

P R O D U C T S P E C I F I C A T I O N S

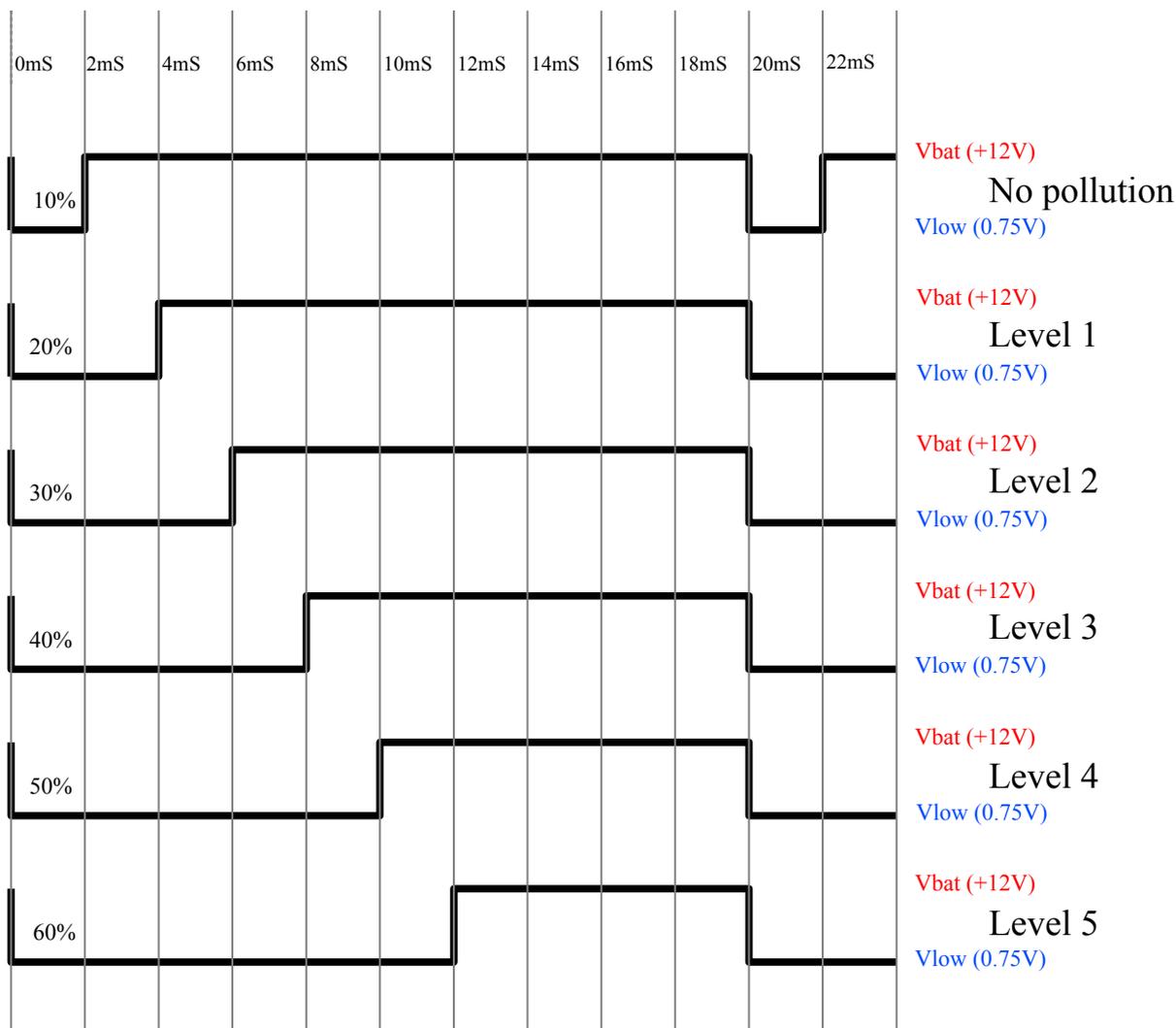
1.5 Output signal

The PWM output signal has the following levels:

PWM level	Meaning
10% ± 2%	Clean air level
20% ± 2%	Level 1: Mild increase in pollution
30% ± 2%	Level 2: Significant increase in pollution
40% ± 2%	Level 3: Medium increase in pollution
50% ± 2%	Level 4: Strong increase in pollution
60% ± 2%	Level 5: Very strong increase in pollution
90% ± 2%	Error...self diagnostic upon car ignition

Output signal frequency = 50Hz

Chart PWM level output:



1.6 Functional validation

As laboratory tests cannot be well correlated to road tests data, due to the complex and unstable chemical composition of exhaust gases, the more representative road test behavior is favored for functional validation purposes even though it is less repeatable than laboratory behavior. Laboratory tests with CO and NO₂ nonetheless remain a necessary part of the validation. Because road tests can never be fully repeatable, the functional validation is a lengthy process requiring a large amount of time on the road with numerous sensors.

A functional road validation is usually necessary before any new car model is equipped with the model. Indeed, the software may need to be adapted to the specific platform HVAC configuration.

1.7 Recommendation for integration in vehicle

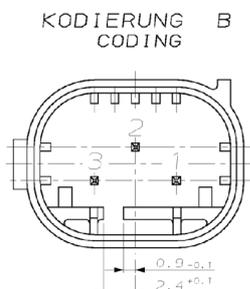
The AQS module must be exposed to a source of external air at all times. The location must be chosen so as to maximize air exchange; dead spaces must be avoided. The best location is in the air intake BEFORE (upstream of) the filter. When the flap is closed, it can create a “pocket” of stagnant air; for that reason, the AQS module should not be too “deep in the duct”.

Preferably, the filtering membrane included in the AQS module should be facing downward. If this is not possible, it should be vertical, but should never be facing upward, to prevent accumulation of dust

If the AQS module is attached with a bayonet to the air intake wall with its body “in the cabin”, the fixation should be sufficiently air tight so that no air from the cabin is pulled in front of the sensor head.

2 Electrical specifications

Connector type	AMP 967642-1 Coding B
Pinout	Pin1: U _{battery} Pin2: Ground Pin3: PWM Signal
Operating voltage	9..16.5V
Nominal voltage	13.5V
PWM frequency	50 Hz ± 5 %
Warm-up time	After max 30s the PWM output is operational
Heat up current	80 mA
Nominal current	70 mA



3 Environmental specifications

Operational temperature	-40°C to 85°C
Storage temperature	-40°C to 120°C
Humidity range	5% - 95% RH
Water tightness on sensor head	IP54
Water tightness on module body	IP54 (or simple clip for lower cost)

- board, assembled by a world class EMS, including the following elements:
 - dual gas sensor(NOx,CO)
 - Nitron family Freescale microcontroller
 - Voltage regulator for power to 12V
 - Circuitry for sensor resistance reading
 - Three connector pins
 - ESD protection components

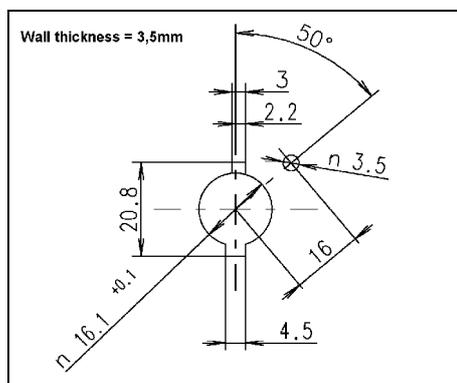
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4.2 External dimensions, weight

39mm x 29.1mm x 27 mm
Weight < 14 g

4.3 Connection interfaces

Bayonet fixing, mating with following interface:



Alternatively, the sensor can be mounted with a standard Delphi-clip (not included).

