



## OLC(T) 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



# OLC(T) 100

## 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

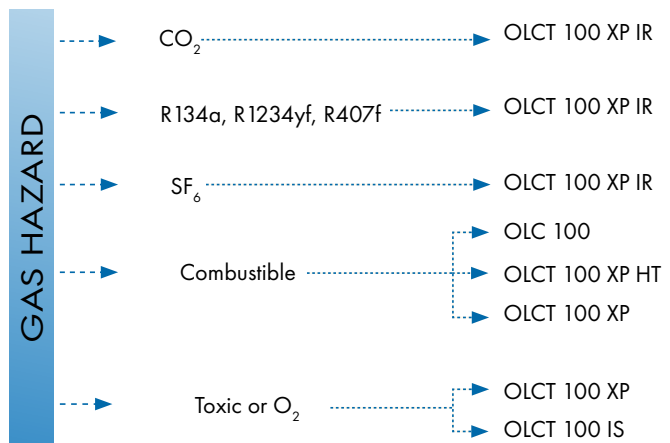
Intrinsically safe version is equipped with an electrochemical sensor for detection of toxic gases or oxygen.

## 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.



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### 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.

| Gas                              | Measure           | SIL Capability | DU                    | PFD <sub>avg</sub>   | Test Period |
|----------------------------------|-------------------|----------------|-----------------------|----------------------|-------------|
| Combustibles <sup>(a)</sup>      | Catalytic (C1000) | SIL 2          | $0,189 \cdot 10^{-6}$ | $8.3 \cdot 10^{-4}$  | 12 months   |
| O <sub>2</sub> <sup>(b)(c)</sup> | Electrochemical   | SIL 2          | $0.74 \cdot 10^{-6}$  | $1.62 \cdot 10^{-3}$ | 6 months    |
| CO <sup>(b)</sup>                | Electrochemical   | SIL 2          | $1.09 \cdot 10^{-6}$  | $1.19 \cdot 10^{-3}$ | 3 months    |
| H <sub>2</sub> S <sup>(b)</sup>  | Electrochemical   | SIL 2          | $2.98 \cdot 10^{-6}$  | $3.26 \cdot 10^{-3}$ | 3 months    |
| NH <sub>3</sub> <sup>(b)</sup>   | Electrochemical   | SIL 2          | $4.48 \cdot 10^{-6}$  | $4.91 \cdot 10^{-3}$ | 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) O<sub>2</sub> 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 $T_{95}/T_{90}$ (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             | 0-5000ppm             | •          |            | -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 | +/- 5% relative (10-100)                  | 36                              | 15/30                             | (a)               |
|                                 |                            | 100                   | •          | •          |                        |         |   |                                 |                                   |                   |
|                                 |                            | 1000                  | •          | •          |                        |         |   |                                 |                                   |                   |
| HCl                             | Hydrochloric chloride      | 30.0                  |            | •          | -20 to +40             | 15 - 95 | +/- 0.4 (range 0-10)                      | 24                              | 10/50                             | (a)               |
|                                 |                            | 100                   |            | •          |                        |         |   |                                 |                                   |                   |
| HCN                             | Hydrogen cyanide           | 10.0                  |            | •          | -40 to +40             | 15 - 95 | +/- 0.3 (range 0-10)                      | 18                              | 20/70                             | (c)               |
|                                 |                            | 30.0                  |            | •          |                        |         |   |                                 |                                   |                   |
|                                 |                            | 1000                  | •          | • ❄️       | -40 to +40             | 15 - 90 | +/- 20                                    | 24                              | --                                |                   |
| NH <sub>3</sub>                 | Ammonia                    | 100                   | •          | •          | -20 to +40             | 15 - 90 | +/- 5<br>+/- 20<br>+/- 150 or 10%         | 24                              | 16/82<br>13/58<br>13/39           | (a)               |
|                                 |                            | 1000                  | •          | •          |                        |         |   |                                 |                                   |                   |
|                                 |                            | 5000                  | •          | •          |                        |         |   |                                 |                                   |                   |
| NO                              | Nitrogen monoxide          | 100                   | •          | •          | -20 to +50             | 15 - 90 | +/- 2 (range 0-100)                       | 36                              | 8/15                              | (a)               |
|                                 |                            | 300                   | •          | •          |                        |         |   |                                 |                                   |                   |
|                                 |                            | 1000                  | •          | •          |                        |         |   |                                 |                                   |                   |
| NO <sub>2</sub>                 | Nitrogen dioxide           | 10.0                  |            | •          | -20 to +50             | 15 - 90 | +/- 0.8                                   | 24                              | 20/51                             | (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                              | 40/150                            | (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                     |                            | 2000                  | • (IR)     |            | -20 to +50             | 0 - 95  | +/- 40ppm (from 0 to 50% range)           | 60                              | 25/50                             | (d)               |
| Freon R32                       |                            | 1000                  | •          |            | -20 to +55             | 20 - 95 | +/- 15% (from 20 to 70% FS)               | 40                              | 25/50                             | (d)               |
| Freon R32 IR                    |                            | 1000                  | •          |            | -20 to +55             | 20 - 95 | +/- 15% (from 20 to 70% FS)               | 40                              | 25/120                            | (e)               |
| 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)               |
| SF <sub>6</sub>                 |                            | 2000                  | • (IR)     |            | -20 to +50             | 0 - 95  | +/- 40ppm (from 0 to 50% range)           | 60                              | 50/160                            | (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)               |
| R449a IR                        |                            | 2000                  | • (IR)     |            | -20 to +50             | 0 - 95  | +/- 40ppm (from 0 to 50% range)           | 60                              | 25/120                            | (e)               |
| R123zd IR                       |                            | 5000                  | • (IR)     |            | -20 to +50             | 0 - 95  | +/- 40ppm (from 0 to 50% range)           | 60                              | 25/120                            | (e)               |

(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

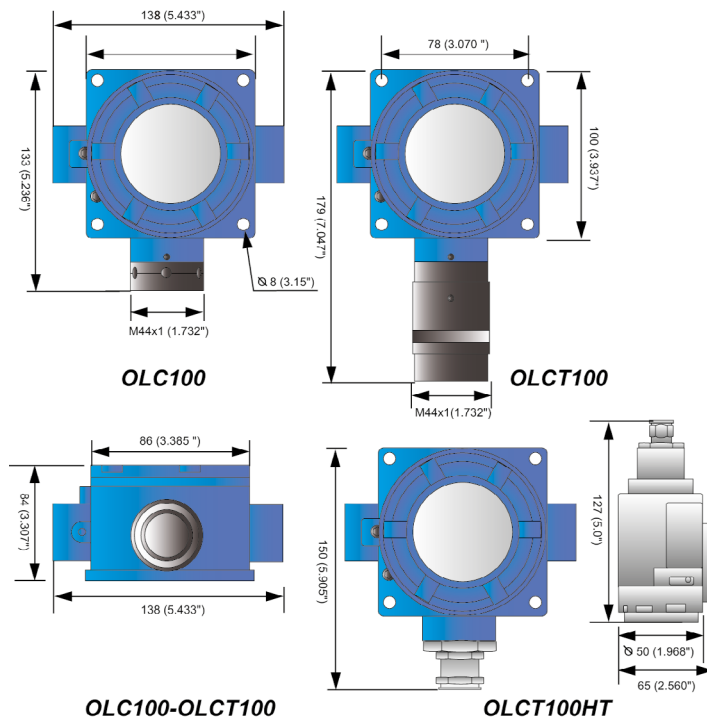
(d) -20°C to +50°C / 20% to 60% HR  
1 bar ± 10% / 6 month maximum

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

# OLC(T) 100

## 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).<br>316 stainless steel sensors   |                                      |                                      |                                      |                                      |                                      |                                      |
| Dimensions (mm)<br>(inches) | 135 x 133 x 84<br>5.43 x 5.24 x 3.31  | 135 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<br>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 2014/34/EU 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 tb IIIC T85°C Db IP66<br>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)<br>ATEX II 2 G / Ex d IIC T4..T2 Gb (for the sensor to be installed in the hot zone)<br>OLCT 100 IS Aluminum : ATEX II 2 GD / Ex ia IIC T4 Gb / Ex ia IIIC T135°C Db IP66<br>OLCT 100 IS Stainless Steel : ATEX II 1 GD / Ex ia IIC T4 Ga / Ex ia IIIC T135°C Da IP66<br>SIL 2 according to EN 50402 / EN 61508 for catalytic versions, O <sub>2</sub> , CO, NH <sub>3</sub> and H <sub>2</sub> S<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       |



### Ordering Information

The reference is broken down as follows:

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

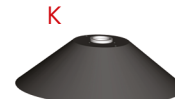
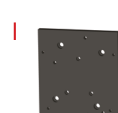
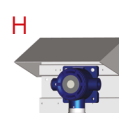
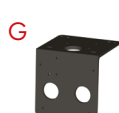
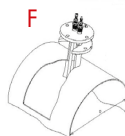
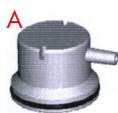
OLCT 100 XP Transmitter, 0-100% LEL CH<sub>4</sub>, ATEX, M20 cable entry

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





# TELEDYNE OLDHAM SIMTRONICS

Everywhereyoulook™



Teledyne Oldham Simtronics quality assurance programmes demand the continuous assessment and improvement of all our products. Information in this leaflet could thus change without notification and does not constitute a product specification.



## TELEDYNE GAS AND FLAME DETECTION

Everywhereyoulook™

### AMERICAS

14880 Skinner Rd  
Cypress, TX 77429  
USA  
Tel.: +1 713-559-9200  
Fax: +1 281-746-3064

### EMEA

ZI Est, Rue Orfila,  
CS 20417  
62027 ARRAS CEDEX, France  
Tel.: +33-3-21-60-80-80  
Fax.: +33-3-21-60-80-00

### ASIA PACIFIC

Room 04, 9th Floor  
275 Ruijing Road  
Xuhui District, Shanghai  
China  
Tel.: +86-134 8229 5057