MEASURE MASS FLOW OF AIR

$\dot{m} = V \cdot \rho$ VOLUME × DENSITY

$\cong$ VOLUME = UP TO 40 CU FT/MIN

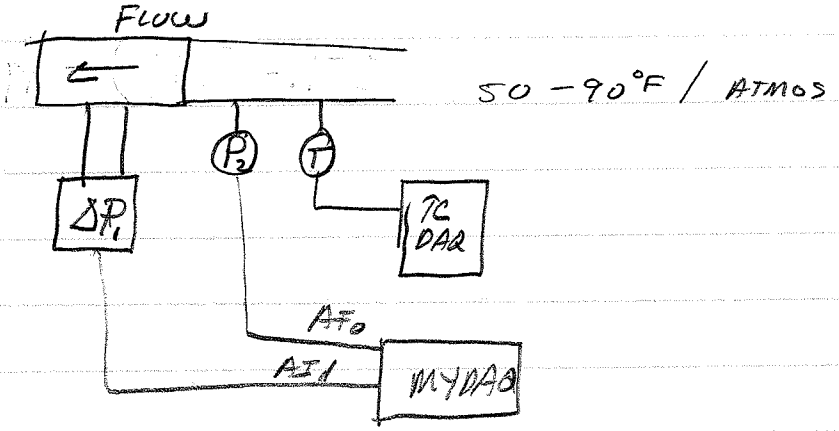
MERIAM FLOW ELEMENT (50MH10)

0-25 SCFM
0 TO 8" H_2O $4 \cdot \Delta P - .15 \cdot \Delta P^2$ ACCURACY ± .72%
REP. ± .1%

VOLUME TO MASS FLOW

1) CORRECT FOR STD CONDITIONS (ATM. @ 70°F)
2) MULTIPY BY DENSITY.

- TEMPERATURE
- PRESSURE



P_1 DIFFERENTIAL	P_2 ABSOLUTE	TC TYPE T
±10" H_2O	0-30 PSIA	± 1°F
±10 VDC	0-10 VDC	
ACCURACY ±2%	±.2%	

MYDAQ	TC01
± 22.8 mV	ERROR ± 1.5°C ≅ 2.7°F

$$\dot{m} = (4P_1 - .15P_1^2) \times \left(\frac{70}{T_F}\right) \times \left(\frac{\rho_F}{.075}\right) \times \rho_F$$

$$\rho_F = 2.7\,(P_{2\,(PSIA)}) / (T_F + 459.7)$$

@ 8" H_2O / 70°F / 14.7 PSIA = 1.67683 LBM/MIN

FLOW	ACCURACY	± .72%	= ± .0576 " H_2O
	REPEAT	± .1%	= ± .008 " H_2O
P_1	ACCURACY	± .2%	= ± .02 " H_2O
P_2	ACCURACY	± .2%	= ± .06 PSIA
T	ACCURACY	± 1°F	± 1°F
TDAQ	ERROR	± 2.7°F	± 2.7°F
MYDAQ	ERROR	± 22.8 mV	= .0228" H_2O

$$\frac{10"H_2O}{10V} = \frac{1"H_2O}{1V} \times .0228V = .0228"H_2O$$