# OLC(T) 100

Fixed Gas Detector

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


Electronics 3 years Warranty

## Certifications

ISO 9001 · Ex · INERIS · Ex NEPSI · CE ATEX · IECEx · SIL INERIS

Omni Instruments
Measurement > Control > Data Acquisition

www.omniinstruments.co.uk

# OLC(T) 100

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

At Oldham, 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 explosive gases.

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

## APPLICATIONS

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

## IR SENSOR

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

Our state of the art IR sensor with 3-year warranty offers outstanding reliability and long sensor life.


## 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 IR version is equipped with an infrared sensor for detection of explosive gases or $CO_2$.

## OLCT 100 XP HT

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


## RELIABILITY

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

With a probability of failure on demand of 0.35 $10^{-3}$ (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 the EN 50402 standard, which just considers SIL 1 and SIL 2 levels.

| Gas | Mesure | SIL Capability | $\lambda_{DU}$ | Reduction Risk Factor | Test Period |
|---|---|---|---|---|---|
| Combustibles | Catalytic (C1000) | SIL 2 | 2.19 $10^{-6}$ | 418 | 3 months |
| **Combustibles, $CO_2$** | **Infrared** | **SIL 2** | **0.13 $10^{-6}$** | **2857** | **12 months** |
| $O_2$ | Electrochemical | SIL 2 | 0.74 $10^{-6}$ | 1234 | 3 months |
| CO | Electrochemical | SIL 2 | 1.09 $10^{-6}$ | 840 | 3 months |
| $H_2S$ | Electrochemical | SIL 2 | 2.98 $10^{-6}$ | 306 | 3 months |
| $NH_3$ | Electrochemical | SIL 2 | 4.48 $10^{-6}$ | 203 | 3 months |

# SENSORS TECHNICAL SPECIFICATIONS

| Gas | | Measuring Range (ppm) | XP Version | IS Version | Temperature Range (°C) | % RH | Accuracy (ppm) | Average Life Expectancy (month) | Response Time $T_{50}/T_{90}$ (s) | Storage Condition |
|---|---|---|---|---|---|---|---|---|---|---|
| Explosive Gases | Infrared | 0-100% LEL | ■ | | -25 to +55 | 0 - 95 | +/- 5% | 48 | 11/30 ($CH_4$) | (a) |
| | Catalytic | 0-100% LEL | ■ | | -40 to +70 | 0 - 95 | +/- 1% LEL (from 0 to 70% LEL) | 40 | 6/15 ($CH_4$) | (b) |
| | Catalytic High Temperature | 0-100% LEL | ■ | | -20 to +200 | 0 - 95 | +/- 1% LEL (from 0 to 70% LEL) | 40 | 6/15 ($CH_4$) | (b) |
| $AsH_3$ | Arsine | 1.00 | | ■ | -20 to +40 | 20 - 90 | +/- 0.05 | 18 | 30/120 | (a) |
| $Cl_2$ | Chlorine | 10.0 | | ■ | -20 to +40 | 10 - 90 | +/- 0.4 | 24 | 10/60 | (a) |
| $ClO_2$ | Chlorine dioxide | 3.00 | | ■ | -20 to +40 | 10 - 90 | +/- 0.3 | 24 | 20/120 | (a) |
| CO | Carbon monoxide | 100<br>300<br>1000 | ■<br>■<br>■ | ■<br>■<br>■ | -20 to +50 | 15 - 90 | +/- 3 (range 0-100) | 40 | 15/40 | (a) |
| $CO_2$ | Carbon dioxide | 0-5% vol<br>0-10% vol | | ■ | -20 to+40 | 10 - 90 | +/- 3 | 24 | 20/120 | (a) |
| $COCl_2$ | 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) |
| $H_2$ | Hydrogen | 2000 | ■ | ■ | -20 to +50 | 15 - 90 | +/- 5% | 24 | 30/50 | (a) |
| $H_2S$ | Hydrogen sulfide | 30.0<br>100<br>1000 | ■<br>■<br>■ | ■<br>■<br>■ | -40 to +50 | 15 - 90 | +/- 1.5 (range 0-30) | 36 | 15/30 | (a) |
| HCl | Hydrochloric chloride | 30.0 / 100 | | ■ | -20 to +40 | 15 - 95 | +/- 0.4 (range 0-10) | 24 | 30/150 | (a) |
| HCN | Hydrogen cyanide | 10.0<br>30.0 | | ■<br>■ | -40 à +40 | 15 - 95 | +/- 0.3 (range 0-10) | 18 | 30/120 | (c) |
| $NH_3$ | Ammonia | 100<br>1000<br>5000 | ■<br>■<br>■ | ■<br>■<br>■ | -20 to +40 | 15 - 90 | +/- 5<br>+/- 20<br>+/- 150 or 10% | 24 | 25/70<br>20/60<br>60/180 | (a) |
| NO | Nitrogen monoxide | 100<br>300<br>1000 | ■<br>■<br>■ | ■<br>■<br>■ | -20 to +50 | 15 - 90 | +/- 2 (range 0-100) | 36 | 10/30 | (a) |
| $NO_2$ | Nitrogen dioxide | 10.0<br>30.0 | | ■<br>■ | -20 to +50 | 15 - 90 | +/- 0.8 | 24 | 30/60 | (a) |
| $O_2$ | Oxygen | 0-30% vol | ■ | ■ | -20 to +50 | 15 - 90 | 0.4% Vol (from 15 to 22% $O_2$) | 28 | 6-15 | (a) |
| $PH_3$ | Phosphine | 1.00 | | ■ | -20 to +40 | 20 - 90 | +/- 0.05 | 18 | 30/120 | (a) |
| $SiH_4$ | Silane | 50.0 | | ■ | -20 to +40 | 20 - 95 | +/- 1.0 | 18 | 25/120 | (a) |
| $SO_2$ | Sulphur dioxide | 10.0<br>30.0<br>100 | | ■<br>■<br>■ | -20 to +50 | 15 - 90 | +/- 0.7 (range 0-10) | 36 | 15/45 | (a) |
| $CH_3Cl$ | Methyl chloride | 500 | ■ | | -20 to +55 | 20 - 95 | +/- 15% (from 20 to 70% FS) | 40 | 25/50 | (d) |
| $CH_2Cl_2$ | 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) |
| Freon R142 b | | 2000 | ■ | | -20 to +55 | 20 - 95 | +/- 15% (from 20 to 70% FS) | 40 | 25/50 | (d) |
| 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 R141 b | | 2000 | ■ | | -20 to +55 | 20 - 95 | +/- 15% (from 20 to 70% FS) | 40 | 25/50 | (d) |
| Freon R143 a | | 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 R410 a | | 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 R227 | | 1% vol | ■ | | -20 to +55 | 20 - 95 | +/- 15% (from 20 to 70% FS) | 40 | 25/50 | (d) |
| Freon R407 c | | 1000 | ■ | | -20 to +55 | 20 - 95 | +/- 15% (from 20 to 70% FS) | 40 | 25/50 | (d) |
| Freon R408 a | | 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) |

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

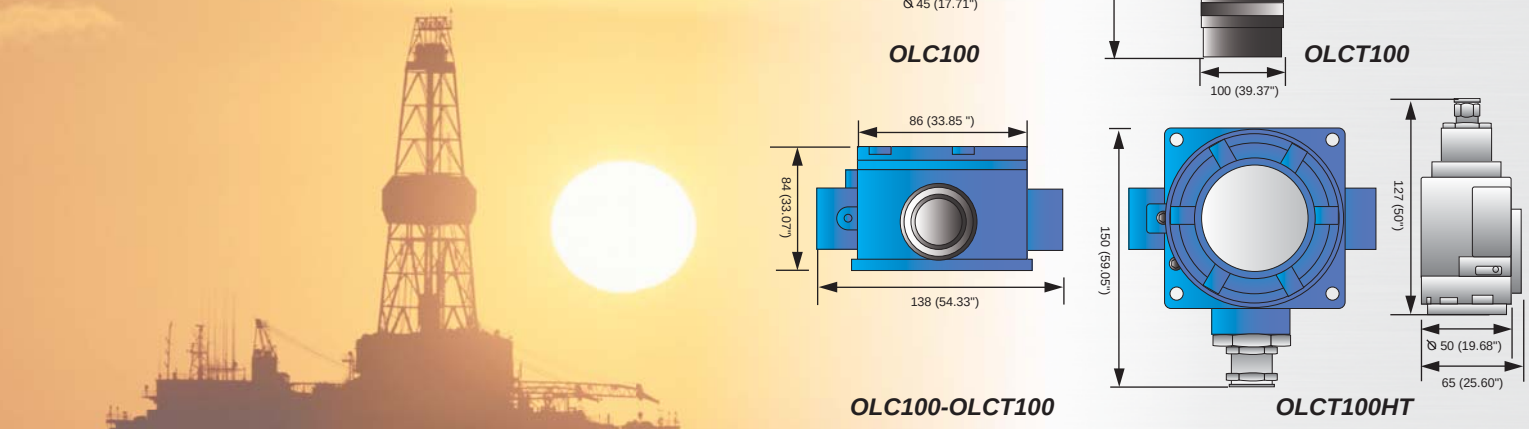
(b) -50°C to +70°C
20 % to 60 % HR
1 bar ± 10 %
6 month maximum

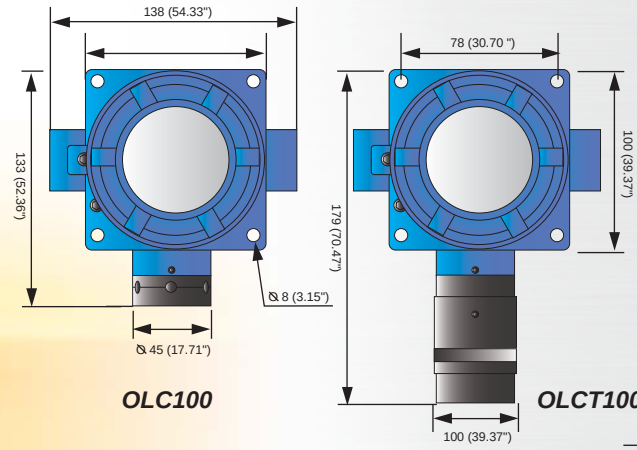
(c) +4°C to +20°C
20 % to 60 % HR
1 bar ± 10 %
3 month maximum

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

# TECHNICAL SPECIFICATIONS

| 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).<br>316 stainless steel sensors | | | | | | |
| **Dimensions (mm)**<br>**(inches)** | 138 x 133 x 84<br>5.43 x 5.24 x 3.31" | 138 x 133 x 84<br>5.43 x 5.24 x 3.31" | 179 x 138 x 84<br>7.05 x 5.43 x 3.31" | 179 x 138 x 84<br>7.05 x 5.43 x 3.31" | 150 x 138 x 84<br>5.91 x 5.43 x 3.31" | 179 x 138 x 84<br>7.05 x 5.43 x 3.31" | 179 x 138 x 84<br>7.05 x 5.43 x 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)<br>- linear 4 to 20 mA output, reserved for measurement<br>- 0 mA : electronic fault or no power supply<br>- < 1 mA: fault<br>- 2 mA: initialization mode<br>- > 23 mA: out of range | | | | | | |
| **Approvals** | Compliant with European directive ATEX 94/9/CE and with IECEx schedule for explosion-proof detectors.<br>OLC 100, OLCT 100 XP, OLCT 100 XP IR : ATEX II 2 GD / Ex d IIC T6 Gb / Ex t IIIC T85°C Db IP66<br>OLCT 100 IS : ATEX II 2 GD / Ex ia IIC T4 / Ex ia D 21 T135°C IP66<br>SIL 2 according to EN 50402 / EN 61508 for catalytic and infrared versions, $O_2$, CO, $NH_3$ and $H_2S$<br>SIL 2 according to EN 50402 / EN 61508<br>Metrological performances according to EN/IEC 60079-29-1<br>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 |






*OLC100* *OLCT100*




*OLC100-OLCT100* *OLCT100HT*

# ORDERING INFORMATION

**The reference is broken down as follows:**

## OLCT100-XPIR-001-1

*OLCT 100 XP IR Transmitter, 0-100% LEL $CH_4$, ATEX, M20 cable entry*

| Range: | Type: | Gas: | Approval and entry of cable range: |
|---|---|---|---|
| OLC100<br>OLCT100<br>OLCT100 HT5*<br>OLCT100 HT10*<br>OLCT100 HT15* | XP<br>IS<br>XPIR | Codified from 1 to 999, includes gas and detection range | 1 - ATEX and M20 cable entry<br>3 - ATEX and ¾ NPT cable entry<br>CSA approvals are pending. |

*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

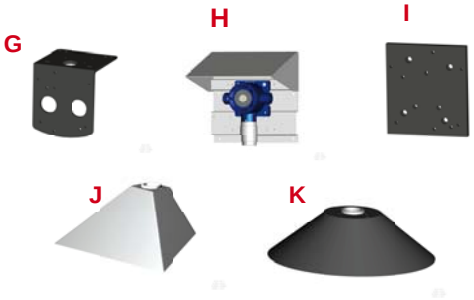
**G Mounting bracket (6322420)**
allows the mounting of the detector to the ceiling

**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


ISO 9001:2008 CERTIFIED

ISO 14001:2004 CERTIFIED


Ref. OLC(T)100_Lit_ENG_v2
REV 0710

For pricing information contact Omni Instruments by phone on +44 845 9000 601 or via email at info@omni.uk.com

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