Pepperl+Fuchs GmbH – Lilienthalstrasse 200 – 68307 Mannheim – Germany

Please indicate the following contact information for publication:
Tel.: +49 621 776-2222, Fax: +49 621 776-27-2222, www.pepperl-fuchs.com, pa-info@de.pepperl-fuchs.com

Editorial contact: Christa Blas (extension: -1420, fax: -1108), cblas@de.pepperl-fuchs.com

A winning team!

Level Control Measurement in Water and Wastewater treatment

Pepperl+Fuchs provide a various range of level control sensors for the limit detection and the continuous measurement for applications in water and wastewater industry.

Float switches LFL

Float switches are used for simple limit value recording in liquids. The greater density of the liquid means that the switch floats on the surface of the medium. The float switch is fixed with its cable securing element at a level adapted to suit the process. Tilting motion during rising and falling of the float triggers the switching procedure. Proximity sensors and micro switches are used as switching elements.

The LFL float switch series is used as limit value switches in the form of a sphere or sleeve. LFL thus represents an inexpensive solution for detecting limit levels and signaling leaks to the connected monitoring system.

Vibration limit switch LVL

The piezoelectric-agitated oscillation of a vibrating fork is dampened if it comes into contact with the filling medium. Electronics generate the switching signal on the basis of these changes. The function is independent of changing physical properties of the medium and is not influenced by currents, turbulence, air bubbles, foam, vibration, solid particles or deposits.

The Vibracon LVL limit value switch is a universal filling level limit switch designed for use in all liquid media. Areas of use range from leak detection, pump protection and minimum/maximum monitoring of the medium in the tank to applications at high pressures up to 64 bar and high temperatures up to 150 °C. Its compact construction enables utilization in confined spaces. A special hygienic construction allows its use in food and pharmaceutical applications.

The variety of electronic inserts (relay, NAMUR, thyristor signal output) enables connection to every process control. EEx ia and EEx d combustion protection mean it can be used in potentially-explosive environments.

Conductive probes LKL-P

The conductivity of the liquid filling medium may vary across a broad range. The rising liquid makes the AC circuit (DC current-free) between two electrodes (or electrodes and the metal container) when the fixed filling level limit governed by the installation height is reached. The switching signal is generated from the abrupt increase in current. Acids, Bases and watery solutions are conductive and are therefore detected effectively.

The LKL-P conductive measurement recorder is utilized in liquids from 10 µS/cm onwards for limit level recording and leak detection. Measuring tasks such as overfilling protection, dry running protection, two-point control of pumps or multi-point detection with an existing process connection can be realized, depending on the number of measuring points (up to five rods or cables). The LKL-P probe thus provides flexible instrumentation with integrated electronic inserts (PNP, NAMUR, relay output) for system monitoring as leak indicators.

Hydrostatic measurement principle - LGC probe

The pressure in a liquid increases constantly in relation to the filling height. This hydrostatic pressure is transmitted to the measuring cells via a membrane (ceramic or stainless steel). Foam, the formation of deposits, changing electrical characteristics of a medium and the shape of the container have no influence whatsoever here on measurement value recording.

LGC probe series provide a measuring range of up to 200 m in deep well applications.

Ultrasonic sensors for filling level recording

The filling height is calculated from the time between transmission by an ultrasonic sensor and reception of the echo reflected on the filling medium surface. Chemical and physical properties of the medium do not influence the measurement result. This means that aggressive, abrasive, sluggish and adhesive media can also be measured without any problem. The measuring ranges of LUC-T ultrasonic sensors cover an extremely broad and user-friendly range up to 15 m height difference.

About Pepperl+Fuchs

Pepperl+Fuchs is a leading developer and manufacturer of electronic sensors and components for the global automation market. For more than 60 years, our continuous innovation, high quality products, and steady growth has guaranteed us continued success.

One Company – Two Divisions

Pepperl+Fuchs – PROTECTING YOUR PROCESS

The **Process Automation Division** is a market leader in intrinsically safe explosion protection. We offer comprehensive, application-oriented system solutions, including customer-specific control cabinet solutions for the process industry. A large portfolio of components is available from our various product lines: isolated barriers, fieldbus infrastructure solutions, remote I/O systems, HART interface solutions, level measurement devices, purge and pressurization systems, industrial monitors and HMI solutions, power supplies, separator alarm systems for oil and petrol separators, signaling equipment, lighting as well as emergency shutdown equipment and accessories.

Pepperl+Fuchs – SENSING YOUR NEEDS

With the invention of the inductive proximity sensor in 1958, the company set an important milestone in the development of automation technology. Under the motto “Sensing your needs”, customers benefit from tailor-made sensor solutions for **factory automation.** The main target markets of the factory automation are machine and plant construction, the automotive industry, storage and material handling, printing and paper industry, packaging technology, process equipment, door, gate and elevator construction, mobile equipment, renewable energies.

The division offers a wide product range of industrial sensors whether it’s inductive, photoelectric or ultrasonic sensors, rotary encoders, identification systems, barcodes, code readers for data-matrix-codes and vision sensors.

Key words: Float switches, limit value recording, limit value switches, conductive measurement, limit level recording, leak detection, hydrostatic measurement principle, ultrasonic sensor.

Author: Martin Holdefer
Business Development Manager
Division Process Automation

Characters:	3,408, without space characters
Characters short text:	210, without space characters
Pictures:	No. 57_0489_02, No 57_0490_18, No. 57_0583_06, No. 57_373_03, No. 57_0491_09

June 2010

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Fig. 1: float switch LFL

Fig. 2: Vibration tuning fork LVL-M

Fig. 3: Conductive probe LKL-P

Fig. 4: Level probe LGC

Fig. 5: Ultrasonic sensor LUC-M