DAILY CHECKLIST – CMDL Aerosol System

Month:_____Year:200__ Station: Cape San Juan, Puerto Rico

Date	*CNC butanol level: fill y/n*	*CN drier flow* ~8 lpm*	*CNC vacuum >14 " Hg*	*CNC status lights G/R/Both*	*PSAP filter change*	*PSAP flow 1 lpm*	*Q_stack* ~850 lpm*	*MFC box, Neph. ~29 lpm*	*Dilution flow ~15 lpm*			*Comments (e.g., rain, smoke, instrument issues, vehicle traffic, etc.etc.)*
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Problems: Contact Pat Sheridan (303) 497-6672 or Betsy Andrews (303) 497-5171 **Logging Status: *ABCEGMNU**

Boxes in grey are not currently applicable to the CSJ station. ***Check values on computer screen in 'aerosol window' <alt+A>**

Month:_____ Year: 200___

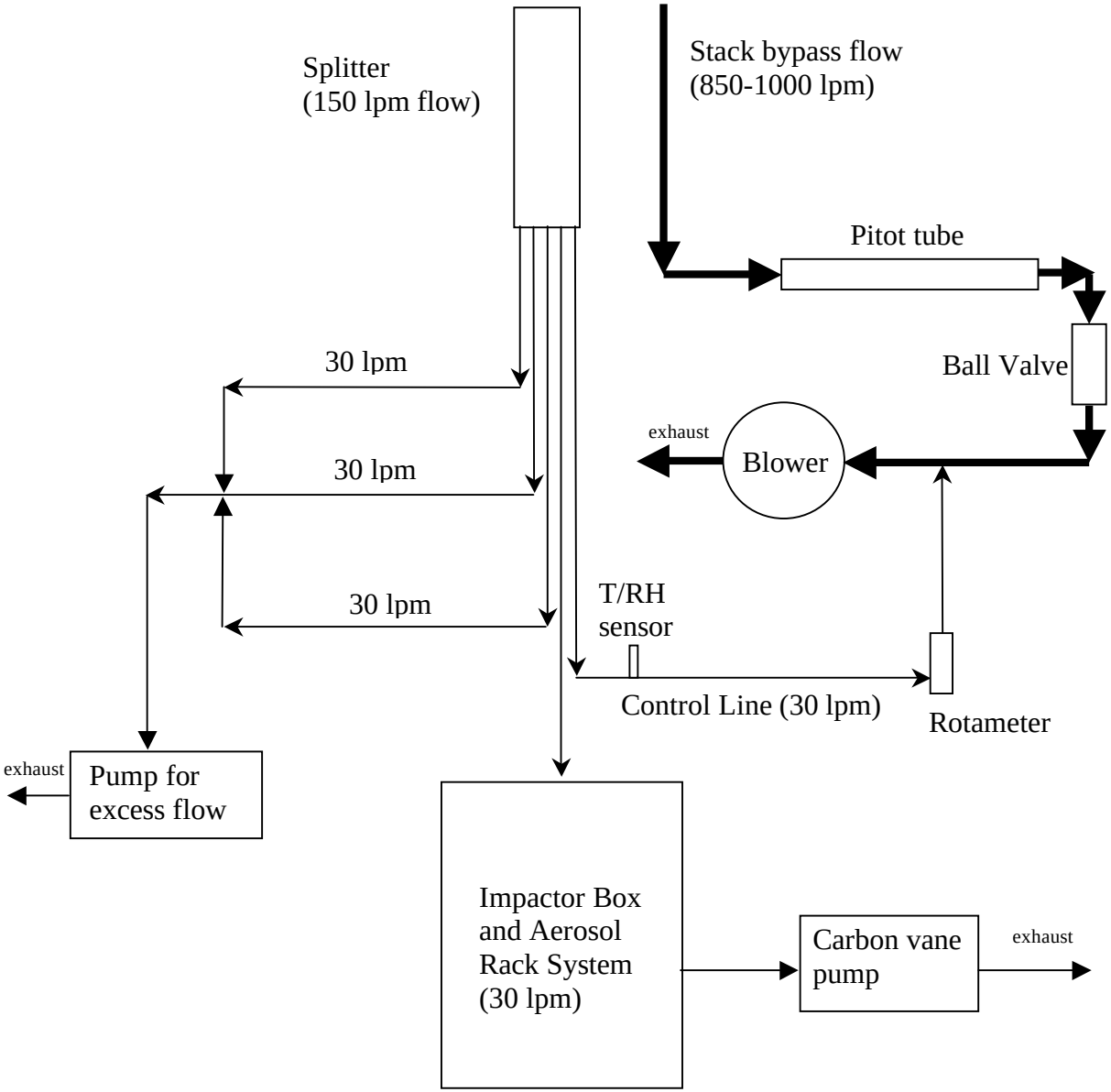
WEEKLY TASKS

Neph span check ***Date*** ***Time (UTC)***				
Impactor cleaning *Date*				
Leak check *Date*				

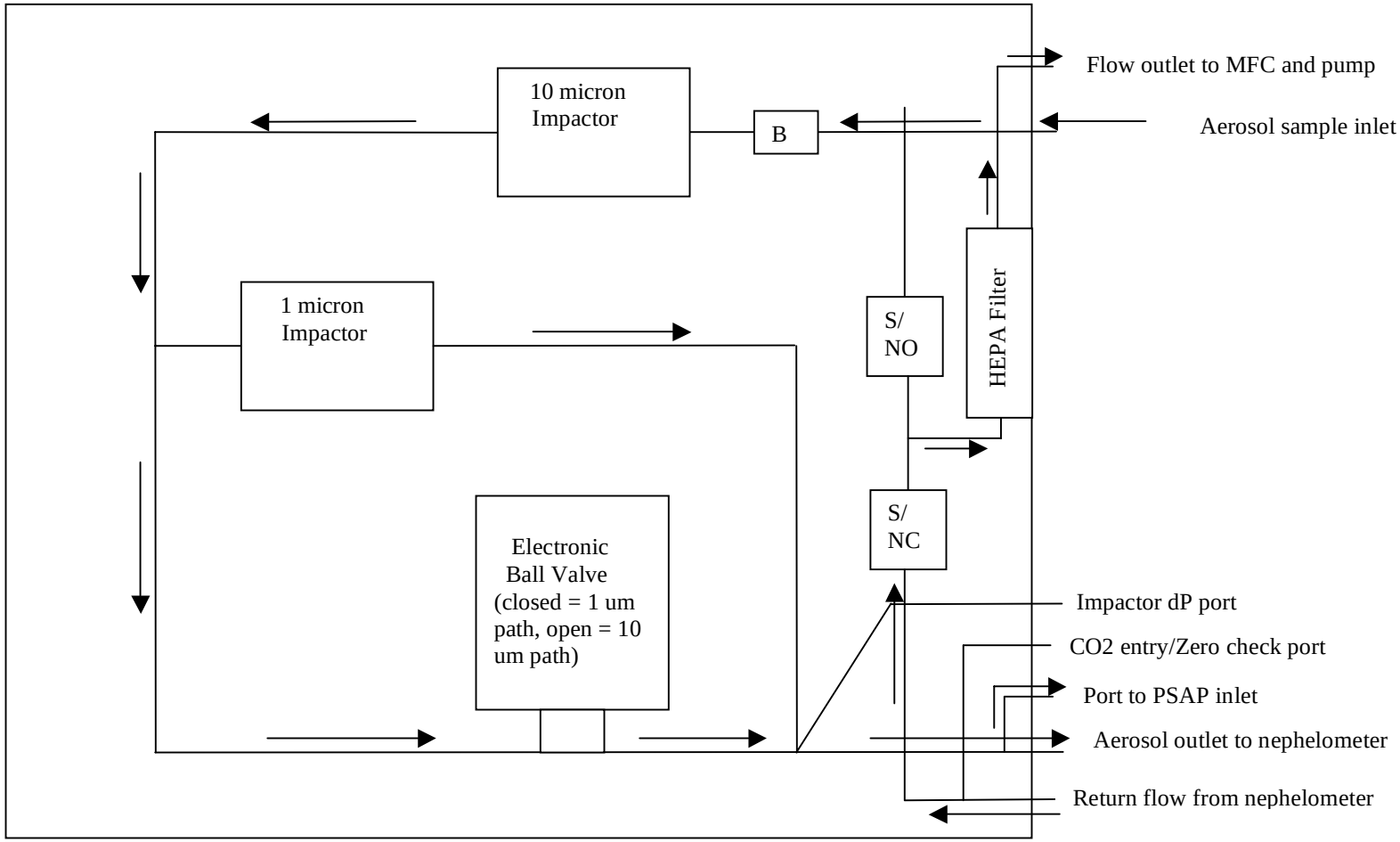
MONTHLY TASKS

Mail checklists to NOAA	
Check supply levels	Butanol Impactor films CO2 Other:_____

Schematic of CSJ Aerosol Flow System

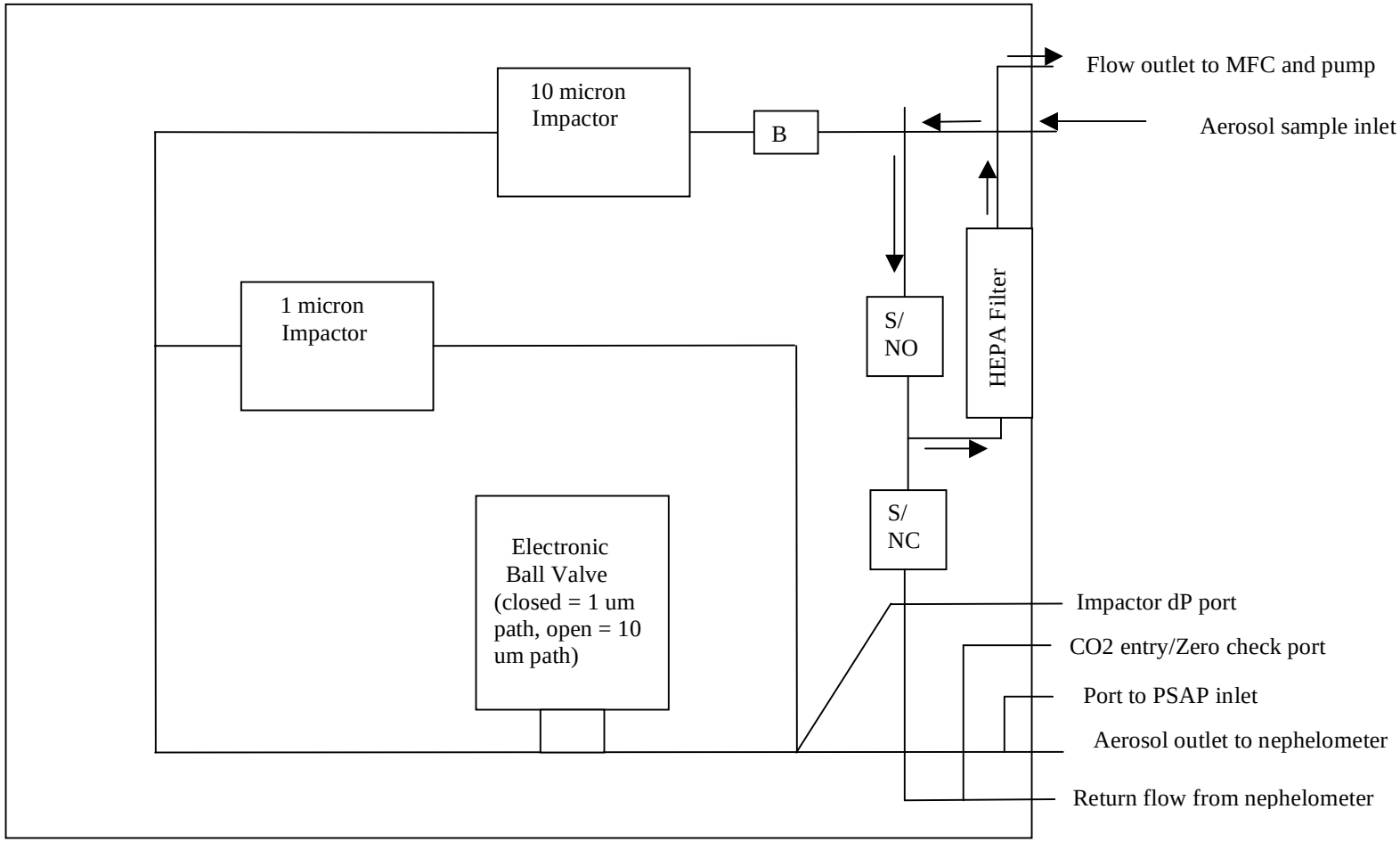


NOAA/CMDL Impactor Box Flow Schematic – Normal Operation



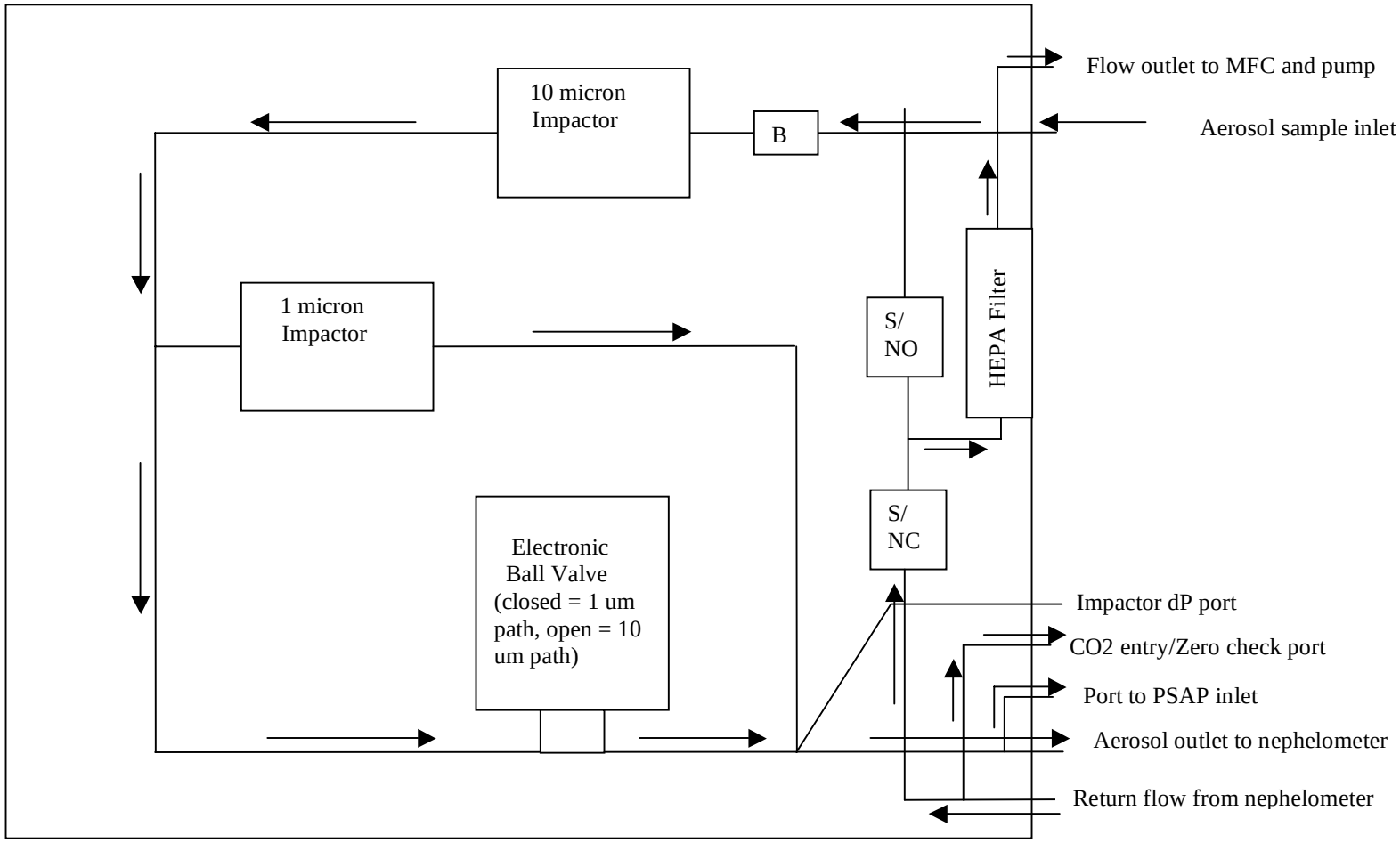
B = Manual Ball Valve (open position)
S/NO = Electronic Solenoid Valve, Normally Open (without power)
S/NC = Electronic Solenoid Valve, Normally Closed (without power)

NOAA/CMDL Impactor Box Flow Schematic – Impactor Bypass Operation (during impactor changes)



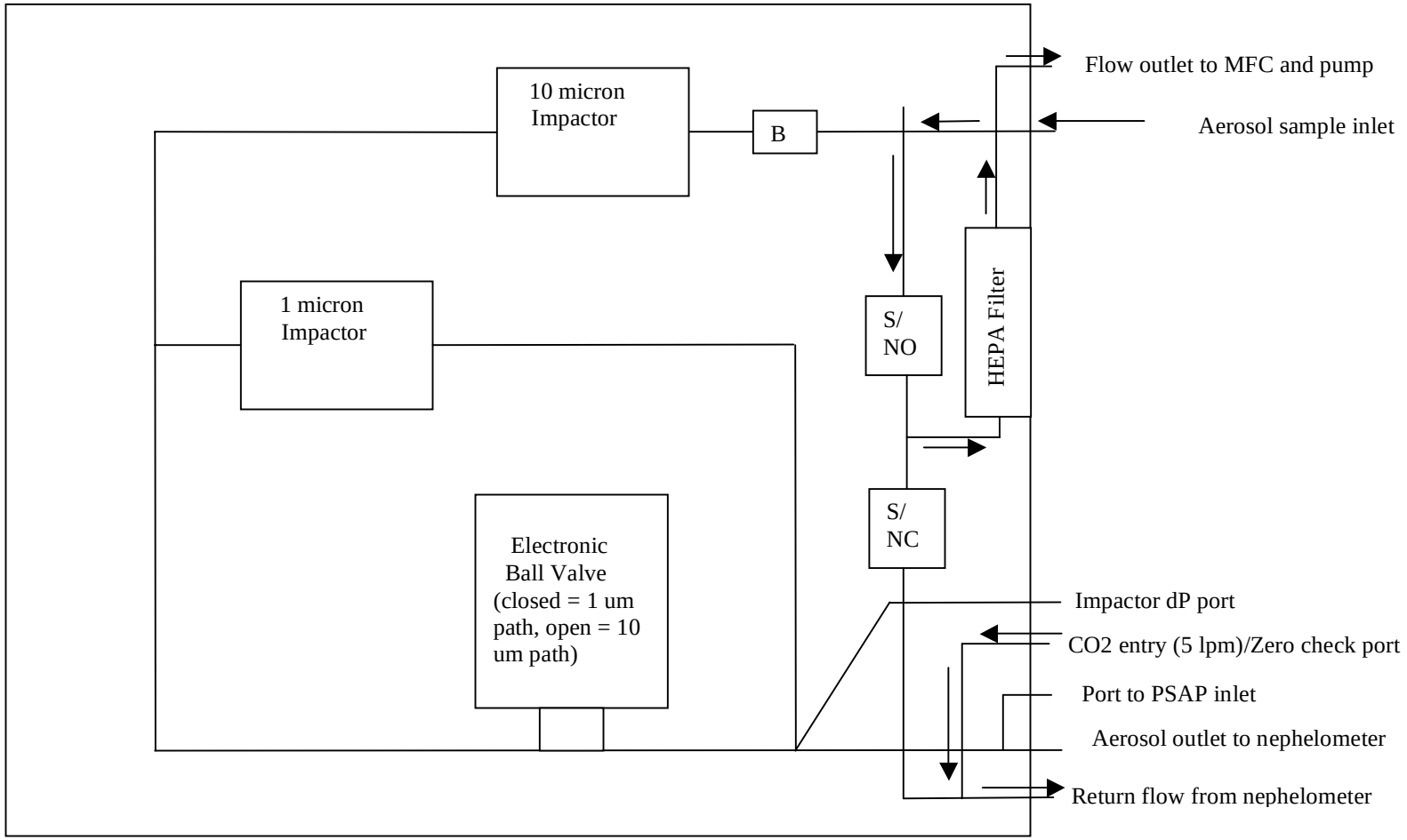
B = Manual Ball Valve (closed position)
S/NO = Electronic Solenoid Valve, Normally Open (without power)
S/NC = Electronic Solenoid Valve, Normally Closed (without power)

NOAA/CMDL Impactor Box Flow Schematic – Zero Check Operation (same as normal operation except zero check port is opened and connected to CPC using conductive tubing.



B = Manual Ball Valve (open position)
S/NO = Electronic Solenoid Valve, Normally Open (without power)
S/NC = Electronic Solenoid Valve, Normally Closed (without power)

NOAA/CMDL Impactor Box Flow Schematic – Span Check Operation



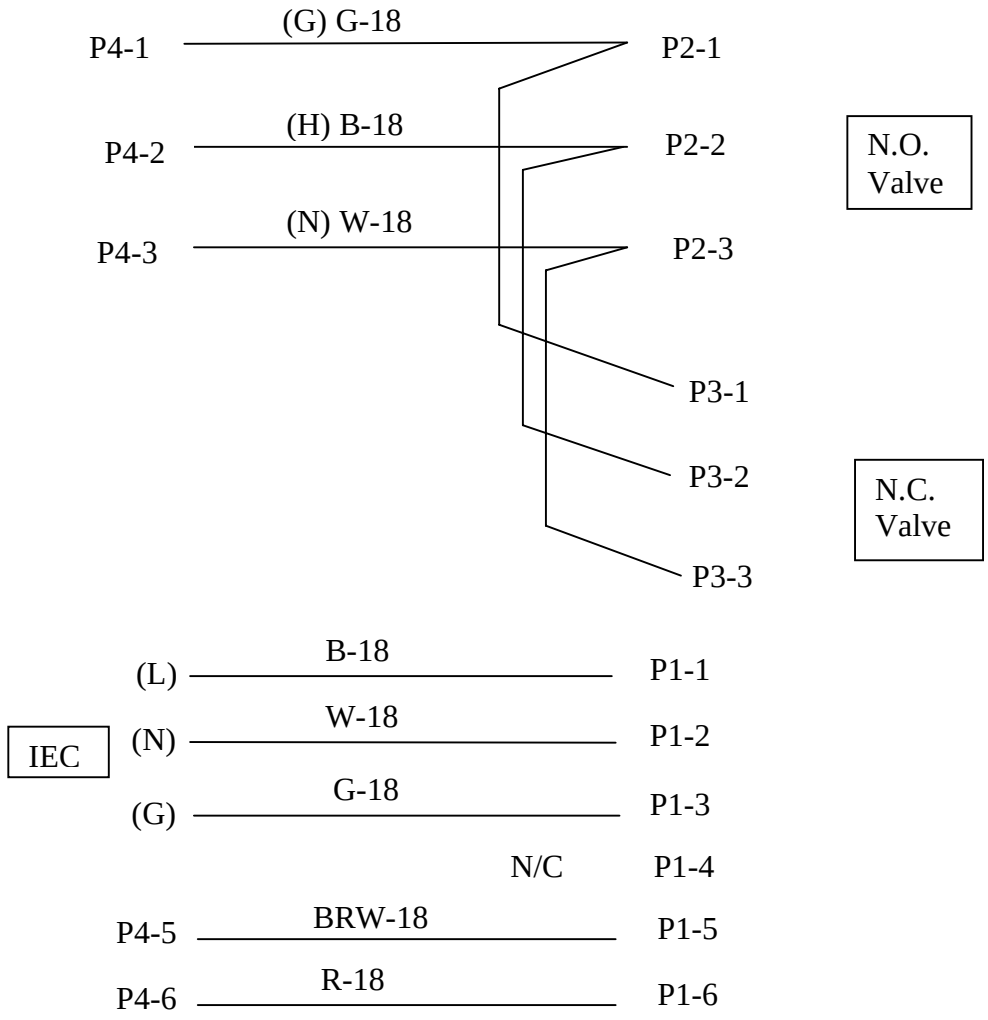
B = Manual Ball Valve (open position)
S/NO = Electronic Solenoid Valve, Normally Open (without power)
S/NC = Electronic Solenoid Valve, Normally Closed (without power)

Aerosol Impactor Box – Wiring Diagram

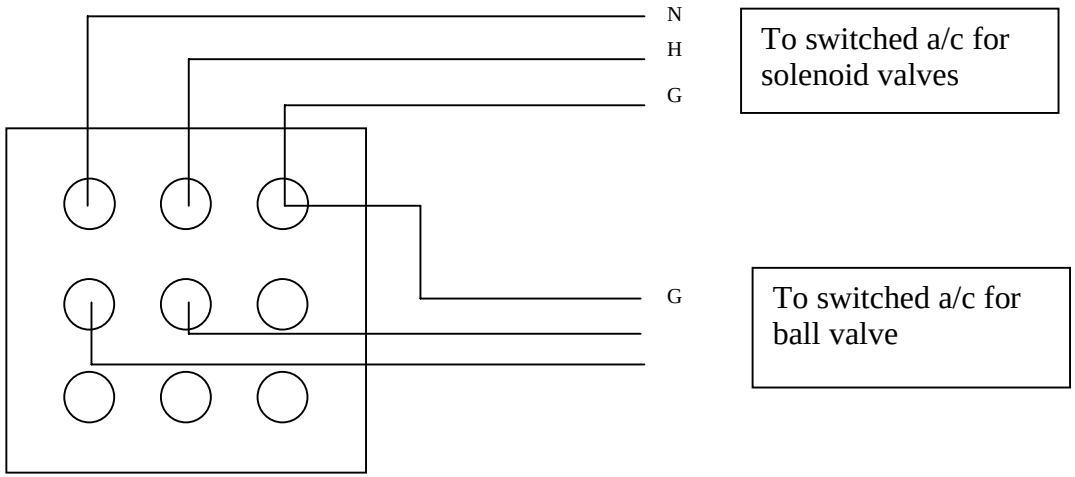
P1 = Amp, MateNLok, 2x3 shells w/ sockets (connector to electronic ball valve)
P2 & P3 = Amp, MateNLok, 1x3 shell w/ pins (connectors to solenoids)
P4 = MateNLok 3x3 shell w/ pins (front panel of impactor box)

(G) = Ground
(H) = Hot (=L, Line on some connectors)
(N) = Neutral

Wire color and gauge is expressed like G-18 (green, 18 AWG)


(G) G-18
P4-1
P2-1
(H) B-18
P4-2
P2-2
N.O.
Valve
(N) W-18
P4-3
P2-3
P3-1
P3-2
N.C.
Valve
P3-3
B-18
(L)
P1-1
W-18
IEC
(N)
P1-2
G-18
(G)
P1-3
N/C
P1-4
BRW-18
P4-5
P1-5
R-18
P4-6
P1-6

Switched A/C power – connections to front panel connector



Vaisala Panel Mount Pin-out

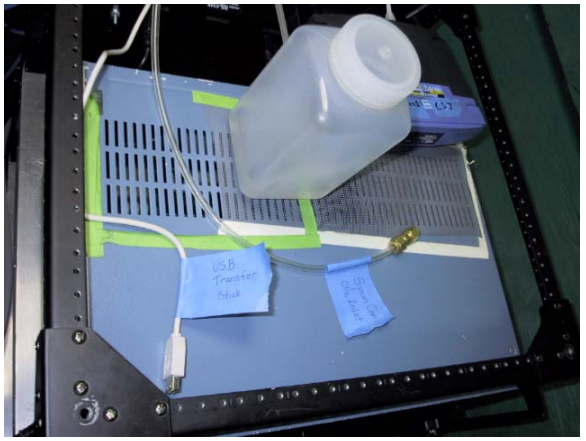
Pin	Parameter
1	RH
2	Temp
3	7-28 VDC
4	common

Vaisala Humitter Sensor Pin-out

Wire	Parameter
BRN	RH
V	Temp
Y	7-28 VDC
G	common

Top of instrument rack showing aethalometer, and CPC flow control box

Bottom of instrument rack showing μmac (micromac) box, PID control box, and impactor box



Top view of instrument rack showing USB extension cable (white cable) and CO_2 inlet for span checks.

Typical Parameter Values at CSJ

Window	<enter> key	Parameter	Typical	Lower limit	Upper limit	Action
Aerosol Sampling Status	A	RH_sample	40	0	45	Check inlet heater
	A	T_sample	25	10	40	
	A	T_rack	30	20	35	Check air conditioner
	A	T_pumpbox	32	25	40	
	A	Q_analyzer	30	28	32	Check pump, adjust flow
Aerosol dP sensors	A	dP_Neph_imp	2 – 10	2	15	Check for leaks around impactors
	A	dP_CNC_vac	500	350	800	Check CN pump
	A	dP_pitot	70	60	80	Check carbon vane pump
CN counter	A	Drier flow	8	7.5	8.5	Adjust valve
Best UPS	B	Inverter	OFF			
		Charger	ON			
		AC Volts IN	113	110	120	Fix generators
		AC Volts OUT	121	118	125	
		AC Amps OUT				
		Output Load VA				Check that all systems are drawing power
		Battery DC V	13.9	13	14	Possible UPS malfunction
		Frequency	60	50	70	Fix generators
PSAP	L	Flow	1.0	0.5	1.5	Adjust flow
	L	Transmittance	0.9	0.7	1.0	Change filter
	L	I_sample	250000	90000	300000	Check light source
	L	I_reference	570000	250000	300000	Check light source
	L	Filter change	FALSE	FALSE	FALSE	You forgot to press <enter><L><M><3> after last filter change.

Window	<enter>	Parameter	Typical	Lower	Upper	Action
Neph_N	N	Bkg_tot_Blue	2.0E-6	1E-7	5*typ.	
		Bkg_tot_Green	3.0E-6	1E-7	5*typ.	
		Bkg_tot_Red	5.0E-6	1E-7	5*typ.	
		Bkg_back_Blu	4.0E-6	1E-7	5*typ.	
		Bkg_back_Grn	5.0E-6	1E-7	5*typ.	
		Bkg_bak_Red	8.0E-6	1E-7	5*typ.	
		MODE	NBXX	BBXX	ZBXX	Any other value is an error
		P_hPa	1000	960	1040	
		SecToGo	30000			Must decrease by one every second
		Sample_T	300	290	320	Check room temperature
		Inlet_T	297	290	320	Check room temperature
		Next_Z	Xx:57:00			Possible error in CP.INI entry for [Neph] ZeroAt= entry.
		GreenRef	2.0E+5	1.0E+5	5.0E+5	Lamp may be failing.
		Lamp_V	13	12	14	Lamp may be failing
		Lamp_I	6.0	5.5	7.0	Lamp_V times Lamp_I should be ~ 75
uMAC	U	Room Temp	38	30	40	Check room temperature
		Power supply	5.0	4.8	5.2	Power supply bad?