



# Vanguard™

## Wireless Fixed Point Gas Detector



Wireless**HART**



# Building a Part Number

	<b>Model</b>	<b>Comms</b>	<b>Antenna</b>	<b>FLEXMount</b>	<b>FLEXSense</b>	<b>Sales Options</b>
	<b>TCD60</b>	<b>H</b>	<b>2</b>	<b>A</b>	<b>03</b>	<b>M207</b>
<b>Model</b> _____						
<b>TCD50</b> .....	Base transmitter for Gr C & D / IIB zones					
<b>TCD60</b> .....	Base transmitter for Gr A,B,C & D / IIC zones					
<b>Communications</b> _____						
<b>H</b> .....	WirelessHART protocol					
<b>Antenna</b> _____						
<b>1</b> .....	2.4 GHz; 2.0 dBi (TCD50 Only)					
<b>2</b> .....	2.4 GHz; 2.0 dBi (TCD60 Only)					
<b>3</b> .....	2.4 GHz; 4.35 dBi (TCD60 Only)					
<b>4</b> .....	2.4 GHz; 6.0 dBi (TCD60 Only)					
<b>FLEXmount™</b> _____						
<b>A</b> .....	Standard Mount (2" pipe mount)					
<b>B</b> .....	Magnetic Mount					
<b>C</b> .....	Universal Mount					
<b>FLEXsense™</b> _____						
<b>00</b> .....	No sensor		<b>05</b> .....	CarboneMonoxide (CO)		
<b>03</b> .....	Methane (CH <sub>4</sub> )		<b>06</b> .....	Ammonia (NH <sub>3</sub> )		
<b>04</b> .....	Hydrogen Sulfide (H <sub>2</sub> S)		<b>07</b> .....	Propane (C <sub>3</sub> H <sub>8</sub> )		
<b>Optional (select up to 3)</b> _____						
<b>M211</b> .....	Vanguard Inspection Report (NDIR only)					
<b>M446</b> .....	Stainless Steel Tag					
<b>M207</b> .....	Programmed network ID and Join Key (End user supplied)					

**NOTE:** Must order battery separately.

Accessories	
<b>6361-807</b>	Battery pack; 7.2V operating voltage. Ordered as a separate item. Battery will ship separately.
<b>62169-50</b>	Gas Calibration Kit including Cap and Regulator. Ordered as a separate item.
<b>6361-811</b>	FLEXmount™ Standard Mounting bracket kit
<b>6361-817</b>	FLEXmount™ Magnetic Mounting bracket kit
<b>6361-818</b>	FLEXmount™ Universal Mounting bracket kit
<b>62169-66</b>	2 dBi, 2.4 GHz Antenna for TCD60
<b>62169-67</b>	4.35 dBi, 2.4 GHz Antenna for TCD60
<b>62169-68</b>	6 dBi, 2.4 GHz Antenna for TCD60

FLEXsense replacement sensors	
<b>62169-60</b>	Methane (CH <sub>4</sub> ) sensor; sensor pack only
<b>62169-61</b>	Hydrogen Sulfide (H <sub>2</sub> S) sensor; sensor pack only
<b>62169-62</b>	Carbon Monoxide (CO) sensor; sensor pack only
<b>62169-63</b>	Ammonia (NH <sub>3</sub> ) sensor; sensor pack only
<b>62169-64</b>	Propane (C <sub>3</sub> H <sub>8</sub> ) sensor; sensor pack only

# Specifications

	Methane (CH <sub>4</sub> )	Propane (C <sub>3</sub> H <sub>8</sub> )	Hydrogen Sulfide (H <sub>2</sub> S)	Carbon Monoxide (CO)	Ammonia (NH <sub>3</sub> )
<b>Sensor Type</b>	NDIR	NDIR	Electrochemical	Electrochemical	Electrochemical
<b>Storage Temp</b>	72 °F (22 °C) Recommended				
<b>Storage Life</b>	3 years	3 years	1 year	6 months	6 months
<b>Service Life<sup>(i)</sup></b>	5 years	5 years	2 years	2 years	2 years
<b>Min Op. Temp</b>	-40 °F (-40 °C)	-40 °F (-40 °C)	-40 °F (-40 °C)	-40 °F (-40 °C)	-4 °F (-20 °C)
<b>Max Op. Temp</b>	149 °F (65 °C)	149 °F (65 °C)	149 °F (65 °C)	131 °F (55 °C)	105 °F (40 °C)
<b>Range</b>	0 to 100% LEL	0 to 100% LEL	0 - 100 ppm	0 - 500 ppm	0 - 100 ppm
<b>Resolution</b>	1% LEL	1% LEL	1 ppm	1 ppm	1 ppm
<b>Accuracy<sup>(ii)</sup></b>	±2 LEL or ±5% of indication <sup>(iii)</sup>	±2 LEL or ±5% of indication <sup>(iii)</sup>	±2 ppm or ±5% of indication <sup>(iii)</sup>	±5 ppm or ±5% of indication <sup>(iii)</sup>	±2 ppm or ±5% of indication <sup>(iii)</sup>
<b>Response Time<sup>(iv)</sup> (T90)</b>	30 sec	30 sec	<30 sec	<30 sec	<5 min
<b>Stabilization Time</b>	2 min	2 min	1 min	1 min	5 min

<sup>(i)</sup> Expected operational life varies with environmental conditions and gas exposure  
<sup>(ii)</sup> At standard conditions: 68°F (20°C) and 1.0 atm. Accuracy may vary with frequency, accuracy of calibration, and environmental conditions

<sup>(iii)</sup> Whichever is greater  
<sup>(iv)</sup> Excludes latency due to burst rate

<b>Transmitter Operating Temperature</b>	-40 °F (-40 °C) to 149 °F (65 °C)
<b>Operating Humidity</b>	0% to 98% RH non-condensing
<b>Material</b>	Aluminum alloy (maximum copper content at 0.25%) with powder polyester paint; 316 stainless steel; nickel-plated brass; tempered glass
<b>Ingress Protection</b>	Type 4X (enclosure only)
<b>Display</b>	2.25"W x 1.25"H (57.2 mm x 31.8 mm) graphical LCD display
<b>Display Language</b>	English
<b>Memory</b>	Non-volatile EEPROM
<b>Antenna</b>	2.4 GHz, Hazardous Area Antenna
<b>Mounting</b>	FLEXmount™ Options
<b>Weight</b>	7.84 lbs (Base) 9.61 lbs (Base with Sensor and Battery)
<b>Communication Protocol</b>	WirelessHART® HART 7.2 EDDL and DTM available at <a href="http://www.ueonline.com/vanguard">www.ueonline.com/vanguard</a>

<b>Process Variables</b>	<b>Primary Variable (PV):</b> Hydrocarbons & hydrogen concentration in %LEL Toxic gas concentration in ppm <b>Secondary Variable (SV):</b> Temperature (°C); not available for hydrocarbon sensor <b>Tertiary Variable (TV):</b> Days since calibration (days) <b>Quaternary Variable (QV)</b> Battery voltage (volts)
<b>Programming Access</b>	HART hand-held communicator, or via HART modem HART terminals located in rear battery compartment
<b>Calibration/Bump Test Access</b>	Single external button
<b>Batteries</b>	Battery pack contains two Lithium battery cells

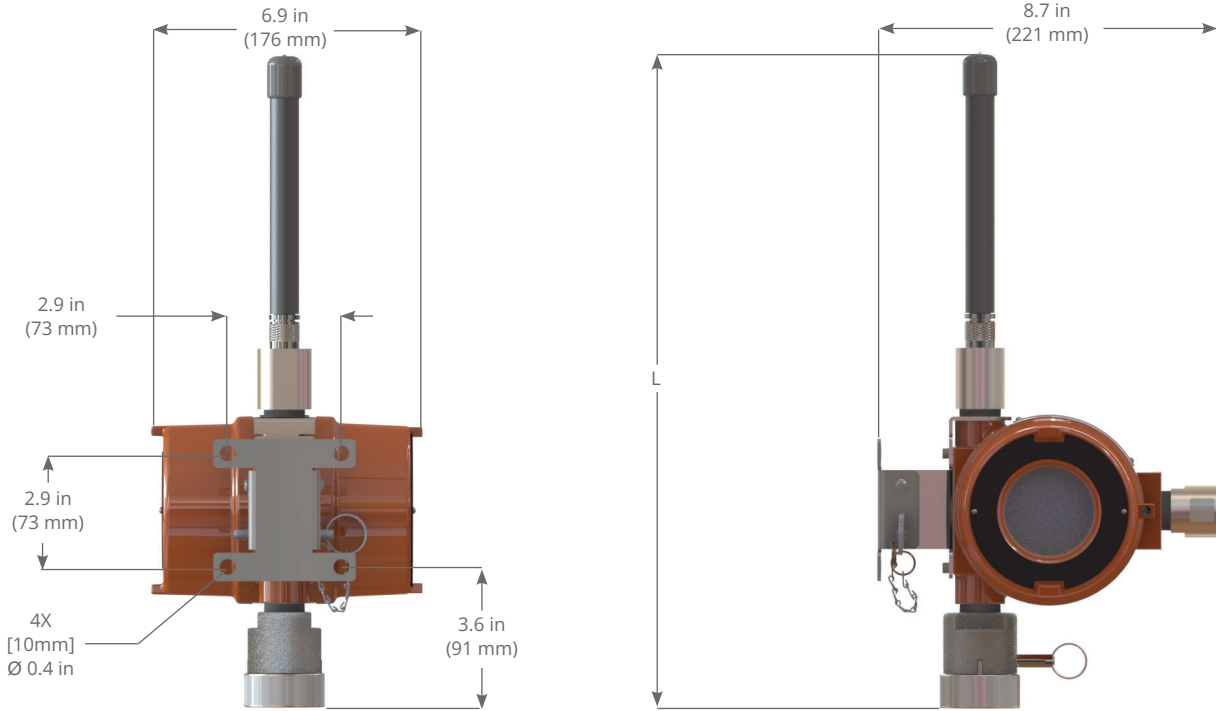
# Certifications

Model	N. America <sup>(vii)</sup>	Europe <sup>(vii)</sup>	International <sup>(vii)</sup>
<b>TCD50</b>	Class I Div. 1, Groups C & D, T4 <b>United States</b> Class I, Zone 1, AEx db ia [ia] IIB T4 Gb Enclosure Type 4X, IP66 <sup>(vi)</sup> <b>Canada</b> Class I, Zone 1, Ex db ia [ia] IIB T4 Gb -40 °C < Ta < +65 °C <sup>(vi)</sup>	ITS 16 ATEX 18474 II 2 (2) G Ex db ia [ia] IIB T4 Gb IP66 <sup>(vi)</sup> -40 °C < Tamb < +65 °C <sup>(vi)</sup>	IECEx ETL 16.0016 Ex db ia [ia] IIB T4 Gb IP66 <sup>(vi)</sup> -40 °C < Tamb < +65 °C <sup>(vi)</sup>
<b>TCD60</b>	Class I Div. 1, Groups A,B,C & D, T4 <b>United States</b> Class I, Zone 1, AEx db ia [ia] IIC T4 Gb Enclosure Type 4X, IP66 <sup>(vi)</sup> <b>Canada</b> Class I, Zone 1, Ex db ia [ia] IIC T4 Gb -40 °C < Ta < +65 °C <sup>(vi)</sup>	ITS-121ATEX31360X II 2 (2) G Ex db ia [ia] IIC T4 Gb IP66 <sup>(vi)</sup> -40 °C < Tamb < +65 °C <sup>(vi)</sup>	IECEx ETL 21.0065X Ex db ia [ia] IIC T4 Gb IP66 <sup>(vi)</sup> -40 °C < Tamb < +65 °C <sup>(vi)</sup>

<sup>(vi)</sup> Enclosure Type 4X and/or IP66 rating excludes sensor  
<sup>(vii)</sup> Ambient operating temperature range may vary with sensor

<sup>(vii)</sup> Gas detector performance testing per UL/IEC 60079-29-1 pending.

# TCD50 & TCD60



Models	Antenna	Gain (dBi)	L
<b>TCD50</b>	1	2	12.4" (315 mm)
	2	2	16.2" (412 mm)
<b>TCD60</b>	3	4.35	16.6" (422 mm)
	4	6	18.9" (482 mm)

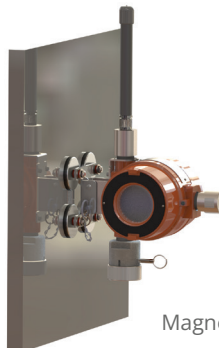
Dimensional drawings for all models may be found at [www.ueonline.com](http://www.ueonline.com)

## Mounting options



**A**

Standard Mount  
(2" pipe mount)



**B**

Magnetic Mount



**C**

Universal Mount



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