

**Temperature Probe & Shield
Model BX-598
Operation Manual**



Met One Instruments, Inc

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Model BX-598 Temperature Probe & Shield Operation and Installation Manual

INTRODUCTION

The Model BX-598 is a Temperature Probe and Shield for use with the BAM-1020 Particulate Analyzer. This sensor provides temperature measurement of the outside air used to determine the temperature correction value as part of the volumetric flow calculation. The sensor is designed to be connected directly to one of the digital input channels of the BAM-1020. The BX-598 includes 25 ft. of cable as well as a mounting bracket that attaches to the inlet tube of the BAM-1020.

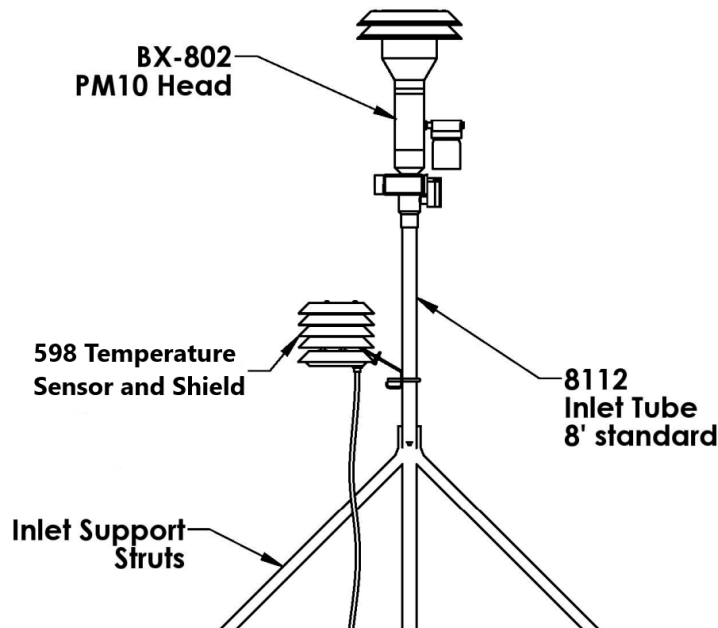
INSTALLATION

The BX-598 is installed outside near the intake of the BAM-1020 Particulate Analyzer. Mounting hardware is provided for direct mounting on the BAM-1020 inlet tube as shown in Figure 1. Attach the temperature probe and shield to the horizontal bar using the included v-bolt and hardware.

The mounting bracket should be mounted in a convenient place near the top of the inlet tube and out of the way of the supports used to hold the inlet tube in place. Tighten the v-bolt nuts on the mounting bracket to hold it in place on the inlet tube. The shield can be moved up or down to a suitable location on the inlet tube and the PM-10 or PM-2.5 inlet assembly.

The cable from the sensor can be run through the roof of the shelter or building so that it can be connected to the sensor input channel terminal block on the back of the BAM-1020 unit.

Figure 1 Temperature Sensor Installation



The BX-598 Temperature Sensor and Shield provides a digital 7500 protocol output signal that is used by the BAM-1020 to determine what type of sensor is connected to the BAM, as well as determine what the range of the temperature sensor. The electrical connections to the BAM-1020 can be seen in Figure 2. Be sure that the color code of the individual wires of the cable is followed so that the sensor is not connected incorrectly to the BAM-1020. There are five wires which are connected to the five digital sensor network terminals at the back of the BAM unit.

BX-598 Temperature Sensor Connections		
Wire Color	Function	BAM Terminal
Red	Power In (6-20 VDC)	DC Power
Black	Ground	Gnd
Yellow or Orange	RS-485 + Signal	RS485 +
White	RS-485 - Signal	RS485 -
White/Brown	Shield	Shield

Figure 2 Sensor Connections to BAM-1020

Figure 2 shows the connections from the BX-598 Temperature Sensor and Shield to the BAM-1020 Particulate Analyzer. Be sure that the temperature sensor cable is connected to channel 6 of the BAM-1020, otherwise the voltage output of the sensor will not be able to be used as the temperature reference of the volumetric flow controller.

SPECIFICATIONS

The following are the specifications of the BX-598 Temperature Sensor and Shield. These are subject to change as determined by Met One Instruments, Inc. The shield of the BX-598 provides protection of the temperature probe from errors that are caused by direct solar radiation. The shape allows for the wind to naturally aspirate the shield to reduce the total effect of solar radiation on the temperature measurement.

Temperature Probe Type	Thermistor Bead
Temperature Accuracy	± 0.4° C
Temperature Range	-50° C to +70° C
Sensor Output	RS-485 7500 Protocol
Time Constant	10 Seconds in still air

MAINTENANCE & CALIBRATION

The temperature probe and shield require no specific maintenance other than normal cleaning of dirt and dust to prevent the degradation of the reflectiveness of the shield. If there is any build up of materials inside the shield, they should be cleaned out, so that there is a free path for air flow around the temperature probe.

On a regular basis, the output of the temperature probe displayed on the screen of the BAM-1020 should be checked against a reference thermometer to be sure that the BX-598 is providing accurate information for the calculation of volumetric flow. There are no adjustments inside the temperature probe, and any repairs should be handled by the factory.

Before returning a faulty probe, the Service Department should be contacted to issue a Return Authorization (RA). This will insure that specifics are noted and available, making repair and turn time to you most efficient.

TROUBLE SHOOTING

Symptom	Identify Problem	Solution
Incorrect Temperature indicated on BAM Display	Verify that connections to the rear panel of the BAM are correct.	Change wiring to follow diagram as indicated in Figure #2 of this manual
	Verify that the audit instrument being used has been calibrated for volumetric flow monitoring.	Adjust flow audit device for correct measurement of volumetric flow.

Technical Support

Should you require support, please consult your printed documentation or our website www.metone.com to resolve your problem. If you are still experiencing difficulty, you may contact a Technical Service representative during normal business hours;

Monday – Friday 7:00 a.m. to 4:00 p.m. Pacific Time.

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