



BirdScan

A system to protect
migrating birds and bats


swiss-birdradar.com



Combining bird protection and economic efficiency



« Wind energy is clean, efficient and inexhaustible and can be generated in our own back yards. But wind power installations are changing the landscape and the living space. That's why it is vitally important to examine the implications very carefully and to take appropriate steps to limit the impact on humans and animals.

For birds and bats, the risks are greatest during the migration seasons in spring and autumn, at night and when visibility is poor. At present, the number of collisions can only be reduced by switching off the turbines. However, having pre-set downtimes during the migration seasons – which normally coincides with periods of strong winds – is not an attractive option for the system operator, nor does it guarantee maximum protection.

In this area of conflict, our product offers the solution: BirdScan switches wind energy installations off according to the actual movement of birds and bats and so reduces collisions to a minimum.

In this way, we satisfy not only the concerns of both animal welfare organisations and wind farm operators, but also foster one of our own objectives: minimising areas of conflict in promoting the use of wind power as an environmentally friendly form of energy. »

Urs Seiffert
Swiss Birdradar Solution AG

Colliding birds...

The Swiss Ornithological Institute in Sempach has shown that, in areas where bird migration is most intense, up to 200 million birds can fly over a region in a year – and about 20 % of those fly at a height at which they risk colliding with wind turbines. Half of all the birds fly through a particular area in a period of just 200 hours.

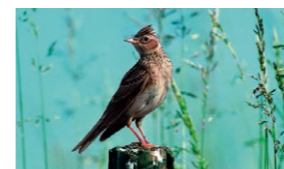
The risk of collisions can be greatly reduced if wind farm operators switch off their installations during the most intense periods of migration. This requires local and continuous monitoring of the birds' movements. Radar is currently the only reliable way of measuring the numbers of flying birds in large flocks and over long periods, day and night

... and bats

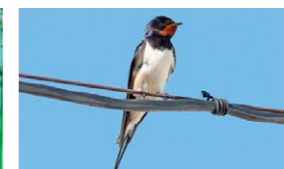
Millions of bats, including four threatened species, migrate between north-eastern and south-western Europe and are affected by collisions with wind turbines. Ongoing research carried out during the course of bat conservation projects shows clusters in the spring and autumn during the relatively short migration periods. In principle, the same holds for bats as for birds: The selective shutdown of turbines during their nocturnal migrations serves to prevent collisions. Radar is a proven and promising method for the detection of bats; its effectiveness with wind turbines for the protection of bats is being verified scientifically in ongoing research programmes.



White Stork



Eurasian Skylark



Barn Swallow



European Stonechat



Common Noctule



Sharp-eyed

BirdScan monitors air space using radar and records bird and bat movements in real time. If a pre-set threshold is passed, the device sends the signal to switch off the wind turbines. As soon as the intensity of movement lessens, BirdScan allows operations to continue.

BirdScan gives the command to switch off on the basis of information of various different kinds: This allows wing-beat patterns to be used to identify different bird groups and, to some extent, even individual bird species.

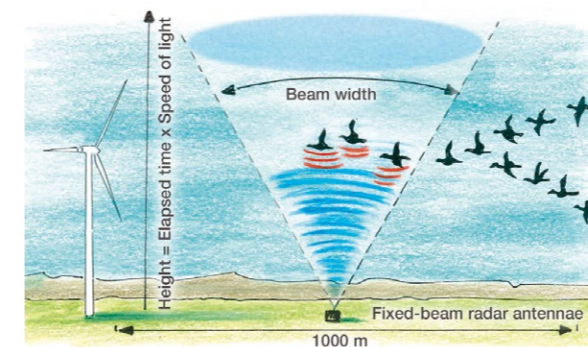
A worthwhile investment

Real-time monitoring by BirdScan brings various advantages for nature and for wind farm operators that make it worthwhile. Even small wind farms can gain significant benefits:

- Birds are protected on every day of the year, including outside normal migration periods.
- Acceptance of wind farms increases considerably if active protective measures are taken.
- No need for costly investigation into localised migration patterns while a wind farm project is being planned.
- The lack of set downtimes reduces the loss of production and increases the profitability of the installation.

Here's how BirdScan works

Birds and bats are detected using radar that emits beams vertically across a conically-shaped field from a static antenna with a wide aperture angle.



many birds per unit of time in the same altitude band, the command is sent to switch off the wind turbines. All the research to date suggests that the collision rate is massively reduced if turbine blades are stationary instead of rotating.

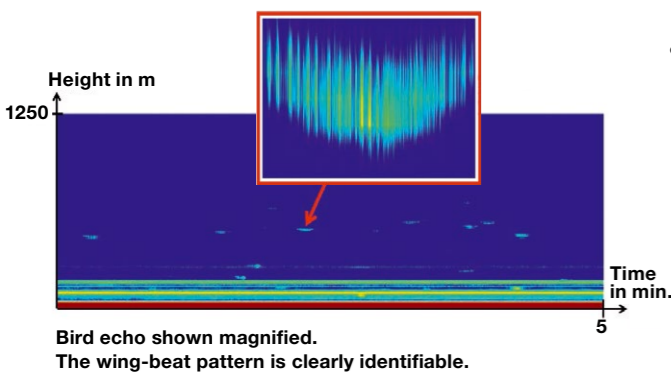
BirdScan consists of a transmitter/receiver unit and a computer and analysis unit. The system is operated and monitored via a web browser.

Technical specifications

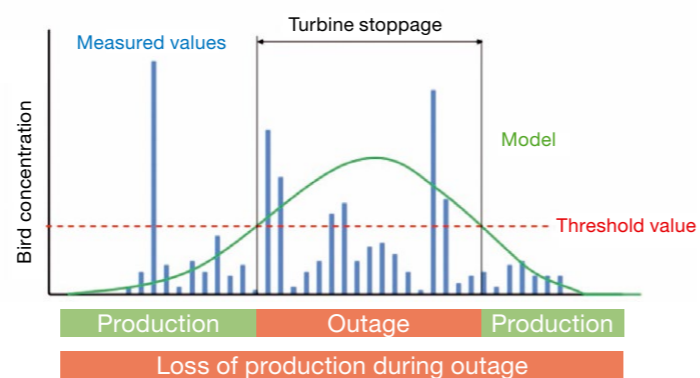
Product name:	BirdScan MV1
Transmitting frequency:	X-band
Weight:	approx. 250 kg
Dimensions (H/W/D):	2100/1700/750 mm
Power supply:	3x400V, 16A, 50Hz PE+N
Communication:	Ethernet

The radar system emits a short pulse about 1800 times a second in a vertical direction and measures the echoes that it receives (pulse-echo method). The number of echos per time unit as well as their size allows the number of migrating birds and bats per hour and per kilometre to be calculated.

Research has shown that the horizontal distribution of migrating birds is uniform across a set distance and that such migrations occur in waves lasting several hours. This finding makes it possible for several wind turbines to be monitored and controlled by a single radar system. The density of the flock at different altitudes can also be measured. As soon as the system detects too



Model v.s permanent monitoring:



Our partners:



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CONSIDERATE

Softwarebüro Steuri GmbH

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