The StealthFlex II incorporates an Environmental Compensation Processor (ECP) that constantly monitors the background noise being fed into the analyzer board's front end circuitry. Every 20 seconds, over 4000 noise readings are averaged in order to calculate a noise index. The noise index is a value that the ECP uses to determine the level of background noise. The ECP then uses this ever-changing value to automatically adjust the threshold of the detection circuit. If the noise increases due to wind, rain, etc., the ECP helps reduce false alarms by raising the threshold. This makes the detection circuit slightly less sensitive. Valid large pulses will still be detected, but smaller pulses caused by the stormy conditions will be less likely to trigger the pulse counter. When conditions return to normal and the noise level falls, the threshold is returned to normal.

The NOISE LEVEL indicators (D6, D23, D24 & D25) reflect the amount of threshold Compensation in use at any given moment. Since the threshold compensation is a direct result of the amount of noise present, they can also be viewed as indicators of the actual noise level.

There are four levels of threshold:

Illuminated LEDs	Noise Level	Noise Index
D25	Excessive	30 or greater
D24	High	21 - 30
D23	Moderate	11 - 20
D6	Normal	10 or less

Note 1: These 4 LEDs form a "bar graph", meaning that for each successive LED to illuminate, the previous LED will remain on as well.

Note 2: Green LED D6 is always on, except for a brief blink approximately every 20 seconds, at which time the noise index is updated.

If a particular installation has a steady background noise that cannot be remedied, it is possible to nullify this noise so the threshold compensation circuit does not activate until the noise increases above this higher-than-normal "noise floor". Example: The installation has a steady hum due to power transformer near the installation. The hum causes a steady "Moderate" noise level, but no random pulse detections. Under these conditions, the threshold will always be raised by one level, reducing the amount of available compensation to only 2 additional steps. The installer may elect to store this noise index, effectively zeroing it out. The ECP will use this new noise floor as the baseline reading. In other words, the Moderate noise level will not be reached until the noise index increases 11 points above this new noise floor. Storing a new noise floor reading is accomplished by the use of the Initialize Switch, SW2 (see next section).

Initialize Switch SW2

The Initialize switch has 4 important functions:

1. **Display stored "noise floor"**
   Briefly pressing SW2 while green LED D6 is illuminated activates a diagnostic display of the currently stored noise floor, or baseline reading. The reading is determined by observing the NOISE LEVEL LEDs immediately after pressing SW2. Green LED D6 will flash 4 times, after which the most significant digit of the noise floor is displayed for two seconds. Each LED represents a value: D6 = 1, D23 = 2, D24 = 4 and D25 = 8. Simply add up the values of the illuminated LEDs. After two seconds have elapsed, D6 will flash 4 more times, after which the least significant digit of the noise floor is displayed for two seconds. Note that these digits are actually hexadecimal values, so each digit can have a value up to 15. After the least significant digit has been displayed, D6 will return to its normal illuminated state.

2. **Store current "noise floor" to EEPROM**
   To store a new noise floor reading, press and hold the Initialize switch SW2 until all 4 NOISE LEVEL LEDs illuminate (about 3 seconds). Release SW2. D6 will flash 4 times and display the new noise floor value that was just stored (most significant digit followed by 4 more flashes, then least significant digit, as described in the previous section).

3. **Display current noise index**
   Pressing SW2 while D6 is off (remember, it blinks off every 20 seconds) will display the current noise index value. This value represents the current noise level that is being used by the threshold compensation algorithms, and is the value that would be stored to EEPROM as a noise floor if you pressed and held SW2 for 3 seconds.

4. **Delete stored noise floor (restores factory default value of "0" to EEPROM).**
   To clear out any previously stored noise floor, press and hold SW2 while applying power to the StealthFlex II analyzer board. Hold the switch until all 4 NOISE LEVEL LEDs illuminate.