



## *What are ground loops?*

Ground currents or loops are caused when two or more electrical devices are tied together via copper cabling and the equipment has different ground potentials. This combination can cause difficulty in data transmission, can damage equipment and in extreme cases cause bodily harm in medical applications.

The simplest way to protect ground currents is to tie all the equipment in question to a common ground (preferably earth ground). In many applications this is not physically possible due to the distance between equipment. The next simplest way to solve this problem is by installing an optical link in between the copper cabling connecting the equipment. This can be done with an Opto-Isolation Module which converts the electrical data signals to light then back to electrical signals. The last way to solve the problem is to not use copper cabling at all, but to use fiber optic connections between equipment. The biggest advantage here is that the ground current problem is solved and operating distance can be greatly increased.