# New Universal Electronic System for Smart Sensing

Membrapor has developed a novel, universal circuitry for electrochemical sensors:

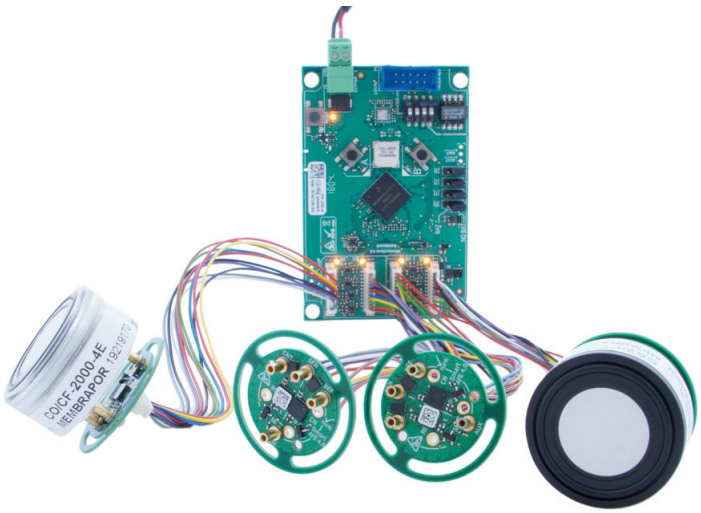
## *MembraSens 4.0*

The innovative design consists of a **Mainboard**, to which 1 till 4 programmable **smart Analog Front End (AFE)** are flexibly connected.

Cornerstone of the new system are the Microcontroller Unit (MCU) on the Main Board and the programmable potentiostat on the smart AFE. Together they allow a flexible configuration and calibration, both in-house and in the field.

The System ***MembraSens*** includes diverse processing options and enables various applications to monitor up to 4 toxic gases with one space-saving mainboard.

As world's first, the universal electronic ***MembaSens*** can be used with 4-electrode sensors as well as with 3-electrode sensors and this even simultaneously.



## Main features

- Suitable to operate up to 4 electrochemical sensors in Compact size (7 series)
- For 3-electrode sensors (1 signal)
- For 4-electrode sensors (2 signals)
- Programmable smart AFE: Operation of whole range of toxic gas sensors
- Storing configuration, calibration and temperature compensation into EEPROM of the AFE
- Dimension: AFE diameter 32 mm with mounting option, main board approx. 60 x 92 $mm^2$
- MODBUS RTU: Digital communication for configuration, calibration and signal monitoring of all AFEs
- RS-485 interface (TIA/EIA-485)
- Bus-operation with up to 247 *MembraSens* possible
- Power supply: 4 ... 36 VDC and power managment with reduced energy consumption
- Defined states of sensors in power-off mode, incl. maintenance of bias
- Extensive signal processing possible:
  - Various models for ppm calculation, incl. hydrogen compensation
  - Various models for temperature compensation
- Calibration made possible with and without gas at anytime
- Zero point calibration is possible directly on mainboard with buttons
- Alerting in the case of violation of alarm thresholds



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