



Siargo Ltd.

Digitize our perception

COMPANY OVERVIEW

2024 Updated

COMPANY OVERVIEW



2004: Established in Silicon Valley



55+: MEMS sensing products



41: US patents; access to full product chain



80+: countries shipped, w/700+ customer



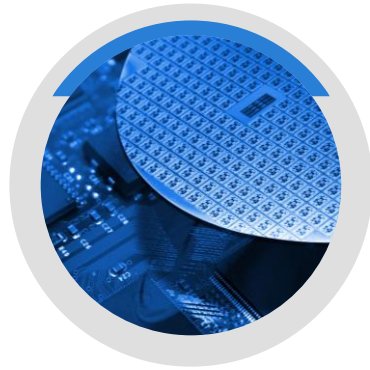
ISO 9001 / ISO 13485 / ISO 14001 / ISO 45001

BUSINESS FOCUS AND APPLICATIONS



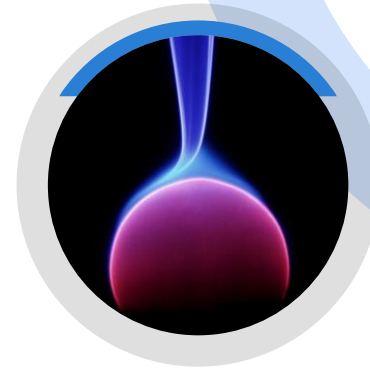
FLOW SENSING, MEDICAL

- Medical
- Automation
- IIOT
- Instrumentation



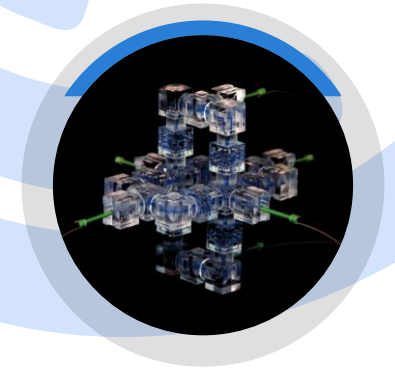
SEMICONDUCTOR

- MFC
- Liquid
- Vacuum
- Reliability



SMART ENERGY

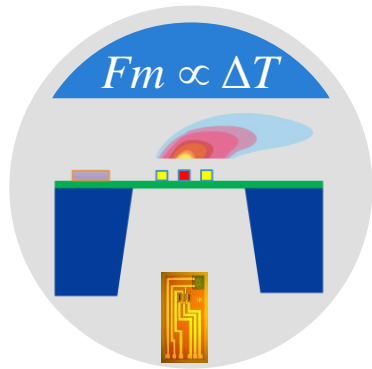
- Utility gas
- Utility water
- Steam
- Industrial



MICROFLUIDIC

- Drug delivery
- Bio-instruments
- Pharmaceutical
- Food & Beverage

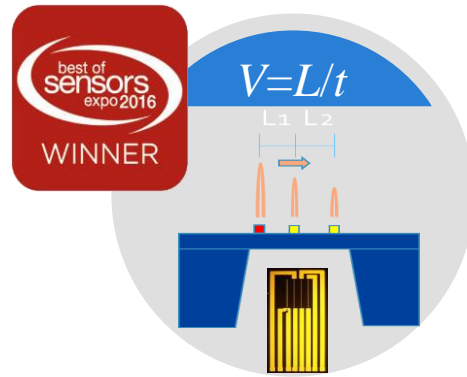
MEMS SENSING TECHNOLOGY



THERMAL MASS FLOW SENSING *THERMAL-D*

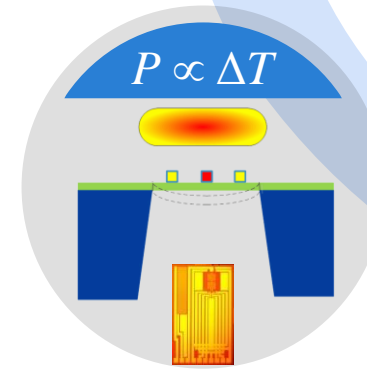
Integrated calorimetric and energy dissipative

- Gas identification
- All mass flow
- large dynamic range
- Robust membrane materials
- No gas conversion for gases with same diffusivity



TIME-OF-FLIGHT FLOW SENSING

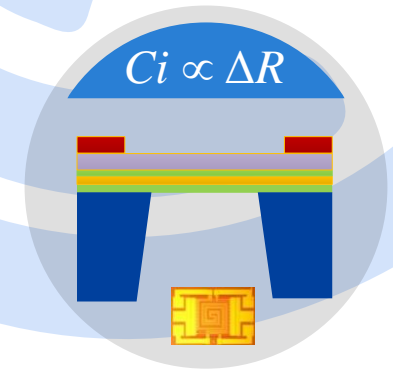
- The first in market
- microfluidic applications
- precise
- large dynamic range
- Gas concentration and self-calibration
- direct biocompatibility



THERMAL FIELD PRESSURE SENSING

The first in market

- varieties of applications
- precise
- large dynamic range
- easy calibration

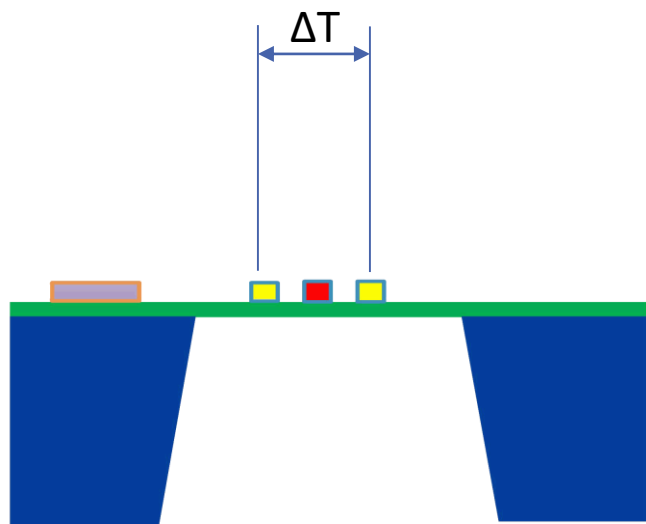


THIN FILM CHEMICAL SENSING

- Varieties of applications
- excellent in selectivity
- fast response time
- excellent uniformity
- High sensitivity

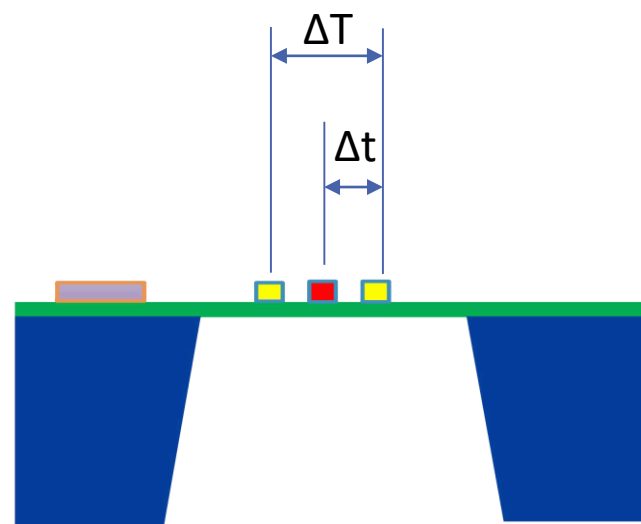
THERMAL-D MASS FLOW SENSING

Other companies



$$q_m = \frac{(P - L) \times f_{CTMF}}{c_p (T_2 - T_1)}$$

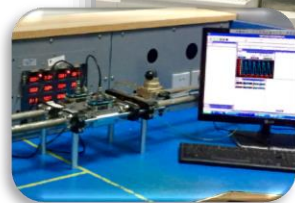
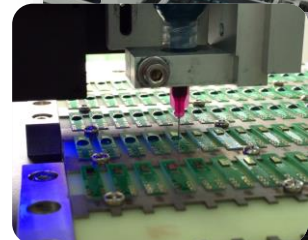
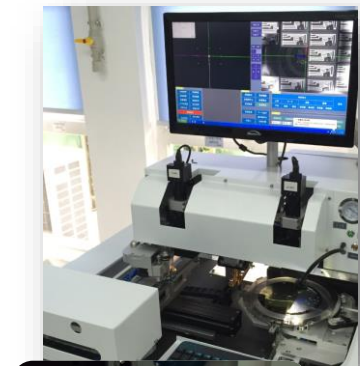
Siargo *Thermal-D*®



$$\frac{\partial T}{\partial t} = \frac{k}{\rho c} \nabla^2 T + \frac{Q(t)}{\rho c} - V \nabla T$$

- MEMS thermal mass flow sensing normally is based on calorimetry, i.e. measures the temperature difference only. The measurement is gas dependent.
- Our *Thermal-D* sensing acquires additional heat transfer data in time domain that allows removal of gas sensitivity for gases with similar thermal diffusivities. This sensing technology improves accuracy and linearity during gas conversion.

MANUFACTURE FACILITY



- Automatic sensor package
- Semi-automatic calibration
- Dedicated engineering team
- Modular product manufacture
- Established since 2005
- Major expansion in 2024 into 12,000 m³ facility.



Selected products

Mass flow sensors



Medical equipment,
process control, HVAC,
and many others

Mass flow meters



Oxygen delivery, utility
gas, industrial process
and many others

Microfluidics
Liquid flow



Drug delivery, pharma,
DNA analysis, chemical,
food process

Pressure sensors



Medical equipment,
HVAC, and others

Mass flow controller
Vacuum gauge



Medical equipment,
semiconductor
equipment, and others

THE FLOW SENSING PRODUCTS

FULL SPECTRUM OF OFFERS



- Flow rate – 20 sccm to 10000 SLPM
- Package – inline, insertion and manifold
- Pressure – operating up to 1.5 MPa
- Mechanical – threaded or other options
- Interface – I²C; RS485/Modbus; IO-Link; BT LE, LoRa... IoT plug & play
- Disposable – sensor only or modular
- Power – low power/battery or with harvester
- Package – small footprint



- Modular design allows easy customization
- Full calibrated linearity output allows plug-and-play
- Extended to meter options and integrated control systems with valves, manual or automated
- Remote and Cloud options for the easy management

FAST RESPONSE AND MODULAR MANAGEMENT

COMMITTED TO CONTINUOUS INNOVATION

FLOW SENSING WITH MULTI-PARAMETERS



- Extending the capability with flow medium identification, thermal value and medium compositions
- Integration with pressure sensors, temperature and humidity sensors
- Integration with chemical sensors

- Thermal conductivity sensor (TCD) for gas chromatography
- Microfluidic metrology sensing, super large dynamic
- pH-sensors, vacuum sensors
- Gas concentration sensors with pellistors, TTOF, MOx



BEYOND FLOW SENSING

Thank you!



4677 Old Ironsides Drive, Suite 310
Santa Clara, California 95050 USA



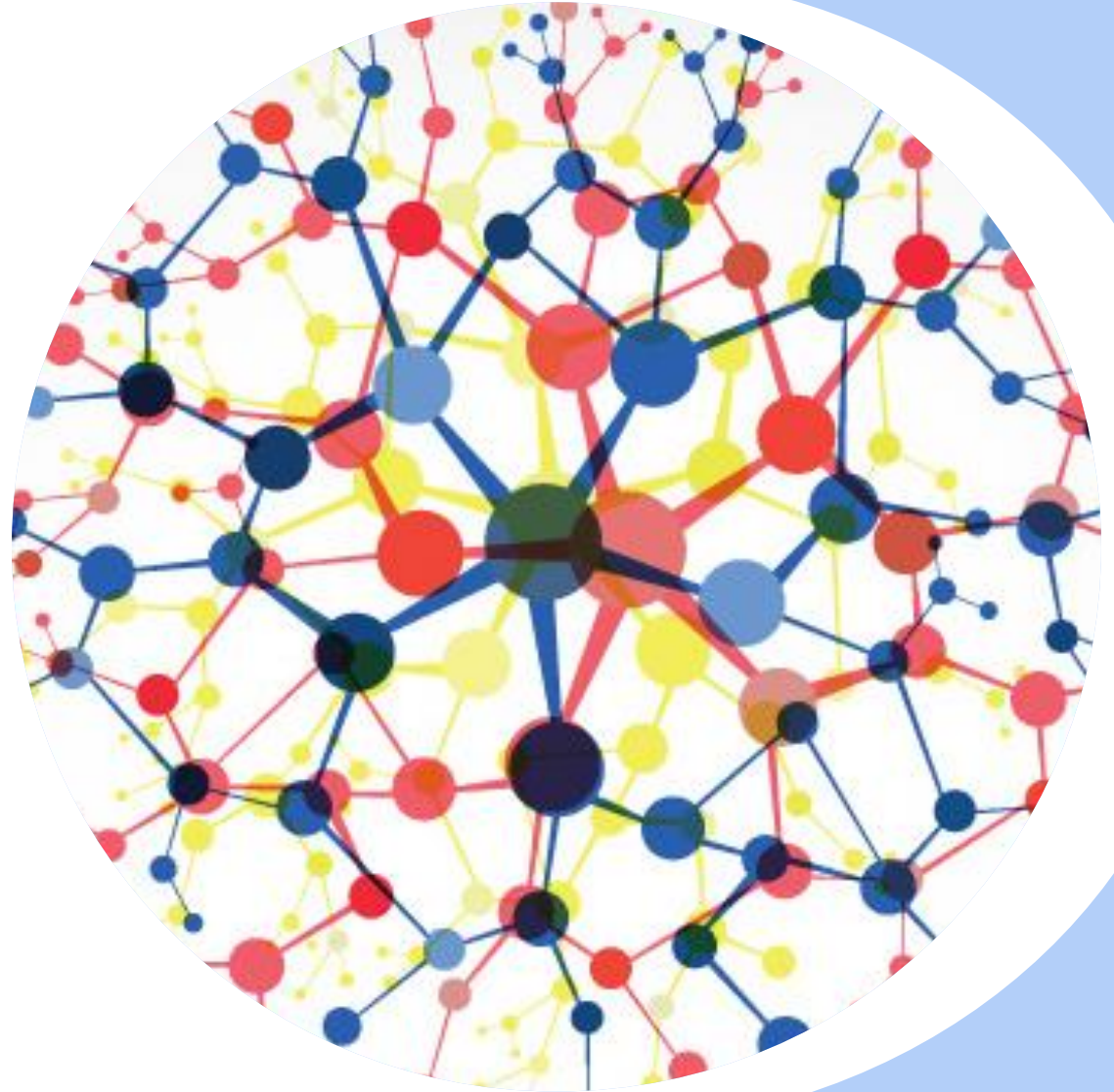
www.Siargo.com



info@Siargo.com



408.666.3073



Siargo Ltd.