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# Fwd: Re: updates?

1 message

**Rajesh Sankaran** <rajesh@anl.gov> Thu, Jun 1, 2017 at 2:27 PM
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The output of the PBay boards is in nA. You can calculate first-order temperature correction using the equations below:

```
// Calculate zero compensation (Zc)
Zc = nA - nAz - zcf * (T - Tz)

// Calculate span compensation (Sc)
Sc = 1 - (scf / 100) * (T - Tz)

// Calculate PPM value (Cx)
Cx = Zc * Sc * 1/Sf
```

where:
*nA* is the output of the gas sensors on the PBay board
*T* is the output of the temperature sensor on the PBay board

*zcf* is the zero temperature factor
*scf* is the span temperature factor

*Tz* is temperature at time of "re-zero"
*nAz* is PBay gas sensor output at the time of "re-zero"

Each gas sensor has a piece wise value for zcf and scf. Some of the zeros in the table below are placeholders and may be replaced as we continue to characterize these sensors:

| P/N | Gas | Tkz | ZCF (nA/deg C) | | Tks | SCF (%/deg C) | |
|---|---|---|---|---|---|---|---|
| | | | -20 ≤ T < Tkz | Tkz ≤ T ≤ 40 | | -20 ≤ T < Tks | Tks ≤ T ≤ 40 |
| 110-109 | CO | 25 | 0 | 2.375 | 25 | 0.6 | 0.4 |
| 999-078 | SO2 | 25 | 0 | 0 | 25 | 0 | 0 |
| 999-061 | NO2 | 25 | 0 | 0 | 25 | 0 | 0 |
| 999-036 | O3 | 25 | 0 | 0 | 25 | 0 | 0 |
| 999-062 | H2S | 25 | 0 | 0 | 25 | 0 | 0 |
| 110-902 | RESP | 25 | 0 | 0 | 25 | 0 | 0 |
| 110-802 | IAQ | 25 | 0 | 0 | 25 | 0 | 0 |