

From: I, David C.

Sent: 6/13/2019 9:15:34 PM

To: TTAB EFiling

CC:

Subject: U.S. TRADEMARK APPLICATION NO. 87681503 - TT SENSOR - 50408868 - Request for  
Reconsideration Denied - Return to TTAB - Message 3 of 8

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Attachment Information:

Count: 11

Files: pyro3-2.jpg, food3-1.jpg, food3-2.jpg, food3-3.jpg, pyro5-1.jpg, pyro5-2.jpg, pyro5-3.jpg, pyro5-4.jpg, sense-1.jpg, sense-2.jpg, sense-3.jpg

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Food and Beverage

  
Heat Treating

  
HVAC

  
Incineration



Medical



Metal Processing



Mining



Oil and Gas



Pharmaceutical



Plastics



Rubber



Waste/Water

Customers know Pyromation has the sensor, transmitter, thermowell, accessory or assembly to meet their need. And if it's a new application, they know Pyromation will custom design a product that will meet their requirements.

From heavy-duty industrial thermocouples with protection tubes to bearing sensors for wind turbines to quick-response RTDs for the dairy industry, Pyromation makes the right temperature measurement device for your application.



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## INDUSTRIES

### // Industries

Aerospace

Aggregate

Chemical

Energy and Power

Food and Beverage

Heat Treating

Medical

## FOOD AND BEVERAGE

Pyromation produces a number of temperature sensors for the food, beverage and dairy industries. Many of these sensors are sanitary CIP (Clean In Place) for convenient washdowns and are 3-A approved. Some of these sensors meet the stringent High Temperature, Short Test (HTST) requirements for pasteurization. We also produce a line of sensors that flush-mount with the interior wall of a storage tank, measuring the temperature of the material without penetrating the inside of the vessel.

There are a variety of sensor sizes and clamp, gasket, bevel-seat or adaptor fittings to meet different applications. Quick response RTDs are available as well as thermowell assemblies. Transmitters are built into RTD assemblies for specific applications. Penetration style RTDs and thermocouples are available for use in fresh and frozen meat, fish, poultry, dough and other food products.

**HVAC**

**Incineration**

**Medical**

**Metal Processing**

**Mining**

**Oil and Gas**

**Pharmaceutical**

**Plastics**

**Rubber**

**Waste/Water**

RTDs and thermocouples are available for use in meat and poultry meat, fish, poultry, dough and other food products.

## BREWING, BOTTLING, FERMENTATION, STORAGE TANKS, EMULSIFICATION, PIPING SYSTEMS, CANNING, SANITARY/CIP, AND PASTEURIZATION

(FD01) Water-Tight CIP RTD Assemblies w/Optional Series 450 Integral Transmitters

(FD02) CIP Sanitary-Connected RTDs

(FD03) RTDs w/CIP Sanitary-Connected Wells

(FD04) Miniature Sanitary CIP RTD Sensors

(FD05) Thermometer Replacement RTDs

(FD06) Weld-In RTD Assemblies

(GP01) Fixed Sheath RTD Assemblies w/Connection Heads

(GP02) Fixed Sheath Thermocouple Assemblies w/Connection Heads

(GP03) Spring-Loaded RTD/Thermowell Assemblies w/Connection Heads

(GP04) Spring-Loaded MgO/Thermowell Assemblies w/Connection Heads

(RT03) Water-Tight RTD Assemblies w/Optional Series 450 Temperature Transmitters

(RT04) M12 Molded and Field Wireable Cables

(TM01) Transmitters

## MIXING

(FD09) Non-Intrusive Tank Sensors

(TM01) Transmitters

## MEAT PROCESSING AND SMOKEHOUSE OVENS

(FD07) Penetration Style Sensors

(FD08) Penetration Style RTDs and Thermocouples

(TM01) Transmitters

## REFRIGERATION

(PL01) General Purpose Tube and Wire Thermocouples

(PL03) Spring- or Armor-Adjustable Immersion Thermocouples

(RT01) Single and Duplex Element RTDs

(RT02) Single and Duplex Element RTDs

(SP07) Thermostat Temperature Sensors

(TM01) Transmitters



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## PRODUCTS

### // Products

Thermocouples

RTD's

Thermowells

Transmitters

New Products

Connection Heads

Accessories

## THERMOCOUPLE & RTD TEMPERATURE TRANSMITTERS

Temperature transmitters make it possible to send a scaleable (4 to 20) mA signal from a temperature sensor to a control device without investing in long, expensive runs of thermocouple or RTD wire.

Pyromation carries programmable RTD and thermocouple temperature transmitters that can be mounted in the temperature sensor assembly connection head, or surface mounted using a DIN rail mounting clip. Some units offer a visual digital display that shows the current measured value. All are PC programmable and convert various signals into a scaleable (4 to 20) mA analog output signal. We also carry transmitters programmable with Hart® protocol for various signal inputs. Depending on type, some of Pyromation's thermocouple and RTD temperature transmitters are UL recognized components and/or FM and CSA approved, including styles that are

Wire

Accessories

Pyromation's HART® temperature transmitters are CE recognized temperature transmitters and are approved, meeting requirements for intrinsically safe and approved for use in hazardous locations.

Pyromation temperature transmitters are used in many demanding industries including Pharmaceuticals, Oil & Gas, Power Generation, Chemical, PetroChemical, and Food and Dairy.

Specific transmitter types and descriptions are given below. For ordering information, see our [Catalog](#), [Transmitters Brochure](#) or [Transmitter Order Codes](#).

#### SERIES 642 HART® FIELD TEMPERATURE THERMOCOUPLE/RTD TRANSMITTER

The Series 642 programmable HART® field temperature transmitter is a two-wire transmitter with analog output. It has measurement input for resistance thermometers (RTDs) in 2, 3, or 4-wire connections, thermocouples, and voltage signals. The transmitter is available with or without a digital display. The unit can be programmed with a PC or a HART® protocol handheld terminal. The backlit LC display indicates the current measured value numerically and as a bar graph with limit value violation indicator. The Series 642 is approved by FM and CSA for Intrinsically Safe and Non-Incendive applications. It is available in General-Purpose or Explosion-Proof aluminum housings.

#### SERIES 442 HART® PROGRAMMABLE THERMOCOUPLE/RTD TRANSMITTER

The Series 442 programmable HART® temperature transmitter is a two-wire transmitter with an analog output. It has measurement input for resistance thermometers (RTDs) in 2, 3, or 4-wire connections, thermocouples, and voltage signals. The transmitter can be programmed with a PC or HART® protocol hand-held terminal. These small units can be mounted in Pyromation DIN (Form B) connection heads, or they can be used for surface mounting using a 35 mm DIN-rail mounting clip.

#### SERIES 441 PROGRAMMABLE THERMOCOUPLE/RTD TRANSMITTER

The Series 441 programmable RTD/thermocouple temperature transmitter is a two-wire transmitter with an analog output. It has measurement input for resistance thermometers (RTDs) in 2, 3 or 4 wire connections, thermocouples, and voltage signals. Setting up of the transmitter is done using the communication cable. These small units can be mounted in Pyromation DIN (Form B) connection heads or they can be used for surface mounting using a 35 mm DIN rail mounting clip.

#### SERIES 440 PROGRAMMABLE RTD TRANSMITTER

The Series 440 programmable RTD temperature transmitter is a two-wire transmitter with an analog output. It has measurement input for Pt100 resistance thermometers (RTDs) in 2 or 3 wire connections. Setting up of the transmitter is done using the communication cable. These small units can be mounted in Pyromation connection heads or they can be used for surface mounting using a 35 mm DIN rail mounting clip.

#### **SERIES 450 - M12 PROGRAMMABLE INTEGRAL TEMPERATURE TRANSMITTER**

The Series 450 Programmable Integral Temperature Transmitter is ideal for monitoring temperature in highly moist or corrosive environments and in small areas such as pipes and tanks. The unit consists of a 4-wire Pt100 RTD sensor, built-in (4 to 20) mA transmitter, and process connection. The integral design eliminates all external screw connections, simplifying the electrical installation process and solving the problems caused by moisture, loose connections, and corrosion. A "quick disconnect" M12 plug adapter connects the transmitter to a PC for ease of calibration, re-programming, and wiring accuracy.

#### **SERIES T82 PROGRAMMABLE HART® THERMOCOUPLE/RTD TEMPERATURE TRANSMITTER**

The T82 programmable HART® field temperature transmitter is a 2-wire unit with analog output. It includes input for RTDs: resistance inputs in 2-wire, 3-wire, and 4-wire connections; thermocouples and voltage signals. The transmitter can be supplied with or without a digital display, in a general-purpose aluminum screw-cover housing. The T82 can be programmed using a HART® protocol handheld terminal. When supplied with a digital display, the LCD display shows the current measured value. When specified, the T82 transmitter is available with an optional Safety Integrity Level Rating (SIL) for critical applications.

#### **SERIES 662 PROGRAMMABLE HART® DUAL INPUT FIELD THERMOCOUPLE/RTD TEMPERATURE TRANSMITTER**

The Series 662 programmable dual input HART® field temperature transmitter is a 2-wire unit with analog output. It includes input for RTDs; resistance inputs in 2-wire, 3-wire, and 4-wire connections; thermocouples and voltage signals. The transmitter can be supplied with or without a digital display, in either a general-purpose aluminum housing, or explosion-proof aluminum housing. The Series 662 can be programmed with a PC or a HART® protocol handheld terminal. When supplied with a digital display, the LC screen shows the current measured value and a bar graph with limit value violation indicator.

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## TRANSCOMM LIGHT: THERMOCOUPLE & RTD TEMPERATURE TRANSMITTER PROGRAMMING SOFTWARE

All Pyromation RTD temperature and thermocouple transmitters are programmable using the TransComm Light downloadable software package. Once you install this software on your computer, the instructions will guide you through the signal programming set-up, including HART® protocol when applicable, for various types of Pyromation temperature transmitters.

### TRANSMITTER ORDER CODES

(TM01) Transmitters

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### SOFTWARE

Download: TransComm Light 1.0.10.0 (Series 440,441,442,450,642) (12.98M)

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## PRODUCTS

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Wire

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## RESISTANCE TEMPERATURE DETECTORS (RTDS) & RESISTANCE THERMOMETERS

Resistance temperature detectors (RTDs), also known as resistance thermometers, accurately sense process temperatures with an excellent degree of repeatability and interchangeability of elements. The RTD is composed of certain metallic elements whose change in resistance is a function of temperature. In operation, a small excitation current is passed across the element, and the voltage, which is proportional to resistance, is then measured and converted to units of temperature calibration. The RTD measurement element is manufactured by winding a wire (wire wound elements) or plating a film (thin film elements) on a ceramic or glass core and sealing the element within a ceramic or glass capsule.

Since most resistance temperature detectors and resistance thermometers have a low initial resistance, often 100 ohms, and have a small change in resistance per unit of temperature range, the resistance of the lead wire is often compensated for with a three or four wire bridge configuration built into the measuring devices. By selecting the proper elements and protective sheathing, RTDs can operate in a temperature range of (-200 to 650) °C (-328 to 1202) °F.

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Pyromation manufactures resistance temperature detectors and resistance thermometers for many industry applications. From single- or dual-element RTDs, PT100s-PT1000s, to Sanitary CIP configurations, we have the right RTD type for your job. If what you need is not available from our catalog, our product engineers will design an RTD measurement device for your specific application, including temperature sensor assemblies that require connection heads, thermowells and/or transmitters.

## RTD TYPES

### BEARING SENSORS

Miniature Bearing Sensors

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### FOOD, DAIRY, AND PHARMACEUTICAL

(FD01) Water-Tight CIP RTD Assemblies w/Optional Series 450 Integral Transmitters

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(FD02) CIP Sanitary-Connected RTDs

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(FD03) RTDs w/CIP Sanitary-Connected Wells

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(FD04) Miniature Sanitary CIP RTD Sensors

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(FD05) Thermometer Replacement RTDs

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(FD06) Weld-In RTD Assemblies

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### SENSORS WITH CONNECTION HEADS

(GP01) Fixed Sheath RTD Assemblies w/Connection Heads

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(GP03) Spring-Loaded RTD/Thermowell Assemblies w/Connection Heads

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(GP05) Spring Loaded Replacement RTD Elements

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(GP07) Fixed Sheath RTD Assemblies w/Miniature Connection Heads

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## SPECIFIC APPLICATION RTDS

(FD09) Non-Intrusive Tank Sensors

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## PLASTIC

(PL02) General Purpose Plastic Industry RTDs

(PL09) Threaded Nozzle RTDs

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(PL04) Spring- or Armor-Adjustable Immersion RTDs

(PL11) Ring RTDs

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(PL06) Melt Bolt RTDs

(PL15) Flexible RTD Extensions

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## GENERAL PURPOSE

(RT01) Single and Duplex Element RTDs

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(RT02) Single and Duplex Element RTDs

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(RT03) Water-Tight RTD Assemblies w/Optional Series 450 Temperature Transmitters

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(RT04) M12 Molded and Field Wireable Cables

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## SPECIAL PURPOSE