



SMARTFOAM **FOAM SWITCH**

FOR GENERAL FOAM DETECTION
APPLICATIONS

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FOAM DETECTION

The SmartFoam Sensor is the latest addition to Hycontrol's foam detection range, designed to detect and control foam in a single unit for simple foam applications. Within its head the SmartFoam has its own built-in transmitter so that foam detection and control are managed without the need for an external controller. This integrated Sensor shows reliability, resilience, and complete immunity to fouling.

Constructed from 316 Stainless steel and PVDF with a polypropylene head, it offers a robust solution for foam control which is very easily installed into an existing process system.

The SmartFoam can be connected directly to a PLC or process controller without the need for any additional instrumentation. The sensor includes a 3/4" BSP or NPT tapered fitting to enable it to screw into a process tank. Alternatively, it can be fitted by means of a bracket over an open tank. It is easily cleaned and fully weatherproof for outdoor situations with IP66/67 enclosure.



FEATURES, ADVANTAGES AND BENEFITS

- **REDUCE ANTI-FOAM COSTS**
- **REDUCE PROCESS DOWN TIME**
- **REDUCE WASTE AND PRODUCT LOSS**
- **INCREASE BATCH SIZE CAPACITY**
- **IMPROVE PLANT EFFICIENCY**
- **AVOID ENVIRONMENTAL POLLUTION**
- **INCREASE PRODUCTION CAPACITY**
- **IMMUNE TO PROBE FOULING**

FOAM PROBLEMS OCCUR IN MANY INDUSTRIES



- **Paper mills**
- **Water and Waste**
- **Activated sludge**
- **Effluent**



- **Food processing**
- **Beverages**
- **Pressure cookers**
- **Digesters**

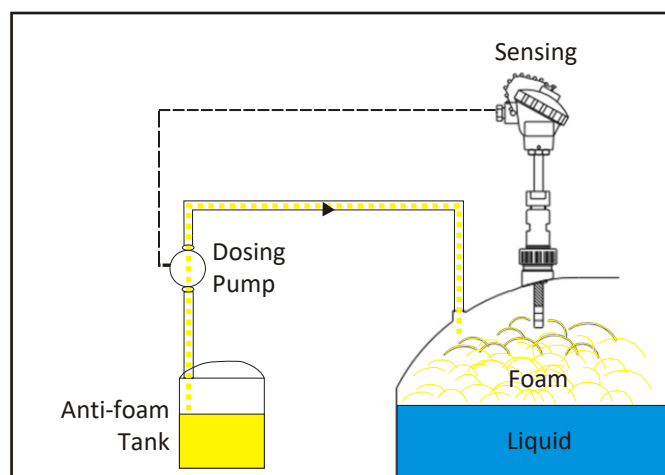


INSTALLATION

The SmartFoam sensor is purely designed for foam detection only. As the sensor detects foam, the SmartFoam will provide a relay output which can then be utilized for controlling an anti-foam dosing system.

I.e. The sensor will detect foam and provide an output which can then switch on and off an optional dosing system or just provide an alarm to take further action unless foam is present such as switching on/off aeration pumps etc.

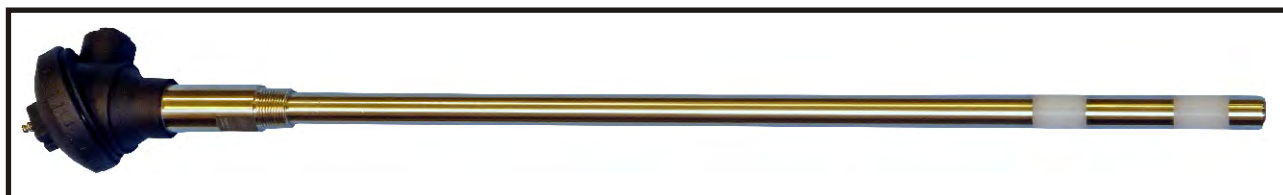
SmartFoam is a lower cost solution designed to detect foam only & reduce anti-foam usage in OEM applications.



SMARTFOAM - FOAM DETECTION

The SmartFoam transmitter allows for the accurate control of aqueous foam by sensing when the foam reaches the end of the probe. This device has excellent resistance to fouling from build up on the measuring probe and still continues to operate reliably with large deposits on the sensing element. The SmartFoam has a single volt free contact set point and can be used extensively for reducing the amount of chemical anti-foam agent used in the process. The SmartFoam is a stand alone device and does not require a separate controller. The SmartFoam can be mounted vertically or horizontally in the tank.

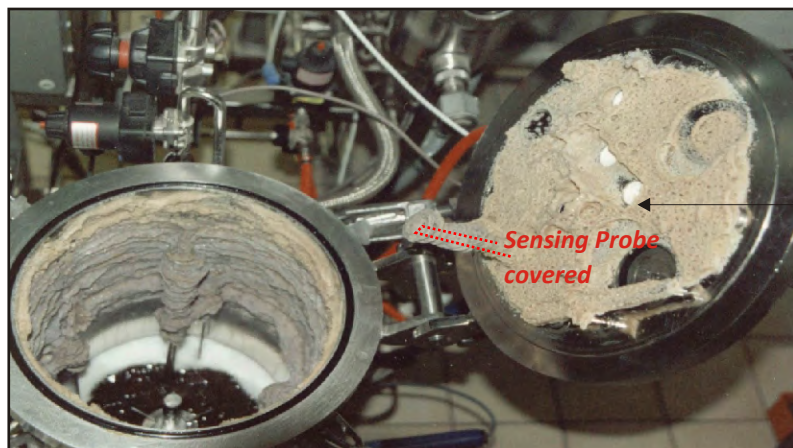
- Reliable, robust and long life
- Completely immune to fouling
- Unique IMA® technology
- 24V DC power supply
- Low installation cost
- Integral electronics



UNIQUE FOULING IMMUNITY WITH IMA SENSING

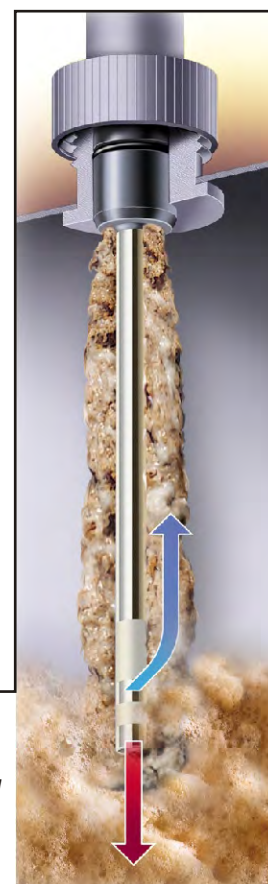
Product fouling and deposits on the measuring probe are often associated with many foaming applications. The high sensitivity required to detect light foam products is essential but equally important is the ability to differentiate between product coating and product rising in a tank. This is where Hycontrol IMA (Intelligent Multi Action) sensing leaps ahead of all other 'foam' detecting technologies, as it will operate efficiently and repeatably even when the probe becomes fouled with residual product.

Hycontrol foam control systems utilize IMA Sensing® technology incorporating a special guard electrode shown on the diagram opposite (in blue). This guard electrode disrupts the signal produced from the accumulated fouling on the probe which has a desensitizing effect on the switch. This then enables the main foam sensor (in red) to ignore this product build up and to only monitor the foam within the process. Withstanding highly dense and sticky product around it, the foam sensor will continue to function giving accurate and reliable foam control.



A small batch reactor still operating efficiently with the probe covered and totally hidden!

IMA principle displaying the guard sensor and the measuring sensor



SMARTFOAM DETECTION SPECIFICATIONS

OPERATING PRINCIPLE

The SmartFoam sensor measures the impedance of foam using our unique IMA Sensing® technology and has an impeccable operating history. The sensor passes a small alternating current through the foam into the liquid below regulated by the density of the foam. When the measurement passes a preset level the sensor then recognises that foam is present.

Some foam sensors are defeated by the build up of a sticky layer of product on the surface. This 'fouling' is a constant problem in foam measurement since the sticky layer will either trigger a false alarm or active foam can be missed. The distinctive feature of IMA Sensing® technology is its ability to distinguish the presence of active foam from the build up of a sticky 'fouling' layer on the surface of the sensor.. The technology overcomes this problem by the use of a guard electrode which isolates and compensates for the effect of any fouling layers.

The Sensor also has a built-in time delay which can be set at 4 seconds for a normal response and enables the sensor to reject splashing and other spurious events. Some applications require a faster response; this can be reduced to 1 second by the user, as required.

The SmartFoam has a volt-free output which can be connected directly to a PLC or can be used to switch a low voltage signal e.g. 24V DC. There are two small indicators in the head, one to show power and one for foam detection.

SPECIFICATIONS

ELECTRICAL

Power Supply	24V DC, 25 mA
Indicators	Power: Indicators power to unit Foam : Indicates foam present
Response Time	1, 6 or 25 seconds. Selectable
Sensitivity	0 — 9 [0 = dense foam, 9 = light foam]
Fouling Immunity	Sensitivity to fouling <2% of sensitivity to foam
Output	'Volt-free' contact rated at 24V DC, 400 mA.
Electrical Connections	Screw terminals.
Cable	4 core screened cable.

MECHANICAL

Housing Material	Polypropylene head
Ingres Protection	IP66
Probe Diameter	20mm
Standard Lengths	300 / 500 / 600 / 750 / 1000 / 1500 / 2000 mm (11.8 / 19.7 / 23.6 / 29.5 / 39.4 / 59 / 78.7 inches)
Process Connections	3/4" BSP, 3/4" NPT
Body Insulation Body	316 Stainless steel, Insulators - PVDF
Temperature Range	0 - 70°C max
Pressure Rating	1.5 bar / 22 psi max.



TYPICAL APPLICATIONS AND USERS



GlaxoSmithKline
Antibiotic Production
Fermentation

Client
 Industry
 Application

GSK, A well-known British pharmaceutical company installed Hycontrol Foam Controls in its antibiotic production fermenters. The improved foam controls gave a reduction in the head space volume and a resulting increase in production volume. The payback time for this application was a matter of days.



Monarch Chemical
Chemical
Storage

Client
 Industry
 Application

Monarch are a commodity chemical manufacturer in Sheerness, Kent. They make products which have a tendency to create large amounts of foam that travels into the sewers, causing problems to neighbors. Hycontrol have supplied a foam tendency analyzer as well as SmartFoam to help prevent this problem occurring again.



Vivergo (BP)
Biofuel
Gas stripping

Client
 Industry
 Application

Vivergo provides home grown, renewable energy to support the UK economy, producing bioethanol for cars and animal feed for cows. They had taken scale bio-fuel production from using fermentation process and fermentation can cause a high amount of foaming issues



Australian Navy
Armed Forces
Effluent Treatment

Client
 Industry
 Application

The Royal Australian Navy contacted our Australian distributor in search of a solution for the effluent treatment works on-board their ships. It is illegal to drop waste straight into the sea, industrial ships now must treat the water on-board and either recycle it or at least treat it to a certain level before released into the ocean. Unfortunately, compact effluent treatment applications tend to create high levels of foam.



BASF Chemical
Chemical
Storage

Client
 Industry
 Application

BASF, a leading raw material supplier to the construction industry, has used a number of UK projects to demonstrate its solutions for sustainable construction. Hycontrol provided SmartFoam sensors for their chemical storage tanks.



Centipharm
Pharmaceutical
Fermentation

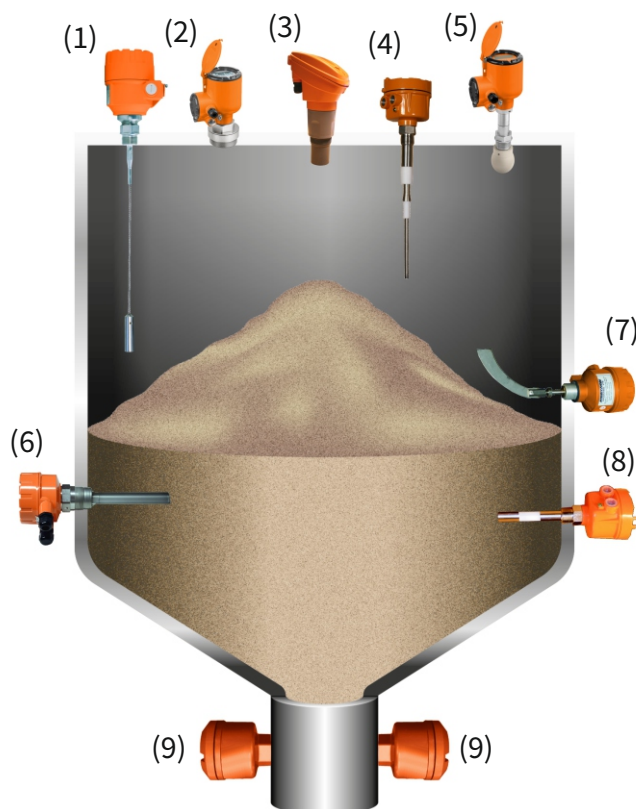
Client
 Industry
 Application

Centipharm is located in Alpes Maritimes, France. In addition to its three production workshops, Centipharm has a development laboratory and pilot plant. Being in the pharmaceutical industry, much chemical research is conducted on-site. Fermentation process being one of them which produces foaming issues.

HYCONTROL LEVEL TECHNOLOGIES

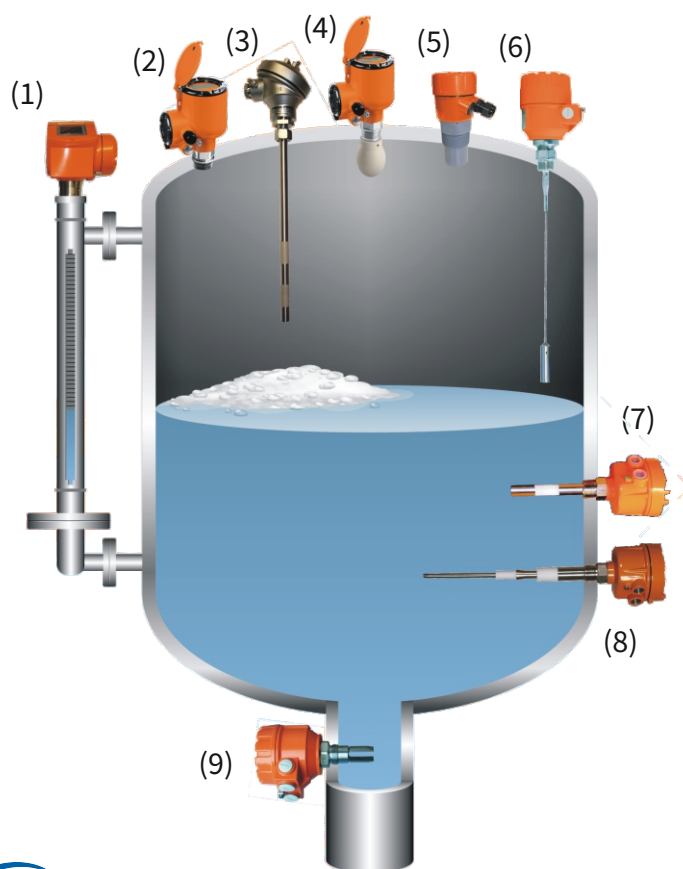
Product Range for Solids:

- (1) TDR radar
- (2) 80 GHz FMCW radar
- (3) 2-wire ultrasonic transmitter
- (4) RF admittance level switch
- (5) 24 GHz FMCW radar
- (6) Vibrating level probe
- (7) Rotary paddle switch
- (8) Capacitance level switch
- (9) Microwave flow & blockage switch



Product Range for Liquids:

- (1) Bypass/saddle level indicator
- (2) 80 GHz FMCW radar
- (3) Foam control system
- (4) 24 GHz FMCW radar
- (5) 2-wire ultrasonic transmitter
- (6) TDR radar
- (7) Capacitance level switch
- (8) RF admittance level switch
- (9) Tuning fork vibrating level switch



Contact:

