

ReadySense Temperature Sensor Tags



The **ReadySense Passive RFID Temperature Sensor Tag** is an easy-to-use, robust tag that outperforms other traditional temperature sensing tags.

The ReadySense Passive RFID Temperature Sensor Tags are much smaller, thinner and more flexible than battery-powered sensors, and they are more cost efficient than active wireless sensing tags. In fact, their low cost makes them useful for disposable and high-volume applications.

Using passive sensors also eliminates the long-term labor and maintenance costs that come with battery powered semi-passive and active RFID tags.

Because these temperature sensor tags are simple, battery-free, and inexpensive, they open up a broad range of new uses beyond existing sensor applications such as a high volume cold chain and electrical utility projects that cannot use battery-based sensors.

Available in both a paper and polyester bases constructions, our ReadySense tags can be customized to serve any type of application.

With the ability to access and collect quality data, **ReadySense Passive RFID Temperature Sensor Tags** enable users to consistently monitor temperatures and provide critical information to help make informed decisions.

Key Product Features

- Detect and monitor temperature on plastic, wood and other non-metal surfaces
- Flexible, battery-free design with excellent read range
- More economical than current active and semi passive temperature sensing tags
- Cost-effective option for high-volume or disposable sensing applications
- Digital printing provides for greater print capability with additional barcode or human readable information

Applications

- Cold Chain
- Warehousing & Data Centers
- Industrial & Manufacturing
- Healthcare
- Agriculture
- Electric Utilities

ReadySense Temperature Sensor Tag Specifications

Material:

Polyester: .002" thick polyester label adhered to sensor inlay; approximately .017" total product thickness. Other constructions available upon request.

Label Copy: The label copy may include block type, stylized type, logos or other designs. All copy, block type, stylized type, logos, designs, and barcode are subsurface printed.

Colors: Standard colors include black, red, yellow, green and blue. Due to contrast needed for the barcode scanner, all bar codes are black.

Serialization: Barcode and human-readable equivalent are produced using the latest high-resolution digital technology available, which provides excellent clarity and easy scanning. Code 39 is the standard symbology with a range of 2.7 to 9.4 CPI (characters per inch). Optional linear and 2D symbologies available.

Programming: The barcode and human readable can be

programmed into the RFID inlay as long as the information is in decimal or hexadecimal (A-F, 0-9) format. Metacraft custom encodes your information to EPC and user memory banks. If desired, we can encode information that differs from the barcode and human readable.

Integrated Temperature Sensor: -40°F (-40°C) to 160°F (60°C) with typical accuracy of ±1.0° C over the full range and ±0.6°C over the typical range for cold chain

Sensor Programming: Custom programming is available to meet application specific sensing requirements.

Frequency: Custom designed UHF inlay optimized for use at 860-960 MHz.

Standard Sizes: Contact for available sizes.

Standard Adhesive: Pressure-sensitive acrylic (MC78), .002" thick supported by a liner. Very high peel strength that provides excellent resistance to heat and chemicals. Withstands temperatures from -40°F to 302°F (intermittent). Shelf life of 24 months when stored at 72°F (22°C) and 50% relative humidity.

Product Testing

These tests were conducted for a limited period of time in strict laboratory conditions. In order to achieve maximum satisfaction we highly recommend that any customer considering use of this product test the labels in the environment in which they will be used.

Chemical soak test - The ReadySense temperature tags were attached to a sheet of glass submerged in various chemicals. Observations were made at the following intervals: 2 hours, 24 hours, 48 hours. A Motorola handheld RFID reader as well as a handheld barcode reader were used to test the samples.

Length of Immersion	Water	Glass Cleaner	Bathroom Cleaner	Isopropyl Alcohol 99%	Acetone	NaOH pH 12.0	HNO ₃ pH 1.0	HCl pH 1.0	Brake Fluid
24 Hours	N.E.	N.E.	N.E.	N.E.	DL, NR	N.E.	N.E.	N.E.	N.E.

N.E. = No Effect, DL = Tag Delaminated, NR = Tag No Read

Read range test - Tag has a read range of 18-20* ft. using Motorola AR400 reader at 24 dbm (1/4 of maximum reader power)

High-temperature resistance test - These tags were attached to a sheet of glass at raised temperatures for 15 minutes. Tags were then removed from the oven and tested for readability immediately.

Low-temperature resistance test - The tags were attached to a sheet of glass and exposed to -40°F for 24 hours. Tags were then checked for readability with an Alien ALH-9000 handheld RFID reader. All samples were readable while at temperature just prior to removal from freezer. No tag construction defects were observed and adhesive still had a strong bond while in the freezer.

Temperature	RFID read test (after sample cooled to room temp.)	Appearance of tags
200°F	Reads well	No change
300°F	Reads well	No change
400°F	Reads well	Tag Distorted
500°F	Reads well	Tag Destroyed