iGRAIN Sensor Probes for Multiple Applications

Universal single point grain monitoring probe for monitoring biological processes during storage

The iGRAIN Sensor Probes are designed to monitor the biological processes during storage in silos and containers. The monitoring is based primarily on gas analysis.

Because ambient air surrounding the grain kernels spread evenly and rapidly in a silo or container, a single point measurement is often most efficient and most economical.

iGRAIN Sensor Probes and mounting flanges



All sensor probes come with a mounting flange for welding onto the silo/container.

Monitoring biological processes in stored grain etc.

Monitoring the development in a biological eco-system is done most efficiently with gas analysis. All scientific literature points to gas analysis both to monitor the development of the primary product and possible attacks from pests such as insects, mites, fungus, bacteria, yeast, or other unwanted biology.

iGRAIN has developed monitoring expertise to monitor different biological eco-systems such as:

- Stored grain like wheat, rice, corn, etc.
- Special application for storage of barley for malting purposes
- Storage of cocoa or coffee beans
- Storage of nuts such as pistachio, cashews, almonds, hazelnuts, etc.
- Storage of feed pellets, including short-term storage before packaging.
- Monitoring of oil-seed meal from soybean, sunflower, cottonseed, etc.
- Storage of palm oil seed
- Monitoring of wood pellets or wood chips etc.
- Composting applications

All of these storage applications require monitoring and possibly aeration control. All sensors interfaces with the iGRAIN Dashboard Manager software for easy storage and inventory management.

Combines with other sensors

All applications can be supplemented with the iGRAIN inventory management sensors based on either iGRAIN Bin Auditor Radar or Bin Auditor Laser.

A system can also be supplemented with a classic temperature sensor cable which provide additional temperature monitoring data and an almost free inventory status.



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Monitoring gases

The following gases can be monitored with iGRAIN sensors:

- Relative humidity in the storage container/silo
- Seed, grain, or other bio-material absolute humidity (EMC calculation)

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- Carbon Dioxide CO₂ monitoring infestation, and quantifying it
- Carbon Dioxide CO₂ applied to monitor germination processes
- Volatile Organic Gases VOC, monitoring organic volatile gases
- Hydrocarbon Gases C_nH_m, monitoring gases in the oil seed industry
- Oxygen monitoring O₂ monitoring anaerobic conditions
- Temperature monitoring always included

Advantages

- Affordable HI-TEC monitoring solution
- Long term stability with easy service access
- Interfaces with all iGRAIN communication platforms
- Interfaces with iGRAIN Smart App

Monitoring applications

- All types of grain
- All types of beans and nuts
- All types of oilseeds
- All types of oilseed-meal
- All types of feed pellets
- All types of wood chips and wood pellets
- Composting etc.
- Anaerobic storage silos for wheat or other material

Safety applications

- Fire and explosion monitoring
- CO₂ safety monitoring















Technical specifications	Standard sensor config. AIO	Standard sensor config. AIO+	Special sensor configuration
Sensor Probes			
Sensor Probe, L = 16 CM	CO2, moisture, temperature	VOC*, CO2, moisture, temperature	O₂ or CO
Sensor Probe, L = 38 CM	CO2, moisture, temperature	VOC*, CO2, moisture, temperature	O₂ or CO
Sensor Probe, L = 60 CM	CO2, moisture, temperature	VOC*, CO2, moisture, temperature	O₂ or CO
Communication	Modbus 485		
Power supply	24 VDC from AIO-Hub		
AIO-Hub			
Communication	Network communication controller		
Power supply	100-240 VAC to 24 VDC		
All Sensor Probes operate in the same Modbus network and interface with al iGRAIN Dashboard Platforms			
* VOC = Volatile Organic Compounds or other Hydrocarbon gasses C.H.,			

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