

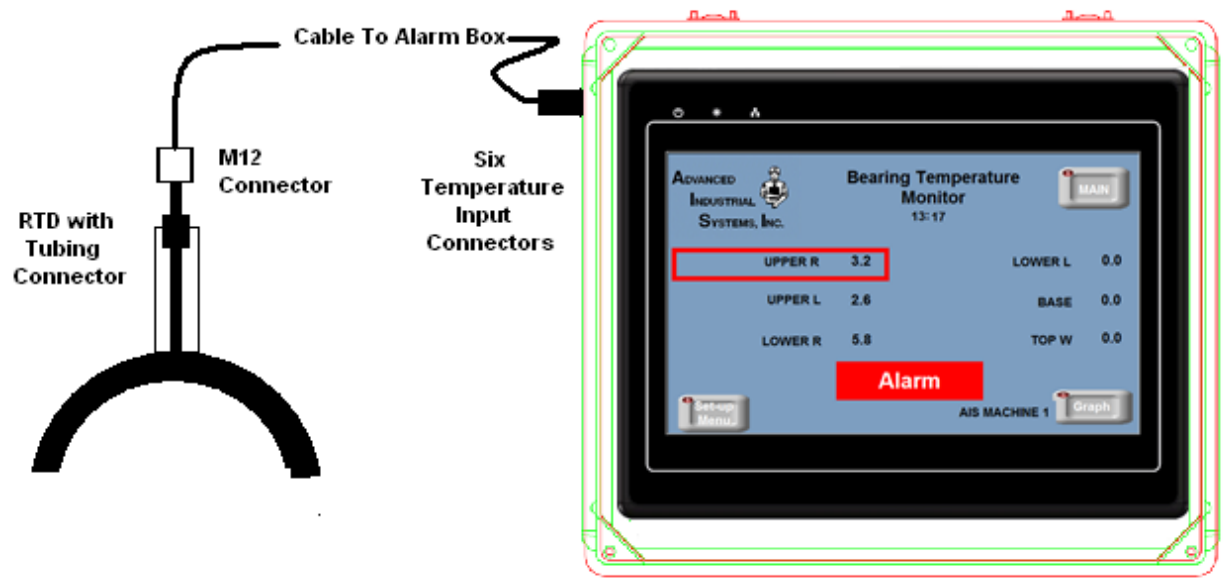


Applications Note 809

HMI Based Bearing Temperature/Alarm Monitor

A Bearing Alarm Temperature Monitoring System is used to prevent catastrophic failure and damage to rotating machinery due to bearing over-temperature. The idea is to catch and correct an overheating condition before it does permanent damage to the race, bearing or shaft.

This applications note describes a new HMI based system for six temperatures with individual alarm setpoints and optional Modbus RTU data availability. The use of an HMI makes the system more convenient and easier to set up. The system monitors the bearing temperatures and displays any alarms and their values. It consists of a Temperature Sensor for each bearing and a related temperature monitor/alarm system mounted in a fiberglass enclosure. The enclosure and sensor are connected by an M12 connector cable for quick assembly.



The Temperature Monitor/Alarm has a single common alarm output available inside the box, as well as a front panel display. When the temperature alarm is reached the front panel display lights an alarm indicator and highlights the bearing in alarm. A common alarm dry contact is opened. The dry contact will stay open as long as the alarm condition exists.

An optional Modbus IP output is also available. Contact A.I.S. for details.

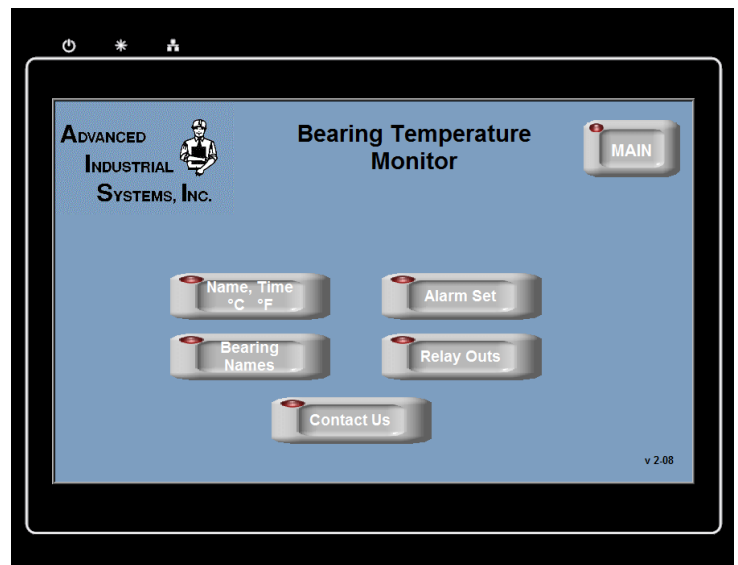
The sensor is an RTD. The standard sensor uses a ¼”NPT adjustable fitting with a 6” RTD. Other styles are available as a custom product. The RTD senses the bearing race temperature allowing the system to warn of an overtemp condition before serious damage is done to the machine. The alarm setpoint is field programmable.

Menu System:

To set or change the alarm setpoint press the Set-up Menu key in the lower left hand corner. A new menu is presented with a set of set-up parameters. By selecting the appropriate key the system may be programmed with the Time, °C/°F, System Name, Bearing Names, and Alarm Settings.



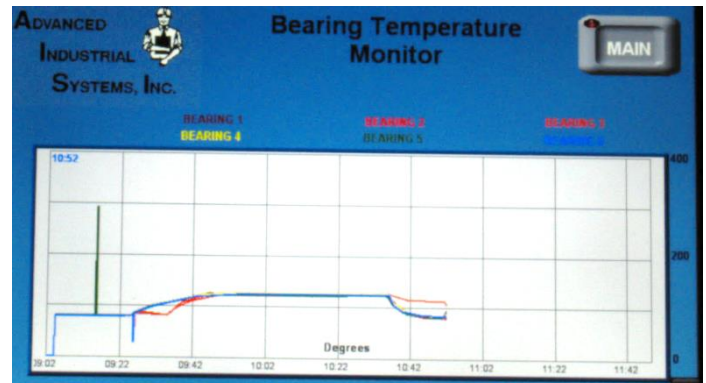
Flexibility is designed in to make the system optimally easy to use. All programming is done from the front panel. No additional computer is required.



Press the Main Key to return to the Alarm and Temperature Display. Temperature and alarms are monitored at all times.

Graphics:

A graphical subsystem is also provided. This system provides a display of the alarm temperature for approximately the last 2 ½ hours. To save the display you may take a picture of it with your phone. The history is saved in RAM inside the unit.



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The Temperature Solution

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RTD Cable Installation:

Inputs are provided for six sensor inputs. When installing the cable, make sure that the sensor end mates with the sensor connector (the two ends are different). Try to avoid proximity to high power devices and electrical supply lines whenever possible. The sensor cable is designed to resist water and dirt, therefore it must be hand tightened securely. Avoid using pliers or wrenches when tightening. Avoid cutting the cable. It is designed to be resistant to moisture and dirt. Cutting the cable may result in loss of this capability.



Sensor Installation:

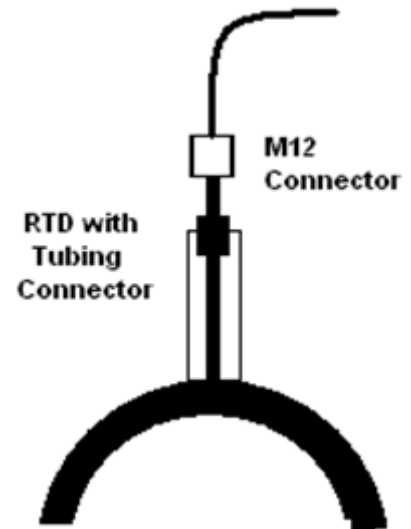
The 6" RTD is provided with an adjustable fitting. Add a small amount of Silicon oil to the well. This improves thermal conduction to the Temperature Sensor. Insert the Sensor into the well with the fitting still loose. Tighten the fitting into the well (**Do not tighten the nut on the sensor rod!**) Gently push the sensor into the well until it stops. Back the sensor out approximately 1/8" and tighten the sensor rod nut. . If a custom RTD is ordered, it may have slightly different mounting requirements.

Attach the cable to the sensor. The cable is available in lengths from 2 meters to approximately 10 meters. Custom lengths are also available.

If you have not already done so, attach the cable at the alarm box. Power the system up and note the temperature reading. It should be the temperature of the bearing.

For additional information contact: Sales@AdvIndSys.com .

Additional Applications Notes and Tables are available at www.AdvIndSys.com/ApplicationsNotes.htm .



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