Dallas sensors calibration part V

April 11th, 2006

Summary

	p0 [C]	p1
sensor 10F6528E00080097 (CO2 bottle)	-1.44 (1.29)	1.05 (0.07)
sensor 10B45B8E0008007F (Xe bottle)	-2.41 (2.57)	1.12 (0.10)
sensor 106F4A8E000800F2 (mixing vessel)	-1.45 (2.40)	1.05 (0.10)
sensor 10A64A8E000800FB	0.66 (3.58)	0.95 (0.15)
sensor 1075738E00080011	-0.36 (7.09)	1.00 (0.31)

Air-conditioning variations (0.2 C) do not introduce additional syst. error (averaged over cycles)

+1 C – systematic error due to heat flow

Conclusions

1. The calibration coefficient is consistent with 1.
2. The calibration constant is consistent with 0, but with error of 100% or more.
3. Calibration of Dallas sensors heated by build-in heaters shows smaller errors due to larger accessible temperature difference
4. Calibration of Dallas sensor on mixing vessel also has relatively small errors

Errors: coefficient: 10% for build-in heaters and mixing vessel
15% and 30% - other two sensors
constant: 100% for build-in heaters
170% mixing vessel
much bigger (>500%) for other two sensors

5. Calibrate before gluing-on Dallas sensors!!!