Since 1960, Burns Engineering has been an industry leader in the design and manufacture of temperature sensors to meet a multitude of measurement applications. Accuracy, reliability and consistency are hallmarks of the Burns brand. At Burns, we focus on the measurement. We understand the subtleties of temperature measurement, from selection through installation, and how they impact your processes and ultimately your success. We worry about the details so you don’t have to. When you select Burns you’re getting more than a sensor, you’re getting your own team of Temperature Measurement Experts.

Series D Air Temperature Sensors

Available in multiple configurations and styles, these RTDs provide air temperature as a distributed average, multi-point average or as a single point. Models available with transmitters or cables to meet your installation needs.

If you don’t see something that meets your needs, give us a call and we’ll customize for your specific application.

Request a Quote:

Visit BurnsEngineering.com to configure your Air Temperature Sensor today.

Here’s how:
1. Register or sign-in to access the product configurator
2. Search for the model (D01, D07, etc.) using the search box (upper right) or click on the “View Products/Request a Quote” tab
3. Select the model of interest
4. Click on "Configure My Part"
5. Select the parameters to support your application
6. Click “Finish” in the upper or lower left of the configuration screen
7. Click “Submit quote for confirmation”
8. Done – We’ll be in touch shortly
Product Index

D01, D02, D03, and D04 Averaging Sensor, Pages 3 – 10
Continuous averaging temperature measurement in diameters of 0.188" and 0.25", and sensitive lengths from 13 feet to 58 feet. Available with operating temperature up to 500°F and sheath materials of copper, stainless steel and aluminum depending on model. Available with cable or connection head for installation flexibility.

D05 & D06 Multi-Point Averaging Sensor, Pages 11 – 14
Designed with 4 discrete measurement points to represent the average over the sensitive length. These models are available with cable or a connection head. Operating range to 400°F, with 0.25" diameter stainless steel sheath and lengths from 1 foot to 3 feet.

D07 Flush Wall Plate Sensor, Pages 15 – 16
Low profile design to minimize intrusion into the room and easy installation with a standard electrical junction box. Stainless steel plate for use in clean room environments.

D08 Wall Plate with Sensor Guard, Pages 17 – 18
High accuracy wall plate temperature measurement with protective guard over the exposed sensor sheath. Available with optional transmitter and matched calibration to yield the highest accuracy. All stainless steel construction for clean room environments.

D09 & D10 Wall Mounted Sensor with Plastic Housing, Pages 19 – 22
Room temperature sensor available with optional transmitter. Resistances of 100 ohms and 1000 ohms for excellent signal strength and resolution and 2 mounting options.

D11 Heavy Duty Room Temperature Sensor, Pages 23 – 24
Built for tough environments with a stainless steel perforated guard tube or sun shield. This model is available in Standard and Precision accuracy with optional transmitter and local indicator.

Common Options Applicable to These Models, Pages 25-26
Options available include: Lead Wires, Compression Fittings, Reducing Bushings, Strain Reliefs, Tagging, and Calibration.
D01: Averaging Sensor with Connection Head, 275°F Max.

Specifications

The D01 provides temperature averaging for large area air measurements in rooms or HVAC systems. Model D01 is available in lengths up to 58 feet that can be formed in the field for a custom fit. The sensor can be installed with an optional threaded mounting flange.

Features and Benefits:

• Application: Average air temperature measurement in rooms or ductwork
• Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
• Element/Lead Wire Configuration: Single 3 or 4 wire, Dual 3 wire
• Sheath:
  - Material: Available in 316L stainless steel for cleanroom applications, or 3003 aluminum or 122 copper where ease of forming is desired.
  - Diameter: Single 0.188", Dual 0.25"
• Sensitive lengths from 3 to 58 feet
• Field formable for custom installation (See Figure 1)
• Optional Connection Head – multiple styles available

Specifications

• Element Configuration: Single and Dual, 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
• Temperature Range: -46°C to 135°C (-50°F to 275°F)
• Insulation Resistance: 100 MΩ, 100 VDC at room temperature

Optional Mounting Flange:
D01: Averaging Sensor with Connection Head, 275ºF Max.

Ordering Information

**RTD (Accuracy)**

<table>
<thead>
<tr>
<th>Element/Lead Wire Configuration</th>
<th>Sheath O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Three Wire Single Element</td>
<td>0.018&quot;</td>
</tr>
<tr>
<td>B Single, Grounded</td>
<td>0.020&quot;</td>
</tr>
<tr>
<td>C Three Wire Dual Element</td>
<td>0.025&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“NSL” - Non Sensitive Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1 Foot</td>
</tr>
<tr>
<td>2 2 Foot</td>
</tr>
<tr>
<td>3 3 Foot</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“SL” - Sensitive Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 3 Feet</td>
</tr>
<tr>
<td>-4 4 Feet</td>
</tr>
<tr>
<td>-5 5 Feet</td>
</tr>
<tr>
<td>-6 6 Feet</td>
</tr>
<tr>
<td>-7 7 Feet</td>
</tr>
<tr>
<td>-8 8 Feet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sheath Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>-06 316L Stainless Steel</td>
</tr>
<tr>
<td>-53 3003 Aluminum</td>
</tr>
<tr>
<td>-54 122 Copper</td>
</tr>
</tbody>
</table>

**Mounting Type**

- **01** 3.5" Mounting Flange, Cast Iron, Four 1/4" Holes on a Ø 2.5" Circle
  - No Flange (Leave Blank)

<table>
<thead>
<tr>
<th>Connection Head</th>
<th>Maximum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1C Medium Cast Iron Head</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-2A Medium Aluminum Head</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-2E Medium Aluminum Head, Epoxy Coated</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-5A Large Aluminum Head</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-5E Large Aluminum Head, Epoxy Coated</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-9P Polypropylene Head</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-14S Stainless Steel Head</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-19A Large Aluminum Head with Loop Powered LED Indicator</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-20P Medium Polycarbonate Head with Loop Powered LED Indicator</td>
<td>78ºC (176ºF)</td>
</tr>
<tr>
<td>-21S Medium Stainless Steel Head with Loop Powered LED Indicator</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-22A Large Aluminum Head with Battery Powered LED Indicator</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-23P Medium Polycarbonate Head with Battery Powered LCD Indicator</td>
<td>78ºC (176ºF)</td>
</tr>
<tr>
<td>-24S Medium Stainless Steel Head with Battery Powered LCD Indicator</td>
<td>93ºC (200ºF)</td>
</tr>
<tr>
<td>-ND No Connection Head, 4&quot; 22 AWG Lead Wires</td>
<td>135ºC (273ºF)</td>
</tr>
<tr>
<td>* See Connection Head Supplement for More Options</td>
<td></td>
</tr>
</tbody>
</table>

Example Part # D01-10A1-3-06-01-14S

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TO ORDER CALL 800-328-3871  FAX 952-935-8782  www.burnsengineering.com
D02: Averaging Sensor with Connection Head, 500°F Max.

Specifications

The D02 is a high temperature averaging sensor. The small 3/16” diameter with a 13 foot sensitive length can be custom formed to fit most air temperature applications. The sensor can be mounted with an optional mounting flange.

Features and Benefits:

- Application: Air temperature in ovens, pipes, or ductwork. Can also be used to measure average surface temperature of a vessel or pipe by wrapping the sensor around the object and covering with insulation.
- Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
- Element/Lead Wire Configuration: Single 3 or 4 wire
- Sheath: 316 stainless steel, 3/16” diameter
- High Temperature Capability: 260°C (500°F)
- Field formable for custom installation (2” minimum bend radius) (See Figure 1)
- Optional Connection Head – Multiple styles available

Specifications

- Element Configuration: Single, 100 or 200 ohms at 0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 260°C (-50°F to 500°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature

Optional Mounting Flange:
D02: Averaging Sensor with Connection Head, 500°F Max.

#### Ordering Information

- **-1C**: Medium Cast Iron Head
- **-2A**: Medium Aluminum Head
- **-2E**: Medium Aluminum Head, Epoxy Coated
- **-5A**: Large Aluminum Head
- **-5E**: Large Aluminum Head, Epoxy Coated
- **-6P**: Polypropylene Head
- **-14S**: Stainless Steel Head
- **-19A**: Large Aluminum Head with Loop Powered LED Indicator
- **-20P**: Medium Polycarbonate Head with Loop Powered LED Indicator
- **-21S**: Medium Stainless Steel Head with Loop Powered LED Indicator
- **-22A**: Large Aluminum Head with Battery Powered LED Indicator
- **-23P**: Medium Polycarbonate Head with Battery Powered LCD Indicator
- **-24S**: Medium Stainless Steel Head with Battery Powered LCD Indicator
- **-ND**: No Connection Head, 4’’ 22 AWG Lead Wires

#### Connection Head

<table>
<thead>
<tr>
<th>Connection Head</th>
<th>Maximum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1C Medium Cast Iron Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-2A Medium Aluminum Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-2E Medium Aluminum Head, Epoxy Coated</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-5A Large Aluminum Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-5E Large Aluminum Head, Epoxy Coated</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-6P Polypropylene Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-14S Stainless Steel Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-19A Large Aluminum Head with Loop Powered LED Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-20P Medium Polycarbonate Head with Loop Powered LED Indicator</td>
<td>75°C (167°F)</td>
</tr>
<tr>
<td>-21S Medium Stainless Steel Head with Loop Powered LED Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-22A Large Aluminum Head with Battery Powered LED Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-23P Medium Polycarbonate Head with Battery Powered LCD Indicator</td>
<td>75°C (167°F)</td>
</tr>
<tr>
<td>-24S Medium Stainless Steel Head with Battery Powered LCD Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-ND No Connection Head, 4’’ 22 AWG Lead Wires</td>
<td>135°C (275°F)</td>
</tr>
</tbody>
</table>

#### Example Part # D02-10A-21-1C
D03: Averaging Sensor with Cable, 275°F Max.

Specifications

The D03 provides temperature averaging for large area air measurements in rooms or HVAC systems. This low-profile sensor is available in lengths up to 58 feet that can be formed in the field for a custom fit. The sensor can be mounted with a compression fitting or clamps.

Features and Benefits:

- Application: Average air temperature measurement in rooms or ductwork
- Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
- Element/Lead Wire Configuration: Single 3 or 4 wire, Dual 3 wire
- Sheath:
  - Material: Available in 316L stainless steel for cleanroom applications, or 3003 aluminum or 122 copper where ease of forming is desired. (See Figure 1)
  - Diameter: Single 0.188", Dual 0.25"
- Sensitive lengths from 3 to 58 feet
- Mounts with compression fitting or clamps
- Field formable for custom installation (See Figure 1)

Specifications

- Element Configuration: Single and Dual, 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 135°C (-50°F to 275°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature
- Wire:
  - Individual lead wires: 12.0" PTFE insulated wires; Single- 22 AWG, Dual- 26 AWG
  - Cable designs:
    > 0.375" diameter, 1.25" long transition fitting added
    > PTFE insulated wires with FEP jacket; Single- 22 AWG, Dual- 26 AWG
    > Add '/LY___' to specify cable. See Common Options on page 26 for details.
D03: Averaging Sensor with Cable, 275°F Max.
Ordering Information

D03- Averaging Sensor, 135°C (275°F) Maximum Temperature

RTD (Accuracy)
10 Standard RTD 100 OHMS ± 0.1 Ω at 0°C

Element/Lead Wire Configuration
A Three Wire Single Element Ø0.188"
B Four Wire Single Element Ø0.188"
C Three Wire Dual Element Ø0.250"

“NSL” - Non Sensitive Length
1 1 Foot
2 2 Foot
3 3 Foot

“SL” - Approximate Sensitive Length
-3 3 Feet 9 Feet 17 Feet
-4 4 Feet 10 Feet 19 Feet
-5 5 Feet 11 Feet 23 Feet
-6 6 Feet 12 Feet 29 Feet
-7 7 Feet 13 Feet 58 Feet
-8 8 Feet 15 Feet

Sheath Material
-06 316L Stainless Steel
-53 Aluminum 3003
-54 Copper 122

D03

Basic Order Codes

Example Part # D03-10A1-3-06

Note: For cable designs add LY option code to the part number. See page 26 for cable options.
The D04 is a high temperature averaging sensor. The small 3/16" diameter with a 13 foot sensitive length can be custom formed to fit most air temperature applications. The sensor can be mounted with a compression fitting or clamps.

Features and Benefits:

- Application: Air temperature in ovens, pipes, or ductwork. Can also be used to measure average surface temperature of a vessel or pipe by wrapping the sensor around the object and covering with insulation.
- Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
- Element/Lead Wire Configuration: Single 3 or 4 wire
- Sheath: 316 stainless steel, 3/16” diameter
- High Temperature Capability: 260°C (500°F)
- Field formable for custom installation (2” minimum bend radius)

Specifications

- Element Configuration: Single, 100 or 200 ohms at 0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 260°C (-50°F to 500°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature
- Wire:
  - Individual lead wires: 120” PTFE insulated wires - 22 AWG
  - Cable designs:
    - > 0.375” diameter, 1.25” long transition fitting added
    - PTFE insulated wires with FEP jacket - 22 AWG
    - Add '/LY___' to specify cable. See Common Options on page 26 for details.
D04: Averaging Sensor with Cable, 500°F Max.

Ordering Information

D04- Averaging Sensor, 260°C (500°F) Maximum Temperature

RTD (Accuracy)
10 Standard RTD ± 0.1 Ω of Resistance at 0°C

Element/Lead Wire Configuration
A Three Wire Single Element
B Four Wire Single Element

Element Resistance
-21 100 Ω Element
-22 200 Ω Element

Basic Order Codes

Common Options
(Leave Blank if not Required)
(pages 25-26)

Example Part # D04-10A-21

NOTE: For cable designs add LY option code to the part number. See page 26 for cable options.
The D05 is an averaging sensor incorporating four (4) discrete sensors within a rigid sheath to provide an average temperature. Designed for dryers and HVAC systems, the sensor can be mounted with an optional mounting flange. This sensor is not designed to be bent.

Features and Benefits:

- Application: High temperature air measurements in dryers, pipes, ducts, or other temperature chambers
- Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
- Element/Lead Wire Configuration: Single 3 or 4 wire
- Sheath:
  - Material: Rigid 316L stainless steel
  - Diameter: 0.25”
- Sensing elements are evenly spaced along the measurement length
- Optional connection heads and digital indicators available
- Can be installed in a thermowell for improved durability

Specifications

- Element Configuration: Single 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 204°C (-50°F to 400°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature

Optional Mounting Flange:
### D05: Multi-Point Averaging Sensor with Connection Head, 400°F Max.

**Ordering Information**

#### D05-204°C (400°F) Multipoint Averaging Sensor, 1/2" NPT Housing

**RTD (Accuracy)**
- 10 Standard RTD 100 OHMS ± 0.1 Ω at 0°C

**Element/Lead Wire Configuration**
- A Three Wire Single Element
- B Four Wire Single Element

**“OAL” - Overall Length in Inches**
- -12 12 Inches
- -24 24 Inches
- -36 36 Inches

**Mounting Type**
- -01 3.5" Mounting Flange, Cast Iron, Four 1/4" Holes on a Ø 2.5" Circle
  - No Flange (Leave Blank)

**Connection Head**

<table>
<thead>
<tr>
<th>Connection Head</th>
<th>Maximum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1C Medium Cast Iron Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-2A Medium Aluminum Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-2E Medium Aluminum Head, Epoxy Coated</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-5A Large Aluminum Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-5E Large Aluminum Head, Epoxy Coated</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-9P Polypropylene Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-14S Stainless Steel Head</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-19A Large Aluminum Head with Loop Powered LED Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-20P Medium Polycarbonate Head with Loop Powered LED Indicator</td>
<td>75°C (167°F)</td>
</tr>
<tr>
<td>-21S Medium Stainless Steel Head with Loop Powered LED Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-22A Large Aluminum Head with Battery Powered LED Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-23P Medium Polycarbonate Head with Battery Powered LCD Indicator</td>
<td>75°C (167°F)</td>
</tr>
<tr>
<td>-24S Medium Stainless Steel Head with Battery Powered LCD Indicator</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-ND No Connection Head, 4&quot; 22 AWG Lead Wires</td>
<td>135°C (275°F)</td>
</tr>
<tr>
<td>* See connection head supplement for more options</td>
<td></td>
</tr>
</tbody>
</table>

**Example Part # D05-10A-12-2A**

---

**Common Options**

(pages 25-26)

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**All Elements Equally Spaced**
The D06 is an averaging sensor incorporating four (4) discrete sensors within a rigid sheath to provide an average temperature. This low-profile sensor allows various installation approaches. Designed for dryers and HVAC systems, the sensor can be mounted with a compression fitting or clamps. This sensor is not designed to be bent.

Features and Benefits:

- Application: High temperature air measurements in dryers, pipes, ducts, or other temperature chambers
- Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
- Element/Lead Wire Configuration: Single 3 or 4 wire
- Sheath:
  - Material: Rigid 316L stainless steel
  - Diameter: 0.25"
- Sensing elements are evenly spaced along the measurement length
- Can be installed in an optional thermowell for improved durability

Specifications

- Element Configuration: Single 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 204°C (-50°F to 400°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature
- Wire:
  - Individual lead wires: 120" PTFE insulated wires - 22 AWG
  - Cable designs:
    > 0.375” diameter, 1.25” long transition fitting added
    > PTFE insulated wires with FEP jacket - 22 AWG
    > Add ‘/LY___’ to specify cable. See Common Options on page 26 for details.
D06: Multi-Point Averaging Sensor with Cable, 400°F Max.

Ordering Information

D06- 240°C (400°F) Multipoint Averaging Sensor

RTD (Accuracy)

| 10 | Standard RTD 100 OHMS ± 0.1 Ω at 0°C |

Element/Lead Wire Configuration

A  Three Wire Single Element
B  Four Wire Single Element

“OAL” - Overall Length in Inches

| 12 | 12 Inches |
| 24 | 24 Inches |
| 36 | 36 Inches |

Example Part # D06-10B12

NOTE: For cable designs add LY option code to the part number. See page 26 for cable options.
The D07 provides room temperature measurements in a low profile design. The sensor is incorporated into a stainless steel wall plate to facilitate a minimally intrusive measurement. This design mounts to a standard electrical junction box for easy installation.

Features and Benefits:

• Application: Room air temperature
• Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
• Element / Lead Wire Configuration: Single 3 or 4 wire
• Sensor surface: Stainless steel
• Low-profile wall mounted design
• Insulating gasket included for thermal isolation from the wall
• Built in terminal block

Specifications

• Element Configuration: Single, 100 ohms at 0.0°C(32°F), 0.00385 ohm/ohm/°C nominal alpha
• Temperature Range: -46°C to 149°C (-50°F to 300°F)
• Insulation Resistance: 100 MΩ, 100 VDC at room temperature

Note: Insulation inside the junction box is recommended for best measurement accuracy.
D07: Flush Wall Plate Temperature Sensor

Ordering Information

D07- Flush Wall Plate Air Temperature Sensor

**RTD (Accuracy)**
- 10 Standard RTD 100 OHMS ± 0.1 Ω at 0°C

**Element/Lead Wire Configuration**
- A Three Wire Single Element
- B Four Wire Single Element

Example Part # D07-10B

(Leave Blank if not Required)

Common Options (pages 25-26)
D08: Wall Plate Temperature Sensor with Transmitter Option

Specifications

The D08 provides room temperature measurement with the option for a transmitter. The sensor extends 0.5” into the room for improved sensitivity and is protected from accidental damage by a rugged protection loop. Incorporated into a stainless steel wall plate, this design mounts to a standard electrical junction box for easy installation.

Features and Benefits:

- Application: Room air temperature
- Accuracy:
  - Standard 0.10% of resistance at 0.0°C (32°F)
  - Matched transmitter option for improved accuracy
- Element / Lead Wire Configuration: Single 3 or 4 wire
- Faster response time than D07
- Sensor surface: Stainless steel
- Low-profile wall mounted design with protection loop
- Insulating gasket included for thermal isolation from the wall
- Available with various transmitter options
- Mounts in a standard junction box (See Ordering Table for required junction box depth)

Specifications

- Element Configuration: Single, 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 149°C (-50°F to 300°F); with transmitter: -40°C to 85°C (-50°F to 185°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature

Note: Insulation inside the junction box is recommended for best measurement.
D08: Wall Plate Temperature Sensor with Transmitter Option

Ordering Information

D08 - Wall Plate Air Temperature Sensor with Optional Transmitter

Transmitter Calibration Type

M Transmitter and Sensor Matched for Improved Performance (T55 and TL21 Only)
Not Matched (Leave Blank)

RTD (Accuracy)

10 Standard RTD 100 OHMS ± 0.1 Ω at 0°C

Element/Lead Wire Configuration

A Three Wire Single Element
B Four Wire Single Element

Minimum Span Required Junction Box Depth

<table>
<thead>
<tr>
<th>Transmitter</th>
<th>Minimum Span</th>
<th>Required Junction Box Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>/T51 Digital Transmitter</td>
<td>25°C (45°F)</td>
<td>1.4&quot;</td>
</tr>
<tr>
<td>/T55 Digital Transmitter, Matching Capabilities, Hart Communication</td>
<td>10°C (18°F)</td>
<td>1.4&quot;</td>
</tr>
<tr>
<td>/TL21 Analog Transmitter</td>
<td>NA</td>
<td>3.4&quot;</td>
</tr>
</tbody>
</table>

Transmitter Temperature Range

[Min TO Max] Minimum Temp Reading (4 mA Output) - Maximum Temp Reading (20 mA Output)

Transmitter Temperature Units

C Degrees Celsius
F Degrees Fahrenheit

Common Options (pages 25-26)

Example Part # D08-10A/T55M [-50 to 80] F

Detail A: Terminal Block Configuration

OUTLINE}

Example Part # D08-10A/T55M [-50 to 80] F

Detail A: Terminal Block Configuration
D09: Wall Mount Temperature Sensor with Transmitter

Specifications

The D09 wall mounted room temperature sensor incorporates a plastic enclosure to reduce the influence of drafts and provides extra protection. The “on board” transmitter can provide additional enhancements such as improved accuracy, HART communication and ease of signal transfer to support devices.

Features and Benefits:

- Application: Room air temperature
- Accuracy:
  - Standard 0.10% of resistance at 0.0°C (32°F)
  - “Matched” transmitter provides improved accuracy
- Element / Lead Wire Configuration: Single 3 wire
- Protective plastic enclosure reduces draft effects and provides protection
- Various transmitter options available
- Ideal for indoor applications

Specifications

- Element Configuration: Single, 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -40°C to 85°C (-50°F to 185°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature
D09: Wall Mount Temperature Sensor with Transmitter

Ordering Information

D09- Wall Plate Air Temperature Sensor with Transmitter

**RTD (Accuracy)**

| Standard RTD 100 OHMS ± 0.1 Ω at 0°C |

**Element/Lead Wire Configuration**

| A | Three Wire Single Element |

<table>
<thead>
<tr>
<th>Transmitter</th>
<th>Minimum Span</th>
<th>Required Junction Box Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>/T51 Digital Transmitter</td>
<td>25°C</td>
<td>1.5”</td>
</tr>
<tr>
<td>/T55 Digital Transmitter, Matching Capabilities, Hart Communication</td>
<td>10°C</td>
<td>1.5”</td>
</tr>
<tr>
<td>/TL21 Analog Transmitter</td>
<td>NA</td>
<td>1.9”</td>
</tr>
</tbody>
</table>

**Transmitter Calibration Type**

| M | Transmitter and Sensor Matched for Improved Performance (T55 and TL21 Only) |
| Not Matched (Leave Blank) |

**Transmitter Temperature Range**

| [Tmin TO Tmax] | Minimum Temp Reading (4 mA Output) - Maximum Temp Reading (20 mA Output) |

| C | Degrees Celsius |
| F | Degrees Fahrenheit |

(Leave Blank if not Required)

**Common Options**

(Leave Blank if not Required)

**Example Part # D09-10A/T55M [-50 to 85] F**
The D10 wall mounted room air temperature sensor can mount nearly anywhere, no junction box required only access to system wiring. This design offers up to 1000 ohms resistance for excellent resolution and incorporates a plastic enclosure for draft management and added protection.

Features and Benefits:

- Application: Room air temperature
- Accuracy: Standard 0.10% of resistance at 0.0°C (32°F)
- Element / Lead Wire Configuration: Single 2, 3 or 4 wire
- Protective plastic enclosure reduces draft effects and provides protection
- Ideal for indoor applications
- Mounts on any flat surface, no junction box required

Specifications

- Element Configuration: Single, 100 ohms at 0.0°C (32°F), 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 149°C (-50°F to 300°F)
- Insulation Resistance: 500 MΩ, 100 VDC at room temperature
D10: Wall Mount Temperature Sensor

Ordering Information

Device Mounting Holes. Retaining Screws for Cover.

Example Part # D10-10A-21

WIRING DIAGRAMS

1. 100 OHMS ± 0.10 Ω AT 0°C
   SINGLE ELEMENT, 0.003850 Ω/°C

2. 100 OHMS ± 0.10 Ω AT 0°C
   SINGLE ELEMENT, 0.003850 Ω/°C

3. 1000 OHMS ± 1.0 Ω AT 0°C
   SINGLE ELEMENT, 0.003850 Ω/°C
The D11 is built for durability and accuracy for air temperature measurement in the harshest environments. The guard tube and transmitter options provide excellent performance in a heavy duty assembly. This configuration is available with Hazardous Environment rating, contact Burns Customer Service.

Features and Benefits:

- Application: Air temperature measurement
- Accuracy:
  - Standard 0.10% of resistance at 0.0°C (32°F)
  - Precision 0.05% of resistance at 0.0°C (32°F)
- Element/ Lead Wire Configuration: Single 3 or 4 wire; Dual 3 wire
- Sheath: 0.25” stainless steel
- Multiple connection heads and indicators
- Optional transmitter available
- 100% waterproof for use indoors or out
- Wall or pipe mount with options
- Optional perforated guard tube or sun shield
- Hazardous environment rating available: Contact Customer Service for details.

Specifications

- Element Configuration: Single, 100 ohms at 0.0°C, 0.00385 ohm/ohm/°C nominal alpha
- Temperature Range: -46°C to 200°C (-50°F to 392°F)
- Insulation Resistance: 100 MΩ, 100 VDC at room temperature
# D11: Heavy Duty Room Temperature Sensor

## Ordering Information

### D11- Heavy Duty Room Air Temperature Sensor

<table>
<thead>
<tr>
<th>Connection Head</th>
<th>Element/Lead Wire Configuration</th>
<th>Maximum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>19A Large Aluminum Head with Loop Powered LED Indicator</td>
<td>A Three Wire Single Element</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>23P Medium Polycarbonate Head with Battery Powered LCD Indicator</td>
<td>B Four Wire Single Element</td>
<td>75°C (167°F)</td>
</tr>
<tr>
<td>25A Large Aluminum Head</td>
<td>C Three Wire Dual Element</td>
<td>93°C (200°F)</td>
</tr>
</tbody>
</table>

### Guard Tube Options

-02 Guard Tube, 1/2” NPT x 5.5 304SS, Ø 0.840
-03 Sun Shield, 1/2” NPT x 5.5” CPVC
None (Leave Blank)

### Guard Tube

<table>
<thead>
<tr>
<th>Guard Tube</th>
<th>Connection Head</th>
<th>Maximum Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-02 Guard Tube, 1/2” NPT x 5.5 304SS, Ø 0.840</td>
<td>19A</td>
<td>93°C (200°F)</td>
</tr>
<tr>
<td>-03 Sun Shield, 1/2” NPT x 5.5” CPVC</td>
<td>23P</td>
<td>75°C (167°F)</td>
</tr>
</tbody>
</table>

### Basic Order Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D11</td>
<td>Basic Code</td>
</tr>
</tbody>
</table>

### Example Part # D11-10B25A-02

### RTD (Accuracy)

- 10 Standard RTD 100 OHMS ± 0.10 Ω at 0°C
- 05 Standard RTD 100 OHMS ± 0.05 Ω at 0°C

### Element/Lead Wire Configuration

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Three Wire Single Element</td>
</tr>
<tr>
<td>B</td>
<td>Four Wire Single Element</td>
</tr>
<tr>
<td>C</td>
<td>Three Wire Dual Element</td>
</tr>
</tbody>
</table>

### Common Options

(Leave Blank if not Required)

### NOTES

- For transmitters and additional connection head options, contact Burns Customer Service.

---

**NOTE:** For transmitters and additional connection head options, contact Burns Customer Service.
Common Options Available for Series D Models

Specifications

Lead Wire Options, Applies to D01, D02, D03, D04, D05, and D06

<table>
<thead>
<tr>
<th>L</th>
<th>Lead Wire Options (Note: Only fill in the codes applicable to your specifications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Specify lead wire length in one inch increments</td>
</tr>
</tbody>
</table>

Example: For a 6 inch ‘Y’ length specify 006, For a 15 foot ‘Y’ length specify 180

Cable Designs: minimum 12.0 inches (Y012), Maximum 999.0 inches (Y999)

Leadwire Designs: minimum 3.0 inches (Y003), Maximum 36.0 inches (Y036)

<table>
<thead>
<tr>
<th>Lead Wire Insulation Material ('M' option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M02 Fiberglass insulation with epoxy seal. (Leads rated to 450°C, seal rated to 200°C) Series 200 only</td>
</tr>
<tr>
<td>M03 Kapton® insulation with epoxy seal. (Leads rated to 250°C, seal rated to 200°C) Series 200 &amp; Series 300</td>
</tr>
</tbody>
</table>

Lead Wire Configuration ('C' option)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C10</td>
<td>Cable, standard for D and G style sensors</td>
</tr>
<tr>
<td>C20</td>
<td>Shielded cable (stainless steel braid)</td>
</tr>
<tr>
<td>C23</td>
<td>Shielded cable (foil shield with drain wire)</td>
</tr>
<tr>
<td>C30</td>
<td>Cable with stainless steel overbraid</td>
</tr>
<tr>
<td>C40</td>
<td>Cable with stainless steel armor, specify armor length below</td>
</tr>
<tr>
<td>C41</td>
<td>Shielded cable with stainless steel armor, specify armor length below</td>
</tr>
<tr>
<td>C50</td>
<td>Cable with PVC coated armor, specify armor length below</td>
</tr>
<tr>
<td>C52</td>
<td>Shielded cable with PVC coated armor, specify armor length below</td>
</tr>
</tbody>
</table>

Compression Fitting Options
Applies to D03, D04, and D06

FC Fitting Options, Compression ('C' option)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>316 Stainless Steel</td>
</tr>
<tr>
<td>13</td>
<td>Brass</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ferrule Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PTFE, re-adjustable</td>
</tr>
<tr>
<td>2</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threads</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/8” NPT</td>
</tr>
<tr>
<td>3</td>
<td>1/4” NPT</td>
</tr>
<tr>
<td>4</td>
<td>3/8” NPT</td>
</tr>
<tr>
<td>5</td>
<td>1/2” NPT</td>
</tr>
</tbody>
</table>

Reducing Bushing (FR)
Applies to D01, D02, and D05

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR01</td>
<td>3/4 MNPT to 1/2 inch FNPT</td>
<td>galvanized steel</td>
</tr>
<tr>
<td>FR02</td>
<td>3/4 MNPT to 1/2 inch FNPT</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>FR03</td>
<td>3/4 MNPT to 1/2 inch FNPT</td>
<td>315 stainless steel</td>
</tr>
<tr>
<td>FR28</td>
<td>1 MNPT to 1/2 inch FNPT</td>
<td>galvanized steel</td>
</tr>
<tr>
<td>FR29</td>
<td>1 MNPT to 1/2 inch FNPT</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>FR30</td>
<td>1 MNPT to 1/2 inch FNPT</td>
<td>316 stainless steel</td>
</tr>
<tr>
<td>FR48</td>
<td>0.750-28 UNS 2A to 1/2” FNPT</td>
<td>Series 300</td>
</tr>
<tr>
<td>FR49</td>
<td>1 1/4 MNPT to 1/2 inch FNPT</td>
<td>316 SS</td>
</tr>
<tr>
<td>FR51</td>
<td>M20 Male to 1/2” FNPT</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>FR57</td>
<td>1.25 - 18 UNF 2A to 1/2” FNPT</td>
<td>304 stainless steel</td>
</tr>
</tbody>
</table>
Common Options Available for Series D Models
Specifications

Strain Relief Options Applies to D03, D04, and D06 ONLY

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR01</td>
<td>3/4 MNPT to 1/2 inch FNPT</td>
<td>galvanized steel</td>
</tr>
<tr>
<td>FR02</td>
<td>3/4 MNPT to 1/2 inch FNPT</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>FR03</td>
<td>3/4 MNPT to 1/2 inch FNPT</td>
<td>316 stainless steel</td>
</tr>
<tr>
<td>FR28</td>
<td>1 MNPT to 1/2 inch FNPT</td>
<td>galvanized steel</td>
</tr>
<tr>
<td>FR29</td>
<td>1 MNPT to 1/2 inch FNPT</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>FR30</td>
<td>1 MNPT to 1/2 inch FNPT</td>
<td>316 stainless steel</td>
</tr>
<tr>
<td>FR48</td>
<td>0.750-28 UNS 2A to 1/2&quot; FNPT</td>
<td>Series 300</td>
</tr>
<tr>
<td>FR49</td>
<td>1 1/4 MNPT to 1/2 inch FNPT</td>
<td>316 SS</td>
</tr>
<tr>
<td>FR51</td>
<td>M20 Male to 1/2&quot; FNPT</td>
<td>304 stainless steel</td>
</tr>
<tr>
<td>FR57</td>
<td>1.25 - 18 UNF 2A to 1/2&quot; FNPT</td>
<td>304 stainless steel</td>
</tr>
</tbody>
</table>

Tagging Options
For assistance to meet your tagging requirements, contact Burns Customer Service.

Calibration Options, Applies to D08, D09, D10, and D11
Regarding Calibration for D01 thru D07, contact Burns Customer Service.

Calibration in Degree C Options (CI)

<table>
<thead>
<tr>
<th>Code</th>
<th>Temp. Range</th>
<th>Calibration points in Degree C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI02</td>
<td>-38</td>
<td>-38</td>
</tr>
<tr>
<td>CI03</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CI04</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>CI05</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>CI06</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>CI25</td>
<td>-38 to 100</td>
<td>-38, 0, 50, 100</td>
</tr>
<tr>
<td>CI26</td>
<td>-38 to 200</td>
<td>-38, 0, 100, 200</td>
</tr>
<tr>
<td>CI35</td>
<td>0 to 100</td>
<td>0, 50, 100</td>
</tr>
<tr>
<td>CI36</td>
<td>0 to 200</td>
<td>0, 100, 200</td>
</tr>
</tbody>
</table>

Calibration in Degree F Options (CF)

<table>
<thead>
<tr>
<th>Code</th>
<th>Temp. Range</th>
<th>Calibration points in Degree F (for ref. only °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF02</td>
<td>-36</td>
<td>-36</td>
</tr>
<tr>
<td>CF03</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>CF04</td>
<td>122</td>
<td>122</td>
</tr>
<tr>
<td>CF05</td>
<td>212</td>
<td>212</td>
</tr>
<tr>
<td>CF06</td>
<td>392</td>
<td>392</td>
</tr>
<tr>
<td>CF25</td>
<td>-38 to 212</td>
<td>-38, 0, 32, 212</td>
</tr>
<tr>
<td>CF26</td>
<td>-36 to 392</td>
<td>-36, 0, 32, 212</td>
</tr>
<tr>
<td>CF35</td>
<td>32 to 212</td>
<td>32, 0, 32, 212</td>
</tr>
<tr>
<td>CF36</td>
<td>32 to 392</td>
<td>32, 0, 32, 212</td>
</tr>
</tbody>
</table>

Calibration Report Options (CR)
Contact Burns Customer Service regarding Reports available for the Series D.
Custom solutions designed for your specific needs.

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