



SURESENSE⁺

FOAM CONTROL SYSTEM

FOR COMPLETE FOAM CONTROL
APPLICATIONS

Available from::



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WHY USE FOAM MEASUREMENT TECHNOLOGY?

WHAT CAUSES FOAM?

Foam arises in many industries, and can have a complex set of causes. For example, it can be produced biologically (as in anaerobic digestion or brewing), through the cleansing of wastewater, or as a result of cleaning starchy vegetables. It can be an essential part of the production process, or an unwanted side-effect.

WHY MEASURE AND CONTROL FOAM?

- ◆ Reduce waste and product loss through over-foam events
- ◆ Increase productivity and batch yields
- ◆ Reduce volume of anti-foam and de-foamer used
- ◆ Minimise clean-up costs and downtime caused by spills
- ◆ Reduce costs through waste elimination
- ◆ Improve process control and efficiency
- ◆ Prevent environmental pollution
- ◆ Isolate potential contaminants
- ◆ Prevent damage to valuable process equipment

APPLICATIONS IN MANY INDUSTRIES

- ◆ Pharmaceutical
- ◆ Brewing and beverage
- ◆ Food and dairy
- ◆ Paint
- ◆ Water and wastewater treatment
- ◆ Biotechnology
- ◆ Chemical
- ◆ Anaerobic digestion (AD) and waste

UNIQUE, PURPOSE DESIGNED TECHNOLOGY

Hycontrol's purpose-designed foam measuring and control systems utilize patented sensing technology and have been proven in a wide range of applications. This technology was developed through research within the petrochemical sector, however, it was soon realised that it could offer benefits to a diverse range of other industries.

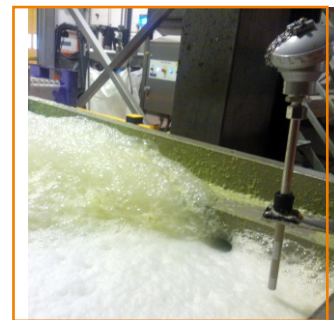
By comparison, alternative, less effective solutions use existing level measuring technology that has been 'adapted' to measure foam, which is unreliable, inaccurate and adversely affected by product build-up on the probes. **Hycontrol foam sensors, on the other hand, are designed purely for foam measurement.**

MANUFACTURED TO ISO9001 Q.M.S.



The standard of all Hycontrol products is strictly monitored to conform to all ISO quality requirements.

This ensures we meet the needs of our customers as well as all statutory and regulatory requirements.



GREATER CONTROL

Foam is inherently unpredictable. SureSense makes it possible to control, reduce, or remove its production.



REDUCE COSTS

Considerable savings can be achieved by actively controlling and reducing the use of anti-foam.



PREVENT POLLUTION

Reduce risk of excess foaming and overflows, protecting the environment from pollution.



INCREASE YIELDS

Taking control of foam will improve process efficiency, reduce product loss and increase batch yields.

WHAT IS SURESENSE?

The **SureSense⁺** (*SureSense Plus*) is an advanced wall-mounted foam controller, which connects to up to three sensors mounted in a single, or multiple, process vessel(s). It allows for the accurate control of aqueous foam by sensing and differentiating between foam and liquid contact. The controller can activate a dosing pump to either keep the foam at a fixed level or to reduce the foam height as required.

Hycontrol's unique **IMA Sensing[®]** technology ensures the system will operate correctly even if the attached sensors become severely fouled. The controller is pre-programmed with a number of useful factory application settings/recipes to aid set-up, and offers both **proportional and delay-and-shot algorithms** for anti-foam dosing when controlling a pump or valve. To discriminate between foam and splashing or other spurious triggers, the controller has an **adjustable response time**. Although the controller can be used for stand-alone control, other control actions such as vacuum valves or gas control can be interfaced. **Thresholds** for both foam and liquid level can be adjusted for very light foams. **IS barriers for hazardous areas** are also available.

FEATURES AND BENEFITS

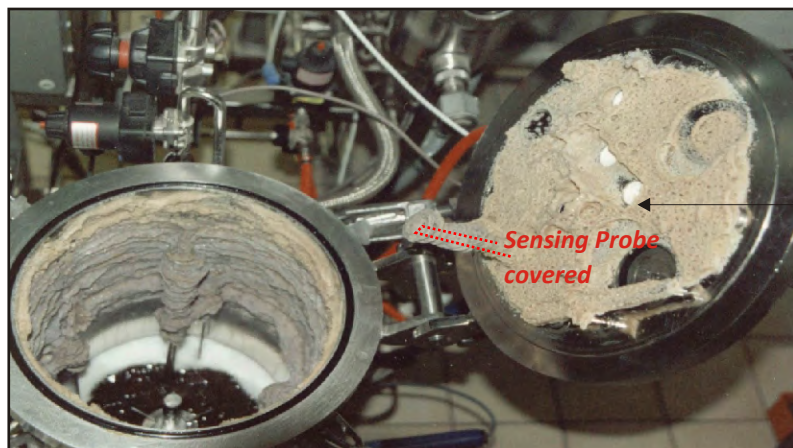
- ◆ Clear display with easy menus for simple programming and use
- ◆ Multiple relay outputs for improved control
- ◆ Connect up to three foam probes to one controller - reduce costs
- ◆ Liquid detection capability to provide greater process control
- ◆ Proportional dosing algorithm reduces unnecessary anti-foam use
- ◆ Record anti-foam use to alert when approaching low level
- ◆ Directly control pumps or valves, or connect to external controller
- ◆ Probes pressure resistant to 10 bar, temperature to 150°C
- ◆ Wide selection of foam probe lengths, connections and materials
- ◆ Immunity to fouling with unique IMA Sensing[®] = total probe reliability



HOW IT WORKS: UNIQUE FOULING IMMUNITY WITH IMA SENSING[®]

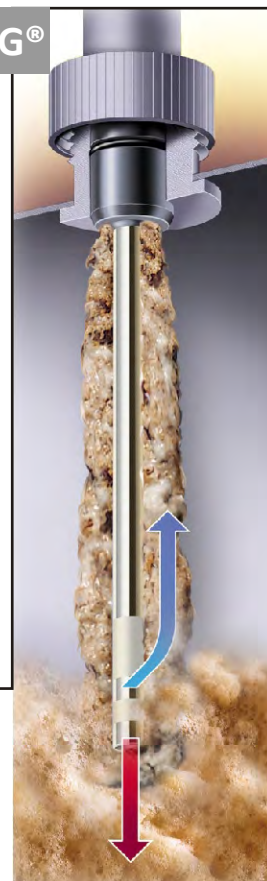
Fouling and product coating of measuring probes is common in many foaming applications. High sensitivity to detect light foam products is an essential requirement, but it is equally important to differentiate between sensor coating and the product rising inside the tank. This is where Hycontrol IMA (Intelligent Multi-Action) Sensing[®] is truly unique, as it will operate with total efficiency even when the probe becomes fouled with residual product.

IMA Sensing[®] technology incorporates a special guard electrode (shown in blue, diagram right), which disrupts the signal produced by the accumulated fouling. This would otherwise have a desensitising effect on the probe. The main foam sensor (in red) is then able to ignore product build-up, regardless of thickness, and to monitor only foam within the process. Even with dense or sticky fouling on the sensor, the probe continues to give accurate and reliable foam control.



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

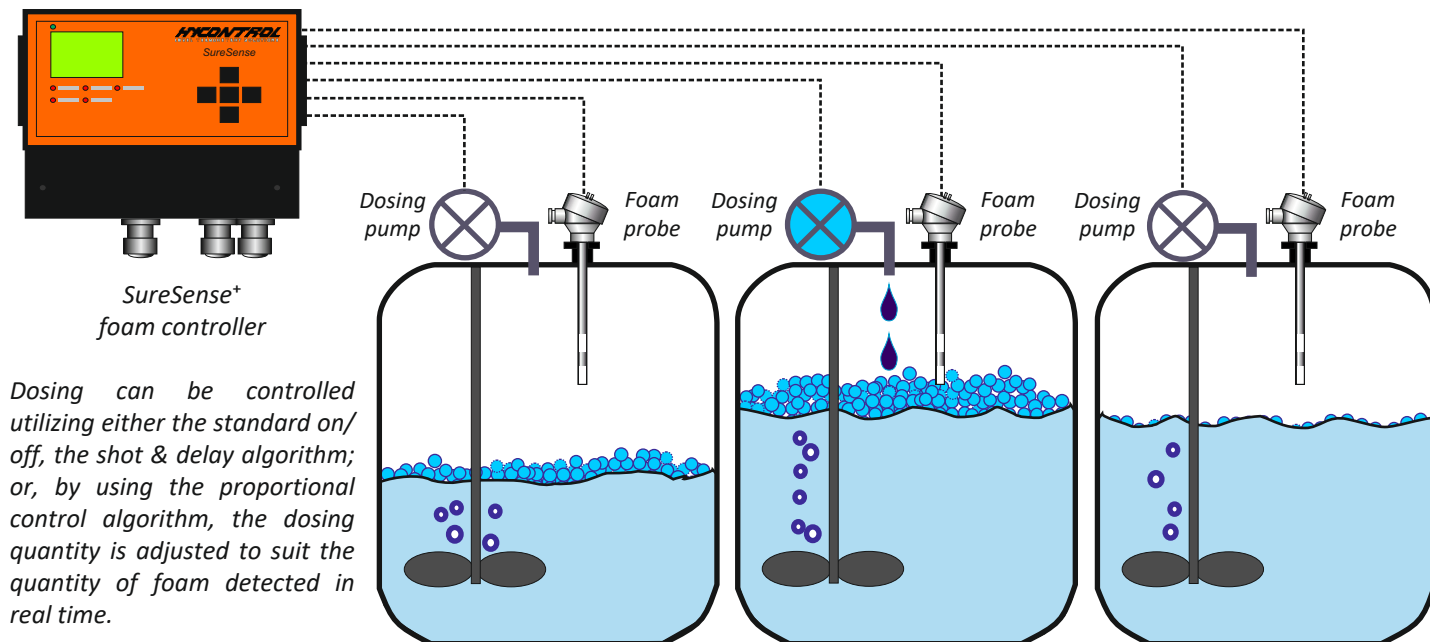
IMA principle displaying the guard sensor and the measuring sensor



SURESENSE+ WALL MOUNTED CONTROLLER

CONTROL MULTIPLE TANKS WITH ONE CONTROLLER

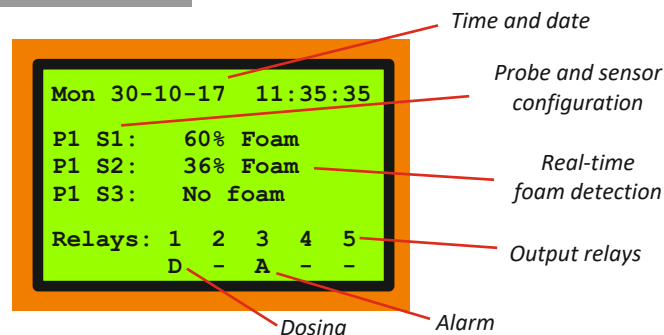
SureSense+ features multi-probe capability, allowing **fully independent monitoring and dosing control for up to three tanks from a single controller**. This offers multi-tank users a significant cost saving, as well as simplifying programming and creating flexibility for different set-ups.



LCD INTERFACE

The SureSense+ control unit offers a user interface with a clear, readable LCD screen and easy-to-use membrane keys.

Programming is through a straightforward menu system, with a selection of information displays depending upon requirements. Foam information can be displayed as a percentage detected or as electrical current resistance. Typical 'recipe' settings for most common industrial applications are available from a pre-set options table.



ELECTRICAL & ENCLOSURE DATA

Power supply Output

12-30 VDC 0.5 A (250 mA fast-acting fuse – Littlefuse 37002500430)
 Relay 1 – Dosing/alarm – volt-free change over contacts 250 VAC, 30 VDC 8 A
 Relays 2 & 3 – Dosing/alarm – volt-free normally open contact 250 VAC, 30 VDC 5 A
 Relays 4 & 5 – Alarm – volt-free normally open contact 250 VAC, 30 VDC 5 A
 Analog 4-20 mA current loop

Indicators

Power indicator – Red: always on
 Relay 1-5 – Red: on when relay in alarm state

Adjustments

Foam sensitivity 0 – 100% Fouling sensitivity 0 – 100% Liquid sensitivity 0 – 100%
 Dosing settings Relay/alarm settings

Fouling immunity

200:1 foam to fouling

Hysteresis

5% between trigger and reset

IP rating

IP 65 wall mounting, polycarbonate

Dimensions

235 mm x 185 mm x 119 mm (L x W x H)

Connections

5 x M20 entry ports 1 x M16

TYPICAL APPLICATIONS AND USERS

Hycontrol's SureSense⁺ sensor probes, when used in conjunction with the SureSense⁺ foam controller unit, provide **efficient and cost-effective foam control** across a wide range of water-based process applications.

Each stainless steel sensor can be customized to suit the requirements of your process. Different heads and process fittings are available, with standard insertion lengths of **up to 3 meters** (for a 20 mm diameter probe). **Probes can be supplied with up to three separate sensors for multi-level detection.** This flexibility makes Hycontrol the first choice for the widest range of foam applications.

The sensors are **hygienic and steam sterilizable**, and by utilizing Hycontrol's patented IMA Sensing[®] technology they are able to discriminate between any residual build-up of product on the sensor and the foam created during the process. Thus, **SureSense sensors are able to continue to efficiently monitor foam levels regardless of how fouled the sensor may become.**

HOUSING & PROCESS FITTING

The standard head design for the SureSense⁺ sensor is available in aluminium or Stainless Steel. A laboratory sensor fitted with a LEMO connector is also available (please contact us to discuss this option).

To meet a wide range of applications, our sensors are available with an equally wide range of process fittings. If the level of foam is always variable then sensors can be made adjustable, or if the optimum level is known then the sensor can be set at a fixed length.

MECHANICAL & ELECTRICAL DATA

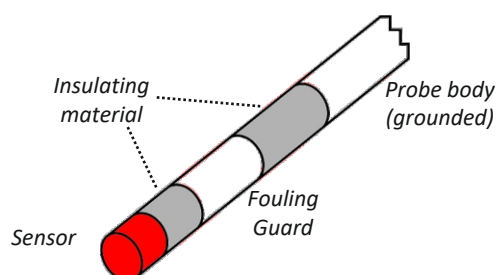
Please refer to order codes chart for full list of options.

Termination	Heavy duty die-cast alloy industrial termination head IP 66 Pluggable screw terminal block
Cable Entry	20mm ISO Conduit entry
Cable	100 m / 328 ft max. length
Temperature	Max. continuous operating temperature 150°C / 302°F Peak temperature 170°C / 338°F
Pressure	10 bar / 145 psi (higher pressure available to special order)

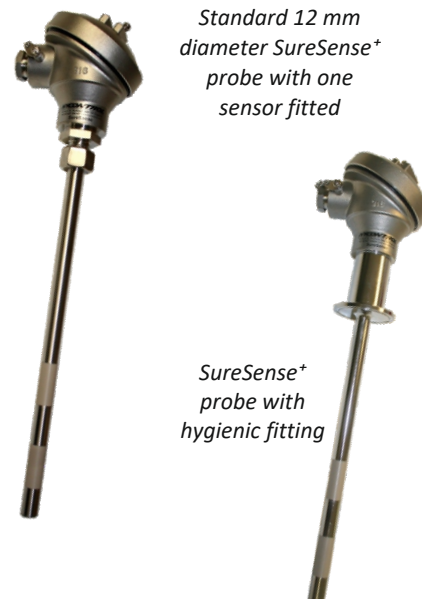
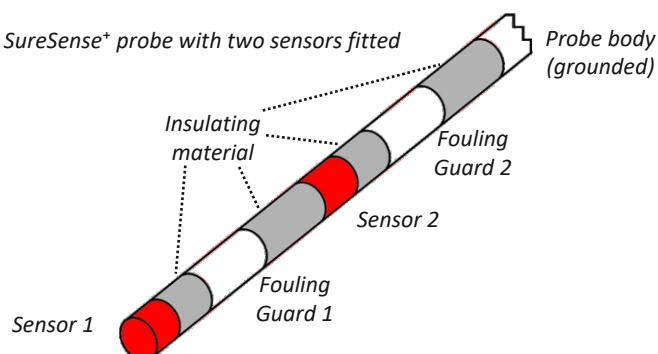
PROBE MULTI-POINT SENSOR OPTIONS

A SureSense⁺ probe can have between one and three sensors and controllers are configured to match. Pictured below are examples of different sensor arrangements.

SureSense⁺ single sensor probe construction



SureSense⁺ probe with two sensors fitted



Standard 12 mm diameter SureSense⁺ probe with one sensor fitted

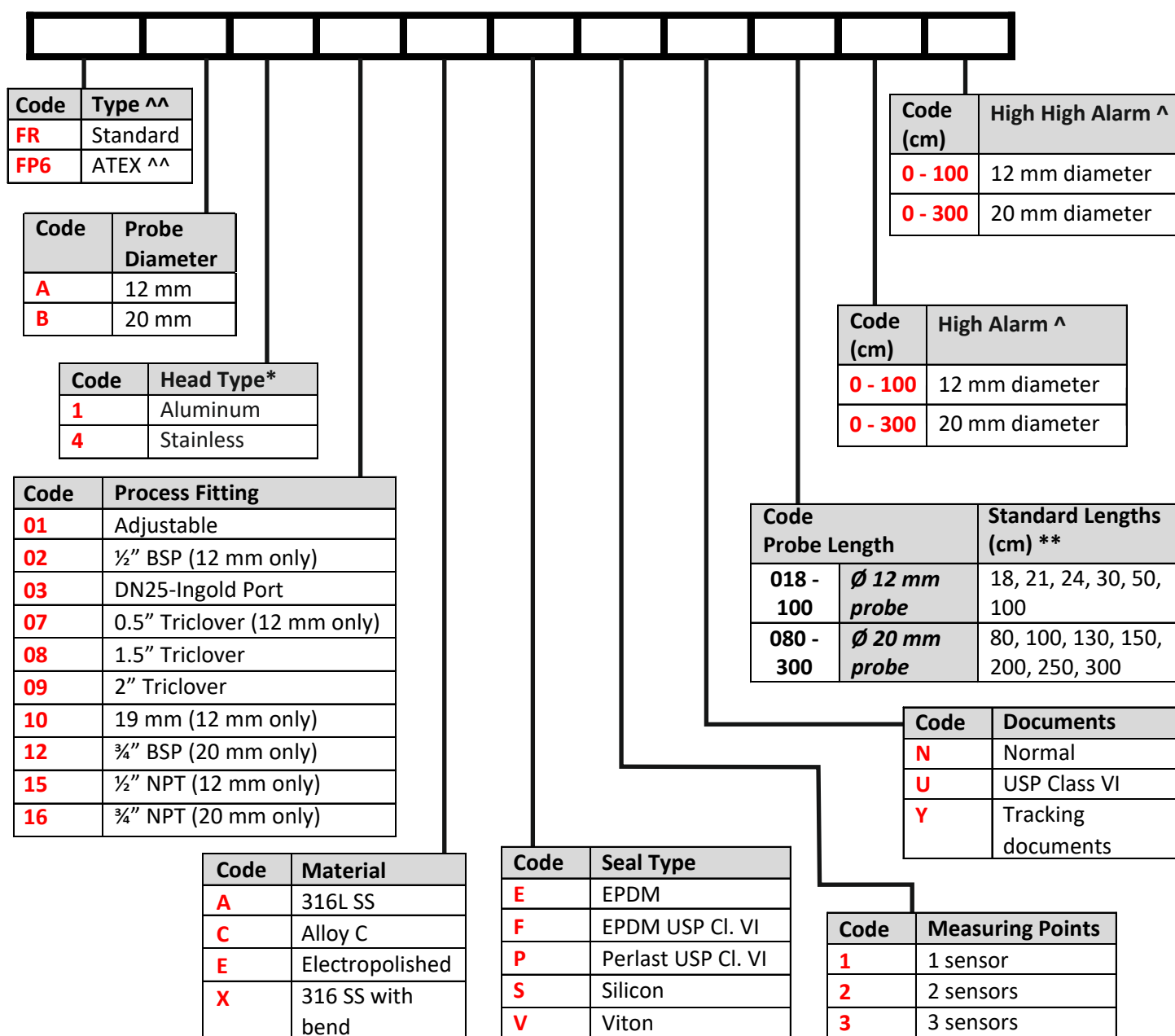
SureSense⁺ probe with hygienic fitting



LEMO connector probe head

Standard probe head

FOAM PROBE ORDER CODE



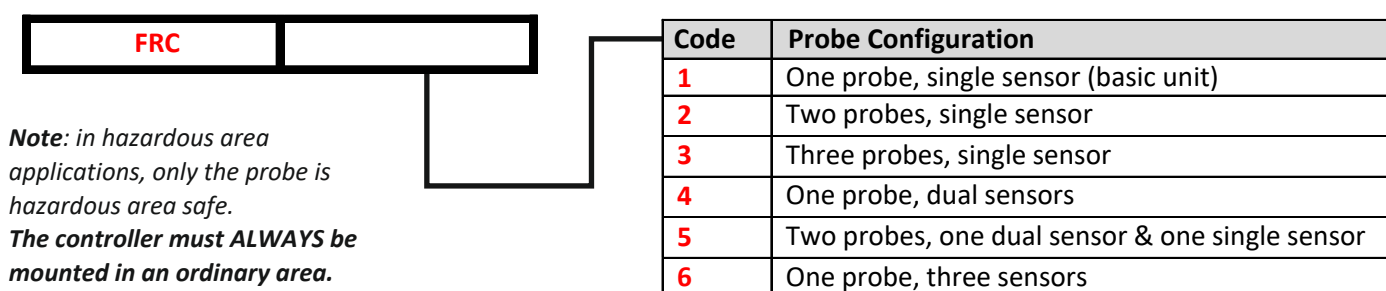
* FP6 ATEX probes are **only** supplied with Stainless Steel heads; therefore 'Head Type' option will not appear in part code.

**** Please contact us if a non-standard probe length is required.**

[^] Please select desired alarm positions (to the nearest 10 mm) from end tip of probe (0 mm) - cannot exceed probe length.

^^ Please contact us in the case of **pressurized** ATEX applications.

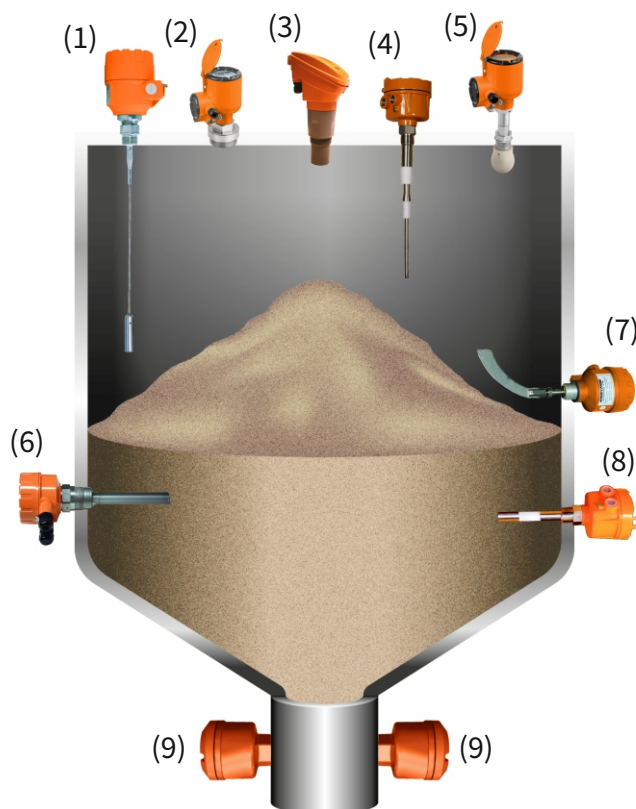
FOAM CONTROLLER ORDER CODES



HYCONTROL LEVEL TECHNOLOGIES

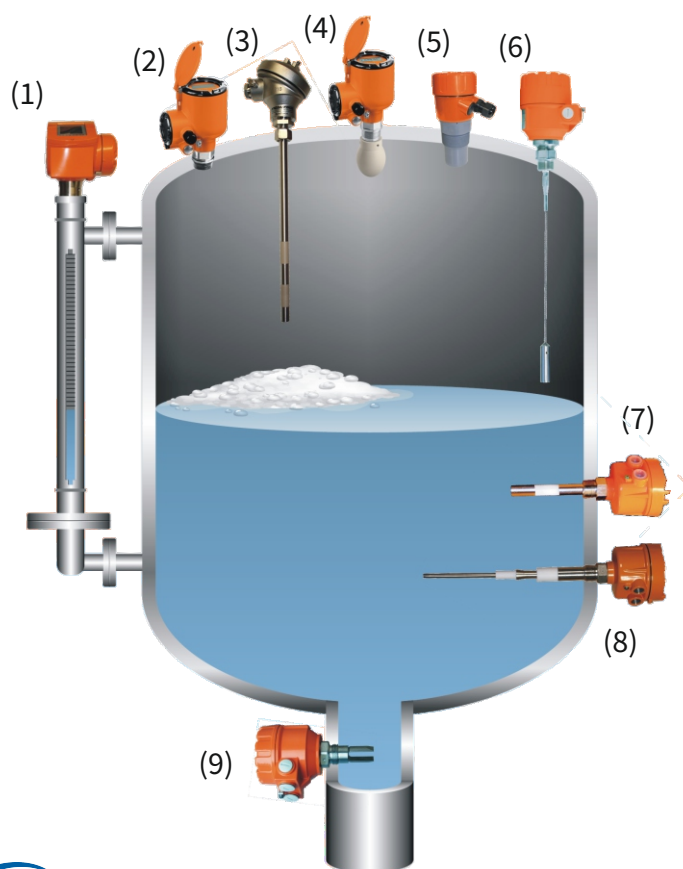
Product Range for Solids:

- (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:

