NMEA 2012

Overview of NSS 2.0, Simrad Sounders, and NAIS400

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Sounder, NSS 2.0, and NAIS400

Technical Review, NMEA Convention 2012
BSM and LSS Data as a Source

- Ethernet devices cannot be NMEA 0183, SimNet, or NMEA2000® data sources – they have no direct input/output for those communication types.
- In these situations, either the MFD (or NSO) that is decoding and displaying the BSM data is the actual “source” for bus data dissemination; this is also applicable to the MFD’s own data bar.
- Data from an LSS module cannot be sourced (depth) to NMEA2000® or 0183.
BSM-1 Product Overview
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• Ethernet based sounder module
• Competing products – Raymarine DSM300™, Furuno DFF1™, and Garmin GSD22/24™
• Compatible with Lowrance HDS, B&G Zeus, Simrad GB40, NSS, NSE, and NSO
• 12 or 24V DC systems
• <1 A power consumption
• IPX7 (1 m submersible for 30 minutes)
• 50, 83*, and 200 KHz frequencies
• 32 W RMS TX power
• P/N 000-10046-001 available to convert preexisting transducers – bare wires to Blue 7-Pin
• 2 Year Warranty
• RRP - $795 USD
BSM-1 Product Overview

- BSM-1 can be used on any application where high detail target resolution throughout the water column is desired, but water depth would not exceed 3000’
- BSM-1 would also be used for pelagic fishermen where target detection in the upper 3rd of the water column is paramount to success
- BSM-1 can successfully be deployed for bottom fishermen when target depth is <1500’
- Remember – transducer selection should match the type of fishing/fisherman to achieve the best results
- “Wide” beam transducers – recommended for pelagic and bait tracking
- “Narrow”, or traditional transducers – recommended for general use, bottom fishermen, and best bottom tracking
BSM-1 Product Design

- IPX7 chassis (1 m submersible for 30 minutes)
- Low heat generation – suitable to mount flat
- Simplified connector scheme
- A) 4 PIN locking Power (same as NSE, WM2, LSS, NEP, etc.)
- B) Navico Ethernet Network (auto sensing, no cross-over)
- C) Transducer
BSM-1 Installation - Power

- 6’ cable provided, 14 AWG
  - *Extending to 15’, use 14 AWG*
  - *Extending to 20’, use 12 AWG*
  - *Extending to 30’, use 10 AWG*

- 2 X Inline automotive 3A fuse and holder provided

- Unit also designed with AUTO-ON feature (Yellow Wire) – feature not available on NSO

<table>
<thead>
<tr>
<th>BSM-1 Power Wiring Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLACK</strong></td>
</tr>
<tr>
<td><strong>RED</strong></td>
</tr>
<tr>
<td><strong>YELLOW</strong></td>
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<td></td>
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</tbody>
</table>
BSM-1 Transducer Reuse

- Conversion of certain existing transducers can be accomplished by using Blue Connector to Bare Wire Adapter P/N 000-10046-001
- Transducer impedance should be equal or higher than 200Ω at 50 KHz and 300Ω at 200 KHz for best performance
- For Raymarine xducers with speed, you will not be able to convert this as they use a single wire speed while all others use a 2 wire speed

<table>
<thead>
<tr>
<th>PIN</th>
<th>Function</th>
<th>Adapter</th>
<th>Transducer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DEPTH +</td>
<td>RED</td>
<td>BLUE</td>
</tr>
<tr>
<td>5</td>
<td>DEPTH -</td>
<td>BLACK</td>
<td>BLACK</td>
</tr>
<tr>
<td>6</td>
<td>DEPTH GROUND</td>
<td>SHIELD</td>
<td>SHIELD</td>
</tr>
<tr>
<td>2</td>
<td>SPEED SIGNAL</td>
<td>BLUE</td>
<td>GREEN</td>
</tr>
<tr>
<td>3</td>
<td>SPEED +</td>
<td>ORANGE</td>
<td>RED</td>
</tr>
<tr>
<td>4</td>
<td>TEMP +</td>
<td>YELLOW</td>
<td>BROWN</td>
</tr>
<tr>
<td>7</td>
<td>TEMP - / SPEED GROUND</td>
<td>SHIELD</td>
<td>WHITE &amp; SHIELD</td>
</tr>
</tbody>
</table>

NOTE: Adapter RED, BLACK, and PIN 6 SHIELD on one spur of cable
BSM-1 Transducer Reuse Example

• The below shows a BSM-1 connected to an Airmar B260 designed for Raymarine DSM300

• This particular transducer uses the 1 Kw 50-AE, 200-BH ceramics whose impedances are 250Ω/50KHz and 90Ω/200KHz

• Setup in installation menus should be – “Airmar B260 (10K)”

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<td>SHIELD</td>
</tr>
<tr>
<td>2</td>
<td>SPEED SIGNAL</td>
<td>BLUE</td>
<td>N/A</td>
</tr>
<tr>
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<td>SPEED +</td>
<td>ORANGE</td>
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<tr>
<td>7</td>
<td>TEMP - / SPEED GROUND</td>
<td>SHIELD</td>
<td>BROWN</td>
</tr>
</tbody>
</table>

**NOTE:** Transducer GREEN and RED are not used
### BSM-1 Sample Installation, NSE

<table>
<thead>
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<tr>
<td>A</td>
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<tr>
<td>B</td>
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<tr>
<td>C</td>
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<tr>
<td>D</td>
</tr>
<tr>
<td>E</td>
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<tr>
<td>F</td>
</tr>
</tbody>
</table>
BSM-2 Product Overview
BSM-2 Product Overview

- Ethernet sounder module
- Compatible with B&G Zeus, Simrad NSS, NSE, and NSO
- Compatible with Airmar Broadband/CHIRP transducers
- 12 or 24V DC systems
- <1 A power consumption
- CHIRP system with multiple fixed frequency operating modes
- Airmar X-ID enabled
- Dual transceivers, HI & LO
- 2 X Temp transducer connections
- 1 X Speed transducer connections
- 250 W RMS TX power
- 2 Year Warranty
- RRP - $2495 USD
BSM-2 Product Overview

- BSM-2 can be used on any application where high detail target resolution throughout the water column is desired, with the need for sounding to 12000’
- BSM-2 is most successfully used for bottom fishermen, deep drop bottom fishermen, and survey applications
- BSM-2 can successfully be deployed for pelagic fishermen, however transducer selection plays an important role in overall success given the extremely narrow transmit cones of the CHIRP transducers
# BSM-2 Installation - Power

- 6’ cable provided (no connectors), 16 AWG
  - *Extending to 15’, use 16 AWG*
  - *Extending to 20’, use 14 AWG*
  - *Extending to 30’, use 12 AWG*
- Unit is internally fused 3A
- Unit also designed with AUTO-ON feature (Yellow Wire) – feature not available on NSO
- Vessel bonding ground to be attached at chassis lug

<table>
<thead>
<tr>
<th>BSM-2 Power Wiring Matrix</th>
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<tr>
<td><strong>BLACK</strong></td>
</tr>
<tr>
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</tr>
<tr>
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<td></td>
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</tbody>
</table>
BSM-2 Transducer Connections

- The BSM-2 utilizes dual transceivers and is designed for use with non-diplexed Airmar broadband transducer
- LO transceiver – designed for the low freq elements (25 to 60 KHz)
- HI transceiver – designed for the high freq elements (40 to 210 KHz)
- X-ID (Orange) located on the temp connectors
BSM-2 Impedance Values (BB)

The following transducers should use the XDCR Z1 settings described below in order to achieve optimal sonar performance from the BSM-2.

- B265LH
- M265LH
- B265LM
- M265LM
- R109LH
- R111LH
- R109LM
- R111LM
- R509LH
- R599LH
- R509LM
- R599LH

Diagram with XDCR HIGH and XDCR LOW settings.
BSM-2 Sample Installation, Power – NSE/NSS

<table>
<thead>
<tr>
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<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>
BSM System Basic Setup

• 3 setup related items post installation to be aware of
• All of them are found in the Echo submenus (press menu twice)

**Search Depth** – places a s/w lock on unit lower limit; unit will lock on to bottom quicker. Use best judgment based on where the vessel will be operated

**Echo Installation** – where all offsets and cal factors are input; also where transducer type is set (BSM-1 has no X-ID)

**Select Transducer** – be aware of the 5K Ω and 10K Ω xducer versions (Lowrance used a 5K Ω thermistor. BSM-2 will auto source this info from XID
BSM w/NSS or HDS Present

- NSS and HDS are the only MFD’s that allow for simultaneous dual sounder operation, e.g. two active sounders on the same Ethernet bus... this is because those displays can be told, via software to allow other network sounder data to be used or not used.
NSS 2.0

- NSS 2.0 was recently released and is downloadable from www.simrad-yachting.com

- Major Enhancements Include
  - **StructureMap®,** This innovative tool allows users with a StructureScan® sonar module to overlay side-scan images onto a chart to create life-like representations of their whole boating environment
  - Networking Improvements which allow those with multiple NSS units to network more displays - users will be able to network up to six NSS displays, allowing more flexibility to meet virtually any installation requirement
  - Improved features when coupled with a Broadband 4G™ Radar, NSS users will now benefit from the highest levels of definition available from a dome radar with beam sharpening via target separation control. A new noise rejection function also improves range performance and increases target detection sensitivity
  - Update rate on your internal GPS increases from 1Hz to 5Hz. It'll update your position, COG and SOG up to 5 times faster
NAIS-400

• New for 2012 – replaces the NAIS300 in the portfolio
• Updated GPS and AIS engines
• Multiple data connections – NMEA0183, NMEA2000, and USB
• NMEA1083 multiplexing – low baud TX/RX (4800) and typical high speed TX/RX (38,400)
• NSPL-400 available for sharing of single VHF antenna
• Programming done via ProAIS2 software
• Extremely compact with low power consumption
NAIS-400 – What's in the Box

- NAIS-400
- Product CD
- Product manual
- Quick start guide
- Warranty information
- Screws (packet of 4)

- Power and data cable
- USB configuration cable
- GPS antenna
- N2K cable
NAIS-400 Connections
NAIS-400 Basic Install
## NAIS-400 NMEA 0183 Connections

<table>
<thead>
<tr>
<th>Color</th>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td>1</td>
<td>NMEA 0183 port 1 TX+ (Transmit +)</td>
</tr>
<tr>
<td>Blue</td>
<td>2</td>
<td>NMEA 0183 port 1 TX- (Transmit -)</td>
</tr>
<tr>
<td>White</td>
<td>3</td>
<td>NMEA 0183 port 1 RX+ (Receive +)</td>
</tr>
<tr>
<td>Green</td>
<td>4</td>
<td>NMEA 0183 port 1 RX- (Receive -)</td>
</tr>
<tr>
<td>Purple</td>
<td>11</td>
<td>NMEA 0183 port 2 TX+ (Transmit +)</td>
</tr>
<tr>
<td>Pink</td>
<td>7</td>
<td>NMEA 0183 port 2 TX- (Transmit -)</td>
</tr>
<tr>
<td>Grey</td>
<td>6</td>
<td>NMEA 0183 port 2 RX+ (Receive +)</td>
</tr>
<tr>
<td>Yellow</td>
<td>5</td>
<td>NMEA 0183 port 2 RX- (Receive -)</td>
</tr>
</tbody>
</table>

- **High speed NMEA 0183** - Port 1: (38,400 baud) intended for connection to chartplotters.
- **Low speed NMEA 0183** - Port 2: (4,800 baud) intended for connection to other NMEA 0183 compatible devices.
NAIS-400 + NSPL-400 Antenna Splitter