

## + SENSIC™ RFID ASIC

The **SensIC™** RFID ASIC, designed and developed by Phase IV Engineering, is a custom CMOS device that can wirelessly measure and communicate temperature and the value of an external capacitive MEMS sensor.

### Sensor Types

Compatible types of external capacitive sensors include strain gage, pressure and humidity sensors. The device can be used as the nucleus of a passive RFID tag or, if externally powered, as the central element in an active monitoring transmitter.

### Operation Modes

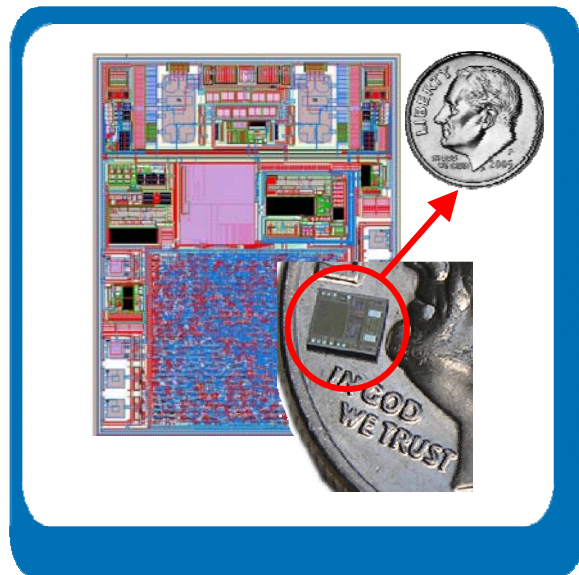
In the passive mode, the ASIC develops power from an external RFID reader that powers an external antenna coil attached to the transponder. The SensIC can also operate in an active mode with an external clock and standard battery.

### On Chip Memory

The on chip memory of 1024 bits can be used for identification, calibration data and user data. The memory has a mix of locked and read/write memory.

### Communication

The modulation can be programmed to be ASK format (ISO 11784/11785 FDX-B), phase shift key (PSK), or ISO 14223.

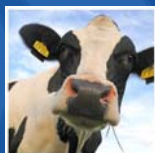


## + TECHNOLOGY ADVANTAGES & BENEFITS

- Wireless ID, temperature and capacitive sensor monitoring.
- Passive or active operation.
- High temperature resolution.
- Adjustable gain for temperature and capacitance ranging.
- 28 words of RF writeable data in an 896 bit array.
- Wireless monitoring of temperature and pressure.
- Composite health monitoring through embedded strain gage and wireless link.
- Intelligent tagging tracking ID and instantaneous status of condition of items.
- Wireless interface for capacitive sensors of virtually any type.
- Long term monitoring and ID, no battery or power limitations. for proof of concept and production.

**Questions?**  
Call us to discuss your  
specific needs.  
**1-866-608-6168**

maintenance-free | miniature | mobile | rugged



Contact Phase IV Engineering to explore how our innovative wireless sensing technology can work for your organization.

## SensIC™ Specifications

### Environmental

Operating temperature	-55 °C to 150 °C (-67 °F to 302 °F)
Storage temperature	-55 °C to 200 °C (-67 °F to 392 °F)
Humidity	N/A

### Physical

Size	2 mm x 3 mm Die (0.078 in. x 0.118 in.)
Weight	N/A
Color	N/A
Type of material	CMOS Silicon Die

### RF Specifications

Operating frequency	134.2 KHz
Typical operating range	2 to 5 cm (0.78 in. to 1.96 in.)
Modulation	ASK (FDX-B) and PSK

### Sensor Performance\*

Internal	
Temperature Range	-40 °C to 125 °C (-40 °F to 257 °F)
Temperature Accuracy	± 0.5 °C

### External

Capacitance Range**	1 to 50 pF
Accuracy	0.01 pF

### Calibration

Calibration factors stored onboard

### Memory

Size	1024
------	------

### Electrical Specifications

Power source	Reader or Lithium battery
Minimum chip excitation	4.6 V

### Certification

ISO Standards	ISO 11784/5 ISO 14223
---------------	--------------------------

\* Performance to specifications is dependant on calibration and gain settings.

\*\* Operation and range of sensor typically limited to 2x lower value. Please contact the factory for application-specific assistance.

SensIC and all Phase IV Engineering product names and the Phase IV logo are trademarks of Phase IV Engineering, Inc. All other brands and product names are trademarks or registered trademarks of their respective owners. Phase IV reserves the right to change specifications and features without notice.

maintenance-free | miniature | mobile | rugged

