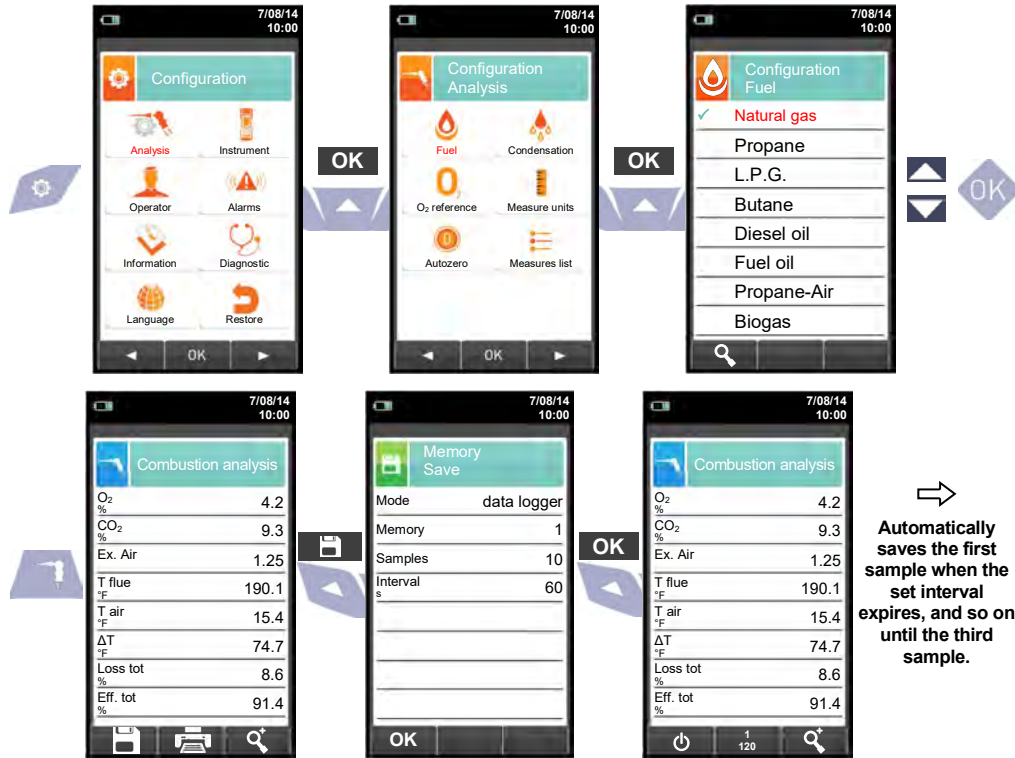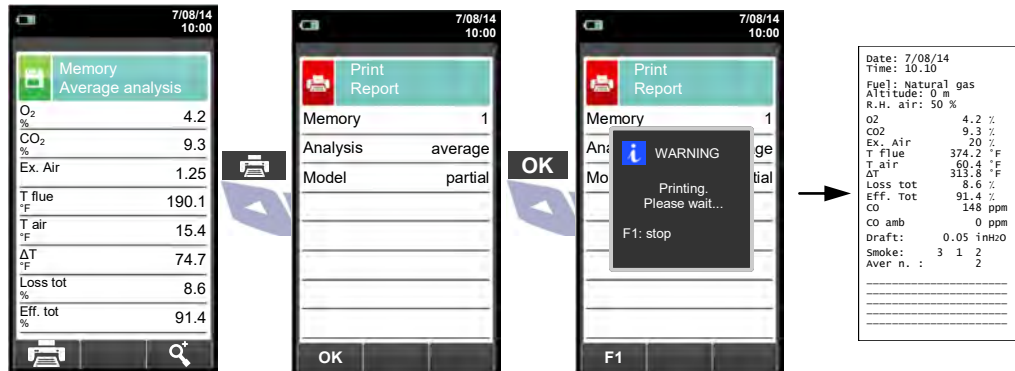# 7 COMBUSTION ANALYSIS & SAVING

**WARNING! - Before proceeding with the combustion analysis remember to set the proper fuel.**



**Configuration** (7/08/14 10:00)
- Analysis — Instrument
- Operator — Alarms
- Information — Diagnostic
- Language — Restore

**OK →**

**Configuration Analysis** (7/08/14 10:00)
- Fuel — Condensation
- O₂ reference — Measure units
- Autozero — Measures list

**OK →**

**Configuration Fuel** (7/08/14 10:00)
- ✓ Natural gas
- Propane
- L.P.G.
- Butane
- Diesel oil
- Fuel oil
- Propane-Air
- Biogas

**OK**

**Combustion analysis** (7/08/14 10:00)
| | |
|---|---|
| O₂ % | 4.2 |
| CO₂ % | 9.3 |
| Ex. Air | 1.25 |
| T flue °F | 190.1 |
| T air °F | 15.4 |
| ΔT °F | 74.7 |
| Loss tot % | 8.6 |
| Eff. tot % | 91.4 |

**Memory Save** (7/08/14 10:00)
| | |
|---|---|
| Mode | data logger |
| Memory | 1 |
| Samples | 10 |
| Interval s | 60 |

OK

**OK**

**Combustion analysis** (7/08/14 10:00)
| | |
|---|---|
| O₂ % | 4.2 |
| CO₂ % | 9.3 |
| Ex. Air | 1.25 |
| T flue °F | 190.1 |
| T air °F | 15.4 |
| ΔT °F | 74.7 |
| Loss tot % | 8.6 |
| Eff. tot % | 91.4 |

1/120

**Automatically saves the first sample when the set interval expires, and so on until the third sample.**

In case the automatic print mode is set then the average analysis printing start automatically.
Conversely, after the sampling of the third analysis, the average analysis is shown, so that it can be sent to the printer as explained in the following.

**Memory Average analysis** (7/08/14 10:00)
| | |
|---|---|
| O₂ % | 4.2 |
| CO₂ % | 9.3 |
| Ex. Air | 1.25 |
| T flue °F | 190.1 |
| T air °F | 15.4 |
| ΔT °F | 74.7 |
| Loss tot % | 8.6 |
| Eff. tot % | 91.4 |

**Print Report** (7/08/14 10:00)
| | |
|---|---|
| Memory | 1 |
| Analysis | average |
| Model | partial |

OK

**OK**

**Print Report** (7/08/14 10:00)
| | |
|---|---|
| Memory | 1 |
| Ana... | ...ge |
| Mo... | ...tial |

WARNING
Printing.
Please wait...
F1: stop

F1

```
Date: 7/08/14
Time: 10.10

Fuel: Natural gas
Altitude: 0 m
R.H. air: 50 %
O2          4.2 %
CO2         9.3 %
Ex. Air      20 %
T flue    374.2 °F
T air      60.4 °F
ΔT        313.8 °F
Loss tot    8.6 %
Eff. Tot   91.4 %
CO          148 ppm
CO amb        0 ppm
Draft:   0.05 inH2O
Smoke:    3  1  2
Aver n. :     2
```

- To view different test measurements, use ' 🔍⁺ ' key to scroll through the various test measurement screens.

**Xair** = Excess Air    **Tg** = Flue Gas Stack Temperature    **Ta** = Ambient or Incoming Air Temperature
**ΔT** = Differential Temperature (NET Temperature)    **Eff. tot** = Total Combustion Efficiency    **Loss tot** = Stack Losses

---

# 1500 QUICK GUIDE  CE

**Compliant with: EN 50379-1, EN 50379-2**

## Features
- Combustion, Flue gas & Emissions analysis
- Calculating of stack heat loss and efficiency
- CO environment measurement
- Measuring differential pressure
- Draft measurement
- Pressure measurement in the gas supply pipe
- Store Smoke values, calculating mean value



⚠️ The magnets in the back of the instrument can damage credit cards, hard drives, mechanical watches, pacemakers, defibrillators and other devices proven sensitive to magnetic fields.
It is recommended to keep the instrument at a distance of at least 10" away from any of these devices.

## KEYBOARD FUNCTIONS

| KEYS | FUNCTION |
|---|---|
| (arrows) | Activate the context keys shown on the display |
| 💾 | Enters the Memory menu |
| 🖨 | Enters the Print menu |
| ⚙ | Enters the Configuration menu |
| | Previes the combustion analysis |
| | Enters the measurements menu |
| ⏻ | Turns the instrument on/off |
| ESC | Quits the current screen |
| ◀▲▶▼ | Selects and/or modifies |
| OK | Confirms data |

## CONTEXT KEYS

| CONTEXT KEY | FUNCTION |
|---|---|
| ◎ | ZERO the pressure sensor |
| ↻ | Updates the measure |
| 📷 | Saves the current measurement or analysis in the memory location selected from the 'Select Memory' menu |
| 🖨 | Starts the report ticket |
| 💾 | Enters the Print menu |
| ⏻ | Stops the flue gas analysis |
| ✎ | Enters the modify mode for the selected parameter |
| OK | Confirms the settings |
| Esc | Cancels the change/operation and returns to the previous screen |
| 🔍⁺ | Zooms the screen |
| 🔍 | Shows the details for the selected parameter |
| 🔍 (binoculars) | 'Find' function; starts a quick search for the analysis to recall |

**E INSTRUMENTS**

K000000000EJ 027995 010217

**1.888.610.7664**    www.calcert.com    sales@calcert.com

# 1 USING THE FLUE GAS ANALYSER



AA AL05

AAC KP01
AA SA08
AA SF--A
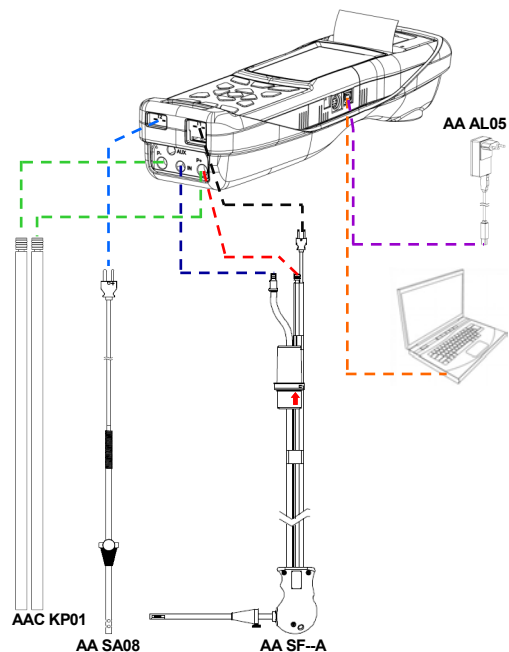
**WARNING!**
- Be sure all connections are tight to assure accurate sampling.
- It is important that water trap & filter be installed vertically to prevent damage from moisture & particles to sensors.
- When conducting measurements, the water trap/filter assembly MUST be in a VERTICAL position.
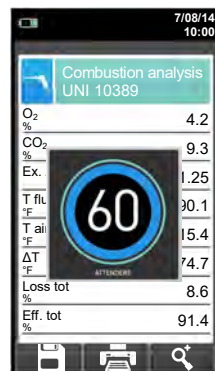- When testing is completed, always drain the water trap with any condensation (after EVERY test!).
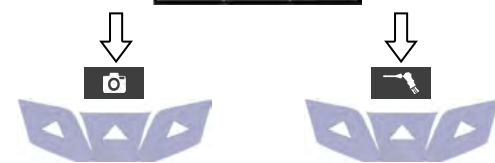
# 2 ON / OFF

**WARNING!**
During autozero **DO NOT** insert the gas probe in the chimney.

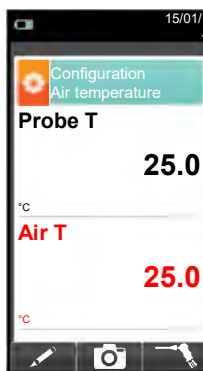**KEEP PRESSED FOR 2 SECONDS UNTIL IT BEEPS**

7/08/14 10:00
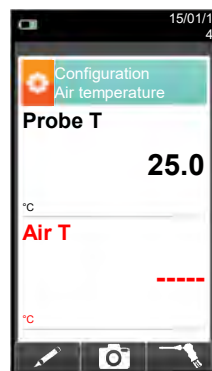
Combustion analysis
UNI 10389

| | |
|---|---|
| O₂ % | 4.2 |
| CO₂ % | 9.3 |
| Ex. | 1.25 |
| T flu °F | 90.1 |
| T air °F | 15.4 |
| ΔT °F | 74.7 |
| Loss tot % | 8.6 |
| Eff. tot % | 91.4 |

60
ATTENDERE

# 3 PRIMARY OUTDOOR TEMP. INPUT

15/01/14

Configuration
Air temperature

**Probe T**

**25.0**
°C

**Air T**
-----
°C

Analysis

Air temp.

**It saves the value, acquired or entered in the parameter 'Air T'.**

**Acquires the temperature value detected from the sampling probe. That value is reported in the parameter 'Air T'.**

15/01/14

Configuration
Air temperature

**Probe T**

**25.0**
°C

**Air T**
-----
°C

15/01/14

Configuration
Air temperature

**Probe T**

**25.0**
°C

**Air T**
**25.0**
°C

# 4 HOW TO STOP / RESTART PUMP

While in manual analysis, holding pressed both keys [ESC] and [▼] makes the instrument switch off the suction fumes pump and blocks the refresh of any current measure.
To switch on the suction fumes pump again and reactivate the refresh of the current measure, press again the keys [ESC] and [▼].

# 5 MEASURE OF THE DRAFT

7/08/14 10:00

Measurements
Draft

**P diff**

**0.001**
inH2O
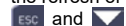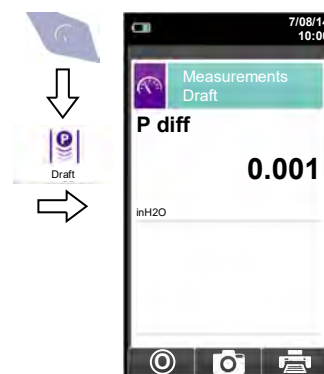
Draft

**Before zeroing the pressure it is mandatory to REMOVE the probe from the chimney.**

**ZERO Draft Sensor**

7/08/14 10:00

Measurements
Draft

**P diff**

**0.000**
inH2O

**Once the pressure zeroing is completed insert the probe in the chimney and measure the draft.**

**View & Save the DRAFT measurement.**

7/08/14 10:00

Measurements
Draft

**P diff**

**- 0.020**
inH2O

# 6 MEASURE AMBIENT CO

**It is mandatory to perform the instrument autozero in fresh, clean outdoor air.**

Ambient CO

7/08/14 10:00

Measurements
Ambient CO

**CO**
**0**
ppm

**CO max**
**0**
ppm
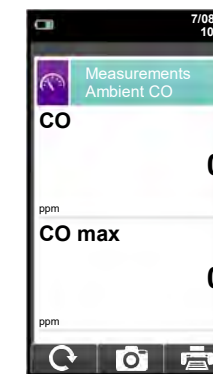
**Connect the gas probe to the instrument and perform the measurement.**
**Wait 5 minutes.**

**Save the measurement**

7/08/14 10:00

Measurements
Ambient CO

**CO**
**0**
ppm

**CO max**
**0**
ppm

K000000000EJ 027995 010217