

## **Charging ahead for lightning protection**

I read with interest your article on the "Lightning Detector" (SILICON CHIP, July 2011), having myself designed a "Thunderstorm Monitor" which was widely published in 2004. Your design works on the principle of detecting electromagnetic emissions, while mine worked on the principle of monitoring atmospheric charge – an advantage of the latter design being that no prior electromagnetic emissions are necessary for detection.

I was concerned, however, to note the ambiguity of your article with regard to the hazards of lightning. For instance: "Anything less than 1km (ie, 3s) should be regarded as getting very dangerous." In fact, if one is able see a flash, or hear a thunderclap, anywhere in one's environment, it is already too late to seek safety. The hazards of lightning should not be underestimated. As an example, it causes more deaths than hurricanes and tornadoes.

Having said this, I would propose an alternative approach: personal lightning protection. Ordinarily, atmospheric charge at the top of one's head is in the region of 180V-250V. This means that a human would "stand out electrically" above the ground at 180V-250V. Consider then that, during conditions conducive to a lightning strike, atmospheric charge at the top of one's head may be in the region of 9000-18000V. This means that a human would "stand out electrically" above the ground at 9000-18000V. Small wonder, then, that lightning seeks out, as an example, golfers on a golf course.

Theoretically, if one were to charge the body to 18kV, the potential at the top of one's head should equalise with the ground. Thus a person should become invisible to lightning seeking a target. From an electronic point of view, this should not be difficult to implement. And if the body were charged higher still, it should appear as a hole in the ground – from the point of view of lightning. The principle might also serve to protect structures or grazing animals.

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*Comment: a most interesting letter. Mind you, even if you could charge yourself up to high voltage, we are not sure there would be much protection – we certainly would not want to rely on it.*

*In any case, we understand that at least some stock losses due to lightning are because of the high voltage gradients across the ground during a strike – the stock are electrocuted because of the voltage drop between their forelegs and hind legs.*