AMPRO plus

USER MANUAL

SENSOR ADJUSTMENT

MRU AIR fair since 1984 ®

EMISSION MONITORING SYSTEMS

AMPROplus
Calibrating the gas sensors

The calibration of your AMPROplus should be performed by experienced service personal only!
MRU will not be responsible for any misuse or wrong interpretation of this calibration instruction.

Before you make any adjustments you have to make sure that the analyzer is working properly. The filter in the filter box must be new or clean. You should perform a leak test to make sure the system is without any leaks. The internal pump must have good suction.

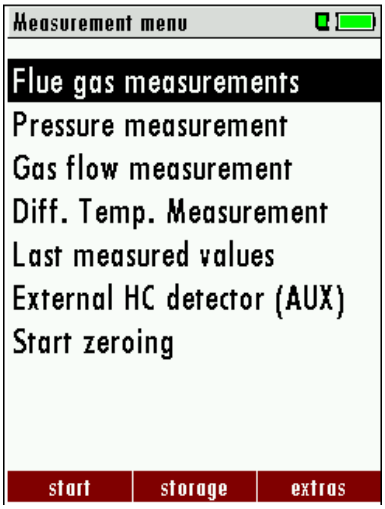
Tools needed:
Test gases
Flow meter
Vacuum manometer
Leak proof test cap

Recommended test gases:

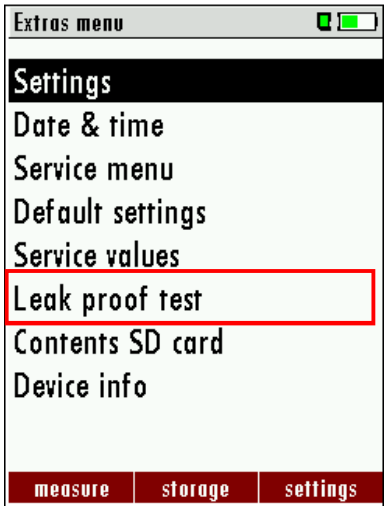
NO	80	ppm	Balance N2	
NO2	50	ppm	Balance N2	
SO2	500	ppm	Balance N2	
CO	500	ppm	Balance N2	
O2/CO/H2	10%	800 ppm	900 ppm	Balance N2

SWITCH ON THE ANALYZER AND PERFORM A LEAK PROOF TEST (Zeroing must be completed)

Switch on the analyzer
Once zeroing is completed you press the F3 button



Screen after zeroing – press F3 (extras)



Extras screen

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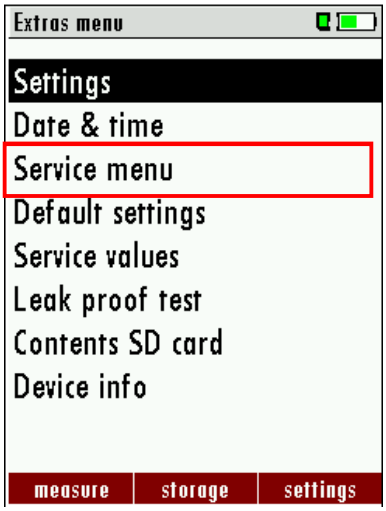
Scroll down to LEAK PROOF TEST and press OK
Install the test cap on the tip of your probe tube
The test takes about 10 seconds – when completed the analyzer will display the result
Remove the test cap

RESULT LEAKAGE: check the analyzer, probe and condensate separator for leakage
RESULT OK: you are good to go

When your result was OK you can now measure the vacuum of your internal pump.
Remove the hose at the condensate separator
Connect the vacuum manometer to the condensate separator port
Scroll up to Service values and press OK – the gas pump will start
After +/- 10 seconds your pump vacuum should be between -140 and -160 inH2O (-0.35 to -0.40 bar)
Press ESC to exit the service value menu
If your pump vacuum is ok you can perform the calibration

Scroll up to SERVICE MENU and press OK



Enter the PIN code

You will see a couple of lines on your display:

Adjustment gas factor
Adjustment gas nom. value
And others

Select: Adjustment gas nom. value

You will now see all installed sensors

1	2	3
O2	20.98	10
CO	0.0 ppm	505
CO/H2		801
NO	0.0 ppm	82.5
NO2	0.0 ppm	45.1
SO2	0.0 ppm	500

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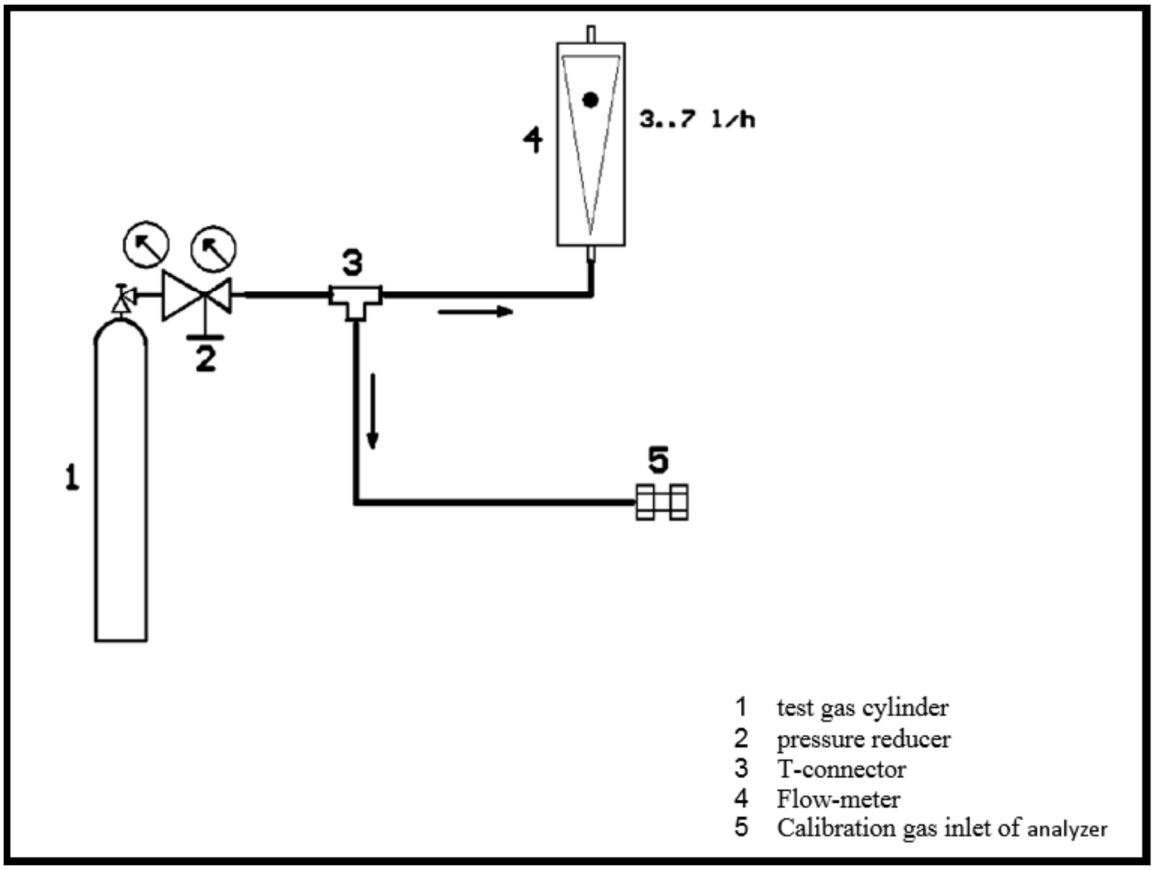
The black line can be moved using the arrow up/down buttons
The arrows left/right are used to modify the value in column 3
Column 3 is the value that you actually have in your test gas cylinders
Column 1 display the sensor
Column 2 will display the reading once you apply test gases



Apply test gas to your analyzer using either the port at the condensate separator or the tip of your probe tube.
We recommend to calibrate the analyzer with the complete sampling probe.
The flow rate must be between 3 and 7 liters per hour

You will start with test gas NO
Apply the test gas and then wait about 2 to 3 minutes until the values are stable
With this test gas you can adjust the NO sensor and also the zero point for O2
While in the O2 line you can press the F2 button to zero the O2
Then scroll down to the NO line and change the value in column 3 (your cylinder value)
Then press F3 (cross)
When the value is stable (after 2 to 3 minutes) the F2 button will be activated (adjust)
Press the F2 button to adjust the NO and then ESC to get back to the previous menu

Next will be NO2 gas if available
Then scroll down to the NO2 line and change the value in column 3 (your cylinder value)
Then press F3 (cross)
When the value is stable (after 2 to 3 minutes) the F2 button will be activated (adjust)
Press the F2 button to adjust the NO2 and then ESC to get back to the previous menu

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Next will be SO2 gas if available
Then scroll down to the SO2 line and change the value in column 3 (your cylinder value)
Then press F3 (cross)
When the value is stable (after 2 to 3 minutes) the F2 button will be activated (adjust)
Press the F2 button to adjust the SO2 and then ESC to get back to the previous menu

Next will be CO gas
Then scroll up to the CO line and change the value in column 3 (your cylinder value)
Then press F3 (cross)
When the value is stable (after 2 to 3 minutes) the F2 button will be activated (adjust)
Press the F2 button to adjust the CO and then ESC to get back to the previous menu

Next will be CO/H2 gas and 10% O2
Then scroll down to the CO/H2 line and change the value in column 3 (your cylinder value)
When the value is stable (after 2 to 3 minutes) the F2 button will be activated (adjust)
Press the F2 button to adjust the CO/H2

Then scroll up to the O2 line and change the value in column 3 (your cylinder value)
When the value is stable (after 2 to 3 minutes) the F2 button will be activated (adjust)

When you have performed all the steps above you can exit this menu using the ESC button.
The analyzer will ask you if you want to store the adjustments – which you will confirm with store.
That is the end of this procedure.

For CO2 calibration (if installed) select: NDIR CO2/CH4 adjustment
Your analyzer should have been switched on for at least 30 minutes before calibrating!

1	2
CH4 %	0.000
CH4 factor	1.000
CO2 cross sens.	0.000
CO2 %	0.000
CO2 factor	1.000
CH4 cross sens.	0.000

Scroll down to the CO2 factor line
Apply the available test gas
Once the value in the CO2% line is stable, you can modify the analyzer reading so it will the same value as your test gas using
The arrow left button to decrease the value and the arrow right button to increase the value.

When finished press the ESC button to exit the menu.