SCARECROW
BIO-ACOUSTIC SYSTEMS
KEEPING BIRDS AT BAY

SCARECROW MARINA SYSTEM

INSTALLATION, OPERATION AND MAINTENANCE GUIDE

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SCARECROW
BIO-ACOUSTIC SYSTEMS LTD

MARINA 1230 + 1231
SYSTEM INSTALLATION AND
OPERATION MANUAL

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INTRODUCTION TO THE PRACTICE OF BIRD CONTROL

Thank you for purchasing a **SCARECROW MARINA** bird dispersal system; we know it will give you many years of satisfactory service.

Please note that we at **SCARECROW BIO-ACOUSTIC SYSTEMS** don't claim to be "experts" at bird dispersal and control but we do offer many years of real experience obtained as a leading manufacturer of bio-acoustic bird dispersal products that some experts would say are "state of the art".

Specie distress calls have proven successful in dispersing birds in scientific experiment by the **UK Ministry of Agriculture, Food and Fisheries**, and through many years of practical use.

The dispersal of birds from airports and surrounding areas is an essential part of flight safety and must be carried out efficiently to minimize Birdstrike risk to aircraft and passengers. **Our products can be found at many airports**.

The same dispersal principle used on airfields also applies to pleasure beaches, outdoor restaurants, docks, harbours, landfill sites, food processing and storage facilities and fields of farm produce where the presence of birds can be a health hazard or lead to stock loss. **Our products can be found at many such sites**.

Offshore oil and gas production platforms and storage facilities, helidecs, heliports and ships in port all benefit from the use of **SCARECROW** technology. **Our product that can be found at many locations**.

We do aim to be helpful, so please contact us on any specific dispersal problem which, with your help, we will try to resolve. If we cannot, we'll direct you to an expert without hesitation.

SCARECROW
BIO-ACOUSTIC SYSTEMS
KEEPING BIRDS AT BAY

ABOUT BIO-ACOUSTIC BIRD DISPERSAL: THE USE OF DISTRESS CALLS

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1. SOME GENERAL NOTES ABOUT BIRD DISPERSAL

1.1. The use of bird distress calls as a tool for bird dispersal is not new. They have been around for over 40 years, being initially tested and used on UK aerodromes to help combat the bird strike problem to aircraft. Following this success they have been introduced, where possible into all pest bird management

1.2. Their use differs from other commercially available bird control techniques because they are not based upon what we, as humans, consider should scare or startle birds. Merely because loud bangs may startle birds in the same way as they make us jump, does not mean birds will associate such a noise with danger. If they are not in danger, they have no reason to leave.

1.3. **So what is a distress call?** This needs definition, as there is confusion over alarm and distress calls. An alarm call is given by some birds as a signal that there is a potential risk of danger. A bird gives a distress call only when a predator or man catches it. In other words, it is not warning of potential danger, it is stating that the danger is here now.

1.4. Birds have an instinctive behaviour when subjected to their own species distress call and this has caused confusion in the past with operators unfamiliar with the technique. It is expected that any bird control device will cause birds to fly away immediately and, hopefully, not return for a long time. Some species do fly away from the source of the call, some species react immediately on hearing the call, but others do not. Instead, on hearing the distress call, they stop whatever they are doing and appear to be assessing the situation and identifying the location of the source. This may take from a few seconds to over a minute before they take flight.

1.5 **What have the target birds discovered at this stage?** First, they know the location of the predator, it is at the source of the call and, it is on the ground. An obvious fact if the predator is a fox but if the predator is a falcon, this master of the air is now on the ground and very vulnerable to attack. Gulls and corvids, in particular, after the initial "thinking time", take flight and fly towards the predator - these birds are not being scared.

1.6 In the natural situation, the approaching birds could mob the predator, forcing it to release its prey. Thus, the distress call has a survival value for the bird giving it. Also, of course, because it indicates the presence of an actively hunting predator, any bird not responding to it could well end up as its next meal!

1.7 When the call is broadcast artificially, the initial response of the birds is the same but when those species that approach the source of the call do so, they do not see a predator. The distress call indicated that there was one, it gave away the predator's position, they have arrived at that location and there is no predator. Suddenly the once safe area for them has become hostile because they cannot pinpoint the predator, so they move on to a safer site.

1.8 The following table summarises the general reaction to broadcast distress calls.

Bird Type	Approach the source	Hold for duration of call	Immediate Flee
Gulls	Yes	Over Source	Rare
Corvids	Yes	Over Source	Rare
Waders	No	Over position	Often
Pigeons	Occasional	Rare	Usual
Starlings	No	No	Normal

1.9 **Where do birds "feel secure"?** This varies between species but it can be a location that allows birds to undertake their normal daily routine in safety. Or, it can be a site where the birds "feel safe" to escape any danger, house sparrows, for example, feed close to shelter and if disturbed, fly straight into the nearest dense shrubs or bushes. The social flocking ground feeders such as gulls and waders seek the security of flat open areas from where they can see the approach of any predator soon enough to take evasive action.

1.10 It is unfortunate that one avian pest finds security in the very location pest controllers seek to remove it from. Feral pigeons find security, resting and breeding sites on buildings and when disturbed from the ground fly straight to these. They are then very reluctant to leave their safe perch when there is a threat somewhere in their vicinity.

1.11 **Is the target birds' response always the same?** The short answer is no, the dispersal response varies because of a number of factors. As a general rule, breeding birds are virtually impossible to scare from their nest site; feeding birds have a stronger attachment to a site than do resting birds. However, resting birds become more reluctant to move when they are in moult. Very often, juvenile birds make no response at all, probably because they do not know what they should do. In the case of ground nesting birds, these youngsters often try to bury themselves in the ground to hide on hearing a distress or alarm call, as they did when they were flightless.

1.12 Where distress calls are frequently used, local birds that usually approach the source may not do so after a while but disperse on hearing the call; habituation is possible but distress calls, if used correctly, it will take longer to be seen than with bird scarers. In both these cases, changing to the call of a closely related species will reinforce the usual call that should be rested for a short period. However, habituation will develop if dispersal action is less than thorough. For example, driving a vehicle at speed whilst broadcasting distress calls from it gives no opportunity for the target birds 'approach and investigate' behaviour. By the time birds have taken flight, the reason for disturbance has departed and they will return soon afterwards.

1.13 **How long will it take the birds to disperse?** This again varies with the activity of the target birds and the attraction of the site. In some cases, as with local residents mentioned above, it can be immediate. However, because the reaction is instinctive, distress calls should not be considered when immediate dispersal is necessary.

1.14 As already mentioned, there is usually a time lag before the target birds respond. As they identify the call, the birds take flight and those that do, approach the source and circle overhead for at least the duration of play. Gulls, for example, appear to be more secure when in the air than in a flock on the ground and may remain in the area for some time before dispersing. The same is true for corvids and as a rule the greater the distance between the SCARECROW equipment and the target flocks, the greater the time for dispersal.

1.15 The recommended distance is 100 metres and the recommended length of play 90 seconds. This allows the target birds to "think about it", approach the source and begin to disperse. It is best if the broadcast is upwind of the birds but not imperative. As the distress call is indicating the location of a predator on the ground, it follows that the broadcast should be from a stationary position.

2. PRACTICAL USES OF DISTRESS CALLS

2.1 **The basic technique.** There are a few points to always bear in mind before considering bird dispersal techniques:

a. Why are the birds there?

b. Is bird dispersal the right option?

c. Can the attractions be removed first - this makes any dispersal attempt easier!

d. It is generally easier to prevent birds arriving than to disperse them once they have become established.

e. Bird dispersal, by any method, should only be a part of an Integrated Bird Management System.

2.2 Once it is decided that distress calls are suitable, the first step is to identify the birds in order to select the correct call. Each call is species specific, therefore, birds respond best to distress calls of their own species. This is not a hard and fast rule as already mentioned in 1.11, using the call of a closely related species' delays the onset of any "cry wolf" effect.

Similarly, birds that share the same habitat often react on hearing the distress call of their companion species. This is due in part to the sudden change in behaviour of their companions on hearing the call.

"What's up? Where are they going? I'm going too!"

So on a landfill, for example, gulls and corvids may react to each other's calls.

2.3. The following table details call preferences:

TARGET SPECIES	PRIMARY	CLOSE RELATED
Black-headed gull	Black-headed gull	Common gull Herring gull
Common gull	Common gull	Black-headed gull Herring gull
Herring gull	Herring gull	Black-headed gull Common gull
Lesser black-backed gull		Herring gull Black-headed gull Common gull
Great black-backed gull		Herring gull Black-headed gull Common gull
Lapwing	Lapwing	
Golden plover		Lapwing
Starling	Starling	

Feral pigeon	Feral pigeon	
Woodpigeon		Feral pigeon
Rook	Rook	Jackdaw Carrion crow
Jackdaw	Jackdaw	Rook Carrion crow
Carrion crow	Carrion crow	Rook Jackdaw
Magpie	Magpie	Rook Jackdaw Carrion crow
Mynah	Mynah	Starling

2.4 Broadcast the call. Common sense is required after the call is selected. If possible follow the ideal method as in 1.14 but if, the distance is shorter or longer than, 100m adjust the length of play accordingly. Additionally only play the call at sufficient volume to disperse the target flock.

2.5 Whenever possible, time being the usual constraint, allow the birds to undertake their natural response to the call. Do not move the speaker position while the call is broadcast (but see 3.1.5) nor employ any other scaring device. Once the broadcast is stopped, if the target birds have approached the source, allow them to disperse at their own pace.

2.6 What happens if other devices are used in conjunction with distress calls? Some may help the harmless confidence trick whereas others can counter any repellent effect. Of the former, waving a white or black rag while the call is broadcast can reinforce the call by simulating the calling bird. Any pyrotechnic device or shotgun blast induces birds to flee; therefore, their use during a broadcast when birds are approaching the source can create confusion. As such, they do not enhance any dispersal effort. Once the broadcast is stopped, they may be used to hasten the birds' dispersal if time is a problem.

2.7 **Scarecrow Bio-Acoustic Systems recognises that no single bird dispersal method is 100% effective for 100% of the time.** The greater the variety within the bird control armoury, the more efficient will be the system. The ultimate bird controller is man; everything else is just a tool to assist the task. However, that same man must have the knowledge of how the systems work. In most circumstances, bio-acoustic bird control is only successful if activated by a trained and knowledgeable operator at the right moment.

2.8 Dispersal action must be a determined and organised routine without being a repeat of a regular plan or previous pattern. So, it is important to vary the approach as much as possible within the scope and limitations of the equipment, local situation and routine. In order to be successful, the operator has to be motivated to be more persistent than the birds. **Remember that they only want a quiet life too!**

3. APPLICATION OF DISTRESS CALLS BY LOCATION.

Risk-reducing measures and bird dispersal are essential in situations where the presence of birds can be a safety or health hazard.

3.1 AIRFIELD BIRD DISPERSAL PROCEDURES

Aerodrome users of Scarecrow equipment are reminded that ICAO and National Regulatory Authorities provide full details of bird control policy, regulation and methodology. The following notes are not intended as a replacement for these but are for general guidance only.

3.1.1 The dispersal of birds from airfields and surrounding areas is an essential part of flight safety for civil and military operations and it must be carried out efficiently to maximise safety.

3.1.2 Airfields differ from many other bird pest problem areas in that they are generally flat, have a fairly uniform habitat, and because people are not present in the operational area, are very safe locations for birds. The problem is also easy to define and the target for bird control straightforward - a bird-free situation. A simple aim following the concept that if birds, especially those known to create a high risk of damage if hit, are not present then aircraft cannot hit them!

3.1.3 After habitat management procedures have been introduced the major attraction of any airfield is reduced and the number of birds decreases. However, some birds persist in visiting the site and need to be dispersed. These include gulls, grassland waders, corvids and starling; the species that the distress call technique was initially used against.

3.1.4 The bird control device has to be taken to the birds because of the large area airfields occupy, therefore, it is usually carried in a vehicle. The procedure for using SCARECROW equipment is the same except that the first stage is to locate the birds. Following identification and call selection (Table 2.3), the call is played from the stationary vehicle for 90 seconds.

3.1.5 The loudspeaker and/or vehicle are moved when broadcasting distress calls of lapwings and starlings. The typical lapwing response once in the air is for the flock to hold over their original position then for the flock to break into 3 or 4 groups that re-settle in different parts of the airfield. By moving the speaker to hold the flock in its beam, the flock can be slowly driven off the site. In this case, the distress call is broadcast continuously until the birds have been followed to the boundary fence.

3.1.6 Starlings tend to fly up immediately on hearing the call, fly downbeam for about 100m and re-settle. Once they are in the air the operator follows the birds, keeping about 100m behind them while broadcasting the call. The flock is then driven over the boundary fence.

3.1.7 With all species, if the airfield is attractive the birds will always return and the procedure is then repeated. Eventually the birds move on, they do not want the continual harassment created by a persistent operator.

3.2 BIO-ACOUSTIC DISPERSAL IN AGRICULTURE

In comparison to the aerodrome and urban bird situations, bird problems in agriculture tend to be relatively short-lived and seasonal. This is the market for which most of the "traditional" bird scaring devices were developed.

3.2.1. Bird control in the rural environment has largely been by lethal or automatic means. Killing the pest birds removed the immediate problem, if only psychologically, and the traditional *Scarecrow* in the farmer's field provided long-term protection. Commercial bird scaring devices tend to follow the *Scarecrow* tradition by being placed in a field and left to operate; bang, move, light flash or any combination as the automatic timer or wind dictate, whether birds are present or not.

3.2.2. There is a temptation to use distress calls in the same manner; place a broadcast system with a random timer sequence in a field and leave the device emitting distress calls, again whether the birds are present or not. There is the danger with such a system that the pest species will rapidly habituate to the call if always coming from the same position, especially so in a highly attractive feeding situation, such as starlings on a ripening cherry crop or gulls and corvids around intensive rearing units.

3.2.3. The basic principle is no different to that on aerodromes, dispersal is more efficient if distress calls are used as part of a variety of methods that are taken to the birds by man and used only when necessary.

3.2.4. Bird dispersal should commence before the birds arrive and distress calls of the relevant species broadcast as the birds approach. Starlings tend to bunch up into a large flock in the air and the loudspeaker should be moved to keep the birds in one cohesive flock. The call in this case should be broadcast for more than 90 seconds.

3.2.5. Gulls and corvids feeding around livestock approach the source on hearing the call and disperse to a safer area. While the food is available they will always attempt to settle but they cannot feed and they seek another location where they can.

The behaviour of the stock animals must be monitored for signs of stress, especially when distress calls are first introduced.

Correct use of the volume control may reduce the risk. On first broadcasting, gradually increase the volume from '0' until the birds take notice and respond.

3.2.6. Starling distress calls are very useful when attempting to clear a woodland starling roost. As roost dispersal of any communally roosting species is very complex, we recommend you first call Scarecrow Bio-Acoustic Systems Limited for specialist advice.

3.3. <u>USING SCARECROW IN THE URBAN AREA.</u>

3.3.1. The most common pest species in the urban area are feral pigeons and starlings. More recently, gulls have created problems by fouling, blocking drainage gullies and gutters with nest material, and allegedly attacking people.

3.3.2. The basic principles of an Integrated Bird Management scheme apply here because the reasons why the birds are present and creating the problem are usually very simple to define. Wherever we are there will be food for birds and other pests whether left deliberately or not. Additionally, the buildings that we live and work in provide birds with ample safe resting, overnight roosting and breeding sites.

3.3.3. 'Physical' proofing of buildings and structures has proved effective in excluding birds but only where it has been correctly fitted and maintained. Denying the birds access to food in an area where the proofing is efficient removes any reasons for the birds to stay there. Unless such actions are taken to any extent, all "scaring" attempts will be temporary measures and the greater the attraction to the birds, the sooner they will overcome their fear to the dispersal stimulus.

3.3.4. The most difficult species in this location is the feral pigeon, they are very used to people, general traffic noise and are only startled by sudden sharp noises such as vehicle backfires etc. Their response is then to seek the security of their perches on nearby buildings until

they assess that any "danger" has passed. The response, when they do react to their own broadcast distress call, is similar and the nearest safe area might only be two storeys above the feeding site. Once on or in their safe perch, they are very reluctant to leave whilst they think a predator is still in the area.

3.3.5. Dispersal action should be taken at the start of the day, before the pigeons arrive at the feeding site. As the birds approach, the distress call should be broadcast to deter them from landing and the action repeated whenever they try to return throughout the daylight hours. Persistence by the operator is necessary to achieve any degree of success but if the attractions remain, the task will be so much more difficult.

3.3.6. Although still in development, the current recommended approach to dispersing pigeons from perching ledges is to broadcast the call from above the birds. Broadcasting from the ground, with the possibility of a high ambient noise level, is difficult and may not cause them to leave their safe site. The broadcast position give the birds the impression that the predator location is below them and, while it is there, it is probably more dangerous to leave the perch than sit it out. When the predator is above them, it appears that they are less secure and may therefore depart.

3.3.7. The major problem created by large numbers of starlings in urban areas is from their overnight roosts, containing perhaps several thousands of birds. Roosting sites can be on or inside buildings, or in trees, especially those in sheltered city squares.

3.3.8. The dispersal methodology using starling distress calls is very similar to that needed for rural roosts and again, we recommended that specialist advice should be sought from Scarecrow Bio-Acoustic Systems.

3.3.9. Birds have the greatest attraction to their breeding sites and it is generally considered that distress calls have limited, if any, effect against breeding birds. However, birds have a stereotyped breeding behaviour and this can be disrupted at any stage before eggs are laid.

3.3.10. Roof-nesting gulls are a relatively recent and rapidly spreading problem. Action is usually requested against these birds when nest site tenacity is at its greatest, they have full clutches of eggs or chicks, and the adults dive-bomb residents and visitors to the building.

3.3.11. Again this has to be considered in terms of an Integrated Bird Management System; the breeding activity of herring gulls sometimes begins as early as January, with the dominant males return to the colony to establish their territories. These appear to be loosely

maintained until the start of the breeding cycle gets underway, when they are vigorously defended as they attract a mate. Following courtship and copulation, a nest is made of local materials and the sight of the empty nest stimulates the female to drop an egg in it and she continues to do this until there is a full clutch. The sight of the latter causes her to sit on the eggs to incubate them until they hatch. If the eggs are removed, the empty nest causes the female to lay again and if the eggs and nest are removed, the effort of rebuilding the nest and re-laying a full clutch of eggs may cause the birds to desert the site.

3.3.12. Strange as it may appear, the initial action before using distress calls against roof-nesting gulls is to get a broom to clean the roof of all the old nesting material. If the gulls have to leave their territory to get nesting material the task is made more difficult. Thereafter, the roof should be regularly swept or hosed down and this will delay or disrupt the breeding activity. Broadcasting distress calls as the gulls attempt to return reduces the attraction of the site by creating a general disturbance.

3.3.13. If the cleaning and disturbance programme is not maintained, at the weekend for example, and birds do lay eggs, it is too late to use distress calls for effective dispersal.

3.4 AUTOMATIC DISPERSAL SYSTEMS :SCARECROW MARINA

3.4.1 There are situations which require the broadcast of bird distress calls even when there are no humans present or human involvement is not possible or desirable. Examples will be inaccessible structures, marinas, harbours, docks, oil and gas platforms, car parks, outdoor restaurants.

3.4.2 MARINA is a fully automatic, random play, system that can be programmed to function 24 hours a day or, for example, from dawn to dusk. It cannot be used on airfields where its (automatic) function could promote a severe flight safety hazard.

3.4.3 Each system will comprise a central MARINA processor and a number of loudspeakers whose quantity and location will have been determined by specialist SCARECROW engineers from plans/layouts of the site to be cleared. There are various other considerations: prevailing wind direction, geographic position, proximity to housing etc.

3.4.4 The whole objective is to create an environment that is always regarded by the problem birds to be hostile and to giving the

impression that there will be other locations for their use that are less stressful, hostile or potentially dangerous. Anything for a quieter life.

3.4.5 Experience shows that such systems are often spectacularly successful; because the calls used are natural, played at a natural level, the general public, as local residents or visitors, do not comprehend that dispersal processes are in place, merely that they cannot see the birds they hear.

4. BIRD DISPERSAL PROGRAMMES

4.1 When planning a daily bird control programme take into account the manner in which birds have responded historically to dispersal activity; be aware of the various flight paths that birds use to and from the area. Familiarity will enable the minimum delay before implementing dispersal procedures. The early interception of approaching birds before they land will deny the birds the opportunity to settle; the effect of subsequent dispersal action, if necessary, will thus be increased.

4.2 Often the dispersal of small numbers of birds may not appear to warrant the required effort but it must be emphasised that birds in flight frequently join other birds already on the ground. A relatively small number of birds can form the core from which a large flock congregates.

4.3 We hope this very simple guide is useful in focusing on the problems that may be experienced and, in seeking solutions, some of the pitfalls to be overcome.

4.4 We do aim to be helpful, so please contact us on any specific problem which, with your help, we will try to resolve. If we cannot, we'll direct you to an expert without hesitation.

5. BIRD DISPERSAL : AN INTEGRATED BIRD MANAGEMENT SYSTEM

5.1 An effective **I**ntegrated **B**ird **M**anagement **S**ystem at first sounds very complicated but is effectively the use of common sense in Professional Pest Control. This appears to be a flippant statement but it has become so very simple while chasing new methods or creating new equipment to lose sight of the basic problem. For example, in many areas we seek to ease the symptoms to satisfy the immediate needs of the client rather than eradicate the root cause.

5.2. What is the problem?

A fundamental requirement is to correctly identify the problem. Birds are capable of creating a number of different problems and the same species can be seen as both friend and foe, depending on one's

outlook. When called to investigate a bird pest problem what are we looking for and, how does this equate to the requirements of the client? In many cases, the client is only interested in removing the visible symptom, such as the presence of droppings. This is a cleansing problem and not pest management.

5.3 **What is causing the problem?**

The visible symptoms are droppings, clean away the droppings and the problem is solved? Unfortunately not the case, the problem is the depositors of the droppings and why they happen to be at the particular site. Birds need secure sites to roost, rest, feed and breed in therefore, the attractions of a particular site should be identified before control action of any sort. The attraction to gulls presented by a landfill is easy to identify and is removed by changes in materials tipped, exclusion netting or active bird control using distress calls. If the birds cannot feed there is no attraction!

5.4 **Remove the attractions.**

Sometimes this is easier said than done. However, if the attractions remain, the birds will always attempt to return. Deny the problem birds access to food, remove the safe perches and breeding sites, etc. Nothing else will reduce the numbers so effectively.

5.5 **Remove the birds.**

Some birds will persist in their attempts; the client may not be able to prevent staff from inadvertently or deliberately feeding the birds and it is not possible to remove all the attractions at every site.

Whether the control method chosen is by lethal means or "scaring" it must be remembered that no single method is 100% successful for 100% of the time. Additionally, not all bird control methods disperse birds, some are more subtle confidence tricks.

5.6 **Bird Control Organisation: how SCARECROW BIO-ACOUSTIC SYSTEMS LTD. can help.**

In order for bird control to be successful, staff must be organised and trained in the correct use of the available techniques. Some appear ridiculous to us as humans but if, by their novelty value alone, they keep birds away from a particular site for the two or three days when that site is vulnerable to "damage", we need recommend nothing else. Most problems usually last for much longer than a couple of days.

5.7. **How is an Integrated Bird Management System applied?**

This is simplicity and yet, to some, it is an obstacle of immense magnitude - especially with some clients. Whatever is recommended they then see as the total answer - some professional pest controllers maintain the same view!

5.7.1. If a problem is not examined using IBMS, unnecessary treatments may be applied in true "sledge hammer" fashion. In addition, we are able to indicate the client's day to day responsibilities so that these do not disadvantage whatever treatment we advocate or install.

5.7.2. By identifying the attractions to birds in a "problem situation", we are able to differentiate between a true pest control and a straightforward cleaning problem.

5.7.3. The bird problem at a fast food Drive-Thru is the result of an abundant food supply – not a matter for pest control, or expensive equipment – just a broom! In other areas, it may not be so straightforward, especially where the public is present.

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INTRODUCTION TO SCARECROW MARINA SYSTEMS

A SCARECROW MARINA SYSTEM COMPRISES:

1230 + 1231 which includes a 100v line, power amplifier capable of feeding a multiple loudspeaker system distributed over a distance covering a whole office block, dock, marina or offshore installation. Larger power amplifiers can be supplied for use in high ambient noise levels.

SYSTEM SUPPLY

Optionally, both basic systems can be operated either from 110/220/235v AC 50/60Hz or 24V dc; often this d.c. supply is solar panel or wind powered generator derived.

SCARECROW MARINA is fully automatic and will random play bird species calls. **Birds as listed in this Installation Information section may be programmed on-site to disperse the birds identified to cause nuisance or danger.**

The **SCARECROW MARINA** bird control system includes a paging microphone input which, when activated, will automatically interrupt any bird call in progress for routine or emergency announcements.

REMEMBER TO REMOVE ALL PACKAGING / SAFE TRANSIT MATERIALS FROM INSIDE THE RACK BEFORE INSTALLATION COMMENCES.

SCARECROW MARINA 1230 MKII

SITE PROGRAMMABLE DIGITALLY STORED BIRD DISPERSAL SYSTEM
FOR PERMANENT INSTALLATION, ONSHORE AND OFFSHORE

INSTALLATION INFORMATION

INSTALLED AT : ……..

EACH SYSTEM COMPRISES:

1	**SCARECROW MARINA 1230**	☐
1	**POWER AMPLIFIER 1231**	☐
1	DAYLIGHT SENSOR	☐
☐	LOUDSPEAKERS OF TYPE	☐
1	MONITOR HEADSET	☐

ACCESSORIES : MICROPHONE TYPE	☐
AUXILLIARY CONNECTORS	☐
AC POWER CABLE SET	☐

PROGRAMMABLE CALLS (mark those site selected for later reference)

Herring Gull	☐	**Rook**	☐
Common Gull	☐	**Crow**	☐
Black Headed Gull	☐	**Feral Pigeon**	☐
Lapwing	☐	**Magpie**	☐
Starling	☐		

INSTALLING THE MARINA SYSTEM

By following this Instruction, installation of MARINA is simple and requires no special skills, but it is recommended that a competent Electrical Contractor is employed for the purpose and "best practice".

1. Locate the MARINA system in an area which is damp free, close by the chosen power source, i.e. 13 Amp 110/220/235V socket or 24V dc, and **not exposed at any time to ingress of water or direct sunlight**.

   Each power source will require r.c.b. protection.

2. It is appropriate to the system function to choose a location which will enable MARINA to be monitored and adjusted and that, if the paging facility is to be used, the microphone (not supplied as original equipment unless specified) is within easy operational reach.

3. **A carton, supplied with each MARINA System includes:**

   a) An IEC Terminated mains supply cable, 'Y' formation, to be connected into the 1230Marina and 1231 Power Amplifier.

   b) 1 pair monitoring HEADSET.

   c) Rack door keys.

   d) MARINA programming keys.

REAR PANEL INFORMATION

The Installation engineer will have wired connectors to the rear panel during the installation process.

a) MAINS SUPPLY (110v/230v 50/60hz) INPUT: the a.c. power to operate the MARINA processor should be connected here. This connection will **NOT** power any other equipment fitted, i.e. POWER AMPLIFIER 1231; these are separately powered.

   A supply fuse housing is incorporated into this plug moulding.

DO NOT CONNECT BOTH A..C. AND D.C. SUPPLIES TO MARINA; CHOOSE EITHER FOR THIS INSTALLATION, NOT BOTH.

b) 4 PIN MULTIPOLE SOCKET : This provides connection for :

   (1) Auxiliary, or primary, **d.c power source 24v dc**.

   (2) Output of bird sounds; the selection of OUTPUT format is by the adjacent OUTPUT select switch.

c) OUTPUT FORMAT SWITCH. This is set to 600R.

d) AUX 1 & AUX 2

These are for additional input signal sources as earlier described. Adjustment of their GAIN can be made with a small insulated, bladed, screwdriver, clockwise for increase, anti-clockwise to decrease GAIN, access through the holes below the relevant DIN connector.

e) CALL REMOTE START

This is not usually required in normal MARINA installations but this interface connector is used when a remote DAYLIGHT SENSOR or TIME CLOCK is specified.

OPERATING WITH A TIME CLOCK

(e.g. DUSK / DAWN MUTING: see also DAYLIGHT SENSOR)
Please ensure that the time controlled contacts are 'dry', i.e. not in any way connected to the clock a.c. supply.

MARINA will start automatic, random, playback of the chosen bird distress calls on (clock) contact closure. Connect the contacts between PIN 1 and PIN 2 of the "REMOTE START" DIN socket on the rear panel of MARINA. Wire a 1K0 resistor, 0.25w, between PIN 2 and PIN 3. **Note the numerical sequence of PIN layout.** See SECTION: Front/rear Panel Drawings.

When set to auto mode, MARINA will not necessarily broadcast when the time switch contacts close as the random timer will be operating. To test time switch, select a bird manually and check the sound is muted when the time switch contact opens.

DAYLIGHT SENSOR with adjustable daylight/darkness sensitivity.

CAUTION : The interface lead length is 10m.

1. Connect to CALL REMOTE START at the rear of MARINA.
2. Sensor should be mounted away from sources of artificial lighting which may be turned on and off, and direct sunlight.
3. Sensor contains two pre-set controls; VR1 permits **'fine'** control of sensitivity, VR2 is the **'coarse'** sensitivity control. Remove four lid screws to gain access.
4. Internal LED indicates unit active (i.e. light/dark) for ease of setting-up.
5. Unplugging the light sensor will automatically make the system 24hrs operational.

ABOUT THE LOUDSPEAKERS WE SUPPLY

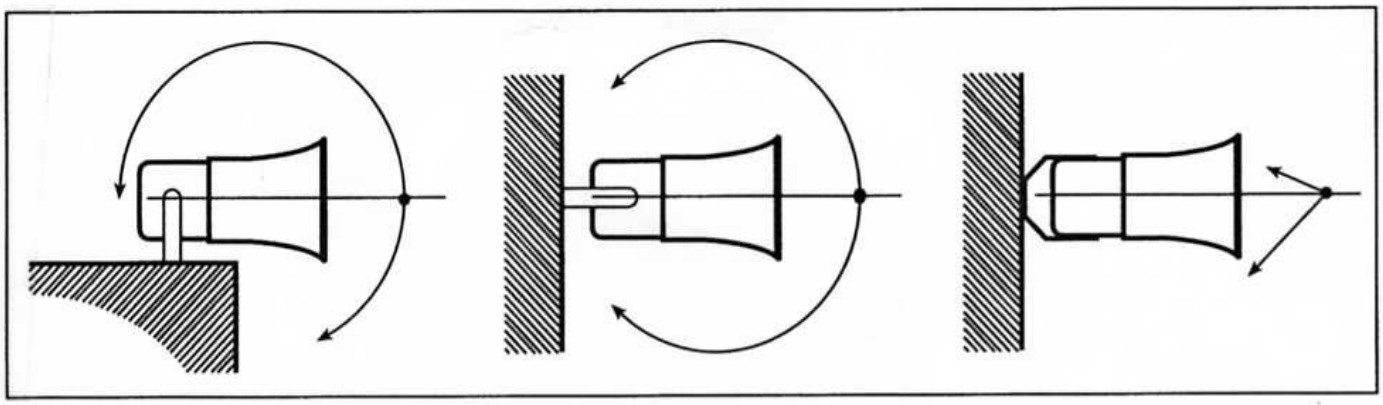
All the loudspeakers we supply are defined as re-entrant horns; a small efficient 'driver' feeds sound into a specially designed tube of increasing diameter and of a length calculated to perform to a required efficiency and frequency response.

Generally, the larger the horn in length and final diameter, the greater the efficiency and directivity. The horn is folded within itself – the reason they are called ***re-entrant*** horns – to make them smaller and therefore less environmentally obtrusive, yet maintaining sound quality and efficiency.

By using their directional properties and installing an appropriate number of loudspeakers, it is possible to very efficiently cover the area from where birds are to be dispersed and keep most of the reproduced sounds within the area, with minimum overspill.

INSTALLING THE LOUDSPEAKERS

Horn loudspeakers are very efficient and produce a relatively narrow beam of sound. They should be mounted so that their beam(s) cover the entire area required, always angled slightly downwards, not only to offset that sound does rise in warm air but, by inclining, also to ensure that the loudspeakers "self drain" and limit the ingress of rain.



A GUIDE TO LOUDSPEAKER PLACEMENT

BASIC RULES:

1. Loudspeakers mounted inside buildings should be fitted as close to the underside of the roof structure as possible. This is particularly important when Pigeons are to be dispersed; they will attempt to fly up, away from the distress call, and if they cannot this will further prompt them to fly out of the building.

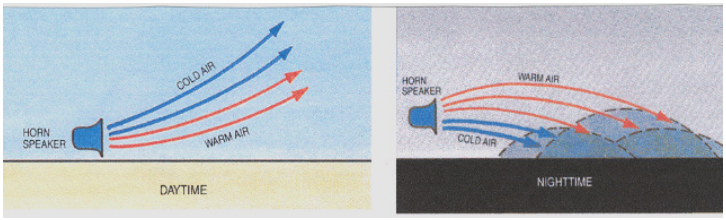
2. Whilst dispersal of birds from within the building is important, it is also necessary to place loudspeakers above openings into the building – e.g. above Hangar doors.

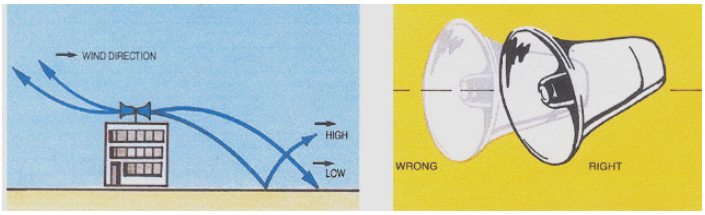
3. Interior roof mounted loudspeakers should be installed in a matrix formation to ensure complete internal area coverage. See next page for an example of how this may be achieved.

4. Loudspeakers mounted external to buildings need further consideration.

   The areas and structures that are, or are likely to be, occupied by birds have to be fully identified; this means defining the areas to be properly covered by the loudspeakers to be installed, with the object of minimising 'overspill' to surrounding areas, where their sound may be intrusive and unnecessary.

   When installed outside, the effect of wind and temperature can modify the directional characteristics of horn loudspeakers. This will be most noticeable when installed on the flat roof of a building in full sunlight and the following diagrams demonstrate how the sound will be affected.





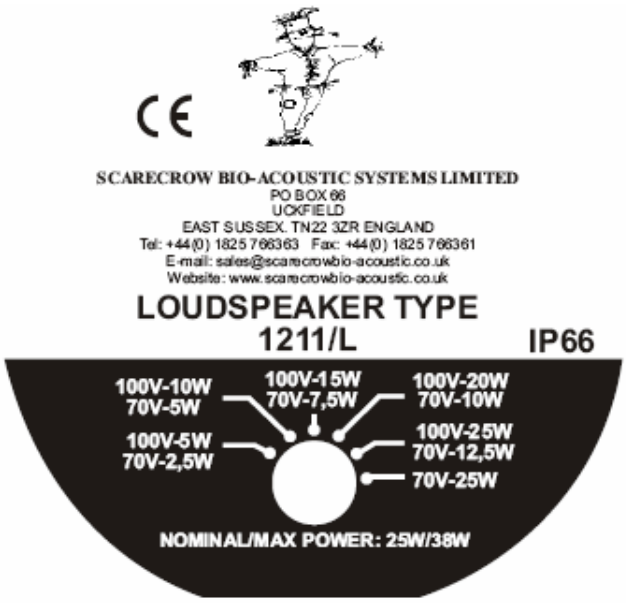
It is important to maximize the benefit of prevailing winds, to use these to enhance the distance that sound will naturally travel. If not considered, in positioning the loudspeakers, it could be that wind could reduce the distance that the dispersal sound will travel, blowing in the opposite direction to that which the loudspeakers are directed.

To reduce the adverse effects of sound reflections from flat, horizontal or near horizontal, surfaces, e.g., a factory pitched roof, loudspeakers should be mounted at least one metre above these pitched or flat surfaces.

Similarly, loudspeakers should not be positioned such that the sounds they reproduce are obtrusively reflected from adjacent flat vertical surfaces, causing echo, which could confuse the birds to be dispersed.

Loudspeakers should be adjusted by means of the switch at the back of each to "100v 5w".

DO NOT USE ANY OTHER SETTING!



CABLING LOUDSPEAKERS

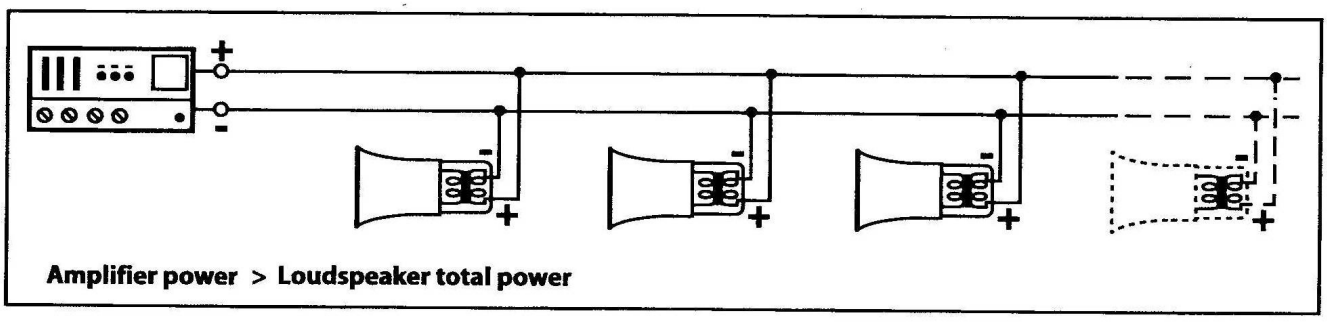
Loudspeakers will be installed to our recommendations; whether low impedance or 100V line system is adopted the loudspeakers should be cabled in parallel, often 'looped' from one to another on the site.

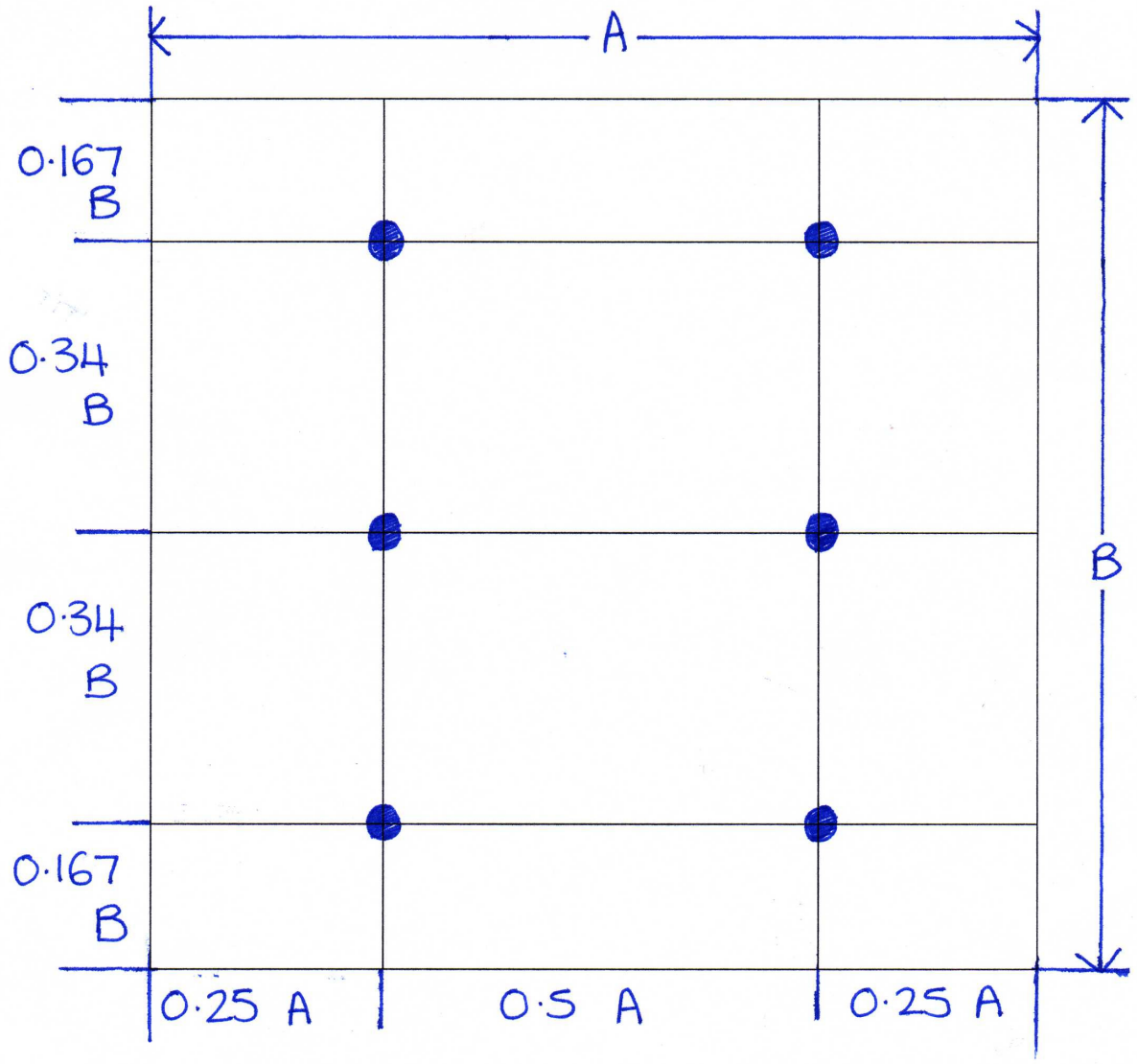
CABLE SIZES

For systems using power amplifier 1231, and/or operating on the 100V line distribution principle the cable size should be at least 1.5mm^2 and for distances over 200 metres this should be increased to 2.00mm^2.

Where loudspeakers are mounted at a single point, this is most economically achieved by wiring together in their same polarity (red:red/black:black) at their mount and then running a single cable to the MARINA central system.

In outdoor applications ensure that any cable terminations are waterproof.





Example of matrixed LOUDSPEAKER placement

A and B are the internal floor dimensions of the building from which birds are to be dispersed.

SYSTEM CHECK : RACK CABLING

N.B. Connection from the 1230 MARINA processor to 1231 POWER AMPLIFIER shall be made by using the preassembled lead, length 60cms.

ENSURE that the INPUT buttons on the rear panel of 1231 are set:

a) LINE/MIC depressed (LINE)

b) PHANTOM released (OFF)

CHECK that the **LOUDSPEAKER OUTPUT SELECT** on MARINA rear panel is set at **600R LINE**

CONNECTING LOUDSPEAKERS TO THE MARINA SYSTEM WITH UP1123 / 1231 POWER AMPLIFIER

(Referring to the rear panel labelling and illustration references)

1. a) Each of the loudspeakers, wired together in parallel, are connected to the POWER AMPLIFIER rear pluggable terminal block **"SPEAKER OUTPUT": O & 100v**

   b) Each loudspeaker is provided with individual connection details, installation specific.

2. SCARECROW MARINA **SOUND LEVEL** control should be at 'midpoint'. If sufficient output power is unavailable adjust the **MASTER** on the POWER AMPLIFIER from its 'midpoint' position to a level appropriate to the prevailing bird control usage. Do not increase more than necessary for efficient dispersal and never such that the POWER AMPLIFIER level indicator led's OdB at +3dB are continuously illuminated.

3. Front panel Tone controls: **TREBLE** should be set at 'midpoint' with **BASS** set fully anticlockwise.

4. In all cases use the **mains supply** (wall socket) to switch the **total** system **ON or OFF.**

DAYLIGHT SENSOR with adjustable daylight/darkness sensitivity.

CAUTION : The interface lead length is 10m.

1. Connect to CALL REMOTE START at the rear of MARINA.

2. Sensor should be mounted away from sources of artificial lighting which may be turned on and off, and direct sunlight.

3. Sensor contains two pre-set controls; VR1 permits **'fine'** control of sensitivity, VR2 is the **'coarse'** sensitivity control. Remove four lid screws to gain access.

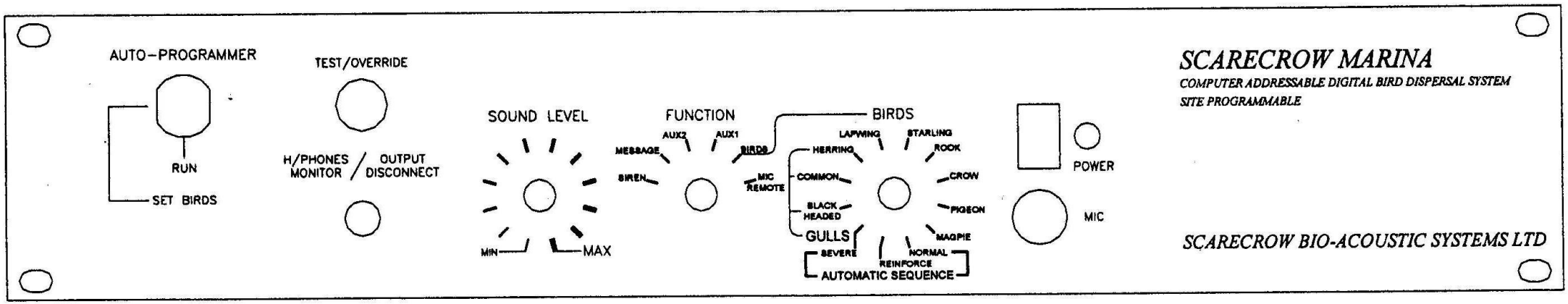
4. Internal LED indicates unit active (i.e. light/dark) for ease of setting-up.

5. Unplugging the light sensor will automatically make the system 24hrs operational.

SCARECROW

BIO-ACOUSTIC SYSTEMS

KEEPING BIRDS AT BAY

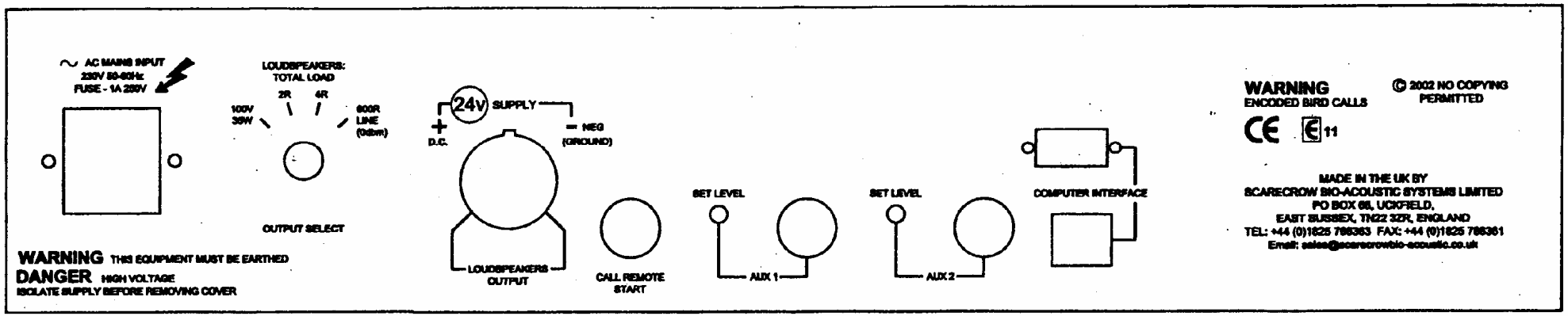


MARINA 1230 FRONT PANEL

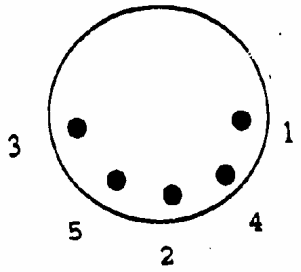
SCARECROW

BIO-ACOUSTIC SYSTEMS

KEEPING BIRDS AT BAY



REAR PANEL – MARINA 1230 MK II



PIN CONNECTIONS

CALL REMOTE START
1 Ground
2 Light sensor input (lo-go)
3 12 volt feed to light sensor
4 Remote start switch
5 Remote start switch ground

AUXILLARY 1 & 2
1 Signal +
2 Signal -
3 Ground

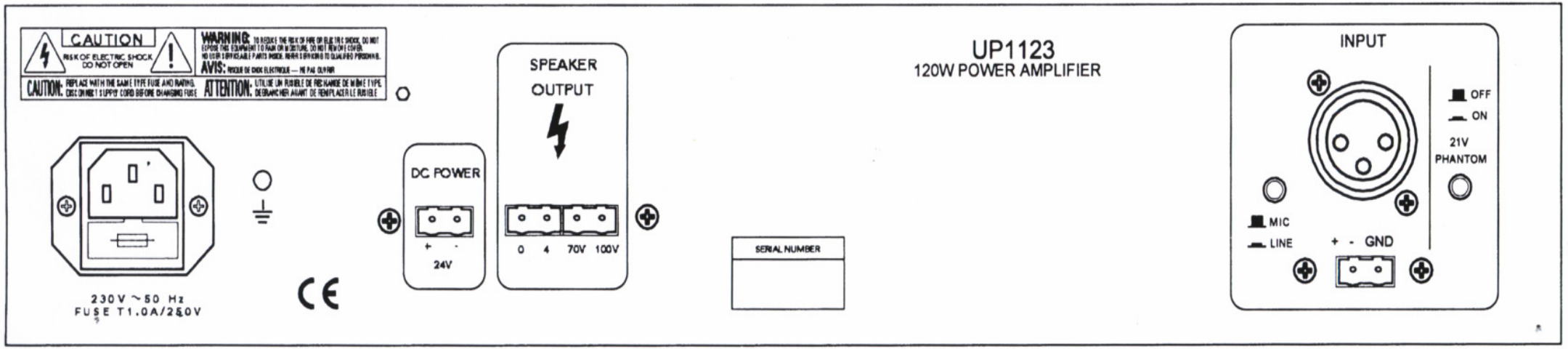
RS 232
2 Receive
3 Transmit
5 Ground
DATA FORMAT : 9600 BAUD, 8 Bits, no parity, 1 stop bit.

RJ45
REMOTE CONTROL USE ONLY

SCARECROW

BIO-ACOUSTIC SYSTEMS

KEEPING BIRDS AT BAY

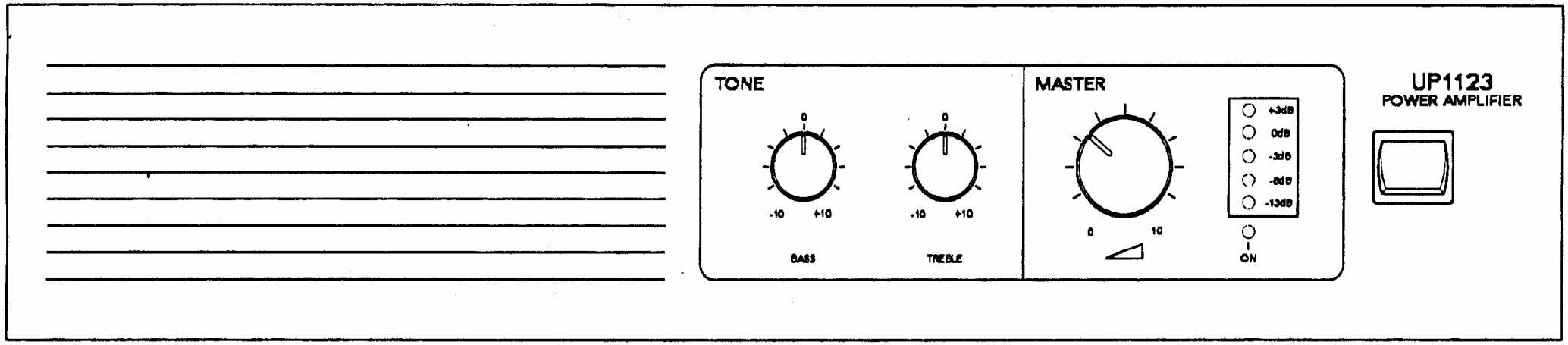


1231 AMPLIFIER REAR PANEL

SCARECROW

BIO-ACOUSTIC SYSTEMS

KEEPING BIRDS AT BAY



POWER AMPLIFIER TYPE UP1123 / 1231

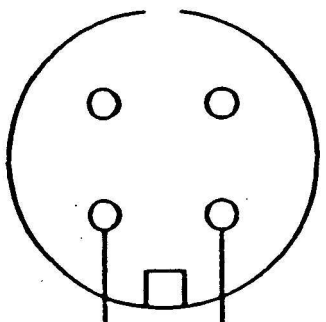
DO NOT SCALE

COMMUNICATION TECHNOLOGY
A Division of Scarecrow Bio-Acoustic Systems Limited.
P.O. BOX 66, UCKFIELD , EAST SUSSEX, TN22 3ZR.
TEL: +44(0)1825 766363. FAX: +44(0)1825 766361.

REV	REVISION	DATE	DWN	CKD
	FIRST RELEASE	16-3-05	J.G	T.D

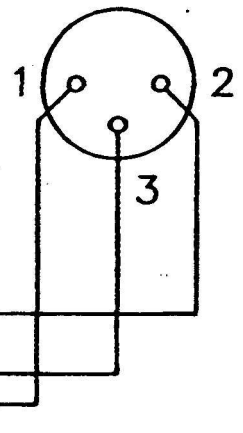
CONNECTOR FACE VIEWED FROM CHASSIS

MARINA 1230



PART No. 293-5863

POWER AMPLIFIER 1231
(UP 1123)



PART No. NC*MX-HD

SCALE NTS	MATERIAL	INTERFACE LEAD: 367-325 (16/0.2mm²)
TOL: ±0.2 EXCEPT WHERE STATED	FINISH	
	QUANTITY	

TITLE : 1230 TO1231 INTERFACE LEAD	DRAWN J.A.G	CHECKED T.D	APPD L.P	DATE ORIGINAL ISSUE 12/04/05
	DRG No CCT949	ISSUE No 1		DATE 12/04/05

SETTING TO WORK : SYSTEM CHECK

1. In all cases use the AC SUPPLY wall socket and/or the DC power source isolator to switch the system ON or OFF. **NOTE THAT A MARINA SYSTEM SHOULD NEVER BE SWITCHED OFF UNLESS FOR MAINTENANCE OR SERVICE ATTENTION.**

2. Connect the headphones supplied into the front panel socket **H/PHONES MONITOR.**

3. Select any bird on the **BIRDS** switch, checking that the **FUNCTION** switch is in the **BIRDS** position.

4. Increase the **SOUND LEVEL** control on MARINA until the sound of bird calls can be heard, if necessary pressing the **TEST/OVERRIDE** switch for verification.

5. Remove the headphones from the **H/PHONES MONITOR** socket and, with the aid of another person, check the sound output level over the area from which birds are to be dispersed.

Further adjust the sound output with the **SOUND LEVEL** control on MARINA if required.

ABOUT THE MARINA FRONT PANEL CONTROLS AND FACILITIES

POWER

This push button will switch **on** or **off** the MARINA processor, NOT the POWER AMPLIFIER which may be connected to it, e.g, **1231**

TEST/OVERRIDE

When **BIRDS** is set to **AUTO**, this push button will manually commence the programmed automatic Bird Sequence for **test** or **override**, to promptly disperse a bird flock. For checking function, plug the included Headset into its designated front panel socket.

HEADPHONE MONITOR/OUTPUT DISCONNECT SOCKET

The headset provided as original equipment with MARINA can be plugged into this socket to allow the system Operator to check the playback of any sound or sequence. ***When plugged in, the site loudspeaker system is automatically disconnected. Removing the plug will restore the loudspeaker connection.***

MICROPHONE INPUT

If a SCARECROW supplied FIST MICROPHONE is plugged into this socket, use of its **PRESS TO TALK** hand grip will allow announcements over the loudspeaker system, overriding any other function only when the hand grip is depressed.

SOUND LEVEL

This is the only control to adjust the sound level of bird sounds over the dispersal area; too loud and birds are likely to habituate over time, neighbours could also complain. Too quiet and the birds may not hear the sounds over the site ambient noise levels.

Achieve the optimum level by trial and error but the overall objective is to make the bird sounds generally about the same as that made by the birds themselves.

FUNCTION

This should always be set to **BIRDS** for the replay of bird calls. **AUX1** or **AUX2** can be used to input external sound sources, such as a radio receiver or CD player, to broadcast other sounds over the site.
The **MIC/REMOTE** setting should not normally be required in MARINA applications.

SIREN position: allows the broadcast of a **SIREN** multi-tone in the event of a site emergency, this can be overridden by use of a SCARECROW supplied MICROPHONE plugged into the extreme left hand front panel socket – **MICROPHONE**

MESSAGE position: to special Order and extra cost a pre-recorded message can be included to allow a spoken message to be selected for automatic broadcast over the site.

BIRDS

a) This control should be set to **AUTO** for the fully automatic play of the selected bird dispersal sequence of up to 6 bird species.

b) In the event of a non selected bird being present at the site it is possible to select the specie by use of this control; it will continue to play until cancelled either by reselecting **AUTO** or moving the **FUNCTION** control from **BIRDS** position.

SITE PROGRAMMING

Site programming of birds that will be part of the random, automatic, play process is simple:

STEP 1 : Using the KEY provided, turn the **AUTO-PROGRAMMER KEYSWITCH** to **SET BIRDS**; the TEST/OVERRIDE switch will flash twice to confirm this action.

STEP 2 : Set **FUNCTION** switch to **BIRDS**.

STEP 3 : Using the **BIRDS** switch, select the first bird for programming

STEP 4 : Press the **TEST/OVERRIDE** switch **ONCE** which will then illuminate to confirm storage.

STEP 5 : Using the **BIRD** switch, select the next bird for programming, then repeat STEP 4. Repeat this for each bird to be dispersed.

NOTE : **A maximum of six birds can be programmed but, typically, sites contain up to four main species requiring dispersal. To use six unnecessarily may cause public nuisance or reduced dispersal efficiency.**

If more than six bird storage is attempted this will cause the TEST/OVERRIDE switch TO FLASH 5 times to indicate this error.

If only 2 or 3 species require dispersal some benefit to efficient dispersal can be achieved by programming these in twice: for each selected species repeat STEPS 3, 4, 5.

STEP 6 : When programming is complete, return the KEYSWITCH to **RUN**, withdraw the key for security and **store in a safe rememberable place**.

STEP 7 : Turn the **BIRDS** selection switch to **AUTO** and your MARINA system is now ready to start.

RANDOM FUNCTION

To operate, switch the front panel **FUNCTION** control to **BIRDS**

Caring for environmental changes

MARINAS automatic, random playback programme is the result of extensive research, trials and site performance feedback; it has been shown over many years to provide optimum dispersal effect, always depending on environmental factors and good hygiene practice.

Most recent research has also provided further evidence of seasonal and migrational effects on efficient dispersal. For this reason MARINA now includes 3 automatic random playback sequences: **NORMAL, RE-INFORCE and SEVERE**.
To avoid species habituation and possible environmental noise pollution, RE-INFORCE and SEVERE sequences should NOT be prolonged in use or without due reason or considered plans.

RE-INFORCE : Use this when, for example, Seagulls are very populous and when the nesting season is about to commence.

SEVERE: Use this sequence when, for example, Starlings are pre-roosting; they may gather in large numbers before going on to or on leaving a local roosting point. It is often necessary to use this position during their roosting periods.

When the Starlings cease to use the dispersal site in large persistent numbers (their season) RETURN to NORMAL sequence.

By deselecting from **AUTO** to a specific bird, this selection will play continually until stopped. An override switch is included on the front panel – TEST/OVERRIDE – and can be used to trigger a playback of the automatic bird sequence.

SERVICE / MAINTENANCE

SCARECROW PRODUCTS ARE WARRANTED FOR 24 MONTHS, RETURN–TO–BASE, DATED FROM THEIR ARRIVAL AT THEIR POINT OF USE.

SELF DIAGNOSTIC SYSTEM

Each time SCARECROW MARINA is powered up, by using the **POWER** switch, the following SELF DIAGNOSTIC procedure will take place:

1. On activating, a **7 second delay-for-use** will occur, whilst the unit configures itself and performs diagnostics.

2. The POWER led will display the following information during use

   a) ***Continuous display :*** *indicates fully operational system.*

   b) ***flashing one second on, one second off :*** *indicates an internal software fault, or connection error.*

   c) ***Long flash followed by short flash :*** *indicates a Memory card error.*

   d) ***Long flash followed by 2 short flashes :*** *indicates amplifier error, open circuit loudspeaker, or line disconnection, VOLUME set too high.*

   e) ***Long flash followed by 3 short flashes :*** *indicates the external AC orDC supply voltage is below limits and is NOT viable; the MARINA amplifier will be disabled.*

   f) ***Short flash every 3.5 seconds :*** *indicates unit MARINA is in low power sleep mode, i.e. unit has not been in recent operational use and is in shut down mode to save externally sourced dc supply power if applicable.*

SERVICE

In the unlikely event of service being necessary, please return the product direct:

SCARECROW BIO-ACOUSTIC SYSTEMS LIMITED

GUARANTEED DELIVERY POST: (UK ONLY)
Service Unit
PO Box 66
UCKFIELD
East Sussex TN22 3ZR
England

BY OTHER MEANS OF DELIVERY; WORLDWIDE
Service Unit
Unit 33/35 Bell Lane
Bellbrook Business Park
UCKFIELD
East Sussex TN22 1QL
England

FURTHER ASSISTANCE?

Telephone: +44 (0) 1825 766363

Fax: +44 (0) 1825 766361

Freephone: 0800 917 8488

Website: www.scarecrowbio-acoustic.co.uk

Email: sales@scarecrowbio-acoustic.co.uk

Please telephone, fax or e-mail us, using these details.

BEFORE RETURNING PRODUCTS TO OUR SERVICE DEPARTMENT PLEASE PRE-ADVISE US, ENSURE SAFE PACKING AND THAT ALL NECESSARY DOCUMENTATION IS INCLUDED.