

## ULLC IS ULTRASONIC LIQUID GAS LEVEL COMPARATOR INTRINSICALLY SAFE

 II 2G Ex ib IIC T4 Gb BASEEFA 13ATEX0208X Nato Stock Number : 6680-99-397-4405

### For Fire Extinguishers : CO<sub>2</sub>, FM200, HALON and other liquid gas.

The Link Instruments **ULLC IS Ultrasonic Level Comparator Intrinsically Safe** is one of the most advanced Liquid Levellers on the market and **the only one Intrinsically Safe**.

Extremely easy to use and micro-pic controlled for greater precision in measurement.



The transducer is placed against the cylinder body 120mm below the calculated liquid gas level, where the extinguisher fill should be certain (normally mathematically calculated). While retaining the transducer at this point the Comparator's ultrasonic level is set to around two or three divisions / bars-■■■, by use of the 0-10 Tune Control. This gives a reference level against which the signal at the gas level / air interface is compared.

By slowly sliding the transducer up the cylinder body, we will arrive at the gas level / air interface. At which point the signal will rise sharply. This is visible on the Comparator usually as all 16 divisions / bars-■■■■■■■■■■■■■■■■■■■■ and is due to the enhanced propagation of the Surface Acoustic Wave (SAW), across the liquid gas.

### Features :

- Large backlit 16 Bar LCD signal display
- Permanent ambient temperature display
- Complete with Ultrasonic Transducer
- Transducer extension pole for ships bulk system installations
- 0-10 Ultrasonic setting controller
- 100ml tub of ultrasonic gel
- Supplied in a carry case
- Warranty : 5 years instrument guarantee, 1 year for the transducer
- Easy to locate and estimate the liquid gas level within +/- 2%
- NSN 6680-99-397-4405



<p><b>ULLC IS</b></p> <p><b>Ultrasonic Liquid Level Comparator</b></p> <p><b>Intrinsically Safe</b></p> <p> ATEX</p> <p><b>Complete KIT</b></p>	<ul style="list-style-type: none"> <li>. Ultrasonic Liquid Gas Level Comparator</li> <li>. Hand held Transducer,</li> <li>. Gel 100ml tub,</li> <li>. Transducer Extension Rod for Marine Applications</li> <li>. 1 Battery,</li> <li>. Carry Case,</li> <li>. Instruction Manual &amp; Declaration of Conformity</li> <li>. <b>ATEX Certificate</b></li> <li>. Calibration certificate,</li> <li>. Certificate of Origin</li> <li>. Certificate of Conformity</li> <li>. Warranty</li> <li>. Training Demo DVD</li> </ul>	
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**IMPORTANT : No Radioactive elements - Non Hazardous**

**Availability:** Ex-stock (immediate availability)

**Delivery : UK , Europe & Overseas** by international courier : upon application

**Payments:** in advance by Bank Wire Transfer in GBP (£ Sterling).

All Purchase Orders are subject to our standard terms and conditions a copy is available on request.

## Ultrasonic Liquid Gas Level Comparator Intrinsically Safe TECHNICAL INFORMATION

**The Theory of Operation** - Surface Acoustic Waves (SAW) were quantitatively described by Lord Rayleigh in 1885, when he showed theoretically that waves can be propagated over the plane boundary of an elastic half space and a vacuum or a sufficiently rarefied medium, (e.g. air), where the amplitude of the wave decay rapidly with depth. They are of course, mechanical, (acoustic) waves rather than electromagnetic. The destructive force of an earthquake propagates in this manner. The Comparator indicates the Surface Acoustic Wave via its 16 Bar Graph display, by sliding the transducer from below level up to the calculated level position.

**How the ULCC IS works** - The Transducer assembly transmits pulses of acoustic energy. The reverberation caused is dependent on the nature of the container (steel, glass, etc.) and the nature of the fluid, (liquid gas and air), contained within it.

**Due to the variable nature of the reverberation, the "tune" control allows us to reduce or increase the amount of received energy in order to get it within the range of sensitivity of the instrument. The returned signal is then rectified and smoothed to give a measure of the signal level.**

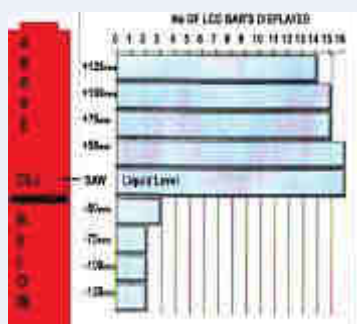
**Using the Comparator to find Extinguisher Gas Levels:** The transducer is placed against the cylinder body, 120mm below the calculated liquid gas level, where the extinguisher fill should be certain (normally mathematically calculated). While retaining the transducer at this point the Comparators ultrasonic level is set to around two or three divisions / bars-■■■, by use of the 0-10 Tune Control. This gives a reference level against which the signal at the gas level / air interface is compared.

By slowly sliding the transducer up the cylinder body, we will arrive at the gas level / air interface. At which point the signal will rise sharply, this is visible on the Comparator usually as all 16 divisions / bars-■■■■■■■■■■■■■■■■■■■■ and is due to the enhanced propagation of the Surface Acoustic Wave (SAW), across the liquid gas.

The unit also incorporates an ambient temperature sensor; the temperature is indicated on the units display, this is useful for making temperature adjustments to the mathematically calculated level.



ULLC IS in use



Typical result & LCD indication



Transducer Extension Pole in use



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