

# Acoustic Interface Gluing Procedure for Chirp Ultrasonic Sensing Modules

## **1 INTRODUCTION**

This document provides information on gluing an acoustic interface on to a Chirp sensor module assembly. Recommendations are included for adhesives, gluing instructions and basic verification after installation of horn to the module.

**Figure 1. Chirp CHx01 module with acoustic horn**



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## 2 HORN GLUING INSTRUCTIONS

It is recommended to use the adhesive listed, or similar non-gassing and non-expanding UV cured adhesive. Care must be taken when gluing an acoustic interface to the CHx01 module. The glue may have too thin of viscosity or adhesive outgassing that could wick into the device and damage the transceiver.

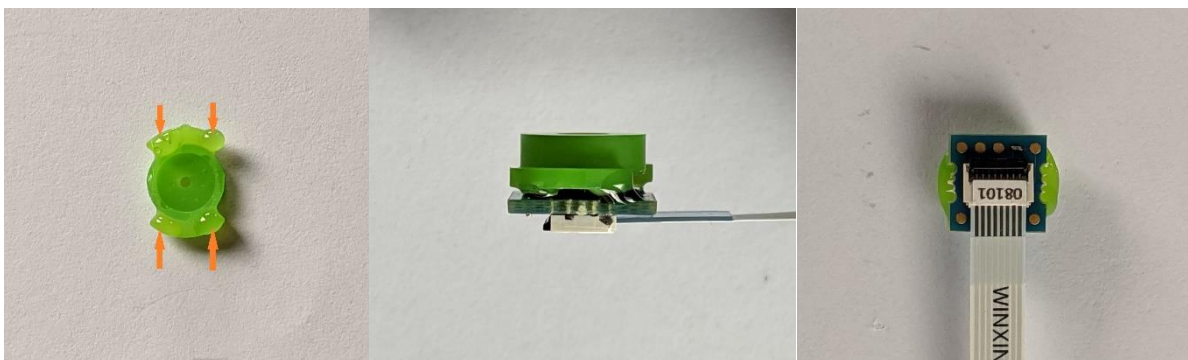
- Dymax 9-911-REV-A Ultra-Light Weld
- Solarez Thick, Hard Formula

**Figure 2. UV Cured Adhesives**



- To mount horn, place 0.6ml dots of adhesive on each corner of acoustic interface horn flanges as shown in the left image of the picture in Figure 4 below.
- The prescribed amount of adhesive will provide enough strength for standard handling of the module.
- Place the horn over the CHx01 and check to ensure the horn is seated perfectly flat in relation to the PCB. Cure the adhesive with a UV light source.
- Verify the horn is seated parallel to the PCB and test horn for functionality.

**Figure 3. UV Cured Glue Applied to Horn**

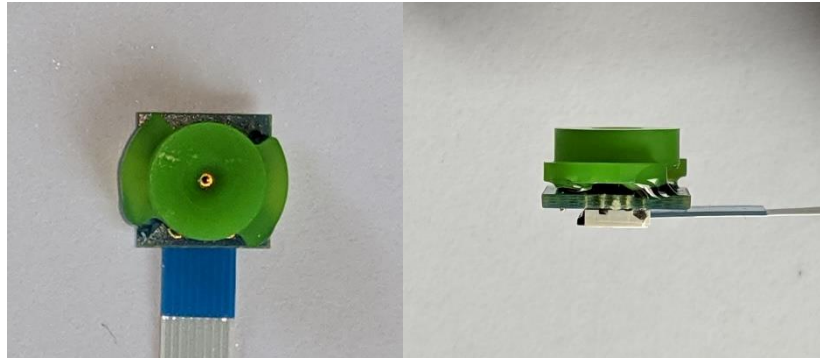


### 3 VERIFY ACOUSTIC HOUSING

#### Physical check for cap alignment

- Poor placement will result in a long ring-down which will be visible as an elevated second peak on the A-Scan. It can also trigger false positives on the target detection.

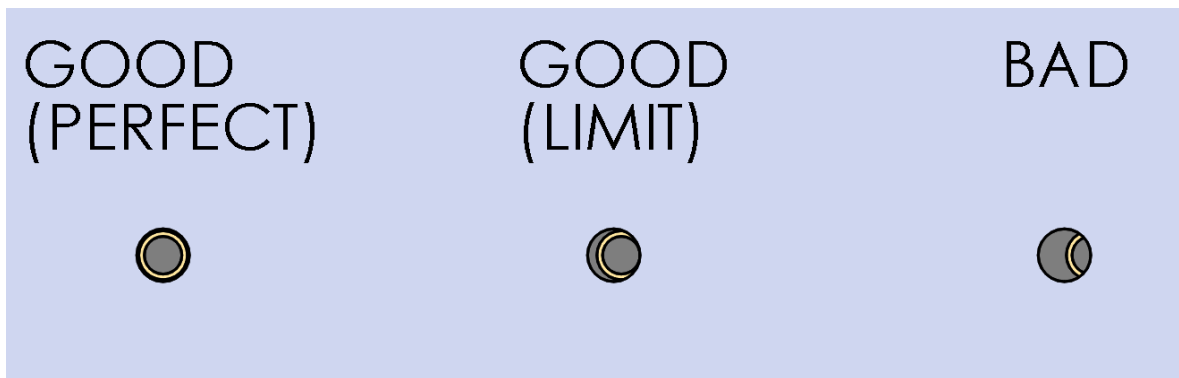
**Figure 4. Physical Alignment of Horn**



#### Sensor to Acoustic Interface

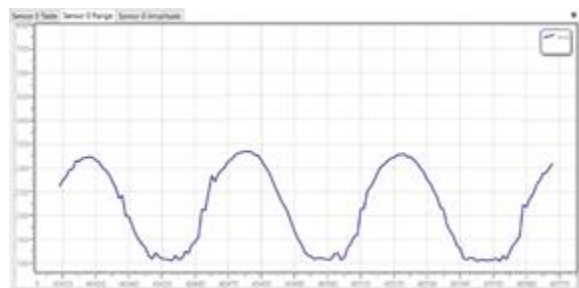
- Chirp recommends a sensor-to-Acoustic Interface assembly concentric tolerance of 0.1 mm or better such that the sensor port is not blocked or occluded by the Acoustic Interface (see Figure 6).

**Figure 5. Acoustic Interface Alignment**



#### Signal amplitude check

- Check the intensity of a target (e.g., a hand). The hand should be high intensity on axis and should be able to track range to your hand movements using the Range plot in the SonicLink GUI as shown in figure below.



## 4 REVISION HISTORY

Revision Date	Revision	Description
7/14/2020	1.0	Initial release

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