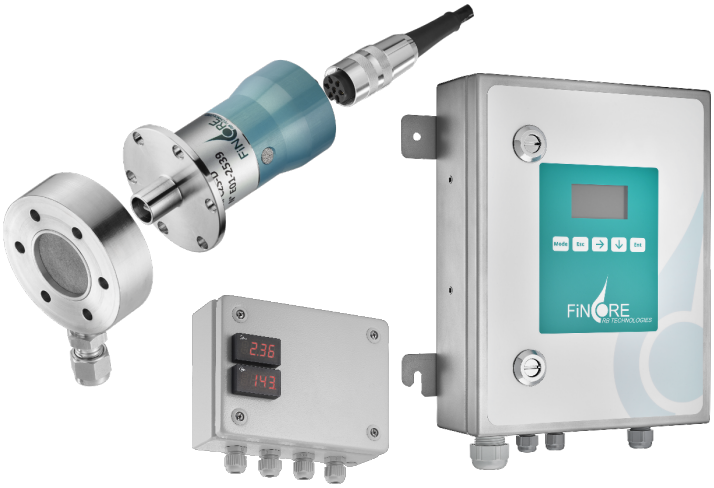
AFiL: IN SITU ZIRCONIUM OXYGEN & REDUCTORS ANALYZER FOR LOW TEMPERATURE APPLICATIONS



- Analyzer for Oxygen and unburnt compound measurement in various applications up to 300°C and up to 50m distance with junction box
- Key device to be integrated and added in every combustion regulation system, inerting or metal treatment process
- Revolutionizes the state-of-the-art in standard design for zirconia sensors used in O2 analysis
- High throughput manufacturing
- Streamlined integration:
  - FiNCORE sensor with DIN connector.
  - Standard filter holder 60mm or 100mm flange made from SS316L.
  - FiNCORE controller transmitter board.
  - FiNCORE standard cabinet with OLED display + 5 buttons or small cabinet with 4-20mA displays
  - Standard 24V DC power connection
  - Modbus RTU RS-485 communication
  - 2x 4-20mA NAMUR analog outputs

ZrO2 FiNCORE OVERVIEW

The oxygen measurement enables the control of burner fuel/air ratios to ensure combustion efficiency and process safety. It also enables precise Oxygen measurement in all inerting and metal treatment applications. FiNCORE in-situ Combustion Control Analyzers can be installed in hazardous areas and can withstand critical environments such as:

- Refinery process heaters
- Petrochemical reactor furnaces
- Industrial large-scale boilers
- Metal fusion/Treatment furnaces
- Glass industry furnaces
- Large scale dryers (Paper, Wood…)

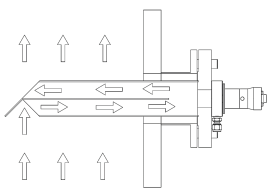
New Generation Analyzer with highest standard of accuracy and reliability

- Multiplex long life sensor
  - O2 with air/gas reference, acc. to Nernst law
  - pRed (Reducing potential), COe unburnt compounds production indicator
- Sensibility down to 10ppm H2 or CO
- Robust versatile electronic board
- Low maintenance probe design
- Low response time
- Built-in heater & thermocouple
- Low heating inertia and gradient
- Consistent repeatability
- Superior linearity
- High reproducibility due to serial production

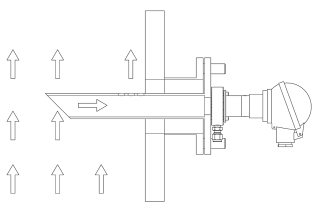
Sampling principle

- Passive flue gas deviation or semi-extractive sampling tube
- Low-maintenance cost & robustness
- Low sampling response Time
- Range of design, custom made:
  - Flue Dimension: 200mm to 5m
  - Flue gas Temp.: up to 1500°C
  - Mating Flange dimensions

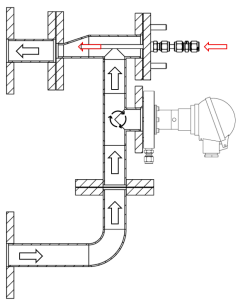
Bypass Tube



Direct Tube



Semi-extractive Tube



Analysis capabilities and configuration:

- O2 – 0.1% to 100% for combustion regulation
- O2 + O2 – Redundancy with two probes or in one probe design
- O2 + COe – For combustion efficiency assessment
- O2 / O2 – Built-in redundancy for enhanced reliability and lower maintenance/calibration

Zr|O2 FiNCORE AFiL CHARACTERISTICS:

APPLICATION	In situ O2%, COe/pRed, in Combustion Flue Gas for process control or in inerting process
MEASUREMENT PRINCIPLE	Zirconium Oxide Sensor
MEASUREMENT RANGE	O2: 0.1 - 100% COe/pRed: 10 - 200 ppm H2, 5000ppm CO
MEASURED GAS TEMPERATURE	Up to 300°C
MEASURED GAS PRESSURE	-0.5 to +0.5 bar
RESPONSE TIME	At sampling port: T_{60} < 15s At calibration port: T_{60} < 4s
REPETABILITY	+/- 0.5% of full scale
LINEARITY	+/- 2% of value, not lower than 0.1%
SENSOR TEMPERATURE	600 to 800°C - regulated
POWER SUPPLY / CONSUMPTION	24V DC Average 7W – Up to 9W

CALIBRATION GAS	Recommended concentrations: Intercept gas: 20.9% O_2 (Instr. Air) Slope gas: 1.0% O_2 COe: 2%vol.O2 + 250ppmCO + 25ppmH2
IN SITU SAMPLING SYSTEM	Probe mounted on made to order sampling Tube inserted into the flue gas duct. See relevant data sheet
OUTPUT SIGNALS	4-20mA – NAMUR – max 1000 Ω RS485 RTU/MODBUS
WARM-UP TIME	< 10 min.
SENSOR HEATING REGULATION	S type thermocouple
STORAGE	Ambient temperature, <95%RH > 1 year
ACCESSORIES	Sampling tube: Direct, By-pass, semi-extractive Calibration set manual or automatic 115-230V AC Power supply Small cabinet with 4-20mA displays

ORDERING INFORMATION:
Analyzer type AFiL – process temperature up to 300°C – remote transmitter

FINCORE SENSOR	
Product Number	**Product Description**
ZRPO2S-D	FiNCORE sensor with build-in DIN connector for O2 measurement
ZRPC2S-D	FiNCORE sensor with build-in DIN connector for O2 + COe measurement

(Junction box to be used in case of remote by more than 10 meters)

FILTER HOLDER WITH CALIBRATION PORT	
Product Number	**Product Description**
ZRF6-L0	Filter holder Ø 60 mm with SS316L filter and 6mm calibration port
ZRF0-L0	Filter holder Ø 100 mm with SS316L filter and 6mm calibration port

(¼" calibration port can be fitted upon request)

FiNCORE TRANSMITTER	
Product Number	**Product Description**
ZRTOS3-0FM0	FiNCORE O2 Transmitter 115/230V AC, OLED Display direct interface, 2x4-20mA, RS485, in SS304 IP Cabinet 3 settable dry contacts output, 2 settable dry contacts input
ZRTOS3-0FMA	FiNCORE O2 Transmitter 115/230V AC, OLED Display direct interface, 2x4-20mA, RS485, in SS304 IP Cabinet with automatic calibration, 1 settable dry contact output, 2 settable dry contacts input
ZRTCS3-0FM0	FiNCORE O2 + COe Transmitter 115/230V AC, OLED Display direct interface, 2x4-20mA, RS485, in SS304 IP Cabinet 3 settable dry contacts output, 2 settable dry contacts input
ZRTCS3-0FMA	FiNCORE O2 + COe Transmitter 115/230V AC, OLED Display direct interface, 2x4-20mA, RS485, in SS304 IP Cabinet with automatic calibration, 2 settable dry contacts input

CABLE	
Product Number	**Product Description**
ZRZD - 0	Analyzer connection cable for DIN (cable length up to 10 meters)
ZRZB - 1	Analyzer connection cable for DIN with additional junction box (cable length up to 50 meters)

SAMPLING TUBE	
Product Number	**Product Description**
STDL***FDY	Direct sampling tube, SS316L, 4''150 FF flange
STBL***FDY	By-pass sampling tube, SS316L, 4''150 FF flange

(***: tube length, flange type and dimensions can be adjusted upon request)

OPTION: CALIBRATION SET
Manual or automatic calibration set for O2 or O2 + COe analyzer upon demand