Interface Control Document

EM7200 Receiver Unit

2 December 2002

Revision History:

Version	Date	Revision	Author
1.1	27 May 02	Initial Issue	D. Suchman
1.2	28 October 02	Revised Pinout	D. Suchman
1.3	2 December 02	Minor Size, weight, mounting	D. Suchman

Table of Contents

This document describes the interfaces between the Reson EM7200 Receiver Unit and the ocean and the vehicle on which it is housed.

1. Interface Between EM 7200 Receiver Unit and the Ocean

1.1 Acoustical Interface

The EM 7200 Receiver Unit receives acoustic signals from the water in front of the transducer and forms them into narrow beams that cover a 130-degree wide sector. The acoustic signals are received through a polyurethane window in front of the piezoelectric ceramic. The EM 7200 operates at both 200 kHz and 400 kHz. The beams formed by the EM 7200 have the characteristics presented in Table 1-1.

Characteristic	200 kHz Operation	400 kHz Operation
Number of beams across-track	128 beams	256 beams
Vertical beam width (-3 dB)	27 degrees	27 degrees
Across-track Coverage	130 degrees	130 degrees
Horizontal beam width (-3 dB)	1 degree	0.5 degrees
Offset Between Horizontal Beams	0.9375 degrees	0.4688 degrees

Table 1-2. EM 7200 Receiver Unit Characteristics

1.2 Physical Interface to the Environment

The EM 7200 Receiver Unit interfaces to the ocean through a polyurethane acoustic window bonded to a Grade 2 Titanium base.

When mounted in the vehicle, the EM 7200 will successfully withstand exposure to 6,500 meters test depth (9,250 psi hydrostatic pressure). It will operate within specifications at depths to 6,000 meters (8,540 psi).

2. Interface Between EM 7200 Receiver Unit and the Vehicle

1.3 Mechanical Interface

The EM 7200 Receiver Unit is shown in Figure 1. The EM 7200 is rectangular in shape. It is 19.5 in (496mm) wide (across track dimension), 4.02 in (102mm) high, and 5.17 in (131mm) thick. In air the EM 7200 weighs 9.6±1 kg in water it weighs 4.6 ±0.5 kg.

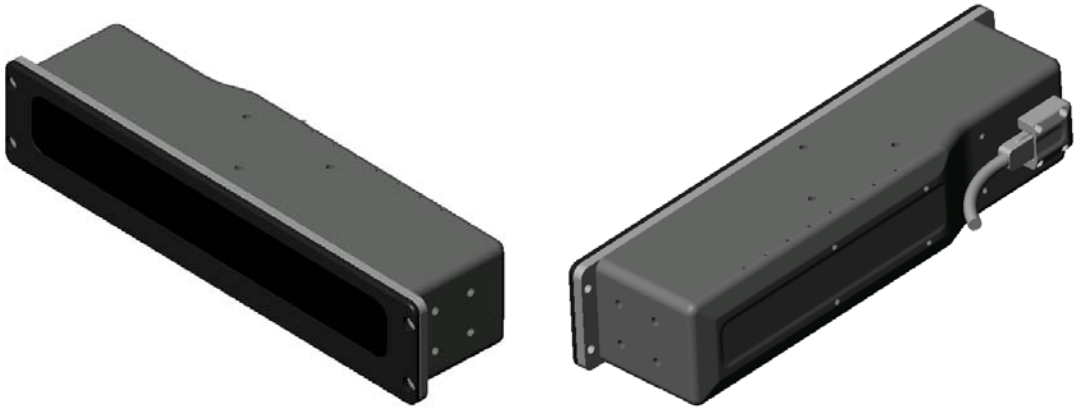

Figure 1. EM 7200 Receiver Unit

The optional bathymetric fairing is shown in Figure 2. The fairing is manufactured of delrin and weighs 2.4 kg (TBR) in air and 0.6 kg (TBR) in water. The bathymetric fairing design may be refined in the future.

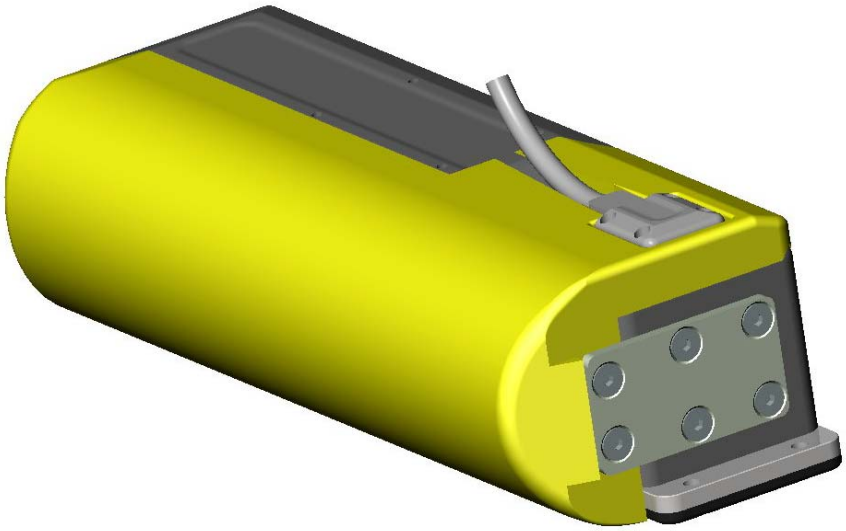

Figure 2. EM 7200 Receiver Unit in Bathymetric Fairing

Transducer Face is pointing downward.

Receiver Unit EM 7200:	
Housing Materials:	Titanium Grade 2 and Polyurethane
Optional Fairing Material	Delrin
Temperature range storage	-30°C to +70°C
Temperature range operational	-5°C to +30°C
Depth rating:	6,000 meters operational (8,540 psi) 6,500 meters survival (9,250 psi)

An outline drawing showing the EM7200 and the TC2162 Projector Unit is shown in Figure 3. The TC2162 is mounted to the Em7200 with 3 each M8 screws located in a triangular pattern. This assembly fastens to the vehicle installation bracket with 4 each M8 screws through the front flange. The matching hole pattern is rectangular, 480 mm by 60 mm. The EM7200 is shown by itself in Figure 4.

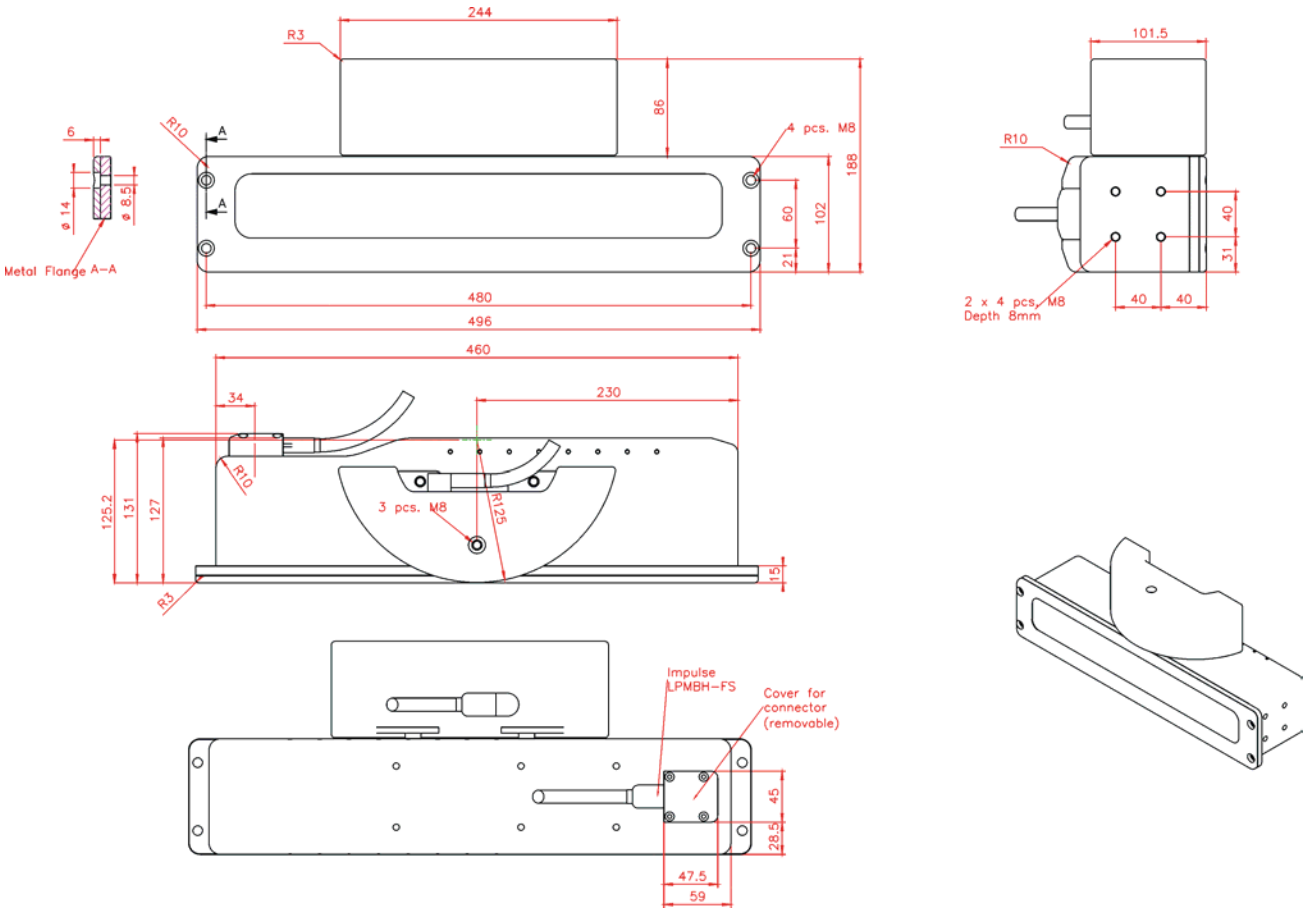

Figure 3 Outline dimension drawing of the SB7128 system, composed of the EM7200 receiver unit and the TC2162 projector.

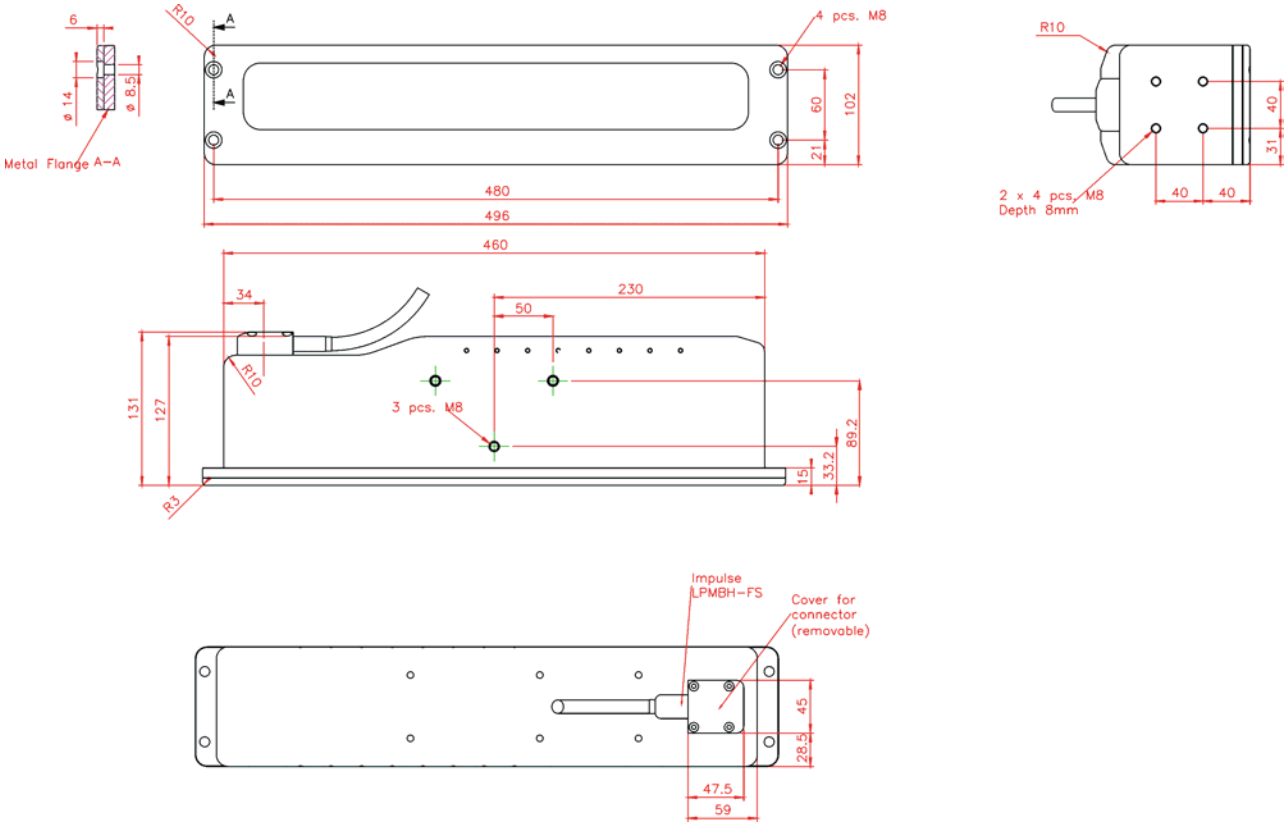

Figure 4 – Outline Dimension Drawing of EM7200 Receiver Unit

1.4 Electrical Interface

The EM 7200 Receiver Unit interfaces electrically to the vehicle through a single TBD long cable (RESON, Inc. Dwg. No. 11392-X-where X denotes cable length). The maximum allowable length for this cable is 3 meters. At the Receiver Unit end of the cable, there is a male 8-pin connector (Model LPMIL-8-MP). At the end of the cable that interfaces with the Pressure Vessel housing the LCU or ICPU, there is a female connector (Model MCIL-8-FS).

The connections are as follows:

Pin 1	Received Signal (Positive)
Pin 2	Received Signal (Negative)
Pin 3	Control Signals (Positive)
Pin 4	Control Signals (Negative)
Pin 5	DC Power (Positive)
Pin 6	DC Power (Negative)

Pin 7	DC Power (Positive)
Pin 8	DC Power (Negative)

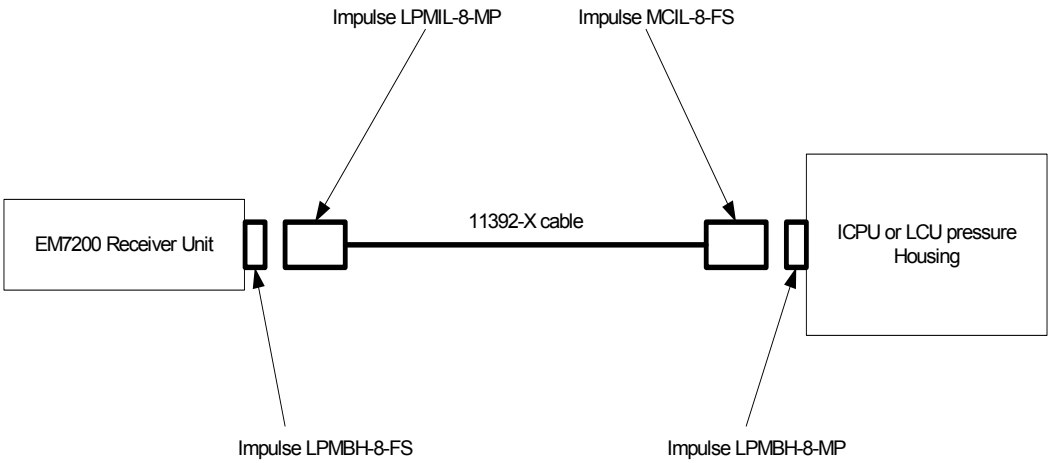

Figure 4. – EM7200-LCU/ICPU Electrical Interface

(An ICPU is used for an AUV. An LCU is used for an ROV, Towbody or Surface Ship)