Co-operation profile details from Enterprise Europe SEIMED

13 DE 19A7 3S7O - Sensor de nivel de bajo coste para medición a través de la pared exterior de depósitos y tuberías
Technology collaboration OFFER

Abstract
Una empresa alemana ha desarrollado un sensor de nivel basado en una nueva tecnología de flujo de calor que detecta el nivel de líquidos en depósitos y tuberías a través de la pared exterior y sin contacto directo con el líquido. Este sensor permite detectar obstrucciones de tuberías con antelación. Se trata de un dispositivo pequeño y económico que puede emplearse en cualquier tipo de situaciones. El sensor está totalmente encapsulado y no requiere mantenimiento. Se buscan socios interesados en continuar con el desarrollo, fabricar, comprar la patente o licenciar el producto.

Description
The innovative level-sensor is mounted on the outside of a tank or pipeline. In combination with the processor-directed control and display unit, it detects through the outer wall of the container whether the liquid is above or below the level of the range that is to be monitored. When several sensors are used, this makes it possible for the level of the liquid to be registered continuously.

The measurement principle that has been applied is based on the fact that liquid media, by contrast with gaseous media, have a different (higher) thermal conductivity value. The heat flow within the contact surface of the sensor, which is heated differently to a temperature slightly above ambient temperature, serves as a measure of the thermal conductivity of the directly or indirectly adjacent medium – in this case, of the liquid that is being monitored or the gas (air) within the container. The heat flow is independent of the temperature of the ambient air, the temperature of the container and its content. The container wall may be made of steel or stainless steel, aluminium, copper, plastic, rubber, ceramic materials, porcelain or glass, and can be penetrated up to a thickness of around 10 mm.

The sensor can be fixed in place using a simple adhesive, and is self-calibrating once it has been installed. The device is small and is cheap to manufacture, and can be used in all kinds of situations. In its present design the control and display unit includes an acoustic alarm, a three-colour LED display (red = below the sensor, yellow = on the level of the sensor, green = above the sensor – the values can be reversed if required), a relay output for the control (e.g. for a solenoid valve or water pump) and a Bluetooth interface for setting up a network, controlling other actuators and providing a convenient display of the readings and parameters via PC, smartphone or Tablet (Android app).

The sensor is fully encapsulated and requires no maintenance. It can also be integrated with all the necessary system components in a mechanically flexible multilayer foil. This foil can be incorporated on or in the container wall at the time of manufacture, making it suitable for use as a disposable sensor.

Current and Potential Domain of Application: The sensor is suitable for determining the level of liquids in medical technology, in the chemical and pharmaceutical industries, in biotechnology, the food and beverage industries and in the domestic water supply, as well as in a garden, yachting or camping context.

The main area of use envisaged is in connection with water tanks or containers, sewage tanks, oil tanks and collection basins for liquids, including liquid chemicals of all kinds. An important aspect is the possibility of retrofitting existing installations, which can be carried out simply and inexpensively. The sensor can also be used on beer barrels, gas bottles and pressurised containers.

A further area of application is as a throughput sensor for use on metal or plastic pipelines – in particular, as a reliable early warning system for the detection of pipe blockages. Blockages in waste water pipes are generally only detected when the outflow comes to be severely restricted. The cumulative evaluation of the relative service life of the pipes forms the basis for the determination of a trend, and so makes it possible to give advance warning before the pipeline becomes completely non-functional.

Target partner expertise sought:

- Type of partner sought:
- Specific area of activity of the partner: - Type of partner sought:
SME or industry.

- Specific area of activity of the partner:
Manufacturer of pipelines and tanks or sensor producers for pipelines and tanks especially in the medical, chemical, food and beverage, domestic water supply or yachting sector.

- Task to be performed by the partner sought:
Buying of the patent or a licence, further co-development.

Key information:

Country of origin: GERMANY

Listed under: Manufactura Industrial \ Construcción \ Tecnologías de Materiales \ Otras Tecnologías Industriales \ Medición, Pruebas y Normas \ Industria

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