

Alex-Tronix Service Bulletin No. 16, Rev 0, as of 7-19-2006

Controllers: All

Issue: Electrical Grounding of Controllers- What's all the fuss?

Why the big deal about grounding??

Greetings Alex-Tronix fans! Time for another lesson... this time about electrical grounding. This bulletin pertains to Architects, Field Installers, Specifiers, and especially the "**I been doin' it *this way for 20 years and ain't never had a problem.***" crowd.

All right....Lounge back in your chair and let's get through this as painlessly as possible:

National law by the N.E.C (National Electrical Code) stipulates that all high voltage energy circuits must be grounded for safety. Lately, even ground fault interrupters (G.F.I.) are being installed. These devices in the form of a special circuit breaker or built in on a special outlet checks for very low leakage currents traveling through the ground wire in which a human being may be in the path. If the G.F.I. senses a low current, it disconnects the power from the load. Folks, these are good things to have and do, and not big government trying to waste your time. I can't begin to tell you how many customers call- on the verge of electrocuting themselves, or call after a bunch of new equipment has been fried beyond repair. It's not hard to cringe, when a customer calls and asks which of the black primary transformer leads are plus and minus (**hint: there is none...it's A/C power**). KNOW YOUR LIMITS! If you are not experienced in electrical wiring- **Don't fool around with it**. Call a certified, bonded electrician.

Agricultural Controllers - AG's and F's

All of our controllers that have a transformer mounted in the chassis, have a green ground wire attached to the case, which in turn is electrically "bonded" to the chassis. This wire is to be connected to ground. Now....*What exactly is "ground" ???*

Ground is the point back at the circuit breaker box in which the ground wire is connected to a ground rod that is hammered into the soil of the earth...Hence the name "ground". Ground is not the white "Neutral" lead... Even though it returns to the ground terminal at the breaker/fuse box. A ground wire is brought out from the breaker box to the load along with hot and neutral. A ground wire is a by-pass line that keeps electrical current from passing through you in case the hot (black) wire is shorted to the chassis, either by a shorted transformer, miswiring, loose wire, etc.

Yes... I have heard of customers saying their actual filter tanks were "hot to ground" Yeouch! The death angel hovers overhead. In conclusion make sure all metal parts of the irrigation system are electrically bonded to ground: The controller, the filter tanks, pump, etc. If their isn't a ground wire available from the breaker box, WIRE ONE IN!

Okay...Here is what you should *never* ground:



Alex-Tronix Service Bulletin No. 16, Rev 0, as of 7-19-2006

- *Never chassis or earth ground the COMMON (C) on the terminal strip meant for the solenoids only.*
- *Never chassis or earth ground either of the pressure differential gauge wires.*

In both above scenarios, the lines always "float"

- *Never chassis or earth ground any transformer secondary wires.*

Turf Controllers - ECN's, SC's, BCS's

Well, you're probably wondering as to why battery operated controllers must be grounded since they are not connected to A/C utility lines. There are two reasons. The first, is that if there is any other electrical equipment such as a pump in the vicinity, there is chance it could feed back into the controller via the field wires. An example of this would be a back hoe digging a trench, chopping through a bunch of 120VAC wires and shorting them with the irrigation lines. This could put your battery controller at risk for electrocution. Ground it at the chassis!

Static Discharge and Lightning- Applies to A/C and Battery controllers.

Current controller design allow manufacturers to produce low power consumption units. The advantage of this is very long battery life; however, these new designs become susceptible to static electricity damage, similar to home computers and fax machines. That's where grounding comes in. Grounding the chassis "drains" off static electricity build up and keeps static electricity from "zapping" the controllers internal circuitry. Controllers especially, are susceptible in lightning prone areas.

Soooo.... The moral of the story is ALWAYS securely and safely ground all controllers for the purposes of: 1) Safety 2) Static dissipation.

Follow N.E.C. along with local building codes, and irrigate with piece of mind.

Questions??? Comments? Gripes? Tech Support: Aram Tokatian 888-224-7630 ext 16.

