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Subject: HPT and GyroUSBL Storage and Operational Conditions Advice

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Summary:

This technical bulletin has been issued to draw customers' attention to a potential issue with all variants of HPT or GyroUSBL caused by either inadvertent storage or operation at temperatures exceeding the stated specifications.

Recently there have been a very small number of customer reports of damage to the transceiver array where bubbling of the polyurethane front face of the array has been seen. Some similar problems have been seen sporadically over the last 20 years, all generally associated with more unusual applications or deployment methods for the transceivers.

The root cause of this issue is exposure to excessive temperatures during either operation or storage. This causes thermal expansion of the airspace behind the array, which can in rare instances result in bubbling of the polyurethane. This condition typically damages the centre area of the transceiver array and will compromise the transmit performance of the HPT or GyroUSBL.

HPT/GyroUSBL units are designed for use underwater and are not intended to be operated out of the water for extended periods of time (recommended maximum 15 minutes). The risk of damage is directly associated with either the conditions of storage or operation. The following examples, give some examples of conditions which could give rise to damage:

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- Units stored in warehouses, containers, quayside or on the deck of a vessel that are not environmentally controlled and have the potential for temperatures above 45°C.
- Units mounted on over the side deployment poles, mounted on pipe lay stingers, trolleys or cable mounts when the units are out of the water for prolonged periods.
- Units stored or stowed out of water in equatorial locations, where they are under strong solar irradiance for extended periods of time.

Sonardyne have extensively type tested all forms of USBL array and the corresponding variants of HPT and GyroUSBLs to which they are fitted. Each unit is operationally soak tested at the specified high temperature prior to shipping. Therefore if the units are stored and operated within the specified temperature range specification it is highly unlikely that damage will occur.

Please note that the temperature ranges for the HPT and GyroUSBL are:

Operating Temperature:	-5°C to +40°C
Storage Temperature:	-20°C to +45°C

Solution:

The recent customer reports of operational issues have been restricted to the GyroUSBL 5000 and 7000, which are often used in less traditional USBL applications. These applications cause the arrays to be more susceptible to the effects of elevated temperatures and therefore as a precaution a pressure relief valve has been added to all new build units. This modification can also be retrofitted as an upgrade to any at risk unit.

If there is a potential that an HPT or GyroUSBL could be operated or stored in any environmental or operational conditions outside of the stated specification please contact customer support and we can supply advice or recommendations to reduce the risk of damage.

Should you require any further clarification please contact customer support on support@sonardyne.com or +44 1252 872288.

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