Reson Multibeam I/O Module Requirements

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Brief Summary of Requirements:

1. Opto-isol TTL input for 1 PPS
2. Opto-isol RS-422 Tx for DVL trigger, same GND as 1 PPS
3. Opto-isol RS-232 Rx for INS data, same GND as 1 PPS
4. Opto-isol TTL output for obstacle avoidance sonar
5. 3x Opto-isol TTL outputs to drive edgetech triggers
6. 1x Opto-isol TTL input for power enable

Detailed Summary of Requirements:

1. The Kearfott SeaDeViL INS includes an Ashtech DG-16 GPS unit, which outputs a TTL PPS signal. This signal is TTL compatible and has an impedence of 5k ohms. The INS CPU stack requires this signal to function properly, but no data is available on the input drive requirements. MBARI will end up designing a buffer/driver circuit to drive the Reson I/O module with an opto compatible signal capable of driving 10mA, if necessary.

2. The Kearfott SeaDeViL INS includes an RDI Workhorse Navigator DVL which can be triggered with an RS-422 compatible signal, no HW handshake. At least a 20ms break needs to be sent on the RS-422 link to trigger a DVL ping. The trigger will use the same GND return as the 1 PPS from the INS.

3. The Kearfott SeaDeViL INS transmits navigation data records on an RS-232 link to the Reson I/O module. No Rx capability exists for the INS from the Reson I/O module. The data rate is 115,200 bps, 8 data bits, odd parity, 1 stop bit, no HW handshake. The same GND return as the 1 PPS signal will be used.

4. The obstacle avoidance sonar accepts a TTL logic signal for a trigger. It fires on a falling edge. It ignores any falling edges within 200ms of the first falling edge trigger. Its GND is isolated from the rest of the system. Sonar trigger and trigger return lines are available on pins 10 and 11 on the MEH connector.

5. The Edgetech SSS and SBP accept triggers. Three trigger inputs are available to the Edgetech computer along with a trigger ground. It is configured to trigger on a falling edge. A trigger input must be inactive (high) for a minimum of 1 ms. When asserted (active low), it must be held low for a minimum of 1 us.

6. If the master power enable is handled by this module, an active high logic level enable signal capable of sourcing TBD mA will be on pin 5 of the MEH and shore connectors. The line will be held high during operation of the sonar electronics. When the level drops to ground, or floats, the LCU DSP should turn off the sonar electronics. Signal return is on main raw power ground.