

# TYPE H91 HYDROPHONE

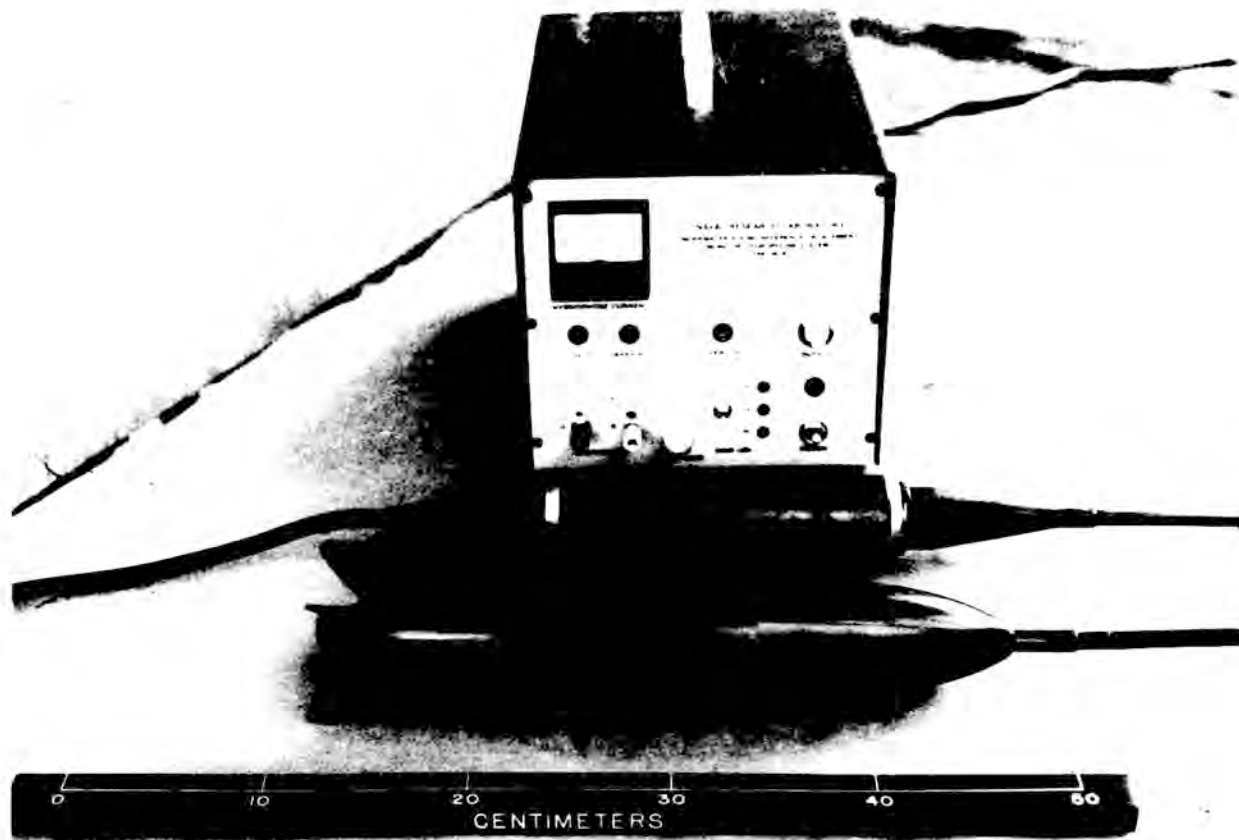


Fig. H91-1 - Type H91 hydrophone system.

**FUNCTION:** A hydrophone for monitoring audio and infrasonic frequencies wherein the sensor is towed at the end of a very long cable and its output is converted to a frequency modulated signal for the purpose of circumventing problems of signal attenuation in long cables or crosstalk interference where the output signal shares the cable with other signals.

**DESIGN:** The sensor is a PZT sphere potted in polyurethane. The system operates at three different gain levels as shown in Table H91-1. The cable between the preamplifier and the demodulator can be up to 6 km long and must be furnished by the user (see Figs. H91-1 and H91-2).

**FREQUENCY RANGE:** 10 Hz to 10 kHz

**FFVS:** See Table H91-1

**MAXIMUM DEPTH:** 200 m  
**TEMPERATURE RANGE:** 0 to 35°C  
**ACOUSTIC OVERLOAD:** See SPL range in Table H91-1  
**DIRECTIVITY:** Omnidirectional in the horizontal (XY) plane  
 Omnidirectional in the vertical (XZ) plane <5 kHz and approximately  
 omnidirectional up to 10 kHz

**WEIGHT (without cable):** 1.4 kg (3 lbs)  
**SHIPPING WEIGHT (with electronic unit):** 29 kg (64 lbs)  
**CABLE LENGTH:** Up to 6 km (to be supplied by user)  
**CABLE CODE:** white high signal and circuits  
 power supply  
 black low signal and circuits  
 power return  
 gray gain control A (+20 dB)  
 blue gain control B (-20 dB)

**INSTRUCTIONS TO THE USER:** Tow cable, furnished by user, should include 50 Ω coaxial cable or equivalent plus two 20 AWG wires  
 The power input to the demodulator box is the standard 110 V 60 Hz

Table H91-1 - H91 Sensitivity and Operating Ranges

GAIN SETTING (dB)	FFVS (dB re 1 V/μPa)	SPL RANGE (dB re 1 μPa)	OUTPUT LEVEL (dB V)
+20	-181	+127 TO +187	-50 TO +10
0	-201	+167 TO +207	-30 TO +10
-20	-221	+187 TO +227	-30 TO +10

A block diagram of the electronic system is given. The sensor is contained within the towed-fish housing. The FM modulator and the amplifier are contained within the modulator housing. The demodulator is mounted within a small box at the output end of the cable. The user must provide any signal processing beyond the demodulator.

The electronic system will not overload with acoustic signals as high as 227 dB re 1 μPa.

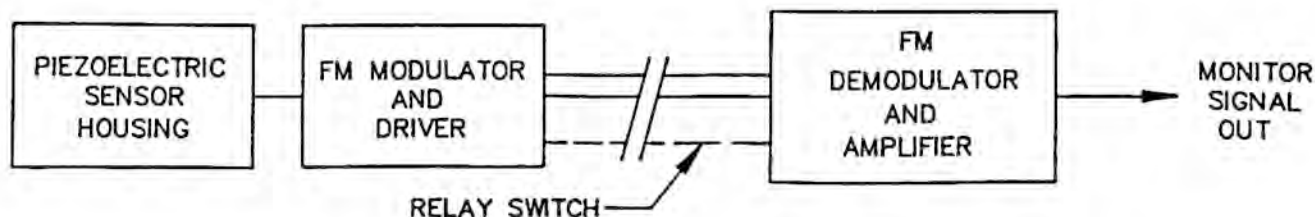


Fig. H91-2 - Block diagram of H91 hydrophone.

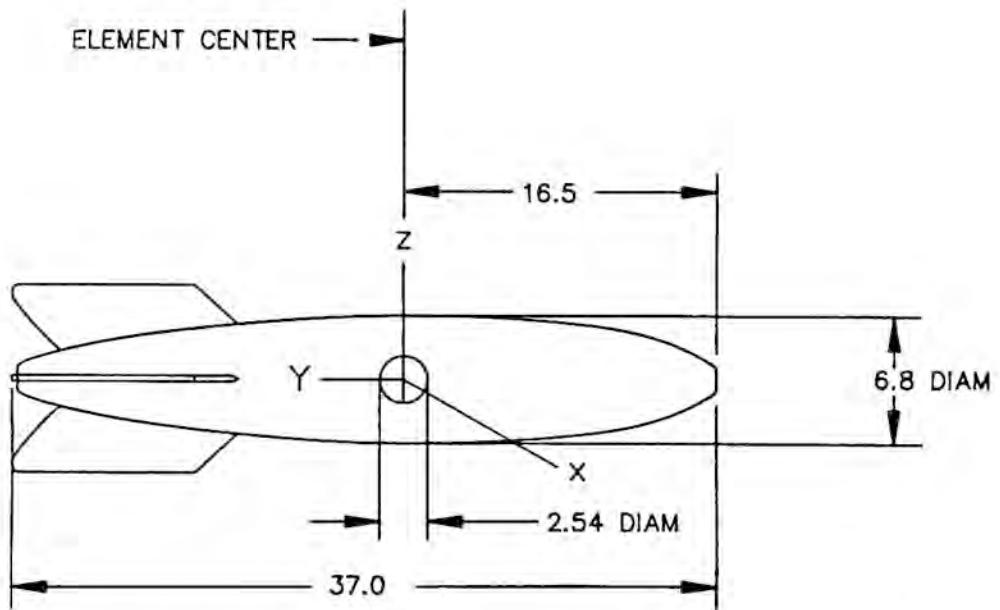


Fig. H91-3 - Dimensions (in cm) and orientation of H91 hydrophone.