

ECM LambdaCAN λ /AFR/ O_2 Module with Pressure Compensation



- Wide Measurement Range
- Fast Response
- All Fuels Programmable
- CAN Communication
- Can be Field Recalibrated
- Optional Pressure Compensation
- Optional Display Head
- Environmentally Sealed

ECM's LambdaCAN Module is a powerful, "next-generation" wideband Lambda (and AFR, O_2) measurement module with a CAN interface. In addition to providing outstanding measurement range and accuracy, Lambda CAN addresses the two principle sources of error with wideband sensor use: sensor aging and pressure sensitivity. All wideband sensors supplied are factory-calibrated and this calibration is stored in a memory chip in the sensor's connector. For best accuracy over the life of the sensor, calibration can be quickly performed using ambient air. This recalibration is stored in the memory chip and stays with the sensor. Sensors can be tested and recalibrated in a central location and distributed to users, ensuring consistent results throughout a large test facility. 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 will cause an error of 0.58 λ at $\lambda = 3$. Pressure compensation eliminates this error and enables innovative applications such as % O_2 measurements in intake manifolds. Pressure data is available on the CAN bus.

LambdaCAN will work with all NTK and Bosch-type wideband sensors. It is programmable for all fuel types (H:C, O:C, N:C ratios and H_2). LambdaCAN outputs λ , AFR, % O_2 , pressure, and all sensor parameters including pumping current, resistance, and sensor age factor.

Specifications

Inputs	1 Wideband Lambda Sensor, 1 Pressure Sensor (optional)
Ranges	λ (Lambda) 0.40 to 25, AFR 6.0 to 364, %O₂ 0 to 25 Pressure 0 to 517 kPa, 0 to 75 psia
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) %O₂ ± 0.2 (0 to 2% O ₂), ± 0.4 (elsewhere) Pressure ± 5.2 kPa, ± 0.75 psia
Response Time	Less than 150 ms
Fuel Type	Programmable H:C, O:C, N:C ratios, and H ₂
CAN	High Speed according to ISO 11898
Configuration	Via CAN Bus with Configuration Software. Programmable Node ID.
Module	145mm x 120mm x 40mm, Environmentally Sealed
Environmental	-55 to +125°C, IP67
Sensor Cable	+1m (standard), +2m (optional)
Power	11 to 28 VDC, AC/DC (optional)
Sensor Mounting	18mm x 1.5mm (wideband), 1/4" NPT (pressure)

Ordering Information

LCAN-N6	LambdaCAN with NTK 6mA UEGO Sensor, Add "/P" for optional Pressure Compensation
LCAN-B2	LambdaCAN with Bosch LSU4.2 Sensor, Add "/P" for optional Pressure Compensation
LCAN-B9	LambdaCAN with Bosch LSU4.9 Sensor, Add "/P" for optional Pressure Compensation

Note: Any LambdaCAN module can be used with any sensor. All modules are identical.
The wideband sensor's memory chip will tell the module what sensor is attached.

10-02	1m wideband sensor extension cable
10-03	2m wideband sensor extension cable
10-04	1m pressure sensor extension cable
10-05	2m pressure sensor extension cable
01-02	Optional One/Two-Channel Programmable Display Head with Analog Outputs
12-01	Optional Rackmount Panel for up to four Display Heads (3.5", 89mm)
04-01	Optional AC/DC Supply supporting two Modules and one Display Head

ECM ENGINE CONTROL
AND MONITORING

Los Altos • CA • 94023-0040 • USA • Tel: (408) 734-3433 • Fax: (408) 734-3432 • www.ecm-co.com

Specifications subject to change without notice. Copyright © 2008 ECM. Printed in USA.

ECM_LambdaCANusa10-13-08.pdf

Techniques protected under patents issued and pending.