



*Gas Analysers & Integrated Systems  
for Process Gas Analysis*

Zirconia Probe  
CARBON SENSOR

ZCS3



For process temperatures  
from 700 °C to 1050 °C

#### **Main Applications**

- Carbon potential calculation
- Oxi-reducing potential measure
- Heat treatment regulating

#### **Features**

- AISI 304 probe head with piping and electrical connections
- Output through plug-in connector
- Direct insertion in the duct
- High corrosion resistance to heat treatment atmospheres
- Extremely fast response time and excellent stability
- No calibration or adjustments needed
- Low installation and maintenance costs
- Interchangeability with similar probes
- Electrodes reconditioning service

## In Situ Analyser ZCS3

### General Information

The patented electrode design and the special used alloy, reduce the contact area with Zirconia. This solution increases the probe service life, reduces carbon built up and guarantees a very fast response time. The use of a heavy duty metal protection tube with high corrosion resistance to heat treatment atmospheres, gives the resistance advantages typical of chemically inert ceramics without renouncing at the metal resistance.

All probes are supplied with calibration certificate useful for quality report.

On the probe head are placed the electrical connections (output signal by plug-in connector) and two inlets for reference air and purge air (this helps to avoid particulate built up on the sensor).

### Compatibility

The model ZCS3 is compatible with all the probes actually on the market.

### Electrodes reconditioning

All probes supplied by ADEV can be sent back to our laboratory for reconditioning and recertification.

### Mounting accessories

#### Adapter

Able to adapt intermediate immersion lengths and to facilitate installation / removal of the probe. Standard lengths available: 84 mm and 60 mm (other on specification).

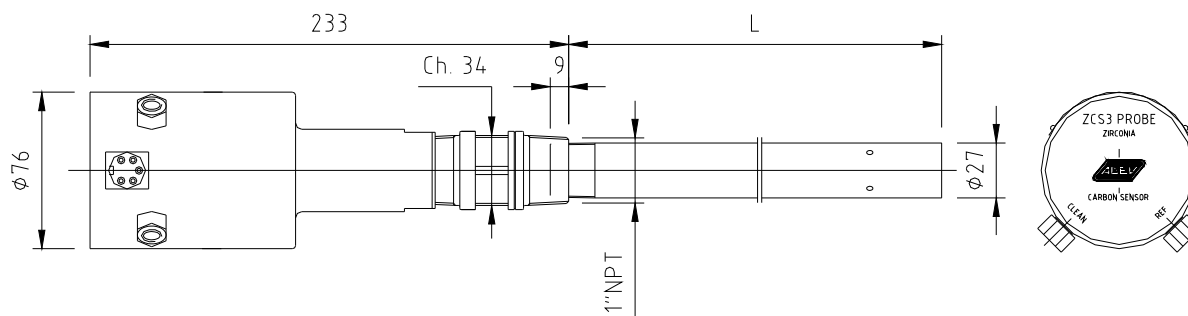
#### Mounting joint

Adapter in which the tube can slide until the joint is finally screwed.

### Optional control unit

M702 Carbon is a smart instrument operating on signals from Zirconia probes and providing Oxygen calculation and visualization in percentage or parts per million (ppm) or elaborating data to provide a reading expressed in carbon potential (%C).

The instrument is equipped with automatic control for probe purge, allowing a more reliable measurement also in critical conditions. Moreover, the control unit can perform the probe superintendence, advising eventual faults and stopping the regulation during fault condition.



## Specifications...

### ...Performance

#### Accuracy:

± 0.03% in carbon weight within the used range.

#### Response Time:

less than 2 sec.

### ...Physical

#### Length under thread:

435 / 615 / 815 mm

External tube diameter: 27 mm

Process connection: 1" NPT

#### Pneumatic connections:

Reference air and clean air inlets 1/8" NPT-F

#### External materials :

AISI 316

### ...Operative

#### Output signal:

1000 ÷ 1300 mV in the standard applications (0.01 ÷ 1.6 % C)

#### Temperature range:

Sensing element : 700÷1050°C  
Probe head: max. 150°C

#### Thermocouple:

type B, S, K (on request).

#### Reference:

dry and clean air at 50 ÷ 100 cc/min. flow rate.

#### Purge:

dry and clean air at 2000 cc/min. flow rate.

#### Impedance:

Connect the probe to instruments with input impedance not lower than 10 Mohm.

## Ordering

ZCS3 

A	B	C
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#### Suffix A - Probe immersion length

05 460 mm nominal (L = 435 mm under thread)  
06 640 mm nominal (L = 615 mm under thread)  
08 800 mm nominal (L = 815 mm under thread)  
99 On specification

#### Suffix B - Thermocouple type

1 TC type B  
2 TC type S  
3 TC type K  
9 On specification

#### Suffix C - Mounting options

0 Not used  
1 Adapter L = 84 mm  
2 Adapter L = 60 mm  
3 Mounting joint  
9 On specification



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### Conformity to European Normative

In accordance to Low Voltage directive 2006/95/EC  
In accordance to EMC directive 2004/108/EC:  
- EN 61000-6-2  
- EN 61000-6-3  
- EN 50270

All specifications are subjected to variations for products improvement without notice.

