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CROW SCIENTIFIC RESEARCH ™

GENIUS

HIGH PERFORMANCE
DOUBLE DUAL ™ ELEMENT
PASSIVE INFRARED INTRUSION
DETECTOR ASIC TECHNOLOGY
FOR HIGHER RELIABILITY

ELECTRONIC ENGINEERING LTD.

INSTALLATION INSTRUCTIONS
P/N: 71ii113

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GENERAL DESCRIPTION

Crow's GENIUS uses ASIC microprocessors to achieve performance previously considered beyond the limits of PIR intrusion technology. This performance is predicated on science, not magic. This TWIN DUAL ELEMENT PIR detector is based on the latest "ASIC" (Application Specific Integrated Chip) and SMD technologies. The GENIUS monitors the environment by analyzing the conditions and adapts to it constantly. If conditions change, the GENIUS adapts it maintaining sensitivity levels and detection capability.
By using Twin Dual Optic Systems with a diagonally opposed configuration (phase shift discrimination), the GENIUS is able to achieve a three dimensional thermal image of the protected area. It stores this image and refers to it determine intrusions.
During the standby mode (no LED indications) the GENIUS constantly monitors the protected area, updating and reconfiguring itself as conditions change.
In the GENIUS, user input is minimized to vertical calibration and two switches.

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MOUNTING LOCATION

Choose a location most likely to intercept an intruder. See the detection patterns in Fig. 4 Fig. 5 and mounting alternatives in Fig. 2.
The twin dual element high quality sensors detect motion across the beam field; they are slightly less sensitive to motion towards the detector.
While the GENIUS is capable of detecting intrusions under exceedingly difficult conditions, it is recommended to avoid the following locations:

- Areas where sunlight may shine directly onto the PIR (lens).
- Facing surfaces that may change temperature extremely rapidly.
- Areas with extreme air flows.

Suggestion: Minimum mounting height of 2.1m (7ft.) on wall with (-1) board calibration in an environment with a small animal.

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IMPORTANT:

In an environment with a small animal:

1. The GENIUS has to be mounted at 2.1m (7ft.) or higher (max 3.0m or 10ft.) above floor level.
2. Install the GENIUS vertically (not titled forward).
3. Away from furniture 2.1m (7ft.) or more, on which a small animal may jump.
4. Not facing a staircase, ladder or similar object which can be part of the monitored environment (the vertical motion of the animal may be interpreted by the detector as an actual intruder).
5. Flip dipswitch #1 to the "ON" (up) position for a harsh environment.
6. Calibrate the GENIUS according to the vertical calibration charts.

Table 1 - For wide angle lens (lens code GE01)
Table 2 - For long range lens (lens code GE02)
Table 3 - For vertical curtain lens (lens code GE03)

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DIP SWITCH SETTING

PULSE COUNT – dipswitch marked **1** (Fig. 1)
Provides control for normal or high risk operating environments.

Position Off (down)
This setting is for a stable environment without air drafts.

Position On - AUTOMATIC PULSE COUNT
The GENIUS will automatically select the appropriate pulse count level (2 or 3) according to the strength of the incoming signals.
This setting is for operation in a harsh environment with air drafts or with a small animal less then 25cm in Height and less then 8kg. In Weight.

In HARSH mode, the GENIUS will increase its sampling rate and take more factors into account.

Note:
In HARSH mode the MINIMUM MOUNTING HEIGHT MUST BE 2.1m (7ft.).

LED CONTROL SELECTION DipSwitch - marked **2**
Position Off (down)- LED ENABLE - The led will light when the GENIUS Is in alarm condition.
Position On - LED DISABLE **-** The led is disabled.

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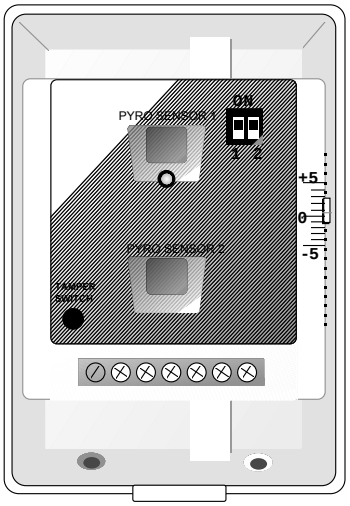
FIG. 1 – DETECTOR WITHOUT UPPER COVER



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VERTICAL CALIBRATION CHARTS

TABLE 1 - WIDE ANGLE LENS (GE01)

Vert. Cal. Mt. Hgt.	-5	-4	-3	-2	-1	0	1
2.1m (7ft)	6 (19.8)	8 (26.4)	10 (33.0)	12 (39.6)	14 (46.2)	16 (52.8)	18 (59.4)
2.4m (8ft)	8 (26.4)	10 (33.0)	12 (39.6)	14 (46.2)	16 (52.8)	18 (59.4)	OVER RANGE
2.7m (9ft.)	10 (33.0)	12 (39.6)	14 (46.2)	16 (52.8)	18 (59.4)	OVER RANGE	OVER RANGE
3m (10ft.)	12 (39.6)	14 (46.2)	16 (52.8)	18 (59.4)	OVER RANGE	OVER RANGE	OVER RANGE

TABLE 2 - LONG RANGE LENS (GE02)

Vert. Cal Mt. Hgt.	-5	-4	-3	-2	-1	0	1	2
2.1m (7ft)	8 (26.4)	11 (36.3)	15 (49.5)	18 (59.4)	21 (69.3)	25 (82.5)	28 (92.4)	30.5 (100.5)
2.4m (8ft)	11 (36.3)	15 (49.5)	18 (59.4)	21 (69.3)	25 (82.5)	28 (92.4)	30.5 (100.5)	OVER RANGE
2.7m (9ft.)	15 (49.5)	18 (59.4)	21 (69.3)	25 (82.5)	28 (92.4)	30.5 (100.5)	OVER RANGE	OVER RANGE
3m (10ft.)	18 (59.4)	21 (69.3)	25 (82.5)	28 (92.4)	30.5 (100.5)	OVER RANGE	OVER RANGE	OVER RANGE

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TABLE 3 - VERTICAL CURTAIN LENS (GE03)

Vert. Cal. Mt. Hgt.	-5	-4	-3	-2	-1	0	1	2
2.1m (7ft)	6 (19.6)	8 (26.4)	10 (33.0)	12 (39.6)	15 (49.5)	18 (59.4)	20.5 (67.65)	22.5 (74.25)
2.4m (8ft)	8 (26.4)	10 (33.0)	12 (39.6)	15 (49.5)	18 (59.4)	20.5 (67.65)	22.5 (74.25)	OVER RANGE
2.7m (9ft.)	10 (33.0)	12 (39.6)	15 (49.5)	18 (59.4)	20.5 (67.65)	22.5 (74.25)	OVER RANGE	OVER RANGE
3m (10ft.)	12 (39.6)	15 (49.5)	18 (59.4)	20.5 (67.65)	22.5 (74.25)	OVER RANGE	OVER RANGE	OVER RANGE

MOUNTING THE DETECTOR

A variety of mounting positions is possible with the standard GENIUS housing.

1. Open the front cover of the housing by pushing the middle of its lower surface and lifting upwards.
2. Snap out the detector PCB with his plastic cover.

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3. The GENIUS housing can be mounted in a variety of ways. The circular indentations in the housing indicate mounting holes to be punched out in accordance with the desired mounting position :
   - For surface mounting punch out the 4 indentations marked " A " (see Fig. 2).
   - For Corner mounting gives 45° angle on either the right or the left side. Punch out the indentations marked " B " (see Fig. 2)
4. The circular indentation at the bottom of the wiring channel of the base is the knockout hole for wire entry. You may also use mounting holes that are not in use for running the wiring into the detector.
5. To close the front cover, insert the two small prongs along its upper edge into their corresponding slots in the upper edge of the base. Insert the larger prong at the bottom of the front housing into the slot at the bottom of the base by exerting slight pressure on the prong. The front cover should now fit snugly into the base.

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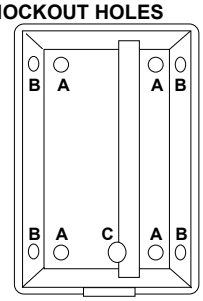
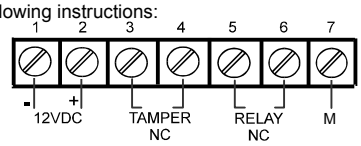
FIG. 2 -KNOCKOUT HOLES



TERMINAL BLOCK CONNECTIONS

Run the cable through the cable entry hole and connect the wires in accordance with the following instructions:



Terminal 1 - Marked -12V (gnd) connect to the negative output or ground of the control panel.

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Terminal 2 - Marked +12V. connect to the positive output of a 9.2 - 14.5VDC source (usually from the alarm control unit).

Terminal 3 & 4 - Marked TAMPER. If a Tamper function is required connect these terminals to a 24hour normally closed protective zone in the control unit. If the front cover will be opened, an immediate alarm signal will be sent to the control unit.

Terminal 5 & 6 - Marked RELAY. This is the output relay of the detector. These two terminals should be connected to a normally closed zone in the control panel.

Terminal 7 - Marked M (Memory). The alarm memory function allows the identification of an alerting detector out of multiple detectors connected to one (or the same) zone of the control panel.

To enable this function, connect (switch on) the M terminal to a switched +12 to +16V_{DC} source (e.g. Arm / Disarm voltage output from the control panel.)

- In case of an alarm, the memory function stores the alarm event in the detector.
- To identify the detector that alarmed, disconnect (switch off) (grounded) the voltage from M terminal.
- The LED of the detector with the alarm event in memory will light constantly until memory function is reset.

To reset the memory function, switch on and switch

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CHANGING A LENS

Take the front housing cover in your hand. Push outwards on the side of the housing while pulling the lens holder frame in the opposite direction. The lens holder frame gently pops out (Fig. 3).

1. Push the lens from outside the front cover.
2. Insert a new lens with the grooved surface facing inside.
3. Center the lens onto the front cover.
4. Snap the lens holder frame back into place.

FIG. 3 - CHANGING A LENS

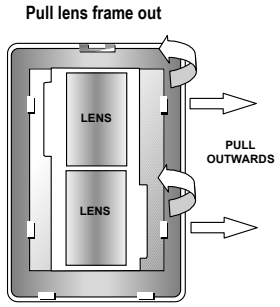

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FIG. 4 - EXTRAWIDE ANGLE LENS (GE01)

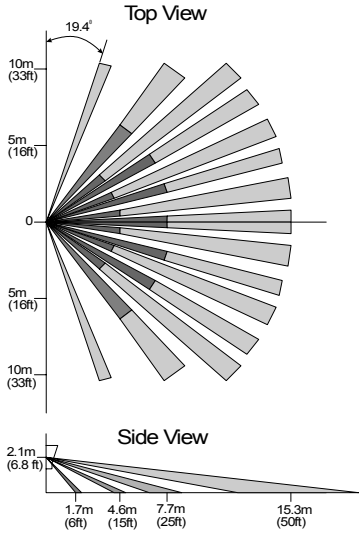

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FIG. 5 - LONG RANGE LENS (GE02)

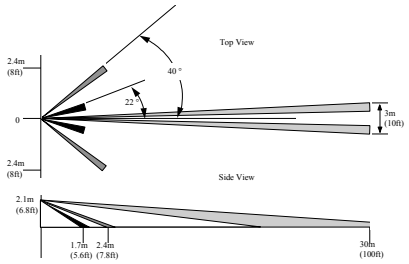
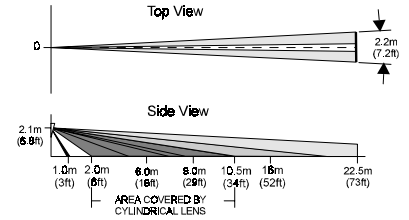


FIG. 6 - VERTICAL CURTAIN LENS (GE03)



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WIRE SIZE REQUIREMENTS

Use #22 AWG or larger wires. The maximum length of wire between the detector and the control panel depends on the number of detectors connected and on the wire gauge. Use the following table to determine required wire gauge and length.

Wire Gauge:	#	22	20	18	16
Wire Length:	m	205	310	510	870
	Ft.	800	1200	2000	3400

NOTES:

1. Refer to the National Electric Code, "NFPA-70" for wiring methods.
2. Crow Electronic Engineering requires the frequency of testing the GENIUS to be at least once a year.
3. The last 4 digits of a string of alphanumeric digits can identify the GENIUS production batch, which is printed on the terminal strip side of the PCB. These 4 digits indicate the production week and year of manufacture.

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TECHNICAL SPECIFICATIONS

Power input	9.2 - 14.5VDC
Current consumption Standby Active	 13mA at 12VDC 8.5mA at 12VDC
Detection speed	0.15 to 1.8m/sec (0.5 to 6 ft./sec)
Sensitivity	Δ1.1°C at 0.9m/sec (Δ2°F at 3ft./sec)
Alarm output	N.C 50mA at 24VDC 10ohm in line resistor
Tamper switch	N.C 50mA at 24VDC 10ohm in line resistor
Operating temperature	-20°C to 50°C (-4°F to 122°F)
Operating humidity	Up to 95% (non-condensing)
Storage temperature	-40°C to 80°C (-40°F to 176°F)
Detection method	2 matching dual element with double optic system
RFI protection	≥30V/m at 10 to 1000MHz
EMI immunity	50,000Volt electrical interference due to power surges or lighting
LED Indicator	Led is blinking 8 time during warm up period and self testing 12 Sec. Led is ON during alarm.
Dimensions	98 x 64 x 47mm (3.9" x 2.5" x 1.9")
Weight	86 gr. (3.1 oz)

***CROW* reserves the rights to change specifications without prior notice**

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WARRANTY

(Crow) warrants this product to be free from defects in materials and workmanship under normal use and service for a period of five years from the last day of the week and year whose numbers are printed on the printed circuit board inside this product.

Crow's obligation is limited to repairing or replacing this product, at its option, free of charge for materials or labor, if it is proved to be defective in materials or workmanship under normal use and service. Crow shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other then Crow.

There are no warranties, expressed or implied, of merchantability or fitness for a particular purpose or otherwise, which extend beyond the description on the face hereof. In no case shall Crow be liable to anyone for any consequential or incidental damages for breach of this or any other warranty, expressed or implied, or upon any other basis of liability whatsoever, even if the loss or damage is caused by Crow's own negligence or fault.

Crow does not represent that this product can not be compromised or circumvented; that this product will prevent any person injury or property loss or damage by burglary, robbery, fire or otherwise; or that this product will in all cases provide adequate warning or protection. Purchaser understands that a properly installed and maintained product can only reduce the risk of burglary, robbery or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss or damage as a result. Consequently, Crow shall have no liability for any personal injury, property damage or any other loss based on claim that this product failed to give any warning. However, if Crow is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, Crow's maximum liability shall not in any case exceed the purchase price of this product, which shall be the complete and exclusive remedy against Crow.

This warranty replaces any previous warranties and is the only warranty made by Crow on this product. No increase or alternation, on the obligation of this Limited Warranty is authorized.

This warranty is given in favor of the original purchaser only. For warranty service, return this product, with dated proof of purchase, to your dealer.

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These instructions supersede all previous issues in circulation prior to Apr. 1999.