

Debugging the instruNet Cable

Application Note #222, 2/24/2003

Below are several ideas for how to debug a long chain of instruNet boxes. This is helpful if computer sees the instruNet boxes when cabled in one way, yet not in another.

GROUND LOOPS

If the instruNet box and/or controller card ground (GND screw) is at a different levels, the instruNet cable can, theoretically, have trouble. The solutions is the i330 Optical Isolator module, which isolates inbound from outbound elements, at the isolator position

LOW SIGNAL STRENGTH

If the signals in the instruNet cable are low due to long lengths, or many instruNet boxes in the chain, then the i330 Optical Isolator module can be very helpful, since it contains a repeater as well as an isolator, and it therefore boosts signal strength to the original levels.

TERMINATION

The terminator helps reduce non-desireable interaction between the various signals within the instruNet cable.

ONE BUGGY WIRE

The instruNet chain involves 25 wires which travel from the controller card to the terminator at the end of the chain. These are straight thru on all connector pins, except for pins 7 and 20. In other words, one can use an ohm meter to see close to < 1 ohm between pin X at the male DB25 connector that attaches to the controller card, and pin X at the female DB25 outgoing connector at the last instruNet box (except for pins 7 and 20). Therefore, one can check their cable with an ohm meter -- if < 1 ohm is not seen on a pin (other than 7 and 20), there is a problem. If one wiggles the wires/connectors and a resistance fluctates, there is a problem.