

Environmental Measurements Limited

SBS HEATING SYSTEM

The heating system consists of three parts (As shown in Figure 1):

- 1) The heater sensor.
- 2) The heater controller unit.
- 3) The heaters



Figure 1

The general basis of the design is to:

- a) Stop the bucket freezing in cold temperatures.
- b) Stop the pivots from icing.
- c) To allow the Raingauge to return to full operation as quickly as possible.

<u>The system is NOT designed to melt snow</u>, although any snow that melts within the funnel assembly will be recorded as precipitation.



Description of operation.

A power supply is required to be connected to the heating system before it will function. When power is connected the temperature is controlled automatically. The sensor, mounted above the tipping bucket, monitors the air temperature within the Raingauge. The controller automatically activates the heaters when the temperature inside the Raingauge enclosure drops down to 1° C. The heaters will remain on until the temperature inside the enclosure reaches 4° C.

The heaters consist of six wire-wound ceramic resistors. They are arranged in two blocks of three resistors (As shown in Figure 2).



Figure 2

The schematic diagrams for the 12 Volt and 24 Volt systems are shown in Figures 3 and 4 respectively.

	<u>12V supply</u>			
		•	heaters off –12mA typical	
		•	heaters on – 2.2A typical	
Heated version -	-24V supply			
supply current:		•	heaters off –15mA typical	
		•	heaters on – 1.1A typical	
Heaters activated by internal thermostat when temperature in enclosure				
falls to approximately 1°C and de-activated when temperature rises to 4°C				

REFERENCES.

Folland, C.K. (1988)	Numerical models of the Raingauge exposure problem, field experiments and an		
	improved collector design.		
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Sevruk, B. (1989)	Reliability of precipitation measurement. Proceedings: WMO Intl. Con. On		
	Precipitation Measurement.		
	St. Moritz, 1989, Switzerland pp. 13-19.		
Strangeways, I.C. (1996)	Back to Basics: The "Met. Enclosure": Part 2 (b) - Raingauges, their errors.		
	Weather, 51, pp. 298-303.		



12 Volts Heater System:

This configuration should only be used with a 12V Heater Controller Unit







24 Volts Heater System:

This configuration should only be used with a 24V Heater Controller Unit



