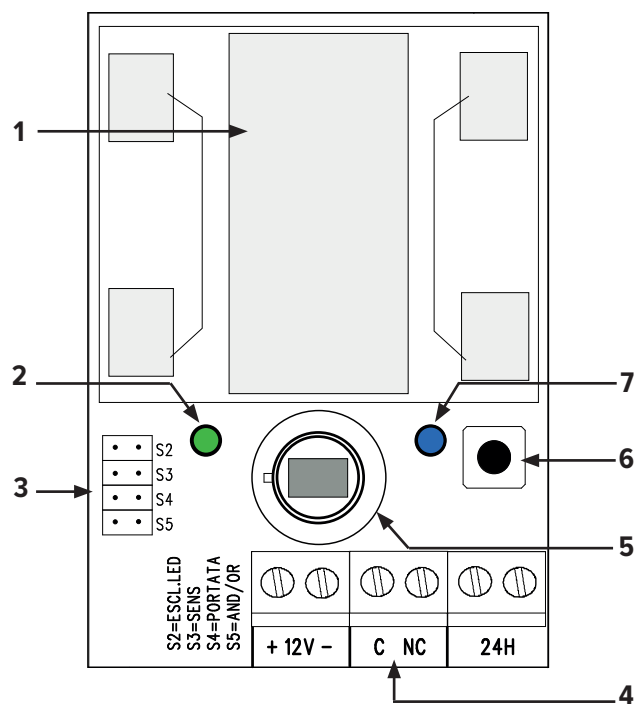
DT1000 is a double technology (infrared and microwave) detector for indoor use, featuring a compact housing and low consumption. The detection operation can be programmed to AND or OR mode: two LEDs (visible through the detector lens) notify the intervention of either technology.

DT1000 can be entirely configured by using jumpers.

**Infrared (IR) section:** high sensitivity digital PIR sensor with temperature compensation.

**Microwave (MW) section:** low consumption DRO planar antenna with pulse operation, protected by electronic filter for neon lamps.

## 2. ELECTRONIC BOARD



1. Planar antenna (MW section)
2. Green IR LED
3. Jumpers for function setting
4. Terminal board
5. PIR sensor (IR section)
6. Tamper for protection against opening
7. Blue MW LED

## 3. TECHNICAL DATA

Model	DT1000
Type	IR + MW
<b>MW SECTION</b>	
Maximum range	12 m
Integration pulses	4 - 8
Integration time	5 s
TX frequency	10.525 GHz (9.9 GHz for model operating at different frequency)
Coverage area	72° horizontally; 36° vertically
Emitted power	13 dBm E.I.R.P.
Spurious emissions	< -30 dBm
<b>IR SECTION</b>	
Maximum range	12 m
Integration pulses	2 - 3
Integration time	5 s
Number of sensitive zones	18
Number of plans	4
Volumetric opening	81°
<b>ELECTROMECHANICAL FEATURES</b>	
Protection grade	IP3X
Operating temperature	-10 / +55 °C
Current draw	Stabilization at power up: 18 mA Idle: 11 mA In alarm condition: 15 mA
Power supply	DC 12 V (7.5 - 15 V)
Allowed ripple	200 mV (peak-to-peak)
Alarm and 24H output resistance	10 Ω
Alarm relay capacity	500 mA
Timings	Alarm: 3 s Stand-by at power up: 45 s Pre-alarm waiting time in AND operating mode: 10 s
Installation height	2.10 m (standard)
Dimensions and weight	H82 - W54 - D44 mm, 83 g
Compliance to EN50131	Grade 1, Environmental Class 2

## 4. PREPARATORY CONSIDERATIONS BEFORE MOUNTING



Carefully read the following indications before moving forward with the device installation:

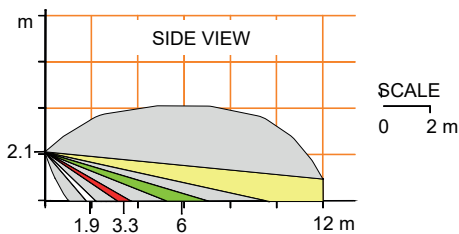
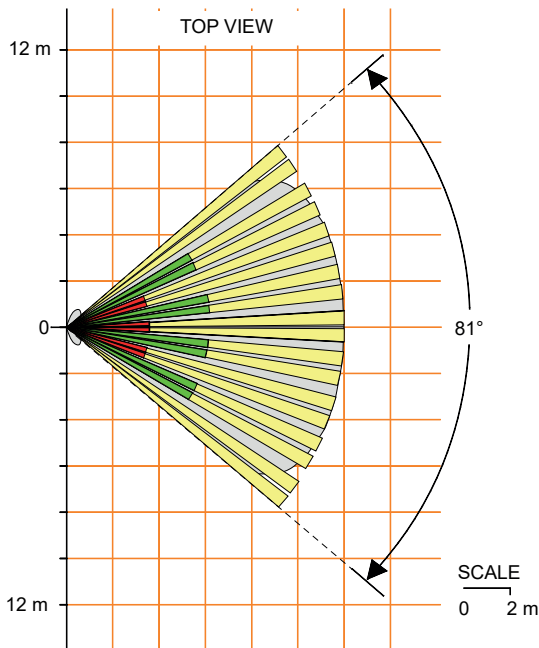
- DT1000 has been designed for protection of indoor locations.
- Choose the installation position taking into account the IR and MW coverage shown in the following diagrams. Ensure the detector field of view is completely free and no portion of it is covered by any obstacle.
- For optimal usage, install the detector at a height of 2.1 m.
- Adjust the detector MW range so that it does not cross any window or glass wall.
- Do not install the detector near oscillating metal shutters, or near vibrating metal walls (e.g. refrigeration units).
- When installing two detectors next to each other, the second one has to be a model operating at a different frequency:

**DT1000** RCRDTMP046#00 (standard)

**DT1000** RCRDTMP047#00 (9.9 GHz model)

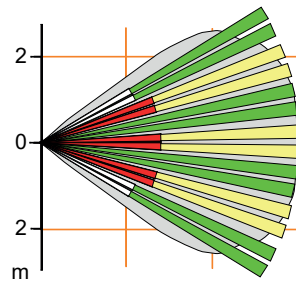
- In case you need to point the detector towards windows or plastic curtains, adjust the MW range to the minimum.
- Do not touch the PIR sensor with fingers.

### Coverage diagrams at maximum range:

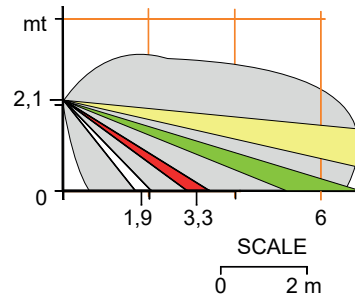


### Coverage diagrams at minimum range:

TOP VIEW



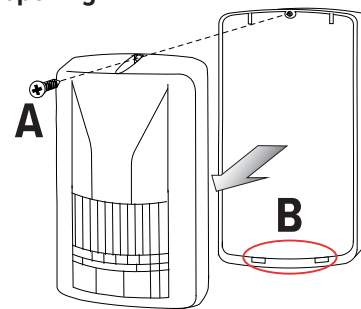
SIDE VIEW



## 5. MOUNTING OPERATIONS

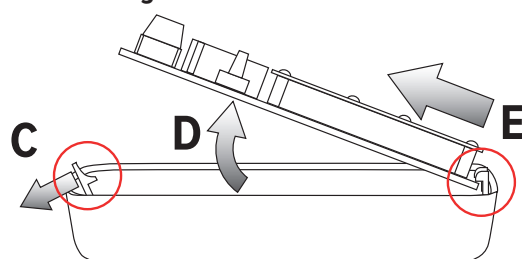


### 1. Housing opening



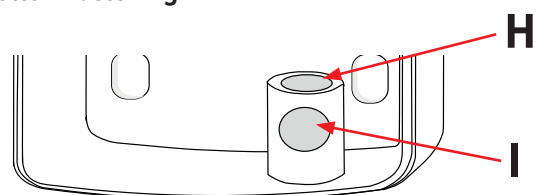
- unscrew the cover fastening screw (A)
- pull off the front cover by detaching it from the tabs (B)

### 2. Board releasing

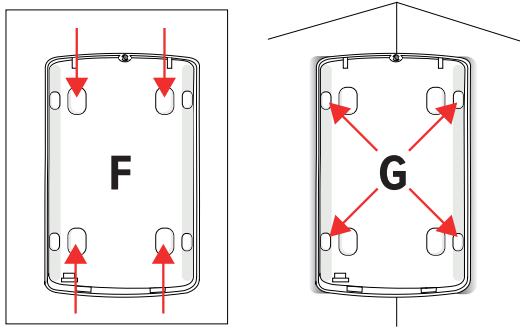


- push the stopping lever outwards (C)
- while keeping it pushed, lift the board upwards (D) and pull it out from the upper hooks (E)

### 3. Bottom fastening

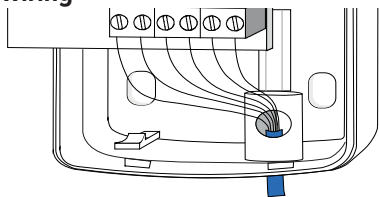


- drill a hole in position H or I (the plastic material is pre-drilled) for cable feeding



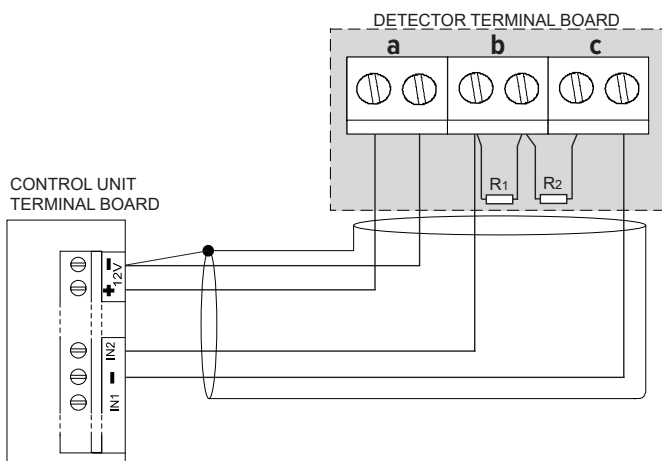
- use a screwdriver to pierce the 4 pre-drilled areas: choose the suitable ones for wall (F) or corner mount (G)
- use the housing bottom as a template to mark the fastening points on the surface
- drill the wall and insert the supplied plugs in the holes
- fasten the bottom to the wall by using the supplied screws

#### 4. Electrical wiring



- strip the sheath from the cable end to be connected to the terminal board
- feed the cable through the channel and pull it from the previously arranged hole.
- connect the wires to the terminals

In the picture below you can see an example of double balanced line (the resistors, supplied as control unit's standard equipment, must be externally wired; the typical values are  $R1 = R2 = 1.5 \text{ k}\Omega$  for EL.MO. control units).



- a. Detector power supply (+12 V)
- b. Detector alarm relay output (C-NC)  
Capacity: 500 mA  
Series resistance: 10  $\Omega$
- c. Tamper output (NC)

#### 5. Board reinsertion

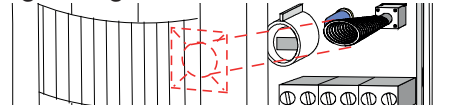
Perform the board releasing operations in reverse order:

- drive the board below the upper hooks
- turn it downwards and push it under the stopping lever

#### 6. Jumper setting-out

- set the jumpers for function selection (see chapter "6. CONFIGURATION")

#### 7. Housing closing



- lean the cover on the bottom, ensuring the Tamper protection spring perfectly fits in place
- hook the cover to the bottom tabs
- fasten the cover by using its screw

### 6. CONFIGURATION



DT1000's functions can be entirely configured by using the jumpers shown in chapter "2. ELECTRONIC BOARD". To set them, remove the cover as described in the previous chapter.

Jumper	Function	Closed (default)	Open
S2	LED exclusion	LED enabled	LED disabled
S3	Sensitivity (pulse no.)	MAX (2 IR + 4 MW)	MIN (3 IR + 8 MW)
S4	Range	MAX (12 m)	MIN (6 m)
S5	AND/OR	AND	OR

### 7. OPERATION



DT1000 detects any motion within its coverage area. The alarm notification occurs according to the set operating mode:

#### • AND mode (S5 jumper closed)

The alarm relay activates only when both IR and MW technologies signal the alarm. Either technology detects motion and enters the (IR or MW) pre-alarm condition, lasting 10 seconds. If the other technology does not confirm the motion detection within this time, the pre-alarmed section resets.

#### • OR mode (S5 jumper open)

The alarm relay activates each time either technology detects motion within the area.

#### Environmental monitoring

The DT1000 IR section performs constant accurate control of the environment and of its thermal disturbances. Thermal compensation is used to adjust the IR sensitivity according to the environment temperature, in order to achieve optimal response to the human motion and thus to reduce false alarms.

#### 7.1 LED indications during operation

Green LED	Blue LED	Indication
ON for 45 s	ON for 45 s	Power up
ON for 3 s	ON for 3 s	Alarm
Flashing	-	IR pulse
Steadily ON	-	IR pre-alarm
-	Flashing	MW pulse
-	Steadily ON	MW pre-alarm

## 8. DEVICE TEST



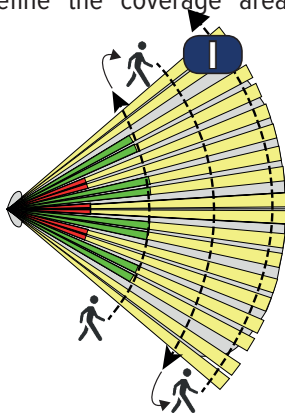
Periodically carry out a simple test of the detector range, in order to check its functionality and coverage.

Move within the sensor coverage area, walking in half-round paths around the detector (as shown in the picture below) from opposite directions, in order to define the coverage area boundaries on both sides.

The detector shall react as follows:

- green LED pulse: detection from IR section;
- blue LED pulse: detection from MW section;
- both LEDs switch on together: alarm.

Once defined, the range can be possibly set to the desired value (maximum/minimum) by using the S4 jumper.



## EU DECLARATION OF CONFORMITY

Hereby, EL.MO. S.p.A. declares that the radio equipment DT1000 is in compliance with Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following internet address: [elmospa.com](http://elmospa.com) - registration is quick and easy.



## GENERAL WARNINGS



This device has been designed, built and tested with the utmost care and attention, adopting test and inspection procedures in accordance with current legislation. Full compliance of the working specifications is only achieved in the event the device is used solely for its intended purpose, namely:

### Indoor DT detector with digital PIR sensor for intrusion detection systems.

The device is not intended for any use other than the above and hence its correct functioning in such cases cannot be assured.

Consequently, any use of the manual in your possession for any purpose other than those for which it was compiled - namely for the purpose of explaining the product's technical features and operating procedures - is strictly prohibited.

Production processes are closely monitored in order to prevent faults and malfunctions. However, the componentry adopted is subject to an extremely modest percentage of faults, which is nonetheless the case with any electronic or mechanical product. Given the intended use of this item (protection of property and people), we invite you to adapt the level of protection offered by the system to suit the actual situation of risk (allowing for the possibility of impaired system operation due to faults or other problems), while reminding you that there are specific standards for the design and production of systems intended for this kind of application.

**We hereby advise you (the system's operator) to see that the system receives regular routine maintenance, at least in accordance with the provisions of current legislation, and also check on as regular a basis as the risk involved requires that the system in question is operating properly, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. You must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.**

Work involved in the design, installation and maintenance of systems incorporating this product should be performed only by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents.

It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply. If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

## WARNINGS FOR THE INSTALLER



Comply strictly with current standards governing the installation of electrical systems and security systems, and with the manufacturer's directions given in the manuals supplied with the products..

Provide the user with full information on using the system installed and on its limitations, pointing out that there are different levels of security performance that will need to suit the user's requirements within the constraints of the specific applicable standards. See that the user looks through the warnings given herein.

Work involved in the design, installation and maintenance of systems incorporating this product should be performed only by personnel with suitable skills and knowledge required to work safely so as to prevent any accidents. It is vital that systems be installed in accordance with current legislation. The internal parts of certain equipment are connected to the mains and therefore there is a risk of electrocution when maintenance work is performed inside without first disconnecting the primary and emergency power supplies. Certain products include batteries, rechargeable or otherwise, as an emergency backup power supply. If connected incorrectly, they may cause damage to the product or property, and may endanger the operator (explosion and fire).

## WARNINGS FOR THE USER



Check the system's operation thoroughly at regular intervals, making sure the equipment can be armed and disarmed properly.

Make sure the system receives proper routine maintenance, employing the services of specialist personnel who meet the requirements prescribed by current regulations.

Ask your installer to check that the system suits changing operating conditions (e.g. changes in the extent of the areas to be protected, change in access methods, etc...).

## BASIC SAFETY RULES

It is forbidden for the appliance to be used by children or unassisted disabled persons.

It is forbidden to touch the appliance with wet hands or body when barefoot, or to splash or throw water directly on it.

It is forbidden to pull, detach or twist any protruding electrical wires, even if the appliance is disconnected from power supply mains.

## DISPOSAL INSTRUCTIONS



IT08020000001624

In accordance with Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), please be advised that the EEE was placed on the market after 13th August 2005 and must be disposed of separately from normal household waste.

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The information and product features herein are not binding and may be changed without prior notice.

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