
COSENTINI ASSOCIATES LLP ■ TWO PENN. PLAZA, NEW YORK, NY 10121 ■ 212-615-3600 ■ FAX 212-615-3700

JOB MEMORANDUM

TO: Joe Aliotta
FROM: Ron Pincott
CC: Mike Maybaum
Jack Dwyer
Val Lemcshev
Charlie McGee
Joc Mackie

SUBJECT: Mayor's Office of
Energy Management
JOB NO: 1854
DATE: July 16, 1999

RE: Domestic Transfer Pump Test - 7/14/99

The emergency domestic transfer pump was tested utilizing a tank truck to simulate the emergency water source connection.

The pump test proved that the duplex transfer pumps would supply water for the 7th floor storage tank with minimum suction reassurance. Without any additional suction pressure on the pump inlet the transfer pumps with 2 to 3 psi supplied water to the storage tank on the 7th floor providing it's capability of filling the tank.

During operation of the transfer system control problems did occur which require corrective measures.

Before pumps could be started, it was required to release air entrapment in each of the pumps manually. This release method is too difficult and in an emergency could be easily forgotten to be done. The installation of a 1/2" air release valve on top of the discharge valuate of each transfer pump to replace the existing petcock should be provided. The discharge from the air release valves are to be piped to the floor drain nearby. Any other relief valve on these pumps must also be piped to safe waste as the existing fire pump controller nearby must be protected from any discharges. Also, due to the nature of hose connections and connections of a temporary nature, air emittance into the pump is possible and must be safeguarded against.

The flow switch on the pump suction which is to safeguard the pumps against a no suction water supply condition, faulted and did not properly shut the pumps down under a no flow condition. This flow switch must be repaired or replaced. This switch will properly register flow and the availability of supply water, shutting the pumps off when there is no flow.

It is suggested that the flow switch be replaced with a water level switch installed in a standpipe on the suction line to mimic and supervise the level of water in the supply tank truck. This water level switch would be set to shut down the pump when the supply tank truck water level dropped below 75" above the transfer pump level.

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As we were not able to get access to the 23 floor a simulation of water system transfer from the building supply system to the emergency storage supply system could not be performed.

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SureSite® Visual Liquid Level Indicators

...the safe alternative to cloudy, breakable sight glasses.

High Visibility—Brilliantly colored flags are easy to read, even at great distances. The Indicator is isolated from the measured media; therefore, SureSite Indicators can be used where sight glasses are not even a consideration.

Durability—Stainless steel, PVC, CPVC, Polypropylene, PVDF, Hastelloy or other exotic housings, whatever the media requirements, provide years of maintenance-free service.

Environmentally Safe—Monitored liquid is contained inside a pressure-tight housing.

Efficient—Continuous level indication without external power.

Electronic Control—Attach optional point level switches and/or continuous level transmitters to extend capabilities beyond those of a simple sight glass.

SureSite Indicators may be configured to suit most tanks or liquid media—from a simple, stand-alone level indicator to an integrated electronic component for use within a process control system. A fully equipped version is shown at right.

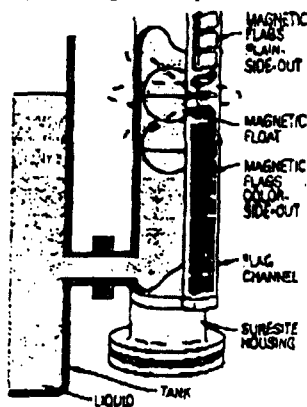
GEMS offers numerous options to provide versatility and to extend or enhance the operation of these indicators. Indicating Scales, for example, add a numerical reference to the standard visual display; Switch Modules provide low-, high- or intermediate-level alarms or control logic and Continuous Level Transmitters send signals to remote receivers, recorders and controllers. A wide range of materials, sizes and connection fittings are available.

In addition, GEMS provides many manufacturing options such as special welding methods, custom configurations, non-standard flange sizes and exotic materials. Don't hesitate to call for special requirements not addressed in this catalog.

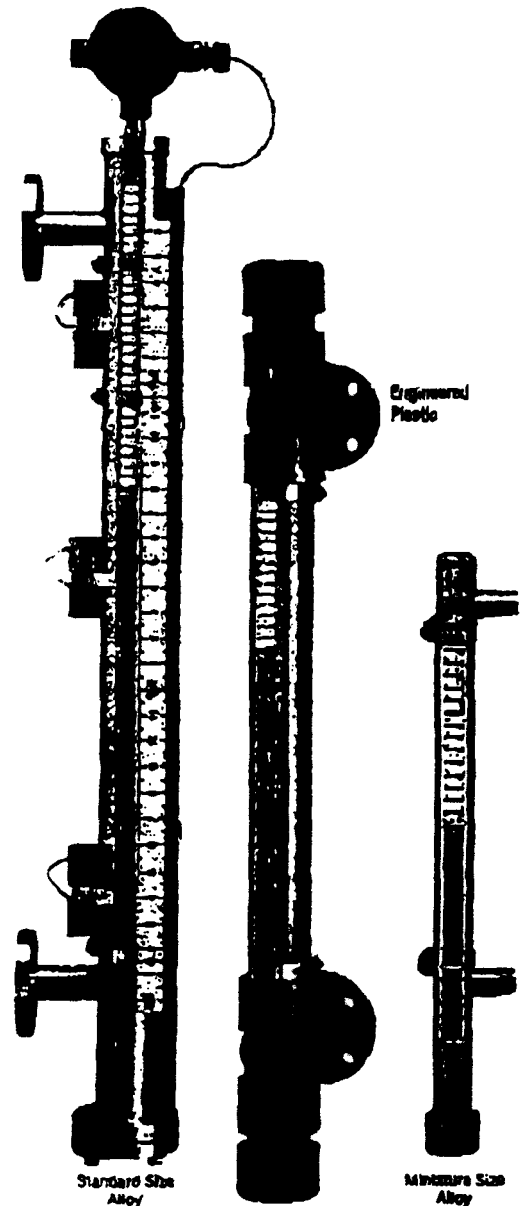
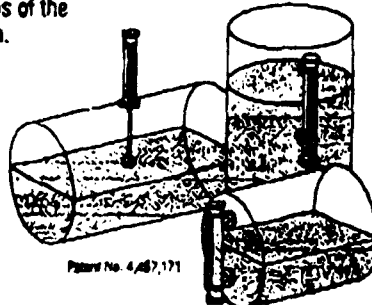
GEMS Serves the OEM and End User

GEMS welcomes any size order...whether a single unit or 100 units or more. GEMS commitment is to meet your most stringent requirements of price, delivery and quality.

Operating Principle



As liquid level rises, a magnet-equipped float within the unit inverts the magnetic flags in the external indicator to "color-side-out." The flags remain magnetically interlocked in a column until again inverted to "contrasting-side-out" by the float as liquid level falls. Liquid level is indicated by the junction of the "color" and "contrasting" portions of the column.

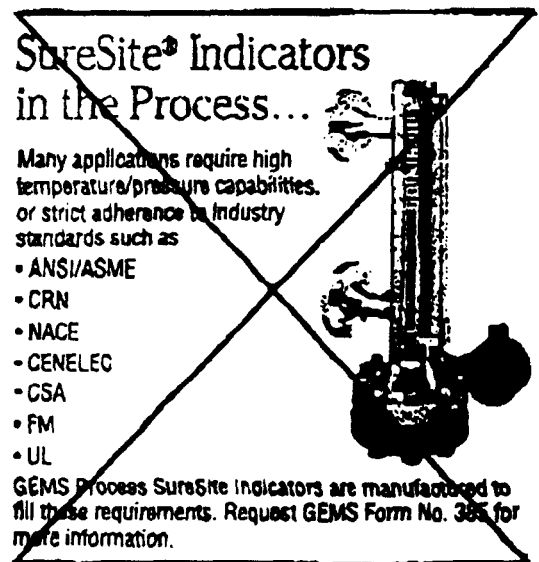


SureSite® Indicators in the Process...

Many applications require high temperature/pressure capabilities, or strict adherence to industry standards such as

- ANSI/ASME
- CRN
- NACE
- CENELEC
- CSA
- FM
- UL

GEMS Process SureSite Indicators are manufactured to fill these requirements. Request GEMS Form No. 385 for more information.



LEVEL INDICATORS

Alloy Versions – Standard Size

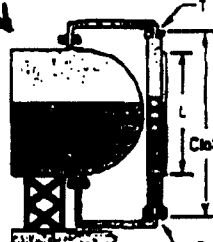
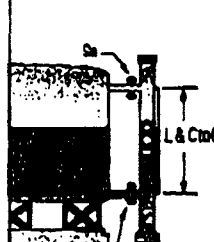
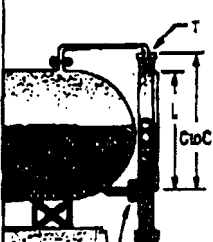
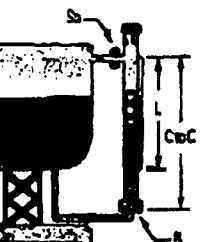
► Temperatures to 750°F (399°C)

► Pressures to 2650 PSI (183 Bar)

Rugged, welded construction makes these 2-1/2" (63.5 mm) diameter design, alloy SureSite Indicators dependable over a long service life indoors and out.

1. Mounting Configuration Types

To choose the best configuration for your application, focus on the process connections (connections where the liquid typically enters/leaves the SureSite).

	Type AA Top and Bottom Process Connections	Type BA Side and Side Process Connections	Type CA Top and Side Process Connections	Type DA Side and Bottom Process Connections
				
Typical Lengths*	C to C = L + 10-1/4" (260.4 mm)	C to C = L	C to C = L + 3-3/4" (95.2 mm)	C to C = L + 6-1/2" (165.1 mm)
Housing and Float Material	316 Stainless Steel			
Ring Material	Plastic (300°F/148.9°C) or Aluminum (750°F/399°C)			
Length of Indication (Uninterrupted)	300" (762 cm)			

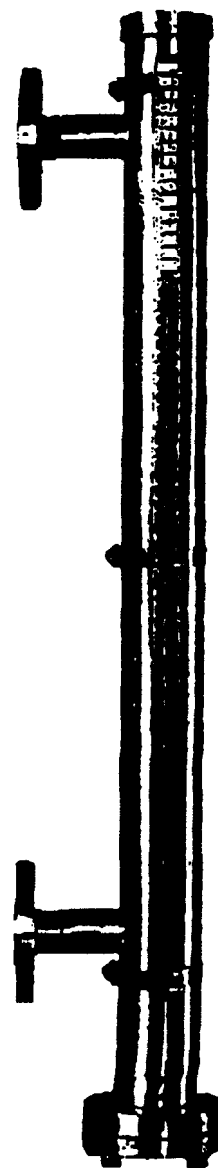
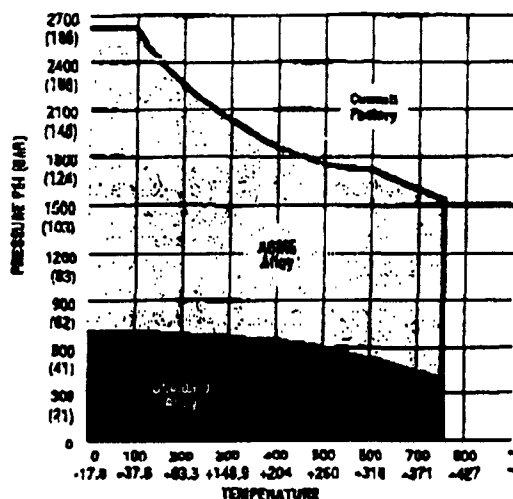
*Dimensions vary due to connections, material and specific gravity.

Note: Additional materials, floats, connections and manufacturing techniques are available to extend lengths and operational capabilities. Please contact GEAS Sensors if the parameters above do not meet your requirements.

2. Material

Housing and Float: 316 Stainless Steel

Pressure/Temperature performance parameters for alloy SureSite versions are specified in the chart at right. Please consult the factory with temperature/pressure requirements that fall outside the parameters shown here.



Type BA

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G. A. FLEET ASSOC. INC

FAX NO. 19148351331

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Switch Modules Provide High-, Low- or Intermediate-Level Alarms or Control Logic

Switch Logic: With "lead wires up," switch closes on rising level and remains closed until opened by falling level. With "lead wires down," switch opens on rising level and remains open until closed by falling level. Switches mount opposite flags (180°) and can be positioned next to each other for multiple actuation requirements.

Specifications

Switch Length Standard	3-1/2" (88.9 mm)
High Temperature	Approx. 6" (152.4 mm)
Clamp Assembly	Stainless Steel

How To Order

Switch modules can be added to SureSite Indicators at any time. Specify the Part Number and quantity of switches desired.

Standard Switch Modules - SPST, +300°F (148.9°C), Max.

SureSite Indicator Version	Switch Part Number
Alloy - Standard Size	85435 ⚡
Alloy - Miniature Size	86087 ⚡
Engineered Plastics	80458

High Temperature Switch Modules - All SureSite Indicator Versions, +750°F (399°C), Max.

SureSite Indicator Version	Switch Part Number
SPST, 20 VA	83150
SPDT, 20 VA	84320

Explosion-Proof Switches - All SureSite Indicator Versions, +750°F (399°C), Max.

FM - Class I, Division 1, Groups B, C, D

CSA - Class I, Divisions 1, 2, Groups B, C, D

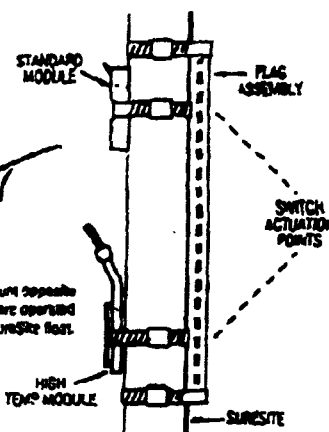
Switch Description	Switch Part Number
SPST-20 VA	83138
SPDT-20 VA	84330
DPDT-10 A, 24 VDC	83110
DPDT-10 A, 120 VAC	83100

Standard Switch Modules

- CSA Approved
- Includes Mounting Clamp
- Polysulfone Housing
- Withstands Temperatures to 300°F (148.9°C)
- Connection: 1/4" FNPT

High Temperature Switch Module

- UL, CSA, FM-Explosion-Proof Model Available
- Used with High Temp Standard Size SureSite Indicators
- Withstands Temperatures of 750°F (399°C)
- Stainless Steel Construction
- 1/2" MNPT Conn.



For Intrinsic Safety...These switch modules can be rendered intrinsically safe with the use of BEM'S SAFE-PAKS® and Zener Barriers. See section N.

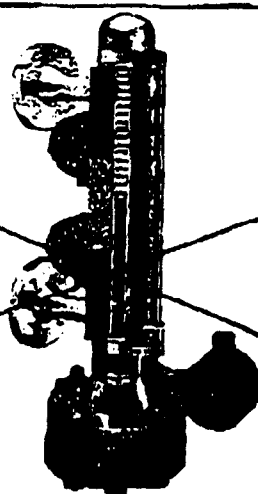
Indicating Scale Adds a Numerical Readout of Liquid Level

These optional stainless steel scales provide a numerical readout of liquid level in addition to flag indication. They mount alongside the flag assembly with special "wind-dowed" clamps that minimize flag view obstruction. Available graduated in inches and feet; decimeters, centimeters, millimeters; or with custom scale graduations.

How To Order

Supply the following information for each scale ordered:

- Indicating Length
- Inch and feet; decimeters, centimeters, millimeters; unmarked or custom markings
- SureSite model receiving the scale
- Custom-marked scales will require additional application information.



Available with standard "Inch and Feet" markings...or custom scale graduations.