Introduction

The EnviroAlert series of temperature monitoring devices allows both high and low limit settings. However, there are subtle differences between the EA200/400 and the EA800-ip in how these settings function. This document will attempt to explain the differences and how they will affect end use.

Delay Settings

All of the EnviroAlerts allow time delays to be set in one-minute increments. These delays help to reduce the amount of nuisance alarms that could be received due to normal occurrences such as freezer defrost cycles, cooler or freezer doors opening, etc. For an alarm to trigger the relay output, the temperature must be outside of the limits for the full length of the programmed delay. If it comes back within limits – even momentarily, the delay time is reset. If it then goes outside of the limits again, the delay starts counting down again from the beginning.

There are cases where you may not want or need a delay. If so, imagine a temperature that is right at the limit. It may tend to fluctuate up or down resetting and setting your alarm multiple times. That's why filtering and hysteresis are used, but more on that later.

EnviroAlert EA200 and EA400

The EA200/400 is pretty straightforward in how it alarms and resets alarms. Assuming a delay is not set, when the limit is exceeded in the direction of the limit (high going higher; low going lower), an alarm will occur. Once the displayed temperature comes back to the limit (or further within limits), the alarm will be reset. Behind the scenes, hardware and software filtering attempt to prevent multiple alarms from occurring and to prevent transients from affecting the reading. In addition, temperature values are rounded to the nearest integer. Alarms are determined by the displayed (rounded) readings as they relate to the limit settings. An example of the EA200/400's operation is illustrated in Figure 1 below.

EnviroAlert EA800-ip

The EA800-ip uses the temperature values *before rounding occurs* in order to determine alarm status. There are a couple reasons for this. First, the alarm will occur exactly where you intend it to rather than alarming at a rounded value. Second, when using a 4-20 mA sensor, you may need to be able to specify higher resolution (up to five decimal points) in order to match the sensor's specifications and range. The byproduct of this scheme is that the displayed value may not seem to match the alarm state. Rest assured, however, that it is alarming exactly where it's supposed to and keep in mind that the displayed value is rounded. Figure 1 shows the difference between the EA200/400 and the EA800-ip in this regard.

You may have noticed that the EA800-ip includes a "hysteresis" setting. The hysteresis setting controls where the EA800-ip resets after an alarm occurs. This is used to avoid multiple alarm occurrences when near the trip point. The default setting is 1, which should work well for most applications. What this means is that the reading must come back within limits by 1 before the alarm will be reset. Figure 1 also shows examples of how hysteresis works on the EA800-ip. With a hysteresis setting of 0, you may notice that the device goes into and out of alarm while the display is showing the same number. Figure 2, below, illustrates a fluctuating temperature that would result in multiple alarms if the high limit was set to 46 and the hysteresis was set to 0.

For more application notes and additional EA800-ip info, check out: www.EA800-ip.net

Figure 1

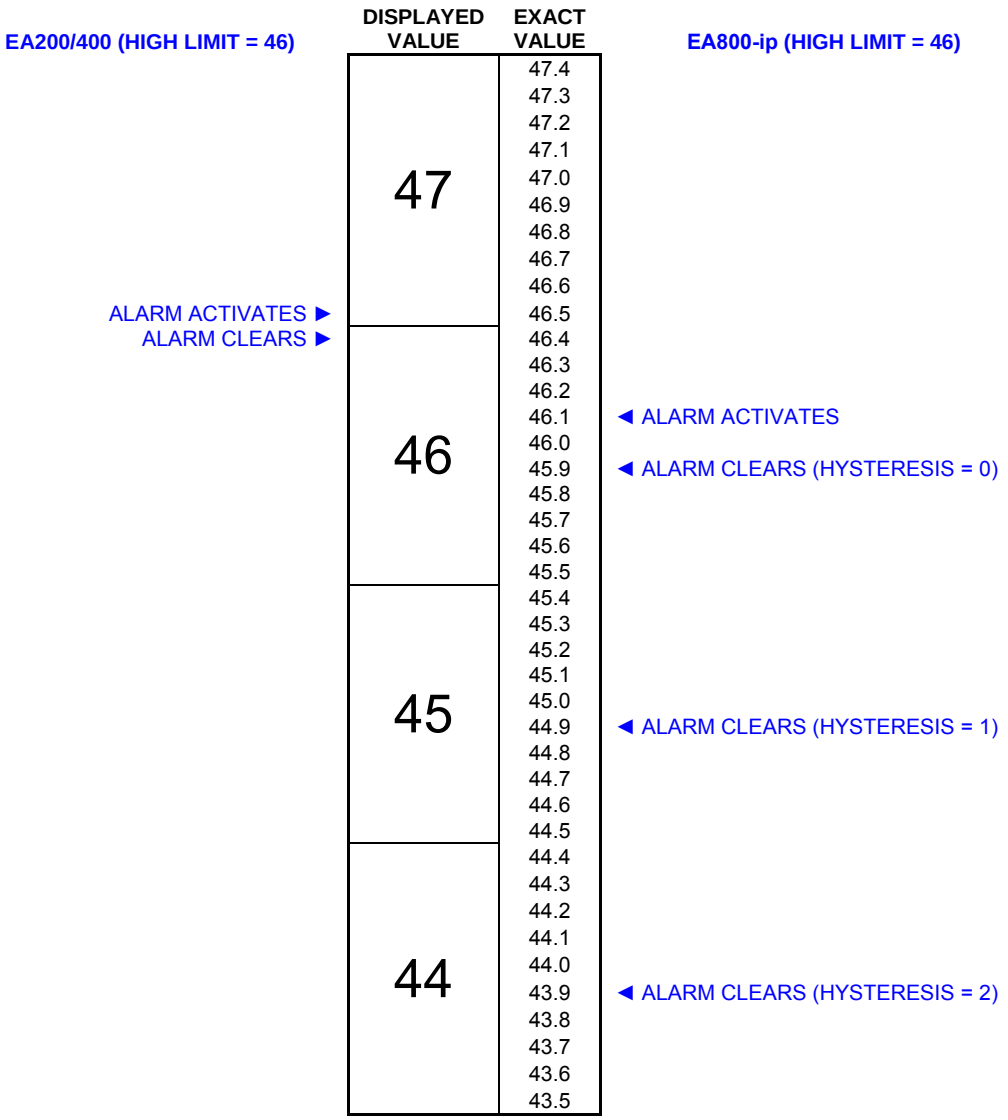

Figure 2