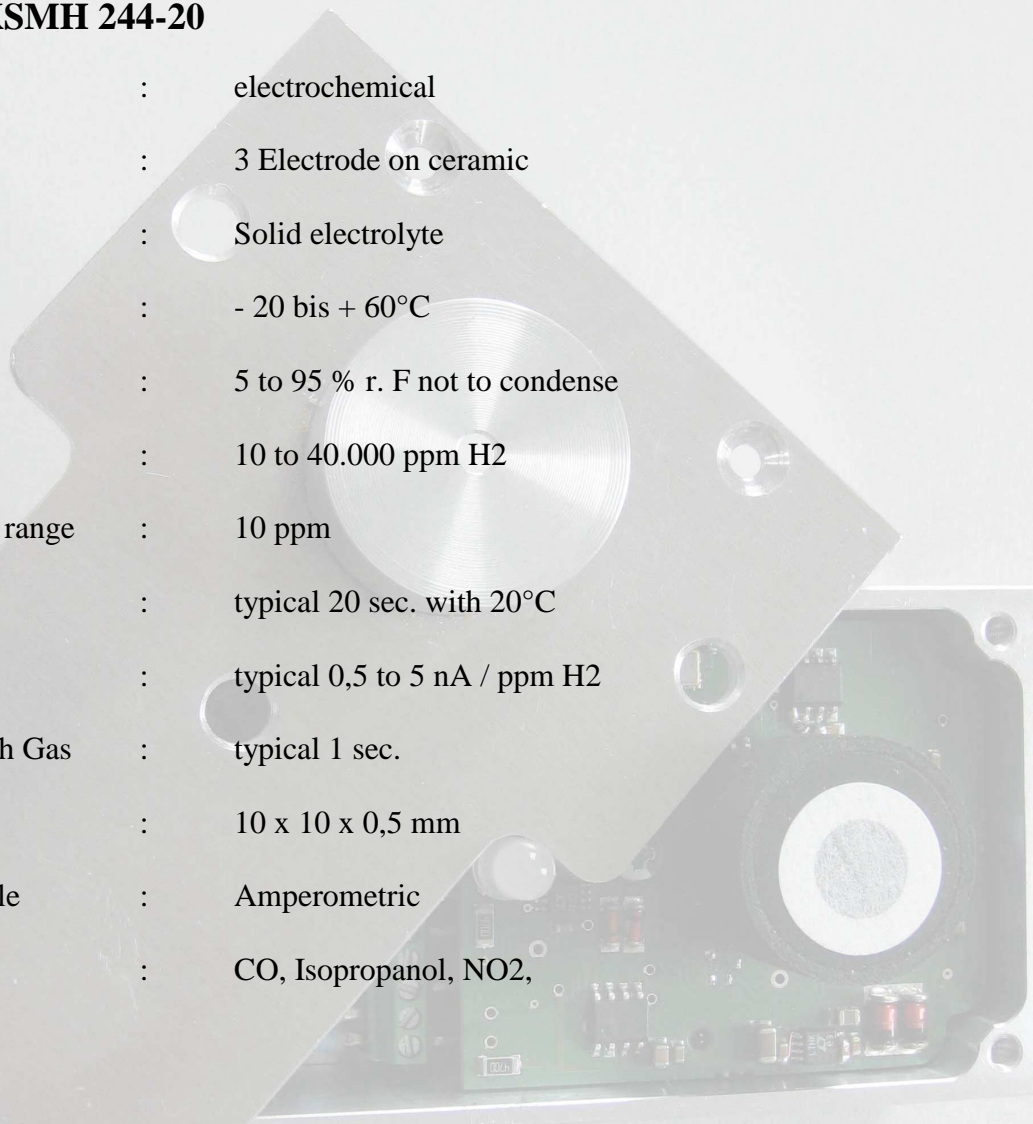


## Specification Sheet for H2 - Sensor with Electronic

Device-Type: KSMH 24-420

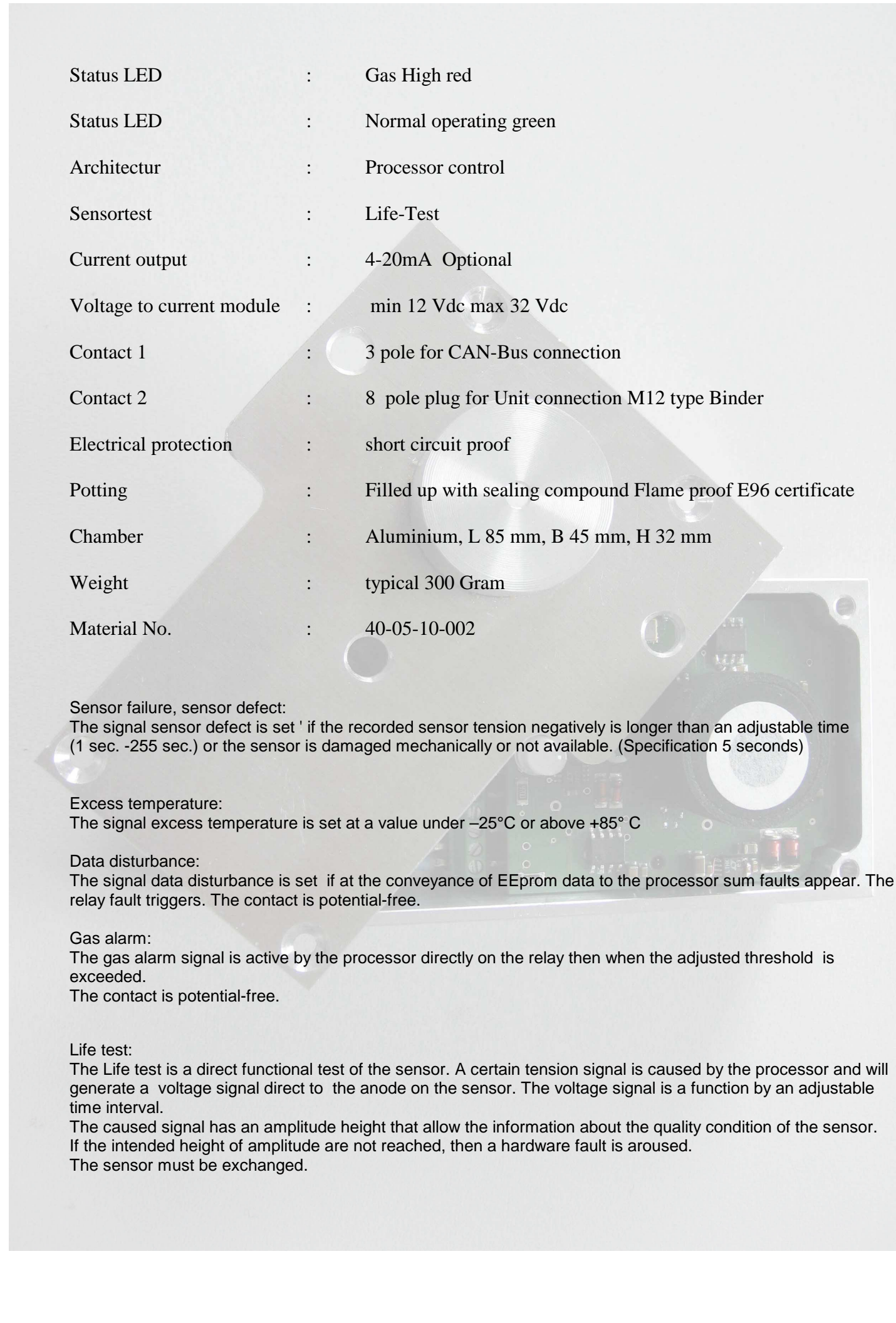
### **H2 – Sensor KSMH 244-20**



Sensor Type	:	electrochemical
Construction	:	3 Electrode on ceramic
Electrolyte	:	Solid electrolyte
Temperatur range	:	- 20 bis + 60°C
Humidity range	:	5 to 95 % r. F not to condense
Measuring range	:	10 to 40.000 ppm H2
Lowest measuring range	:	10 ppm
T 90	:	typical 20 sec. with 20°C
Sensor current	:	typical 0,5 to 5 nA / ppm H2
Time response with Gas	:	typical 1 sec.
Dimension	:	10 x 10 x 0,5 mm
Measuring principle	:	Amperometric
Cross sensitivity	:	CO, Isopropanol, NO2,

### **Electronic**

Voltage supply	:	12 or 24 Vdc
min Voltage	:	10 Vdc
max Voltage	:	27 Vdc
Current consumption	:	typical 65 mA
Temperature range	:	- 20 bis + 80° C
Temperature compensation	:	- 25 bis + 85° C
Alarmrelays 1	:	Gas High potential free contact C, NC
Alarmrelays 2	:	Fault for Hart- und Soft-Ware. Potential free contact C, NC



Status LED	:	Gas High red
Status LED	:	Normal operating green
Architectur	:	Processor control
Sensortest	:	Life-Test
Current output	:	4-20mA Optional
Voltage to current module	:	min 12 Vdc max 32 Vdc
Contact 1	:	3 pole for CAN-Bus connection
Contact 2	:	8 pole plug for Unit connection M12 type Binder
Electrical protection	:	short circuit proof
Potting	:	Filled up with sealing compound Flame proof E96 certificate
Chamber	:	Aluminium, L 85 mm, B 45 mm, H 32 mm
Weight	:	typical 300 Gram
Material No.	:	40-05-10-002

**Sensor failure, sensor defect:**

The signal sensor defect is set ' if the recorded sensor tension negatively is longer than an adjustable time (1 sec. -255 sec.) or the sensor is damaged mechanically or not available. (Specification 5 seconds)

**Excess temperature:**

The signal excess temperature is set at a value under  $-25^{\circ}\text{C}$  or above  $+85^{\circ}\text{C}$

**Data disturbance:**

The signal data disturbance is set if at the conveyance of EEPROM data to the processor sum faults appear. The relay fault triggers. The contact is potential-free.

**Gas alarm:**

The gas alarm signal is active by the processor directly on the relay then when the adjusted threshold is exceeded.

The contact is potential-free.

**Life test:**

The Life test is a direct functional test of the sensor. A certain tension signal is caused by the processor and will generate a voltage signal direct to the anode on the sensor. The voltage signal is a function by an adjustable time interval.

The caused signal has an amplitude height that allow the information about the quality condition of the sensor. If the intended height of amplitude are not reached, then a hardware fault is aroused.

The sensor must be exchanged.

## EEprom Processor Statuscontrol

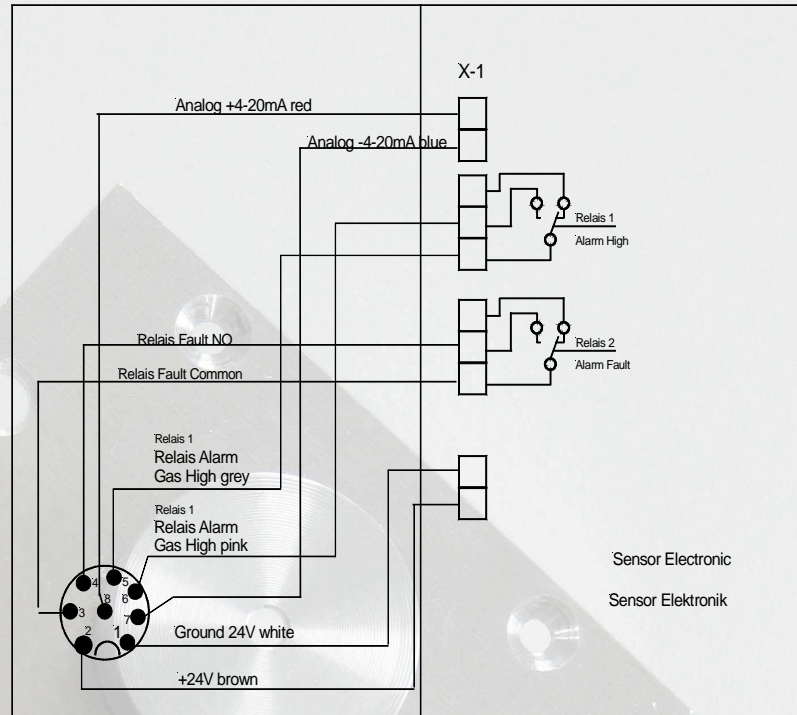
### Bits in Sensorstatus

Bit 7	:	Hardware Error	/	1 = General Hardware fault
Bit 6	:	Kom Error	/	1 = Data fault CAN
Bit 5	:	Flash Error	/	1 = Eeprom-Fault (Abgleichdaten / Programmcode)
Bit 4	:	Sensor Error	/	1 = Sensor casualty / Sensor defect
Bit 3	:	Over Tmp	/	1 = Overtemperatur
Bit 2	:	Analog Error	/	1 = Analog output fault
Bit 1	:	Eich Mode	/	0 = Normal operation / 1 = calibration operation
Bit 0	:	Com Mode	/	1 = communications modus for permanent operation

The sensor and electronics is develop according to the following expectations norms and guidelines:

EN 60079-0:2009 allgemeine Anforderungen, EN 610079-11:2007 Eigensicherheit  
EN 60079-18:2004



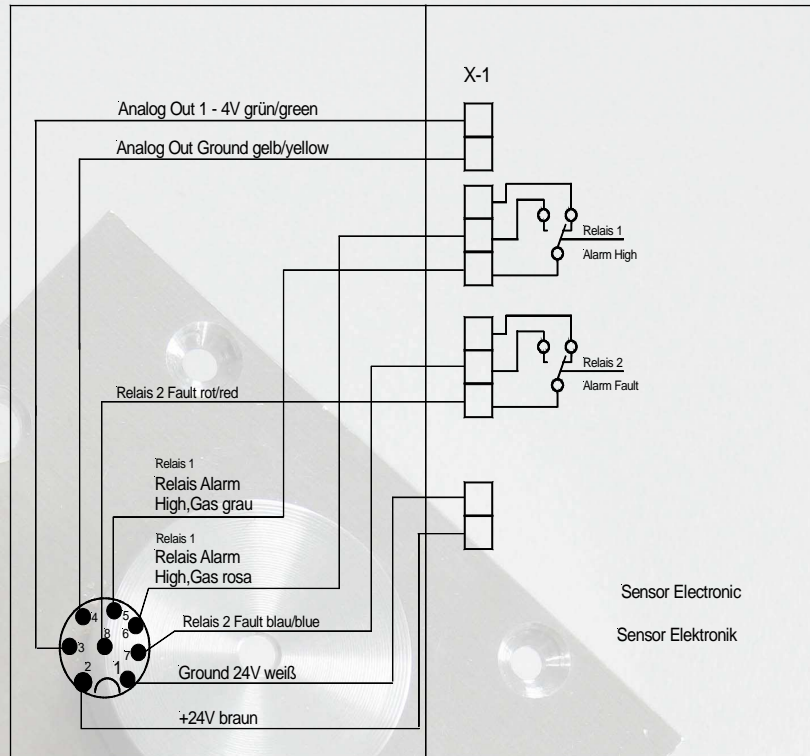


Anschlußbelegung Sensorkabel  
Connecting Sensorcable

Pin Ader- Bezeichnung

Steckbuchse	connecting plug	Pin	Ader- Bezeichnung	Color
		1	Ground 24V weiß	white
		2	+24V braun	brown
		3	Relais Fault Common	green
		4	Relais Fault NO	yellow
		5	Relais Alarm High Common	gray
		6	Relais Alarm High NO	pink
		7	Analog -4-20mA	blue
		8	Analog +4-20mA	red

Material	Revisions Nr.	Datum	Auftrags Nr.	Datum	Firma
			Erstellt von Haag	14.5.009	HATEL GmbH elektronische Anlage
			Geprüft von		Titel Klemmleiste mit Stecker am Sensor
			Geändert von Haag	25.02.2010	
			Zuordnung		Größe A4
			Kunde		Ausgabe 01
Technische Änderung vorbehalten					Zeichnungs N. NSF00100
					Maßstab ohne
					Blatt 1 von



Sensor Electronic  
Sensor Elektronik

Anschlußbelegung Sensorkabel  
Connecting Sensorcable

Pin Ader- Bezeichnung

Steckbuchse	Pin	Ader- Bezeichnung	Farbe	Symbol
connecting plug	1	Ground 24V weiß	white	□
	2	+24V braun	brown	■
	3	Analog 1- 4V + grün	green	■
	4	Analog 1- 4V ground gelb	yellow	■
	5	Relais Alarm High Common grau	gray	■
	6	Relais Alarm High NO rosa	pink	■
	7	Relais Fault Alarm NO blau	blue	■
	8	Relais Fault Alarm Common rot	red	■

Material	Revisions Nr.	Datum	Auftrags Nr.	Datum	Firma		
			Erstellt von Haag	14.5.009	HATEL GmbH elektronische Anlage		
			Geprüft von				
			Geändert von Haag	25.02.2010	Titel Klemmleiste mit Stecker am Sensor		
			Zuordnung		Größe A4	Ausgabe 01	Zeichnungs Nr. NSF00100
Technische Änderung vorbehalten			Kunde	NL	Mißt ab ohne		Blatt 1 von



