Rotational Speed Sensor DF16

The DF16 photoelectric speed sensor consists of an infrared emitter, optical grating, photodetector, amplification and shaping circuits, filtering circuit, output driver, multiple isolated circuit channels, housing, drive shaft, connector, connection cable, and mounting bracket. It uses the photoelectric effect to convert locomotive speed into a square wave pulse signal according to the formula f=n × p/60. With excellent performance and high stability, it is widely used for speed measurement in various diesel locomotives.

Parameters

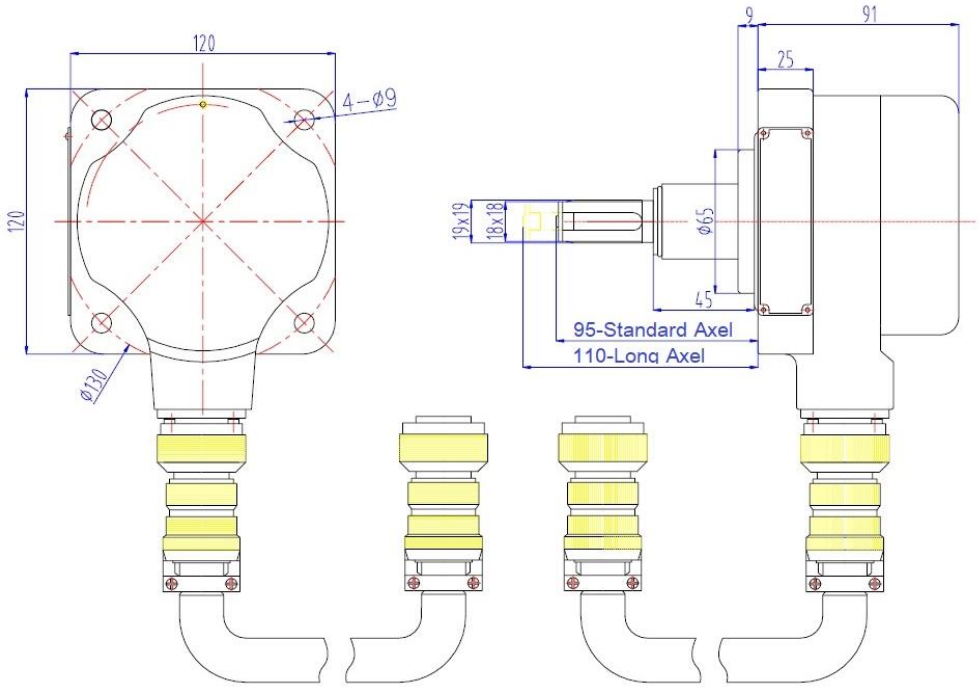
Operating Parameters

- Measuring Range: 0~2000rpm
- Output Channels: 1/2/3/4
- Output Waveform: Square wave
- Pulses per revolution: 200
- Pulse Amplitude: HL≥UB-3V (load resistance≥3000Ω)
  LO≤1V
- Rise/Fall Time: <1μs
- Duty Cycle: 0.3~0.7
- Phase Shift: 90°±45° (viewed clockwise from mounting face)
- Supply Voltage: 10~30VDC
- Current Consumption: ≤35mA per channel
- Operating Temperature: -40℃~+70℃
- Insulation Resistance: ≥20MΩ@500VDC
- Dielectric Strength: 1500V/50Hz/1min (between all output leads and housing)

General Data

- Ingress Protection: IP66
- Housing Material: SUS304 stainless steel
- Protection Features: Supply polarity protection & output short-circuit protection
- Vibration & Shock Resistance: Compliant with GB/T 21563
- Weight: 3 kg

Outline & Interface



- Electrical Connector: JL5-14TJ connector

PIN Configuration

Output Channels	Corresponding PIN configuration for 1/2/3/4 Channel sensors			
	V+	Output	V-	Shield
1	C	B	A	
2	G	E	F	D
3	J	I	H	K
4	N	L	M	

Notes

- Follow the wiring defined in the manual; ensure all connections are correct and free of shorts or open circuits.
- Before installing or commissioning the sensor, apply power and rotate the shaft by hand. Each output channel should toggle between high and low levels — this indicates normal operation.
- Make sure all mounting screws are properly tightened to ensure a reliable connector connection.