

Paroscientific, Inc.
Digiquartz® Pressure Instrumentation

The Omnitech Electronics SM73 Meteorological Data Distribution System



The Omnitech Electronics SM73 MDDS (Meteorological Data Distribution System) is a meteorological measurement system for shipboard installations. The MDDS was designed for the Canadian Navy's [Halifax Class](#) ships but can be customized by Omnitech for almost any application.

The MDDS measures air temperature, barometric pressure, relative humidity and seawater temperature. Additionally, it receives digital inputs from the ship's existing port and starboard wind detector units and GPS receiver. This measured data is processed and distributed to various shipboard systems. The SM73 MDDS consists of three system components:

1. The SM73-ADAS (Paroscientific MET3A) meteorological sensor - to measure air temperature, barometric pressure and relative humidity. This measured data is transmitted digitally to the MDDS Display Unit using RS-422 protocol. Omnitech selected the MET-3A for its outstanding accuracy, long term stability and rugged construction suitable for shipboard installation.
2. The SM73-TS temperature sensor - to measure sea water temperature and transmit this data using an analog 4-20 mA current loop to the MDDS Display Unit.
3. The SM73 MDDS Display Unit - to monitor the digital and analog signals from the SM73-ADAS and SM73-TS sensors. The display unit also accepts inputs from the ship's port and starboard wind sensors and GPS receiver. The display unit processes this input data and calculates the required meteorological output data for distribution to the ship's METS computer. The user interface consists of a 40 character by 2 line LCD and a 16-button keypad that together allow the user to view the meteorological data and configure the various MDDS operating parameters. A simple menu system guides the user through the operating modes and calibration routines for each sensor. Should a sensor fail, it can be disabled easily and manual sensor data can be entered to allow down stream systems to continue to function. The MDDS display unit is contained in a 19" wide by 2U high rack mount enclosure.

The Display Unit transmits port and starboard wind speed and wind direction, air and sea water temperature, barometric pressure and relative humidity to the ship's METS computer using a proprietary MIL-STD-188C protocol once per second. It also outputs relative and true wind speed and wind direction, sea water temperature, air temperature, relative humidity, barometric pressure, dew point temperature, ship's latitude, longitude, speed and heading, UTC and date in NMEA-0183 version 2.3 format. The Display Unit includes a non-volatile data-logging capability to record meteorological data for the previous seven days - recorded at half-hour intervals. This data can be output as NMEA-0183 messages for capture and/or viewing.

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