# Air Sensor

## SAC & PAC & FCP & FCS

Manual


AQ Elteknik AB

# Air Sensor

SAC & PAC & FCP & FCS

Manual version 2.0

**August 2009**

**AQ Elteknik AB**

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# 1. Manufacturer information

**AQ Elteknik AB** operates a policy of on-going development and reserves the right to make changes and improvements to any of the products described in this users guide without prior notice.

Under no circumstances shall AQ Elteknik be held responsible for any loss or indirect damage howsoever caused. The contents of this document are provided as it is. AQ Elteknik AB reserves the right to revise this document or withdraw it at any time without prior notice.

## Manufacture Declaration of Conformity

Manufacturer: AQ Elteknik AB Sweden declares, that the product:

Air Sensor marked with CE-label conforms with the following standards: EN 61000-6-2:2001, EN 61000-6-4:2001, EN55011 (Group 1, Class B).

The Air Sensor is RoHS Compliant, directive 2002/95/EC.

Air Sensor marked with  conforms to WEEE. When the Air Sensor is to be discarded it shall be sent back to AQ Elteknik AB for safe disposal. See “Manufacturer Information” for return address.

Before sending the Air Sensor to AQ Elteknik AB it must be clean and without any harmful contaminations.

A certificate shall be attached with the Air Sensor that confirms the cleaning and shows information:

- Who has cleaned the Air Sensor (company if other than sender)
- Who has checked and confirmed that the Air Sensor is clean (company and person)
- Who is sending back the Air Sensor (company)

## Limited Warranty

AQ Elteknik AB warrants to the original end user that the Air Sensor is free from any defects in materials or workmanship for a period of one year from the date of purchase. During the warranty period, should the Air Sensor have indications of failure due to faulty workmanship or materials, AQ Elteknik AB will replace it with no charge. This warranty shall not apply if the Air Sensor is modified, misused or subjected to abnormal working conditions.

Replacement as provided under this warranty is the only remedy of the purchaser. The purchaser pays freight to AQ Elteknik AB. AQ Elteknik AB shall in no event be held liable for indirect or consequential damages of any kind or character to the purchaser.

## Warning

The Air Sensor is intended to be used with the Ultrasound Controller manufactured by AQ Elteknik AB. AQ Elteknik AB takes no responsibility for any possible damage that could happen if the Air Sensor is connected to any equipment not manufactured by AQ Elteknik AB.

## Manufacturer information


| | |
|---|---|
| Manufacturer: | **AQ Elteknik AB** |
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| | SE-753 23 Uppsala |
| | Sweden |
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| e-mail: | info@aqelteknik.se |

# 2. Introduction

## Air Sensor

Liquid flowing through the Air Sensor is monitored with ultrasound and the presence of bubbles or particles is detected by the connected Ultrasound Controller. The Air Sensor is reliable and easy to use. It is turned from one piece and the inside is completely smooth with low Ra-value. The Air Sensor SAC and FCS made of stainless steel 316L can be steam sterilized.

## Ultrasound Controller D72 / DP72

Ultrasound Controller D72 or DP72 is recommended for use with the Air Sensors. It mounts on a DIN-rail and can be connected to two Air Sensors.

# 3. Functional Description

See the D72 or DP72 manual.

# 4. Installing the Air Sensor

## Installing the Air Sensor

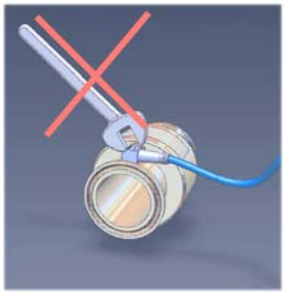
One or two Air Sensors SAC, PAC, FCS or FCP can be connected to one Ultrasound Controller D72 or DP72. The Air Sensor should be installed in accordance with national regulations. A person with the required knowledge should perform installation. See the D72 or DP72 manual regarding connecting the cable. The cable for Air Sensor SAC and PAC is attached with a connector. The cable for Air Sensor FCS and FCP is permanently attached to the Air Sensor.

## Vertical or Horizontal Installation

We recommend installing the Air Sensor with vertical flow due to less risk of bubbles lingering inside.

If however the Air Sensor is installed with horizontal flow the rotation of the Air Sensor SAC is important. When the flow rate is slow bubbles tend to rise. The Air Sensor SAC is more sensitive for bubbles near a detector, one of which is located under the label (near the cable connector).

For maximum bubble sensitivity (when the Air Sensor SAC is installed with horizontal flow), the Air Sensor SAC should be turned so the label is facing up.



If lower sensitivity is wanted at slow flow rate, the Air Sensor SAC can be turned so the label is facing down.

**NOTE!** The Air Sensor SAC can be turned to achieve different sensitivity but the connector must not be turned relative to the Air Sensor SAC.

# 5. Settings, Calibration and Troubleshooting

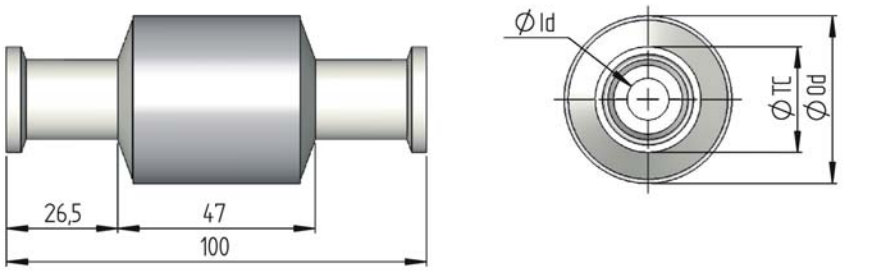
See the D72 or DP72 manual.

# 6. Technical specifications

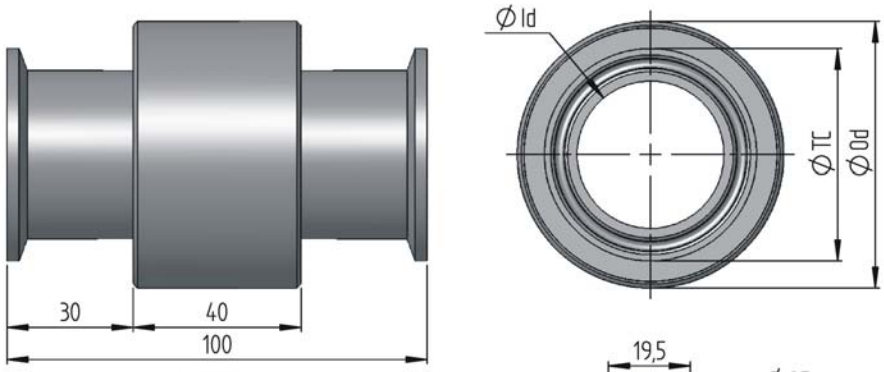
| | | |
|---|---|---|
| Operating temperature range* | SAC, FCS: | 0°C to 100°C |
| | PAC, FCP: | 0°C to 80°C |
| Maximum temperature range* | SAC, FCS: | -20°C to 130°C (at 130°C: max total time 500h) |
| | PAC, FCP: | -20°C to 80°C |
| Maximum pressure | SAC, FCS: | 1Mpa / 10 bar g at maximum temperature range |
| | PAC, FCP: | 700kPa 20°C, 500kPa 50°C, 50kPa 80°C |
| Protection class | IP67 | |
| Finish in pipe (Ra-value) | SAC, FCS: | <0,375 µm / <15 microinch |
| | PAC, FCP: | <1 µm / <40 microinch |

*Proper indication of bubbles is not guaranteed:

- At temperatures outside operating temperature range
- If maximum temperature range is exceeded
- If maximum total time at maximum temperature is exceeded




**FCP**




**SAC, FCS**


**SAC4.5-25**
**SAC6-25**
**SAC8-25**

## Air Sensor SAC & FCP & FCS dimensions

| Model Number | Inner diameter (mm) | Outer diameter (mm) | Outer length (mm) | Connector | Material |
|---|---|---|---|---|---|
| **SAC4.5-25** | 4,5 | 38 | 50 | Tri Clamp 25mm | Stainless steel 316L |
| **SAC6-25** | 6 | 38 | 50 | Tri Clamp 25mm | Stainless steel 316L |
| **SAC8-25** | 8 | 38 | 50 | Tri Clamp 25mm | Stainless steel 316L |
| **SAC10-25** | 10 | 51 | 100 | Tri Clamp 25mm | Stainless steel 316L |
| **SAC16-25** | 16 | 51 | 100 | Tri Clamp 25mm | Stainless steel 316L |
| **SAC16-50** | 16 | 64 | 100 | Tri Clamp 50mm | Stainless steel 316L |
| **SAC22-50** | 22 | 64 | 100 | Tri Clamp 50mm | Stainless steel 316L |
| **SAC35-50** | 35 | 64 | 100 | Tri Clamp 50mm | Stainless steel 316L |
| **SAC46-64** | 46 | 76 | 100 | Tri Clamp 64mm | Stainless steel 316L |
| **FCP4-25** | 4 | 40 | 100 | Tri Clamp 25mm | Polypropylene |
| **FCP6-25** | 6 | 40 | 100 | Tri Clamp 25mm | Polypropylene |
| **FCP10-25** | 10 | 40 | 100 | Tri Clamp 25mm | Polypropylene |
| **FCP14-25** | 14 | 40 | 100 | Tri Clamp 25mm | Polypropylene |
| **FCP22-50** | 22 | 76 | 100 | Tri Clamp 50mm | Polypropylene |
| **FCP38-64** | 38 | 76 | 100 | Tri Clamp 64mm | Polypropylene |
| **FCS10-25** | 10 | 51 | 100 | Tri Clamp 25mm | Stainless steel 316L |
| **FCS16-25** | 16 | 51 | 100 | Tri Clamp 25mm | Stainless steel 316L |
| **FCS16-50** | 16 | 64 | 100 | Tri Clamp 50mm | Stainless steel 316L |
| **FCS22-50** | 22 | 64 | 100 | Tri Clamp 50mm | Stainless steel 316L |
| **FCS35-50** | 35 | 64 | 100 | Tri Clamp 50mm | Stainless steel 316L |
| **FCS46-64** | 46 | 76 | 100 | Tri Clamp 64mm | Stainless steel 316L |

For information about Air Sensor PAC contact AQ Elteknik.

## Air Sensor cable for SAC & PAC

| Cable order-number | Color | Length |
|---|---|---|
| **WG–Cable–7m** | Grey | 7m |
| **WG–Cable–20m** | Grey | 20m |
| **WG–Cable–40m** | Grey | 40m |