EION ByTES

Essential Features for Successful Outdoor Wireless Radios

1. The case has to be rugged, so it can handle the weather elements

This is a vital feature to look for when dealing with an 'outdoor' radio because it has to be able to handle extreme temperatures in winter and summer, humidity, rain and storms (it is important that there are no exposed orifices and all ports and connectors are covered and protected against water) and it should handle a beating in case of a hailstorm.

2. It should be protected against lightning strikes

The combination between the high altitude mounting and the antennas can be deadly for outdoor wireless radio since antennas will act as magnets to electricity. The first way to protect the radio is to use lightning rods on top of the poles, which will attract the lightning away from the radio. Next, we should use surge arresters and surge protectors (with proper grounding) so, in case the radio gets hit by lightning, the damage will be minimum (it's cheaper to change an antenna than the entire radio unit).

3. The antenna gain

Some may say, the higher the better, but, depending on the applications, it may be wiser to choose an antenna with a lower gain (the higher gain pattern usually radiates the signal through objects, so, if the gain is lower, you get a shorter distance but as broader area, while the higher gain will send the signal far away, but will cover less area). Also, be aware that some devices use omnidirectional antennas (suitable for access point applications) and others use directional antennas (less angle, it requires alignment and it's better for Point-to-Point applications, like a wireless bridge). By default, omnidirectional antennas will have a lower gain, while directional antennas will have a higher gain.

4. How much distance/area can it cover?

This one is interlinked with the previous section because it's dependent on the antenna type. If you want a hotspot (wireless access point), it is advisable to not go further than 120 m because some devices won't be able to transmit the data back (some phones and tablets) and to use Omni-directional antennas (it won't go too far, but will cover a broad area). For Point-to-Point applications, you need a directional antenna, so the devices will be able to transmit and receive over long ranges (EION Wireless Radios can deliver the data over tens of kilometres).

5. Easy setup

It is important that with a bit of know-how you can easily and properly set up the different wireless scenarios and topologies such as the point-to-point (master & slave) or point-to-multipoint (Base Station and Clients).

6. Newest technologies implemented inside the radio

Many new technologies have been developed to solve many issues in wireless networking related to either enhancing the speed or reducing interference. The radio should implement the newest technologies at reasonable prices. Technologies examples are MIMO, Mesh, Spectrum Scanning, Link Monitoring, and so on.

7. Power over Ethernet

Obviously, it's ideal to power up the radio using only the Ethernet cable.

8. The WDT feature (Watchdog Hardware Timer)

This feature is very important because it verifies periodically if the Gateway (usually a router) sends Internet data and if there has been a reset, it automatically reboots the radio, so you don't have to do it manually.

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