

TECHNICAL MANUAL



BLADE - BLADEM

Curtain double technology
detector with anti-blinding for
doors and windows protection

090011258



IT08020000001624

IMQ-SISTEMI DI SICUREZZA



FOREWORD

FOR INSTALLERS

Please follow carefully the specifications about electric and security systems realization further to the manufacturer's prescriptions indicated in the manual provided.

Provide the user the necessary indication for use and system's limitations, specifying that there exist precise specifications and different safety performance levels that should be proportioned to the user needs. Have the user read carefully the instructions provided in this document.

FOR USERS

Carefully check the system functionality at regular intervals making sure all enabling and disabling operations were made correctly. Have skilled personnel make the periodic system's maintenance. Contact the installer to verify correct system operation in case its conditions have changed (e.g.: variations in the areas to protect due to extension, change of the access modes, etc.)

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This device has been designed, assembled and tested with the maximum care, adopting control procedures in accordance with the laws in force. The full correspondence to the functional characteristics is given exclusively when it is used for the purpose it was projected for, which is as follows:

Curtain double technology detector with anti-blinding for doors and windows protection

Any use other than the one mentioned above has not been forecast and therefore it is not possible to guarantee the correct functioning of the device. Similarly, any other use of this technical manual other than the one it has been compiled for - that is: to illustrate the devices technical features and operating mode - is expressly prohibited.

The manufacturing process is carefully controlled in order to prevent defaults and bad functioning. Nevertheless, an extremely low percentage of the components used is subjected to faults just as any other electronic or mechanic product.

As this item is meant to protect both property and people, we invite the user to proportion the level of protection that the system offers to the actual risk (also taking into account the possibility that the system was operated in a degraded manner because of faults and the like), as well reminding that there are precise laws for the design and assemblage of the systems destined to these kind of applications.

The system's operator is hereby advised to see regularly to the periodic maintenance of the system, at least in accordance with the provisions of current legislation, as well as to carry out checks on the correct running of said system on as regular a basis as the risk involved requires, with particular reference to the control unit, sensors, sounders, dialler(s) and any other device connected. The user must let the installer know how well the system seems to be operating, based on the results of periodic checks, without delay.

Design, installation and servicing of systems which include this product, should be made by skilled staff with the necessary knowledge to operate in safe conditions in order to prevent accidents. These systems' installation must be made in accordance with the laws in force. Some equipment's inner parts are connected to electric main and therefore electrocution may occur if servicing was made before switching off the main and emergency power. Some products incorporate rechargeable or non rechargeable batteries as emergency power supply. Their wrong connection may damage the product, properties and the operator's safety (burst and fire).

DISPOSAL INSTRUCTIONS - USERS INFORMATIONS



According to Directive 2012/19/EU on the Waste of Electric and Electronic Equipment (WEEE), it is here specified that this Electrical-Electromechanical Device started to be commercialized after 13th August 2005, and it shall be disposed of separately from ordinary waste products.

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1. GENERALS

The detector mod. BLADE is a double-technology detector with high performance, designed the windows and door protection thanks to its curtain coverage. It can be installed in vertical position, at the side of the window or door, or horizontally above the window fixed under the roller.

A key point of the detector is the digital PIR to obtain very high noise immunity and accuracy of detection.

The MW section is equipped by DRO planar antenna with reduced dimensions with pulsed piloting and anti-masking device. The IR section is equipped with sectoral FRESNEL lens, digital PIR sensor, silicon filter with white light protection and DAM (Double Anti Mask) that allow to detect the detector masking.

For the installation between the shutter/roll-up shutter and the window or door/window, the detector is equipped with proper path in the housing and gaskets to avoid the water entry.

The anti-masking protection is always active and it is can be selected through dipswitch .

BLADE can be programmed through proper selectors, it is possible to test it remotely for a more easy maintenance without maintenance opening.

The attractive design facilitates installation in all environments.

It is also available the BLADEM with brown colour housing.

BLADE and BLADEM are IMQ - Security Systems certified.

2. FEATURES

2.0.1 General features

- Miniaturized dual-technology detector with high performance
- It can protect a shutter/door-window, roll-up shutter/door-window, roll-up shutter/window, shutter/window etc.
- DIGITAL PIR sensor with high immunity with temperature compensation and anti-blinding device.
- Silicon filter against blinding.
- MW section with 24GHz planar antenna with low noise and reduced dimensions. Pulsed circuitation with filter for neon light.
- LEDs for operation signalling through the lens with exclusion possibility.
- Solid status relay outputs, for tampering, fault/masking.
- Terminal input for remote control.
- Internal dipswitch for operation mode setting.
- Vertically or horizontally installation.
- Adjusting sensitivity in two steps.
- IR lens with vertical curtain protection with horizontal opening in the 15 degree beam and 80 degrees vertically to the maximum of the perimeter of the door or window.
- Anti-blinding active circuit in the IR section and DAM (Double Anti Mask) with output on solid relay.
- Detection of the power voltage with activation of the fault output.
- Very compact dimensions.
- Plastic housing, arrangements on the bottom for connection cables entry and seals for lateral entry.
- Available BLADEM product with brown colour housing.



2.1 Electrical features

Model:	BLADE (BladeM)	Viewings:	MW section operation, IR section operation, alarm status, fault, blinding.
Performance level:	I°(Rif. CEI 79-2).	Led exclusion:	through dip.
IMQ certified:	EN50131-2-4: grade 2	Adjustments:	dipswitch for setting of the various operation mode.
Environmental class:	2	Alarm relay:	normally energized, NC contacts with a 10 ohm resistor in series, contact range 100 mA.
Power supply:	DC12V (from 7 to DC15V).	Masking relay:	normally energized, NC contacts with a 10 ohm resistor in series, contact range 100 mA.
Power fault detection:	if less than 7.5V	Tamper:	Relay output normally energized, NC contacts with 10 ohm resistor in series, capacity 100mA contacts.
Admitted Ripple:	200 mVpp.	Stage gain IR:	Optimized with temperature.
Detector consumption @12V:		Operating temperature:	-10 / +55 °C.
idle status:	19 mA (energized relay).	Humidity:	93% U.r.
alarm:	40 mA (de-energized relay).	Parts supply:	screws, dowels, technical manual.
Blinding/fault:	30 mA.		
Terminal control voltage:	detector test, active when it is connected to +12V.		
Functions selection:	dipswitch onboard, see attached wiring diagram.		
Temings:			
<i>Alarm:</i>	5s		
<i>Stand by at the power-on:</i>	20s		
<i>Rem reaction time:</i>	5s		
<i>Relay activation time for Remote Test:</i>	3s (Alarm=Ok - Fault=KO)		
<i>Restore time from Remote test:</i>	1s after the relay click.		

MW SECTION		IR SECTION	
Against noise digital filter:	for neon lamps.	Lens type:	vertical curtain lens with white light protection through silicon filter on the PIR sensor.
Integration:	fixed by 2 pulses	No. sensitive zone:	2 beams.
TX frequency:	24.125 GHz.	Coverage area:	see installation diagrams.
Emitted power:	16 dBm typical.	Range:	max 4 meters see installation diagrams.
Emitted signal:	pulsed.	PIR sensor:	highly immune to digital RF interference.
Range:	max 4 meters see installation diagrams.		It equipped with Silicon filter against glare.
Coverage area:	30° on the horizontal plane, 80° on vertical plane.	Timings:	alarm with waiting from MW section for 3s.
Timings:	alarm with waiting by IR for 3s.		

EU DECLARATION OF CONFORMITY

Hereby, EL.MO. Spa declares that the radio equipment BLADE - BLADEM 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 – registration is quick and easy.

2.2 Mechanical features

- **Dimensions:** H 96 - W 35 - D 33,5 mm (vertical position).
- **wheelbase drilling:** 65 mm.
- **Weight:** 68 g.

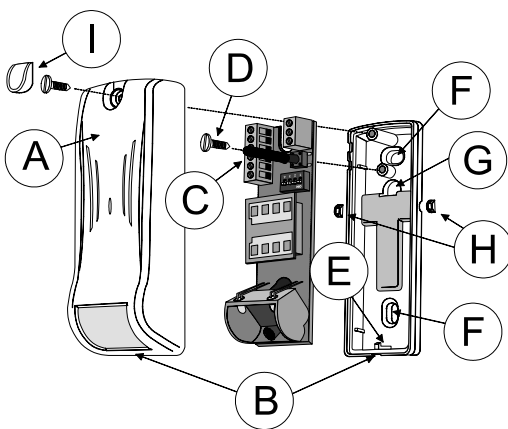


3. INSTALLATION

3.1 General warnings

- The curtain detector must be inserted in the interstice between window/door-window and shutter/roll-up shutter. The opening of the protection area is about 80 degrees longitudinally and 15 degrees transversely.
- The mounting can be done horizontally or vertically: for doors is recommended the horizontal use, for windows is possible the vertical and horizontal position. Check the Dip 1 position according to the mounting position defined.
- The installation must be performed:
 - A)** if vertical with the IR section downward and detector close to the ceiling.
 - B)** if horizontal with pir towards the window/door centre and detector approached the wall edge.
- In both cases, it is recommended to consult the example on page 6.
- Installation **it is not recommended** in the presence of venetian blinds and metal shutters.

3.2 Opening, fixing and reclosing housing operation



- 1) Unscrew the cover fixing screw on the top of the housing, indicated with **A**.
- 2) Separate the front cover by releasing the latches indicated by **B** by performing a rotation with **B** fulcrum.
- 3) The cover reclosing required the inverse operations previously exposed, taking the utmost care to ensure that the closing spring of the tamper protection microswitch indicated by **C** is in place, finally the fixing operation by tightening the self-tapping screw of the cover. Finally you will have to insert the cap **I** to mask the front screw.

Release operations and hook the board:

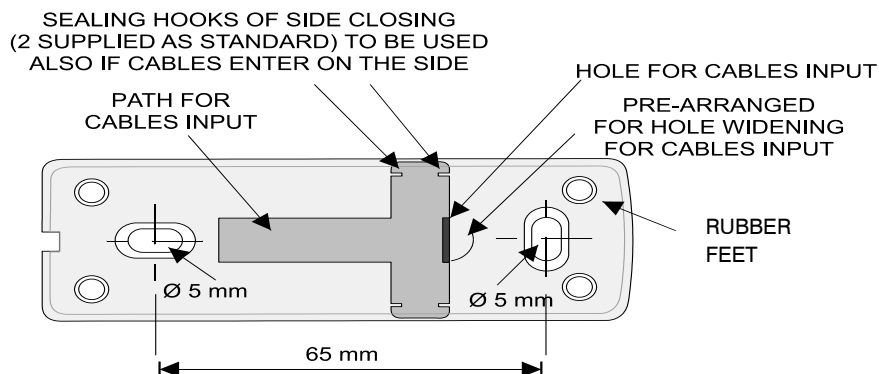
- 1) Remove the fixing screw securing the printed circuit indicated by **D**.
- 2) Pull out the printed circuit by turning gently forward and moving upward until it is free from the lower hook indicated with **E**.
- 3) The hook operation of the board at the housing bottom requires the inverse operations of previously reported methods

Drilling and installation wall:

- 1) Proceed to the position and fix the bottom using the holes indicated with **F** as a template (distance 65 mm) after analyzing the installation possibility and the instructions and restrictions highlighted in this manual.

Cables routing:

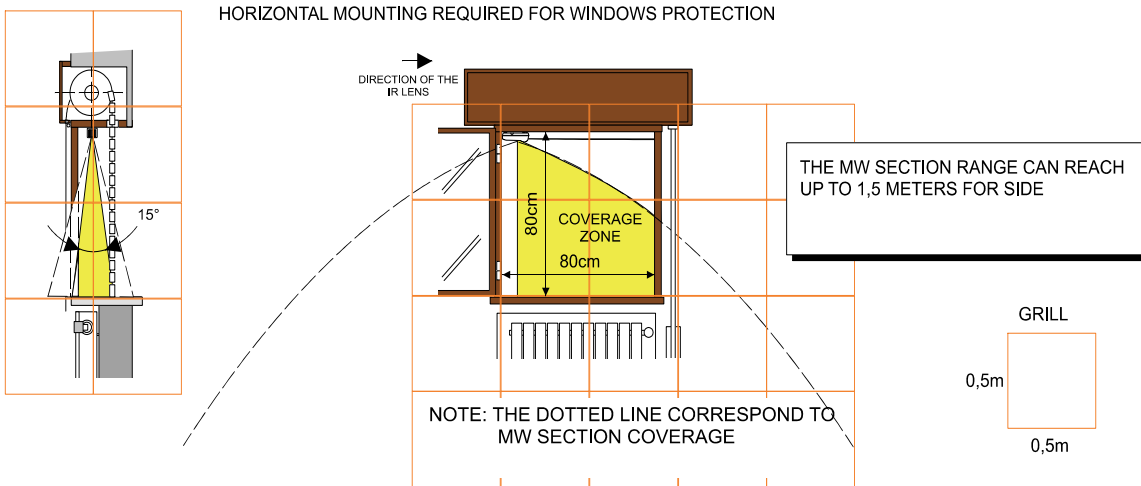
- 1) The cables must be inserted into the **G** hole of the cable cover channel. The introduction path of the cable is facilitated by the plastic shaped, for the side entrance are provided two accesses, in case of disuse these will have to be closed with plastic caps.



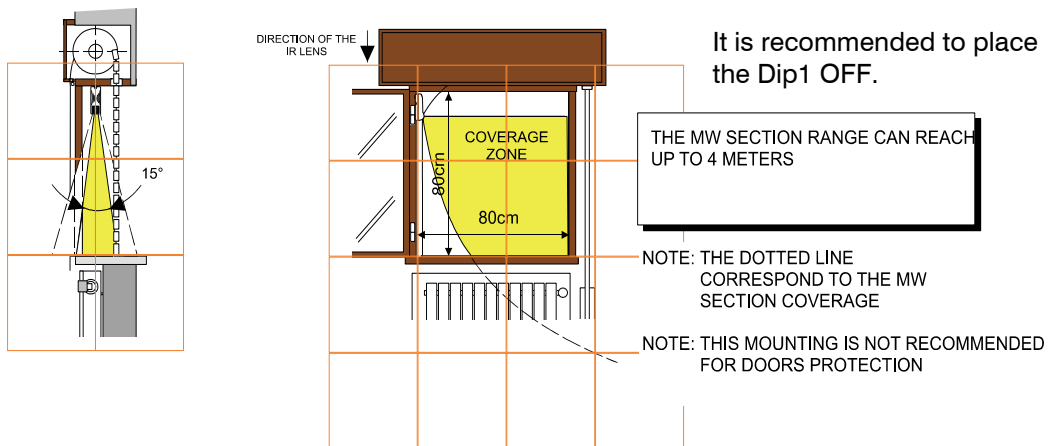
IMPORTANT: put a drop of silicone under the fixing ring to create seal against humidity.



3.3 Installation for window protection and coverage diagram.

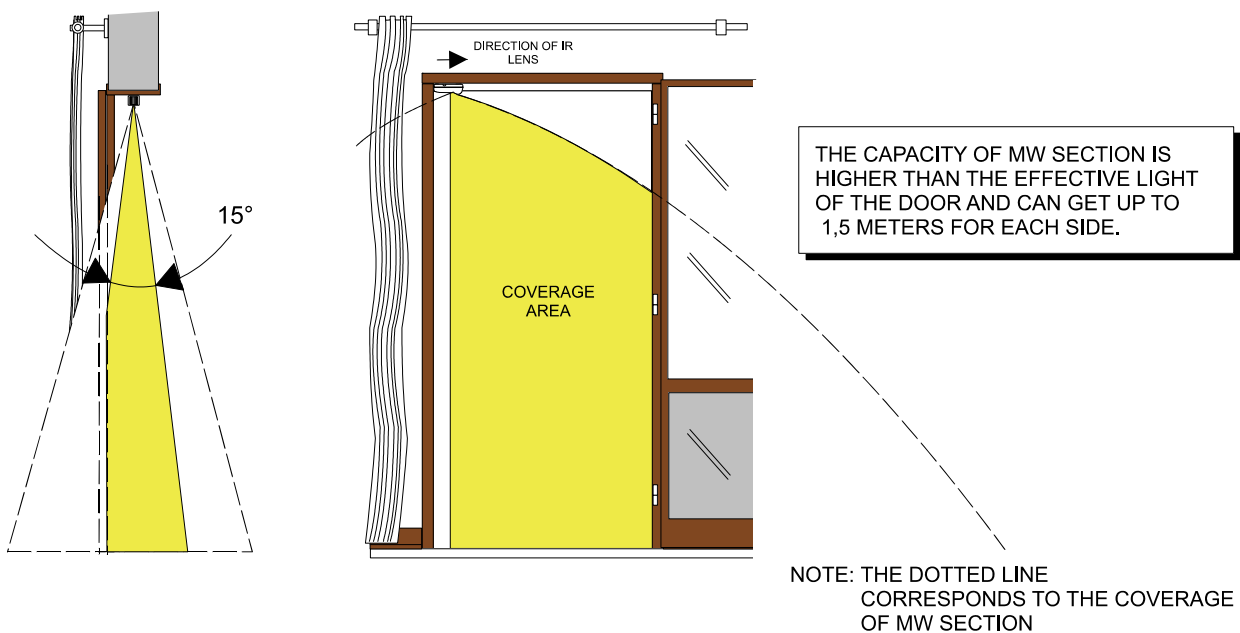


VERTICAL MOUNTING ALTERNATIVE FOR WINDOWS PROTECTION



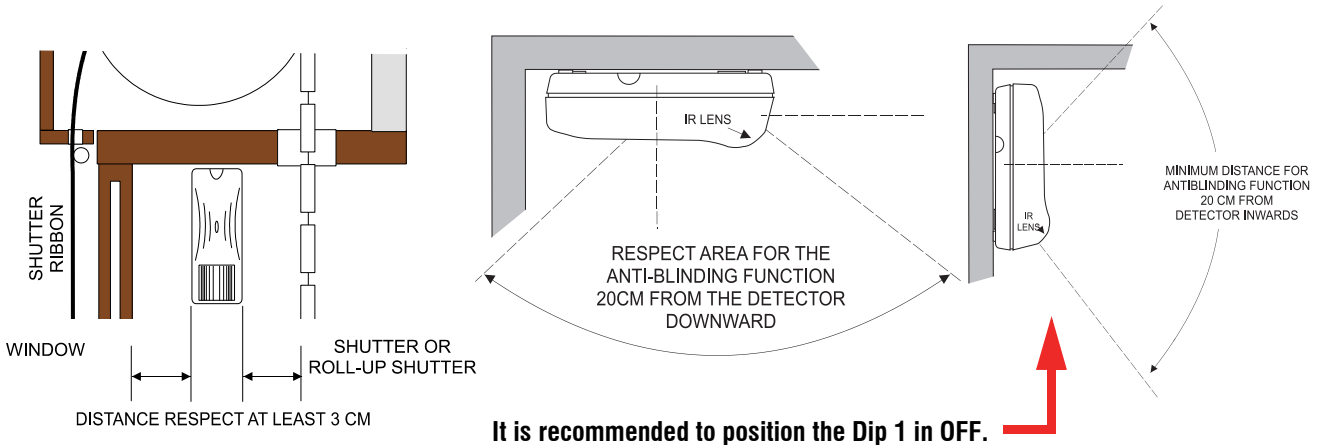
3.4 Installation for door protection and coverage diagram

HORIZONTAL MOUNT ADVISED FOR DOORS PROTECTION



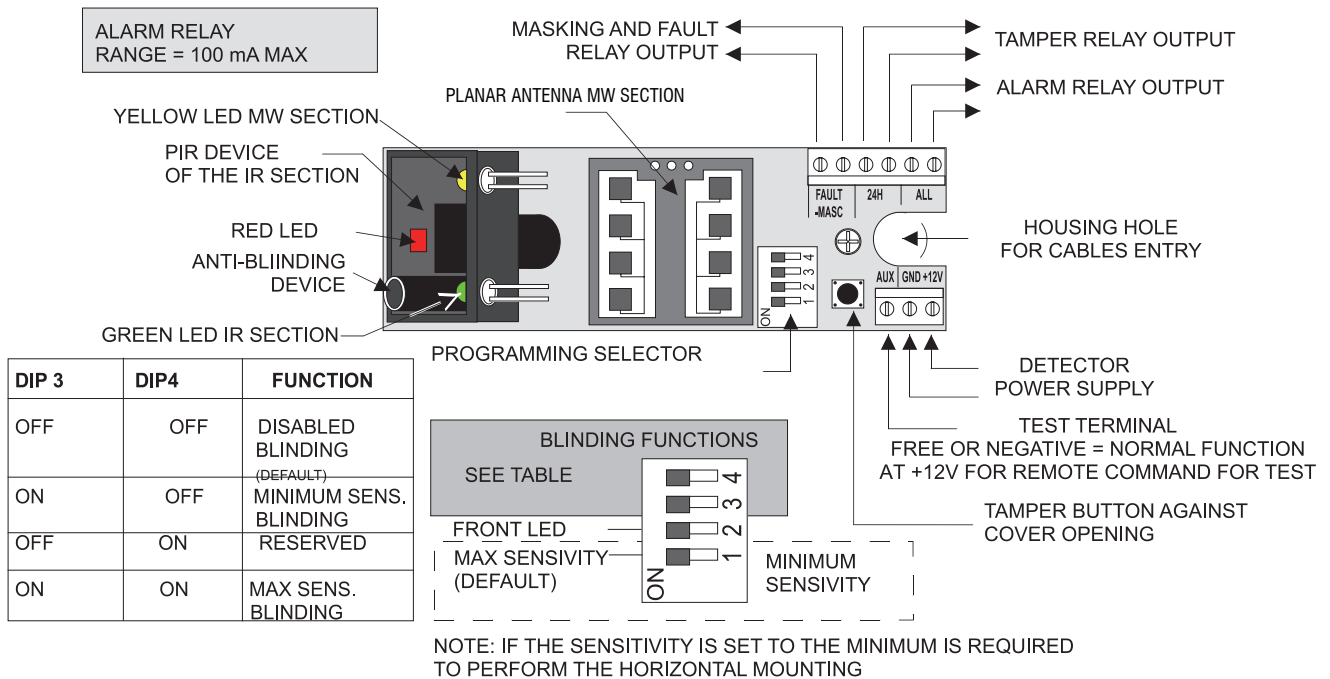


3.5 Detector mounting - Recommendations



In the mounting between window (door-window) and shutter/roll-up shutter, place the detector at least 3 cm, for vertically or horizontally installation. Less distances could affect the anti-blinding device, especially with reflective surfaces (ex. White shutters). **It is recommended to place the dip 3 and 4 in OFF if it is not possible to observe the minimum distance.** In the horizontal mounting, always install the detector with the lens facing the centre of the door or window and the body of the detector approached the corner. In vertical mounting, always install the detector with the lens facing down and the body of the detector approached to the upper.

4. ELECTRICAL CONNECTIONS



LEDs informations:

Alarm	IR alarm	MW alarm
Three LEDs fixed ON.	Green LED fixed ON.	Yellow LED fixed ON.
Power supply fault	Blinding alarm	MW pulses count (max 2)
Three LEDs flashing.	Green LED flashing	Yellow LED flashing.
stabilizing at power	Test for remote control	
Red LED fixed ON.	Yellow and green LED flashing for 7s.	

5. OPERATION

5.1 Precautions before system arming

- It is recommended that the shutter or roll-up shutter are closed before the system arming.
- In the case of arming with open shutter/roll-up shutters, please attention to the people or animals crossing near window.
- The internal window/door-window must be closed before the system arming.
- In case of installation of the detector with an existing mosquito net, it is recommended to rewind the mosquito net before system arming.

5.2 Precautions for the use of anti-blinding system

- If it is enabled the anti-blinding function, it is recommended to set the maximum sensitivity if the mounting is performed on a door.
- In any case, before the anti-blinding functions enabling, it is necessary make sure there are no obstacles, reflective objects usually close to the detector, see section 3.5.

Note: the best detector performance will be able if the detector is connected to a control unit that can separately the alarm events, tamper and fault and that the device can automatically put into test for periodic control.

5.3 Remote test

By applying a DC12V voltage to specific input, you can check the status of the detector operation, namely:

- after 5 seconds will activate the alarm relay if the operation is regular.
- after 5s will activate the fault relay if there is a fault condition.

The test status in progress is properly signalled with the simultaneous flashing of the yellow and green LEDs.

Note: the detector automatically returns to the operating condition at the end of the test **INDEPENDENTLY** of the status of the DC12V voltage to the TEST terminal. To perform test, it is necessary remove power from terminal test and put it back.