OmniPoint™ technical specifications

General specifications	
Description	The OmniPoint transmitter is a comprehensive gas detection solution designed to operate in hazardous locations and support multiple sensors in the detection of toxic, oxygen, and flammable gas hazards.
Material	Enclosure: Five-coat marine finish painted aluminum alloy or 316 stainless steel
Weight	Transmitter (enclosure only): Aluminum alloy: 2.48 kg (5.47 lb). 316 stainless steel: 5.37 kg (11.84 lb) Transmitter with display module: Aluminum alloy: 2.78 kg (6.12 lb). 316 stainless steel: 5.70 kg (12.50 lb) XPIS sensor module with cartridge: 0.80 kg (1.76 lb) XP sensor module with cartridge: 0.69 kg (1.52 lb)
Mounting	Can be mounted to flat wall surfaces of various types or to pipes using the optional pipe mount kit. The pipe mount kit allows the transmitter to be mounted to pipes from 2 in to 6 in (50 mm to 140 mm) in diameter and includes the pipe mount bracket, carriage bolts, nuts, and lock washers. The transmitter is configured with five cable/conduit ports built into the housing for wiring and mounting sensors.
Cable entries	Four conduit/cable entries (two right, two left, one bottom). Entry size M25 or 3/4 in NPT One top entry (M22) for optional Bluetooth antenna.
Environmental	
IP rating	IP66/IP67 in accordance with IEC/EN 60529. NEMA 4X
Operating temperature	-55°C to 75°C (-67°F to 167°F)
Operating humidity	0% to 99% RH (non condensing)
Operating pressure	90 kPA to 110 kPa
Storage conditions	-55°C to 75°C (-67°F to 167°F), 0% to 99% RH (non-condensing)
Electrical	
Input voltage range	12 Vdc to 32 Vdc (24 Vdc Nominal) (Catalytic or IR) and XPIS (EC CEll) sensors and 18 Vdc to 32 Vdc (24 Vdc Nominal) Optima
Power consumption	Transmitter : Normal 4.5 watts, Max 8.5 watts XPIS sensor (EC cell) : Max 0.3 watts XP sensor (Catalytic or IR cell) : Max 1.7 watts Max consumption is 17W for Optima + 2 XP (CB) sensors
Visual	3 in (76 mm) circular high resolution, full color, TFT display Four capacitive touch keys that provide navigation and other functions LED ring indicator surrounding the 3 in (76 mm) circular display indicates the device status (Normal operation: Green, Alarm: Red, Fault/Warning: Yellow, Wireless communication: Blue)
Current output	3 channels of fully configurable 4 mA to 20 mA providing current sink, current source and isolated modes of operation to support up to 3 sensors simultaneously. Note : OmniPoint will automatically detect whether it should operate in current sink or current source mode Default current output settings: 1.0 mA for fault 2.0 mA for warm-up and inhibit 3.0 mA for warning 4.0 mA to 20.0 mA for normal gas measurement 21.0 mA for maximum over range 4 mA to 20 mA signal accuracy : ±1% full scale
HART® communication	Provides HART® communication over 1st channel of 4 mA to 20 mA output compliant with HART® 7 Configurable HART® communication mode: P to P mode or Multi-drop mode (up to 8 multi-drops) Functions Supported by HART® Gas reading with gas name and units of measurement 4 mA to 20 mA signal level General/device information Configuration Forcing of 4 mA to 20 mA output Detailed transmitter information (calibration and configuration status, detailed fault and warning information, fault and alarm history, etc) Detailed sensor information (supply voltage, temperature and etc)
Relays	Provides three fully user configurable relay outputs that are activated based on current alarm state and one fault relay that is normally energized. Provides 3 x SPDT alarm and 1 x SPDT fault relay Maximum : 240 Vac, 5A (non inductive load) Minimum 5V, 10 mA (non inductive load)
Certification	
Hazardous area approvals	UL cUL classified: UL 1203, UL 913, UL 61010-1, CSA, CSAus: CSA C22.2 No. 25, CSA C22.2 No. 30, CSA C22.2 No. 60079-0, CSA C22.2 No. 60079-11, CAN/CSA-C22.2 No. 61010-1, CAN/CSA C22.2 No. 60079-29-1, ANSI/UL 61010-1, ANSI/UL 913, ANSI/UL 60079-29-1 Class I, Division 1, Groups A, B, C, & D T5; Class II, Division 1, Groups F & G T4A IECEx (IECEx UL 25.0011X) / ATEX (UL 25 ATEX 3338X): IEC 60079-0, IEC 60079-1, IEC 60079-11, IEC 60079-31, EN IEC 60079-0, EN 60079-1, EN 60079-11, EN 60079-31, EN IEC 60079-31 Ⓔx II 2 G Ex db ia IIC T5 Gb Ⓔx II 2 D Ex ia tb IIIC T100 °C Db
Performance approvals flammable gas	(Pending)

Wireless communication - BLE module (optional)	
Description	The BLE connection enables wireless communication of the OmniPoint transmitter to a smartphone or tablet
Installation	Optional BLE module is independent of the main (display) module. The external antenna must be installed with the BLE module
Mode and version	Bluetooth point to point mode BLE 5.0
Distance	Up to 66 ft (20 m) (mobile device dependant)
Approval	Certified and registered Bluetooth SIG FCC, RED, IC
Function supported	Gas reading with gas name and units of measurement General/device information Remote zero and span calibration Configuration Forcing of 4 mA to 20 mA output Detailed transmitter information (instrument status, detailed fault and warning information, fault and alarm history, etc) Detailed sensor information (optical signal level, supply voltage, temperature, calibration & configuration status, etc)
Modbus RTU module (optional)	
Description	The Modbus output module provides an isolated RS485 output to enable the connection of the OmniPoint transmitter to a multi-drop Modbus network
Installation	As an optional module independent of the main (display) module, it can be installed in the factory or in the field
Connections	RS485+, RS485-, drain
Physical layer	Isolated RS485, 2400 to 57,6000 baud; 9,600 default
Address	Address range is 1 to 247
Maximum # of nodes	247; up to 32 RTUs per loop
Protocol	Modbus RTU
Function supported	Gas reading with gas name and units of measurement General/device information Detailed transmitter information (instrument status, detailed fault and warning information, fault and alarm history, etc) Detailed sensor information (supply voltage, temperature, calibration & configuration status, etc)
Wireing requirements	
Sensor	Two-wire, for XPIS sensor module up to (984 ft) 300 m Two-wire, for XP sensor module up to (984 ft) 300 m Refer to manual for mounting distances and wire gauge
Gas concentration display & interface	
Instrument	3 in TFT display with ring indicator, five-digit alphanumeric characters with separate units, touch key interface, alarm snapshot with gas trend
Remote	Local UI or BLE 5.0 enabled device via OmniPoint app
Warranty	
Transmitter	5 years
Sensor cartridge	Varies — see below

Part number	Description*	Warranty period
OPT-R1S-H21	Sensor cart, H_2 low 1000 ppm (fixed), 200 ppm	3 years
OPT-R1S-H22	Sensor cart, H2 High 10,000ppm (Fixed), 2000ppm	3 Years
OPT-R1S-HS1	Sensor cart, H_2S 0-15 ppm, 5 ppm	3 years
OPT-R1S-HS2	Sensor cart, H_2S 0-100 ppm, 20 ppm	3 years
OPT-R1S-NO1	Sensor cart, NO 100ppm (Fixed), 20ppm	3 Years
OPT-R1S-N21	Sensor cart, NO_2 0-50 ppm, 5 ppm	3 years
OPT-R1S-OX1	Sensor cart, O_2 0-25% v/v, 23.5%	3 years
OPT-R1S-CO1	Sensor cart, CO 0-300 ppm, 100 ppm	3 years
OPT-R1S-CO2	Sensor cart, CO2 1 - 5% vol, 1% vol	3 Years
OPT-R1X-FL1	Sensor cart, Cat CH_4 0-100 %LEL, 5%	3 years
OPT-R1X-FL2	Sensor cart, Cat CH_4 0-100 %LEL, 4.4%	3 years
OPT-R1X-ME1	Sensor cart, IR CH_4 0-100 %LEL, 5%	3 years
OPT-R1X-ME2	Sensor cart, IR CH_4 0-100 %LEL, 4.4%	3 years
OPT-R1X-PR1	Sensor cart, IR C_3H_8 0-100 %LEL, 2.1%	3 years
OPT-R1X-PR2	Sensor cart, IR C_3H_8 0-100 %LEL, 1.7%	3 years

* Description includes: gas type, range, default alarm 1

Part number	Description*	Warranty period
OPT-R1S-AM1	Sensor cart, NH_3 0-200 ppm, 50 ppm	1 year
OPT-R1S-AM2	Sensor cart, NH_3 0-1000 ppm, 200 ppm	1 year
OPT-R1S-CL1	Sensor cart, CL_2 0-5 ppm, 1 ppm	1 year
OPT-R1S-ETO	Sensor cart, ETO 20 - 50ppm, 5ppm	1 Year
OPT-R1S-HCL	Sensor cart, HCL 10 - 20ppm, 2.5ppm	1 Year
OPT-R1S-HCN	Sensor cart, HCN 30ppm (Fixed), 2.5ppm	1 Year
OPT-R1S-HF1	Sensor cart, HF 12 ppm (fixed), 3 ppm	1 year

* Description includes: gas type, range, default alarm 1

OmniPoint sensor specs

Sensor type	Gas	Cartridge P/N	Selectable full scale range	Default range	Steps	Resolution	Lower detectable limit (LDL)	Lowest alarm level (LAL)	Default alarm 1 level	Alarm 1 type	Default alarm 2 level	Alarm 2 type	Operating temperature
XPIS sensor													
Cl_2	Chlorine	OPT-R1S-CL1	5.00 ppm (Fixed)	5.00 ppm	N/A	0.01 ppm	0.15 ppm	0.50 ppm	1.00 ppm	Rising	2.00 ppm	Rising	-20°C to 55°C -4°F to 131°F
CO	Carbon monoxide	OPT-R1S-CO1	100 ppm to 500 ppm	300 ppm	100 ppm	1 ppm	5 ppm	15 ppm	100 pm	Rising	200 ppm	Rising	-40°C to 55°C -40°F to 131°F
ETO	Ethylene oxide	OPT-R1S-ETO	20.0 to 50.0 ppm	25.0 ppm	N/A	0.1 ppm	1.0 ppm	3.0 ppm	5.0 ppm	Rising	10.0 ppm	Rising	-20°C to 55°C -4°F to 131°F
H_2	Hydrogen	OPT-R1S-H21	1000 ppm (Fixed)	1000 ppm	N/A	1 ppm	30 ppm	100 ppm	200 ppm	Rising	500 ppm	Rising	-20°C to 55°C -4°F to 131°F
H_2 (high)	Hydrogen	OPT-R1S-H22	10000 ppm (Fixed)	10000 ppm	N/A	10 ppm	300 ppm	1000 ppm	2000 ppm	Rising	5000 ppm	Rising	-20°C to 55°C -4°F to 131°F
H_2S	Hydrogen sulphide	OPT-R1S-HS1	10 ppm to 50 ppm	15.0 ppm	0.1 ppm	0.1 ppm	1.0 ppm	3.0 ppm	5.0 ppm	Rising	10.0 ppm	Rising	-40°C to 65°C -40°F to 149°F
H_2S (high)	Hydrogen sulphide	OPT-R1S-HS2	50 ppm to 500 ppm	100 ppm	10 ppm	1 ppm	1 ppm	5 ppm	20 ppm	Rising	50 ppm	Rising	-40°C to 65°C -40°F to 149°F
HCL	Hydrogen chloride	OPT-R1S-HCL	10.0 to 20.0 ppm	10.0 ppm	N/A	0.1 ppm	0.6 ppm	2.0 ppm	2.5 ppm	Rising	5.0 ppm	Rising	-20°C to 55°C -4°F to 131°F
HCN	Hydrogen cyanide	OPT-R1S-HCN	30 ppm (Fixed)	30.0 ppm	N/A	0.1 ppm	1.0 ppm	2.4 ppm	2.5 ppm	Rising	5.0 ppm	Rising	-20°C to 55°C -4°F to 131°F
HF	Hydrogen fluoride	OPT-R1S-HF1	12.0 ppm (Fixed)	12.0 ppm	N/A	0.1 ppm	0.4 ppm	1.5 ppm	3.0 ppm	Rising	6.0 ppm	Rising	-20°C to 55°C -4°F to 131°F
NH_3 (low)	Ammonia	OPT-R1S-AM1	50 ppm to 200 ppm	200 ppm	50 ppm	1 ppm	6 ppm	20 ppm	50 ppm	Rising	100 ppm	Rising	-20°C to 40°C -4°F to 104°F
NH_3 (high)	Ammonia	OPT-R1S-AM2	200 ppm to 1000 ppm	1000 ppm	50 ppm	1 ppm	30 ppm	100 ppm	200 ppm	Rising	500 ppm	Rising	-20°C to 40°C -4°F to 104°F
NO	Nitric oxide	OPT-R1S-NO1	100 ppm (Fixed)	100 ppm	N/A	1 ppm	3 ppm	10 ppm	20 ppm	Rising	50 ppm	Rising	-20°C to 55°C -4°F to 131°F
NO_2	Nitrogen dioxide	OPT-R1S-N21	5.0 to 50.0 ppm	10.0 ppm	5.0 ppm	0.1 ppm	0.5 ppm	0.7 ppm	5.0 ppm	Rising	10.0 ppm	Rising	-20°C to 55°C -4°F to 131°F
O_2	Oxygen	OPT-R1S-OX1	25 %vol (Fixed)	25.0 %vol	N/A	0.1 %vol	0.2 %vol	5.0 %vol	23.5 %vol	Rising	19.5 %vol	Falling	-40°C to 60°C -40°F to 140°F
SO_2	Sulphur dioxide	OPT-R1S-SO1	5 ppm to 20 ppm	15.0 ppm	5.0 ppm	0.1 ppm	0.6 ppm	2.0 ppm	5.0 ppm	Rising	10.0 ppm	Rising	-40°C to 65°C -40°F to 149°F
XP sensor													
FL CAT	Flammables	OPT-R1X-FL1 (UL) OPT-R1X-FL2 (ATEX)	20 %LEL to 100 %LEL	100 %LEL	10 %LEL	1 %LEL	3 %LEL	5 %LEL	20 %LEL	Rising	50 %LEL	Rising	-40°C to 75°C -40°F to 167°F
C3H8 IR - LEL	Propane	OPT-R1X-PR1 (UL) OPT-R1X-PR2 (ATEX)	20 %LEL to 100 %LEL	100 %LEL	10 %LEL	1 %LEL	3 %LEL	5 %LEL	20 %LEL	Rising	50 %LEL	Rising	-40°C to 75°C -40°F to 167°F
CH4 IR - LEL	Methane	OPT-R1X-ME1 (UL) OPT-R1X-ME2 (ATEX)	20 %LEL to 100 %LEL	100 %LEL	10 %LEL	1 %LEL	3 %LEL	5 %LEL	20 %LEL	Rising	50 %LEL	Rising	-40°C to 75°C -40°F to 167°F
CO_2 IR	Carbon dioxide	OPT-R1S-CO2	1.00 to 5.00 % vol	5.00 %vol	N/A	0.01 %vol	0.25 %vol	0.50 %vol	1.00 %vol	Rising	2.00 %vol	Rising	-40°C to 75°C -40°F to 167°F

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