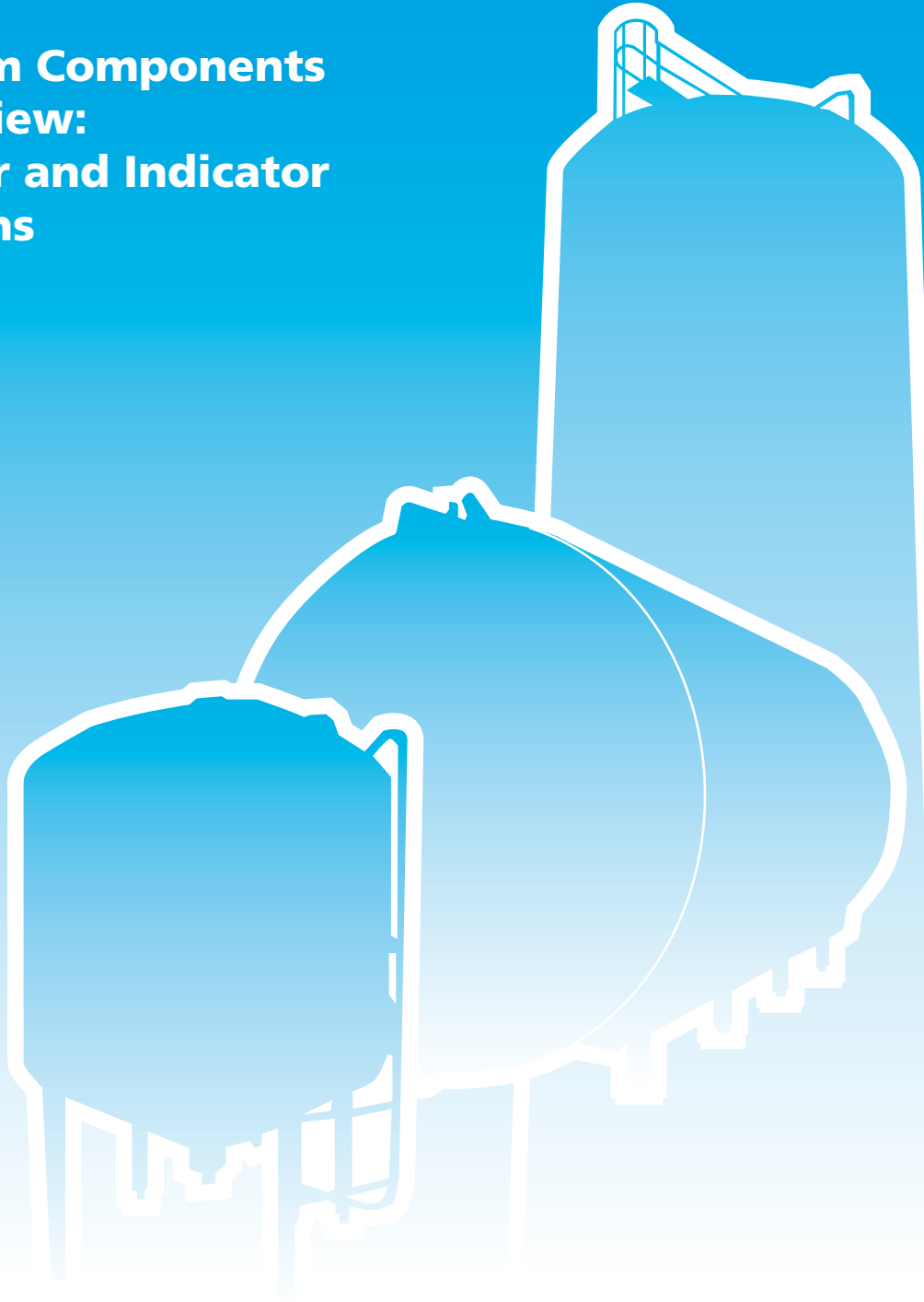


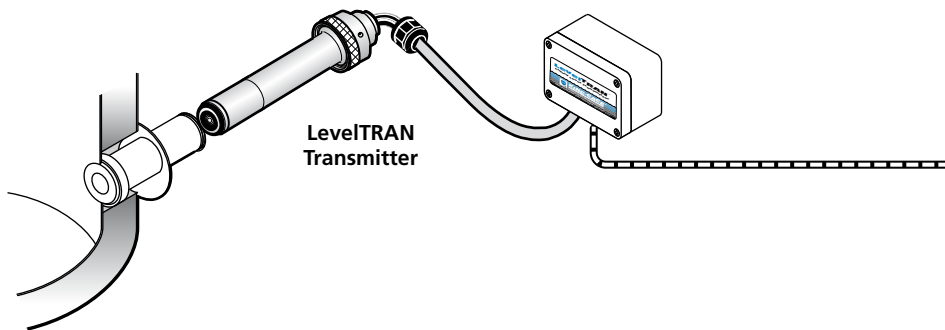
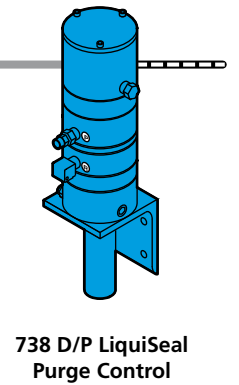
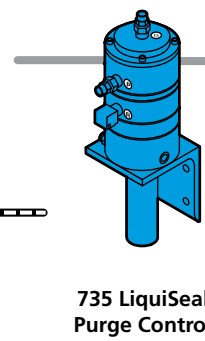
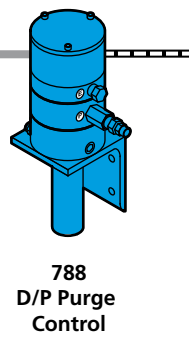
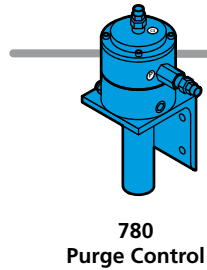
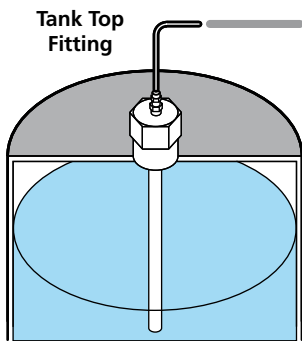
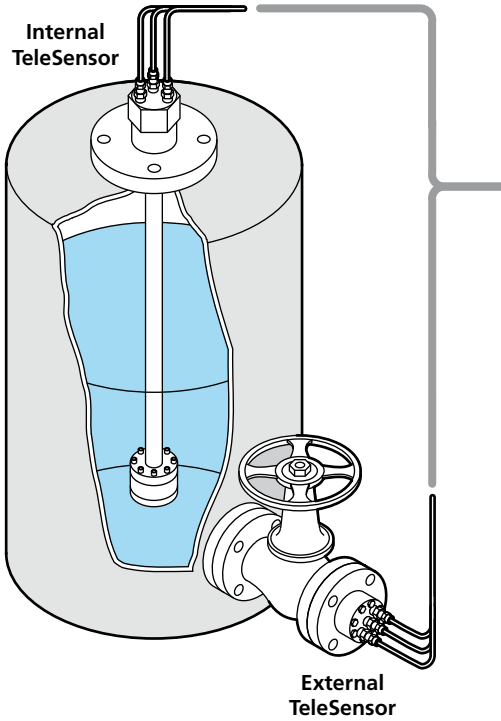
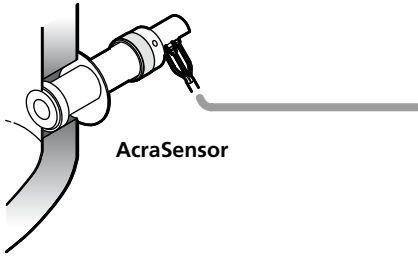
KING-GAGE[®]

Tank Liquid Level Gauging Systems

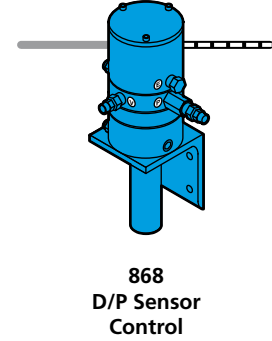
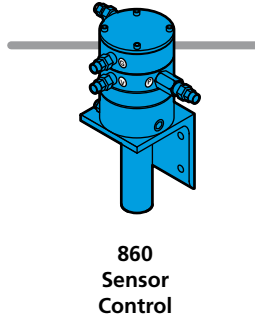
System Components Overview: Sensor and Indicator Options



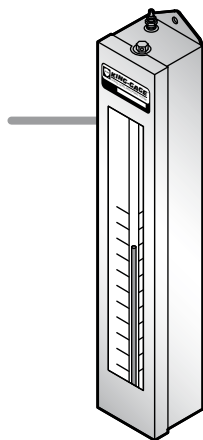
Sensor Options



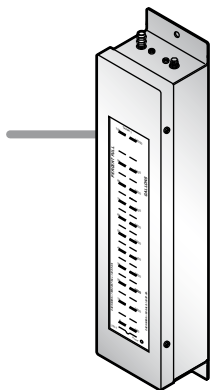
Pneumatic Air Control Options



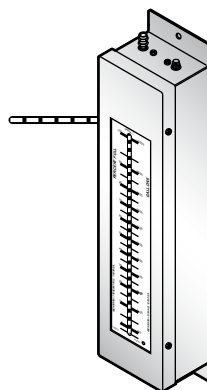
Indicator Options



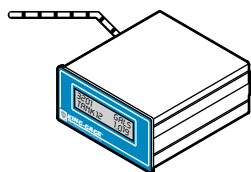
Pneumatic Column Indicator



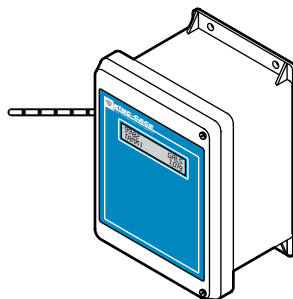
Pneumatic/Electronic LevelBAR Indicator



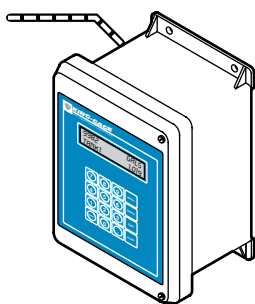
Electronic LevelBAR Indicator



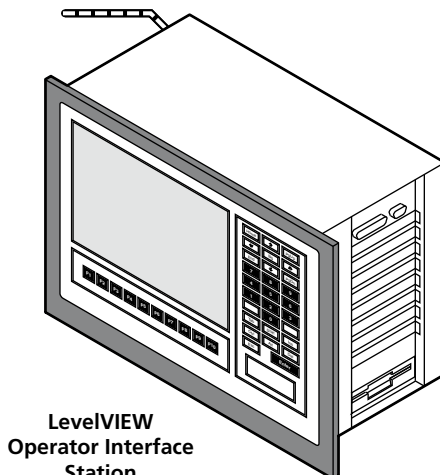
Tank Processor/ Indicator (Panel Mount)



Tank Processor/ Indicator (Wall Mount Enclosure)



LP2 Multiple Tank Indicator



LevelVIEW Operator Interface Station

Regarding Pneumatic Sensors and Controls

Long term reliability and reduced maintenance will result if instrument grade compressed air filters are installed upstream of Sensor Controls or Purge Controls. We specifically recommend a coalescing type 12 or 20 scfm KING Filter in the compressed air supply line feeding the control to prevent oil, water or dirt from fouling the precision system components.



Signal Types

4-20 mA  Output/Input

Pneumatic  Output/Input

4-20 mA - Electronic analog signal based on regulating the electrical current (milliamperes) of a dc (direct current) circuit. The range from 4 to 20 milliamperes is proportional to hydrostatic pressure created by depth of liquid.

Pneumatic - Compressed air flow and the pressure created by the force balance diaphragm or downpipe. Pneumatic pressure is equal to the hydrostatic pressure created by depth of liquid. This is a direct 1:1 signal.

KING-GAGE® Liquid Level Sensors

Pneumatic or electronic sensors work by sensing hydrostatic head pressure created by depth of liquid in a tank. Pneumatic sensors work with an air flow control as a force balance providing a direct 1:1 pressure output. Electronic sensors or D/P transmitters provide 4-20 mA output proportional to the pressure sensed.

AcraSensor™ — a pneumatic force balance diaphragm sensor designed primarily for flush mounting through the tank wall. When flush mounted, meets sanitary requirements of clean-in-place (CIP) installations. Also available for Tri-Clamp fittings or ANSI pipe flange (150-lb class) mounting. Requires the Sensor Control or D/P Sensor Control for operation.

External TeleSensor™ — a pneumatic force balance diaphragm sensor designed for ANSI pipe flange (150-lb class) mounting. Typically installed on available tank outlet or nozzle. Requires the Sensor Control or D/P Sensor Control for operation.

Internal TeleSensor — top mounting pneumatic force balance diaphragm sensor. This configuration extends the diaphragm assembly into interior of tank. Used when only top of tank is accessible or when no suitable openings near tank bottom are practical. Requires the Sensor Control or D/P Sensor Control for operation.

Downpipe Sensor — a length of pipe extends downward into tank suspended by Tank Top Fitting. Purge Control or LiquiSeal Purge Control supplies compressed air flow into the open-ended pipe. Escaping air bubbles through liquid in tank. Requires Purge Control, LiquiSeal Purge Control, D/P Purge Control or D/P LiquiSeal Control.

Electronic Sensor — pressure sensor designed primarily for flush mounting through the tank wall. When flush mounted, meets sanitary requirements of clean-in-place (CIP) installations. Also available for Tri-Clamp fittings or ANSI pipe flange (150-lb class) mounting. Requires 18-32 Vdc power supply (or typically uses 24 Vdc supplied by KING-GAGE indicator) for operation.



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Pneumatic Control Options

Sensor Controls or Purge Controls are required for pneumatic sensor operation. These controls supply compressed air at constant flow rate of 1 cfh (cubic foot per hour). D/P Sensor Controls and D/P Purge Controls include integral D/P transmitters that convert pressure to electronic 4-20 mA output.

D/P Transmitters — Differential pressure transmitters are used to convert pneumatic sensor pressure output into electronic 4-20 mA signal. D/P Transmitter and D/P Module may be used in combination with any pneumatic sensor to provide electronic signal to Digital Tank Processor/Indicators. Also used to provide compatible signals for analog I/O of typical PLCs.

KING-GAGE® Pneumatic Column Indicators

Manometer type fluid filled column indicators display tank level in response to pneumatic pressure generated by sensor and control. Indicator housing is available with single or multiple tank display columns. Overall indicator length corresponds to its applicable pressure range.

KING-GAGE® Electronic Indicators

Electronic indicators are offered with direct digital readouts or graphic level displays. Multiple tank monitoring is possible using either the digital indicator or LevelVIEW operator interface station.

LevelBAR™ — analog multi-segment LED column indicator visually displays tank level. Select from standard 4-20 mA input version or pneumatic input version (with integral D/P element).

LP2™ — direct digital readout of tank level in gallons or pounds (or other units). Digital microprocessor correlates 4-20 mA signal from sensor/transmitter to actual volume of liquid in tank. Calculation is based on a capacity profile factory programmed into memory (SRAM).

LevelVIEW™ System — Operator interface station offers multiple tank monitoring capability with a Windows™ based operating system. It is used in conjunction with individual digital tank processors linked via a RS-485 multidrop communications network. Operating system continuously monitors and displays 80 or more tank levels.