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ADVANCED ADAPTIVE PIR/MICROWAVE TECHNOLOGY SENSORS

GEMC-BSLC-DT "DUAL TECH" INSTALLATION INSTRUCTIONS

WI1721 06/10

GENERAL DESCRIPTION

SPECIFICATIONS

General Coverage with standard wide-angle lens, measured indoors at 68°F (20°C), typical: 50 feet long x 40 feet wide; "Look Down" zone added.

Operating Temperature: 14° to 122°F (-10° to +49°C)

Mounting: Wall or corner, 6 - 9.8 feet (2 - 3m) max.

Microwave Frequency: 10.525GHz ±25MHz

Physical Dimensions: (HxWxD) 4.6 x 2.9 x 2.9 in.

Shipping Weight: 1.0lb (454g)

Electrical Ratings

Input Power: 13.6-16.3VDC supplied by model GEMC-BSLC, 19mA.

Maximum Wiring Length: 2000' (#16 AWG). Refer to GEMC-BSLC documentation for complete wiring information.

Unit shall be connected to model GEMC-BSLC which is employed in the GEMC C-Series control panel which is provided with a minimum of 4 hours standby on battery power.

FEATURES

- Microprocessor signal processing
- Power-up system diagnostic tests virtually all electronics
- Remote Control of Walk-Test LED
- Microwave and PIR self test
- Watchdog microprocessor supervision
- Microwave circuit supervision
- Automatic PIR operation on microwave failure
- Dual-element PIR sensor
- High-efficiency, dirt-resistant grooves-in lens
- "Look-down" zone added
- Extensive RFI and EMI filtering ensure optimum immunity to false alarms
- Large lens area assures high PIR sensitivity
- Selectable Microwave/PIR LED indication visible from virtually any angle, extinguishable after testing.
- Small size; modern, unobtrusive design
- Silent operation
- Bracket-free corner or wall mountable
- Universal Swivel Bracket Kit available (not evaluated by UL)

ORDERING INFORMATION

SVLBKT Swivel Bracket Kit

BASIC OPERATION

This unit is a combination passive-infrared sensor and microwave sensor, both contained in a single package. The unit will go into alarm when both sensors detect intrusion at

the same time. The PIR section operates by detecting a rapid change in temperature when an intruder crosses a protected area. When a beam experiences a change in heat (projected back through the lens), a pulse is generated by the sensor element. The microwave transmitter sends out short bursts of RF energy, and the receiver detects changes in the returned signal caused by motion within its coverage area.

The microwave section is unaffected by visible light, air drafts, or temperature changes (as from space heaters or air conditioners, for example), but is sensitive to motion. Strong vibrations can be troublesome. Microwave signals may pass through non-metallic walls and windows. Infrared is virtually unaffected by vibration, and will not penetrate walls or windows.

Thus the two technologies complement each other, and it is the combination of the two that provides an inherent immunity to false alarms. Dual technology is ideal for use in hostile environments. Since both must trip to cause an alarm, installation is easier and requires less discipline.

DETECTION PATTERNS

Figure 2 illustrates maximum PIR and microwave detection

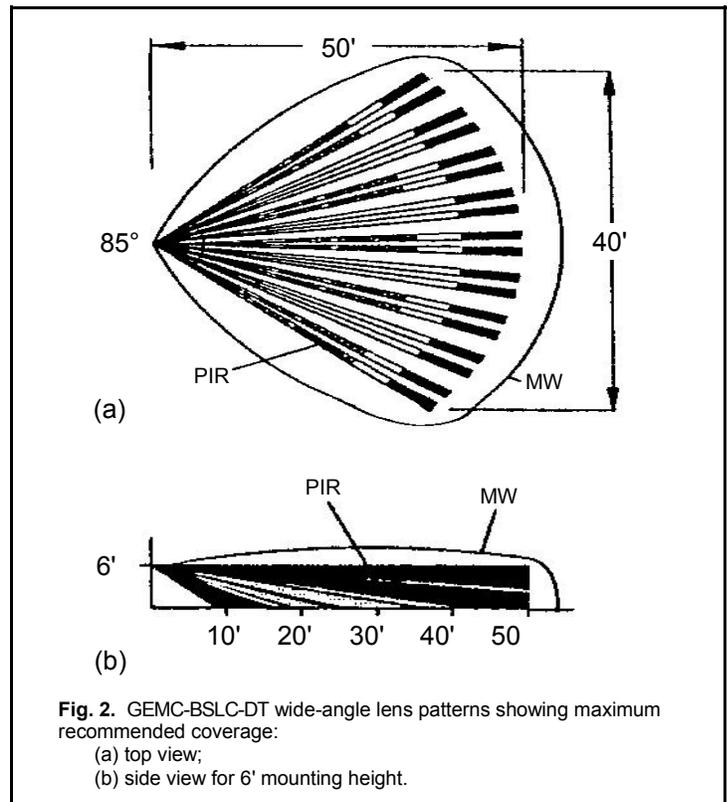


Fig. 2. GEMC-BSLC-DT wide-angle lens patterns showing maximum recommended coverage:

(a) top view;

(b) side view for 6' mounting height.

patterns superimposed on each other for each model.

STANDARD LENS

The supplied lens will perform best in typical applications, thus it is factory installed. Following are its specifications.

Number of Zones: 18 zones, 40 beams, plus look down.

Maximum Coverage: 50 ft. long x 40ft. wide

Field of View: 80°

Note: (1) Should the lens become heavily soiled, it may be cleaned using lukewarm water and a mild detergent. To dry, use a soft lint-free cloth or allow to air dry. (2) If the standard lens does not suit the application, select another available lens. **Note:** Non-standard lenses have not been evaluated by UL.

INSTALLATION

CHOOSING A SUITABLE LOCATION

The unit may be either wall mounted or corner mounted. Corner mounting is generally recommended as greater coverage may be obtained. Select a rigid surface that is relatively free of vibration.

Position the sensor with respect to access doors or windows so that an intruder will pass across its field of view, not directly toward or away from it. Avoid areas containing devices that may pose a chronic problem to either sensor. For the dual-technology feature to be truly effective in rendering the unit free from false alarms, neither sensor should detect intrusion under normal conditions. **Note:** The unit is shipped from the factory with Jumper J1 in the Alarm position.

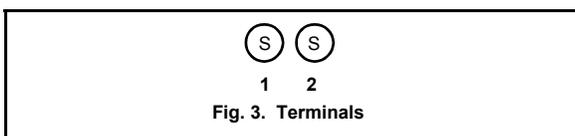
MOUNTING THE SENSOR

Open the case by inserting a small screwdriver in the slot at the bottom and pushing up slightly. Remove the front cover.

An array of "push-thru" holes is provided in the rear case to simplify wall or corner mounting. A round push-thru hole permits cable entry at the bottom. Cutaway notches in the rear case will accommodate surface-mounted cables if the outer jacket is removed. After the proper knock-outs have been removed, the rear case may be used as a template to mark drill holes. **Note:** Any unused knockout **must be sealed** with the caulking material supplied to eliminate drafts and prevent entry by insects. If mounting higher than 3 meters, it may be necessary to tilt the unit downward slightly for proper microwave coverage, and to reset the Height Scale slightly for proper PIR coverage

WIRING

Complete the terminal connections as follows:



Power (Terminals 1 [S] & 2 [S]): Connect to the [S] and [S] terminals on the GEMC-BSLC.

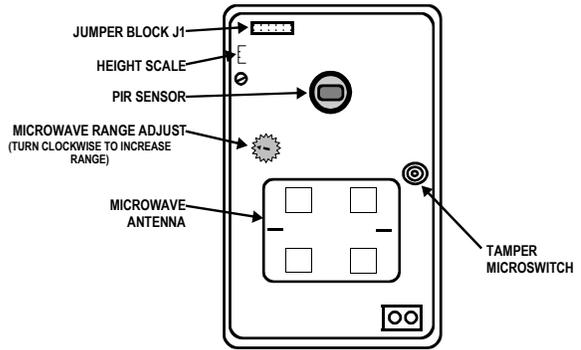


Fig. 4. Circuit board layout

SETTING THE HEIGHT SCALE

The Height Scale must be set to obtain the maximum recommended coverage. Remove the front cover. Note that the Height Scale is printed along the edge of the circuit board in the upper-left corner (see Fig. 4). The scale calibrations represent sensor mounting height (6ft. to 9.8ft. or 2-3 meters maximum) for the **standard wide-angle lens only**. To set, loosen the Lock Screw shown in the illustration to slide the board up or down, and align the index embossed into the rear case with the pointer on the scale representing the mounting height of the unit. Then tighten the Lock Screw (do not over-tighten!).

LOOK DOWN ZONE

Coverage sensitivity is extended to the look down zone, located directly below the unit. To remove the Look Down Zone, simply remove the lens from the look down holder. You may wish to remove the Look Down Lens if there are large pets that may get below the unit.

JUMPER BLOCK

The Jumper Block (see Fig. 6) is used to select operating modes, as follows:

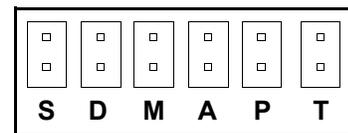


Fig. 6. Jumper block J1

(S) SENSITIVITY. Install the jumper for high sensitivity or when using in narrow areas or corridors.

(D) LED DISABLE. Install the jumper if you want to disable the LED and you also do not want to use the TST input terminal during installation.

The alarm relay will operate only with the LED DISABLE or the ALARM jumper installed. Therefore, after testing, be sure to install the ALARM jumper for normal LED operation, or the LED DISABLE jumper, which prevents the LED from lighting on an alarm condition.

Note: Regardless of the position of the LED disable jumper or the TST status LED, troubles (such as dome of protection violation or self-test failure) will always be displayed.

Only when the unit is in its normal operating mode does the LED disable jumper take precedence—they will work only in normal operation (when there is no other Walk-Test mode selected).

(M) MWAVE. Microwave Walk-Test Mode. LED indicates microwave trips only.

(A) ALARM. LED indicates simultaneous PIR and Microwave trips.

(P) PIR. PIR Walk-Test Mode. LED indicates PIR trips only.

(T) (Not used).

RANGE ADJUSTMENT

The microwave RANGE ADJUST control (see Fig. 4) should be set at the minimum required to achieve the desired coverage. It is set so that the Walk-Test LED lights when motion is detected at the maximum desired range, but does not light (motion is not detected) beyond the maximum desired range.

All tests must be made with the front cover in place.

1. Remove the front cover and place the LED Jumper (see Fig. 6) in the M (microwave) position.
2. Set the RANGE CONTROL at mid position and *walk test* the unit.
3. If the desired range was insufficient, advance the RANGE CONTROL slightly and repeat the test as necessary, increasing the control each time, until motion is detected at the desired range, but not beyond. (If the desired range was excessive, reduce the control slightly and repeat this step). Turn knob clockwise to increase range.
4. Replace the LED Jumper in the ALARM position.

NOTE: This is the proper setting of the control. Because the range of the microwave detector is not limited by the confines of walls, windows or doors, further advancement of the control may result in detection of motion beyond the desired coverage area.

TESTING THE COVERAGE AREA

After the unit has been mounted and set up, its coverage should be tested and, if necessary, altered to accommodate local environmental conditions (within the coverage area). Satisfactory checks may be made using the Walk-Test LED on the front of the unit. It is recommended that the coverage area be tested at least once a year.

Testing the Unit

Complete connections to the terminal strip (see WIRING). The unit will require a 1-minute “settling” time to adjust itself to the surrounding temperature. After sufficient time has been allowed, proceed as follows.

Test the range of the coverage

Install the PIR Walk-Test jumper and replace the front cover. Walk out to the maximum determined coverage distance, then walk across the field of coverage. The LED will remain lit as long as motion is detected. Repeat this test with the microwave MWAVE jumper installed. Repeat once again with the ALARM jumper installed. Confirm that the LED lights at the maximum desired range, **but not beyond.**

Zone Masking

A problem zone may be deactivated in order to preserve reliable system operation by zone masking the lens. Carefully apply a piece of zone-masking foil (supplied) to the grooved inside surface of the lens segment representing the problem zone to block signal from the offending device (refer to Fig. 7).

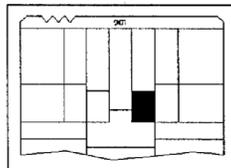


Fig. 7. Zone-masking foil (shaded area) applied to a lens segment to deactivate a problem zone.

COMPLETING THE INSTALLATION

Either the ALARM jumper or the LED DISABLE jumper must be installed for the alarm relay to operate. In the Alarm position, the LED will indicate a condition that would cause an alarm if the system were armed. To extinguish the Walk-Test LED after testing, remove the LED Jumper and place across the LED Disable terminals. In this position, the LED is disabled during normal operation, but is enabled for diagnostic indications.

TROUBLESHOOTING GUIDE		
SYMPTOM	PROBABLE CAUSE	REMEDY
Rapid LED flash, twice a second.	Microwave failure	Power down for 5 seconds. Power up again and wait 1½ minutes. If symptom persists, return for repair.
High speed LED winking flash.	PIR Failure	Power down for 5 seconds. Power up again and wait 1½ minutes. If symptom persists, return for repair.
Unit holding loop in alarm.	Walk-Test Mode selected	Check jumper is in Alarm or LED Disable position.

NAPCO LIMITED WARRANTY

NAPCO SECURITY SYSTEMS, INC. (NAPCO) warrants its products to be free from manufacturing defects in materials and workmanship for *thirty-six months* following the date of manufacture. NAPCO will, within said period, at its option, repair or replace any product failing to operate correctly without charge to the original purchaser or user.

This warranty shall not apply to any equipment, or any part thereof, which has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to acts of God, or on which any serial numbers have been altered, defaced or removed. Seller will not be responsible for any dismantling or reinstallation charges.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF NAPCO.

Any action for breach of warranty, including but not limited to any implied warranty of merchantability, must be brought within the six months following the end of the warranty period. IN NO CASE SHALL NAPCO BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE SELLER'S OWN NEGLIGENCE OR FAULT.

In case of defect, contact the security professional who installed and maintains your security system. In order to exercise the warranty, the product must be returned by the security professional, shipping costs prepaid and insured to NAPCO. After repair or replacement, NAPCO assumes the cost of returning products under warranty. NAPCO shall have no obligation under this warranty, or otherwise, if the product has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to accident, nuisance, flood, fire or acts of God, or on which any serial numbers have been altered, defaced or removed. NAPCO will not be responsible for any dismantling, reassembly or reinstallation charges.

This warranty contains the entire warranty. It is the sole warranty and any prior agreements or representations, whether oral or written, are either merged herein or are expressly cancelled. NAPCO neither assumes, nor authorizes any other person purporting to act on its

behalf to modify, to change, or to assume for it, any other warranty or liability concerning its products.

In no event shall NAPCO be liable for an amount in excess of NAPCO's original selling price of the product, for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of any failure of the product. Seller's warranty, as hereinabove set forth, shall not be enlarged, diminished or affected by and no obligation or liability shall arise or grow out of Seller's rendering of technical advice or service in connection with Buyer's order of the goods furnished hereunder.

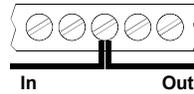
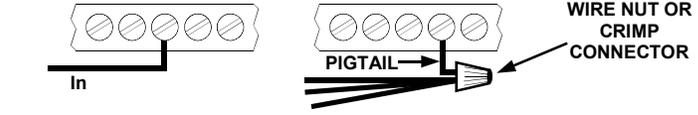
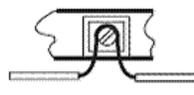
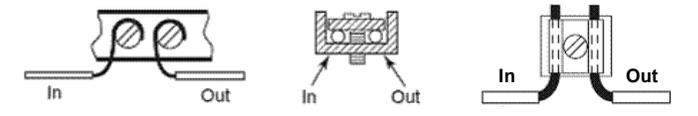
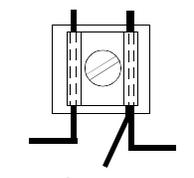
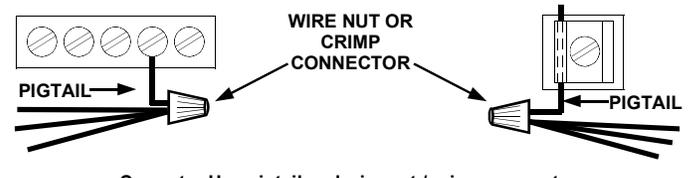
NAPCO RECOMMENDS THAT THE ENTIRE SYSTEM BE COMPLETELY TESTED WEEKLY.

Warning: Despite frequent testing, and due to, but not limited to, any or all of the following; criminal tampering, electrical or communications disruption, it is possible for the system to fail to perform as expected. NAPCO does not represent that the product/system may not be compromised or circumvented; or that the product or system will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; nor that the product or system will in all cases provide adequate warning or protection. A properly installed and maintained alarm may only reduce risk of burglary, robbery, fire or otherwise but it is not insurance or a guarantee that these events will not occur. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. Therefore, the installer should in turn advise the consumer to take any and all precautions for his or her safety including, but not limited to, fleeing the premises and calling police or fire department, in order to mitigate the possibilities of harm and/or damage.

NAPCO is not an insurer of either the property or safety of the user's family or employees, and limits its liability for any loss or damage including incidental or consequential damages to NAPCO's original selling price of the product regardless of the cause of such loss or damage.

Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damages, or differentiate in their treatment of limitations of liability for ordinary or gross negligence, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

IMPORTANT WIRING METHODS

 <p>For single-conductor terminal blocks (like the type shown at left), to terminate more than one conductor to a terminal, use the wiring methods shown at right:</p>	 <p>In</p> <p>Out</p> <p>Incorrect</p>	 <p>WIRE NUT OR CRIMP CONNECTOR</p> <p>PIGTAIL</p> <p>In</p> <p>Out</p> <p>Correct -- Single incoming and/or pigtail with wire nut / crimp connectors</p>
 <p>For "barrier" type terminal blocks (like the type shown at left), to terminate two conductors to a terminal, use the wiring methods shown at right:</p>	 <p>Incorrect</p>	 <p>In</p> <p>Out</p> <p>In</p> <p>Out</p> <p>In</p> <p>Out</p> <p>Correct -- Separate incoming and outgoing conductors</p>
<p>To terminate more than two conductors or conductors of different wire sizes to a terminal, use the "pigtail" type wiring method as shown at right. Use insulated wire for the pigtail, and firmly secure the conductors to the pigtail using an appropriate wire nut or crimp connector for the number and gauge of conductors used.</p>	 <p>Incorrect</p>	 <p>WIRE NUT OR CRIMP CONNECTOR</p> <p>PIGTAIL</p> <p>PIGTAIL</p> <p>Correct -- Use pigtail and wire nut / crimp connector</p>