The SkyView displays each have a non-volatile flash memory storage that records large amounts of data over time in many various formats. In order to maximize the amount of data recovered, it is highly recommended that the SkyView display NOT be powered on, as this will start overwriting older data.

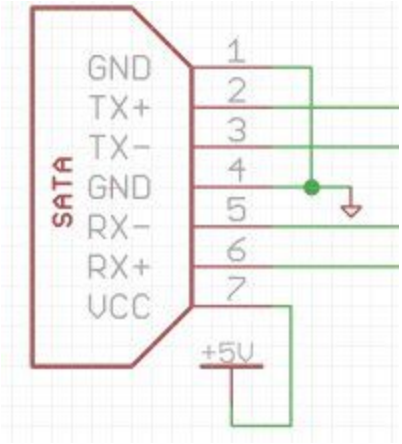
The memory on each SkyView display records all the data that it receives independent from the other. Each will have independent records of all data received from the various sensor modules. Some things involving user interaction will be local to each display, and their effects may be recorded differently depending on if the screen was receiving the user input or slaving to the screen receiving the user input.

All that said, we should attempt to retrieve data from all screens in the SkyView system, at least to the point of dumping a full disk image, if possible. We would probably proceed with detailed investigation of the data on the least damaged screen's records, and fail back to the other if/when we think we need a second opinion.

We at Dynon are not data recovery experts, and we recommend using a reputable company (we've used drivesavers.com in the past) to extract all data from the disk in a controlled environment, resulting in a disk image archive that can be analyzed by us or you without risking damage to the physical disk. We have performed this process ourselves as well, and use practical precautions, but can make no guarantee that we would take all the proper safety precautions that data recovery experts might.

This storage device is located on the "front" side of the main PC board seen when disassembling the display, starting from the bezel, and after removing the display assembly. The flash disk is a separate module, an Innodisk SATADOM D150SH-L (or equivalent), and it looks like this:

The SATA DOM device follows standard SATA electrical protocol on a custom connector. Unlike a standard SATA cable, it has a 5V power input to power the SATA DOM (as opposed to a SATA hard drive which has a separate power connector):



We have modified USB-to-SATA adapters that are designed to interface with this custom pin-out, and could loan either you or a 3rd-party data recovery expert with them in order to perform the disk image recovery.

We (Dynon folks) are still on the fence with regard to whether it's better to teach you how to fish or do the fishing for you. Our internal diagnostic logging functionality has a limited command-line user interface, requires a Linux workstation, changes rather frequently, and I have yet to take part in an investigation that *didn't* involve me getting the source data at some point, to assist in its interpretation and/or improve the log parsing.

That said, here's a rough overview of the disk's usage, with details for the most important files:

- ext3 partition 1(~200MB):
    - The SkyView operating system and application executable files
    - VERSION - found either in the / or /app/ directory of this partition, shows the version of SkyView software currently loaded. Version history can be viewed at http://dynonavionics.com/docs/WhatsNew_SkyView.html.
- ext3 partition 2 (~200MB):
    - (USER_LOG|BLACK_BOX_LOG|ALERT)_DATA directories: CSV formatted, user-accessible, self-descriptive log files, whose frequency & overall length are configurable by the user between 2-150 hours of data. NOTE: Only available in versions >= 5.1.x, released on 2013-01-30.
- ext3 partition 3 (~30MB):
    - config[01].dfg - plain-text application configuration files
    - sensor.sfg - engine monitor sensor mapping configuration
- ext3 partition 4 (~3.3GB):
    - various aviation and terrain databases
    - system.log - 524292096-byte binary file - our internal diagnostics log, storing ~1-2 hours of the last real-time data, requiring our internal tool to parse.

Once those files are recovered from the raw disk image, it is possible that the self-descriptive CSV logs on the 2nd partition will be sufficient information for your investigation. They contain a limited subset of the full system data, logged at a lower frequency, but are human-readable and cover much more past data than the internal diagnostic log.

If the internal diagnostic log is necessary, there are two ways forward:

1. You zip up the system.log file from the 4th partition, along with the config.dfg and sensor.sfg from the 3rd partition, then I use those files to extract all data that we can, and email you back a zip archive of all the parsed files.
2. I send you our log-parsing utility, that should run on most any Linux system, for you to run yourself. I would have to give you a tutorial on how to run it, but you'd be more equipped for future usages, in theory.

Either way, what you'll get is a broad array of files, some binary, some hex-dumps, some csv logs of various different data streams totaling over 1 GB.

In summary, the first decision in your hands is: Who do you want to perform the raw disk image recovery: yourself, a 3rd-party expert, or Dynon?

The next decision will be: Who do you want to perform the log data extraction: yourself or Dynon?