Manual entry of the PIN code

Pin Code will be Generated by MRU Instruments

The matching order should be as follows:

NO gas: NO-transverse and SO2 offset ("nitrogen" zero point)

NO2 Gas: NO2-Transverse

CO 500ppm:CO- Transverse

CO/H2 : CO/H2 Auto Span and O2 Linear(Abdominal Correction)

SO2 : SO2-Transverse (With O2 Gambert also SO2-Transverse on O2Offset)

H2S : H2S-Transverse

The cross-sensitivity of a sensor to a gas, which is measured with another sensor, can be compensated by the cross-sensitivity adjustment. This process requires the utmost care in adhering to rinsing times in order to detect only actually existing cross-sensitivities!

Typical cross-sensitivities

Cross-sensitivity to CO gas

- SO2 0.010 to 0.030
- H2S 0.010 to 0.030

Cross-sensitivity to NO gas

- NO2 0.000 to 0.015
- SO2 -0.010 to -0.050
- H2S 0.010 to 0.060

Cross-sensitivity to NO2 gas

- NO 0.005 to 0.100
- SO2 -1,500 to -0,800
- H2S -0.300 to 0.000

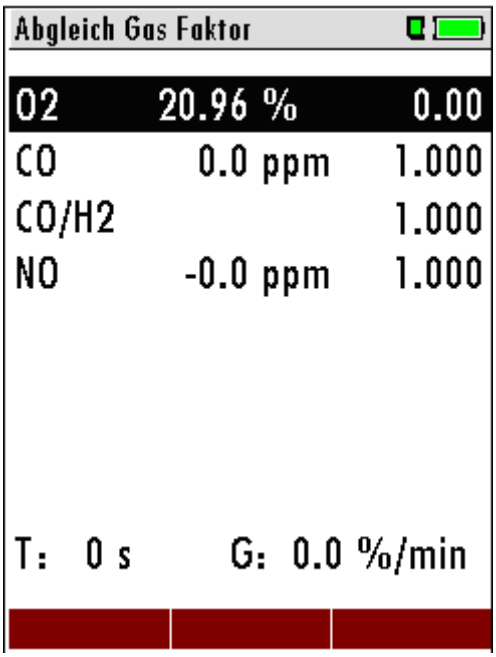
Cross-sensitivity to SO2 gas

- NO2 -0.020 to -0.040
- H2S 0.050 to 0.250

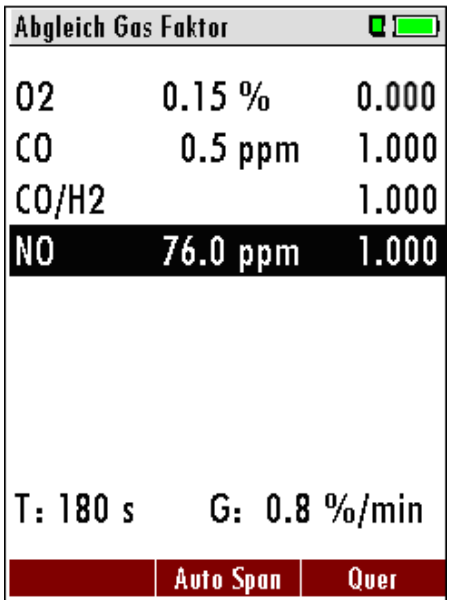
Cross-sensitivity to H2S gas

- NO2 -0.350 to -0.100
- SO2 0.010 to 0.030

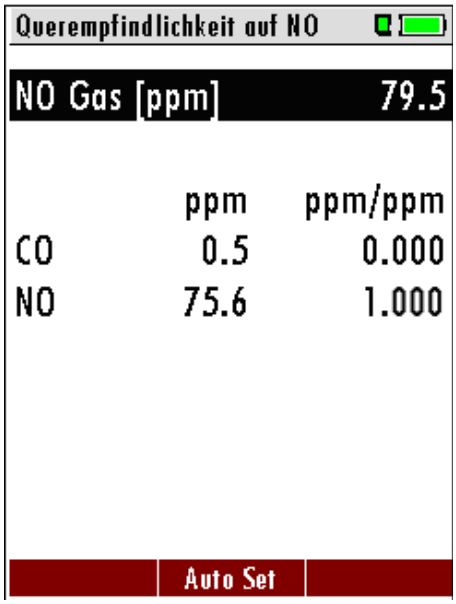
Manual O2 zero offset and NO adjustment



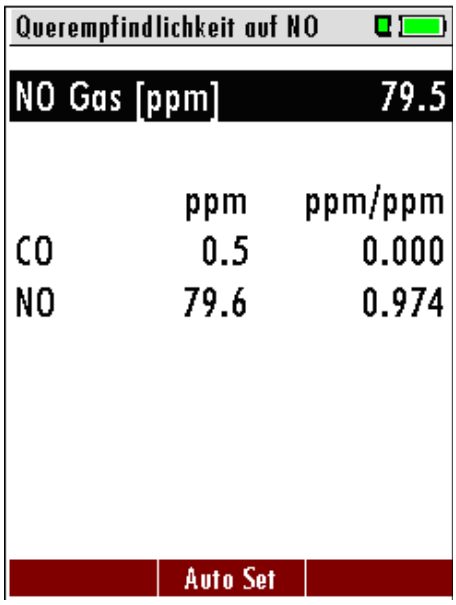
- The device should now display this window
- Middle column → Currently measured gas value
- Right column → matching factor (span)
- For the O2 sensor greater than 1.5% of the "belly offset" and less than 1.5% of the "zero point offset" ***Meaning of the lowest line:***This displays information aboutthe **selected** sensor. As soon as the sensor measures larger than 10ppm, the timer T: starts counting. Next to the timer is the gradient in %/minute.



-
  - 80 ppm NO Rest N2
  - After 3 minutes (T:180s) the NO sensor is matched (The gradient G should be less than 1% / minute)
  - To compare the sensor, enter the menu "Transverse" (F3)



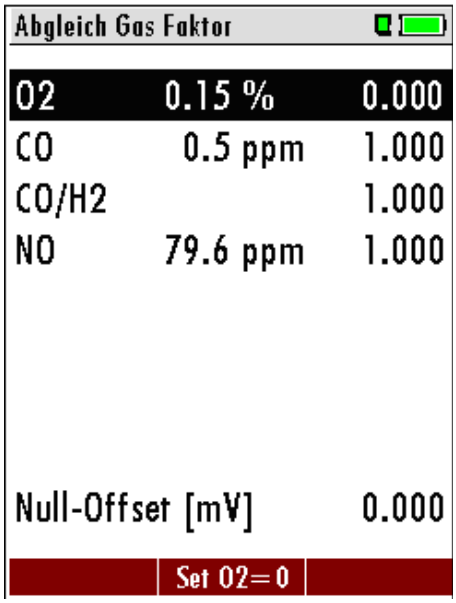
- Here is the already set bottle value
- When the Auto Set (F2) button is pressed, the device independently sets the target gas including the cross-sensitivities (if available for the respective sensor according to the data sheet)



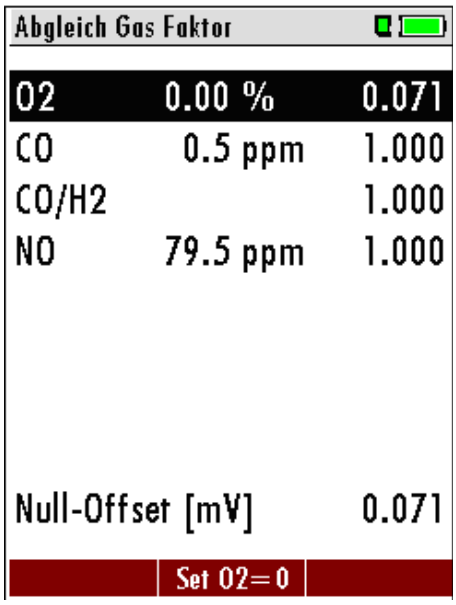
Now the ppm/ppm value of the sensor has been adjusted

- The CO sensor has not been corrected because, according to the data sheet, it has no cross-sensitivity in "new condition"

Leave the window with ESC



- Switch to the O2 in the first line.
- With F2 (Set O2 = 0) the correction takes place automatically.



Zero point offset has now been determined and corrected

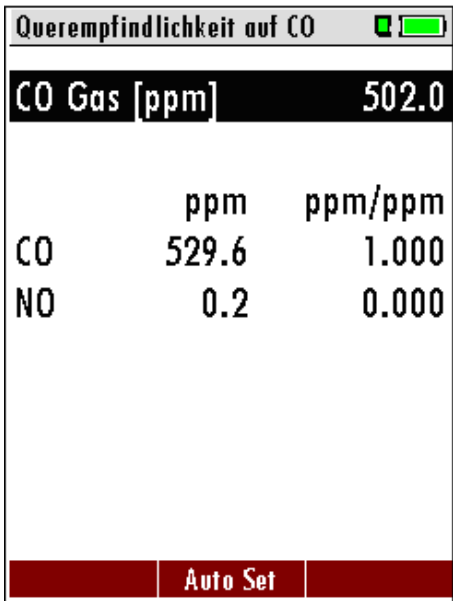
Purge the device with fresh air for at least 3 minutes

Special features when comparing the H2S sensor in the OPTIMA7 BIOGAS

The H2S sensor on the Optima7 BIOGAS must not be compared with a single gas cylinder H2S (accompanying gas N2).

- For comparison: **Use mixed gas cylinder with CO2=40.00% / CH4=60% / H2S=500ppm.**
- Adjustment must be carried out under a suction.
- Apply gas to the sensor for at least 8 minutes.

Manual CO balancing and O2 belly

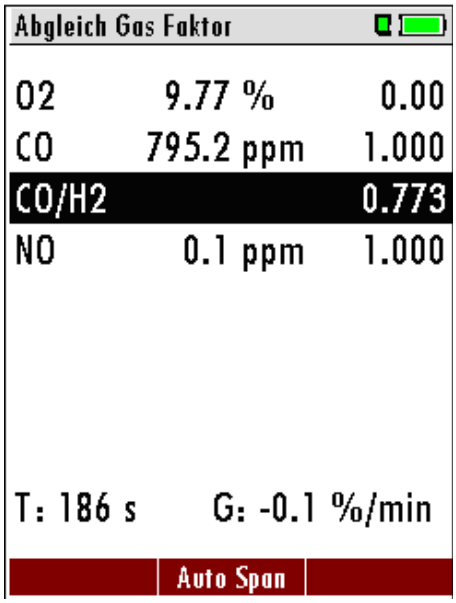


-
  - Select 500ppm CO / 2% O2 Rest N2
  - After 3 minutes (T:180s) the CO sensor is matched (The gradient G should be ≤ 1% / minute)
  - To compare the sensor, enter the menu "Transverse" (F3)
  - Here is the already set bottle value
  - When the Auto Set (F2) button is pressed, the device automatically sets the target gas including the cross-sensitivities (if available for the respective sensor according to the data sheet)

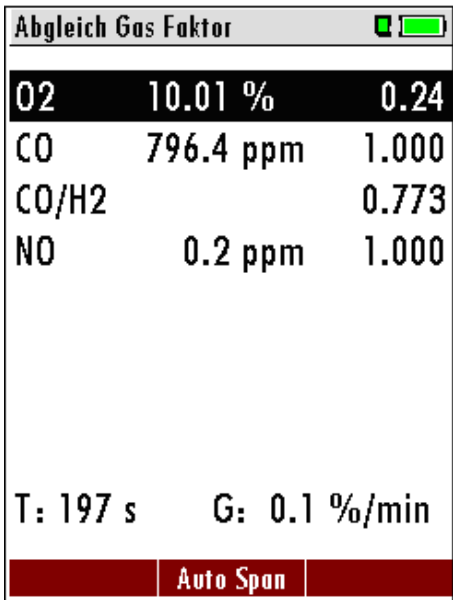
Again, nothing is entered with an NO sensor, since the sensor has no transverse sensitivity according to the data sheet

- Attention!!

At 2% O2 the "O2Bauch" must not be adjusted!



-
  - Select 800ppm CO / 900ppm H2 / 10% O2 Rest N2
  - After 3 minutes (T:180s) the H2 sensor (CO/H2) is matched (The gradient G should be ≤ 1% / minute)
  - To move the cursor to the line CO/H2 and press the Auto-Span button (there is no comparison of the cross-sensitivities here)



- Switch to the O2 line and compare the O2 belly with F2 (Auto Span)

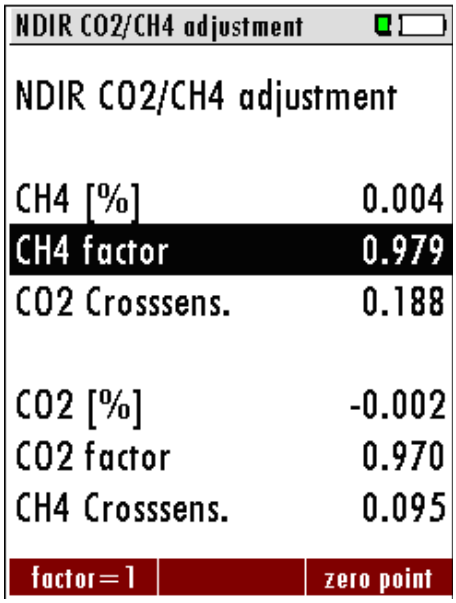
Purge the device for at least 3 minutes

- For other sensors, the procedure described above must be compared
- Select the appropriate gas
- Waiting time at least **3 minutes**,
- for gases such as SO2, NO2 and H2S ≥ **5 minutes**
- Sufficient purging between the gases (the same time as the load)
- Use the cursor to select the gas to be matched, press transversely (F3) and press Auto Set (F2)

○

The IR module is usually already pre-adjusted and only needs to be corrected with mixed gas. This must be carried out with mixed gas 60% CH4 and 40% CO2, a test with individual gases is not required. A test gas cylinder with this mixed gas is possible (and useful, since it is more accurate than the production of the mixture via gas mixers).

Deviations in the range **≤ 5%** are to be corrected as follows (in case of larger deviations: replace cuvette):



- Under Settings/Service menu/NDIR CO2/CH4 adjustment, there is a balancing factor for individual gases for CH4 and CO2 and a factor for the span cross-sensitivity for mixed gas.
- Before the adjustment, the device should have been switched on for an hour and a new zero point should be taken via F3(Zero Point)! The waiting time should be at least 3 minutes per gas.
- The observed deviations are to be corrected **exclusively** on the factors for **individual gases** (CH4 factor, CO2 factor). An adjustment of the factors CO2 Crosssens or CH4 Crossens is **not** suitable for this.