HY-COVIE Tunnel Visibility Gas Detector

Introduction

Tunnel is a special kind of tubular structures, due to the small space. Particles and hazardous gas generated by cars will directly affect visibility in tunnel and endanger passengers and maintenance staff personal safety if they are not ventilated out in time. The HY-COVIE is designed to collect real-time monitoring data of VI and carbon monoxide in-situ, and pass those information to traffic supervision departments, so as to provide decision-making basis for tunnel ventilation and road safety.

Features

- High resolution visibility measurement；
- The measurement is completely free from the influence of other stray light sources；
- Specially designed for harsh environment of tunnel;
- Measurement is totally free from vibration caused by environment and moving vehicles;
- Installation,running,maintenance is low cost；
- Multiple output mode, easy for data collection；
- Unique compensation function allows a longer maintenance cycle；
- Non-contact, continuous visibility measurement；
- Using the latest microprocessor technology, fully digitized

Working Principle

HY-COVIE is a visibility detector of transmission principle based, both emitter/receiver and the reflector are installed and fixed alignment using bracket, highly focused optical beam is emitted by emitter then go through 3 meter optical path and reflected by reflector. The actual travel distance of optical beam is double optical path as 6 meters, the attenuation caused by dust is processed as the measured value. According to the requirements of Chinese tunnel construction, the visibility detector should be installed on the top or side wall of the tunnel. HY-COVIE visibility detector has its own compensation function. It can automatically self-compensated when the optical lens is contaminated, therefore, it has longer maintenance period.

Technical Parameters

Items	Visibility	CO(optional)	NO(optional)	NO2(optional)
Working Principle	LED Transmitivity	Electrochemical Cell		
Unit	m^{-1}	ppm	ppm	ppm
Measure range	0--35×10-3 m^{-1}	0–300ppm	0–30ppm	0–10ppm
Optical path	6 meters optical length (installation length is 3 meters)	-	-	-
Accuracy	±0.002 m^{-1}	±2 ppm or 2% span	±2 ppm or 2% span	100ppb
Digital output	RS485			
Compensation	VI has self-calibration and automatic compensation function			
Analog output	two ways 0/4mA- 20mA(internal resistance<500Ω)			
Operational Temp.	-55—65℃			
Ambient humidity	0—100%RH(non-condensing)			
Power supply	220V±15%VAC 50HZ			
Power consumption	Rated 5W, Maximum 10W			
IP Grade	IP65			
Weight	18 kg			

Site Photos