DANTE Buoy Controller

The DANTE Buoy Controller lowers technical and cost barriers to creating remote monitoring systems and sets a new standard for buoy controllers. DANTE combines GPS receiver, telemetry modems, electronic compass and tilt/acceleration sensors with very low-power data logging, power management and system watchdog functions, making it easier and less expensive to build buoys or other remote monitoring platforms.

Real-Time Monitoring Made Easy

- **Attach DANTE to your buoy, pier or piling**
- **Plug in your sensors and power source**
- **View data on your server within minutes**

DANTE has the connectivity to integrate a large suite of instruments, and supports virtually any oceanographic or environmental sensor in use today. The uniquely modular controller design makes a DANTE monitoring system extremely expandable and configurable. Each buoy controller can be customized by selecting modules to suit the sensor interface requirements. Future requirements can be met with new types of plug-in modules offering an inexpensive and flexible way to add new capabilities.

DANTE buoy controller will endure repeated submersion and asymmetric water pressure. The built-in telemetry and GPS antennas eliminate failure-prone RF connectors and cables, and the connectors withstand a 2000 PSI pressure washer spray from 10 cm away; easily typhoon-proof.

Each DANTE is typically preconfigured for the customer's specified sensor suite, required sampling and telemetry schedules, server connections and data destinations. Sensor installation is simplified with optional made-to-order sensor cables available from S9.
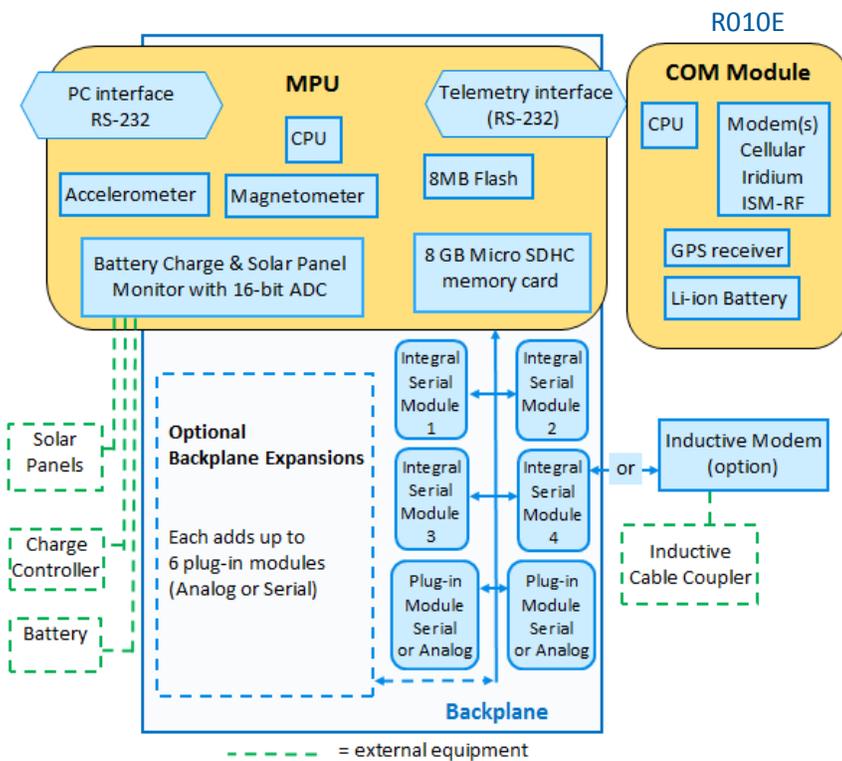
We handle cellular or Iridium accounts, monitor buoy health, archive your data and provide reliable data delivery with minimum effort. The user experience can be plug and play. Within minutes after powering the controller, data is automatically delivered to a user's network, website or computer.

DANTE Buoy Controller (cover removed)

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How DANTE Works

The Main Processor Unit (**MPU**) controls timing and power, performs watchdog functions, sampling, data collection and storage.

The Communications Processor (**COM**) is a separate microcontroller system having a GPS receiver; ports for multiple telemetry modems including cellular, Iridium™, and ISM radio; and a rechargeable battery for telemetry. The COM continues to transmit GPS position data even if the main battery fails.

Data acquisition tasks are distributed to **modules** connected through a common backplane. Each module includes two switched power outputs. Module programs (instrument drivers) are simple text scripts, uploaded through the controller's PC serial port, or remotely through the cellular modem. Four RS-232 serial modules are built into the backplane. An optional inductive modem can substitute for one of them
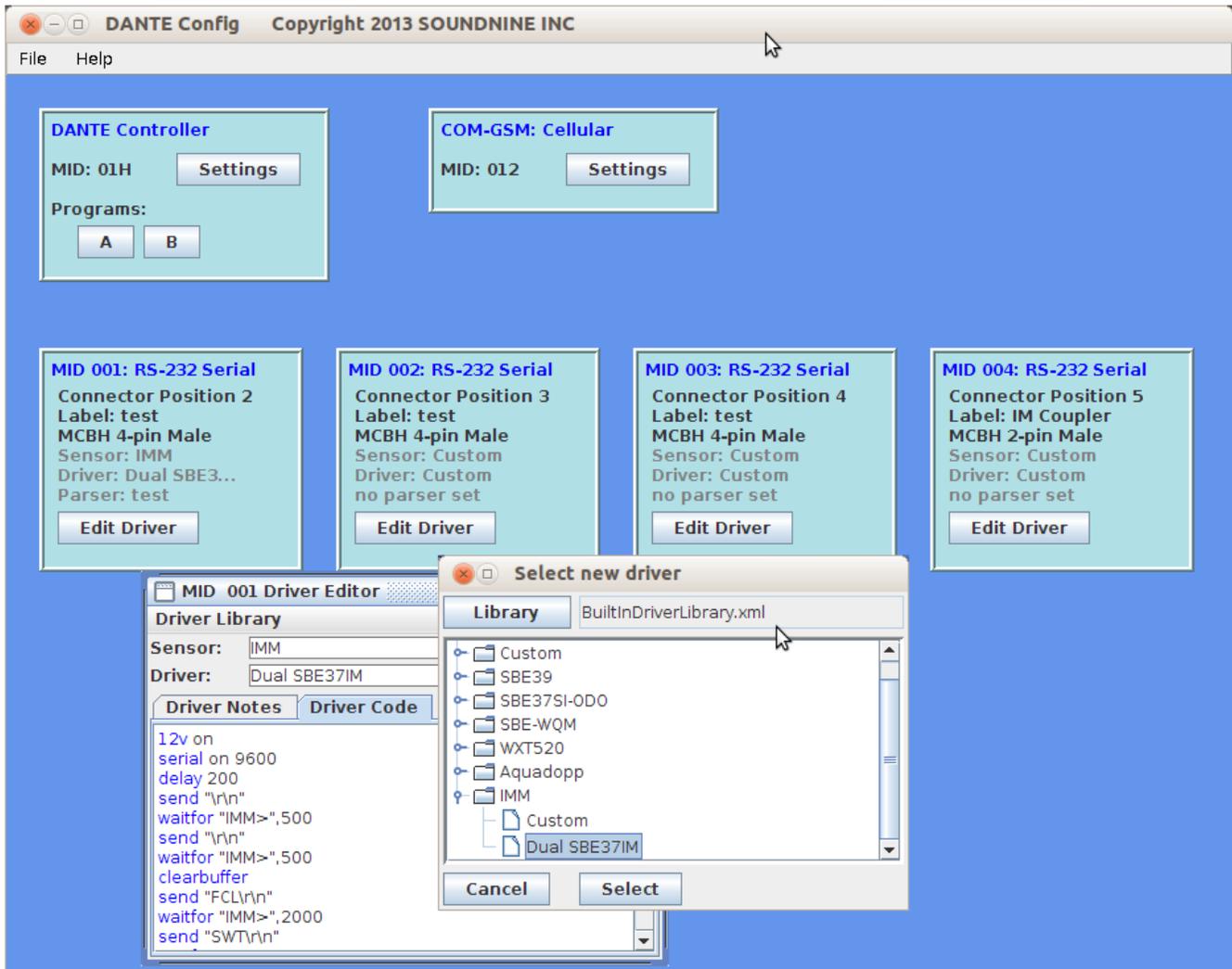
The **backplane** includes sensors for internal temperature and humidity, current measurement circuitry, internal power connections, and slots for plug-in modules and expansion baclplanes. Up to 8 additional plug-in modules can be added inside the standad DANTE enclosure.

DANTE Base Configuration - Standard Connector Layout

1. DC Power In & Solar Charge Output (MCBH)
2. Serial sensor input (integral module) (M12)
3. Serial sensor input (integral module) (M12)
4. Serial sensor input (integral module) (M12)
5. Serial sensor input (integral module) (M12)
6. Logger I/O (RS-232 to PC) (M12 connector)

   (positons 7-10 for optional plug-in modules)

Specifications

Controller Power:

10-22 VDC Input
<25 micro amps quiescent
~10 milliamps operating
(excluding telemetry)
Sw. output 1= V Batt. @ 2 A per module
Sw. output 2= 5 VDC @ 1A total

Serial Sensor Interfaces:

4 integral (RS-232 / 485 standard)
   (or 3 integral + IMM option)
4 Integral + 2 optional serial modules
4 + 2 modules + 6 expansion (12 total)

Memory:

8 MB Flash
8 GB Micro SD card

Mechanical:

24 cm x 15 cm x 7 cm
3.0 kg

ADC (each module):

0-5 V
4 single-ended or
2 differential, 16 bit
Sample rate up to 500Hz

Heading Accuracy:

±1.5 degree

Tilt Accuracy:

±1.5 degree

GPS Accuracy:

±5 meters Lat/Lon

Environmental:

-25 to +60°C

Immersion proof to
20 meters

DANTE Config Software

Users are not hostage to S9 to reconfigure the system. DANTE Config software is a free, well-organized utility that organizes all programs and instrument drivers in a single file for upload to the controller, either via PC interface or remotely by modem. DANTE Config allows driver selection from a list and has advanced features like context coloring and balloon help. The drivers and sampling programs are simple text scripts users can edit and save for new configurations. Virtually any sensor can be supported and new drivers are provided at no cost.

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DANTE Vis Software

DANTE Vis (visualization) software enables easy, efficient data retrieval, parsing, manipulation and analysis. It is also your tool to communicate with sensors in the field and edit DANTE Server's data delivery options. There is no additional charge for DANTE Vis software - it is an integral part of you DANTE experience.

Parsing Raw Data Files (from controller SD memory cards or archives)

- The software parses the raw file, creating a display with one tabbed pane for each instrument
- Select desired data to include in a CSV file output. The selection can be saved as a data setup file.
- As needed, add data plots, publish data to MySQL tables and save to CSV files.

Displaying and Converting Data from MySQL Tables

- Select a MySQL database and table.
- Read the data.
- Select a time period.
- Optionally add data plots, publish data to other MySQL tables and save to CSV files. Plots can be configured to auto-refresh to display real-time data.

Making Terminal Connections to DANTE Controllers in the field (cellular only)

- Select Tools->Connect to DANTE, Enter your username, password and the ID of the target controller
- After the controller's next data report, it receives the request and makes a live connection through DANTE Server to DANTE Vis

S9 provides low-cost monthly server hosting – no contracts – no activation fees

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