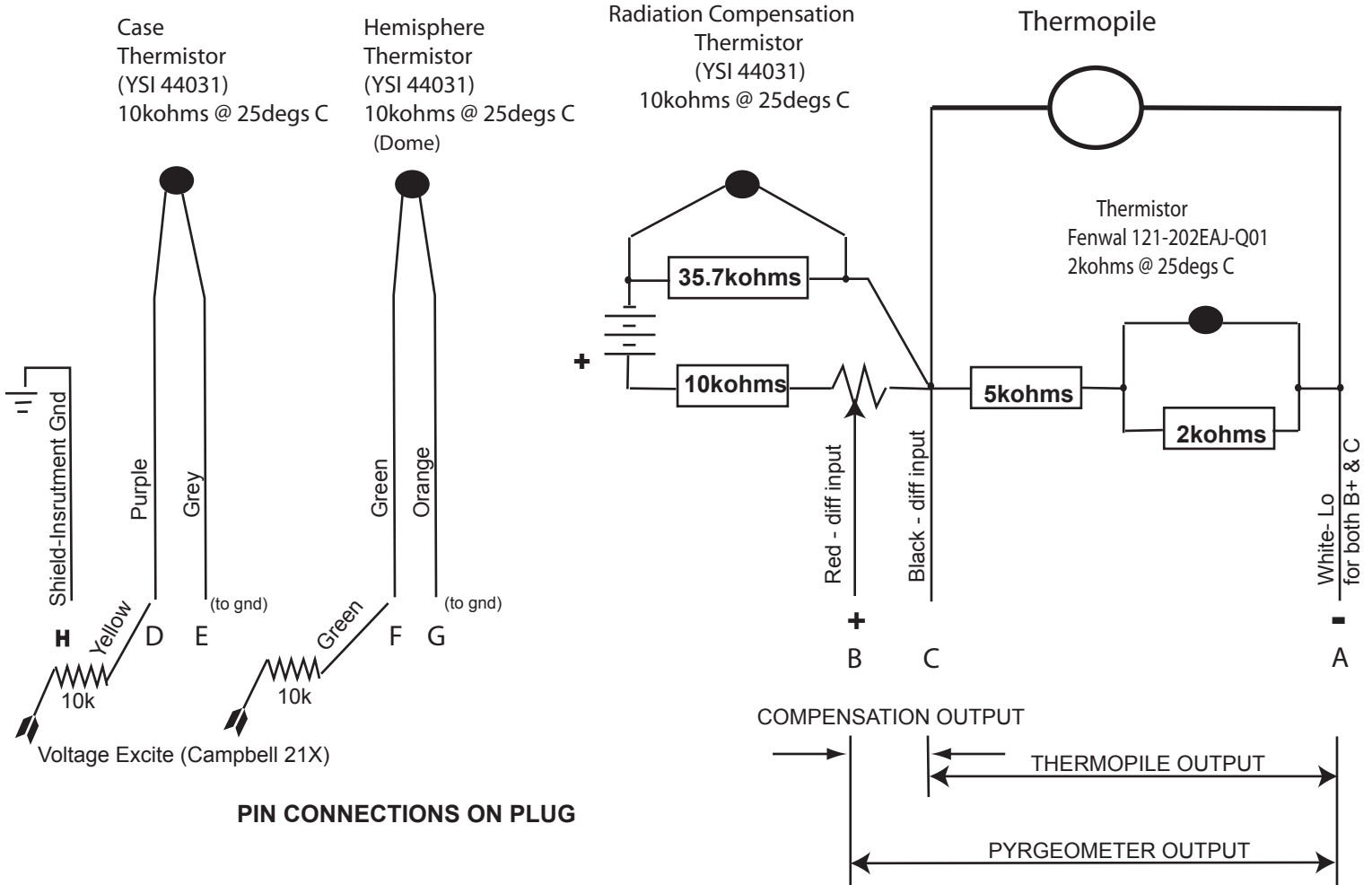


# Precision Infrared Radiometer - Model PIR (PYRGEOMETER)

## INTERNAL WIRING



Simplified method:  $R_{in} = V_{ab} / S = \text{watt/meter squared}$

$R_{in}$  is Incoming Radiation,  $V_{ab}$  is diff voltage across A&B+,  $S$  is instrument sensitivity  
 $S$  is approx  $4\mu V / Wm^{*-2}$



Precise Method:  $R_{in} = R_{net} + R_{out} = V_{ac} / S + s * T_c^{*4}$

$s$  is Stefan Boltzmann Constant ( $5.6704 \times 10^{*-8} Wm^{*-2} K^{*-4}$ )

$V_{ac}$  = voltage across A- & C+

$T_c$  - case temperature, is determined by measuring resistance across pins D&E and using relationship  $T = 1 / \{ ( C_1 + C_2 * \ln(R) + C_3 * (\ln( R ))^3 ) \}$

where  $T$  is absolute temp,  $R$  is measured resistance of YSI thermistor in ohms

where  $\ln$  indicates natural logarithm and values of constants are

$C_1 = 0.0010295$ ;  $C_2 = 0.0002391$ ;  $C_3 = 0.0000001568$  and to obtain

temperatures in degs C subtract 273.15 from calc'd temp

The Simplified and Precise method should be fairly close in agreement