MF52 Thermistor Datasheet

General Description

The MF52 series thermistor is a pearl-shaped NTC thermistor coated in ethoxyline resin. The compact size facilitates the benefits of close tolerances and fast response.

The MF52 thermistor is designed to be interfaced to SMT data acquisition equipment.

Typical Applications

- Building science research
  o Building envelope temperature profiles
  o Correlation for temperature compensation for moisture content and RH

- Industrial applications
  o Heating, ventilation and air conditioning
  o Temperature regulation and measurement
  o Electronic thermometers
  o Liquid level sensing

Features

• Indoor/Outdoor rated cable assembly

• Small size and fast response

• Compatible with SMT Industrial WiDAQ

• Long-term stability and reliability

• Excellent tolerance and interchangeability

Ordering Information

MF52 Thermistor with 6' Stereo jack	104JT-02-006
MF52 Thermistor with 6' Leaded cable	104JT-01-006
MF52 Thermistor with 30' Leaded cable	104JT-01-030
MF52 Thermistor with 30' Stereo jack	104JT-02-030

Thermistor Characteristics

Rated Resistance R25	10 to 250 KΩ
B Value (25/50°C)	4150K
Operating Temperature	-55° to 125°C
Tolerance	1%
Dissipation Constant	≥2.0mW/°C
Time Constant	≤7 seconds in still air

Approvals/Regulatory

UL	UL Listed E240991

UL 1434
(File E240991)

Temperature Measurement Comparison Chart[1]

Criteria	Thermocouple	RTD	Thermistor
Range	-267°C to 2316°C	-240°C to 649°C	-100°C to 500°C
Accuracy	Good	Best	Good
Linearity	Better	Best	Good
Sensitivity	Good	Better	Best
Cost	Best	Good	Better

Thermocouples are inexpensive, rugged, and have a fast response time but are less accurate and the least stable and sensitive. Thermocouples also read only relative temperature difference between the tip and the leads while RTD's and thermistors read absolute temperature.

RTD's are the best choice for repeatability, and are the most stable and accurate. However they have a slow response time and because they require a current source they do have a low amount of self heating.
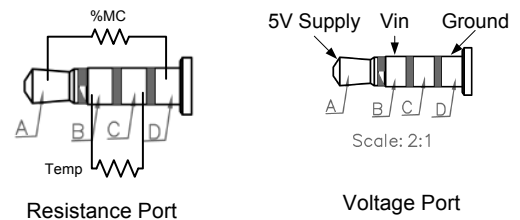
Thermistors have a fast output and are relatively inexpensive but are fragile and have a limited range. They also require a current source and do experience more self heating than an RTD and are nonlinear.

[1]National Instruments

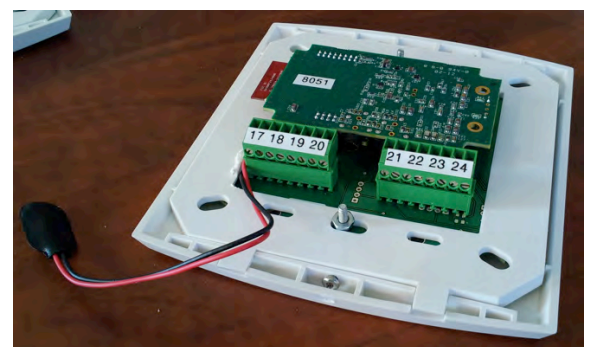### MF52 Thermistor Audio Cable

Voltage Port
Input 3 – Ω
Input 4 - V

Resistance Port
Input 1 – Ω
Input 2 - Ω

Figure 1. A2 Ports

Resistance Port

Voltage Port

Audio Jack	Color
A	Red
B	White
C	Green
D	Black

Table 1. Cable Pin-out Audio Cable

All resistance ports can be used for temperature sensors. Each A2 can have a maximum of 3 temperature sensors.

MF52 Thermistor CAT5 Cable

A3 or WiDAQ	CAT5 Cable	Function
Input 17-24	Orange Pair (Typically)	Temperature

Table 1. Connection to A3 and WiDAQ