

# IR PLUS

## Infrared Gas Detector with Intelligent Heated Optics

An infrared hydrocarbon detector providing real-time, fail-safe detection and exceptional reliability in harsh environments.



IR Plus is a dependable and exceptionally sturdy infrared hydrocarbon gas detector, that features state-of-the-art dual IR waveband technology. With optional display capabilities, this device ensures swift and fail-safe detection of methane, propane, and various other hydrocarbon further enhances its reliability, making it an ideal choice for demanding environments.



### Industry Leading Warranty

With its industry leading 5 year warranty, IR Plus offers peace of mind and reduced maintenance costs.



### Fast Response Time

With a response time of just 4 seconds, IR Plus gives you the information you need fast.



### Intelligent Heated Mirror

Heated optical components combined with Stay-clIR coating ensures reliable performance in high temperature and humidity conditions.



### High Stability in Harsh Conditions

IR Plus outperforms its nearest competitors when operating under high temperature and humidity conditions.



### Remote Non-Intrusive Testing





Easily test on-site with options for Fixed Display, Remote Display (up to 3m), and local-HART.

### Multiple Outputs





Standard 4-20 mA analogue and RS-485 (Modbus) outputs, plus Local-HART & HART over 4-20 mA options.



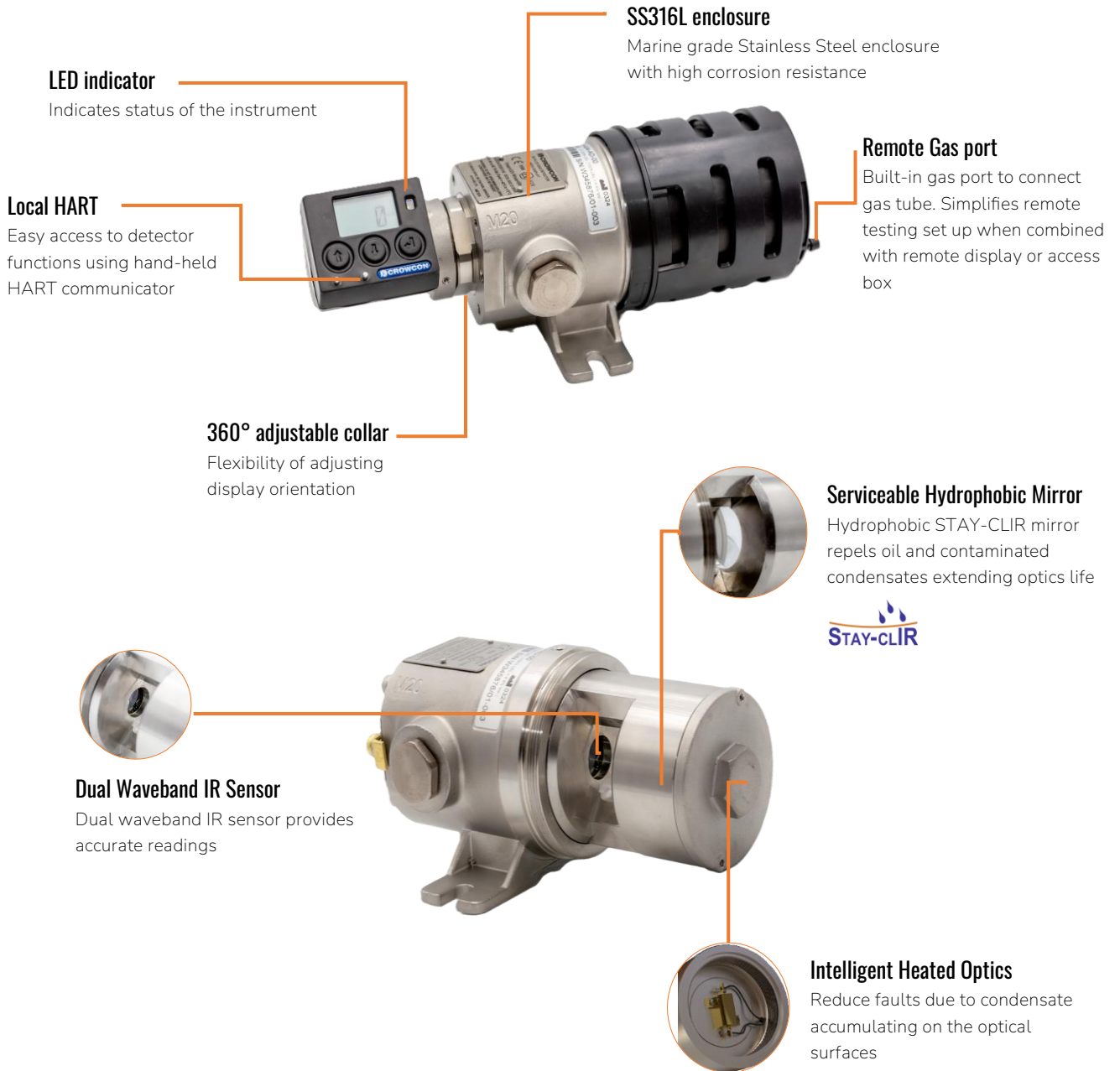
## MOUNTING OPTIONS

	<b>Wall Mount</b>
	<b>Pipe Mount</b>
	<b>Duct Mount</b>
	<b>Junction Box</b>

## DISPLAY OPTIONS

	<b>No Display</b>
	<b>Fixed Display</b>
	<b>IS Barrier</b>
	<b>IS Barrier with Remote Display</b>

OVERVIEW



**LED indicator**  
Indicates status of the instrument

**Local HART**  
Easy access to detector functions using hand-held HART communicator

**360° adjustable collar**  
Flexibility of adjusting display orientation

**SS316L enclosure**  
Marine grade Stainless Steel enclosure with high corrosion resistance

**Remote Gas port**  
Built-in gas port to connect gas tube. Simplifies remote testing set up when combined with remote display or access box

**Serviceable Hydrophobic Mirror**  
Hydrophobic STAY-CLIR mirror repels oil and contaminated condensates extending optics life



**Dual Waveband IR Sensor**  
Dual waveband IR sensor provides accurate readings

**Intelligent Heated Optics**  
Reduce faults due to condensate accumulating on the optical surfaces



**CROWCON DETECTION INSTRUMENTS LTD.**

172 Brook Drive, Milton Park, Abingdon, Oxfordshire, OX14 4SD  
t: +44 (0)1235 557700 e: [technicalsupport@crowcon.com](mailto:technicalsupport@crowcon.com)

Company Registration Number: 00978878



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## SPECIFICATION

<b>Gases</b>	Methane, Propane Contact Crowcon for more target gases			
<b>IR Source</b>	Intelligent Heated optics combined with STAY-CLIR hydrophobic mirror			
<b>Enclosure material</b>	316L Stainless Steel			
<b>Dimensions (Detector only)</b>	194mm x 119mm x 94.2mm (7.6 x 4.7 x 3.7 ins)			
<b>Weight</b>	IR Plus	IR Plus with Fixed Display	IR Plus with IS Barrier Module	Remote Display
	4.1 kg (9.0 lbs)	4.5 kg (9.92 lbs)	4.9 kg (10.8 lbs)	0.2 kg (0.4 lbs)
<b>Response Time (T90)</b>	4 seconds			
<b>Performance</b>	Zero Drift	Repeatability	Linearity	
	±2% FSD per year	±2% FSD	±2% FSD	
<b>Operating voltage</b>	12 – 30V DC			
<b>Power</b>	< 5.5 W			
<b>Inrush Current</b>	210 mA @24V			
<b>Output</b>	3-wire 4-20 mA (Sink or Source) 2mA dirty optics warning (at 75% obscuration, configurable) 0mA detector fault signal (at 90% obscuration, configurable) RS-485 HART 7 (Optional)			
<b>Fault signal</b>	<3.6 mA and/or >21mA			
<b>Connection/Port Entries</b>	2 x M20		2 x ¼"NPT	
<b>Operating Temperature</b>	-40°C to +70°C (-40°F to 158°F)			
<b>Humidity</b>	0 to 100% RH condensing			
<b>Degree of protection</b>	IP66		EN60529	
	IP ratings do not imply that the equipment will detect gas during and after exposure to those conditions.			
<b>Functional Safety*</b>	Rating:	SIL2		
	Standard:	IEC 61508, EN 50402		
	Certificate Ref.:	Sira 12ATEX1206X		
<b>Performance Standards*</b>	IEC EN 60079-29-1			
<b>Hazloc Standard</b>	IR Plus (no display):			
	IEC/EN IEC 60079-0, IEC/EN 60079-1, IEC/EN 60079-31			
	IR Plus with fixed Display & IS Barrier (for remote display):			
	IEC/EN IEC 60079-0, IEC/EN 60079-1, IEC/EN 60079-11, IEC/EN 60079-31			

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	<p>IR Plus (no display):</p> <p>⊕ II 2 GD      Ex db IIC T4 Gb (Tamb = -40°C to +70°C)  Ex db IIC T6 Gb (Tamb = -40°C to +60°C)  Ex tb IIIC T135°C Db (Tamb = -40°C to +70°C)</p> <p>IR Plus with fixed Display:</p> <p>⊕ II 2 G      Ex db ia IIC T4 Gb (-40°C to +70°C)</p> <p>IR Plus with IS Barrier module (for remote display):</p> <p>⊕ II 2 GD      Ex db ia IIC T4 Gb (-40°C to +70°C)  Ex tb ia IIIC T135°C Db (-40°C to +40°C)</p>		
<b>Hazloc Certificate Ref.</b>	<p>IR Plus (no display):</p> <p>ATEX              SGS23ATEX0114X  IECEX              SGS 23.0057X  INMETRO          UL-BR 24.1422X</p> <p>IR Plus with fixed Display &amp; IS Barrier (for remote display):</p> <p>ATEX              SGS23ATEX0115X  IECEX              SGS 23.0058X  INMETRO          UL-BR 24.1423X</p>		
<b>Approvals</b>	ATEX	IECEX	CE
	INMETRO	PESO*	CNEEx
	ECAS*	FM*	
<b>EMC Compliance</b>	EN 50270, FCC CFR47 Part 15B, ICES-003		
<b>Warranty</b>	5 years		
<b>Estimated Working Life</b>	15 years (assumes annual proof test)		












\*pending

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**ACCESSORIES**

<p><b>C011401</b></p>	<p><b>C011410</b></p>	<p><b>C011403</b></p>
<p>Test cap Fits over the weather cap to enable testing where local air speed &gt;2 m/s</p>	<p>Mesh Filter** Stainless steel mesh filter with 100 micron pore-size. Fits within standard weather-cap to protect optical components in very dusty environments</p>	<p>Sun shade Can be fitted to IR Plus to protect against direct sunlight and extend the detectors footprint for detecting lighter than air gases</p>
		
<p><b>C011404</b></p>	<p><b>C011405</b></p>	<p><b>C011406</b></p>
<p>Wall Mounting Kit Enables mounting IR Plus to a wall</p>	<p>Pipe Mounting Kit Enables mounting IR Plus to a 2" (50 mm) pipe</p>	<p>Junction Box Mounting Kit Enables mounting of IR Plus and junction box to a 2" (50 mm) pipe</p>
		
<p><b>C011407</b></p>	<p><b>C011402</b></p>	<p><b>S012827</b></p>
<p>Duct Mounting kit** Enables monitoring ducts from 300 to 3000 mm with air-flow of 2 to 20 m/s</p>	<p>Flow adaptor** Enables monitoring sampling and process lines</p>	<p>PC communications kit Communications module, software and lead to enable configuration and service of IR Plus via PC</p>
		
<p><b>C011210</b></p>	<p><b>C011161/1</b></p>	<p><b>C011162/1</b></p>
<p>Mirror cleaning kit 5x IPA impregnated wipes and microfibre cloth</p>	<p>Remote Display Remote Display within a glass reinforced nylon housing (requires a connecting cable)</p>	<p>Remote Display with local HART Remote Display within a glass reinforced nylon housing. Local HART enabled for testing and diagnostics via hand-held HART communicator</p>
		

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<p><b>E07988</b></p>	<p><b>E08005</b></p>	<p><b>C011301/2</b></p>
<p>1.5 metre connecting cable To connect remote Display or Remote Access box to IR Plus via IS Barrier</p>	<p>3 metre connecting cable To connect remote Display or Remote Access box to IR Plus via IS Barrier</p>	<p>Remote Access box GRP (glass-fibre reinforced polyester) enclosure that can be wall mounted for remote installations (suitable for use in onshore and offshore environments)</p>
		
<p><b>C011411</b></p>	<p><b>C011412</b></p>	<p><b>C03579</b></p>
<p>Remote Gas Box ABS gas tube termination box to facilitate remote testing</p>	<p>4m Gas Tube Gassing tube to connect Remote gas box to IR Plus gas inlet port</p>	<p>Spanner Essential for Fixed IR Display or IS Barrier module installation. Simplifies tightening of threaded collar that connects Fixed display/IS Barrier to IR Plus.</p>
		
<p><b>S012295</b></p>	<p><b>C01197</b></p>	<p><b>S012147</b></p>
<p>M20 316SS Exd Junction Box ATEX/IECEX certified 316SS Exd junction box with 2 cable entries. Fitted with 5-way terminal block suitable for 2.5mm<sup>2</sup> cables. Enables IR Plus to be connected on an RS-485 Modbus network. Requires spigot gland.</p>	<p>M20 GRP Exe Junction Box ATEX/IECEX certified GRP Exe junction box with one cable gland entry (left side). Fitted with a 6-way terminal block suitable for 2.5mm<sup>2</sup> cables. Provides compliance with NORSOK standards which stipulate detectors must have an Exe cable termination area. Requires spigot gland.</p>	<p>Spigot gland (M20) Required for connecting IR Plus to an auxiliary junction box. (5-wire ATEX/IECEX)</p>
		

\*\*This accessory affects the response time of IR Plus

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## CONFIGURATOR

Gas		Base Enclosure			
Code	Description	Code	Description		
AA	Methane 0-100% LEL	AC	Stainless Steel Enclosure with 2x M20 cable entry		
AB	Propane 0-100% LEL	AD	Stainless Steel Enclosure with 2x 3/4"NPT cable entry		
		Approvals			
Code	Description				
013	ATEX/IECEX (SIL)				
017	INMETRO (SIL)				
		Outputs			
Code	Description				
AD	4-20 mA (Source) & RS-485				
AE	4-20 mA (Sink) & RS-485				
AF	4-20 mA (Source), HART over 4-20mA, & RS-485				
AG	4-20 mA (Sink), HART over 4-20mA, & RS-485				
		Display			
Code	Description				
00	No Display				
01	Fixed Display*				
02	Fixed Display with Local HART*				
03	IS Barrier*				
04	Spare Detector - Fixed Display Ready**				
05	Spare Detector - IS Barrier Ready**				
<p>Example:            IRPL-AA-AC-013-AF-01            IR Plus Methane 0-100%LEL, SS M20 Base Enclosure, ATEX/IECEX Certification EU, 4-20 mA, RS-485, HART enabled, Source, Fixed Display.</p>					
IRPL	-AA	-AC	-013	-AF	-01

**Note:**

IR Plus comes with 4-20mA and RS-485 communication channel options by default. There is a communications switch on the PCB to toggle between USB/Display channel and RS-485 output channel. 4-20mA analog output is not affected by this switch.

\*Fixed Display/IS Barrier channel and RS-485 Modbus output channel cannot be used simultaneously.

\*\*Spare IR Plus detector supplied without a fixed display, IS barrier or rear plug, but with relevant certification label. Can only be used to replace an IR Plus detector previously supplied. Serial number of the previously purchased IR Plus unit is required to process the order.

It is recommended to install a no-display IR Plus with an auxiliary junction box using a spigot gland to be connected to an RS-485 Modbus addressable network.

If a display is required, please order IR Plus with Fixed display or IS Barrier (for remote display). A Fixed Display or IS Barrier module cannot be retro-fitted to no-display IR Plus.

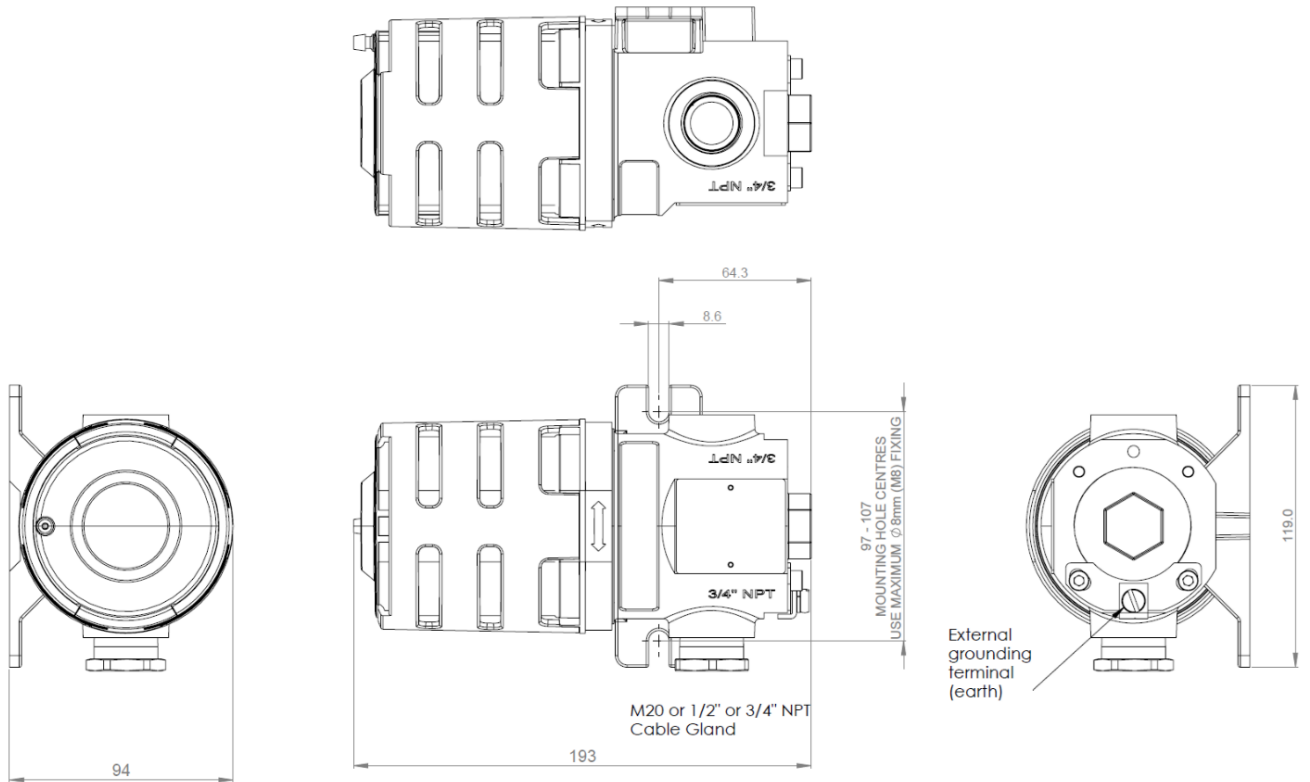
HART communication is available in two separate options: super-imposed over the 4-20mA signal, or via the IS contacts on Fixed display with local HART for local hand-held HART configurator connection. Each option must be selected separately using the product code configurator: HART over 4-20mA under output signal section and/or Fixed display with Local HART.

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**DIMENSIONS**



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