



## Gas & Flame Detection



# 3M™ Oldham™ OLCT 100

## Fixed Gas Detector

### Description

The OLC/OLCT 100 range of fixed detectors has been designed for detection of combustible gases, toxic gases or oxygen.

Available in explosion-proof or intrinsically safe versions, the OLCT 100 is suitable for detection of all gases in ATEX zones.

The OLCT 100 is available in a stainless steel version, offering increased resistance to corrosive elements (ideal for marine, wastewater treatment plants, food processing activities, etc).

This stainless steel intrinsically safe version is certified for use in zones 0 (gas) and 20 (dust), whereas all other versions of the OLCT 100 are certified for use in zones 1 (gas) and 21 (dust).

### Features

- Detection of Combustible, Toxic or Oxygen gases
- Infrared XP version
- SIL 2 high reliability
- IP 66
- Aluminium or Stainless Steel version

### Applications

- Steel mills
- Petrochemical facilities
- Chemical industry
- Pharmaceutical industry
- Food industry
- Refrigeration industry
- Water treatment



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Fixed Gas Detection

Our products are always application-driven, solution-oriented.

Options include:

- OLCT 100 transmitter with 4-20 mA output
- OLC 100 detector with a Wheatstone bridge output for detection of combustible gases



## IR Sensor

The infrared sensor provides detection of CO<sub>2</sub> and refrigerant gases and is warranty 2 years.



## OLCT 100 XP

Explosion-proof version is equipped with a catalytic, electrochemical or semiconductor sensor, for detection of combustible, toxic gases or oxygen.

## OLCT 100 IS

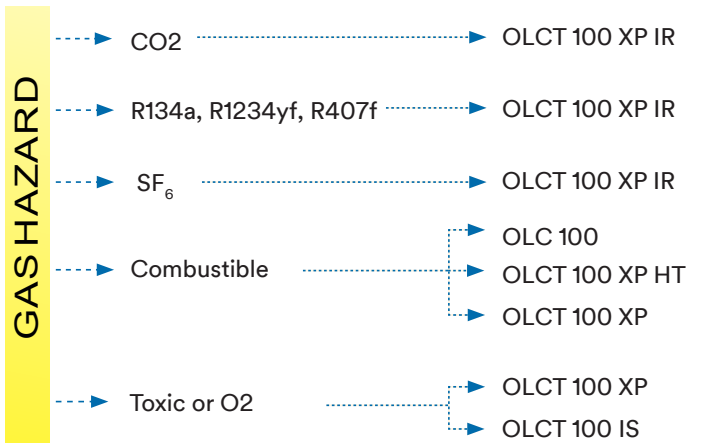
Intrinsically safe version is equipped with an electrochemical sensor for detection of toxic gases or oxygen.

## OLCT 100 XP IR

Explosion-proof IR version is equipped with an infrared sensor for detection of CO<sub>2</sub>, SF<sub>6</sub> and some freons.

## OLCT 100 XP HT

High temperature explosion-proof version for detection of combustible gases up to 200°C. High temperature cable included: 5, 10, 15 meter lengths.



## Reliability

The OLCT 100 is SIL 2 certified by INERIS, according to the EN 50402 standard, which corresponds to IEC/EN 61508 for gas detectors.

Gas	Measure	SIL Capability	$\lambda_{DU}$	PFD <sub>avg</sub>	Test Period
Combustibles <sup>(a)</sup>	Catalytic (C1000)	SIL 2	0,189.10 <sup>-6</sup>	8.3 10 <sup>-4</sup>	12 months
O <sub>2</sub> <sup>(b)(c)</sup>	Electrochemical	SIL 2	0.74 10 <sup>-6</sup>	1.62 10 <sup>-3</sup>	6 months
CO <sup>(b)</sup>	Electrochemical	SIL 2	1.09 10 <sup>-6</sup>	1.19 10 <sup>-3</sup>	3 months
H <sub>2</sub> S <sup>(b)</sup>	Electrochemical	SIL 2	2.98 10 <sup>-6</sup>	3.26 10 <sup>-3</sup>	3 months
NH <sub>3</sub> <sup>(b)</sup>	Electrochemical	SIL 2	4.48 10 <sup>-6</sup>	4.91 10 <sup>-3</sup>	3 months

(a) complete unit, according to certificate INERIS No. 93664/2012

(b) software and hardware according to certificate INERIS No. 93664/2012, sensors data according to proven in use

(c) O2 sensor with 28 months life expectancy

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## Fixed Gas Detection

Gas		Measuring Range (ppm)	XP Version	IS Version	Temperature Range (°C)	% RH	Accuracy (ppm)	Average Life Expectancy (month)	Response Time T <sub>50</sub> /T <sub>90</sub> (s)	Storage Condition
Com-bustible Gases	Catalytic	0-100% LEL	•		-40 to +70	0 - 95	+/- 1% LEL (from 0 to 70% LEL)	40	6/15 (CH <sub>4</sub> )	(b)
	Catalytic High Temperature	0-100% LEL	•		-20 to +200	0 - 95	+/- 1% LEL (from 0 to 70% LEL)	40	6/15 (CH <sub>4</sub> )	(b)
AsH <sub>3</sub>	Arsine	1.00	•	•	-20 to +40	20 - 90	+/- 0.05	18	30/120	(a)
CH <sub>2</sub> O	Formaldehyde	50.0	•	•	-20 to +50	15 - 90	+/- 1.0	36	50/240	(a)
Cl <sub>2</sub>	Chlorine	10.0		•	-20 to +40	10 - 90	+/- 0.4	24	10/60	(a)
ClO <sub>2</sub>	Chlorine dioxide	3.00		•	-20 to +40	10 - 90	+/- 0.3	24	20/120	(a)
CO	Carbon monoxide	100	•	•	-20 to +50	15 - 90	+/- 3 (range 0-100)	40	15/40	(a)
		300	•	•						
		1000	•	•						
CO <sub>2</sub>	Carbon dioxide	0-500ppm	•		-20 to +40	10 - 90	+/- 3%	48	20/120	(a)
		0-5% vol.	•							
		0-10% vol.	•							
		0-100% vol.	•							
COCl <sub>2</sub>	Phosgene	1.00		•	-20 to +40	15 - 90	+/- 0.05	12	60/180	(c)
ETO	Ethylene oxide	30.0		•	-20 to +50	15 - 90	+/- 1.0	36	50/240	(a)
H <sub>2</sub>	Hydrogen	2000	•	•	-20 to +50	15 - 90	+/- 5%	24	30/50	(a)
H <sub>2</sub> S	Hydrogen sulfide	30.0	•	•	-40 to +50	15 - 90	+/- 1.5 (range 0-30)	36	15/30	(a)
		100	•	•						
		1000	•	•						
HCl	Hydrochloric chloride	30.0		•	-20 to +40	15 - 95	+/- 0.4 (range 0-10)	24	30/150	(a)
		100		•						
HCN	Hydrogen cyanide	10.0		•	-40 to +40	15 - 95	+/- 0.3 (range 0-10)	18	30/120	(c)
		30.0		•						
NH <sub>3</sub>	Ammonia	1000	•	• ❄️	-40 to +40	15 - 90	+/- 20	24	--	
		100	•	•	-20 to +40	15 - 90	+/- 5	24	25/70	(a)
		1000	•	•						
		5000	•	•						
NO	Nitrogen monoxide	100	•	•	-20 to +50	15 - 90	+/- 2 (range 0-100)	36	10/30	(a)
		300	•	•						
		1000	•	•						
NO <sub>2</sub>	Nitrogen dioxide	10.0		•	-20 to +50	15 - 90	+/- 0.8	24	30/60	(a)
		30.0		•						
O <sub>2</sub>	Oxygen	0-30% vol	•	•	-20 to +50	15 - 90	0.4% Vol (from 15 to 22% O <sub>2</sub> )	28	6-15	(a)
		0-30% vol	•	• ❄️	-40 to +50	10 - 90	+/-1,5%	60	15/25	(a)
PH <sub>3</sub>	Phosphine	1.00		•	-20 to +40	20 - 90	+/- 0.05	18	30/120	(a)
SiH <sub>4</sub>	Silane	50.0		•	-20 to +40	20 - 95	+/- 1.0	18	25/120	(a)
SO <sub>2</sub>	Sulphur dioxide	10.0		•	-20 to +50	15 - 90	+/- 0.7 (range 0-10)	36	15/45	(a)
		30.0		•						
		100		•						
CH <sub>3</sub> Cl	Methyl chloride	500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
CH <sub>2</sub> Cl <sub>2</sub>	Methylene chloride	500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R12		1% vol	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R22		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R123		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
FX56		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R134 a		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
		2000ppm	• (IR)		-20 to +50	0 - 95	+/- 40ppm (from 0 to 50% range)	60	40/170	(e)
Freon R11		1% vol	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R23		1% vol	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R143a		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R404 a		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R507		2000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R410a		1000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R32		1000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R407c		1000	•		-20 to +60	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Freon R407f		1000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
		2000	• (IR)		-20 to +50	0 - 95	+/- 40ppm (from 0 to 50% range)	60	40/105	(e)
Freon R408a		1000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Ethanol		500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Toluene		500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Isopropanol		500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
2-butanone (MEK)		500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
Xylene		500	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
SF6		2000	• (IR)		-20 to +50	0 - 95	+/- 40ppm (from 0 to 50% range)	60	25/120	(e)
		1000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)
R1234yf (HFO)		2000	• (IR)		-20 to +50	0 - 95	+/- 40ppm (from 0 to 50% range)	60	25/120	(e)
		0-100% LEL	• (IR)		-20 to +50	0 - 95	+/- 2% LEL (from 0 to 50% LEL)	60	30/115	(e)
R1234ze		1000	•		-20 to +55	20 - 95	+/- 15% (from 20 to 70% FS)	40	25/50	(d)

(a) +4°C to +20°C / 20 % to 60% HR  
1 bar ± 10 % / 6 month maximum

(b) -50°C to +70°C / 20 % to 60 % HR  
1 bar ± 10 % / 6 month maximum

(c) +4°C to +20°C / 20 % to 60 % HR  
1 bar ± 10 % / 3 month maximum

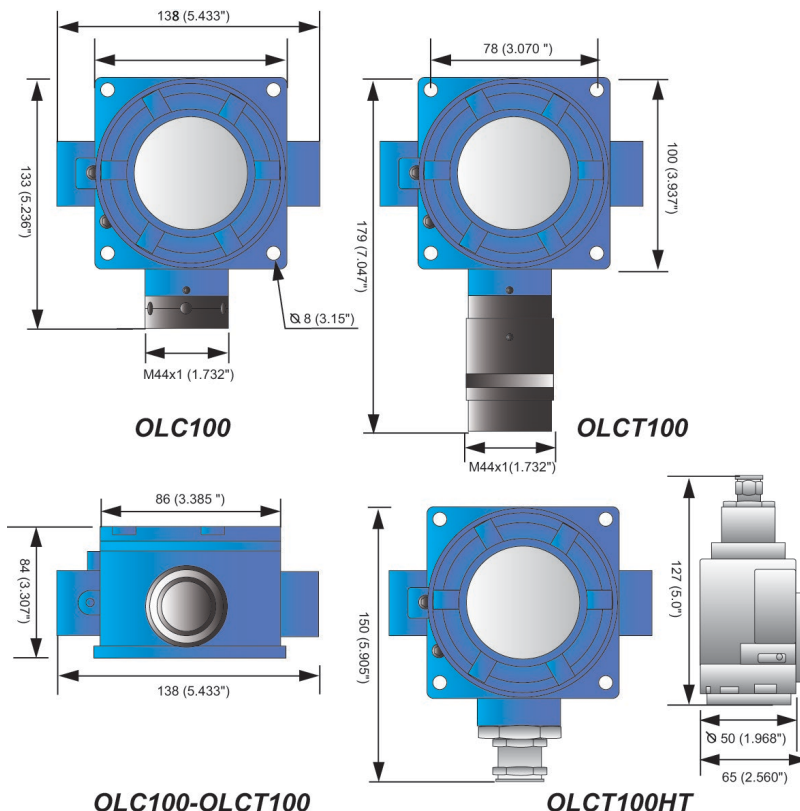
(d) -20°C to +50°C / 20 % to 60 % HR  
1 bar ± 10 % / 6 month maximum

(e) -40°C to +85°C / 0-80% RH  
1 bar ± 10 % / 6 month maximum

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## Fixed Gas Detection

Model	OLC 100	OLCT 100 XP	OLCT 100 XP IR	OLCT 100 XP	OLCT 100 XP HT	OLCT 100 XP	OLCT 100 IS
Sensor	Catalytic bead	Catalytic bead	Infrared	Electrochemical	Catalytic bead	Semi-conductor	Electrochemical
Material	Epoxy-coated aluminium housing (Inox 316L optional). 316 stainless steel sensors						
Dimensions (mm) (inches)	135 × 133 × 84 5.43 × 5.24 × 3.31"	135 × 133 × 84 5.43 × 5.24 × 3.31"	179 × 138 × 84 7.05 × 5.43 × 3.31"	179 × 138 × 84 7.05 × 5.43 × 3.31"	150 × 138 × 84 5.91 × 5.43 × 3.31"	179 × 138 × 84 7.05 × 5.43 × 3.31"	179 × 138 × 84 7.05 × 5.43 × 3.31"
Weight (kg)	0.95	1	1.1	1.1	1.8	1.1	1.1
Ingress Protection	IP66						
Cable Entry	M20 or ¾ NPT						
Supply Voltage	only by OLDHAM Controller	15.5 to 32 VDC	13.5 to 32 VDC	10 to 32 VDC	15.5 to 32 VDC	15.5 to 32 VDC	15.5 to 32 VDC
Average Consumption	340 mA	110 mA	60 mA	23.5 mA	100 mA	100 mA	23.5 mA
Pressure	atmospheric ± 10%						
Output signal	Usual source encoded from 0 to 23 mA (not isolated) - linear 4 to 20 mA output, reserved for measurement - 0 mA : electronic fault or no power supply - < 1 mA: fault - 2 mA: initialization mode - > 23 mA: out of range						
Approvals	Compliant with European directive ATEX 2014/34/EU and with IECEx schedule for explosion-proof detectors. OLC 100, OLCT 100 XP, OLCT 100 XP IR : ATEX II 2 GD / Ex d IIC T6 Gb / Ex tb IIIC T85°C Db IP66 OLCT 100 XP HT: ATEX II 2 GD / Ex d IIC T6 Gb / Ex tb IIIC T85°C Db IP66 (for the transmitter to be installed in a cold zone) ATEX II 2 G / Ex d IIC T4..T2 Gb (for the sensor to be installed in the hot zone) OLCT 100 IS Aluminum : ATEX II 2 GD / Ex ia IIC T4 Gb / Ex ia IIIC T135°C Db IP66 OLCT 100 IS Stainless Steel : ATEX II 1 GD / Ex ia IIC T4 Ga / Ex ia IIIC T135°C Da IP66 SIL 2 according to EN 50402 / EN 61508 for catalytic versions, O2, CO, NH3 and H2S Metrological performances according to EN/IEC 60079-29-1 Electromagnetic compatibility according to EN 50270						
Cable	3 active wires, shielded cable	3 active wires, shielded cable	3 active wires, shielded cable	2 active wires, shielded cable	3 active wires, shielded cable	3 active wires, shielded cable	2 active wires, shielded cable



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Fixed Gas Detection

## Ordering Information

The reference is broken down as follows:

**OLCT 100-XP-001-1**

OLCT 100 XP Transmitter, 0-100% LEL CH<sub>4</sub>, ATEX, M20 cable entry

Range:	Type:	Gas:	Approval and entry of cable range:
OLC 100 OLCT 100 OLCT 100 HT5* OLCT 100 HT10* OLCT 100 HT15*	XP IS XPIR	Codified from 1 to 999, includes gas and detection range	1 - ATEX and M20 cable entry - Aluminium 3 - ATEX and 3/4 NPT cable entry - Aluminium 5 - ATEX and M20 cable entry - Stainless steel 7 - ATEX and 3/4 NPT cable entry - Stainless steel

\*Sensor movable up to 5, 10, or 15 meters using a high temperature cable

## Accessories

- A** Calibration cup (6331141)  
allows introduction of calibration gas on the sensor
- B** Bypass adapter (6327910)  
allows measurement of samples
- C** Splash guard system (6329004)  
protects the detector from liquid projections
- D** Remote gas introduction head (6327911)  
allows introduction of gas without opening the detector
- E** Removable protective filter (6335975)  
protects the sensor against projections and dust
- F** Duct measurement kit (6793322)  
allows gas monitoring in a duct
- G** Mounting bracket (6322420)  
allows the mounting of the detector to the ceiling
- H** Protective cover (6123716)  
protects the detector against bad weather conditions or  
against direct sun radiations
- I** Adapter plate (6793718)  
allows the replacement of another OLDHAM detector  
without re-drilling
- J** Wall mounted collecting cone (6331169)  
for use with lighter-than-air gases
- K** Ceiling mount collecting cone (6331168)  
for use with lighter-than-air gases



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