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Technical Bulletin: Centrifugal Chillers

Document: #090210MSF	Subject: Flow Safeties on MSF Chillers
Date: September 2, 2010	Date of Implementation: July 1, 2010
Notice of Implementation	Supersedes- Sensor10PSI and Sensor25PSI

Multistack's ongoing and continued product development efforts have lead to a component change on MSF chillers. The change was made to improve product quality, reliability, and ease in serviceability.

The original flow safeties on all MSF flooded chillers were Multistack part # Sensor10psi (0-10 psi range) and Sensor25PSI (0-25 psi range). These sensors were a true differential type transmitter with a diaphragm in the middle. Feedback from our product support division indicates that if the sensor was not placed into service properly, the diaphragm was damaged on start up. The result affected the flow safety of the machine. Furthermore, multiple sensors were required for different operating ranges.

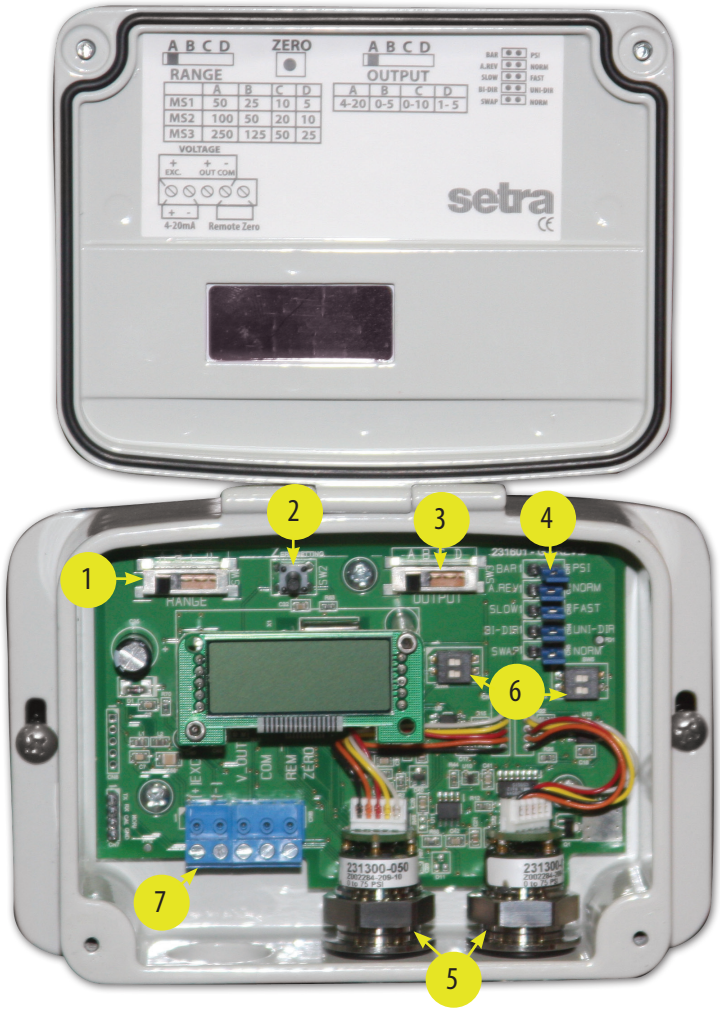
As of July 1, 2010, all Multistack MSF Flooded Chillers now ship with Multistack Part# SENSORADJ. The new sensor features two independent transducers that use a small microprocessor board to calculate the differential pressure. The new transmitter is fully adjustable including direction swap, port swapping, scale changes, and output signal changes. The new display also features a small LCD display that provides the pressure on the high port, low port, and then the differential.

This sensor can be retrofitted to existing chillers in the field by ordering the sensor and a bracket which is part #BRACKET309 (right) and #BRACKET310 (left) . Please note the original sensor used 1/4" npt fittings to connect to it and the new one uses 1/8" npt fittings.

With any new device, it is important that the user fully understands how to use it before placing into service. The following will describe how to use the sensor properly.

Please see image of the control board to the right.
The control board has the following on it:

1. Range Switch
2. Zero Switch
3. Signal Selector Switch
4. Function Jumpers
5. Independent Transducers
6. Calibration Ports
7. Terminal Block



1. The range switch has four options identified as **A**, **B**, **C** and **D**. **A** is located on the left side and **D** is located on the right side. The range switch allows for the differential pressure range to be scaled in the field. The ranges are:

A. 0-50 PSI
B. 0-25 PSI
C. 0-10 PSI
D. 0-5 PSI

Note: If the range is changed on the transmitter, the I/O page of the FlexSys Controller must be scaled properly to match the output of the transmitter.

2. The zero switch is a master reset switch and must never be depressed unless there is no differential on the device. If the zero button is depressed while there is differential on the device, this becomes the new zero point. Always ensure that there is no pressure on the zero port if you zero the device.

3. Signal selector switch

The output for the device can be selected as:

1. 4-20 mA
2. 0-5 VDC
3. 0-10 VDC
4. 1-5 VDC

On MSF chillers, the 4-20 mA output is used. The transmitters land on AI-1 for chilled water flow and AI-2 for condenser water flow on the KL3454 module in the master control panel.

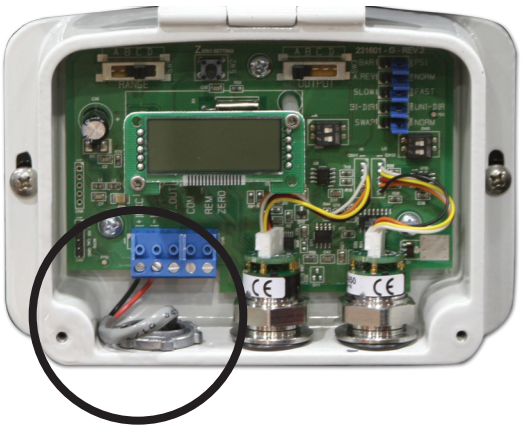
4. Function Jumpers

The device board allows changes to the following:

- Between bar and psi
- Action reversed or normal
- Slow response or fast response
- Bi directional flow or unidirectional flow
- Port swap or normal

For MSF chillers the jumpers should be set as follows:

- PSI
- Normal
- Fast
- Unidirectional
- Normal



Terminal wires connecting power to the to the device.

Please note that if for some reason the transmitter is piped backwards, the port swap feature will reverse the transducer readings to provide the proper signal to the FlexSys Control Panel.

5. Two independent transducers use a small microprocessor board to calculate the differential pressure.

6. Calibration Ports are factory set and are not to be touched. If tampered with, the calibration of the device will be lost and the unit will become inoperative.

7. Terminal Block- There are a total of five (5) terminals on the terminal block. The only two (2) that are used on MSF chillers are EXC+ and EXC–. EXC+ receives 24 VDC from the control panel to power the device and EXC– returns a 4-20 ma signal. No other wires or power sources need to be connected. These terminals are located on the far left of the terminal block see image above).

Note: Before power is applied to the control system, be sure to bleed all air from the device.