

Release Note #82

Topic: Alert Thresholds and Sensitivity Levels

General Information:

The System Studies 289H and 289H-M LSS monitors have the ability to initiate an alert and notify PressureMAP when a potential alarm condition is detected during the 289H's continual scan of devices. PressureMAP uses proprietary alarming criteria to determine if the alert condition qualifies as an alarm. If it does, an alarm notification is distributed to the Alarms Center(s) that have been programmed to receive alarms during the current calling period.

To provide users with flexibility in determining the alert threshold for devices in a 289H LSS office, the PressureMAP Office Information Screen includes an Alert Sensitivity field. This field contains a number from 1 to 5 that defines the alerting capabilities for the office (the default value is 3). The number 1 is the least sensitive alert detection setting, and 5 is the most sensitive. Each level dictates how much a pressure transducer reading must drop and how much a flow transducer reading must increase before the 289H monitor calls PressureMAP with the alert condition. The higher sensitivity settings will cause the 289H to send out a greater number of alert calls; a lower number results in fewer alerts being sent. Depending upon the number of offices monitored by a PressureMAP system, high sensitivity levels could adversely affect PressureMAP performance.

This release note describes how alert thresholds are calculated for the various devices based on the specified alert sensitivity level. This information is useful in making office alert sensitivity level selections.

Specifics:

PressureMAP uses a formula to compute the working alert threshold for each applicable device type based on the five sensitivity levels. The formula uses the device reading and a value assigned to each sensitivity level to determine the alert threshold. For pressure transducers a simple negative number is used in the formula to represent a drop in pressure reading output (Table 1). For flow transducers a stepped value is assigned, based on the reading range of the device (Table 2) plus a positive number to represent the flow increase.

The formula to compute the threshold is:

$$\text{Threshold} = \text{reading} + (\text{table value}) \times .10$$

Please note that the PSI and STEP values shown in the tables are converted to tenths to provide the final calculated threshold value (as shown in the examples on the following page).

Device Type	Units	Sensitivity				
		One	Two	Three	Four	Five
\$P, SP, EP, RP	PSI	-30	-20	-10	-8	-8
all other P	PSI	-40	-30	-20	-15	-10
\$F	STEP	+4	+2	+1.5	+1	+.75
SF	STEP	+4	+3	+2.5	+2.5	+2.5
RF	STEP	+10	+7.5	+5	+5	+5
all other F	STEP	+3	+2.5	+2	+2	+2

TABLE 1: DEVICE TYPES AND SENSITIVITY LEVELS

TD_TYPE	STEP VALUES
RF/9.5, CF/9.5	5
RF/19.0, CF/19.0	10
RF/47.5, CF/47.5	25
RF/95.0, CF/95.0	50
RF/190.0, CF/190.0	100

Table 2: Device Types and Step Values

Threshold Calculation Examples:

The following examples show how alert thresholds are calculated for both a pressure transducer and a flow transducer. Please note that contactors (AC, BC, etc.) and contact alarms (CA, DA, etc.) are not affected by sensitivity levels.

Pressure Transducer Examples

Endpoint transducer (Device Type EP) reading 9.0 PSI with a sensitivity setting of 2.

$$\begin{aligned} \text{Threshold} &= \text{reading} + (\text{table value}) \times .10 \\ \text{Threshold} &= 90 + (\text{table value}) \times .10 \\ \text{Threshold} &= 90 + (-20) \times .10 \\ \text{Threshold} &= 70 \times .10 \\ \text{Threshold} &= 7.0 \text{ PSI} \end{aligned}$$

In this example the 289H LSS would send an alert to PressureMAP if the EP device dropped 2.0 PSI to 7.0 PSI.

Endpoint transducer (Device Type EP) reading 9.0 PSI with a sensitivity setting of 4.

$$\begin{aligned} \text{Threshold} &= \text{reading} + (\text{table value}) \times .10 \\ \text{Threshold} &= 90 + (\text{table value}) \times .10 \end{aligned}$$

$$\begin{aligned}\text{Threshold} &= 90 + (-8) \times .10 \\ \text{Threshold} &= 82 \times .10 \\ \text{Threshold} &= 8.2 \text{ PSI}\end{aligned}$$

With this higher alert sensitivity level, PressureMAP would be notified of a 0.8 PSI drop in pressure on the EP device from 9.0 PSI to 8.2 PSI.

Flow Transducer Examples

Source flow transducer (Device Type SF) reading 41.8 SCFH with a sensitivity setting of a 2 (the Transducer Type for this device is RF/95.0).

$$\begin{aligned}\text{Threshold} &= \text{reading} + (\text{table value}) \times .10 \\ \text{Threshold} &= 418 + (\text{table value}) \times .10 \\ \text{Threshold} &= 418 + (3 \times \text{STEP}) \times .10 \\ \text{Threshold} &= 418 + (3 \times 50) \times .10 \\ \text{Threshold} &= 418 + (150) \times .10 \\ \text{Threshold} &= 568 \times .10 \\ \text{Threshold} &= 56.8 \text{ SCFH}\end{aligned}$$

In this example the 289H LSS would send an alert to PressureMAP if the output of the SF device that was reading 41.8 SCFH increased 15 SCFH to 56.8 SCFH.

Source flow transducer (Device Type SF) reading 41.8 SCFH with a sensitivity setting of a 4 (the Transducer Type for this device is RF/95.0).

$$\begin{aligned}\text{Threshold} &= \text{reading} + (\text{table value}) \times .10 \\ \text{Threshold} &= 418 + (\text{table value}) \times .10 \\ \text{Threshold} &= 418 + (2.5 \times \text{STEP}) \times .10 \\ \text{Threshold} &= 418 + (2.5 \times 50) \times .10 \\ \text{Threshold} &= 418 + (125) \times .10 \\ \text{Threshold} &= 543 \times .10 \\ \text{Threshold} &= 54.3 \text{ SCFH}\end{aligned}$$

In above example the 289H would send an alert to PressureMAP if the output of the SF device that was reading 41.8 SCFH increased 12.5 SCFH to 54.3 SCFH.

Conclusion:

Please note that all 289H and 289H-M LSS devices use the algorithm described above. The uM260 Micro Monitor also uses this algorithm, but the monitor does not support user-defined alert sensitivity levels. For the uM260 monitor the sensitivity is always set to three (3).

For additional information about 289H/289H-M LSS alerting levels, call System Studies at the number below or email your request to our Technical Support department at support@airtalk.com.

System Studies Incorporated



*2-1340 East Cliff Drive
Santa Cruz, CA 95062
(831) 475-5777
(800) 247-8255
www.airtalk.com*