

EC6076

Active Input Module

The EC6076 Active Input module is for the Teledyne RESON TC4014, TC4032, and TC4042 hydrophones with built-in pre-amplifiers.

EC6076 provides an easy interface to the hydrophones, it allows use of the differential output from the hydrophones either via direct feedthrough of the signal on an XLR output connector or via the built-in differential amplifier that converts the differential hydrophone signal into a single-ended +6dB signal on a BNC/coax out. EC6076 has a built-in rechargeable battery that provides power for the EC6076 differential amplifier and the TC4000 hydrophone.



TECHNICAL SPECIFICATIONS

EC6076 connections Jupiter M 10 7-pin male receptacle used for the cable towards TC4014, TC4032, and TC4042.
 BNC for single-ended output and insert cal signal.
 Differential signal direct feedthrough on XLR male.
 Mini-jack 3.5mm hydrophone output for PC or headphones.
 DC supply (for charging) 5.5mm, 2.1mm center pin.

Weight 840g

Dimensions Box: 125mm x 80mm x 57mm
 Connectors and switches included: 160mm x 80mm x 59mm

PRODUCT BENEFITS

- Rechargeable battery
- Provides power for the hydrophone
- Insert calibration/remote check of hydrophone
- Sealed EMI/RFI shielded aluminum box
- Differential output on XLR connector
- Converts differential signal from hydrophone to single ended +6dB on BNC connector



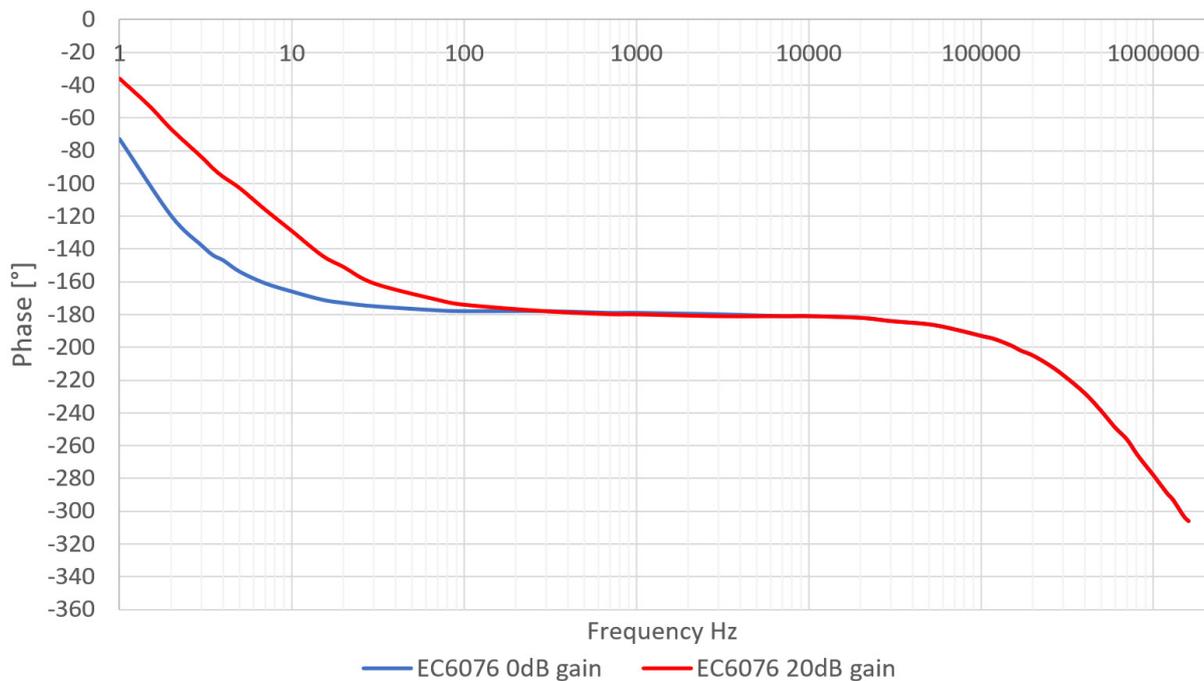
TELEDYNE MARINE
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EC6076

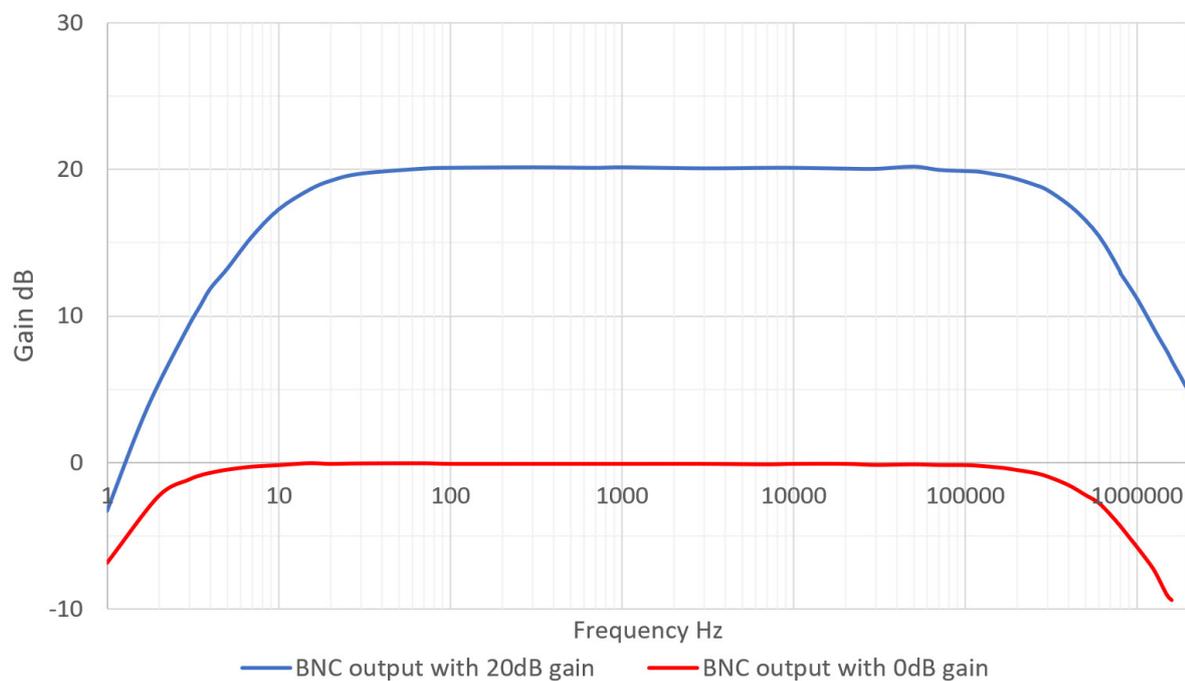
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Plots

EC6076: Phase response BNC output



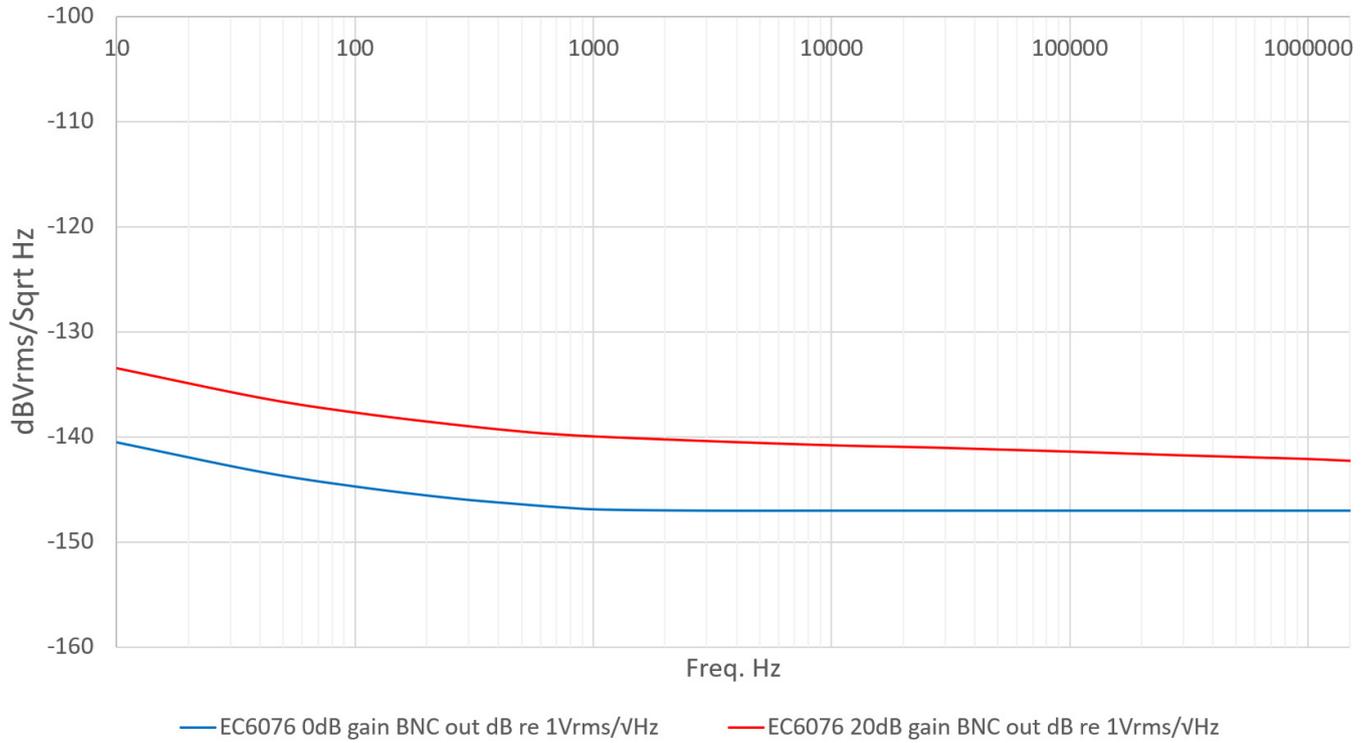
EC6076: BNC output "+6dB"



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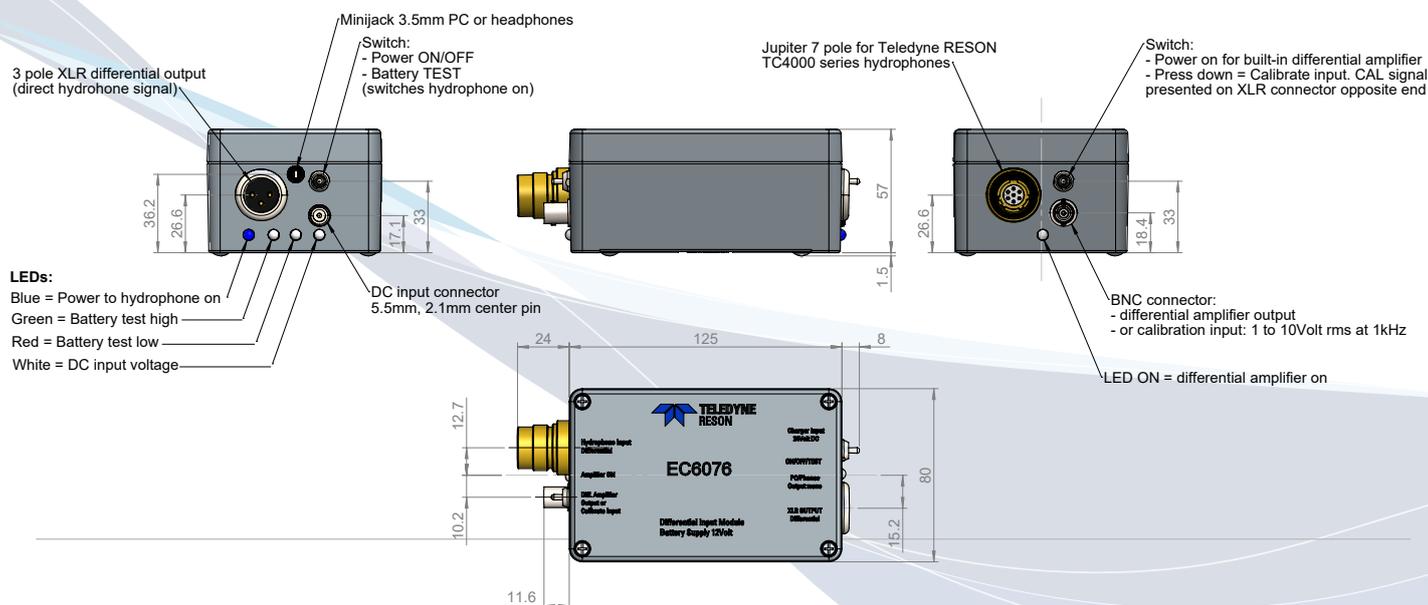
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EC6076 Differential amplifier (BNC output): Own noise dB re 1Vrms/Sqrt Hz



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Outline dimensions and layout

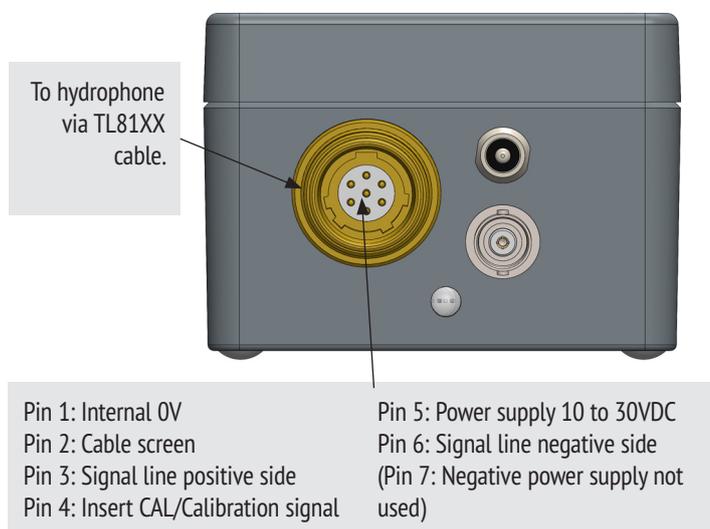


User guide

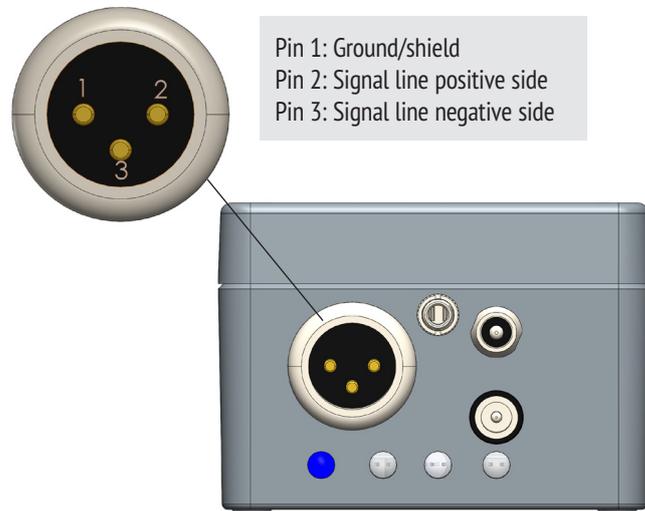
The EC6076 has two main functions

- To receive the hydrophone differential signal and convert it into a single-ended +6dB output on a BNC connector.
- The direct signal feedthrough mode where the differential signal from the hydrophone is placed on a 3-pin XLR male connector.

Pinout on Jupiter M 10 7-pin male receptacle



Pinout of the XLR connector



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Receive the hydrophone differential signal and convert it into a single-ended +6dB output

Hydrophone is connected to EC6076 via TL81XX cable. Output will be on BNC connector. The differential amplifier inside the EC6076 will convert the differential output signal from the hydrophone into a single ended +6dB signal. The +6dB is relative to looking at a single signal output line from the hydrophone.

To power the hydrophone, set the power on/off/test switch (on XLR side) to on in the "up" position. A blue LED will show that power is provided to the hydrophone.

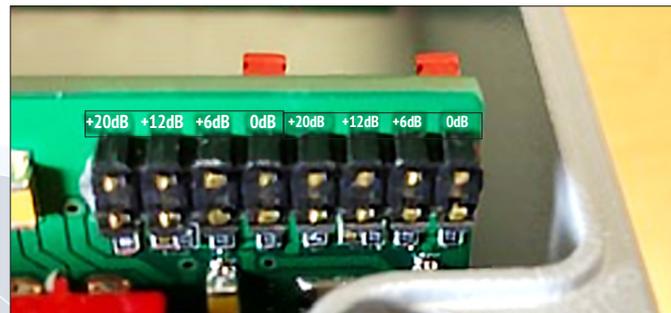
To turn on the differential amplifier inside EC6076, set switch on input side (Jupiter connector side) to the "up" position. A blue LED will show that the differential amplifier is active, and the differential hydrophone signal is converted into a single-ended output (+6dB) on the BNC connector.

To save power and preserve the battery operation time, turn switch to off (center position), when use of the differential amplifier isn't needed.

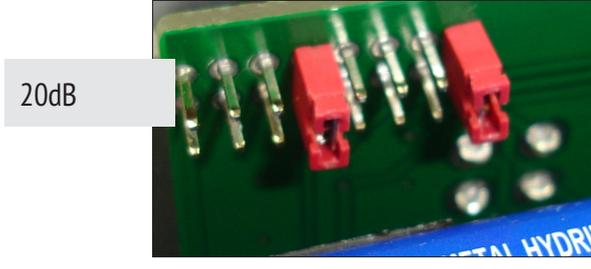
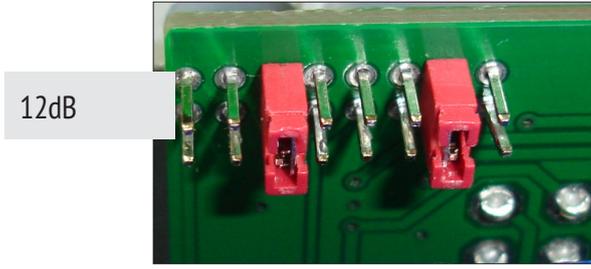
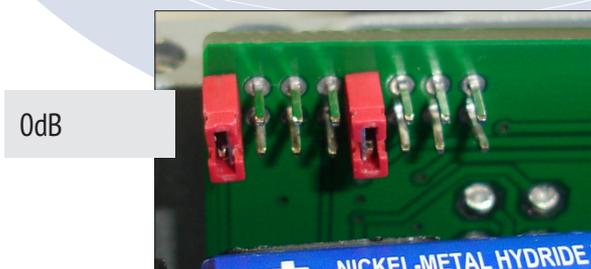
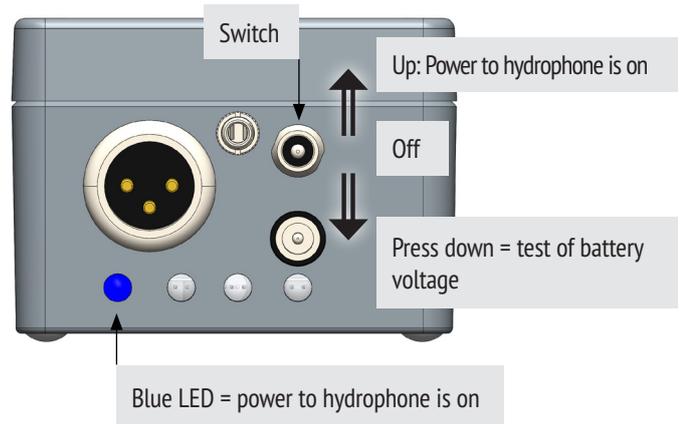
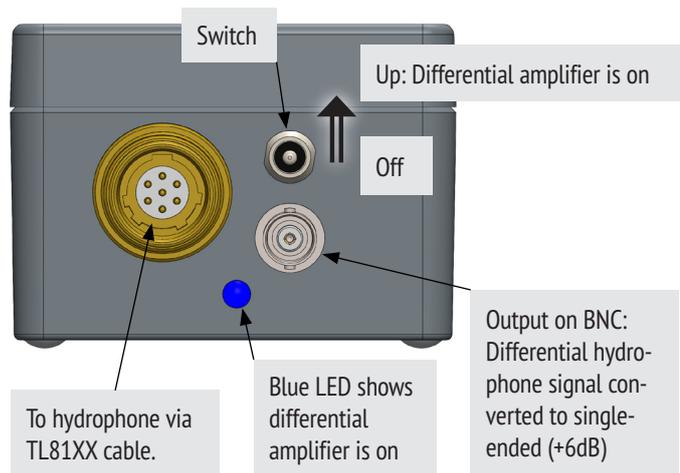
To obtain good low-noise performance, EC6076 should be operated running on the built-in rechargeable battery. The battery operation time will be around 60 hours in this mode. EC6076 isn't designed or intended to be charged via the DC input from a simple 24VDC switch-mode power supply while in operation. For long-term operation or in stationary installations, use a good low-noise laboratory power supply with a voltage between 24VDC and 30VDC and current limit above 200mA DC.

Adjusting output gain of the converted signal placed on BNC output

Via a set of jumpers inside the EC6076, it is possible to adjust the output gain of the converted signal. Four gain settings are available: 0dB, 6dB, 12dB, and 20dB. The default setting is 0dB. Turn EC6076 off. To access the jumpers, remove the lid by undoing the 4 screws in the corners. Move the jumper as a pair as shown. Reinstall the lid and turn on the EC6076.



A text opposite to the jumpers shows where the pair of jumpers should be placed to get wanted output gain.



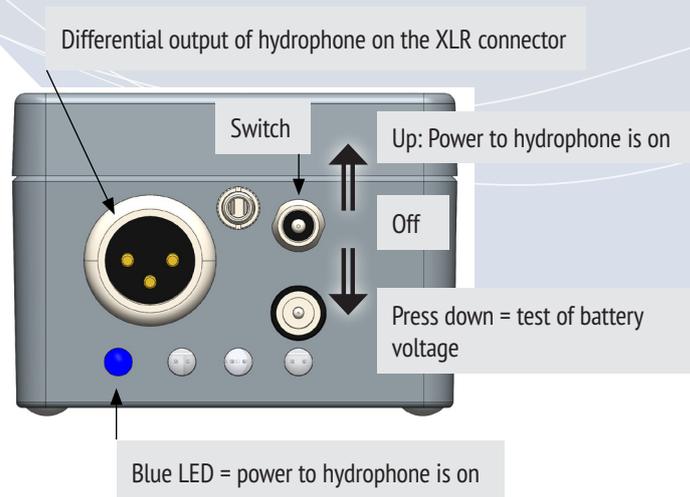
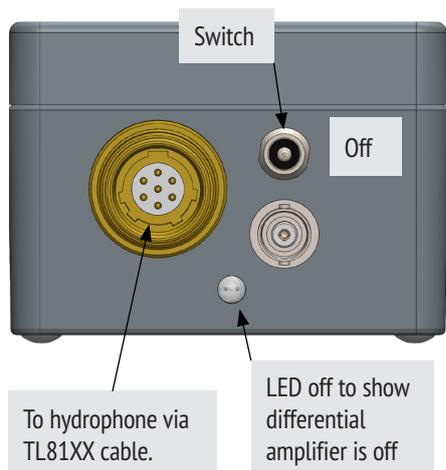
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Direct feedthrough of differential hydrophone signal onto the XLR connector

In this mode the differential hydrophone signal is fed directly onto the XLR output connector. Via the XLR connector, the hydrophone signal can be fed into balanced differential input amplifier or into standard studio mixers and recording equipment.

Advantages of the direct feed mode of operation is that the differential signal coming from the hydrophone is not altered in any way and that the battery of EC6076 will provide power only for the hydrophone.

The battery operation time will be around 120 hours in direct feedthrough mode. To obtain good low-noise performance, EC6076 should be operated running on the built-in rechargeable battery. EC6076 isn't designed or intended to be charged via the DC input from a simple 24VDC switch-mode power supply while in operation. For long-term operation or in stationary installations use a good low-noise laboratory power supply with a voltage between 24VDC and 30VDC and current limit above 200mA DC.



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Insert calibration test of a remotely placed hydrophone

The purpose of the Insert calibration feature is to verify that a remotely placed hydrophone at the far end of a long TL81XX cable is attached, connected and preamplifier is working. The feature is not intended as a calibration function as such.

The test is done by turning power to hydrophone on. Blue LED comes on. Apply insert calibration signal onto the BNC connector, appropriate signal level is between 1 and 10Vrms at 1kHz. On the switch at the Jupiter/TL81XX, end press the switch down and hold. This will allow the insert calibration signal to pass onto the insert calibration pin 4 of the Jupiter and from there down to the hydrophone where the signal feeds into the preamplifier. Return signals from the preamplifier will come up on the Jupiter pin 3 (positive signal line) and pin 6 (negative signal line) and from there feed directly onto the XLR. Pinout of the XLR is ground/shield on pin 1, positive signal line on pin 2, and negative signal line on pin 3. Notice that insert Cal signal is attenuated down at the hydrophone preamplifier – see hydrophone datasheets for details.

