SDI-12 Technical committee meeting – Nov 12, 2007 –Albuquerque, NM
In attendance: Jerry Calhoun, Mike Jablonski, and Joe Thurston.

Review of issues that have come up during the year:
None had come up.

Discussion of cable length specification:
First, a review of the wording in the specification was conducted. In section 1.0 Introduction of the V1.3 specification dated July 18, 2005, there is the statement that SDI-12 is intended for applications with up to 200 feet of cable between a sensor and a data recorder. There was no other mention of 200 feet in the V1.3 specification. Going back to the V1.0 specification, there was the same statement in section "1.0 Purpose" which outlined the purpose of the specification, but in section "3.2 Requirements" paragraph 5, it states: The interface must be able to provide reliable data communications between a data recorder and sensors over inexpensive shielded cable with a length of at least 200 feet. After the review it was determined that the specification gives improper impression that 200 feet is a maximum cable length as opposed to being a distance over which there should be no concern about operation. To provide clarification in the specification it was decided to remove the 200 ft length statement from the bulleted paragraph it was in and immediately following the paragraph, add a new paragraph indicating that SDI-12 should operate over distances of at least 200 feet between the sensor and data recorder.

In addition it was decided that it would be beneficial to add an appendix to the specification to provide more guidance as to cable length considerations. A discussion of some of the constraints occurred. Some of the points discussed were:

- For low power sensors, the limiting constraint is the cable capacitance.
- The SDI-12 baud rate is sufficiently slow that the cable inductance has negligible effect.
- The source impedance of the SDI-12 transmitter is large enough to make the wire resistance of the data line insignificant for most installations.
- Cable can be modeled by lumped elements and little would be lost by only taking into account the capacitance.
- While topology will affect dc drop in the ground return line, the capacitive constraint is topology independent. It depends on the total amount of cable in the system, not just the length from the data recorder to the sensor.

At this point Peter Fend and Albrecht Dorr joined the conversation by telephone to discuss some simulations that Ott had performed. There was a discussion of some of the issues with the initial simulation. Peter was going to rectify the issues and generate new results to review. In addition Peter was going to look into creating a calculator to allow for an estimation of maximum cable length based upon a particular user's sensors. If a calculator could be created, it would be submitted to the technical committee for review. Once any revisions had been incorporated it would be provided to the SDI-12 Users Group for posting on the website. The other members of the technical committee present were going to provide Peter with the electrical specifications of some of the cables

currently in use for SDI-12 to help ensure that the calculator had a sufficient breath of coverage.