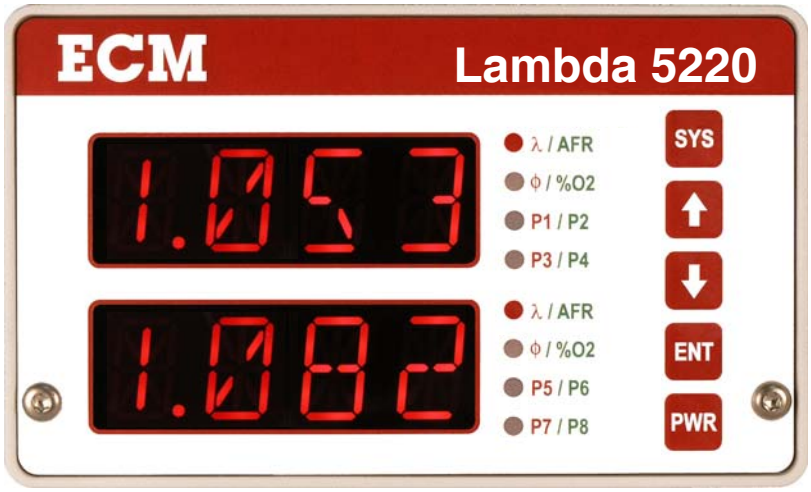
ECM **Lambda 5220**

Lambda Analyzer

Fast measurements of Lambda, A/F Ratio, ϕ, and O_2

For Laboratory and In-Vehicle Use



actual size

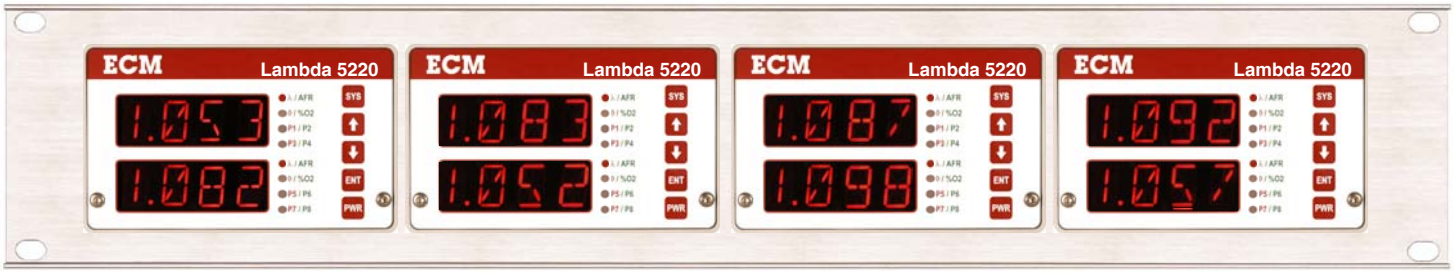
⟶ Analog Out

⟷ CAN

⟷ USB

⟷ RS232

Single Channel • Dual Channel • 2, 4, 6, 8 Channel Rack Mount



Direct-Insertion Wideband Lambda Sensor

NTK and Bosch Sensor Compatible

ECM's Lambda 5220 is a powerful, "next generation" wideband Lambda and O_2 analyzer. In addition to providing outstanding measurement range and accuracy, the Lambda 5220 addresses the two principle sources of error with wideband sensor use: sensor aging and exhaust pressure. All wideband sensors supplied are factory-calibrated and this calibration is stored in a memory chip in the sensor's connector. However with use, sensors can age and when this occurs, the calibration will no longer be accurate. To restore accuracy, the Lambda 5220 can be used to recalibrate the sensors and this new calibration will be stored in the same memory chip. Pressure compensation (P-COMP™) improves accuracy at non-stoichiometric (i.e. $\lambda \neq 1$) and non-atmospheric (i.e. $P \neq 101$ kPa) conditions. For example, a pressure increase of only 34 kPa can cause an error of 0.58 λ at $\lambda = 3$. The Lambda 5220 includes a pressure sensor that measures the exhaust gas pressure to avoid this error.

The Lambda 5220 will work with all NTK and Bosch-type wideband sensors and is programmable for all fuel types (H:C, O:C, N:C, and H_2). Lambda (λ), A/F Ratio, Φ, O_2, and all sensor parameters including pumping current, cell resistance, sensor age factor, and pressure are available for display and output. A second Lambda channel can be added.

The Lambda 5220 is suited for both dynamometer and in-vehicle work. With six analog outputs, CAN, USB, and RS232 communication, the Lambda 5220 can be integrated into any data acquisition system. Distances of up to 100 meters between the sensor and analyzer are possible. To simplify in-vehicle use, the Lambda 5220 can be turned on and off with a signal from the vehicle's ignition switch. This feature along with the analyzer's CAN communication capability make it possible to use the Lambda 5220 in the loop of a real-time emissions control strategy.

Lambda is the most important parameter influencing the emissions, fuel economy, and drivability of combustion engines and it is imperative that it be measured accurately. For more than ten years, ECM has been producing precision Lambda instrumentation for vehicle and engine developers. ECM's Lambda 5220 represents the pinnacle in Lambda and O_2 measurement technology.

Specifications

Ranges	λ 0.4 to 25, **AFR** 6 to 364, **Φ** 0.04 to 2.5, **O_2** 0 to 25%, **Pressure** 0 to 517 kPa
Accuracies	λ ± 0.005 (at 1 λ), ± 0.008 (at 0.8 to 1.2 λ), ± 0.009 (elsewhere) **AFR** ± 0.1 (at 14.6 AFR), ± 0.2 (at 12 to 18 AFR), ± 0.5 (elsewhere) Φ ± 0.005 (at 1 Φ), ± 0.008 (at 0.8 to 1.2 Φ), ± 0.009 (elsewhere) **%O_2** ± 0.2 (0 to 2% O_2), ± 0.4 (elsewhere) **Pressure** ± 5.2 kPa
Response Time	Less than 150 ms
Fuel Type	Programmable H:C, O:C, and N:C ratios, and H_2
Analog Outputs	6 channels, 0 to 5V linearized and programmable for λ, AFR, Φ, O_2, pressure, etc.
CAN	Programmable communication protocol
USB, RS232	Data transfer and control
Power	8 to 28 VDC, AC/DC (optional)
Sensor	18mm x 1.5mm thread (lambda), 1/4" NPT (pressure)
Size and Cable	105mm (W) x 64mm (H) x 165mm (D), 4m cable (std), up to 100m (optional)
Operating Temp.	-40 to +85°C
Options	Second λ / AFR / Φ / O_2 channel, Rackmount Kit (holds up to 4 analyzers / 8 channels), λ sensor simulator, AC/DC Power Supply

ECM ENGINE CONTROL AND MONITORING
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