

# LCS 2400

## SENSORS' SMOKE METER FOR VEHICLE INSPECTION & MAINTENANCE



The Sensors' LCS Smoke Meter is designed to measure the smoke emissions of diesel cars and trucks. The system is designed to meet any current national specification for emission inspection programs for diesel vehicles on the road. It is much smaller and lighter than most of the smoke transducers available on the market today, making it more economical to operate.

The LCS uses the partial-stream measuring technique, which provides for direct and continuous measurement of the smoke sample. The technique measures the amount of light blocked by the sample on a scale of zero opacity to black with zero obscurity indicating no smoke in the sample cell and black indicating that the tube is completely blocked.

The light source is a pulsed green LED with a peak at 560 nm. The detector is a solid state GaAs device and is heated to 45° C to temperature compensate the output signal. The system is controlled by a Motorola MC9S12E64 16bit micro-controller. The LCS software is fully compatible with Sensors' smoke transducers LCS 2000-2200, why LCS 2400 is therefore considered to be a true "drop in replacement" device for those predecessors.

LCS2400 similarity to its predecessors should allow for easy and fast certification in all countries where LCS2000 is approved already.

### **Compliance/Certification**

- ISO 11614
- German (PTB) EO 18-09
- French (UTAC) NF R 10-025
- Spanish (CEM) UNE 82503
- UL 201/CSA
- CE label & TÜV Safety

### **Features**

- Small Size & Weight
- High Reliability
- Proper power detection
- Electric. 50% Linearity Check
- Free accel. & loaded mode (special probe)



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### PRODUCT SPECIFICATIONS:

#### Operating Conditions

Temperature:	5 °C to 40 °C
Humidity:	0 to 95 %
Pressure:	0...10kPa ± 0.2kPa

#### Characteristics

Optical path length:	364 mm (+/- 1 mm)
Tube Temp:	70...100 °C (75 °C typical)
Warm Up Time:	<= 3 min. @ 20 °C
Zero-Drift:	< 0.01 m <sup>-1</sup> over 15 min
Resolution:	N: 0.1 % ; k: 0.01 m <sup>-1</sup>
Gas Temperature Range:	10 – 150 °C
Storage Temperature:	-32 °C to 55 °C
Pneumatic Stability:	± 1.0%
Acoustic Noise:	53 dba
Opacity Accuracy:	± 2% absolute
Reliability:	20,000 hours (MTBF)
Dimensions (H x W x L):	23.5 cm x 38 cm x 9 cm
Weight:	4.5kg (10 lbs)
Software & Communications	9600/19200 Baud rate (selectable)
Communication:	via RS-232 async

#### Power:

Input	230 Vac,, 115Vac or 100Vac available
Line Frequency:	50 or 60 Hz
Output	12Vdc @3A (via com port connector)

### Disclaimer:

Specifications are subject to change without notice.  
While due caution has been exercised in the production of this document, possible errors and omissions are unintentional.