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Communications Prototcol For DATS 3 Fouling Monitor

Current: 4 April 2000
Hardware: 6012A board from Octagon Systems Inc., Firmware ROMBIOS 3.00
                w/internal RS232/485 interface…
Software: BSI version PCD 1.0, July 1996
Settings: 9600 baud, no parity, 8 data bits, 1 stop bit

All of the communications protocol can be easily tested and examined by running a terminal emulator on a PC, connecting to the DATS 3 electronics communications port and testing various commands and responses. No effort has been yet made to implement the on board RS 485 port in software or hardware.

It was our intention to write additional code to run in this device, and complementary PC code, to interface to the system for operational control, human interface, data logging etc. That work has never been accomplished as the product volume has never justified the investment required. For this reason the present PC interface is not well designed for easy description / software interfacing. If you are still intent on interfacing the system, I suggest you interface only the basics of data logging. This will simplify your work and minimize the demands for support work on our time. We do not, at present, have the expertise in house to properly support you in your efforts. We can supply you with the source code (written in C programming language), if you agree to use it for internal interfacing support work only. You may then be able to obtain sufficient details from the source code to write your interface with a minimum of errors and troubles.

The DATS 3 is normally programmed, configured, calibrated and troubleshot by using a PC and terminal emulator. All of the actions are character commands sent from the PC and programmed responses from the DATS 3 software. Some of the important commands are described below:

ASC II character sent

> **DATS 3 response**
>
> > **Comments/Description**

T   Enter interval in minutes [0.00]>
                Note:Newly entered interval will disable normal display mode until it is
                reentered as a 0.

> > Sets time interval for automatic transmission of data from the DATS 3 to the PC port. This data is repeatedly sent at the specified time until T is set to zero.

S   enter default flow setpoint [0.00]>
                Note: Default sepoint will become active if external signal dips below 3.5 ma

> > Sets the standard flow velocity value which the system attempts to control to (via the motor actuated valve), unless the control input signal for flow rises above 3.5 ma (below 4.00 ma = no signal present assumed).

H   enter default power setpoint [0.00]>
                Note: Default setpoint will become active if external signal dips below 3.5ma

> > Sets the standard heat flux (power) to the heat exchanger unless the control input signal for heat rises above 3.5 ma.

The nature of this interface and the "open loop" communications it provides clearly indicates it was not intended for multiple system communications on a single port. There is no system identification number as only one system is intended to be on the line. You still may be able to do something with it, if you are willing to have a second communications port dedicated to the device, as the transmission time can be set to an interval that will not burden the PC excessively (from a time perspective) [30 seconds]. The unit internally loops through the code about every 3 seconds, so there is no point in looping any more frequently.

Please advise me if you want to obtain the source code for the system.

DJS for BSI, 5 April 2000