

BASIOX CONTROLS – HYDROGEN (H₂) SENSOR

H₂ Sensor

Model Series: BC-H₂- Ex-XXX



INTRODUCTION

Hydrogen (H₂)

Hydrogen, the lightest and most abundant element in the universe, is a colorless, odorless gas with the symbol H and atomic number 1. It plays a crucial role in various fields, from energy production to chemical industries.

Hydrogen has the lowest atomic weight of all elements. It burns readily in the air, producing water vapor. It can exist in various forms, including gas, liquid, and solid states. It's the most abundant element in the universe, primarily found in stars and interstellar gas clouds.

ENVIRONMENTAL SUSTAINABILITY

The Basiox H₂ sensor, which monitors Hydrogen (H₂), plays a significant role in environmental sustainability by enabling better monitoring and management of hydrogen emissions and indoor air quality. H₂ sensors contribute significantly to environmental sustainability by facilitating emissions monitoring, enhancing energy efficiency, improving indoor air quality, and supporting data-driven strategies aimed at reducing greenhouse gas emissions. Their implementation is a proactive step toward a more sustainable future, helping communities and industries align with global carbon reduction goals.

TECHNICAL FEATURES

- ▶ **Comprehensive Monitoring via Mobile and Web Applications:** Provides detailed, real- time information on gas concentrations and environmental conditions through both mobile and web interfaces.
- ▶ **Automated Alerts and Safety Notifications:** Delivers immediate alerts and safety recommendations to users when gas levels exceed predefined thresholds, enhancing safety and response times.
- ▶ **Historical Data Visualization:** Allows users to access historical sensor data with customizable graphical displays in hourly, daily, weekly, and monthly formats, facilitating trend analysis and environmental assessment.
- ▶ **Cloud-Based Data Storage and Integration:** Sensor data is securely stored in the cloud, ensuring easy access and seamless integration with other applications through Modbus RS485 or API-based protocols.
 - Inbuilt Memory Backup: Equipped with onboard memory to prevent data loss during network outages, ensuring uninterrupted data logging and integrity.
 - Precision Calibration: Each device undergoes span calibration to maintain accurate measurements and reliable performance over time.
- ▶ **Seamless Integration with Air Quality Control Systems:** Compatible with a wide range of air control systems, allowing for automated adjustments and improved air management based on real-time sensor data.

APPLICATIONS

Environmental Monitoring for Individuals, Government Agencies, Facility Managers, and Healthcare Providers.

TECHNICAL SPECIFICATIONS OF MODEL NO: BC-H2-Ex-XXX

WORKING PRINCIPLE	Solid Polymer – Electrochemical Technology
MEASUREMENT RANGE	0 PPM to 1,000 PPM
MINIMUM DETECTION RANGE	3 – 4 meters in radius

CONNECTIVITY	
DATA INTERVAL	5 to 60 minutes- configurable
DATA-PUSH PROTOCOL	HTTPS post request to host-server
DATA-PULL	HTTPS request on device IP

DATA SECURITY

DEVICE/APP	HTTPS Protocol
DATA OVER THE NETWORK	TLS Secured- AWS Certificate
SENSITIVE DATA: PHONE, EMAIL	AES Encryption

DEVICE FEATURES

CALIBRATION & VALIDATION	Auto calibrated/Factory Calibrated
DISPLAY TYPE	WebApp/Mobile App
DEVICE INTERFACE	On-device Software/API
SOFTWARE CAPABILITY	SarTHHM Cloud Platform (in-house on AWS server) and on premise
DEVICE SUPPLY VOLTAGE	Preferably 5 VDC - 1 Amp
POWER CONSUMPTION	5 Watt/hour- 3.6 KW/month
DIMENSIONS	110mm x 110mm 70mm
OPERATING AMBIENT TEMPERATURE	-20 °C to 60 °C
DATA STORAGE	Inbuilt memory backup, up to 24h
OPERATING HUMIDITY	-0-95% RH
DATA OVER THE NETWORK	TLS Secured- AWS Certificate
BODY MATERIAL	Flameproof / Atex Enclosure
DEVICE/APP	HTTPS Protocol
ADDITIONAL OUTPUT	Volt Free Contact
COMMUNICATION	4-20 mA/ LoRaWAN / ModBus RTU/ WiFi
MOUNTING METHOD	Space / Duct

LoRaWAN CHIPSET SPECIFICATION

FREQUENCY	860-930 MHz
CHIPSET	Semtech (SX1262) + STM (STM32L)
MODULATION	FSK and LoRa Modulation
ANTENNA	External Antenna
OPERATING TEMP. RANGE	-40°C to +85°C
DIMENSION	10.0mm X 8.0mm X1.6mm
INTERFACE VOLTAGE (VDC for VIO)	3.3 VDC
SUPPLY VOLTAGE	2.2V - 3.6V for VDD_MCU, VDD_RF, VDD_TCXO
TRANSMIT MODE CURRENT	118mA @22dBm setting
TRANSMIT POWER	Up to +21.5dBm
RECEIVE MODE CURRENT	15.5mA @125kHz BW
RECEIVER SENSITIVITY	-135.5dBm @1% per 125kHz BW, SF=12
HOST INTERFACE	I2C / UART / USB / SPI
COMPLIANCE	RoHS
TECHNOLOGY	LPWA
CERTIFICATIONS	FCC / IC / CE / MIC / KC / NCC / ANATEL

REGULATORY COMPLIANCE

CERTIFICATIONS	CE, RoHS
DISPOSABILITY	Dispose of the sensor in accordance with local electronic waste disposal regulations to minimize environmental impact.