

## WDG 1200 / 1210-HPII XP

Explosion proof Division 1, convective analyzers for direct measurement of oxygen in flue gas streams up to 1537°C.

The WDG 1200 / 1210-HPII XP analyzers mount directly on the combustion process and are designed for direct measurement in flue gas applications without the need for installing a high temperature bypass system, a requirement on most petrochemical insitu analyzer applications. The elimination of the high temperature bypass system with the direct convection measurement of the WDG 1200 / 1210-HP XP analyzer insures a faster analyzer response to process changes and reduced installation cost by direct process flange mounting and no need for instrument air for sample transport or purge. These analyzers are suitable for gas streams up to 1537°C and for corrosive gas streams with sample wetted parts in Hastelloy® or Inconel®. The analyzers can be provided with integral on-board electronics (WDG- 1200-HPII XP) or a remote mount control unit installed up to 300m from the sensor (WDG-1210-HPII XP). Analog current output and MODBUS communication are provided for process measurement and communication.



### **WDG 1200 / 1210-HPII XP MODELS for NEC DIV 1**

#### WDG 1200-HPII XP

Integral Electronics

Probe Length: 61 cm, 91 cm, 122 cm

#### WDG 1210-HPII XP

Remote Mount Electronics to 300m

Probe Length: 61 cm, 91 cm, 122 cm

## SENSOR SECTION

**Principle of Operation:** Zirconium oxide for net oxygen measurement and hot-wire type catalytic detector for combustibles.

**Output Range:** Oxygen: From 0-1 to 0-25% O<sub>2</sub>

**Accuracy:** Oxygen: ±1.0% of measured value or ±0.05% O<sub>2</sub>, whichever is greater

**Response:** Oxygen: 90% of a step change < 30 seconds with 61 cm probe

**Max. Flue Gas Temp. / Probe Material:**

704°C / 316 SS

1024°C / 310 SS

1537°C / Ceramic

**Probe Lengths:**

SS: 61 cm, 91 cm, 122 cm

Ceramic: 61 cm, 91 cm, 122 cm

**Max. Sample Dewpoint:** 200°C

**Environment:**

Ambient Temp.: -20°C to 60°C

Relative Humidity: 10% to 90%, non-condensing

**Enclosure:** NEMA 4X

**Calibration Gas Requirements:**

Use calibration gases at 0.70 kg/cm<sup>2</sup>, 0.7 L/min.

O<sub>2</sub> Span Gas: Air or from 1.0% to 100% O<sub>2</sub>, balance N<sub>2</sub>

O<sub>2</sub> Comb. Zero Gas: From 0.1 to 10% O<sub>2</sub> (2% recommended), balance N<sub>2</sub>

## INTERFACE OPTIONS

The choice of WDG 1200 HP11 XP for electronics integral to the sensor or WDG 1210 HP11 XP for remote mount control unit offers flexibility to suit application and site requirements.

WDG 1200 / 1210 HP11 XP analyzers incorporate all the necessary intelligence for operation and to provide analog output and alarms for oxygen control of a process. User access is via either MODBUS digital communications or by integral keyboard and display (internal) for all interrogation, diagnostic, or calibration functions. For installations where a separate remote mount control unit is preferred, the WDG 1210 HP11 XP electronics enclosure can be located up to 300m from the sensor.

### WDG 1200 / 1210 CONTROL UNIT

**Display:** Single-line 4 digit LED (Internal to the enclosure)

**Analog Output:** One isolated linear current output

**Alarms:** High/ Low customer selectable. System Fault, Maintenance/ Cal in process

**Environment:**

Ambient Temp.: -20°C to 71°C

Humidity: 10% to 95%, non-condensing

**Communications:** MODBUS RS-485, 2-wire, half-duplex addressable

**Enclosure:** Weatherproof NEMA 4X (IP 56)

### COMMON FEATURES

**Display:** 4 digit LED with keypad parameter entry, password protection

**Alarms:** SPST type. Contact rating 2.0, 30VAC, 10 VA max. Non-inductive load, AC or DC

**Calibration:** Option to track or hold

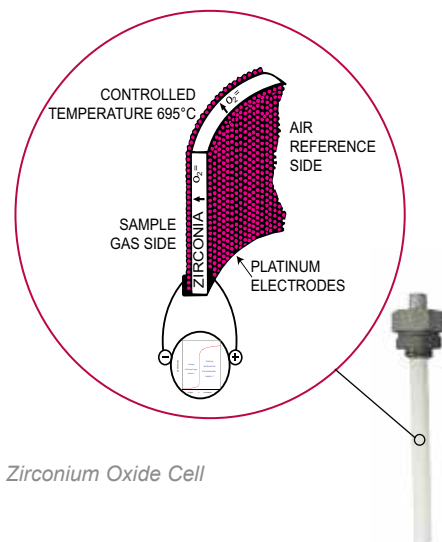
**Diagnostics:** LED Fault Indicator, error code display.

**Analog Output:** Each output can be 4-20 mA or 0-20 mA and is fully scalable. Hold or track during calibration and select degree of damping.

**Communications:** RS-485, 2-way addressable

#### RELIABLE AND EASY TO SERVICE

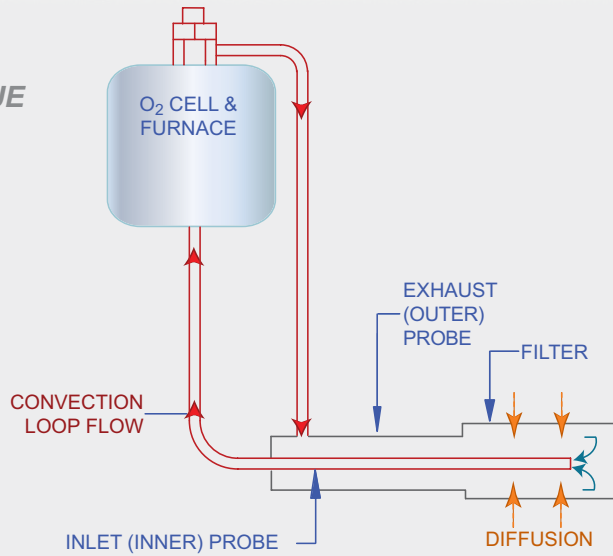
All models use zirconium oxide for net oxygen measurement. The sample path is through large internal diameter tubing with no restrictions allowing unobstructed sample flow through the analyzer. The oxygen cell is designed for long life in demanding applications. All parts are easy to reach and can be replaced using standard tools without having to remove the analyzer from the flange.



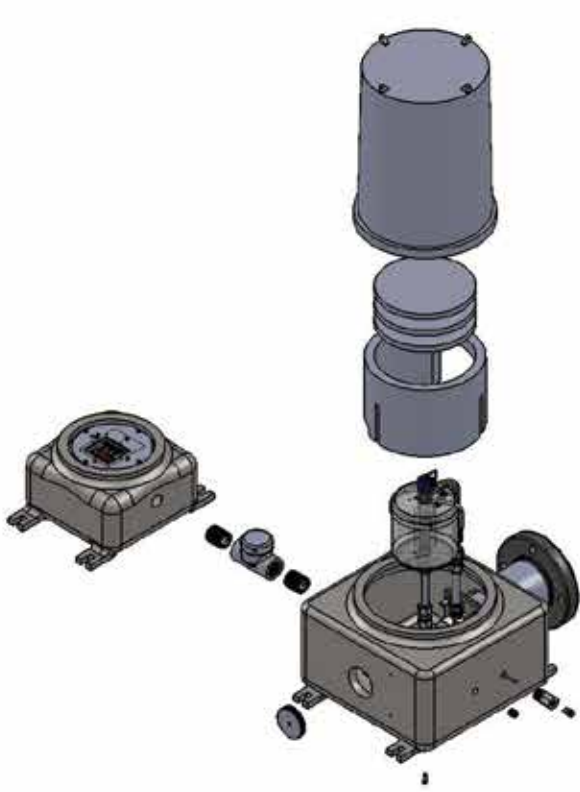
Zirconium Oxide Cell

**CLOSE-COUPLED CONVECTIVE TECHNIQUE**

Case heaters maintain the internal sample wetted parts above the acid dew point of the sample. Flue gas diffuses through a large filter at the end of the probe which acts as a sample chamber. A convection loop contains the zirconium oxide oxygen cell. Due to the natural convection generated by the temperature difference between the cell location (695°C) and the return leg (approximately 215°C), a portion of the filter contents is drawn into the convection loop, past the oxygen cell then back to the filter.



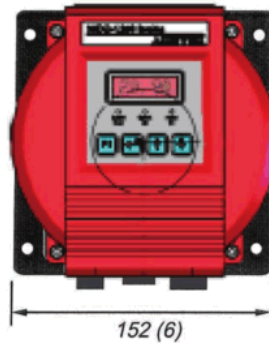
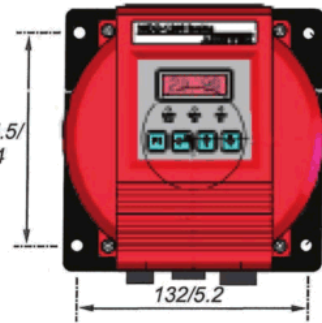
**SENSOR DETAILS**



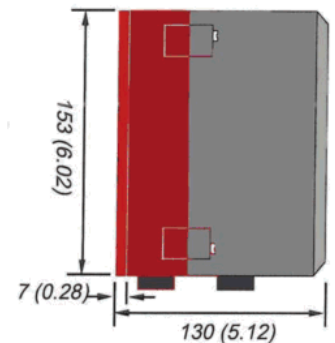
XP enclosure



125.5/  
4.94

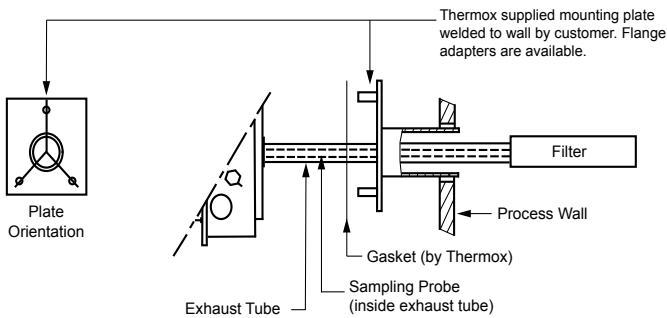
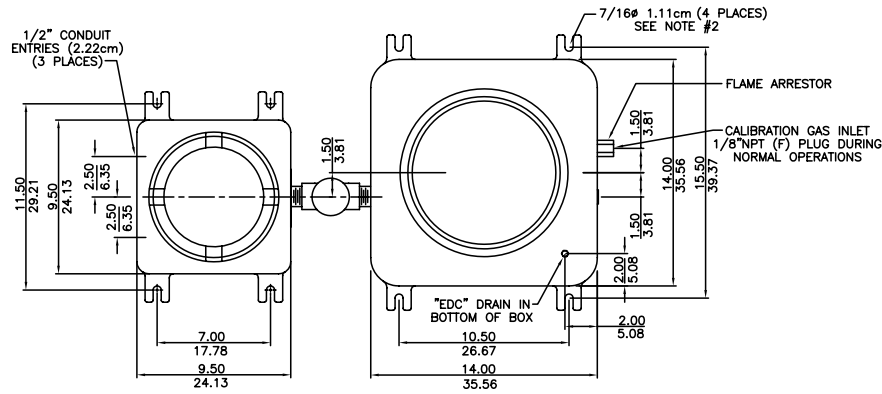
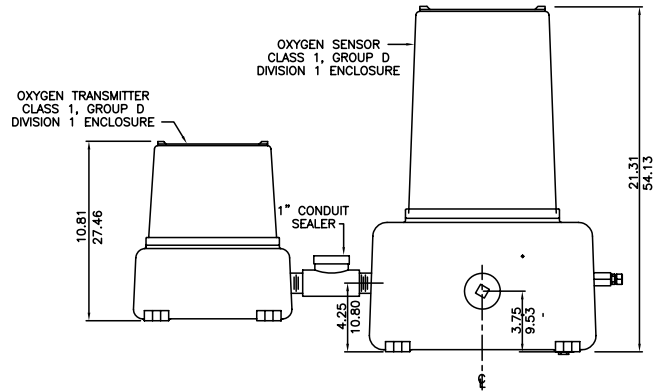
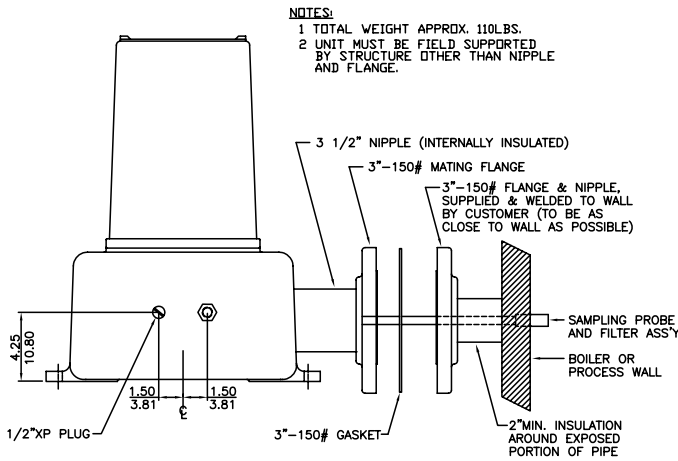


GP IP65



# ATEX II 3 WDG-HPII SERIES

DIMENSIONS IN CENTIMETERS



- NOTE:**
1. All static performance characteristics are with operating variables constant.
  2. System accuracy referenced to 0.1 to 10% calibrated range.
  3. Response is to calibration gas.

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