



AFT



AFTxxxR

CE

### Features

- Easy to Read LCD display
- Volume flow up to 99,999 in the display unit: m<sup>3</sup>/h, l/s, ft<sup>3</sup>/min
- Display of the alarm value (limit) up to max volume flow
- Red LED flashes when value falls below alarm value (limit)
- Programmable alarm value, K-factor and air density p
- Analogue and digital outputs

### Design Features

The **AFT** consists of a round measurement instrument and a rectangular or round front panel.

The measurement instrument is optimised for mounting in air-handling units and air ducts.

The two connections for pressure measurement are located at the back of the instrument in recesses for protection against mechanical damage.

They are labelled with + overpressure and -underpressure. A threaded bushing is provided in the centre of the housing.

The fixing clamp is attached using the threaded bolt and the wing-nut supplied.

The wing-nut is secured against loosening.

On the rear of the housing, 2 cable breakouts are provided.

Two M16 x 1.5 threaded connectors are included in the mounting set.

An integrated O-ring provides sealing between the housing and the panel in which it is mounted.

In order to ensure correct mounting, an arrow can be found on the back of the device that must point upwards.

In the front part of the instrument an LCD display can be found, along with a red LED for the indication of alarms and three function buttons.

After the unit has been mounted and any programming done, the front panel can then be clipped onto it.

Three guide-grooves ensure that this is only possible when correctly oriented.

The front panel can be removed by pulling it with both hands or using a screwdriver

Model	LO	RA in Pa	OUT 0-20	OUT 4-20
AFT 5000	≤50 Pa	variable	$A(V) = \frac{50Pa}{RA(Pa)} \cdot 10V$ $A(mA) = \frac{50Pa}{RA(Pa)} \cdot 20mA$	$A(V) = \frac{50Pa}{RA(Pa)} \cdot 8V+2V$ $A(mA) = \frac{50Pa}{RA(Pa)} \cdot 16mA+4mA$

LO: Low (low value suppression)

RA: Range (measuring range)

### Technical Data

<b>Working range</b>	50/5000Pa
<b>Measurement range</b>	0/99,999/h, l/s, ft <sup>3</sup> /min
<b>Accuracy</b>	< ± 1,5% of measuring range
<b>Long-term stability</b>	< ± 0,5% v. EW/a
<b>Working temperature</b>	-10...+40°C
<b>Stocking temperature</b>	-20...+60°C
<b>Humidity</b>	max 75% relative non-condensing
<b>Supply voltage</b>	24Vac at 50/60Hz or 24Vdc, -20/+5%
<b>Burst pressure</b>	75kPa
<b>Output signal</b>	0(2)-10Vdc, 0,1mA 0(4)-20mA, max load 600ohm  Relay contact changeover activated when under power. Contact loading 240Vac 2A 24Vdc 2A
<b>Cable connection</b>	max 2PG M16 with cable clamp screw terminals
<b>Flexible tube connection</b>	5 to 6mm internal diameter
<b>Dimension basic unit</b>	112x58mm (OxT)
<b>Dimensions</b>	
Rectangular front panel	184x139x20 (LxWxH)
Round front panel	145mm O
<b>Housing</b>	High impact ABS
<b>Colour front panel</b>	Beige
<b>Colour housing body</b>	anthracite
<b>Protection class</b>	IP54, IP64 with supplement seal

### Ordering

<b>AFT 5000</b>	Flow transmitter	50-5000Pa
<b>AFT 5000R</b>	Flow transmitter	50-5000Pa, round

## Activation and Operation

All electrical connections must be made before applying the supply of power.

To start the installation and programming of the AFT, the 24V supply should be connected.

Take care that the power supply connections are not transposed!

The device is immediately ready for operation:

Display on the LCD.

The setting of the unit's parameters is carried out using the three buttons that are accessible when the front panel is removed.

Below 50 Pa low-value suppression LO (= low) is active.

## Setting the units displayed (Dimension)

By pressing the bottom button (S1) during normal operation for a short time, the units displayed change between m<sup>3</sup>/h, l/s, ft<sup>3</sup>/min.

## Programming the AFT

While programming, the current values on the display and the analogue output are frozen.

By pressing the lower button (S1) longer, the unit goes into programming mode.

The selected parameter is indicated by a flashing display.

By repeatedly pressing S1 for a short time, the menu items can be cycled through:

### Limit (alarm value) -max range (measuring range)

#### - Out (mA)/ K/factor /air density p

When the appropriate menu item flashes, the top left (S2) and top right (S3) buttons can be used to adjust the programmed values:

Short press single step,

Long press increasing change of rate.

**Limit.** The lower limit is entered in the chosen unit  
If the value drops below this, the LED flashes and the relay drops off (dito if the supply voltage fails).

**Range Max** is, at the moment, displayed dimensionlessly and represents the value in the measurement unit chosen for which the max. analogue signal 20mA or 10V is outputted.

The analogue output is programmed to provide 0/10mA, corresponding to 0/10V or 4/20mA, corresponding to 2/10v.

The K/factor \*manufacturers specification>Measurement unit( and the air density multiplied by the facotr 100 \*default value 112) 1,12kg&m<sup>3</sup> are entered

## Save (OK)

If the buttons are not pressed again within 5 seconds, the value currently shown is automatically stored and the display and analogue output are enabled again.

## Function

The differential pressure to be measured is fed using flexible tubing via connection nipples to the piezo differential pressure sensor, electronically evaluated, recalculated volumetric flow using the K-factor and density p values that have been programmed and then displayed on the LCD display.

The following basic formula is the basis for the calculation:

$$\dot{V}_h = K \sqrt{\frac{2 \times \Delta p}{\rho}}$$

$\dot{V}_h$  = volume flow [m<sup>3</sup>/h]  
K = K-factor [m<sup>3</sup>/h]  
 $\Delta p$  = differential pressure [Pa]  
 $\rho$  = air density [kg/m<sup>3</sup>]

## Zero-point correction

Remove device's supply voltage.

Then make the measuring inputs pressure-free (pull off both tubes).

Press and hold button (S1).

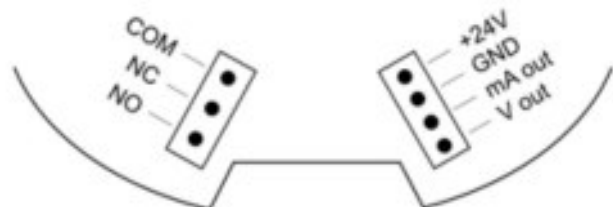
Restore device's supply voltage (!display flashes). Release button S1 (!pressure displayed: 0 Pa).

Briefly press and immediately release button S1 (!value is stored).

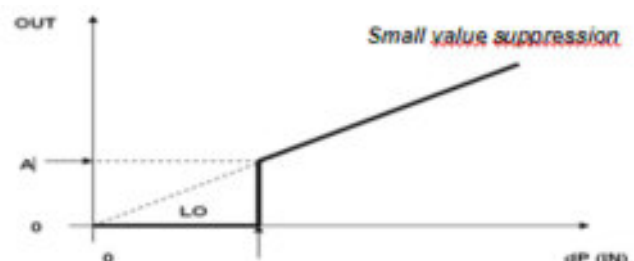
## Display of differential pressure for testing purposes

By pressing both of the top buttons at the same time, the differential pressure measured is displayed in Pa as long as the buttons are pressed.

## Electrical Connections



If the relay drops off (Limit exceeded or power failure, COM and NC are connected to each other



## Fitting

A 115 mm Ø hole is drilled in the sandwich plate or the control cabinet door and the measurement instrument is slid into the aperture from the front side.

The correct alignment of the instrument is indicated by an upwards-pointing arrow on the rear of instrument.

Using a screwdriver, the threaded bolt is firmly screwed into the threaded bushing; the mounting bracket is placed over it and secured with the wing-nut.

When connecting the pressure tubing, great care should be taken that the correct polarity is adhered to (+ overpressure, - underpressure).

Finally, the front panel can be snapped on