



BAM-1020 AC Power Requirements

The BAM-1020 particulate monitor is a system consisting of several AC powered components, including the main instrument, a vacuum pump, an inlet heater, and sometimes a heated or air conditioned mini shelter. The power consumption of the system varies considerably depending on specific configurations and options. The BAM system is factory configured for either 110-120V or 220-240V operation. The instrument itself runs on nominal 120V due to internal AC transport motors, and BAMs configured for 230V have a built-in transformer in the power supply.

The total power draw of the system should be used to ensure adequate electrical service to the sample site. In most cases, a dedicated 15A circuit breaker is sufficient for a single complete BAM-1020 system with a mini shelter. Double-unit shelter systems may require a dedicated 30A circuit. Solar power applications for the BAM-1020 are very rare due to the great expense of configuring a large enough solar panel array, battery bank, and inverter.

BAM-1020 Instrument Only:

Instrument Status	Amps	Wattage
BAM-1020 only, continuous quiescent power	0.10	12W
BAM-1020 only, with tape transport motors running	0.17	20W

Quiescent power draw is rated with display and electronics active. The tape transport motors only run for a few seconds each per hour.

Vacuum Pumps:

Model	Description	Amps	Wattage
BX-126	Medo Linear Pump, 120V 60Hz	1.25	150W
BX-127	Medo Linear Pump, 230V 50Hz	0.55	125W
BX-121	Gast Rotary Vane Pump, ¼ hp motor, 120V 60Hz	4.44	530W
BX-122	Gast Rotary Vane Pump, ¼ hp motor, 230V 50Hz	2.30	530W

The pumps are rated at 16.7 lpm flow regulation through clean filter tape. The pump only runs for the 42 or 50 minute sample period per hour. The Medo pumps draw much less power than the Gast, but have less vacuum capacity especially at higher altitudes.

Inlet Heaters:

Model	Description	Amps	Wattage
BX-827	Smart Inlet Heater, 120V 60Hz	0.85	100W
BX-830	Smart Inlet Heater, 230V 50Hz	0.76	175W
BX-825	Manual Inlet Heater, Old Style, 120V	0.28	33W
BX-826	Manual Inlet Heater, Old Style, 230V	0.15	33W

Smart heater wattage drops to 20% power whenever filter RH is below the 35% setpoint. Wattage settings can be reduced in low humidity areas, especially on PM₁₀ units. The old style manual wrap-around heaters are always on at the rated wattage.

Mini Environmental Shelters:

Model	Description	Peak Amps	Wattage
BX-902B	ShelterOne Shelter, heater only	4.2	500W
BX-903	Ekto Shelter, 2000 BTU air conditioner	7.4	586W
BX-904	Ekto Shelter, 4000 BTU air conditioner	13.5	1172W
BX-906	Ekto Double Shelter, 4000 BTU air con.	13.5	1172W

BX-902B shelter has a thermostat controlled 500W heater which can be disabled at sites that stay consistently above 0 degrees C. The Ekto shelters always run either the rated air conditioner or a 500W heater to regulate temperature in the shelters.

Typical System Maximum Totals:

System Configuration	Peak Amps	Wattage
120V BAM-1020, Medo Pump, Smart Heater, No Shelter	2.2	262W
120V BAM-1020 Gast Pump, Smart Heater, No Shelter	5.4	642W
120V BAM-1020, Medo Pump, Smart Heater, BX-902B Shelter	6.4	762W
120V BAM-1020, Medo Pump, Smart Heater, BX-903 Shelter	9.6	848W

All listed current and power values are typical RMS and based on the best available information or measurements. Met One is not responsible for power variations caused by operating conditions or changes made by pump or shelter vendors. Consult a qualified electrician to ensure the suitability of your power service.