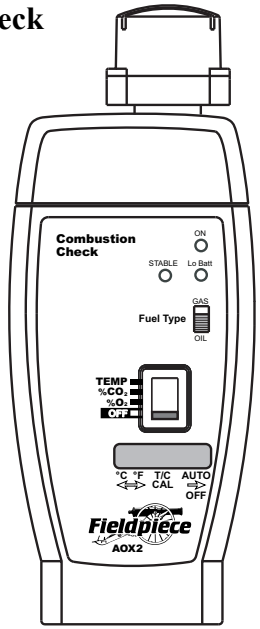
Combustion Check Accessory Head Model: AOX2



Fieldpiece

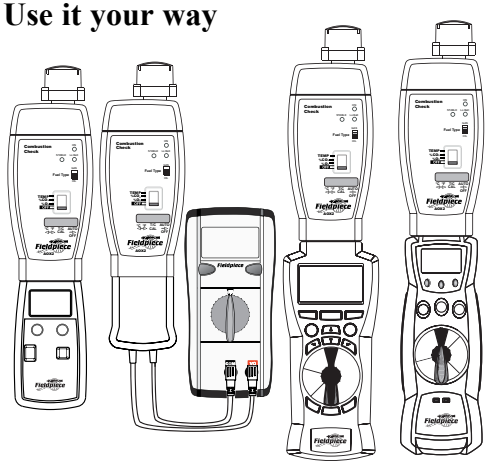
OPERATOR'S MANUAL

Description

The model AOX2 combustion head measures $\%O_2$ and temperature of flue gases and can calculate the $\%CO_2$ found in the products of combustion. The AOX2 is designed to give you some basic information about the combustion process being analyzed. The AOX2 comes with clips for mounting the thermocouple to the end of the pump snoot, a water trap and filter with replacement filters to keep the sensor clean and free of moisture and a hand pump for manual aspiration of the sensor.

Since $\%CO_2$ is calculated based on a known fuel, the $\%CO_2$ reading is only meaningful when testing combustion products of the selected fuel.

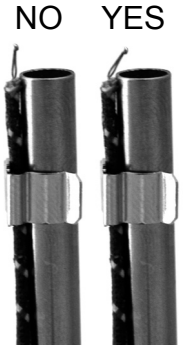
Use it your way



EHDL1 AHDL1 w/DMM DL2 HS30

How to use

1. Connect to COM and Volts jack. Slide AOX2 combustion check head onto Fieldpiece "stick" meter, data logger, electronic handle or connect to most other meters using Fieldpiece ADLS2 deluxe test leads or AHDL1 handle.
2. Set meter to mVDC range.
3. Calibrate if needed (see Field calibration)
4. Clip the thermocouple to the snoot of the AOX2 pump using the included clips making sure to bend the bead tip (see photo) for optimum accuracy.
5. Before inserting the AOX2 into the flue ensure that the water trap is securely fastened on the meter and that a clean filter is installed properly.



6. To purge the sensor and pump any left-over contaminants from the previous measurements pump uncontaminated air into the AOX2 for one minute before inserting it into the flue.
7. Select fuel type being burned - OIL or GAS.
8. You must wait until the system you are testing has stabilized completely before you can take accurate readings of the flue gas. This means that the temperatures throughout the systems have stabilized and there is a steady flow of fuel in the furnace.
9. Disable Auto-off to data log any of the parameters with the DL2 data logger.
10. Once the system is stabilized and the AOX2 has been purged, insert the snoot into the flue gas. Select TEMP function and pump vigorously until the temperature stabilizes (Usually under 2 minutes).
11. Now read temperature of the flue gas, $\%O_2$ or $\%CO_2$ directly on your DMM display by selecting the appropriate switch position. Make sure to keep pumping and that the parameter you are reading is stable.

Water trap with filter

Over time the filter within the water trap will get dirty and eventually block airflow. Periodically, check the filter for excess dust, debris, or contaminents.

1. Compress and twist cap to open the case.
2. Replace O-ring if it looks cracked or torn.
3. Replace filter if it looks dirty or clogged. Make sure you orient the filter as shown with the knob of the case going into the bottom of the filter.
4. Twist cap back on to seal trap.

Field calibration

Temperature: To calibrate the temperature sensor, adjust the calibration pot underneath the rubber covering while measuring a known temperature. Ice water is very close to 32°F and is readily available.

1. Stabilize a large cup of ice water.
2. Select TEMP on the AOX2.
3. Make sure the appropriate degree scale is selected. The scale select switch is underneath the rubber.
4. Plug in the k-type thermocouple and then immerse entire metal tip into the ice water.
3. For optimum accuracy at ambient pressure, adjust the calibration pot to read 31.3°F or -0.4°C, depending on the scale selected.

SPECIFICATIONS

Operating environment: 32°F to 122°F; 0°C to 50°C at <75%RH

Storage environment: -4°F to 140°F; -20°C to 60°C at <80%RH with battery removed from meter.

Battery life: 85 hours typical (alkaline). No measurable current draw when in "off" position.

Low battery indication: Red LED lights

Battery: 9V

Auto off: Approx. 15 minutes after mode change

Accessories: ATBF1 k-type thermocouple, hand pump with water trap, 3 C-clips, 5 filters, 2 O-rings, battery (installed),1 screwdriver, operators manual.

$\%CO_2$

Working range (percent):
0 to 25%

Resolution: 0.1% CO_2

Accuracy:
0 to 25% ±0.3% (calculated)

$\%O_2$

Working range (percent):
0 to 25%

Maximum Overload: 30% O_2

Resolution: 0.1% O_2

Accuracy:
0 to 25% ±0.3%O_2 (@72°F (22.2°C) 20.9%O_2 ambient)

Stabilization time: under 2 minutes

Temperature

Range (temperature): -58°F to 1000°F; -50°C to 538°C

Resolution: 0.1°F/0.1°C

System Accuracy : ±0.6%+3°F (1.7°C) after field calibration.

One year limited warranty

This head is warranted to the original purchaser against defects in material and workmanship for a period of one year from the date of purchase. During the warranty period, Fieldpiece will replace or repair the defective unit, subject to verification of the defect.

Any damage to the sensor from dirt, mechanical abuse, or overexposure to damaging chemicals, including overexposure to carbon monoxide, are not covered under this warranty. Also not covered are defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use.

ANY IMPLIED WARRANTIES ARISING OUT OF THE SALE OF A FIELDPIECE INSTRUMENT PRODUCT, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE ABOVE. FIELDPIECE SHALL NOT BE LIABLE FOR LOSS OF USE OF THE INSTRUMENT OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, OR ECONOMIC LOSS, OR FOR ANY CLAIM OR CLAIMS FOR SUCH DAMAGE, EXPENSES, OR ECONOMIC LOSS.

Local laws vary. Above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary by location.

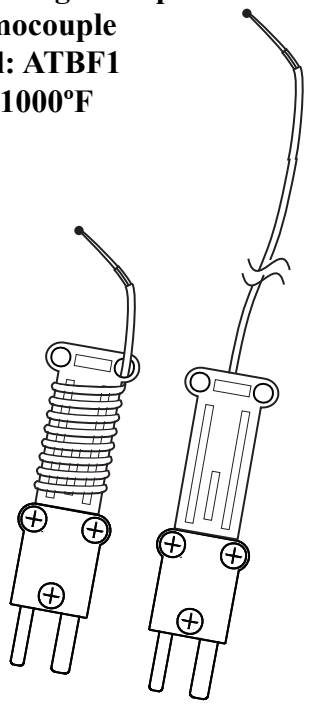
Service

Return any defective AOX2 to Fieldpiece for warranty service along with proof of purchase. Contact Fieldpiece for out of warranty repair charges.

Fieldpiece Instruments, Inc.
California, U.S.A.
www.fieldpiece.com

v09

K-type High Temperature Thermocouple
Model: ATBF1
Max: 1000ºF



Description

The ATBF1, K-Type thermocouple can be used continuously to take temperature readings up to 900ºF and a one time use of 1000ºF. The ATBF1 can be used with any thermometer which accepts a K-type thermocouple. The ATBF1 also comes with a wrap tab making it easy to wind and store the thermocouple.

Operation

To use the ATBF1 plug it into any thermometer or accessory head accepting a K-type thermocouple and adjust the device to the appropriate settings.

Calibration

Due to variances in the thermocouple wire and other parts of the system, a field calibration should be conducted before use. Field calibration typically gives +/- 1ºF overall accuracy. See *Field Calibration of AOX2 manual.*

SPECIFICATIONS

Thermocouple Conductors: K-type Nickel Chromium/Nickel Aluminum, 2300ºF maximum (insulation limits max. see *Probe insulation*).

Accuracy: -50ºF to 545ºF +/- 4ºF, 545ºF to 1000ºF +/- 0.75%

Range: -50ºF to 900ºF maximum continuos operation. Single exposure use up to 1000°F.

Probe insulation: While calibration and atmosphere will affect maximum useful temperature in applications, this insulation is designated to withstand a maximum continuous use at 900°F (482°C) and a single exposure use up to 1000°F (583°C).

Plug: K-Type thermocouple male mini plug.

⚠ WARNING ⚠

The thermocouple may become hot when testing hot temperatures. Do not handle the thermocouple when hot.