

Laser Doppler Speed Meter

In relevant industrial automation production, precise length measurement and precise speed measurement and control are necessary to optimize the production process. This product can effectively improve product quality, product process, production efficiency, and also save the use of material costs.

Due to its "non-contact" measurement characteristics, there is no wear and tear, not only can the maintenance cost of the production line be minimized, but also the reliability and product quality of the assembly line can be significantly improved to ensure that your product specifications are accurate. Greatly reduce production costs, you can improve the company's competitive advantage, will provide you with accurate process control solutions.

The performance of the non-contact Laser Doppler Speed Meter is completely revolutionary and improved compared with the traditional contact speed measuring instrument. From the metallurgical industry and rolling mill products, to textiles, films, paper-making, cables, wires, wood, construction materials, and ink-jet printing, to rail transportation other than industrial production, non-contact laser Doppler Speed Meter The advantages are obvious. For example, in the field of rail transportation, the non-contact laser speedometer avoids speed errors caused by factors such as "idling", "slipping", and "wear". It obtains accurate and real-time speed data by continuously scanning the track, thereby calculating The accumulated mileage of the operation, the control system can grasp the accurate position information of the train in real time, and provide reliable data guarantee for the safe operation of the train.

Features:

- I Using the all-fiber solution, product miniaturization
- I Using high precision and high speed AD sampling
- I High-speed FPGA solution, high precision and low noise
- I Use eye-safe infrared 1550 nm light source
- I Automatic detection of direction, can measure "0" speed
- I Reliable measurement on almost any surface
- I Anti-electromagnetic interference, reliable and stable

Applications:

- I Industrial production
- I Rail transit
- I Metallurgical industry and rolling mill products

Parameter:

- I Minimum measuring speed (m/min): 0
- I Maximum measurement speed (m/min): 20000
- I Unit of measurement: m/s, m/min, ft/s
- I Precision: better than 0.05%
- I Repeatability error: better than 0.02%
- I Direction detection: Automatic direction detection
- I Signal output: AB pulse, RS232, RS422, RS485
- I Power supply voltage: 20 ~ 28 VDC
- I Power consumption: 5W
- I Protection level: IP67
- I Temperature range: 0-45°C (plus protection box can adapt to more harsh environment)
- I Anti-electromagnetic interference level: standard level four

Specifications:

LVJ-II	300	500	700	1000	1500	2000
Measuring distance (mm)	300	500	700	1000	1500	2000
Speed Measurement Range	"0~±1200 m/min"	"0~±3000 m/min"	"0~±8000 m/min"	"0~±12000 m/min"	"0~±20000 m/min"	"0~±20000 m/min"
Measuring depth of field (mm)	35	50	70	100	200	200

Working Principle:

Laser Doppler Speed Meter uses the principle of differential laser Doppler to measure speed. The light emitted by the DFB laser is evenly split into two beams and emitted, and then converges again on the surface of the measured object. The detector receives the reflected light. When the measured object's lateral velocity is zero, the reflected light has the same frequency as the detected light; when the lateral velocity is not At zero, the reflected light will shift in frequency with respect to the probe light $f_p = (2\sin\varphi/\lambda) \cdot v$. The speedometer solves the frequency shift through the fast Fourier transform and obtains the lateral velocity v of the measured object.



Comparative advantages of Laser Doppler Speed Meter:

Comparison of Laser Doppler Speed Meter with Traditional Measurement and Control	
Non-contact Laser Doppler Speed Meter	Contact wheel/ Code counter
No abrasion, no slip, can be accurately measured and controlled in almost all environments	Slippage, abrasion, environment and other factors lead to speed and length errors
High precision, meet various speed control in industry, improve production efficiency	Poor accuracy, too slow and too fast errors
No moving parts, permanent calibration	Calibration, replacement of parts, and maintenance cause downtime, and the cost also increases
Non-contact, will not bring any quality problems to the product	The scratches and damage caused by contact between the contact wheel and the product will affect the quality of the product

Dimension:

