

SRL900 Lidar Radar Level Gauge

MAIN FEATURES

- The divergence angle is small and the direction is good
- Large range, long distance and least blind spot
- Not affected by medium temperature, not affected by temperature change
- Fast measuring speed, suitable for liquid level and material level measurement with fast change
- Simple operation, programmable measurement
- The measurement accuracy and high precision are suitable for the projects with high requirements
- The resolution is ten times higher than that of general instruments
- Small beam angle, suitable for long-distance positioning, avoiding obstacles
- Light beam can penetrate glass window and transparent medium

APPLICATION

- Pharmaceutical production
- Plastic production, high-risk areas for plastics
- Warehousing industry such as crude oil, refined oil measurement
- Cement and aggregates - raw materials, clinker silos, etc.
- Food processing, cereals, seeds and feed, aggregate industry
- Environment and recycling industry, polymerization reactor vessel (high pressure)
- Chemical processing, bio-energy, liquid asphalt, reactor vessel (vacuum), alloy polystyrene, nylon, polyvinyl chloride, etc.
- Pulp and paper, such as pulp pulp pool, sealed pool, white pool, storage tank, storage tower, bleaching tower, etc.
- Mining, metallurgy, colored smelting

OVERVIEW

The SRL900 laser radar level gauge adopts the laser measurement method to measure the material level without contact, and is not affected by the viscosity corrosion of the material. The protection grade reaches IP67 and can be used in a humid environment. The host has an LCD to visually display the liquid level. Observing the position, with a man-machine interface is more convenient to set up, this product has the function of distinguishing the agitator, and can be used very reliably in the working conditions of the reactor crystallizer.

SPECIFICATION

● Laser

Visible laser wavelength: 635nm, <1mW, <15mm@5m, for aiming

Infrared laser Wavelength: 905nm, <0.8mW, 1kHz, 10ns pulse, for measurement

● Measurement

Measuring range: 0.02m~100m (special customizable to 350m)

Resolution: 1mm

Absolute accuracy: ±1cm

● Output

Analog output: 4~20mA (three-wire system), load capacity >300Ω

● Environment

Temperature: -55~150°C,

Storage temperature: -20~70 °C.

Relative humidity: 10~95% RH.

Altitude: 2000m.

Temperature of the measured medium: up to 2000 °C.

Laser level gauge protection rating: IP67.

● Power supply

Power supply: DC24V AC or DC power supply

Power consumption: 1W

● Calibration and operation

Make sure the installation is complete before calibrating the meter.

The zero point, range, setting unit, container height, damping time, and display output can be adjusted through the buttons on the instrument panel.



SECURITY

1. Laser level

1.1. Aiming laser

The laser level gauge is provided with a visible laser and is emitted from the front end of the instrument for aiming at the measured medium. The visible laser is a secondary laser, according to the following criteria:

- IEC60825-1:2001 "Radiation Safety of Laser Products"
- EN60825-1:2001 "Radiation Safety of Laser Products"
- FDA 21CFR Ch.I § 1040:2004 (US Department of Health and Human Services, Federal Regulations)

1.2. Secondary laser products:

Do not look directly at the laser beam and do not aim at others if it is not necessary. The eye instinctively protects the eye by acting like blinking or blinking.

Laser wavelength: 635nm, <1mW, <15mm@5m

2. Warning

Do not open the instrument cover when powering up. Only professional technicians can open the cover for operation, wiring, calibration and programming.

MEASUREMENT PRINCIPLE

The laser level gauge has built-in visible laser aiming at the measured medium, and a built-in high-precision high-resolution timing device measures the round-trip time of the infrared laser between the launch point and the measured medium, then $L = t * c / 2$ (t is the round trip time, c For the speed of light). The laser level gauge is a non-contact measurement. Because the laser can penetrate the glass, the laser level gauge can be well protected and can be used for harsh environment measurement (high temperature, high pressure, high humidity, high dust). Since the laser emission angle is very low (<0.2°), the laser level gauge measures the small space level and allows accurate measurement of irregular surfaces.

A continuous or high-speed pulse laser beam is emitted by a semiconductor laser. The laser beam is reflected on the surface of the measured object, and the light returned is received by the laser receiver. The time difference between laser transmitting and receiving is recorded accurately to determine the distance from lidar to the measured object.

The distance d from the material surface is proportional to the time travel t of the pulse:

$D = C \times T / 2$, where C is the speed of light

Since the distance E of the empty tank is known, the level L is:

$$L = E - D$$

According to the range and full degree information set by the user, the processor calculates the percentage of the current material level, and then outputs analog signals such as 4-20mA or 0-5V, digital signals of RS485 modbus, switch signals of warning and alarm relays, etc. in proportion.

