

SDI-12 SUPPORT GROUP DUES

At the SDI-12 Support Group meeting last November the Group voted to increase the dues from \$120.00 per year to \$200.00. Membership dues are used to support the Group's web page, produce newsletters, pay postage, copy documents, and to reimburse travel expenses of the Board of Directors to the annual meetings. Other than travel expenses, Board Members receive no financial compensation from the Support Group.

In 2000 the Group received \$2280.00 in membership dues, but paid \$ 4036.00 in expenses. The difference was made up with savings from prior years. At the November meeting, the Group had a deficit of \$465.00. At present the Group has a positive balance of \$592.00.

Each spring we ask that membership dues be paid. Please remit your dues. Your dues help us to promote SDI-12 and to maintain the specification.

Benefits of membership are a link to your web page from the Support Group's web page, receipt of newsletters, and a vote on all proposed changes to the specification. You will also receive a copy of the specification immediately after each new release.

Members that are delinquent on paying dues after one year will have membership privileges revoked. Notices will be sent to members 60 days prior removal.

DIFFERENTIAL SDI-12

In a previous newsletter it was reported that the technical committee was reviewing whether it would be possible to support some form of differential SDI-12 in such a manner that the same unit would also support conventional single ended SDI-12. The thought was that a commercially available RS-485 transceiver could be used in a configuration that would support both. Upon further review, it has been determined that this is not currently possible. RS-485 transceivers typically have an input impedance in the range of 10 to 75 Kilo-ohms.

This does not allow them to meet the SDI-12 off impedance specification of 200K. The high off impedance is a requirement to allow an SDI-12 transmitter whose source impedance can be as high as 2K to reliably drive a line with 10 receivers on it. The inability to implement a differential SDI-12 with low cost commercially available hardware compatible with conventional SDI-12 devices means that the concept of differential SDI-12 as part of the standard will not be pursued at this time. The primary advantage to the user of SDI-12 devices is knowing that equipment from different manufacturers can be easily connected and used together. Incompatible equipment will not benefit the SDI-12 community.

With differential SDI-12 not on the table, there arose the question as to whether there would be an advantage of having a new specification that was differential. It would use the SDI-12 command structure, but the communication would be across a differential pair of wires. It was also pointed out that since it would be a new specification, it would not be tied to 1200 baud. There has been some lack of willingness to consider SDI-12 devices outside of the existing SDI-12 community due to the "slowness" of 1200 baud. It was suggested that if a new differential specification was created that it be based on a higher baud rate, such as 9600 baud.

In summary, it was thought that if a new specification were to be created, that it would be a differential 9600 baud communication. The item that would be preserved from SDI-12 would be the command set and its associated protocol. Timings would be modified to reflect the higher communication rate.

A list of several pros and cons to a new specification follow.

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(Differential cont...)

PROS:

- ☐ High baud rates
- ☐ Longer Communication distances
- ☐ Perceived as a more modern communication standard due to the high baud rate.
- ☐ Does not require a 5V supply in either the sensor or recorder.
- ☐ Some data recorders already have RS-485 capability.

CONS:

- ☐ Marginally higher cost hardware
- ☐ Incompatible with existing data recorders and sensors
- ☐ Initially would not be as widely support as SDI-12 which has had 12 years to become established.
- ☐ Would not be true RS-485 due to power consumption and transient suppression concerns.

The question before the User's Group is whether there is interest in the technical committee pursuing a new specification that has the above pros and cons. Please return the attached ballot to indicate your preference.

By Gerald Calhoun

PROPOSED SDI-12 COMMAND

The technical committee has proposed a new SDI-12 command. This is the Query Setup Command. Under the bylaws of the Group, a command can only be added to SDI-12 upon a positive vote by a

two-thirds majority of those members that submit a ballot.

Please review the following description of the proposed Query Setup command and return your ballot by September 15, 2001.

If Query Setup command is accepted by the group, the SDI-12 Specification will be revised and all members of the group will receive a copy of the revised specification when it is ready.

QUERY SETUP COMMAND

This command is used to get information from a sensor. This is for documentation and includes information such as the sensor name, model, serial number, firmware version, and any other information deemed useful for identifying the sensor and its configuration. This information should include all parameters that can be set by a user.

Command	Response
aQn!	a<space><text><CR><LF> or a<value><CR><LF> or attt<CR><LF> or a<CR><LF>
a - the sensor address	a - the sensor address
Q - the query setup command	<space> the space character (decimal 32) to indicate that text information follows <text> - up to 35 characters of text based information <value> - pd.d p - the polarity sign (+ or -) d - numeric digits before the decimal place . - the decimal point (optional) d - numeric digits after the decimal point the maximum number of digits for a data value is 7, even without a decimal point the maximum number of characters in a data value is 9 (the (polarity sign + 7 digits + the decimal point)) ttt - the specified time, in seconds, until the sensor will have the setup information ready a<CR><LF> - indicates that there is no nth setup parameter
n - an integer to specify which setup parameter to get from the sensor	
! - terminates the command	

The query setup command

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(Query cont...)

The query setup command is not used to setup a sensor, because that procedure is very sensor specific. It is a means to retrieve the setup of the sensor without having to use the extended commands for that sensor.

If *ttt* seconds must elapse before the requested setup information is ready, the *aQD0!* command is used to get the setup information. The *aQD0!* command works like the *aD0!* command. The same rules apply as when concurrent measurements are being made when waiting for setup information.

SDI-12 data recorders are not required to store or otherwise use the results from this command. This command is intended to help the user and it is intended for use only in a data recorder's transparent mode.

This command is used by starting with *aQ1!*, processing its response, then incrementing *n* for the next query/response/processing sequence until the sensor responds with *a<CR><LF>*.

There is no upper limit on the value of *n*. The appropriate query command after *aQ9!* is *aQ10!*, after *aQ99!* it is *aQ100!* ...

It is recommended that fixed information, such as the sensor manufacturer, model, serial number, firmware version, etc., be returned first. Parameters that can be set by the user should come after the fixed information, followed by information

about the current status of the sensor or diagnostic information that the sensor may provide.

Example:

Given an SDI-12 shaft encoder at address 0, and the only parameter the user can set is wheel circumference (which is 1/2 meter)

0Q1!0 Shaft Encoder, V1.3<CR><LF>

0Q2!0+0.500<CR><LF>

0Q3!0<CR><LF>

By Mike Jablonski & Gerald Calhoun

ANNUAL MEETING

The SDI-12 Support Group is once again planning to hold our annual meeting this year in conjunction with the American Water Resources Association (AWRA) conference. That conference will be in Albuquerque, New Mexico, the week of November 12. An agenda for that meeting will be in a forthcoming newsletter.

SPECIAL THANKS & RECOGNITION

The SDI-12 Support Group would like to extend our thanks and give recognition to Mike Jablonski ("Query Set-up Command") and Gerald Calhoun ("Differential SDI-12" and "Query Set-up Command") for submitting articles to be printed in the newsletter.

The SDI-12 Support Group Newsletter is an international newsletter that is published both in print and on the world wide web. If you would be interested in having an article published in the SDI-12 Support Group Newsletter, please submit it to:

SDI-12 Support Group
c/o NR Systems, Inc.
135 East Center Street
Logan, Ut 84321
USA
Fax: (435) 752-1691
email: nrsys@sisna.com

All those who submit articles that are published in the SDI-12 Support Group Newsletter will be recognized for their contribution. We look forward to hearing from you.

SDI-12 Support Group Corporate News

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TAX EXEMPT STATUS

The SDI-12 Support Group is a non-profit corporation, which is exempt from federal income taxes under section 501(a) on the Internal Revenue Code. The corporation is registered in the state of Utah.

WEB PAGE ADDRESS

SDI-12 Support Group's web page address is:

<http://www.sdi-12.org>

The web page has links to companies that are members of the SDI-12 Support Group. If you would like us to add a link to your web page, please send us your web page address. Your company must be a member of the SDI-12 Support Group to have a link from our web page.

The SDI-12 Support Group is organized exclusively for educational and scientific purposes. The educational purpose is to inform all interested parties about the SDI-12 interface by providing all interested parties with copies of the SDI-12 Specification and providing other information, as appropriate, about the SDI-12 Specification. The scientific purpose is to publish the SDI-12 Specification and to upgrade the Specification when technical changes are necessary to facilitate the collection of environmental data using the SDI-12 Specification.

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SDI - 12 SUPPORT GROUP

SERIAL DATA INTERFACE AT 1200 BAUD

2001 MEMBERSHIP DUES

FIRST NOTICE

Name: _____ Company: _____

Address: _____

City, State, Zip: _____

Phone: _____ Fax: _____ e-mail: _____

If we have **not** added a link to your webpage from the SDI-12 Support Group's webpage, would you like it to be added? Yes _____ No _____

If yes, what is your webpage address: _____

(Once your information has been sent in please check the website to make sure your information is correct. If an error has been made please email us at nrsys@sisna.com so corrections can be made)

☐ If there has been a change in your address, phone/fax number(s), email, or website address, please check this box so that we can keep the website and mailing list current.

Dues are \$200.00 per year. Membership dues are not deductible as charitable contributions for Federal Income Tax purposes. Make your check payable to the SDI-12 Support Group and return this page to:

SDI-12 Support Group
c/o NR Systems, Inc.
135 East Center
Logan, Utah 84321

SDI - 12 SUPPORT GROUP

SERIAL DATA INTERFACE AT 1200 BAUD

MEMBER VOTING BALLOT 2001

1. Should the Query Setup Command (aQn!) be added to the SDI-12 Specification? Yes ☐ No ☐

2. Should the SDI-12 Support Group write a new specification for differential SDI-12? Yes ☐ No ☐

(To uphold the policy of membership privileges, ballots returned without dues will not be included in the official tally until dues are paid)