

High performance OEM Gas Analyzer for vehicle diagnostics, inspection and maintenance programs

## 6500 and 6520 Auto Emissions Analyzers

### 6500

- Measures up to 5 gases: 3 via NDIR and 2 via plug-in sensors
- RS232 or USB outputs
- DC pump and solenoid valve drivers
- Analog to digital inputs (2)
- Differential pressure transducer for low flow/leak detection

### 6520

- Same but without the differential pressure transducer



The Andros 6500 series from LumaSense Technologies offers unparalleled accuracy and performance through simplicity of design and implementation. Unlike analyzers that require moving components, the 6500 series uses a pulsed infrared source to achieve high accuracy with high reliability.

The Non-Dispersive Infrared (NDIR) system measures gases, communicates with the host via RS232 or USB and allows user-defined TTL outputs, as well as analog and tachometer inputs which can be integrated into the data output stream for user convenience.

#### Highly Accurate Calibration

Every 6500 system is individually calibrated for operation from 0 to 50°C over the entire range of specified concentrations. The results of this intensive calibration process are stored within each system, providing the most accurate analysis possible. This attention to detail provides a highly

accurate factory calibration of the NDIR analyzer. LumaSense is so confident in our factory calibration that our customers need never calibrate the NDIR analyzer again.

The ANDROS 6500 is designed to meet and exceed both ISO 3930/OIML R99, Class 0 and BAR 97 specifications.

#### High Stability: Rapid Warm-Up

The enhanced optics and electronics of the 6500 has virtually eliminated zero drift. Prior to this breakthrough, frequent zeroing of an analyzer was required during the first half-hour of operation for sensitive measurements. Now, with just two “zeroes” during the first three minutes, the 6500 meets all accuracy specifications.

#### Unique Optical Architecture

The optics of the 6500 series incorporates precision beam focusing architecture. A concentrated infrared beam generated from a proprietary emitter passes through a precision

lens into a cleanable or replaceable gold-lined sample cell that the gas of interest is flowing through. The beam then passes into an optical assembly of highly specialized filters and a unique multi-element detector.

#### Comprehensive Software Architecture

Embedded dual protocol software makes upgrading older products utilizing Models 6230, 6231, 6241, 6231A, or 6241A easy.

All calculations are performed in real time for transmission to your host system. Control of key system devices such as gas flow solenoids and a sampling pump is provided with the ability to accept commands from the host.

## Certifications

### Superior Quality Performance

LumaSense Technologies is committed to a Total Quality Management philosophy and has achieved ISO 9001. In addition, we are certified to ISO13485, the Quality Management System for Medical Device Manufacturers, and MDD, the European Medical Device Directives. LumaSense manufactures all products to this stringent system, ensuring the highest level of quality for all our products. The ANDROS 6500 is ROHS compliant.

### For Current Andros Customers: A Painless Upgrade

Now it will be easy to keep older BAR 90 and OIML Class 1 equipment up to-date with the new BAR 97, ISO3930/OIML R99, Class 0 certified ANDROS 6500. Simply install the new ANDROS 6500 into your existing ANDROS based equipment.

The 6500 not only serves as a drop in replacement for the Model 6602, but with minor mounting modifications

it can replace any of the Model 62XX product line.

No need to scrap old software and hardware when only the NDIR system needs replacing. (While the connectors and software are identical to the older systems, it is possible that a change in wiring lengths or routing may be required depending on your original design).

## Technical Data

Performance	
Response Time	Specified at a sample flow rate of 1 liter per minute through the 6500 sample cell.
Warm-Up Time	30 sec. ready, 3 min. usable; 30 min. to full performance
Data Refresh	1 second
Host Communication	USB or RS232C asynchronous serial 19,200 (default) or 9,600 bps
Electrical	
Power Supply	+12 V DC nominal (+9 to +16)
Power Consumption	1.8 W average @ 12 V DC

Physical Characteristics	
Dimensions	191.8 x 73.7 x 50.3 mm (7.55 x 2.90 x 1.98 in)
Weight	0.3 kg (0.8 lbs)
Environmental Specifications	
Operating Temperature	0 to 70°C (32 to 158°F), accuracy not specified > 50°C
Temperature compensation	Incl. automatically for temp. change > 4°C for O <sub>2</sub>
Operating Humidity	To 95% RH (non-condensing)
Operating Altitude	-300 to 3,000 m (-1,000 to 10,000 ft)

## Specifications

Measurement Method	Gas	Resolution	Measurement Range	Accuracy	Precision	Response Time
NDIR (Non-Dispersive Infrared) on board	HC [as either n-Hexane or Propane]	1 ppm	1 to 2,000 ppm	±4 ppm abs. or ±3% rel.	±4 ppm abs. or ±3% rel.	T <sub>90</sub> & T <sub>10</sub> <3 Seconds
			2,001 to 15,000 ppm	±5% rel.		
			15,001 to 30,000 ppm	+/- 8% rel.		
	CO	0.001%	0.001 to 10.000%	±0.02% abs. or ±3% rel.	±0.02% abs. or ±3% rel.	T <sub>90</sub> & T <sub>10</sub> <3 Seconds
			10.001 to 15.000%	±5% rel.		
	CO <sub>2</sub>	0.01%	0.01 to 16.00%	±0.3% abs. or ±3% rel.	±0.30% abs. or ±3% rel.	T <sub>90</sub> & T <sub>10</sub> <3 Seconds
16.01 to 20.00%			±5% rel.			
Electrochemical sensors via connector	NO <sub>x</sub>	1 ppm	0 to 4,000 ppm	±25 ppm abs. or ±4% rel.	±25 ppm abs. or ±4% rel.	T <sub>90</sub> <5 sec, T <sub>10</sub> <6 sec
			4,001 to 5,000 ppm	±5% rel.		
	O <sub>2</sub>	0.01%	0.01 to 25.00%	±0.10% abs. or ±3% rel.	±0.10% abs. or ±3% rel.	40 seconds

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Rev. B July 2011