232LoggeR

Electrical Control Technologies

Hardware Installation

The LoggeR module fits into a plastic channel, which can be mounted directly to a panel or on 35mm rail (with the appropriate brackets, BRL35). The logger is powered from 9 to 24 volts DC, and draws less than 20 ma. The serial input connects to a serial port on the PLC, and the serial out connects to a laptop or other computer when the stored data is to be retrieved.

PLC Software

The PLC program needs to include the code to perform the following functions:

- Determine when to send a record
- Format the time and date into 16 bit data words if time stamping is desired
- Send the 8 words of data to the serial port with the Write command.

Note that data can be sent as needed, not periodically.

Configure the port settings as follows:
19,200 baud, 8 data bits, no parity, 1 stop bit, and no flow control.
Commands that the LoggeR responds to are (capital letters):
Z – to write zeros to every memory location, clearing the memory.
D – to dump the contents of memory to the output port, and the awaiting PC
W00001,11111,22222,33333,44444,55555,65535,00000<cr> - Write command
The write command expects from 1 to 8, 5-digit decimal data words, terminated with a <cr> (carriage return). The first word must not be zero, and all words have a maximum value of 65535 (16 bits of data).
Examples
W12345<cr> saves one word in the record
W01225,00815<cr> saves two words in the record

Partial words will not be saved
W11111,22222,33333,444 will save three words in the record, but not the 444.
The LoggeR will time out after 500ms, and save what it can.

PLC control inputs can be used to generate the Z command. For example, holding a reset button for more than 5 seconds could issue the Z command, clearing the memory. It takes about 45 seconds to clear the entire memory.

PC software, Hyper Terminal

Open the HyperTerminal program.
Click on Start/Programs/Accessories/Communications/HyperTerminal.

- I f a HyperTerminal session **has not** yet been set up for the LoggeR:
- Enter the name “LoggeR” and select an icon for the connection session, then click on the OK button.
- In the Connect using field select which COM port to use then click on the OK button.
- Set the Port settings:
  19.200 baud, 8 data bits, parity none, 1 stop bit, no flow control
  Click on the OK button
- I f a HyperTerminal session **has** been set up, Double-click on the LoggeR icon in the HyperTerminal window.

With the terminal program running, apply power to the LoggeR. A sign-on message will be received:
232LoggeR.07 raj040202
ID= ECD LoggeR
Next c0 a00000

The message displays the software version, date, Logger ID, and memory pointer address (internal data).

Changing the name of the LoggeR ID

The LoggeR’s ID is sent each time an activity is performed, such as the initial power on, the memory zeroing function, or a data dump is requested. This allows you to uniquely identify the the data from multiple LoggeRs. As shipped from the factory, the identification string is “ECT LoggeR”. To change it, use this procedure:
With HyperTerminal running,
Type a single capital N.
The LoggeR will respond with “Enter 10-chars”
Type in 10 characters, a name that identifies this LoggeR. The first 10 characters will be stored in the LoggeR’s memory.
The LoggeR will respond with “ID= :ABCDEFGHIJ” (what you typed in).
This ID is sent after the last record from a LoggeR data dump.

Floppy Disk

Installing the runtime file for the Excel serial download spreadsheet.
The floppy disk holds a file named netcomm.ocx.
Copy this file to the Windows\System directory.
Then, click the start button, and then click run…
Type in " regsvr32 netcomm.ocx " (without the quotes). This registers the serial drivers that are used in the spreadsheet visual basic code.

With some older computers, you may get a warning when trying to load the spreadsheet, that you have an old version of mscomm32.ocx. If this happens, copy the file named mscomm32.ocx from the floppy to the Windows\System directory, and then run (as you did before with the netcomm.ocx) " regsvr32 mscomm32.ocx " (without the quotes). This will update the serial drivers.

Included Spreadsheet files for archive data download

Two additional files, LoggeR_1.xls and LoggeR_2.xls are generic spreadsheets that include LoggeR download automation. File _1 is for use with Com Port 1, and File _2 is if you use Com Port 2. Copy these files to your hard drive where ever you need them.
An explanation of how to use the files is included in a later section, Dump to Excel

LoggeR Operation

The PLC and PC inputs are wired together. Either input may issue a command to the LoggeR. Commands are as follows:
Z – Zero command, clear the memory.
D – Dump the contents of memory to the output port.
W00001,11111,22222,33333,44444,55555,65535,00000<cr> - Write command
N – Name command, change the LoggeR ID

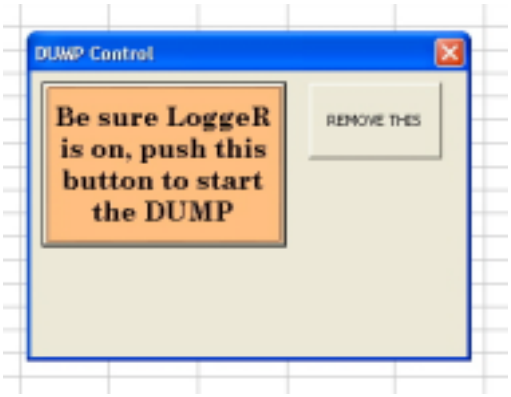
The PLC times, calculates, and decides what to log, then issues a port command with data to the Logger. As shown above, the W command is used to write the 8, 16-bit data words to the LoggeR's memory. The LoggeR simply takes the 8, 16-bit values, and stores them in the next available memory record. Each value is sent to the LoggeR as a 5 digit decimal value, from 0 to 65535. The first data value cannot be zero, as that would indicate a blank record. The PLC could format the date as a 5 digit value, and send that as the first word. Then if time was important, the PLC could format the time as a 5 digit value and send that as the second value, followed by up to 6 additional values that need to be saved. Because the PLC prepares the data, the LoggeR doesn't care what the values are, just that the first value cannot be zero.

If a power failure occurs, the LoggeR will find the first available blank record to continue recording at. If the LoggeR is completely filled, it will roll around back to the beginning and continue. If the power is applied to a completely filled LoggeR, and no empty record is found, it will start logging at the beginning of memory.

Dump to EXCEL

Be sure you have installed the runtime file as described in the previous section called Floppy Disk.

Connect the LoggeR's serial output port to the PC serial port (Com Port 1 or 2).
Turn On the LoggeR.
Turn On the PC, start Excel, and load the correct sheet for the Com Port that you are using (LoggeR_1.xls for Com Port 1, or LoggeR_2.xls for Com Port 2)
These sheets may be customized with additional math or character parsing formulas, and graphs, and saved with whatever name you like.
Press the button labeled " Be sure LoggeR is on, push this button to start the dump". The LoggeR will be given the dump command, and data will be sent directly to the first 8 columns of the spreadsheet at a speed of 19,200 baud. This speed translates to about 67 records per second, and would take a total time of about 4 minutes to retrieve 8,192 records of 8, 16-bit words.



If nothing happens, check to be sure you are using the correct file with the correct Com Port, and be sure the LoggeR is on and connected.
During the time that the data is being downloaded, a green message displaying "Running" appears on the control box to alert you to the fact that the com port is still open, and that data is being received.

When all of the data has been received, the green message box changes to a red message box displaying "DONE", and the number of records received is tallied and displayed. The control box may be removed from the display by pressing the button labeled "REMOVE THIS" This hides the control box until the sheet is opened another time.

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