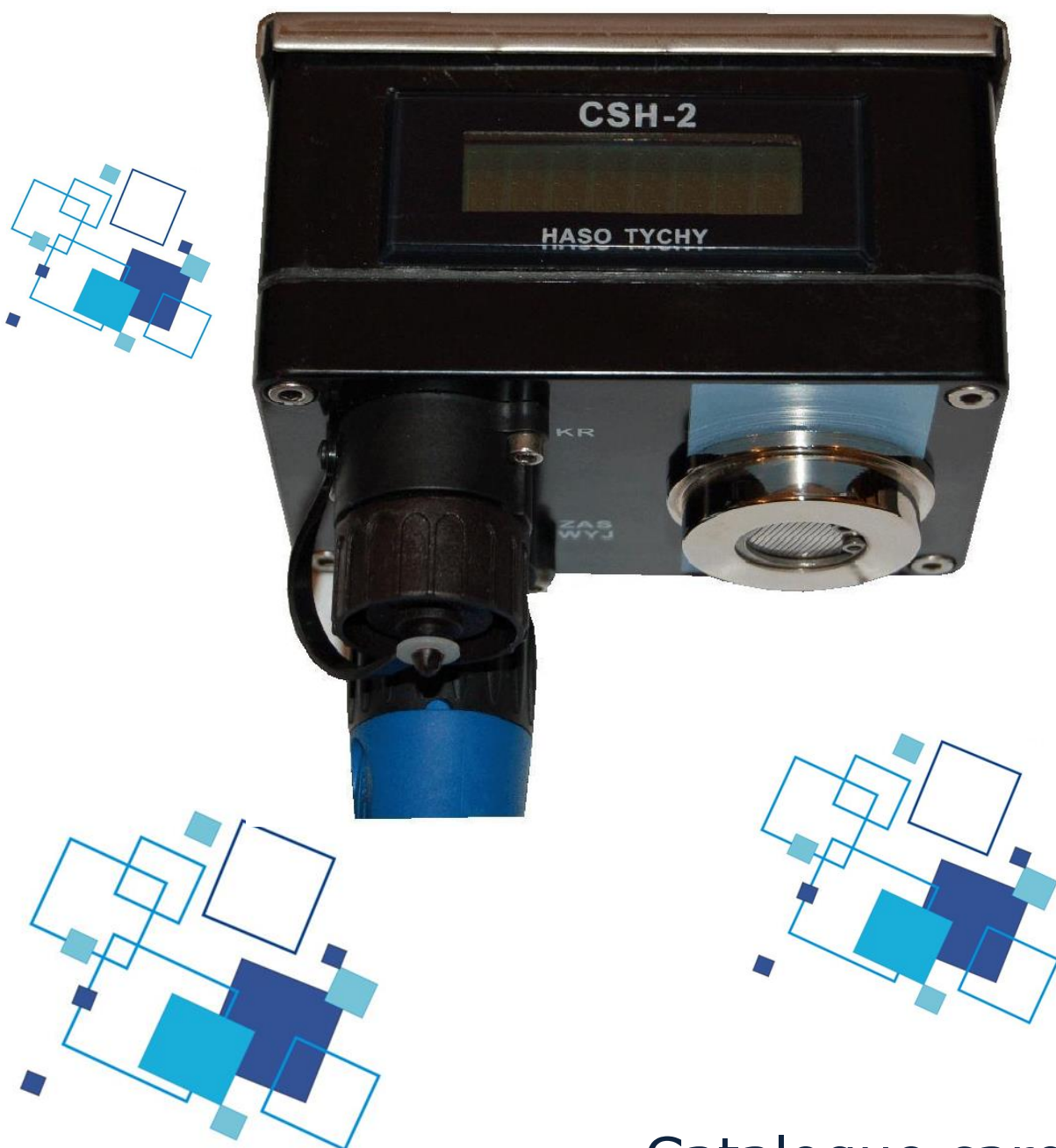


# HYDROGEN CONCENTRATION SENSOR

## CSH-2



Catalogue card



## DESCRIPTION

Hydrogen concentration sensor CSH-2 is a stationary device for measuring hydrogen content in explosion hazard areas in underground coal mines. It cooperates with telemetric central station type CST-40, CST-40A or CST-40C through analogue station CSA-1 and CSA-2. It may also cooperate with other devices provided that the terminal of the feeder-measurement line is compatible.

The CSH-2 sensor measures the hydrogen content in the atmosphere in the range of 0.1% H<sub>2</sub>, 1% H<sub>2</sub> and 4% H<sub>2</sub> (depending on the version). It is power-supplied from an intrinsically safe source with voltage of 12 V. The measured and processed value of H<sub>2</sub> concentration is sent to analogue output which generates a signal of 0.4 to 2V. Additionally, by modulating the analogue value, the output may also work in serial digital mode transmission. The sensor operation in digital mode enables sending (via the CSA-1 or CSA-2 station) the serial number of the sensor and other diagnostic information.

The CSH-2 sensor is a device of M1 category and may thus be used in all underground mines with possible methane or coal dust explosion hazard.

## BASIC TECHNICAL PARAMETERS

Hydrogen concentration sensor CSH-2	
Power supply	from 9,5 to 14.5 VDC (nominal 12 V DC)
Power consumption	max 4 mA
Output operation modes	As analogue output 0.4-2 V for digital with unidirectional serial transmission.
Versions sensor	0,1% H <sub>2</sub> with a measuring range of 0 to 0,100 % H <sub>2</sub> (0 ÷ 1000 ppm H <sub>2</sub> ) 1% H <sub>2</sub> with a measuring range of 0 to 1,000 % H <sub>2</sub> (0 ÷ 10000 ppm H <sub>2</sub> ) 4% H <sub>2</sub> with a measuring range of 0 to 4,000 % H <sub>2</sub> = 100% DGW (0 ÷ 40000 ppm H <sub>2</sub> )
Precision	± 0,003% (± 30 ppm H <sub>2</sub> ) for 0÷0,1% H <sub>2</sub> range ± 0,025% (± 250 ppm H <sub>2</sub> ) for 0÷1% H <sub>2</sub> range ± 0,100% (± 1000 ppm H <sub>2</sub> ) for 0÷4% H <sub>2</sub> range
Resolution	0,001% H <sub>2</sub> (10ppm H <sub>2</sub> ) for all versions
Measurement method	Continuous
Response time t <sub>50</sub>	≤ 40s for 4% H <sub>2</sub> version ≤ 50 s for 0,1% H <sub>2</sub> version ≤ 110 s for 1% H <sub>2</sub> version ≤ 60 s for 4% H <sub>2</sub> version
Working position	Sensor inlet from the side or the bottom (recommended)
Scaling method	Calibrator KR-2
Working temperature range	from -10 °C to + 40°C
Relative humidity range	from 15% to 95% without condensation
External dimensions	110 x 75 x 80 mm
Weight	0,65 kg
Casing internal protection	IP-54
Power supply, connector "ZAS WYJ" pins 1 and 2	U <sub>i</sub> = 16 V I <sub>i</sub> = 150 mA P <sub>i</sub> = 2,4 W C <sub>i</sub> , L <sub>i</sub> – negligible
Output, connector "ZAS WYJ" pins 3 and 4	U <sub>o</sub> = 5,4 V I <sub>o</sub> = 32 mA P <sub>o</sub> = 0,11 W C <sub>i</sub> = 8,3 μF L <sub>i</sub> – negligible
Calibrator, connector "KR" pins 1 and 2	U <sub>i</sub> = 7 V I <sub>i</sub> = 21 mA P <sub>i</sub> = 0,4 W C <sub>i</sub> , L <sub>i</sub> – negligible

## EXPLOSION-PROOF MARK



I M1 Ex ia I

EC type examination certificate: KDB 13 ATEX 0052