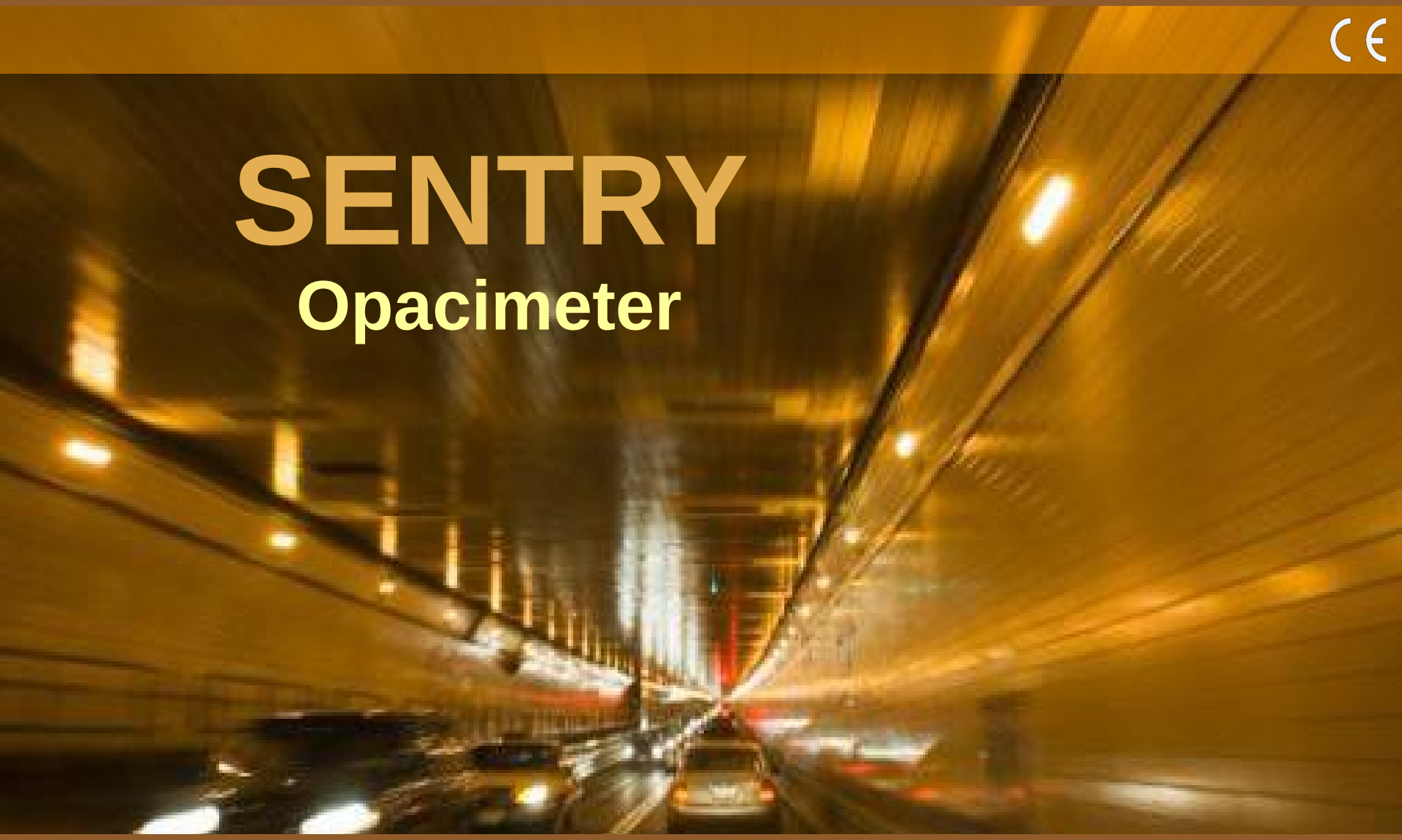
SENTRY

Opacimeter



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I-OPACIMETROSENTRY-v02

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SENTRY Opacimeter

CE

Electro-optic sensor used to measure opacity through suspension dust, gas emissions, smoke, rain, snow, fog, dust and haze.

Its integrated one-piece housing design keeps all cabling internal to the sensor, so that it is fully protected against hard weather conditions.

View of the lens

SENTRY opacimeter has been designed to work in all weather conditions.

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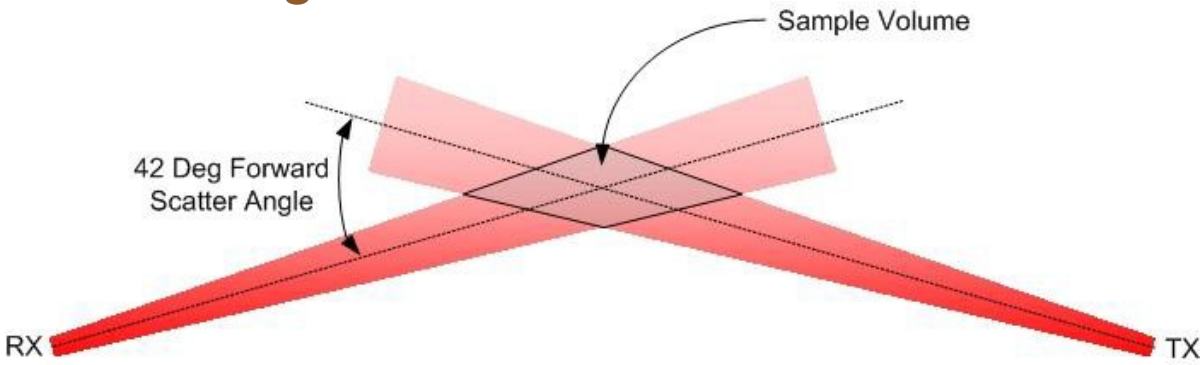
Principle of functioning



SENTRY opacimeter uses the principle of forward scattering.

The infrared light projected from the transmitter (TX) intersects the field of view of the receiver (RX) with a forward angle of 42º. The area of intersection is known as the sample volume.

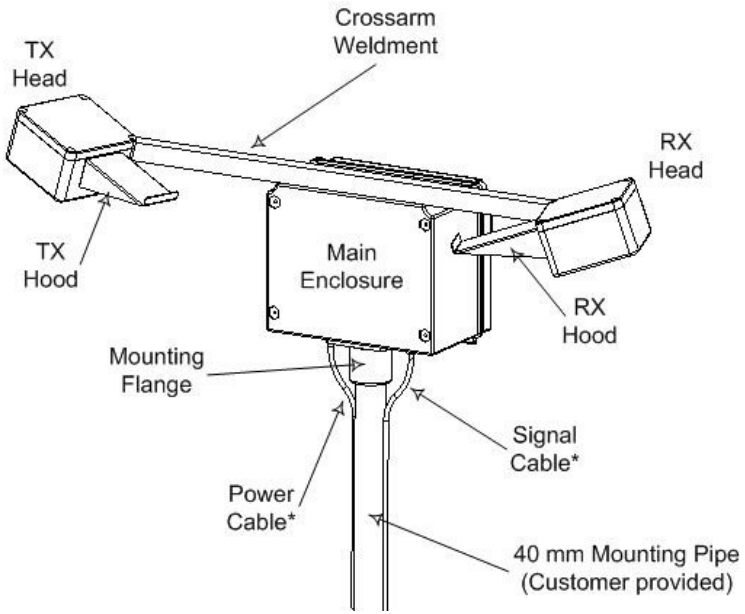
This 42º forward angle ensures performance over a wide range of particle sizes, including smoke, dust, haze, fog, rain and snow.

The sensor uses ”look down” geometry to reduce window contamination and clogging from blowing snow.

Elements of the installation

SENTRY opacimeter can be installed attached to an existing structure or as a stand-alone installation.

Its major components, mounted to a cross arm, are the following:



TX head & RX head : consists of waterproof enclosures which holds the electrical and optical assemblies and a hood to protect the optics from direct sunlight and precipitation.

The Main Electronics Enclosure is also a waterproof cabinet with hinged door for easy access. The mounting flange is attached at the bottom of the main enclosure for attaching the mounting pipe (40mm section). The latter will fix the opacimeter to the floor.

Advantages

- Sentry does not need to be calibrated at installation like other opacimeters.
- Insensitive to external vibrations.
- It uses forward scattering technology (Forward scattering*).

*Back scattering technology implies that light is taken in a backward direction towards a receiver. It is not the most effective method, due that it relays on the weaker energy scattered backwards. Forward measuring, used by SENTRY, is considered to be the most accurate solution, as it measures light in a forward 42º angle, which makes the result to be more precise.

Installation

1. **No professional staff required: “plug & play”**
2. **Use a sturdy pole or pedestal to reduce vibration.**
3. **Locate the sensor in an area that is representative of the surrounding area you wish to monitor.**
4. **Do not locate the sensor near light, smoke, fog or mist sources, unless you are trying to measure the reduction of visibility from these sources.**
5. **Mount the sensor so that the optics are 2.5 - 3meters high above ground level.**

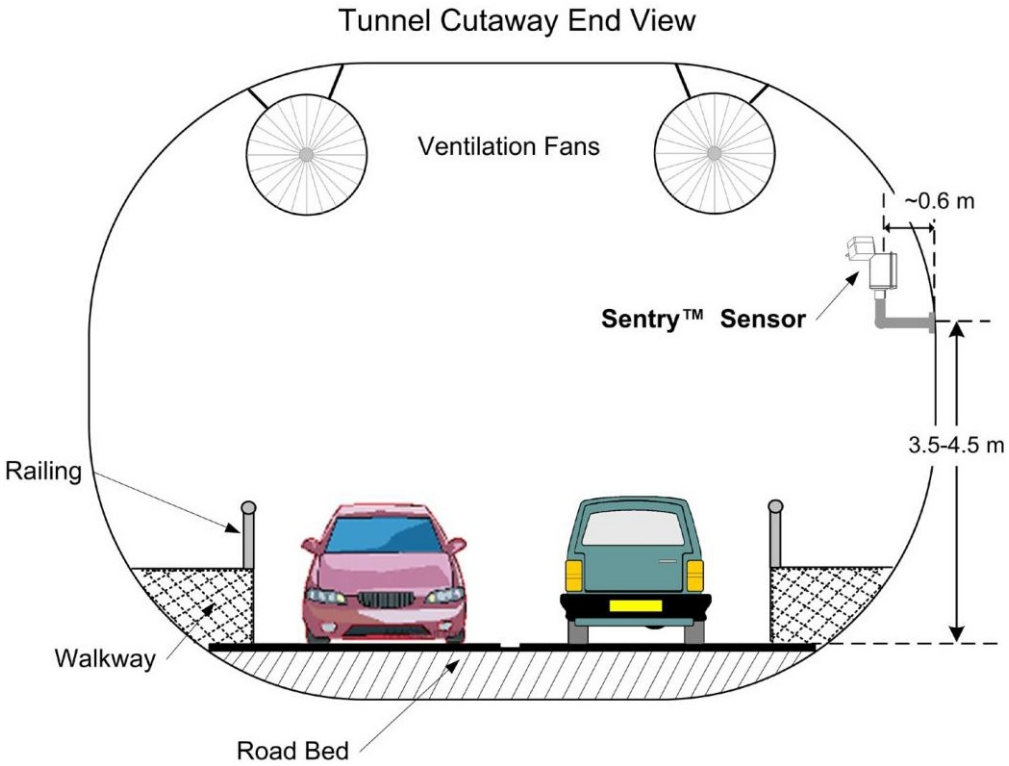
SENTRY opacimeter is initially calibrated at factory:

However, it is recommended that the calibration is checked during field installation, and every 12 months afterwards.

“Just one person” & without specific tools

SENTRY opacimeter is easily installed

Applications: TUNNELS



Ventilation systems

Using SENTRY opacimeter allows ventilation systems to be optimized while reducing energy usage.

Technical Characteristics

Outputs : 4-20mA current loop (isolated)

Control relay optional.

Opacity Range	0-15 x 10-3 m-1
Power:	0-30 VDC
Accuracy:	+/- 10% RMSE Operational +/- 1% Full Scale Calibration
Working temperatura	-40ºC a 60ºC
Spectral sensitivity:	880 nm, Infrared
Protection grade	IP66, NEMA-4X

Surge & EMI protection on all power & signal leads