

6801

Data sheet

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2018

High temperature ceramic probe for application in flue gas from 600°C to 1250°C

Zirconia Probe

for O₂ measurement in combustion gas



The 6801 Zirconia probe is a resilient in situ analyser, completely ceramic-made, designed for continuous O₂ measurement in flue gas at high temperature. The extremely simple and functional design is the result of a long applicative experience

The ceramic materials ensure the best resistance at high temperatures, dusty environments, attack of acid and aggressive substances and to withstand with cycling oxidizing and reducing conditions, thus allowing its use in a wide range of combustion processes, e.g. cremators, civil and hospital waste incinerators, annealing furnaces, soaking pits and many others.

Probe Specification

Accuracy	0.1% O2 below 5% or 2% of reading above 5%
Zero Drift	± 2% of reading in 3 months
Repeatability	± 1% of reading (short term)
Response Time	less than 5 sec. at T95 (with flow rate 2 l/min.)
Probe Head Protection	IP65
Weight	~ 1.5 ÷ 2.5 Kg. Depending on probe length (excluded installation tube)
Wiring Connections	N°1 cable gland for cable max. 10 mm and inner terminal strip
Pneumatic Connections	Reference and calibration air inlet: 1/8" NPT-F
Gas	Oxygen (O2)
Measuring Principle	Zirconium Oxide (Zirconia)
Sensor Output	E.M.F. function of Oxygen concentration
TC Output	E.M.F. function of the temperature
Type of Thermocouples	Standard type B (pt 6 Rh-Pt 30 Rh). In alternative type S
Humidity	0...90% non condensing
Temperature Range	600°C to 1250°C
Head Temperature	Max. 130°C
Reference Air	Dry, clean and oil-free air. Flow rate: 100...200 cc/min.

ADV222 Control Unit Specification

Analog Inputs	2 x isolated (1 for O2 and 1 for Temperature)
Analog Outputs	2 x 4-20 mA isolated (1 for O2 and 1 for Temperature)
Output Resolution	better than 1x10.000 of FS
Relays	N°2 relays SPDT, 230 VAC, nominal 2A (max 4A) *
Power Supply	8...28 VDC ; 9...24 VAC
Ranges	0-25% O2 ; 0-1200°C **
Operative Temperature	-20°C...+70°C
Humidity	0...90% non condensing
Led	Power supply (blue) - Cumulative inputs overload (red) - TX/RX (yellow/amber)
Serial Interface	RS485 2-wire (Protocol ModBus-RTU)
Line Impedance	120 ohm
Termination Type	External
Max Speed	57600bps
Max No. of Nodes	32

* Threshold to be selected at order (factory set) or settable in field by PC with ADEV Easy Configurator

** Default ranges factory set. Modifiable on request at order on customer specification or by PC with ADEV Easy Configurator

Features

Extreme Roughness

- Wetted parts in ceramic materials (Zirconia and pure alumina)
- Resistant to corrosion by acid & aggressive substances, to abrasion and to the alternation of oxidant and reducing conditions
- External flanged installation & protection tube (option) warranty extra protection in case of huge dust amount in the process

Easy to Use

- Direct insertion into the chimney or post-combustion chamber.
- Integral thermocouple
- Possibility to verify the calibration without removing the probe from process
- Calibration (with air flowing) simply pushing one button on ADV222 control unit

Low Costs of Ownership

- Really in situ measurement
- No sampling system required
- Sensor on the tip and no gas circulation

Made in ADEV

Completely designed and manufactured by ADEV, Italian leading company with more than 30 years of experience in combustion processes.

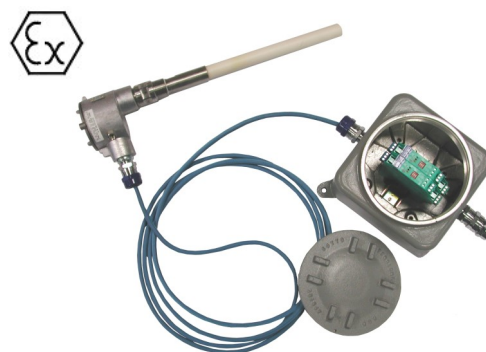
European Compliance

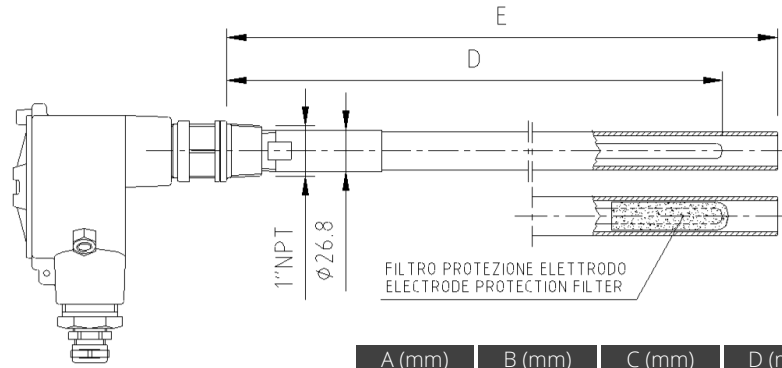
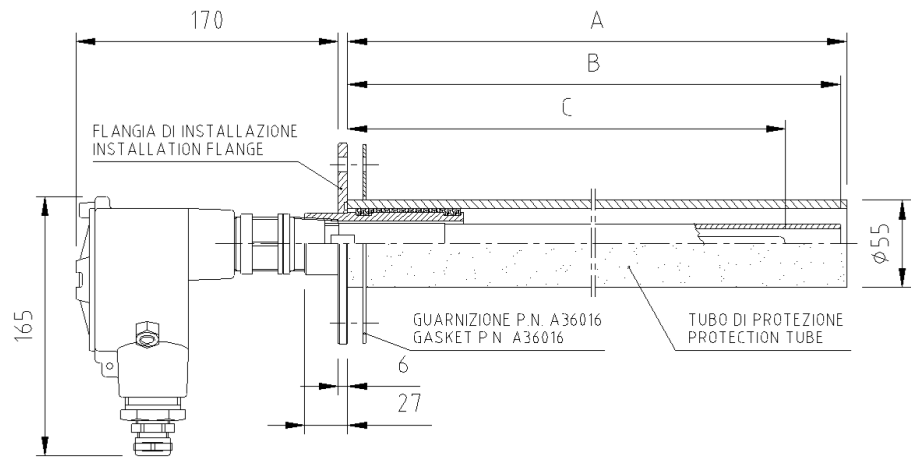
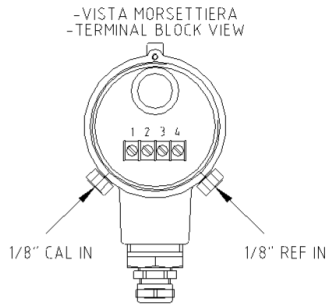
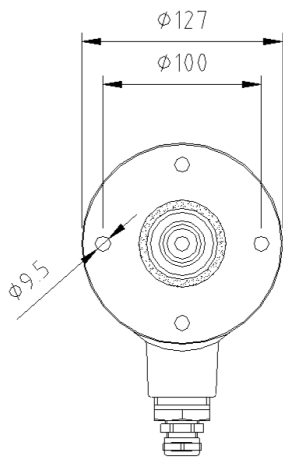
- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- Directive ATEX 2014/34/EU (optional)



ATEX

The Probe 6801 can be configured for hazardous area classified Zone 1 in accordance to EN 2014/34/EU (ATEX) and EN 60079-10.



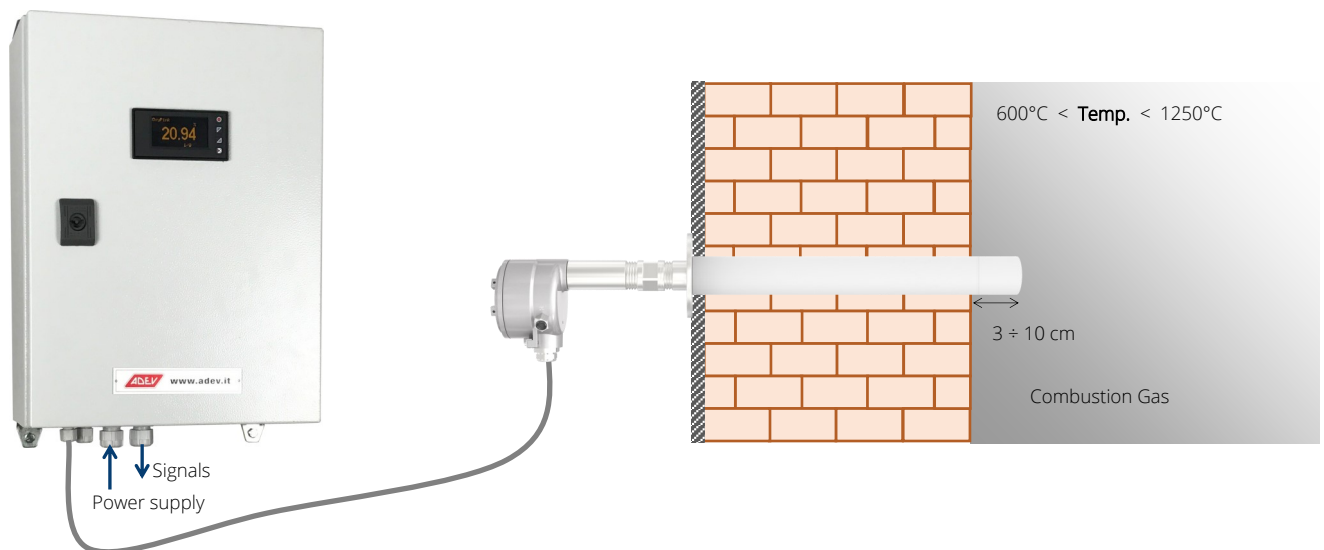


	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
Probe L 350 mm	320	316	282	318	353
Probe L 500 mm	450	441	402	438	478
Probe L 650 mm	620	616	582	618	653
Probe L 800 mm	840	835	780	818	873

Key Applications

- ✓ Annealing Furnaces
- ✓ Reheat Furnaces
- ✓ Soaking Pits
- ✓ Cremators
- ✓ Civil, Industrial & Hospital Waste Incinerators
- ✓ Pre Heating Furnaces
- ✓ Sintering of Metals
- ✓ Process Heaters

Other combustion processes where flue gas is within temperatures limits (600 ÷ 1250 °C)



ADV222



Description

ADV222 is a very compact control unit designed for OEM and system integrators that need to optimize costs and space. It consists of a single module for DIN rail mounting.

Ideal solution to be installed inside the electric / control panel of the furnace or oven.

ADV222 acquires the signals from the probe, it operates the O₂ calculation and retransmits 2 analog outputs proportional to O₂ and temp. ranges. In addition it allows to calibrate the probe by simply pushing on button (one-touch-calibration).

On Customer

Customer only has to foresee a proper system to send reference air to probe and (if necessary) the local visualization

ADbox



Description

ADbox is an intermediate version where the ADV222 is integrated into a mini-box IP55 with dimensions 400 x 300 x 150 mm plus a 2.42" OLED LCD display.

This configuration allows further functions:

- %O₂ visualization
- °C visualization
- Slope adjustment (Span)
- Alarm threshold modification
- Diagnostics

On Customer

Customer only has to foresee a proper system to send reference air to probe.

ADcase



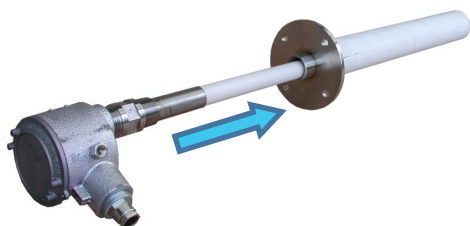
Description

ADcase is the full optional version that represents a turnkey solution for customer.

Inside a mini-box IP55 (dimensions 400 x 300 x 150 mm) are integrated the ADV222, the 2.42" OLED LCD display and the system to send reference and calibration air to the probe, including:

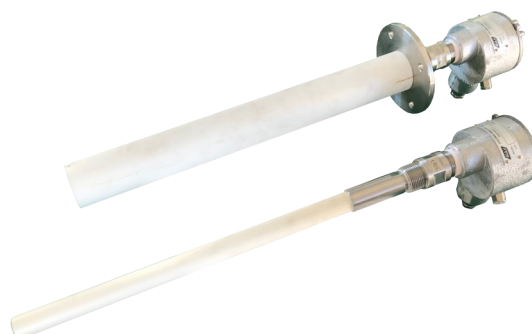
- Pressure reducer for instrument air (or pump)
- N₂ flow meters (one for reference air and one for calibration)
- N₂ selection valves

Flanged Installation & Protection Tube

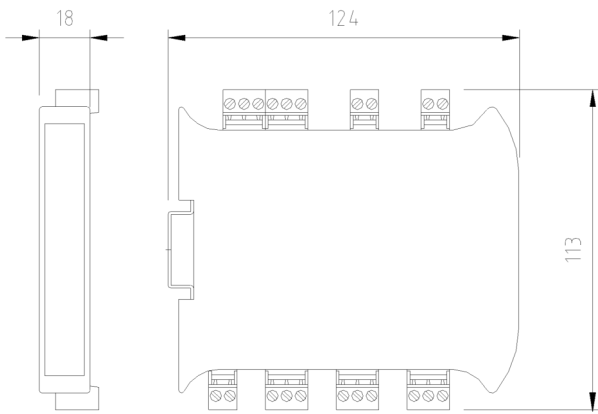


The probe can be directly installed into the process chamber, but in combustion chambers with great amount of dust or with particular combustion products, it's suggested the use of ADEV special ceramic installation & protection tube (flanged) in order to protect the probe and make the installation easier.

The installation and protection tubes guarantee a longer probe life and allow a more accurate measurement eliminating external particulates which may attack the sensor and avoiding that sensor contacts false air coming from the bricks of the duct wall in case of plants working in negative pressure condition.



ADV222 Dimensional Layout



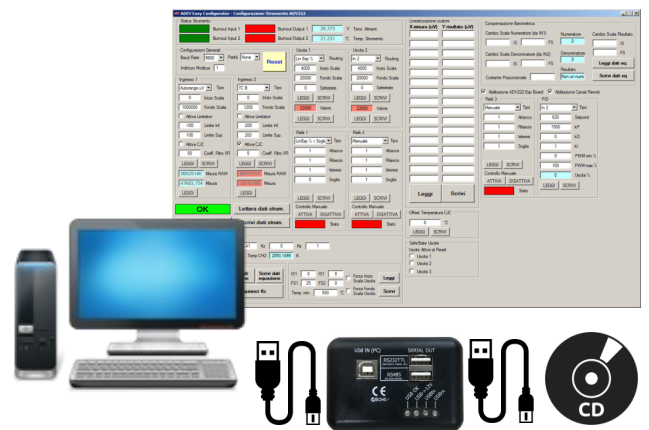
Supplementary ADV222 Specification

Protection	IP20
Weight	900 gr.
Connections	Removable screw terminals pace 5,08 mm
Conductor Section	Max. 2,5 mmq
Mounting	DIN rail

ADEV Easy Configurator Kit

Base parameters configuration of ADV222 module (manly Oxygen and temperature ranges, alarm thresholds and factors of correction) can be adjusted by means of the optional configuration kit (PN 68EC) including: 1) Software Easy Configurator; 2) ADEV Easy Programmer ; 3) kit of cables for interconnecting to a PC. The procedure of configuration is extremely simple:

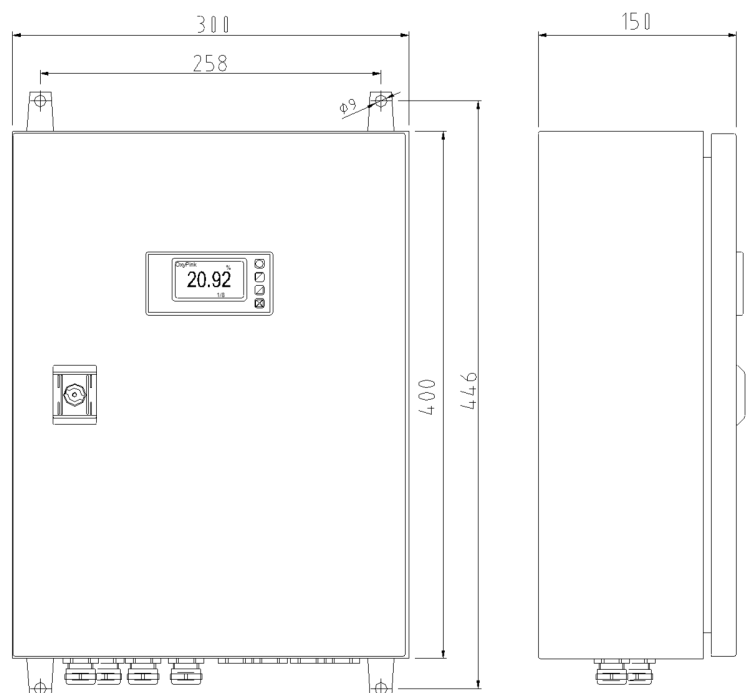
- Open the protective plastic cover
- Connect the programmer to a PC and to the ADV222 module
- In configuration phase, ADV222 is directly supplied by the PC and it's not necessary and external power supply.
- Launch the configuration software
- ADEV Easy Configurator automatically detect the connected ADV222 module
- Set programming data
- Push Enter key to download the data to the device



Supplementary ADbox Specification

Protection	IP55
Weight / Dimensions	8 Kg. / 400 x 300 x 150 mm
Power Supply	100...240 VAC, 2A, 50/60 Hz.
Display	LCD 2.42" OLED . Resolution 0.01%
Cable Entrance (bottom)	N°4 cable glands PG 13 / 9 / 7

ADbox / ADcase Dimensional Layout



Supplementary ADcase Specification

Protection	IP55
Weight / Dimensions	10 Kg. / 400 x 300 x 150 mm
Power Supply	100...240 VAC, 2A, 50/60 Hz.
Display	LCD 2.42" OLED . Resolution 0.01%
Cable Entrance (bottom)	N°4 cable glands PG 13 / 9 / 7
Pneumatic Connections	Reference and calibration air inlets: 1/8" NPT-F
Configurations	1: Pressure reducer & manual valve 2: Pressure reducer & electro valve 3: Pump & manual valve 4: Pump & electro valve

Ordering

Zirconia Probe	6801
Nominal Insertion Length						
350 mm		3				
500 mm		5				
650 mm		6				
800 mm		8				
Special		9				
Thermocouple						
Type B			B			
Type S			S			
Special			9			
Filter on Electrode						
No used				0		
Filter on the inner platinum electrode *				1		
Mounting						
1" NPT thread without flanged installation tube					0	
Flanged Installation & protection tube 350 mm					3	
Flanged Installation & protection tube 500 mm					5	
Flanged Installation & protection tube 650 mm					6	
Flanged Installation & protection tube 800 mm					8	
Special					9	
Probe Configuration						
Version for safe area						G
Version for hazardous area 1 (ATEX) **						X
Special						9

* Suggested in case of high dust amount

** Contact the factory for details

All specifications are subjected to variations for product improvement without notice. ADEV does not accept any responsibility for potential errors or possible lack of information in this document.

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