Minutes of the Fall 2004 Meeting of the SDI-12 Support Group's Technical Committee

Date and Place of the Meeting: Sheraton World Resort
Orlando, Florida

November 1, 2004

Participants:

Jerry Calhoun, Sutron Corporation
Paul-Emile Bergeron, Environment Canada
Boyd Bringhurst, Campbell Scientific, Inc.
Mike Jablonski, NR Systems, Inc.

Under the bylaws of the SDI-12 Support Group, a quorum was present. Business was therefore conducted.

Jerry Calhoun chaired the meeting and presented the following agenda:

Welcome and Introductions
Review of Any Comments Received
Web Site Review
Review of any Issues Needing Clarification in the Specification
Discussion on the Possibility of Higher Data Rates
Review of Wireless Issues
Other Issues or Proposals
Plan Agenda for the Coming Year
Summarize Meeting Results for Presentation to the Membership

1) No introductions were necessary as all participants have worked together at previous meetings.

2) Review of Any Comments Received

Some written comments had been received from Adcon Telemetry, Inc. Those comments requested the following changes to SDI-12. Each command by Adcon Telemetry is summarized below followed by the conclusion reached by those present at the technical committee meeting.

Item 1. Accept RS-485 as an alternative physical layer to SDI-12.

Numerous problems with using RS-485 were discussed:

1) driver/receiver impedance is lower than SDI-12, which causes problems

2) RS-485 has higher power consumption for data transmission, driving into a 120 Ohm resistance

3) because SDI-12 has high input impedance, transient protection is good; it is difficult to get the same transient protection with RS-485

4) use of RS-485 would require a change from 3 to 5 wires

Conclusion: using RS-485 presents numerous technical problems; no change to the specification is recommended, but the Group will continue to accept and consider additional comments on this issue.

It was also noted that RS-485 predates SDI-12.

Item 2. Extend the power bus supply down to 5.5 volts

Conclusion: this is not feasible as it would require sensors to run on 5.5 Volts.

Item 3. Try to standardize on a connector.

Conclusion: SDI-12 has never specified a connector type; this should not be changed.

Item 4. Make a more clear separation between measurement commands and calibration commands.

Conclusion: the group decided to add a sentence to the specification to clarify this:

Page 7, Section 4.4. "None of the basic commands should affect the sensor's calibration."

Item 5. Provide a new command that would list all useful measurements that a sensor provides.

Conclusion: there is no need for this feature.

Item 6. Implement a new command for returning the engineering units for each measurement that the sensor takes.

Conclusion: Take further comments from the Group on this idea. This is similar to a proposal for a query command that was rejected by the Group in 2001.

Item 7. Impose a stricter discipline in using the aI! Command.

Conclusion: the aI! command is OK as is and it should not be changed.

Item 8. Have the specification clearly state that results between equivalent D and R commands must be the same.

Conclusion: The response to the D and R commands may differ because R commands are independent.

3) Web Site Review (www.sdi-12.org)

Some minor errors were pointed out in the web page. It was agreed that the errors would be corrected immediately. It was also suggested that hit counter be added to the web page.

4) Review of any Issues Needing Clarification in the Specification

It was agreed to add the following clarifications to the specification:

1) Page 7, Section 4.4. Added a sentence: "None of the basic commands should affect the sensor's calibration."

2) Page 12, Section 4.4.5.1. Added "or this sensor," to the sentence at the bottom of the page.

3) Page 16. Corrected a typographical error.

It was further agreed that the Version of SDI-12 would remain at Version 1.3, since clarifications only are to be made to the specification.

5) Discussion on the Possibility of Higher Data Rates

Jerry Calhoun said that an increase in data rates could be done with a change to the hardware. The existing hardware specification, however, is for transient data protection. Changing the hardware would make existing SDI-12 products obsolete.

It was also noted that the response to SDI-12 commands often results in the delay of one or more seconds (for example, 00011<CR><LF> as a response to a D command means that 1 measurement will be ready in 1 second). A faster baud rate would still be subject to this 1 second (or longer) granularity, which raises the question: what benefit is a faster baud rate, given a forced and fixed delay?

Conclusion: it is not possible to increase the data rate without making changes that would obsolete existing SDI-12 products.

6) Review of Wireless Issues

Conclusion: the timing and low power requirements of SDI-12 preclude the creation of a wireless SDI-12 specification.

7) Other Issues or Proposals

There were no other issues or proposals.

8) Plan Agenda for the Coming Year

Plans for the coming year were determined to be:

- soliciting for new members for the technical committee
- taking additional comments on RS-485
- taking additional comments on a new command for returning the engineering units for each measurement that the sensor takes

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November 2, 2004

Participants:

Jerry Calhoun, Sutron Corporation
Paul-Emile Bergeron, Environment Canada
Boyd Bringhurst, Campbell Scientific, Inc.
Mike Jablonski, NR Systems, Inc.

Mike Jablonski Chaired the meeting and presented the following agenda:

Welcome and Introductions
Review of Activities Since the 2003 Meetings
Financial Report
Technical Committee Report
Open Discussion on Topics of Interest
Selection of Corporate Officers for the Upcoming Year

1) No introductions were necessary as all participants have worked together at previous meetings.

2) Mike Jablonski stated that a revision version of the SDI-12 Specification, with clarifications only, were mailed to each member of the Support Group in July of 2004.

3) Mike Jablonski reported that the Group has a cash balance of: $ 5,885.00. Liabilities include:

$ 1,683 payable to Sutron, for Jerry Calhoun's travel expenses for meetings in 2001 (to Albuquerque) and 2003 (to San Diego)

$ 522 payable to NR Systems, Inc. for Mike Jablonski's travel to the 2004 meeting in Orlando

$ 600 payable to Sutron, for Jerry Calhoun's travel to the meeting to the 2004 meeting in Orlando (estimated)

$ 800 estimate cost, payable to Amass Data, Inc., for web page fees and web page maintenance (estimated)

This leaves a balance of $ 2,280.00

Mike also reported that the Group had revenues of $2,800 since November of 2003, received as dues, and expenses of $ 2,196.00. The biggest expense was to Amass Data, Inc. for $ 1,475, for two years of web page fees and web page maintenance.

4) Technical Committee Report

A report from the technical committee was waived. This is because all present at this meeting were at the technical meeting on November 1.

5) Open Discussion on Topics of Interest

No topics of interest were introduced.

6) Selection of Corporate Officers for the Upcoming Year

Mike Jablonski stated that he would like to serve as the chairman of the Group for another year. All present agreed that Mike Jablonski should continue to serve as chairman for the next year, with Jerry Calhoun (Sutron) and Bill Thomas (Amass Data, Inc.), to remain on the Board of Directors. It was further agreed that Jerry Calhoun will continue to be the chair of the technical committee. Mike and Jerry agreed to continue to serve in their current positions for another year. Mike said he would inform Bill Thomas about this decision.

Other Business

Mike Jablonski reported that the American Water Resources Association (AWRA), have been great in helping the SDI-12 Support Group with the annual meetings. Mike made a motion to donate $100.00 to an AWRA scholarship fund for a student in hydrology or water resource management. A $100.00 donation to AWRA was approved by
consensus