

# Thermo Scientific™ Particulate Matter Continuous Emissions Monitoring System

## MAINTENANCE AND TROUBLESHOOTING GUIDE

<b>Operator</b>	
<b>Site location</b>	
<b>Probe controller serial #</b>	
<b>Probe monitor serial #</b>	
<b>Firmware version</b>	

<b>Date</b>	
<b>Time</b>	

### INSTRUMENT DIAGNOSTICS

Activity	Displayed value	Calibration date	Verification date
<b>Sample volume check:</b>			
Sample Flow			
Mems Flow			
<b>System check results:</b>			
Upscale drift UDC +/- 2%			
Volume drift VDC +/- 5%			
Zero Drift ZD +/- 2%			
<b>Temperature check:</b>			
Dilution (set point 165°C +/- 1°C)			
Stinger (set point 120°C +/- 1°C)			
Bypass (set point 100°C +/- 1°C)			
Nephelometer (set point 58°C +/- 0.5°C)			
TEOM air tube (set point 62°C +/- 0.1°C)			
TEOM case (set point 65°C +/- 0.1°C)			
<b>Flow check:</b>			
Dilution flow (set point 21slpm)			
Bypass flow (set point 21 slpm)			
Sample flow (set point 2.5 slpm)			
Purge flow ~ 0.45 slpm (orifice)			
Nozzle flow = (Bypass flow + Sample flow) - (Dilution flow+ purge flow) +/- 0.1 slpm of 2.0 slpm			

Activity	Reading
<b>CDA and Zero air source:</b>	
CDA source 80-100psi @ 75-80 slpm -40°C dewpoint	
Zero air source particle free 80-100psi @ 75 - 80 slpm	
<b>Power:</b>	
200-240VAC 50/60 Hz 30 amps	
<b>Pressure regulator in Probe controller:</b>	
45 psi with 75-90 psi air supply	
<b>Leak Check</b>	<b>Pass/Fail</b>
Probe controller < 2% in 5 mins( sample, dilution line)	
Front probe monitor < 0.5 inHg in 5 mins (Nozzle back to closed ball valve in heated block)	
Rear probe controller < 1.0 inHg in 5 mins ( Neph and TEOM assemblies)	

Mass Verification	Frequency	Weight	Audit K0
<b>Starting Frequency:</b>			
Disk #1			
Disk #2			
Disk #3			
Audit K0 = $(1/(F1)^2 - 1/(F2)^2)/\text{weight of disk}$			
Factory K0 compared to Audit K0 within 5%			

For more information, please consult your technical support representative.

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