

# BID SPECIFICATION

## MERIDIAN UNIVERSAL GAS DETECTOR

### Product Description

Meridian is a SIL-2 compliant universal gas detector for toxic and combustible gas detection. It is available in 2-wire, 3-4 wire configuration with standard 4-20 mA and MODBUS output. It also supports HART, Wireless HART, and ISA 100.11A wireless communication protocols. It has built in alarm, fault relays with event logging and provides a user friendly graphical LCD display configurable with a non-intrusive magnetic switch.

### Certifications

Global Approvals	IECEX, cCSA <sub>US</sub> , ATEX, INMETRO, EURASIAN CUSTOMS UNION, CHINA EX, CCCF, RCM, FCC, INDUSTRY CANADA, CE, ANATEL, MARINE DIRECTIVE - SHIP'S WHEEL, ABS SIL-2 (Third Party Certification by TUV-Rheinland)
Area Classification	Class I Div. 1 Group ABCD, Class II Div. 1 Group EFG, Class III Equipment Group I/II, Zone 0/20 & Zone 1/21, IIC

### Environmental

Operating Temperature	-40° to 167° Fahrenheit / -40° to 75° Celsius
Humidity	5-95% RH (non condensing)
Storage Temperature	-67° to 167° Fahrenheit / -55° to 75° Celsius

### Transmitter Specification

Power	2 wire, 3 wire, 4 wire
Operating Voltage 3/4 Wire	10-30 VDC (24 VDC nominal)
Operating Voltage 2 Wire	18-30 VDC (24 VDC nominal)
Power Consumption	2.2 - 3.2 Watts based on sensor configuration Add 2.6 Watts to any configuration if heated display is used
Enclosure Material	Copper Free Aluminum 316 Stainless Steel
Enclosure Ingress Protection	NEMA 4X, IP66
Conduit Connections	3/4" NPT (M20 thread adapter available)
Communication Protocols	Standard: 4-20 mA, Modbus Optional: HART, Wireless HART, ISA100.11A
Maximum 4-20 loop load Ohms (@24 VDC)	840 Ohms non isolated current source 680 Ohms current sink
Alarms	3 programmable alarms with set and reset (adjustable deadband); 1 fail safe system fault
Relays	4 Form C relays, rated 5 Amp at 30 VDC/240 VAC, resistive loads
Display	Graphical LCD display visible in bright sunlight; Display indicates Sensor Name, Gas Name, Full Scale of Range, Gas Concentration, Fault, Alarm Status, Trend Graph WITH selectable time scale showing current reading, set points and full scale. Display provides simple, intuitive calibration instructions and guides user through the calibration process.
Languages	English, Portuguese, French, Spanish, Chinese, Russian

User Configuration Control	Transmitter GUI, HART hand-held Communicator, Modbus
Access Control	Transmitter provides controlled access to sensor range, alarm settings and other safety functions; password protection for secure configuration control
Memory	Non-volatile memory ensures configuration parameters are retained in the event of power loss
Accessories	Rain shield/Deluge Guard, Flow Cell, Calibration Adapter, Duct Mount Kit, Sun Shield, Universal Mounting Adapter Plate
Flexible Design	Flexible design allows for ease of calibration without the need to remove instrument components
Weight	6.5 lbs/3 kg (Aluminum enclosure) 11 lbs/5 kg (Stainless Steel enclosure)
Wiring	Transmitter accept industry standard 2-wire, 3-wire, or 4-wire inputs
Flexible Mounting Option	Transmitter provides multiple conduit entry points for sensor, power, signal, and relay wiring
Mounting Flange Surface Area	6.50"x5.78" / 165mm x 147mm (Aluminum Enclosure)
	7.00"x5.25" / 178mm x 133mm (Stainless Steel Enclosure)
	4.72"x4.92" / 120mm x 125mm (Aluminum Junction Box Enclosure)
Mounting Bolt Holes	Diametrically opposed 5.85"; 0.315" / 149mm; 8mm holes (Aluminum Enclosure);
	Diametrically opposed 6.25"; 0.300" / 159mm; 8mm holes (Stainless Steel Enclosure);
	Diametrically opposed on 45° angle, 4.5"; 0.315" / 114mm; 8mm holes (Aluminum Junction Box)
Pipe Threads	3/4" NPT (M20 thread adapter available)

### Sensor Specification

Universal Detector Head	Detector head accepts all sensor types
Sensor Types	Combustible: Catalytic Bead, Infrared Electrochemical: Standard and Scott Rock Solid sensors Solid State: Metal Oxide Semiconductor (MOS)
Number of Sensors	Supports up to 3 sensors per transmitter
Sensor Replaceable Under Power	Sensors can be replaced under power without declassifying the area
Automatic Sensor Voltage Adjustment	Sensor voltage is automatically detected and adjusted by the transmitter during installation
Simple Plug & Play Sensor Install	Plug and play design allows for one hand sensor installation
Remote Calibration	Sensor can be bench calibrated and then installed in field without additional re-calibration on site; Available Duct Mount calibration kit makes it easy to perform calibration on remote transmitter installations that are difficult to access
User Selectable Range	Sensor offers multiple sensor ranges allowing user to select the specific range for their application requirements without the need to recalibrate the sensor
Range Invariant Calibration	Sensor range can be changed without recalibration
Sensor Refurbishment	Smart sensor electronics and snap fit housing makes it possible to refurbish sensor at the end of its useful life
Environment Friendly	Environment friendly sensor design allows for reuse of sensor electronics and housing with simple kernel replacement

### Supported Gases

*Instrument supports the following gases:*

Gas Type	Sensor Type	Range
Acetone	Combustible	0-100% LEL
Benzene	Combustible	0-100% LEL
Butadiene	Combustible	0-100% LEL
Butane	Combustible	0-100% LEL
Ethane	Combustible	0-100% LEL

**Supported Gases Continued***Instrument supports the following gases:*

Gas Type	Sensor Type	Range
Ethanol	Combustible	0-100% LEL
Ethylene	Combustible	0-100% LEL
Hexane	Combustible	0-100% LEL
Hydrogen	Combustible	0-100% LEL
Isobutanol	Combustible	0-100% LEL
Isopropyl Alcohol	Combustible	0-100% LEL
Methane	Combustible	0-100% LEL
Methanol	Combustible	0-100% LEL
Methyl Ethyl Ketone (MEK)	Combustible	0-100% LEL
Pentane	Combustible	0-100% LEL
Propane	Combustible	0-100% LEL
Propylene	Combustible	0-100% LEL
Toluene	Combustible	0-100% LEL
Xylene	Combustible	0-100% LEL
Ammonia	Toxic	50, 100, 250 300 500 ppm
Arsine	Toxic	500, 1000 ppb
Boron Trifluoride	Toxic	10 ppm
Boron Trifluoride	Toxic	5, 15 ppm
Bromine	Toxic	1, 10 ppm
Carbon Dioxide	Toxic	0-5% v/v
Carbon Monoxide	Toxic	50, 100, 150, 500, 1000 ppm
Chlorine	Toxic	1, 3, 5, 10, 20, 30 ppm
Chlorine Dioxide	Toxic	1, 3, 5 ppm
Diborane	Toxic	1 ppm, 5 ppm
Fluorine	Toxic	1, 3, 5, 10, 25 ppm
Germane	Toxic	1000 ppb
Hydrogen	Toxic	1, 4% v/v
Hydrogen Bromide	Toxic	1, 5, 10, 30 pp,
Hydrogen Chloride	Toxic	1, 10, 25, 50, 100 ppm
Hydrogen Cyanide	Toxic	10, 25, 100 ppm
Hydrogen Fluoride	Toxic	1, 5, 10, 30, 100 ppm
Hydrogen Sulfide	Toxic	10, 25, 50, 100, 200 ppm
Methanol	Toxic	500 ppm
Methyl Mercaptan	Toxic	3, 10 ppm
Methyl Iodide	Toxic	25 ppm
Nitric Oxide	Toxic	50 ppm
Nitrogen Dioxide	Toxic	10, 20 ppm
Oxygen	Toxic	10, 25% v/v
Ozone	Toxic	1, 3 ppm
Phosphine	Toxic	500, 1000 ppb
Silane	Toxic	1 ppm, 10 ppm
Silicon Tetrafluoride	Toxic	5 ppm
Sulfur Dioxide	Toxic	1, 3, 10, 25, 50, 100, 500 ppm
TEOS	Toxic	50 ppm
Tungsten Hexafluoride	Toxic	1, 3 ppm

Warranty	
Transmitter	2 Years
Catalytic Bead Sensor	2 Years
Infrared Sensor	5 Years
Electrochemical Sensor	2 Years (CO, H <sub>2</sub> S, O <sub>2</sub> ) 1 Year (all other electrochemical sensors)
MOS Sensor	18 Months

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