SAFER DDF Text File Interface

Below is an extract from a document regarding interfacing meteorological data sources to SAFER. The same concept applies for gas monitor or other sensor data. Each grouping of sensors in SAFER would correspond to one “Unit #” grouping in the file. The maximum number of sensors in a single group is 64, however it may make more sense to organize them logically into smaller groupings.

**5. ASCII text file**

SAFER can read meteorological data from a text file written in a specified format by an external data collection system. The file may be written to any location and filename accessible to the SAFER system. The same file must be overwritten with new updated data at regular intervals. Data for multiple weather stations may appear in the same file, or in separate files.

Data for each weather station appears on its own line in the file, identified by a Unit ID number. If more than one line with the same Unit ID appears in the file, only the last occurrence will be read by the SAFER system. Below is the general format for a line of data. Note that here the line wraps due to the limitation of the page width, but in the actual file there is only one carriage return line feed pair at the end of the line.

Unit #n<TAB>yy:mm:dd:hh:mm:ss<TAB>Unit Status: OK<TAB>[label<TAB>unit<TAB> value<TAB>status<TAB>]<CR><LF>

The symbols <TAB>, <CR> and <LF> indicate the tab, carriage return and line feed characters, respectively. The use of spaces or tabs is significant. Also, the square brackets [ ] are not to be included in the data line, they only indicate that the "parameter data" structure repeats for each data item that will be included.

Each time a line of data is output for a given Unit ID, the same parameters must appear in that line. That is, the parameters delivered must consistently match those expected by the SAFER system.

Notes:

* The "n" for the Unit # represents an integer in the range from 1 to 99999.
* The timestamp is used to verify that new data is being received. Upon the third time reading the same timestamp, SAFER will flag an error. Other than this and for diagnostic help, the actual time given is not important.
* "Unit Status: OK" is the normal operating status. If there is a need to flag a general error with the data line, set Unit Status to "Fail". If any individual data parameter has an error, the Unit Status for that line should also be set to "Fail".
* "label" is replaced by a text string (no spaces allowed) that serves to identify the parameter.
* "unit" is replaced by a text string (no spaces allowed) indicating the units of measurement. This field is read but ignored by the SAFER system. The units of measurement are stored as part of the SAFER configuration record and therefore assumed to always be consistent for this parameter.
* "value" is replaced by a floating point decimal number (padding spaces are optional) indicating the most recent instantaneous measurement sample.
* "status" is replaced by the text "OK" for normal operation or "Fail" for any state where the value of this individual parameter should not be relied on (also set Unit Status to "Fail").

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