CROW

ELECTRONIC ENGINEERING INC.

CSB - 60

Microwave barrier

Outdoor Detector 200’ x 26’ Range

INSTALLATION INSTRUCTIONS

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USER MANUAL

P/N 7111060 Rev. 1.0 Y.S/A.Y

The CSB-60 is a bi-station microwave detector for outdoor applications. It comprises a transmitter (T) and receiver (R) which, when mounted facing each other, create a perimeter protection with coverage of up to 60m. The dimensions of the antenna's lobe vary according to the chosen antenna, the distance between the two units and the selected system sensitivity.

The CSB-60 Microwave barrier is an advanced detector utilizing state of the art Microwave technology eliminating false alarms while maintaining high security standards for the detection of human intruders into a protected area.

The CSB-60 is designed to protect large areas and can easily be installed on any type of fence or pole in order to provide a solid barrier protection and block all perimeter activities; this barrier rejects interferences of birds and small animals due to its original method of false alarm elimination.

Several CSB-60 systems can be combined in order to provide a complete perimeter protection with unlimited space or shape.

The CSB-60 is designed for continuous round-the-clock operation and keeps its characteristics within a wide temperature range of -40°C up to +60°C and a relative humidity of up to 98%.

Features:

- Detection Range: Up to 60m
- Operating Temperature: -40°F to +140°F
- Power Input: 12 ~ 30 Vdc
- Detect human intruders walking, running or crawling.
- Quick and easy installation on pole, fence or wall.
- No maintenance required.
- High RFI/EMI Immunity.
- Protection from: Power supply failure, direct sunlight, wind up to 30 m/sec, snow and rain, small animals, ground precipitation, snow and grass up to 0.5m, removing the top cover, housing destruction, electromagnetic masking of the receiver.

Installation instructions.

Selecting mounting location

The installation of the CSB-60 requires that the transmitter and the receiver face each other, so that the two antennas may be correctly aligned.

The two units must be positioned in direct line at the edge of the area. Local conditions of the protected zone must be free from obstacles like walls, fences, trees and ditches or other microwave detectors and systems of anti-intrusion surveillance.

In order to ensure suitable operation of the CSB-60 type of ground should be one of the following: Asphalt, Cement, Soil, Clay, Gravel or Grass (mown).

Avoid the following locations.

Avoid installation of CSB-60 on the following type of ground: Thick vegetation, Grass (unmown), Water, Sand and a Metal.

The ground must not have movable parts near the sensitive zone, any grassy areas must be frequently mown, there should not be any flowing water, especially longitudinally, ground where structural features may be changed.

The installation site should satisfy the following requirements (see fig. 1):

- The surface of the site should be leveled with a maximum slope angle of 15°.
- No obstacles as bushes or group of trees within a distance of 1m from the centerline between two units.
- Depth of snow on the ground should not be more than 0.5m.
- Height of a grass on the ground should not exceed 0.3m. It is important to mow the grass regularly to avoid its movement interfering with the microwave signal.

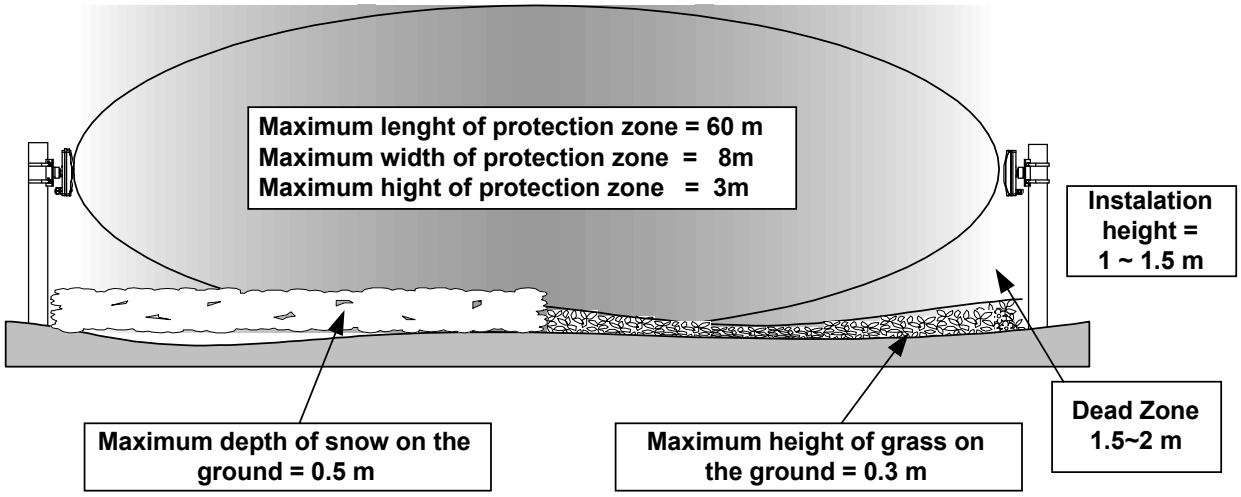


Fig.1. Installation and Protection zone

Mounting the detector

Installation on Pole

Use metal or cement poles with a diameter of 90 ~ 100 mm as the support. It is allowed to install two units on a single support; the two units must be identical (Two transmitters or two receivers).

Installation height of R and T units should be in a way that the bottom surface of the plastic housing will be 0.9 ~ 1m above the top of surface (ground and grass).

For pole installation use the two bands connected to the bracket and ensure reliable fastening of the bands. The unused part of bands may be cut off.

Connect the plastic housing to the bracket using the nuts with the spherical support.

Top installation.

The CSB-60 can be also installed on top of fence or wall.

Installation height of R and T units should be in a way that the bottom surface of the plastic housing will be 0.3m above top of fence or wall.

The support should be mechanically connected to the fence to ensure reliability.

Cross installation.

In order to avoid “dead zones” under aerials, and to increase the protected area, it is possible to install multiple CSB-60 systems connected together with overlapping.

Overlap configurations are performed with the units located at the angles of protected area. The minimum overlap for sufficient coverage must be at least 1.5 ~ 2 m, (depending on the sensitivity set and installation height). It is recommended to

install an equal number of CSB-60 systems (T and R) in order to close the perimeter completely. The optimal way is to install transmitters (T) only or receivers (R) only at the point of overlap.

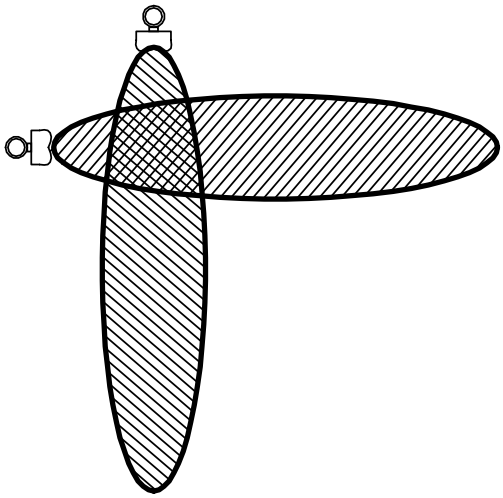


Fig. 2. Overlap installation of 2 systems to avoid blind zones.

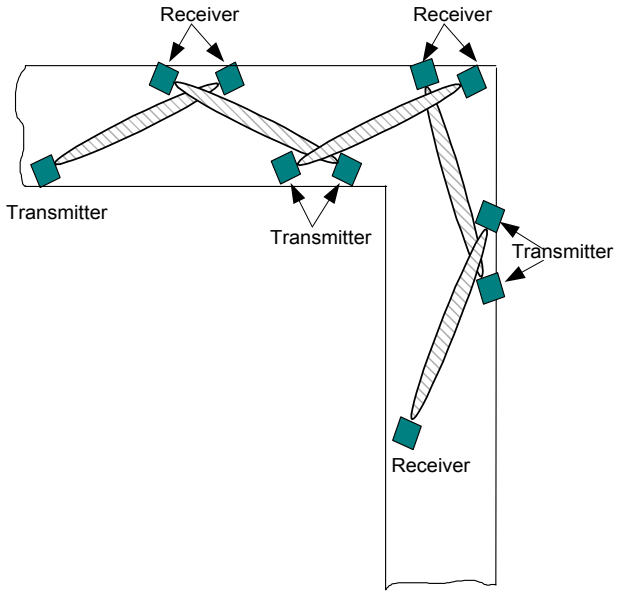


Fig. 3. Overlapping Installation of multiple CSB-60 systems.

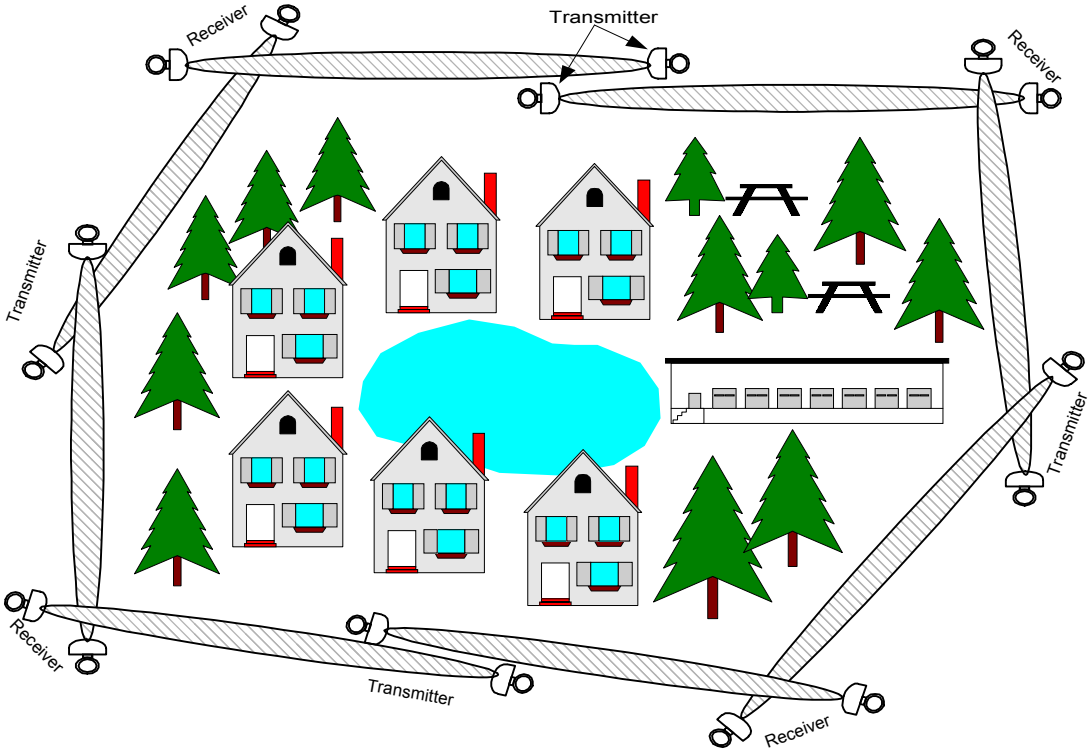
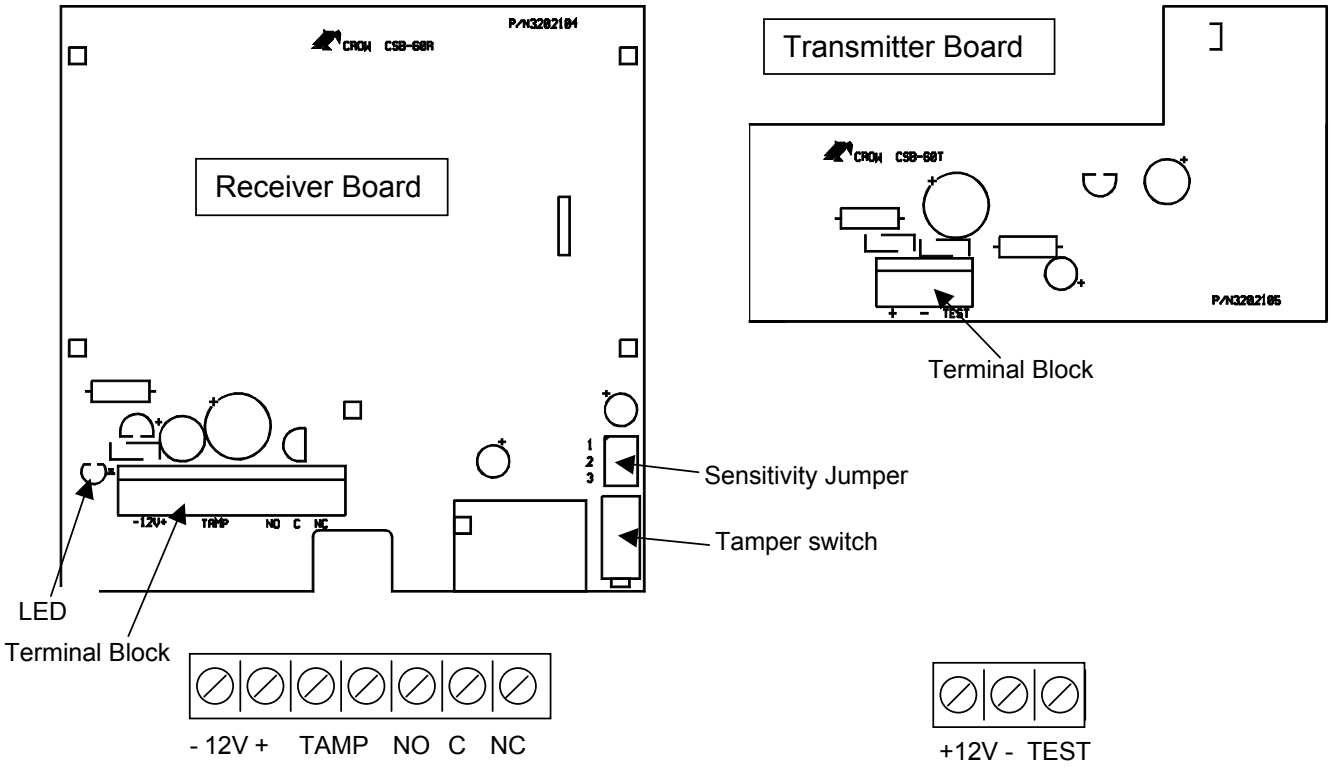


Fig. 4. Overlapping Angle and Range Installation of CSB-60 systems for area protection.

TERMINAL BLOCK CONNECTIONS

Fig. 5. PCB Layout.



Terminal 1 - Marked " - " (- 12V)

Connect to the negative Voltage output or ground of the control unit.

Terminal 2 - Marked " + " (+ 12V)

Connect to a positive Voltage output of 12 - 30Vdc source (usually from the alarm control unit).

Terminals 3 & 4 - Marked " TAMPER "

Connect these terminals to a 24-hour normally closed protective zone in the control unit. If the front cover of the detector is opened, an immediate alarm signal will be sent to the control unit.

Terminals 5 , 6 , 7 - Marked "NO" "C" "NC"

These are the output relay contacts of the detector. Connect to normally closed or normally opened zones in the control unit.

Terminal 1 - Marked " + " (+ 12V)

Connect to a positive Voltage output of 12 - 30Vdc source (usually from the alarm control unit).

Terminal 2 - Marked " - " (- 12V)

Connect to the negative Voltage output or ground of the control unit.

Terminals 3 - Marked " TEST "

Apply 5-30 Volts from alarm station to the terminal marked TEST.

CONTROL UNIT WIRING CONNECTIONS

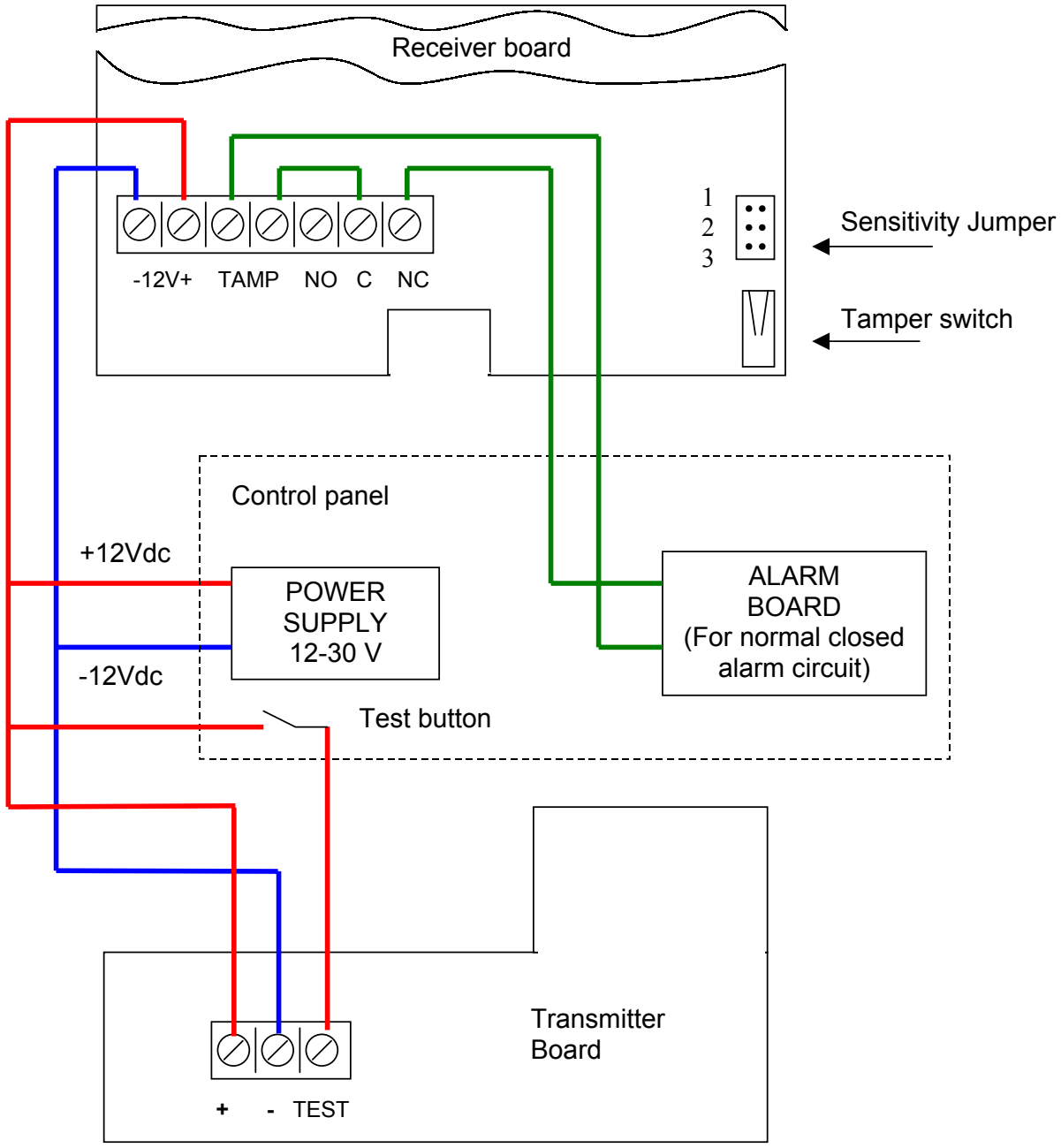


Fig. 6. Control Unit and CSB-60 – Wiring Diagram

TEST AND TUNING

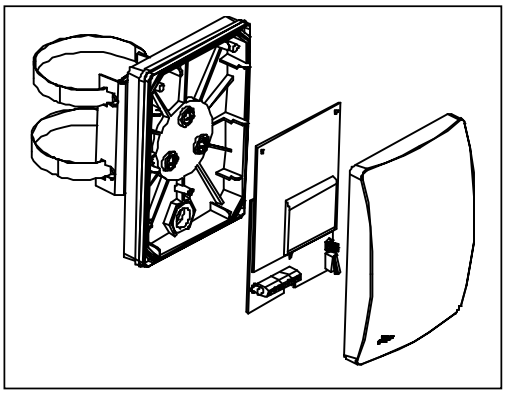


Fig. 7. CSB-60R - Receiver unit with binding band.

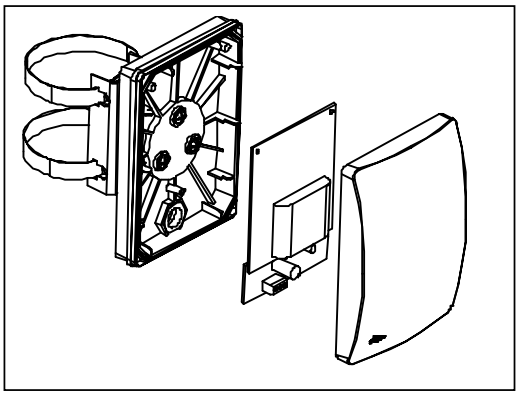


Fig. 8. CSB-60T - Transmitter unit with binding band.

For preliminary set-up, focus the receiver and transmitter as if a virtual direct line connects the receiver and the transmitter.

Make sure that the antenna's radiating surfaces of R and T are parallel (radiating surface is perpendicular to the virtual direct line).

1. Take off the cover from receiver - R (fig. 7) and transmitter - T (fig. 8) units.
2. Make sure you switched on the power supply and outgoing electric circuit of the sensor correctly as shown in fig. 6.

   For initial operation, set the sensitivity jumper on the receiver board to position 2 as shown in fig. 5.

   To increase the sensitivity set jumper to position 1.

   To decrease the sensitivity set jumper to position 3.
3. Adjustment of the aerials receiver and transmitter.

   For the optimum operation, adjust the angle and azimuth of the units.

   Switch on the power supply to receiver and transmitter.

   ALARM LED must be ON.
4. Wait for 2 minutes warm-up time. No moving objects must be in the protected area during this time. Wait until ALARM LED turns OFF (end of warm-up time).
5. Cross the middle part of the protected area. The ALARM LED will turn ON and the relay will switch over for 3 Sec.
6. Replace the cover on receiver and transmitter units.

Test procedure

Walk Test

After tuning the sensitivity, connect 12Vdc power to the system.

Allow 2 minutes warm-up time.

Make sure that the protected area is cleared of all people.

Cross the middle part of the protected area.

An alarm signal should be received in the control unit for 3 Sec.

NOTE: *Walk Test procedure should be conducted, at least once a year, to confirm proper operation and coverage of the detector.*

Remote Test

Apply 5-30 Volts from control unit to the terminal marked TEST (on the transmitter unit).

An alarm signal should be received in the control unit for 3 Sec.

NOTE: *During regular operation it is recommended to conduct remote test every day to confirm proper operation of all system.*

SPECIFICATIONS

Microwave Frequency	2.45 GHz
Modulation Frequency	2.5 KHz
Maximum Transmitting Power	10mW (Continues) 25mW (Peak)
Scope (Length of protection zone)	Max. 60 m
Lobe Width	Approx. 8 m
Lobe Height	Approx. 3 m
Power Supply Voltage	12...30 V
Current consumption	Transmitter - 20 mA at 12Vdc Receiver - 20 mA at 12Vdc
Relay contacts values	N.C 28 Vdc, Maximum current 0.1 A
Alarm Period	3 Sec (Max.)
Tamper Switch	N.C 28 Vdc Maximum current 0.1 A - open when cover is removed
Detection Speed (Target velocity)	0.3 ... 10 m/sec
Remote testing	Built-in self-test generator simulates actual intrusion signals
Flatness of ground	Approx. 0.3 m
Maximum height of grass on the ground	0.3 m
Maximum height of snow on the ground	0.5 m
Alarm output - switching over of relay contacts for the time	Minimum 3 Sec
Dimensions of unit (Trans./Rec.) w/o bracket	158 x 113 x 46mm
Weight (T, R and accessories)	1.1Kg
Operating temperature range	-40°C ~ +60°C
Weatherproofing	• All openings with gasket and sealed • Conformal coated circuit board

* Specifications are subject to change without prior notice.

CROW LIMITED WARRANTY

(CROW) warrants this product to be free from defects in materials and workmanship under normal use and service for a period of one year 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.

ELECTRONIC ENGINEERING INC.

USA: CROW ELECTRONIC ENGINEERING INC.
2160 North Central Road,
Fort Lee, N.J. 07024
Tel: 1-800-GET-CROW or 1-201-944-0005
Fax:1-201-944-1199
E-mail: crow@crowelec.com