PPS-L SENSOR

Laser flood gate opening degree measurement sensor

PRODUCT DESCRIPTION

It is a laser distance measuring sensor that incorporates electronics able to automatically calculate the distance from a pre-determined target.

OPERATION

The PPS-L sensor was introduced in ETG's proposals to solve problems relating to their PPS mechanical cousins In these mechanical systems, the opening degree of a flood gate is calculated by measuring the linear movement of an object (in this case a flood gate) using a highly flexible steel wire that coils around a reel connected to a potentiometer.

When the flood gate opens and closes, thus uncoiling or coiling this steel wire, fitted with a nylon cover, it supplies an analogue signal through the potentiometer that is proportionate to the linear movement of the wire (and hence to the opening degree of the flood gate).

Like in every system subjected to mechanical friction and wear and tear, the wire level measurement systems are subjected to deterioration. More specifically, this deterioration is tied to the steel wire and to the recovery mechanism, which therefore require periodic maintenance. Following these observations, ETG intends to replace them with the more modern, practical and high performing laser distance sensors.

These sensors offer the perfect combination of operating distance, reliability, precision and price, allowing them to be used in a wide range of applications, including the flood gate degree measuring systems.

Because of their independence from the surface type as regards the structuring or colour of the object to be measured, they contribute to improving the stability and quality of the measurement process.

The sensors are also particularly practical due to their simple and easy installation. Above all, compared to the PPS linear transducers, these new measuring devices require truly limited maintenance.

For the measurement principle, the laser sensor will be pointed in the direction of a stainless steel plate welded to the flood gate.
When the laser beam perpendicularly strikes the plate surface, it will be reflected and received again by the sensor. Once received, the sensor will calculate the sensor-plate distance based on the time elapsed between the sending and the receiving of the reflected signal.
Following the opening or closing of the flood gate, the distance between the plate and the PPS-L sensor will vary, and by measuring this parameter it will be possible to monitor its relevant opening degree at all times.

Sensor operation will be remote controlled. The following types of remote controls can be managed:

- Direct command for opening or closing the flood gate; or lift system on/off the command can be locked for a set time duration, set duration pule, fixed;
- Set Point on the flood gate opening degree or flood gate opening degree to reach;
- Set Point on a hydrometric level: with the specific local hydrometric adjustment algorithm, the peripheral station will move a flood gate to keep the canal level at the required height.

MAIN FEATURES

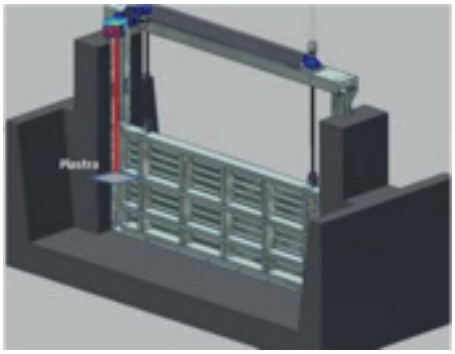
Maintenance-free: as there are no moving mechanical parts, the sensor is not subjected to wear and tear or to any friction and, as such, requires no particular maintenance.

Efficiencies: equipped with an on-board smart unit, the PPS-L sensor is able to measure the distance from the plate installed on the flood gate, and hence its opening degree, with extremely high precision

INSTALLATION

The PPS-L flood gate opening degree sensor is installed in the immediate vicinity of the flood gate to read and is mounted integral with it, and is covered by a special cover to conceal its presence.
A special plate used as the laser ray target will be installed on the flood gate, in a straight line with the sensor emitter.

When the sensor emits a laser ray that strikes this plate, it will receive the reflected signal and calculate the distance of the target, and hence the flood gate opening degree, from the return time.



COMPONENTS THAT CAN BE ADDED OR BE BUILT INTO THE PRODUCT

none

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Versions available	With FS of 10 metres, 6.5 metres and 4 metres
Resolution	1 mm
Accuracy	±10 mm
Light source	Red Laser
Laser lifetime	100000 hours
Minimum recommended input voltage	30 V (AC/DC)
Analogue output	4-20 mA

CERTIFICATIONS AND PROTOCOLS

CERTIFICATIONS	REFERENCE STANDARDS
Vibrations	EN 60068-2-6 / EN 60068-2-64
Shock resistance	EN 60068-2-27