

Overview

H Guard is a CAN based sensor that can measure absolute pressure, air temperature, H₂ (Hydrogen), absolute air water content, relative humidity, dew point temperature and 3 axis acceleration.

The configurable CAN bus speed and address along with the supplied CAN DBC file allows easy integration into almost any hydrogen system to detect hydrogen leaks or early battery pack failure due to cell venting or formation of moisture. The unit features a low power mode in which it monitors the environment but does not transmit on CAN unless a threshold is reached at which point it reverts to normal mode. It also features a low side drive function pin capable of 500mA that can be triggered if a wake signal is generated.

The 5-pin automotive rated Molex Nano-Fit Power connector, small size and mass allows easy interface into most vehicles and energy storage systems. The unit is developed in accordance with ISO26262 and has been tested to automotive standards which include: ISO7637-2 2011, ISO 16750- 2 2012 and ISO 16750-4 2010. ATEX rating is in progress.

Pressure Sensor	Range	0.3 to 1.2	Bar
	Resolution	0.0001	Bar
	Accuracy (0.3 to 1.1 Bar)	0.0005	Bar
	Max Update Rate	50	Hz
Air Temperature [1]	Range	-40 to 125	°C
	Resolution	1	°C
	Accuracy	+1 (+2 at 24VDC)	°C
	Max Update Rate	5	Hz
Hydrogen	Range	0 to 20% Vol. concentration	%
	Resolution	0.002	%
	Accuracy	0.4 vol% + 10% m.v.	%
	Max Update Rate	1 (Response Time: $\tau(63) < 1s$)	Hz
Absolute Humidity [2]	Range	0 - 35000	mg/m ³
	Resolution	70	mg/m ³
	Accuracy (Worse Case)	5	%FSS
	Max Update Rate	5	Hz
Dew Point	Range	0-100	°C
	Resolution	0.5	°C
	Accuracy (Worse Case)	+3	°C
	Max Update Rate	5	Hz
Relative Humidity [2]	Range	0-100	%
	Resolution	0.5	%
	Accuracy (Worse Case)	3	%
	Max Update Rate	5	Hz
Accelerometer [3]	Range	-24 to +24	g
	Resolution	0.01	g
	Accuracy (Worse Case)	0.1	g
	Max Update Rate	200	Hz

Connector		
MF (family)	Molex (Nano Fit)	
On Unit	1053131205	
Mating	1053071205	
Crimp	1053001200 (24-26 AWG)	1053002200 (20-22 AWG)
Pin Outs		
Pin No.	Function	
1	Ground	

[1] Air Temperature accuracy is dependent on installation, heat from the sensor itself can affect this

[2] Humidity accuracy valid from 0 to 80 deg C IC temperature and 5 to 95% RH

[3] Not normally fitted, only on variant with accelerometer option selected

[4] The default settings are 500kbps and start address 778 (0x30A), the unit has no CAN termination

[5] The unit uses up to 5 CAN address which are in consecutive order from address that the unit is set to

[6] The function pin is protected to transients up to 40VDC but is not current limited, please ensure load is not above 500mA

[7] The function of this pin is assigned when configuring the unit please refer to the manual

[8] Only the range of 9-16V has been tested to ISO standards. Outside of this range is not tested to ISO standards.

Environment	Operating temperature	-40 to +85	°C
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Mass		15	grams
Dimensions	Height x Width x Length	11.5 x 55 x 63	mm

CAN	Baud Rates [4]	1000, 500, 250, 125	kbps
	Address Range [5]	1 (0x01) to 2042 (0x7FA). Default = 0x30A	decimal (Hex)

Power	Voltage Range	9 to 32 [8]	VDC
	Current (low power)	24mA (0.75mA) (H2)	mA @ 12V
Power – LSD Wake Pin [7]	Voltage Range [6]	9 to 32	V
	Current	500	mA
	Type	Low Side Drive	NA

Part Number Ordering Details

Default Part Number: HGA0P1G1H1V1

