



T6860 Sensor for Automotive Applications

NDIR T6860 Sensor with Diffusion Sampling

The Telaire T6860 Sensor is a non-dispersive infrared (NDIR) sensor designed for automotive HVAC applications. It detects the presence of potentially hazardous R290 gas in the cabin or underhood, which may result from a refrigerant leak caused by a system failure or a vehicle accident.



Applications

- R290 (Propane) is Flammable
R290 is a highly flammable hydrocarbon refrigerant.
- A leak inside the vehicle cabin poses a serious fire and explosion risk, especially in enclosed spaces with electrical systems.
- In the event of a system failure or vehicle accident, refrigerant lines may rupture.
- A detection sensor alerts the system or occupants early, allowing for preventive measures like:
 - Activating ventilation systems
 - Triggering warnings or automatic shutdowns
 - Preventing ignition sources



Features

- Self calibrating algorithm
- Lin 2.0 output
- Ultra-low power consumption enabled by LED technology
- Highly accurate
- Fast response time
- Selectable power modes
- Mode-based sampling rate
- Compact design
- Wide temperature range

R290 Sensor Specifications

General Performance:

This sensor implements an algorithm to self-calibrate to its ambient environment. The sensor uses readings during fresh air conditions to make the correction. ABC Logic corrects for a variety of use factors including transitions to new environments, change in altitudes, mishandling and aging of the sensor. Data for the algorithm is gathered during normal use of the sensor and corrections are implemented every 504 hours of continuous use.

Accuracy and Measurement Range:

- 0 – 100% LFL R290 +/- 2.5%
- Accuracy +/-5% of reading
- Detection threshold (early warning): 1,000 ppm

Measurement and Sample Rate Characteristics:

- Active Mode: 2 seconds sample rate
- Low Power Mode: 15 seconds sample rate
- Sleep Mode: 5 minute sample rate
- Warm-up mode: 5 seconds after power up
- Warm-up time to full accuracy: 2 minutes

Mechanical

Enclosure

PBT GF15 Black

Weight

5g

Conformal Coating¹

Electronic components are conformal coated.

Environmental:

Operating Temperature Range

-40°C to + 90°C

Storage Temperature Range

-40°C to +110°C

Relative Humidity

0-95% non-condensing

Electrical Characteristics:

Voltage Ratings

Input Voltage: 9VDC - 16VDC
LINbus Voltage: 9VDC - 40VDC

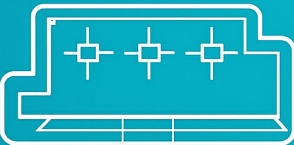
Current Consumption

Active Mode Current (average): 150µA
Low Power Mode Current (average): 30µA
Sleep Mode Current (no measurement): 20µA
Peak Current (max): 100mA

R290 Sensor Specifications (cont.)

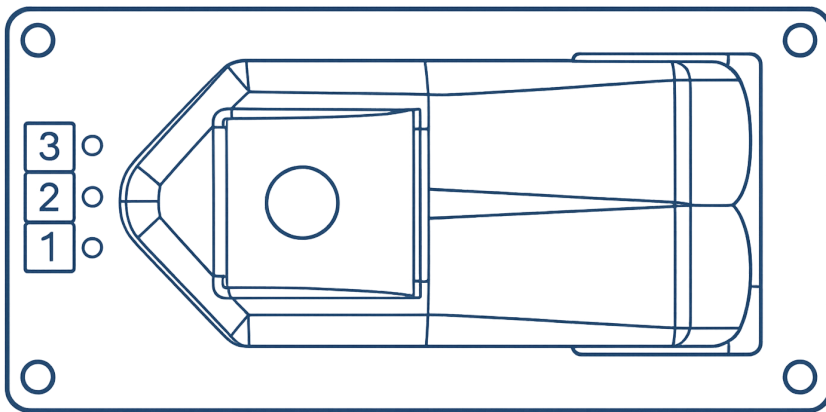
Cable and Connector

Connection

Mating Connectors	TE AMP 4-1718346-1
Socket Configuration	 <ul style="list-style-type: none">1 ~ Ground (Common)2 ~ LIN3 ~ Supply +V
PCB Pads	<ul style="list-style-type: none">1 ~ Supply +V (Square pad)2 ~ LIN3 ~ Ground (Common)

Part No.	Sampling Method	Range	Feature
T6860	Diffusion	0-100% LFL	Sensor with Enclosure
PCB Pads			

Pin layout



LIN Interface

The sensor implements a LIN interface defined by a generic LDF file.

LIN Output Signals



R290
R290 Concentration: 1 ppm Resolution



Alarm Output
Limit-based threshold alarm signal with hysteresis



Error Response
Indicates when a node or frame error is detected.



Diagnostics
Flag used to indicate a diagnostic issue to the host.



Error Response
Indicates when the sensor is ready to take a measurement.

Amphenol Sensors

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