

Why You Need Protection for Your Irrigation Control System

by Joe Becker

Devastating lightning strikes and power surges are all two common occurrences on today's golf courses, therefore the sensitive nature of today's critical computer based irrigation systems require special coordinated protection to prevent catastrophic damage to expensive control equipment.

Complete and total protection requires that every possible path for lightning or power surges be considered. However, damage to irrigation system is not always related to a specific storm or lightning strike. It is a well known fact that many failures of sensitive equipment are a result of component stress due to constant bombardment by common power line voltage transients. So if you have suffered triac failures, constant fuse replacement, power supply board damage, modem and computer failure due to lightning or power line transients there is a solution to this expensive problem.

It is called coordinated power protection. It involves applying the proper surge protection devices in all the right places.

It begins with proper grounding of all elements of the irrigation control system. Good grounding is the back bone of any power protection system, because all protection devices require a solid earth ground to enable it to suppress lightning and power related transients. Merely driving a 8 foot copper rod next to the controller will not necessarily provide a good ground. The type of soil and available moisture will have a direct bearing on ground potential. All grounds should be tested with a proper resistance meter and tightened annually.

Coordinated protection for most irrigation systems can be summed up in just 4 critical areas.

1. Main panel protection for your maintenance building and pump house to prevent lightning strikes and power surges from entering the facility.

2. Satellite equipment protection for the AC loop power feed to remote satellite controllers which are vulnerable to ground induced lightning surges.

3. Signal Data Line protection for controllers to prevent transient damage to control circuits.

4. Central Computer and Peripheral hardware protection to prevent costly catastrophic damage to sensitive computer systems.

Complete and total protection of irrigation control systems require that every possible source for lightning transients be provided with correct protection devices. Any wire or cable to or from any part of the system is venerable. While many of the new control systems have some level of protection built in, it has been proven that damage still occurs because the protection was inadequate or non existent on certain critical elements of the overall system.

For example, none of the 45 courses recently surveyed provided protection on the main power panel in the maintenance building or pump house, which is one of the primary paths for lightning damage from utility power lines. A lightning strike on or near a power line, miles from your golf course can still do considerable damage to your expensive irrigation equipment.

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(Prune Trees, Shrubs Now continued)

Removing branches of a honeysuckle is also beneficial in reducing the number of overwintering Russian aphids. This insect sucks plant sap and distorts foliage which in turn ruins the visual appeal of the honeysuckle. Chemical control of this insect is limited, therefore cultural control will at least help reduce aphid populations.

Other shrubs such as arrowwood viburnum, weigela, deutzia, and dogwood can be thinned out by using a method called renewal pruning. Remove 1/4 - 1/3 of the oldest stems each year, all the way down to the crown, to stimulate growth of new shoots from the base of the plant. This opens the plant to light and air.

Prune multi-stem trees to keep the center open and prevent smaller stems from being crowded out by a larger stem. Try to select and maintain several well spaced branches of similar size. Remove branches growing into the center on the tree and crossing other branches. Bottom suckers should also be removed.

Large trees present a problem and pruning should be restricted to removal of broken branches. Contrary to popular opinion, severe pruning is not necessary for a tree and may actually be quite harmful. In any case, major pruning of large trees is dangerous and should be left to professional arborists.

Pruning is an important part of the culture of ornamental plants if properly done. Don't try to overpower plants with pruning. Use judicious pruning to guide the natural growth of your plants.

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(Lightning Protection continued)

Since golf course superintendents are not required to be experts in lightning protection how does one go about providing this necessary protection. Consulting engineers or electrical contractors are a possible source but most do not have the special expertise required to recommend the special devices for each specific application. The only known source in the Chicago area is Chicago Turf, the local Toro irrigation distributor who has been trained and equipped to provide a complete protection package. They will make a site survey of the complete facility and recommend the exact equipment to provide a complete protection package for your entire irrigation control system.

About the author: Joe Becker is the owner of D & B Sales Associates, 140 Glengarry Dr., Geneva, IL 60134. He is also a member of the Lightning Protection Institute. D & B specializes in power protection equipment.

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