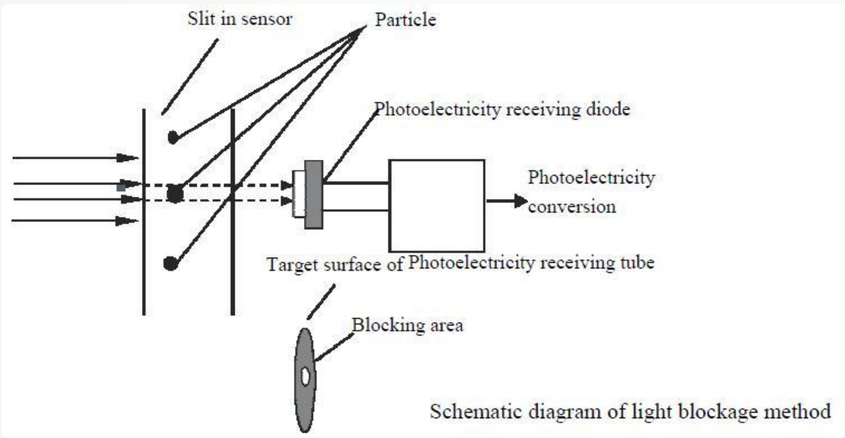
KLED IoT SENSING PVT LTD

KL-PC-2 Online Oil Particle Counter Sensor

- Adopts the light blockage method (photoresistance method) principle
- Can be calibrated as per ISO4402 or ISO11171 standards
- Equipped with a standard serial RS485 interface
- Enables real-time data analysis and monitoring of hydraulic system wear trends
- **KL-PC-2 Online Particle Counter Sensor** is developed based on the light blockage method (photoresistance method) principle. It is used for on-line real-time monitoring of particle pollution in the oil circuit of hydraulic systems. It finds applications in aerospace, aviation, electric power, petroleum, chemical industry, traffic, port, metallurgy, machinery, automobile manufacturing, etc. It can detect solid particle oil pollution in hydraulic oil, lubricating oil, transformer oil, insulating oil, turbine oil, gear oil, engine oil, kerosene, water-based hydraulic oil, as well as particles impurities in organic liquids and polymer solutions.
- Detection Principle:
- KL-PC-2 Online Particle Counter Sensor adopts the light blockage method specified by ISO4402/ISO11171 to test the oil pollution degree. It offers fast detection speed, strong anti-interference, high precision, and good repeatability.
- The light blockage method is illustrated in Figure 2-1. A parallel beam vertically crosses the projected area named A and exposes it to the photoelectric receiver. When no particles are present in the fluid flow circuit, the output voltage is "E". When a particle and its shadow area named "a" flow in the projected area, they block the parallel beam, causing the transmitted light to attenuate. At this point, a negative pulse is generated in the circuit:
- Figure 2-1: Light Blocking Theory



- E = (a/A) × E (2.1)
- If the particle is spherical or described by the equivalent diameter d, and E is equal to 10v, then E = 7.854 × d^2/A (2.2)
- This implies a linear relationship between the projected area of particles and the voltage pulse amplitude.
- It can be used for oil pollution degree detection, including hydraulic oil, aviation kerosene, lubricant oil, transformer oil (insulation oil), steam turbine oil, gear oil, engine oil, and water-based hydraulic oil, etc.

Specification

LIGHT SOURCE	SEMICONDUCTOR LASER
Testing range	1～100μm or 4~70μm ©
Sensitivity	1μm (ISO4402) or 4μm (C) (ISO11171)
Testing Channel	Build-in standard GJB420A-96, GJB420B-06, NAS1638, ISO4406 standard,etc.
Particle size range	1μm, 2μm, 5μm, 10μm, 15μm, 25μm, 50μm, 100μm; 4μm(c), 4.6μm(c), 6μm(c), 10μm(c), 14μm(c), 21μm(c), 38μm(c), 70μm©
Accuracy	±0.5 pollution degree
Online pressure	0～10MPa; 0~40MPa (should with pressure reducing valve)
Detection flow speed	50～300mL/min
Oil temperature	<80°C
Environment Temperature	-30°C～60°C
Storage temperature	-55°C~80°C
Power	DC 9V, 1000mA
Size	100mm*75mm*71mm(L * W *H)
Humidity	Work under relative humidity 20%～85%, no condensation, storage humidity 98%
Interface mode	Standard high pressure hose; Optional internal Dia.4mm and external Dia.6mm low pressure hose

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