



Specialists In Liquid Level Indication

# Trulevel

## Remote Level Indicator Bulletin A

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Bulletin: **J100.70**  
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Supersedes: **TL**

### Total System Reliability Begins With The Trulevel

Trulevel is a direct connected manometric instrument using the slack diaphragm principle to sense and indicate changes in the liquid level for boiler drums, heaters and steam/condensate applications.

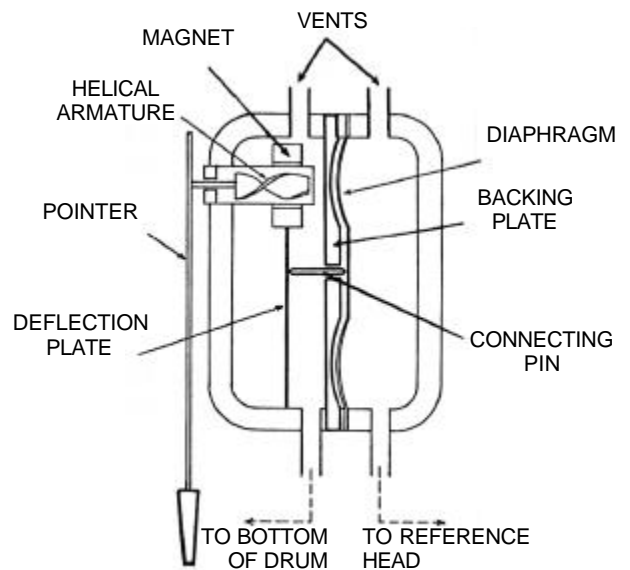
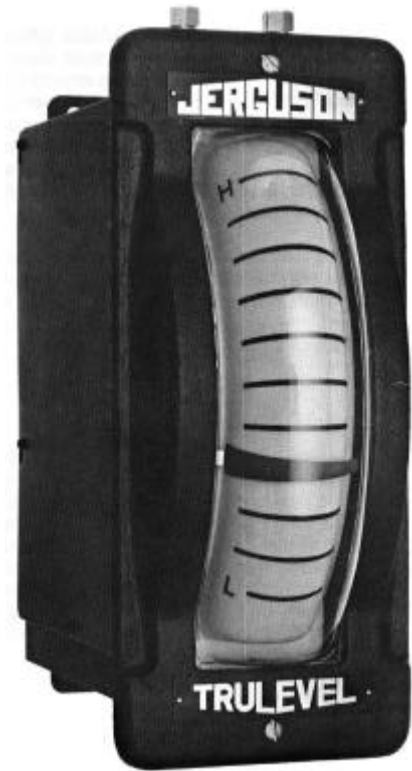
The installation consists of a datum column used to establish reference levels, isolating valves and the Trulevel itself.

#### Operating Principle

The reference head is connected to one side of the slack diaphragm by a line from the datum chamber. The other side of the diaphragm is connected to the bottom of the vessel (See typical applications). When the level changes, the net hydraulic at the diaphragm changes. The force is transmitted by a connecting pin causing a leaf spring reaction by the deflection plate.

A magnet is attached to the end of the deflection plate with the poles of this magnet straddling a magnetic helical armature that is enclosed and supported in a non-magnetic cylindrical well. As the magnet moves in a linear manner, the helix rotates to maintain alignment with magnetic poles.

A counterbalanced pointer, attached to the armature, indicates the level on the Trulevel's vertical scale.



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**Liquid Level Gages and Valves for the Power and Process Industries**

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## The Trulevel Repeater System

The system is composed of two units: The Transmitter attached to the Trulevel and the Receiver located at a distant monitoring station.

The Transmitter consists of a linear variable differential transformer (LVDT) and the supporting solid state electronics. The moveable core of the LVDT is attached to the pointer in such a way that a change in the Trulevel's reading causes a change in the transformers magnetic coupling. This is transduced by electronics into a standard 4-20 mA DC analog signal. This standard process signal may be monitored by the Receiver or, with the installation of a converter, by a computer.

The Receiver is a switchboard class instrument that duplicates the readout of the Trulevel. Its standard size allows for easy integration into instrument panels. Since it is a passive receiver, one or more units may be used to monitor the transmitter's output.

## The Trulevel Alarm System

A Solid State Alarm Unit is available to provide switch points for control or indicated functions. The sensing unit is a photoelectric device consisting of a photoconductive cell excited by a long life subminiature lamp. A shadow device attached to the Trulevel pointer passes between

the lamp and photocell at an alarm point. The resulting change in the signal of the photocell, when electronically amplified, excites a single-pole, double-throw relay. This relay provides the contacts which may be wired normally open or normally closed.

Standard alarm units provide two, three, or four adjustable alarm points rated at signal level loads for electrical alarms or annunciator panels. A separate time delay rated at 10 amps is available to operate pumps or fuel cutouts.

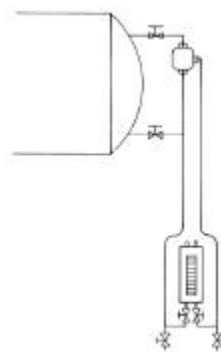
Audible and visual alarms are available to alert personnel when high or low alarm points are activated.



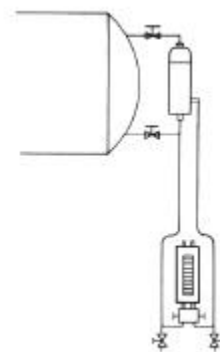
STANDARD  
DATUM CHAMBER



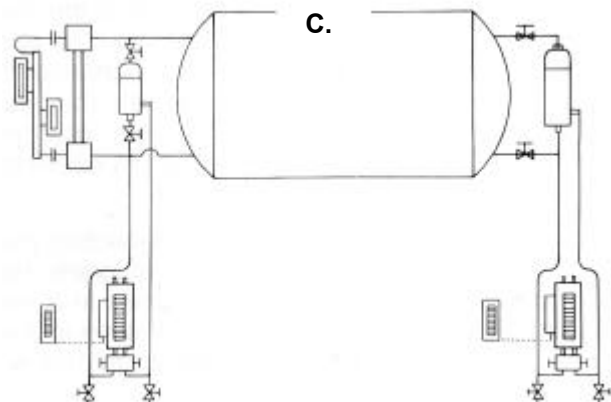
TEMPERATURE  
COMPENSATED  
DATUM COLUMN



A.



B.



C.



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