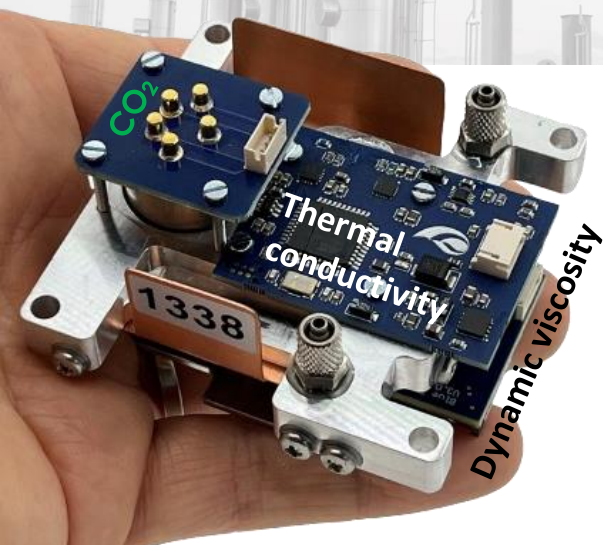


BlueEye™ Ex-D



DATASHEET



BlueEye™ Ex-D Specifications

Reported values	Units	Reference conditions	Applied correlation standards
Gross Calorific Value (H _s)	MJ/m ³ , kWh/m ³	0/0°C, 15/0°C, 15/15°C,	NIST AGA-8
Net Calorific Value (H _i)	BTU/scf,	20/20°C, 25/20°C, 25/0°C at	ISO 6976:2016
Gross Wobbe Index (W _s)	Therm/scf	101325 Pa and 60°F	GPA 2172:2019
Net Wobbe Index (W _i)		at 14.65, 14.696, 14.73 and	
Density ρ	kg/m ³ , lbm/scf	15.025 psi absolute	
Air Fuel Ratio λ	-	Volume, 20.946% O ₂	Simplified method
Methane Number	-	-	ISO 23306:2020 and EN 16726:2015
CO ₂ & H ₂ concentration ^{1 2}	mol%	-	Proprietary methods

Accuracy	≤ 1% of reading
Repeatability	≤ 0.2% of reading ³
Dynamics	One measurement every 1s, reaction time T90 < 30s

Gas Composition Range					
CH ₄	70-100 mol%	Higher Alcanes	0-1 mol%	O ₂	≤ 3 mol%
C ₂ H ₆	0-20 mol%	N ₂	0-15 mol%	H ₂ O (Gaseous)	≤ 0.1 mol%
C ₃ H ₈	0-5 mol%	CO ₂	0-3 mol% (20/100 mol%) ¹	Dust, Liquids	Without
C ₄ H ₁₀	0-3 mol%	H ₂	≤ 0.5 mol% (30 mol%) ²	H ₂ S	≤ 0.01 mol%
H_s addressable range		27.52 to 50.40 MJ/m ³ (15°C/15°C)			
Environment temperature		0 to 50°C, 32 to 122°F			
Operating gas pressures		950 to 1100 mbar absolute , 13.78 to 15.95 psi absolute			
Flow rate		30 ml/min (+/- 10%), 0.001059 scf/min (+/- 10%) ⁴			


¹ only for BlueEye™ Ex-D **Renewable** & **Ultragreen**

³ unfiltered 1 second cycle measurement

² only for BlueEye™ Ex-D **Hydrogen** & **Ultragreen**

⁴ flow rate range customizable on request

Electrical and Mechanical Specifications

Interfaces	Modbus RTU (RS485), analog output (4-20mA current loop)
Supply Voltage	24V, < 2W
Dimensions and Weight	140mm x 135mm x 125mm and 2.6kg, 5.51in x 5.32in x 4.92in and 5.7 lbs
Gas Connections	2 x 1/4" NPT (Female)
Certifications	CE, IECEx, ATEX  II 2 G Ex db IIC T6 Gb, cLCus

Environment Conditions

Operating Temperature	-20°C to 70°C, -4°F to 158°F
Storage Temperature	-40°C to 70°C, -40°F to 158°F
Environment Humidity	0-95 % Relative Humidity, non-condensing
Burst Pressure	350 mbar gauge , 5.07 psi gauge

BlueEye™ Ex-D Dimensions



BlueEye™ Ex-D Installation P&ID



Wire ID

1: +24V	3: 4 – 20 mA-	5: RS-485_A	7: RS-485_Y	9: GND
2: -24V	4: 4 – 20 mA +	6: RS-485_B	8: RS-485_Z	

BlueEye™ Ex-D 4-20 mA Current Loop Output

The current loop output and range can be user defined via the Modbus registers.

Selectable Measurement Output				One of Parameters: H _s , H _i , W _{l,s} , W _{l,i} , ρ, ρ rel., Z, AFR, s-AFR, MN, CO ₂ , H ₂							
Default Output Range Definition				Default ranges per table below. Customization range possible via Modbus.							
Output	Ref Con	Range	Units	Output	Ref Con	Range	Units	Output	Ref Con	Range	Units
W _{l,s}	00/00	32 - 63	MJ/m ³	HHV	00/00	26 - 58	MJ/m ³	LHV	00/00	23 - 53	MJ/m ³
W _{l,s}	15/00	32 - 63	MJ/m ³	HHV	15/00	26 - 58	MJ/m ³	LHV	15/00	23 - 53	MJ/m ³
W _{l,s}	15/15	30 - 60	MJ/m ³	HHV	15/15	25 - 55	MJ/m ³	LHV	15/15	22 - 50	MJ/m ³
W _{l,s}	20/20	29 - 59	MJ/m ³	HHV	20/20	25 - 54	MJ/m ³	LHV	20/20	22 - 49	MJ/m ³
W _{l,s}	25/00	32 - 63	MJ/m ³	HHV	25/00	26 - 58	MJ/m ³	LHV	25/00	23 - 53	MJ/m ³
W _{l,s}	00/00	9 - 18	kWh/m ³	HHV	00/00	7 - 16	kWh/m ³	LHV	00/00	6 - 15	kWh/m ³
W _{l,s}	15/00	9 - 18	kWh/m ³	HHV	15/00	7 - 16	kWh/m ³	LHV	15/00	6 - 15	kWh/m ³
W _{l,s}	15/15	8 - 17	kWh/m ³	HHV	15/15	7 - 15	kWh/m ³	LHV	15/15	6 - 14	kWh/m ³
W _{l,s}	20/20	8 - 17	kWh/m ³	HHV	20/20	7 - 15	kWh/m ³	LHV	20/20	6 - 14	kWh/m ³
W _{l,s}	25/00	9 - 18	kWh/m ³	HHV	25/00	7 - 16	kWh/m ³	LHV	25/00	6 - 15	kWh/m ³
W _{l,s}	60/14.696	805 - 1610	BTU/scf	HHV	60/14.696	670 - 1480	BTU/scf	LHV	60/14.696	590 - 1342	BTU/scf



BlueEye™ Ex-D Modbus Output

The BlueEye™ Ex-D output can be individualized via Modbus. The output configurations are:

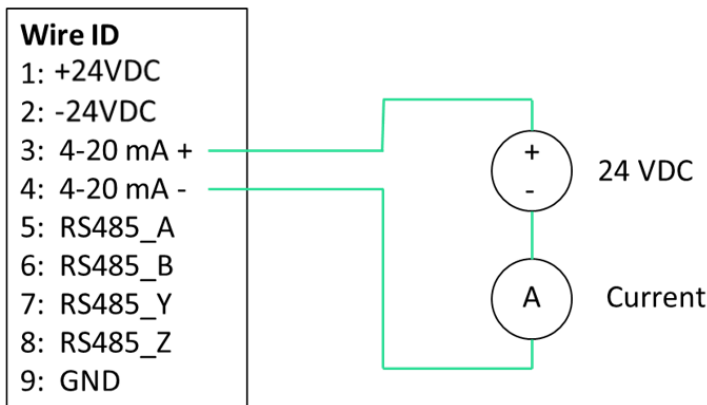
Reported values	H_s, H_i, W_{l,s}, W_{l,i}, ρ, Z, s-AFR, MN, CO₂ mol% and H₂ mol% Temperature, Absolute Pressure
Selectable Reference Conditions	0°C/0°C, 15°C/0°C, 15°C/15°C, 20°C/20°C, 25°C/0°C, 25°C/20°C, 101325 Pa and 60°F, 14.65 psi, 14.696 psi, 14.73 psi and 15.025 psi
Output granularity	Default 1 second values. Customizable: Moving average (2 to 10.000 measurements), Hourly average

BlueEye™ Ex-D Wiring

Wire ID	Description	
1, Black	Power supply	+24 VDC
2, Black	Power supply	-24 VDC
3, Black	4-20 mA Current Loop	+
4, Black	4-20 mA Current Loop	-
5, Black	T+	RS-485_A
6, Black	T-	RS-485_B
7, Black	R+ (D+)	RS-485_Y
8, Black	R- (D-)	RS-485_Z
9, Yellow/Green	GND	Ground

BlueEye™ Ex-D Wiring Schematics

The BlueEye™ Ex-D features a passive 4-20 mA current loop.



The BlueEye™ Ex-D is configured for full-duplex (4-wire) and half-duplex (2-wire) RS485 Modbus.

