WEBENCH® Sensor AFE Designer software shows all configurable elements for easy online or on-bench design. Simply select a sensor, configure the signal path, optimize your design, and load to a Sensor AFE for immediate prototyping.

**Design Resources and References**

- **E2E Precision Data Converter Forum**
  - [www.ti.com/e2epdc](http://www.ti.com/e2epdc)
- Get more information on the Sensor AFE family of products at [www.ti.com/sensorafe](http://www.ti.com/sensorafe)
  - Design with WEBENCH Sensor AFE Designer
  - Watch videos
  - Find companion products
  - Download datasheets
  - Order samples and EVMs

**WEBENCH® Sensor AFE Designer**

**Sensors**
- pH
- NDIR
- Temp
- Bridge
- Electrochemical

**WEBENCH® Sensor AFE Designer**

**Hardware**

**Software**

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Texas Instruments’ Sensor analog front end (AFE) products are the industry’s only configurable ICs designed to interface with multiple sensor platforms and provide easy-to-use, modular solutions for bridging the gap between the microprocessor and sensor. The Sensor AFEs and WEBENCH® Sensor AFE Designer are part of an integrated hardware and software development system that allows customers to quickly design and configure a solution and move rapidly to prototyping.

Whether designing with the tool online or on the bench, simply select the sensor(s), configure the optimal signal path for your solution, then download the design to a Sensor AFE chip.

**Sensor AFE**
- Design and configure solutions online or on the bench.
- Prototype quickly on the bench.
- Easily calibrate and run diagnostic tests.
- Simplify manufacturing.
- Reduce time-to-market.

TI’s growing family of Sensor AFEs dramatically reduces development time by using a single chip across multiple sensor platforms instead of designing several complex discrete solutions.

**Sensor AFE Portfolio**

<table>
<thead>
<tr>
<th>Device</th>
<th>Sensor Type</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMP9105x Family</td>
<td>Electrochemical Cells, Solid-State Materials, O2, CO, NOx, H2S</td>
<td>Safety and Security, Building Automation and Monitoring, O2, NOx, CO, H2S, NH3 Monitoring</td>
</tr>
<tr>
<td>LMP910x Family</td>
<td>NDIR Sensor, CO2, CH4, Alcohol Gas, Propane, Green House Gases</td>
<td>Temperature, CO2, CH4, Alcohol Gas, Propane, Green House Gases</td>
</tr>
<tr>
<td>LMP91200</td>
<td>pH</td>
<td>Steam and Water Quality Monitoring, TDS, pH, Conductivity, Alkalinity, Analyzers, Environmental Monitoring</td>
</tr>
<tr>
<td>LMP80xx Family</td>
<td>Temperature, RTD, NTC, TC, Resistive Bridge</td>
<td>Temperature, RTD, NTC, TC, Resistive Bridge</td>
</tr>
</tbody>
</table>

**Smart Building Automation, Alcohol Breath Detection, Refrigerator Leakage**

**LMP91000/2**

The LMP91000/2 is a complete programmable potentialistat circuit that interfaces to most single channel Electrochemical cells.

**Traditional Solution**
- No diagnostics
- Bias current specification over temperature is not guaranteed
- No protection for probe when power removed
- High power
- Large form factor

**Best in Class Solution**
- Simplify the PCB build for multiple gases, different sensors and platforms
- Low power
- Sensor can never be shut down
- Temperature compensation
- Sensor Diagnostics
- Chip con/f_igurable
- Channel con/f_igurable
- Low power
- Simplify the PC build for multiple gases
- Sensor diagnostics
- Sensor can never be shut down
- Low power
- Simplify the PCB build for multiple gases

**Water, Food, Environment Monitoring**

**LMP91200**

The LMP91200 is a complete programmable, high interface solutions with most pH sensors integrated, high impedance solution that interfaces to high impedance sensors.

**Traditional Solution**
- No diagnostics
- Bias current specification over temperature is not guaranteed
- No protection for probe when power removed
- High power
- Large form factor

**Best in Class Ti Solution**
- Worlds lowest bias current solution that extends the life of the pH sensors
- Lower bias current allows smaller pH package and eliminates interference to high impedance sensors
- Guarding helps package resistance leakage on board and package
- Minimal noise < 14 mVpk-pk at no powered electrolyte
- Small form factor solution
- Sensor diagnostics functions

**Temperature sensing, Industrial and Process Automation**

**LMP90000/77 70/97/99**

The LMP90100 family is a complete programmable multi-channel, low power 24-bit Sigma Delta ADC that interfaces with Temperature and Bridge Sensors.
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<tr>
<td>Data Converters</td>
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