

# OLC(T) 100

Fixed Gas Monitoring Solutions

- Detection of explosive gases, toxic gases and oxygen
- Infrared XP IR version
- SIL 2 high reliability
- IP 66



## Certifications:



CE ATEX



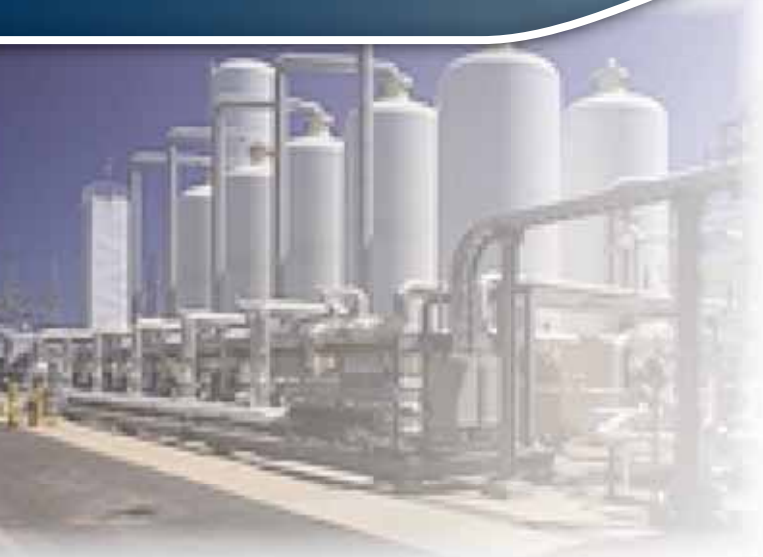
The Fixed Gas Detection People

# OLDHAM

An Industrial Scientific Company

[www.oldhamgas.com](http://www.oldhamgas.com)

# OLC(T) 100



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

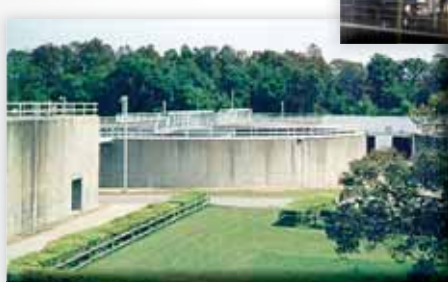
According to your application, Oldham proposes you

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

Available in explosion-proof or intrinsically safe versions, the OLC(T) 100 is suitable for detection of all gases in ATEX zone.

## APPLICATIONS:

- Steel mills
- Petrochemical facilities
- Chemical industry
- Pharmaceutical industr
- Food industry
- Refrigeration industry
- water treatment...



## IR SENSOR

The **infrared sensor** is proposed for detection of explosive gases in more severe environmental conditions, where the presence of poisons could harm the use of a catalytic cell.

With a 3-year warranty, this sensor will offer you reliability and longer life time



▶ A **high temperature sensor** is now available for detection of explosive gases up to 200°C.

## OLCT 100 XP

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

## OLCT 100 IS

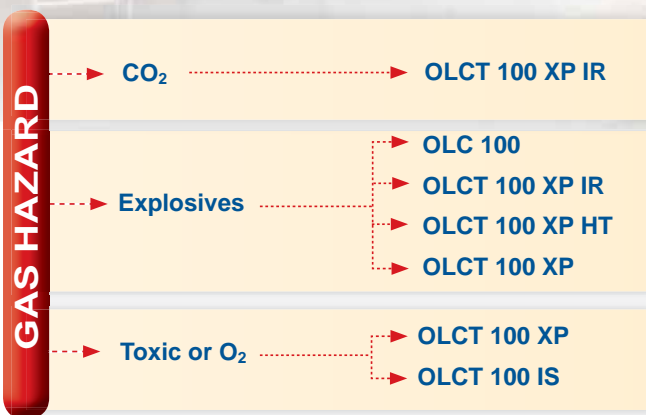
Intrinsically safe version is equipped with an electrochemical sensor for detection of toxic gases or oxygen.

## OLCT 100 XP IR

Explosion-proof version is equipped with an infrared sensor for detection of explosive gases or CO<sub>2</sub>.

## OLCT 100 XP HT

High temperature explosion-proof version for detection of explosive gases up to 200°C.



## RELIABILITY

The OLC(T) 100 is SIL 2 certified by INERIS, according to EN 50402 standard, which corresponds to IEC/EN 61508 for gas detectors.



The OLC(T) 100 is a highly reliable solution for your SIL2 application.

The OLDHAM, patented infrared version, allows you to reduce your maintenance intervals at an annual calibration with the same level of safety, higher than other technologies.

With a probability of failure on demand of  $0.13 \cdot 10^{-6}$  (corresponding to a failure rate of 1 out of 2857 solicitations), the SIL 3 level of reliability would have been reached, if it was recognized by EN 50402 standard, which just considers SIL 1 and SIL 2 levels ( "...SIL 3 and SIL 4 are not possible with the current technology ... SIL 3 gas detection systems can be achieved using 2 identical detectors..." ).

Gas	Mesure	SIL Capability	$\lambda_{DU}$	Reduction Risk Factor	Test Period
Combustibles	Catalytic (C1000)	SIL 2	$2.19 \cdot 10^{-6}$	418	3 months
Combustibles, CO <sub>2</sub>	Infrared	SIL 2	$0.13 \cdot 10^{-6}$	2857	12 months
O <sub>2</sub>	Electrochemical	SIL 2	$0.74 \cdot 10^{-6}$	1234	3 months
CO	Electrochemical	SIL 2	$1.09 \cdot 10^{-6}$	840	3 months
H <sub>2</sub> S	Electrochemical	SIL 2	$2.98 \cdot 10^{-6}$	306	3 months
NH <sub>3</sub>	Electrochemical	SIL 2	$4.48 \cdot 10^{-6}$	203	3 months

# SENSORS TECHNICAL SPECIFICATIONS

Gas	Measuring Range (ppm)	XP Version	IS Version	Temperature Range (°C)	% RH	Accuracy (ppm)	Life Time (month)	Response Time T <sub>50</sub> /T <sub>90</sub> (s)	Storage Condition
AsH <sub>3</sub> Arsine	1.00		■	-20 to +40	20 - 90	+/- 0.05	18	30/120	(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	100 300 1000	■ ■ ■	■ ■ ■	-20 to +50	15 - 90	+/- 3 (range 0-100)	40	15/40	(a)
COCl <sub>2</sub> Phosgene	1.00		■	-20 to +40	15-90	+/- 0.05	12	60/180	(b)
ETO Ethylene oxide	30.0		■	-20 to +50	15-90	+/- 1	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	30.0 100 1000	■ ■ ■	■ ■ ■	-40 to +50	15 - 90	+/- 1.5 (range 0-30)	36	15/30	(a)
HCl Hydrochloric acid	30.0 / 100		■	-20 to +40	15 - 95	+/- 0.4 (range 0-10)	24	30/150	(a)
NH <sub>3</sub> Ammonia	100 1000 5000	■ ■ ■	■ ■ ■	-20 to +40	15 - 90	+/- 5 +/- 20 +/- 150 or 10%	24	25/70 20/60 60/180	(a)
NO Nitrogen monoxide	100 300 1000	■ ■ ■	■ ■ ■	-20 to +50	15 - 90	+/- 2 (range 0-100)	36	10/30	(a)
NO <sub>2</sub> Nitrogen dioxide	10.0 30.0		■ ■	-20 to +50	15 - 90	+/- 0.8	24	30/60	(a)
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)
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	18	25/120	(a)
SO <sub>2</sub> Sulphur dioxide	10.0 30.0 100		■ ■ ■	-20 to +50	15 - 90	+/- 0.7 (range 0-10)	36	15/45	(a)
CH <sub>3</sub> Cl Methyl Chlorure	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
CH <sub>2</sub> Cl <sub>2</sub> Methylene Chlorure	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R12	1% vol	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R22	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R123	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
FX56	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R134 a	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R142 b	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R11	1% vol	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R23	1% vol	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R141 b	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R143 a	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R404 a	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R507	2000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R410 a	1000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R32	1000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R227	1% vol	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R407 c	1000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Freon R408 a	1000	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Ethanol	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Toluene	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Isopropanol	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
2-butanone (MEK)	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)
Xylene	500	■		-20 to +60	20 - 95	+/- 5 ppm to 100 ppm	40	25/50	(c)

(a) + 4°C to 20°C  
20 % to 60 % RH  
1 bar ± 10 %  
maximum 6 months

(b) +4°C to 20°C  
20 % to 60 % RH  
1 bar ± 10 %  
maximum 3 months

(c) -20°C to 50°C  
20 % to 60 % RH  
1 bar ± 10 %  
maximum 6 months



# OLC(T) 100

Model	OLC 100	OLCT 100 XP	OLCT 100 XP IR	OLCT 100 XP	OLCT 100 XP HT	OLCT 100 XP	OLCT 100 IS
<b>Sensor</b>	Catalytic bead	Catalytic bead	Infrared	Electrochemical	Catalytic bead	Semi-conductor	Electrochemical
<b>Material</b>	Epoxy-coated aluminium housing (Inox 316L optional). 316 stainless steel sensors						
<b>Dimensions (mm)</b>	138x133x84	138x133x84	179x138x84	179x138x84	150x138x84	179x138x84	179x138x84
<b>Weight (kg)</b>	0.95	1	1.1	1.1	1.8	1.1	1.1
<b>Ingress Protection</b>	IP66						
<b>Cable Entry</b>	M20 or ¾ NPT						
<b>Supply Voltage</b>	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
<b>Average Consumption</b>	340 mA	110 mA	60 mA	23.5 mA	100 mA	100 mA	23.5 mA
<b>Relative Humidity (non condensing)</b>	0 % to 95 % RH	0 to 95 % RH	0 to 95 % RH	Depends on gas	0 to 95 % RH	20 to 95 % RH	Depends on gas
<b>Pressure</b>	atmospheric ± 10%						
<b>Response Time</b>	T <sub>50</sub> = 6 s T <sub>90</sub> = 15 s for methane	T <sub>50</sub> = 6 s T <sub>90</sub> = 15 s for methane	- CO <sub>2</sub> version : T <sub>50</sub> = 11 s T <sub>90</sub> = 30 s - LEL version: T <sub>50</sub> = 11 s T <sub>90</sub> = 30 s	Depends on gas	T <sub>50</sub> = 6 s T <sub>90</sub> = 15 s for methane	Depends on gas	Depends on gas
<b>Average Life Time</b>	36 to 48 months	36 to 48 months	> 48 months	Depends on gas	36 to 48 months	36 to 48 months	Depends on gas
<b>Continuous Temperature Range</b>	-40°C to +70°C	-40°C to +70°C	-25°C to +55°C	Depends on gas	-20°C to +200°C	-20°C to +60°C	Depends on gas
<b>Storage Conditions</b>	-50°C to 70°C 20 to 60 % RH 1 bar ± 10 % maximum 6 months	-50°C to +70°C 20 to 60 % RH 1 bar ± 10 % maximum 6 months	+4°C to +20°C 10 to 60 % RH 1 bar ± 10 % maximum 6 months	Depends on gas	-50°C to +70°C 20 to 60 % RH 1 bar ± 10 % maximum 6 months	-20°C to +50°C 20 to 60 % RH 1 bar ± 10 % maximum 6 months	Depends on gas
<b>Output signal</b>	usual source encoded from 0 to 23 mA (not isolated) - linear 4 à 20mA output, reserved for measurement - 0 mA : electronic fault or no power supply - < 1mA : fault - 2 mA : initialization mode - > 23 mA : out of range						
<b>Approvals</b>	Compliant with european directive ATEX 94/9/CE and with IECEx schedule for explosion-proof detectors. SIL 2 according to EN 50402 / EN 61508 Metrological performances according to EN 50054 and EN 50057 (61779-1 :2000 and 61779-4 :2000 harmonized standards) Electromagnetic compatibility according to EN 50270						
<b>Cable</b>	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

The reference is broken down as follows:

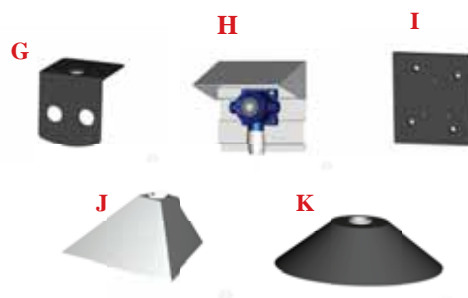
## OLCT100-XPIR-001-1

OLCT 100 XP IR Transmitter, 0-100% LEL CH<sub>4</sub>

Range:	Type:	Gas:	Approval and entry of cable range:
OLC100 OLCT100 OLCT100 HT5 OLCT100 HT10 OLCT100 HT15	XP IS XPIR	codified from 1 to 999, includes gas and detection range	1 - ATEX and M20 cable entry 3 - ATEX and 3/4 NPT cable entry CSA approvals are pending.

## ACCESSORIES

- A Calibration cup (6 331 141)**  
allows introduction of calibration gas on the sensor
- B Bypass adapter (6 327 910)**  
allows measurement of samples
- C Splash guard system (6 329 004)**  
protects the detector from liquid projections
- D Remote gas introduction head (6 327 911)**  
allows introduction of gas without opening the detector
- E Removable protective filter (3 665 975)**  
protects the sensor against projections and dust
- F Duct measurement kit (6 793 322)**  
allows gas monitoring in a duct
- G Mounting bracket (6 322 420)**  
allows to fix the detector to the ceiling
- H Protective cover (6 123 716)**  
protects the detector against bad weather conditions or against direct sun radiations
- I Adapter plate (6 793 718)**  
allows the replacement of another OLDHAM detector without re-drilling
- J Wall mounted collecting cone (6 331 169)**  
Wall mounted – for use with lighter than air gases
- K Ceiling mount collecting cone (6 331 168)**  
Ceiling mounted – for use with lighter than air gases



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**AMERICAS**  
 Phone: +1-412-788-4353  
 Fax: +1-412-788-8353  
[info@indsci.com](mailto:info@indsci.com)

**ASIA PACIFIC**  
 Phone: +65-6561-7377  
 Fax: +65-6561-7787  
[info@ap.indsci.com](mailto:info@ap.indsci.com)

**EUROPE**  
 Phone: +33-3-21-60-80-80  
 Fax: +33-3-21-60-80-00  
[info@oldhamgas.com](mailto:info@oldhamgas.com)