

DrägerSensor® MEC H₂ HC 6800335

Intended Use

Electrochemical diffusion sensor for suitable Dräger transmitters. For monitoring the hydrogen (H₂) concentration in ambient air.

Technical Data

Electrode reactions	
Measuring electrode	$H_2 \rightarrow 2 H^+ + 2 e^-$
Counter electrode	$\frac{1}{2} O_2 + 2 H^+ + 2 e^- \rightarrow H_2O$
Measured gas	H ₂
Repeatability / Accuracy	
Zero	
sensitivity	≤ ± 2 % of measured value
Linearity tolerance	
Loss of sensitivity, per year	
Effect of temperature	
Temperature conditions	-20°C to +50°C (-4°F to 122°F)
zero	± 500 ppm
sensitivity	≤ ± 5 % of measured value
Effect of humidity	
Humidity conditions	10% to 90% relative humidity
zero	No effect
sensitivity	≤ ± 0.1 % of measured value / % r.h.
Effect of pressure	
zero	no effect
sensitivity	
Effect of flow between 0 and 6 m/s	
zero	no effect
sensitivity	± x % of measured value
Drift during a month period	
zero	± 500 ppm / year
sensitivity	≤ ± 3 % of measured value
Ranges	
Max. measuring range	0 - 40000 ppm
Default measuring range	0 - 40000 ppm
Min. measuring range	0 - 3000 ppm
Lower detection limit (LDL)	200 ppm
Display resolution	100 ppm
Capture range	± 200 ppm
Max. Capture range	± 200 ppm
Under range warning	-2000 ppm
Under range fault	-4000 ppm

Technical Data

Alarm thresholds	
A1 Alarm default	8000 ppm
A2 Alarm default	16000 ppm
Alarm response time	
on gas exposure with 5x alarm threshold, t0...20	≤ 15 sec.
on gas exposure with 1.6x alarm threshold, t0...63	≤ 25 sec.
Response time	
Response time t90	
Warm-up-time	
ready for operation after max.	15 minutes
ready for calibration after max.	30 minutes
Accelerated Warm-up-time (Polytron 7000 / 8100)	
ready for operation after max.	NA
ready for calibration after max.	NA
Operation	
Periodical Sensor Self-Test	Polytron 5100 / 6100 and Polytron 7000 / 8100 with respective Dongle every 20 minutes
Orientation	NA
Gas doses limitation	NA
Special considerations	NA
Design	
Sensor Design	electrochemical, 3-electrodes, amperometric
Electrolyte	aqueous sulfuric acid
Material	
black sensor housing	polypropylene (PP)
gasket/ blue gasket	thermoplastic vulcanizate (TPV)
membrane	polytetrafluoroethylene (PTFE)
label	polyester
Filter	
Factory installed filter	None
Optional Filter	None
Useful life	
Expected service life, in ambient air	> 3 years
Limited-service life with surrogate calibration	NA
Guarantee* ¹	1 years

Cross sensitivities**Gases with positive cross sensitivity**

Gas / Vapor	Chemical formula	CAS number	Applied gas concentration	Displayed value in ppm H ₂
Ethine (Acetylene)	C ₂ H ₂	74-86-2	200 ppm	≤ 0,02
Ethen	C ₂ H ₄	74-85-1	1000 ppm	≤ 0,1
Carbon monoxide	CO	630-08-0	1000 ppm	≤ 0,02
Phosphine	PH ₃	7803-51-2	5 ppm	≤ 0,02
Hydrogen sulphur	H ₂ S	7783-06-4	20 ppm	≤ 0,1
Nitrogen monoxide	NO	10102-43-9	20 ppm	≤ 0,05

The following table shows gases and vapors where the effect of the applied concentration on the sensors is below The Lower Detection Limit or gases which will have no effect on the sensor.

Gas / Vapor	Chemical formula	CAS Number	Applied gas concentration	Displayed value in ppm H ₂
Ammonia	NH ₃	7664-41-7	500 ppm	no effect
Chlorine	Cl ₂	7782-50-5	50 ppm	no effect
Hydrogen cyanide	HCN	74-90-8	50 ppm	no effect
Ethanol	C ₂ H ₅ OH	64-17-5	250 ppm	no effect
Carbon dioxide	CO ₂	124-38-9	1,5 Vol. %	no effect
Methane	CH ₄	74-82-8	1 Vol. %	no effect
Sulphur dioxide	SO ₂	7446-09-5	20 ppm	no effect
Nitrogen dioxide	NO ₂	10102-44-0	20 ppm	no effect