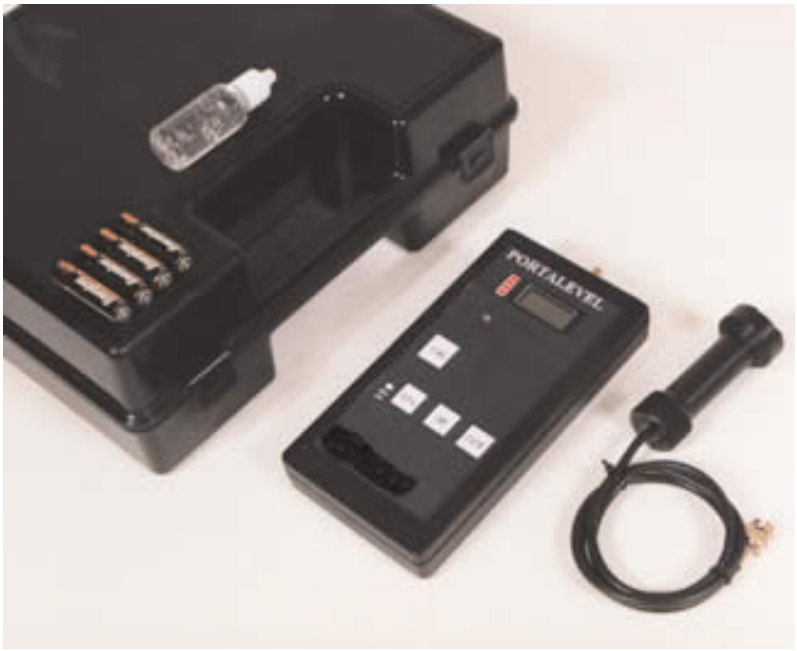
# Portalevel™

**Portable Ultrasonic Liquid Level Indicator for CO2, Halon, FM200™, NAF S III, FE 13, CEA 410, and Novec 1230 Gaseous Extinguishing Systems and other Liquids NATO-Stock-No 6680-99-192-2735**




The **Portalevel's accuracy and repeatability** have been verified by First Article Tests (very stringent tests conducted on items for supply to the **US military**). They confirmed its accuracy as **+/- 1.5mm**. As well as accuracy, they also tested the **robustness** of the unit by dropping it three times to a metre and submitting it to varying temperatures. Following these stringent tests the US Navy purchased **100 units**.

An extract from another recent comparative test stated "The reading was **repeatable and was very accurate** to a measured value of the actual liquid level made from the inside of the container. We are confident that it is the **best ultrasonic liquid level indicator available on the world market**".

**Over 15,000 Portalevel™ units are in service over 90 countries worldwide**

## Certifications and Approvals

- **Manufactured to BS EN 5750, ISO 9001 Quality Standards**
- **Manufactured to US MIL-STD**
- NATO Stock Number 6680-99-192-2735
- Det Norske Veritas Accepted
- "Portalevel" Trade Mark Registered NO 2290334
- UL Approval applied for
- UK Government Cage Code U2753
- US Department of Defense Halon Depletion Agency approval

## Technical specification

| | |
|---|---|
| Function | To indicate liquid gaseous extinguishants and other liquids in high or low pressure, single-skinned steel containers up to 89mm/3.5" thick. Also functions on most types of single skinned industrial fluid containers including plastic |
| Type | Portalevel™ Digital |
| Liquids / Gases | CO2, Halon, FM200™, NAF S III, other Halon substitutes, LPG and other industrial liquids locatable |
| Sensor | Ultrasonic single crystal sensor fitted with a magnetic head for hands-free operation. 16mm x 16mm |
| Accuracy | +/- 1.5mm |
| Controls | On / Off Switch, SPA (increases transmitter receive signal) switch, "CAL" self-calibration switch |
| Display | Digital: LED and LCD digital display |
| Power Supply | 4 x AA 1.5V Batteries. Consumption 230mA. Battery Life: 10 hours |
| Weight | 500g |
| Dimensions | Instrument: 155mm x 95mm x 45mm (Packed ex works for shipping incl carrying case: 34cm x 31cm x 18cm; Weight: 3.5Kg) |
| Operating Temperature | Limited by the physical properties of the liquid gas. Optimum operating temperature Ranges - CO2: 5 - 25˚C, Halon and Halon replacements: 15 - 40˚C |
| Calibration | Portalevel Digital is self-calibrating. |
| Accessories | "Wet" and "Dry" Sensors for poor condition and good condition cylinder surfaces respectively. Extension Rod with fixed 90 deg for 2-3-4 Multi-Banked cylinder row installations and pipe work |

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## Technology

The Portalevel™ uses ultrasonic technology to identify the interface between liquid and air in any single skinned container. It therefore has none of the user problems associated with radioactive liquid level indicators which require dedicated training, storage, Health and Safety documentation, and transportation. It also replaces the traditional means of verifying liquid levels by dismantling and weighing in which the system may be closed down or disconnected, risking potential damage in so doing and involving considerable time, expense and inconvenience.

## Operation

The unit is simple to operate using push button controls and requires little or no training. It is calibrated to each cylinder at the touch of a button. The ultrasonic “dry” sensor requires no water or gel to ensure good transmission of the ultrasonic signal; the optional “wet” sensor to be used with ultrasonic gel, is suitable for use on poor condition cylinders where thick or irregular coatings or badly pitted and rusty surfaces prevent the dry sensor from obtaining a clear signal. The sensors are housed in a magnetic applicator which ensures good contact with the surface and allows hands-free operation.

To locate the liquid level in a vessel, the sensor applicator is placed on the test vessel below the expected liquid level and then calibrated and all LED lights are lit on the digital unit. The sensor is then placed above the expected level – all lights extinguish. The sensor is moved between these two points in small steps until the interface is located.

In all types of bottles/cylinders, any that are found with unusual readings should be double-checked and if the same readings result, we recommend that the bottle be isolated and removed for weighing; in most cases it will be found that the contents have leaked.


←**Magnetic Probe Sensor allows you to leave the probe on the surface and allow hands free operation**

## Applications

The Portalevel™ is a versatile instrument that can locate the level of any liquid in any single skinned container of wall thickness 2-15mm. Wall thickness of 15mm-50mm is also possible, depending on material type and vessel size. **It can also monitor contents of most plastic vessels.**

It is typically used for high pressure CO2 or Halon cylinders constructed of seamless spun steel, approx 5ft high, 10 ins diameter, 45Kg or pressed steel with welded seams with low pressure fills of varying sizes and fill weights

**a. Fire Extinguishant Cylinders** – Its primary application is to check levels of liquid gaseous extinguishants in fire cylinders where it can be used to locate levels of CO2, Halon and Halon substitutes such as FM200™ and NAF S III. It was recently selected after stringent comparative testing by the US Department of Defence Halon Depletion Agency for purchase who verified its accuracy to +/- 1.5mm. We supply many units to fire service companies, offshore installations and utility companies worldwide for this purpose.

**b. Marine Multi Banked Cylinders** – Using the multi-bank cylinder rod, the Portalevel™ can also verify levels of extinguishants in multi-banked cylinder rows using this extension rod to reach the second and third rows. This type of installation is typically found on board ships and we have extensive experience of supplying this equipment to the marine sector.

**c. LPG** – Propane and Butane and Industrial Fluids may be tested though the unit will function in reverse.

**d. Sprinkler Systems** - The Portalevel is a useful tool to check the system integrity of sprinkler systems. The majority of sprinkler systems contain “clean agents” such as CO2, Halon and Halon substitutes for which the Portalevel was designed and which few other instruments are able to locate.

**e. Water** – The Portalevel™ can be used to locate water levels but in this case the signal gives inverse readings, ie high readings below level and low readings above, as in most industrial fluids

## Quality Assurance / Warranty

Units are manufactured to BS EN 9001 quality standards. All electronics are covered by a 3 year warranty. Sensors are covered by a one year warranty. Certain conditions apply.

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## Controls

| Control | Description |
|---|---|
| Button 1 : CAL | Self-calibration switch |
| Button 2 : SPA | Increases transmitter receive signal |
| Button 3 : On | Power control |
| Button 4 : Off | Power control |

## Shipping List

**Portalevel™ Digital Package**, with digital readout and LED displays, including :

- Standard Dry Sensor
- Magnetic Applicator
- 4 x 1.5v DC 'AA' Batteries
- Tube of Ultrasonic Couplant (Gel)
- Operation Instructions
- Carrying Case
- Short Form User Guide
- Calibration Certificate

***Optional Accessories not included :***

- **Multi-Bank Extension Rod**, for Double and Triple Bank Systems – the sensor and Rod are 2.54cm (1 inch) thick and have been specifically designed for Marine applications where multi-bank cylinders are common
- **Portatemp** thermometer for Monitoring Cylinders in hot climates to determine whether or not the gases are actually liquid
- **Wet Sensor** for rugged applications and poor cylinder conditions where ultrasonic gel is used which makes it easier to get readings on corroded surfaces

## Users & Market Sectors

Portalevel' users include Navy's, Air forces, Fire Services, Coast Guards, Offshore Petrochemical and Power Generating companies, Fire safety companies and various Marine companies

a. **Fire** - This is the primary market sector for the Portalevel™. The instrument is in use by all the major fire service companies worldwide including Tyco / Wormald, Chubb, Siemens, Unitor and Kidde. Prior to the invention of the Portalevel™, the only way for the fire engineer to verify the levels of liquid gaseous extinguishants in cylinders was to shut down, dismantle and weigh the system, a very time-consuming procedure, or to use radioactive instrumentation. The Portalevel™ was designed specifically for use by fire engineers in this task.

**Sprinkler Systems** – The Portalevel™ is also essential to check the system integrity of sprinkler systems. The majority of sprinkler systems contain "clean agents" such as $CO_2$, Halon and Halon substitutes, rather than water. Coltraco are members of the American Fire Sprinkler Association and currently in discussion with a major US Sprinkler manufacturer who wishes to distribute our equipment to their clients.

b. **Offshore-Petrochemical** – With regard to Offshore-Petrochemical applications, the Portalevel™ is in use both on and offshore in the oil and gas sectors:

- Gulf of Mexico
- Persian Gulf
- China
- Danish Sector – North Sea
- UK Sector – North Sea
- Brunei, Indonesia and Thailand
- Azerbaijan and the ex-Soviet republics
- Norwegian Sector – North Sea

**Offshore Companies** to whom the Portalevel™ has been supplied include:

- British Petroleum
- Shell
- Chevron
- Phillips Petroleum
- Marathon
- Unocal
- Mobil Europe
- Maersk Oil and Gas
- Norsk Hydro
- Texaco
- Enterprise Oil
- Total
- Saudi Aramco
- Total
- Elf
- Oil and National Gas Corporation, India
- National Iranian Oil and Gas Corporations
- Royal Air Force

The interesting point about the users is the quantity of units that have become embodied in their service over the years. There exist approximately 160 offshore platforms in the UK sector of the North Sea and we have units in approximately 140 of these. With regard to the Norwegian sector, where they have approximately 30 much larger platforms, we have 2-3 units on a number and have fitted units to most in this sector.

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c. **Marine and Naval** – Ships typically carry multi-banked rows of extinguishant cylinders which are particularly difficult to access and check. For this reason we developed the Multi-Bank Extension Rod which enables the engineer to check the second and third cylinder rows in situ. The Portalevel™ and Multi-Bank Extension Rod together are sometimes referred to as the "Portamarine". This has been supplied to many shipping companies and Naval Forces including :

- AP Moller
- Unitor
- Royal Navy
- BP Shipping
- Royal Danish Navy
- US Coastguard
- US Navy
- Maersk Ltd
- Shell Tankers
- P&O Containers
- V Ships
- Chevron
- Acomarit
- Amerada Hess
- RNLI
- Columbia Shipmanagement
- Royal Canadian Navy
- Royal Netherlands Navy

NB We have also supplied many portable and fixed oxygen, and flammable / toxic gas monitors to these clients.

d. **Power Generating** – Every power station has a Fire Safety Officer and safety matters are given a high priority. Portalevel units have been supplied to Fire Safety Officers in many power generating companies in the UK and overseas including:

- National Power
- Midlands Electricity
- Nuclear Electric
- Powergen
- British Gas
- ICI
- Scottish Nuclear
- British Nuclear Fuels
- National Grid
- Hong Kong Electric
- Dubai Electricity
- London Electricity
- Atomic Energy Establishment
- Conoco
- Rolls Royce
- Nuclear Power Corporation, India

e. **Industrial** – All major industrial companies have Fire Safety Officers responsible to check the installation of fire prevention equipment at regular intervals, particularly those dealing with flammable materials.

## Physical Qualities of Liquid Gases

It must be noted that to be able to locate the level of a liquid gas, the gas must be in its liquid state and stable, ie not recently moved. At high temperatures, the liquid gas will revert to its gaseous state and no level will be present. Therefore, clients in particularly hot environments, should be made aware of the necessary of checking levels during the coolest times, or, in inside installations, to lower the ambient temperature by placing bags of ice in the room for several hours prior to testing.

## After Sales Service

In the event of any technical or operational queries, Coltraco Technical Department is experienced in giving telephone "teach-ins". All queries are answered on the same day and their technical staff are happy to speak with clients outside UK office hours if necessary. Our technical staff have many years experience of the operation of the Portalevel™ in the field in a wide variety of market sectors and climatic conditions; they are always available to discuss a client's specific requirements.

Coltraco recommends that units are returned to them for annual recalibration, usually a requirement for any ISO 9001 operation using test instrumentation. This is generally completed and certified within a 48 hour turnaround time. Priority customers can be offered the option of a loan replacement unit during the repair of a faulty instrument.

## Other Products

Other products in the range include:

- Portagauge – low cost ultrasonic thickness gauge suitable for checking wall thickness of fire extinguisher cylinders through the paint
- Portascanner – portable ultrasonic watertight integrity test indicator for marine and industrial use
- Portable Flow meters - suitable for checking fire sprinkler systems
- Portable and Fixed Oxygen, Flammable and Toxic Gas Monitors
- Ultrasonic Flaw Detectors

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