Your Temperature Measurement Experts

Transmitters and Indicators
Temperature Measurement Experts

Since 1960, Burns Engineering has been the industry leader in the design and manufacture of temperature sensors. Accuracy, reliability and consistency are hallmarks of the Burns brand.

We understand the subtleties of temperature measurement and how they can impact your processes and ultimately your success. We take care of the details so you don’t have to. When you choose Burns you’re getting more than a sensor, you’re getting your own team of Temperature Measurement Experts.

Are you ready for a quote?

Call us at 800-328-3871
-or-
Configure your own quote

To configure your own:

Go to [www.burnsengineering.com/Configuration](http://www.burnsengineering.com/Configuration)
-or-
Click on the “Configure my part” Icon in this catalog

It’s fast, easy and we’ll get back to you within a day.
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### Analog Head Mounted Transmitter

<table>
<thead>
<tr>
<th>TL Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Accuracy ±0.05%</td>
</tr>
<tr>
<td>• Temp Range -200 to 400°C</td>
</tr>
<tr>
<td>• Temp Range Span 50 to 700°C</td>
</tr>
<tr>
<td>• Temp Range Absolute -200 to 500°C</td>
</tr>
<tr>
<td>• Adj Range Zero ±25°C</td>
</tr>
<tr>
<td>• Adj Range Span ±25°C (rangeable -200 to 600°C)</td>
</tr>
<tr>
<td>• Fits DIN Rail Mount, HD03, HD05, and HD25 Enclosures</td>
</tr>
</tbody>
</table>

### Programmable Head Mounted Transmitters

<table>
<thead>
<tr>
<th>T50</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PROFIBUS PA / FOUNDATION FIELDBUS</td>
</tr>
<tr>
<td>• PROFIBUS PA ver. 3.0</td>
</tr>
<tr>
<td>• FOUNDATION Fieldbus ver. ITK 4.6</td>
</tr>
<tr>
<td>• Automatic switch between protocols</td>
</tr>
<tr>
<td>• FISCO-certified</td>
</tr>
<tr>
<td>• Basic capability with F.F.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T51</th>
</tr>
</thead>
<tbody>
<tr>
<td>• RTD, TC, Ohm, or mV input</td>
</tr>
<tr>
<td>• Accuracy ≤ ±0.05% of span or ≤ ±0.2°C whichever is greater</td>
</tr>
<tr>
<td>• 4 to 20 mA output</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T55</th>
</tr>
</thead>
<tbody>
<tr>
<td>• RTD, TC, Ohm, or mV input</td>
</tr>
<tr>
<td>• Accuracy ≤ ±0.05% of span or ≤ ±0.1°C whichever is greater</td>
</tr>
<tr>
<td>• 4 to 20 mA output</td>
</tr>
<tr>
<td>• Matched calibration with RTD for improved system accuracy</td>
</tr>
<tr>
<td>• HART® communication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T57</th>
</tr>
</thead>
<tbody>
<tr>
<td>• RTD, TC, Ohm, or mV input</td>
</tr>
<tr>
<td>• Accuracy ≤ ±0.05% of span or ≤ ±0.1°C whichever is greater</td>
</tr>
<tr>
<td>• 4 to 20 mA output</td>
</tr>
<tr>
<td>• Matched calibration with RTD for improved system accuracy</td>
</tr>
<tr>
<td>• Hardware assessed for use in SIL applications</td>
</tr>
<tr>
<td>• HART protocol revision selectable from HART 5 or HART 7</td>
</tr>
</tbody>
</table>

ATEX

IECEx

Configure my part

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www.burnsengineering.com
info@burnsengineering.com
## Rail Mount Transmitters

### Programmable Rail Mounted Transmitters

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
</tr>
</thead>
</table>
| T60   | - PROFIBUS PA / FOUNDATION FIELD BUS  
- PROFIBUS PA ver. 3.0  
- FOUNDATION Fieldbus ver. ITK 4.6  
- Automatic switch between protocols  
- FISCO-certified, Basic capability with F.F. |
| T61   | - RTD, TC, Ohm, or mV input  
- Accuracy better than 0.05% of selected range  
- Basic 4 to 20 mA output |
| T65   | - Matched calibration with RTD for improved system accuracy  
- RTD, TC, Ohm, or mV input  
- Accuracy ≤ ±0.05% of span or ≤ ±0.1°C whichever is greater  
- 4 to 20 mA output  
- Matched calibration with RTD for improved system accuracy  
- HART® communication |
| T67   | - RTD, TC, Ohm, or mV input  
- Accuracy ≤ ±0.05% of span or ≤ ±0.1°C whichever is greater  
- 4 to 20 mA output  
- Matched calibration with RTD for improved system accuracy  
- Hardware assessed for use in SIL applications  
- HART protocol revision selectable from HART 5 or HART 7 |

### Mini RTD Transmitters

#### Mini Transmitter and Head

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
</tr>
</thead>
</table>
| T16   | - RTD input: 2 or 3 wire Pt100  
- Accuracy: +/- (0.2°C + 0.05% of reading)  
- 4-20mA Output |

#### Mini Transmitter with M12 Connectors

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
</tr>
</thead>
</table>
| T12   | - RTD input: 2 or 3 wire Pt100  
- Accuracy: ±(0.05°C + 0.05% of span)  
- 4-20mA Output  
- Environmental Rating: NEMA 6P, IP67 when M12 Connected |
### HD22 Aluminum Head Battery Powered Indicator
- FM/CSA/ATEX approved enclosure
- RTD or thermocouple input
- 1/2” NPT sensor connection
- Up to 2 year battery life
- Explosion proof housing

### HD23 Plastic Head Battery Powered Indicator
- Plastic housing
- 4 digit LCD display
- Three push button setup

### HD24 Stainless Steel Head Battery Powered Indicator
- Stainless steel housing
- 4 digit LCD display
- Three push button setup

### T75 Indicating Transmitter Head
- RTD, TC, Ohm and bipolar mV input and analog output
- Selectable red or white back-light
- HART 7 functionality with HART 5 compatibility
- Pipe stand available for 1.5, 2, 2.5, and 3 inch pipe sizes
- 1/2” NPT conduit and instrument connections
- 3 optical buttons: up, down and enter
- Dynamically adaptive to wear or accumulation of dirt
- Immune to interference from ambient light sources
- Usable with or without gloves
- Supports 7 languages
# Transmitter Accessories

## HD26 Dual Transmitter Head
- Accommodates two “hockey puck” transmitters
- Specify probe with leads at least 8 inches long

*Available as an option during part configuration

## Pipe Mount for Remote Heads HD22, HD25 & T75
- Two required per head
- 3/8 to 3 1/2 inch size range

*Available as an option during part configuration

## DIN Rail Mounting Plate
- Allows a Head Mounted Transmitter to be mounted on a rail

*Available as an option during part configuration

## Programming Packages

<table>
<thead>
<tr>
<th>Programming Package</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TP09</strong></td>
<td>USB interface, transmitter software, and communication cable</td>
</tr>
<tr>
<td></td>
<td>Compatible with transmitters models T51, T55, T57, T61, T65, and T67</td>
</tr>
<tr>
<td></td>
<td>Requires Windows 7,8 or 10</td>
</tr>
<tr>
<td><strong>TP12</strong></td>
<td>For T12 Transmitters</td>
</tr>
<tr>
<td></td>
<td>Requires Windows 7,8 or 10</td>
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<tr>
<td><strong>TP16</strong></td>
<td>For T16 Transmitters</td>
</tr>
<tr>
<td></td>
<td>Requires Windows 7,8 or 10</td>
</tr>
</tbody>
</table>
**GP-TR81 Local Antenna**

**GP-TR81-P Remote Antenna**
- 2 independently configurable temperature sensor inputs
- Supports 2, 3, or 4-wire RTD sensors
- Supports Thermocouple sensors type J or K
- Works with external power or optional battery
- Battery life up to 10 years
- IP66, NEMA 4X
- -40 °C to 80 °C (-40 °F to 176 °F)
- 900 MHz / 915 MHz / 2.4 GHz
- Secure AES encryption
- Remote antenna option available

---

**Wireless Gateways**

**General Purpose (GP)**

**GP-DH3**
- Wirelessly gather/distribute sensor data
- Map I/O anywhere within the network
- Modbus master/slave functionality
- Ethernet connectivity facilitates IoT and IIoT implementation
- 2x Configurable Serial ports (RS232/RS485)
- Data logging capabilities / web server
- -40 °C to 80 °C
- 900 MHz / 2.4 GHz / 915 MHz
- Secure AES encryption

**GP-DH2-W**
- Wirelessly gather/distribute sensor data
- Map I/O points anywhere within the network
- Point-to-multipoint, peer-to-peer connectivity
- Modbus master/slave functionality
- Serial interface (RS232 or RS485)
- I/O Expansion Modules available (isolated)
- Small form factor
- -40 °C to 80 °C
- 900 MHz / 2.4 GHz / 915 MHz
- Secure AES encryption
### Transmitter with indicator

#### SM-Series
- Up to a 10-year battery life
- Advanced local LCD interface
- Self-contained, rugged design
- Installs in minutes
- IP66, -40 °C to 70 °C (-40 °F to 158 °F)
- 900 MHz / 915 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Division 1 (Zone 0)
- Intrinsically Safe

#### WT-Series
- Supports 2, 3 or 4 wire RTD sensors

#### WT-RT2
- Type K thermocouple input
- Single temperature input, 24-bit ADC

#### WT-TC1
- Single temperature input, 24-bit ADC

### Transmitter without indicator

#### SM-Series
- Up to a 10-year battery life
- Self-contained, rugged design
- Installs in minutes
- IP66, -40 °C to 70 °C (-40 °F to 158 °F)
- 900 MHz / 915 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Division 1 (Zone 0)
- Intrinsically Safe

#### SM-RTM
- Supports 2, 3 or 4 wire RTD sensors

#### SM-TC1
- Type K thermocouple sensors
- Single temperature input, 24-bit ADC

### Wireless Gateways

#### DH3
- Wirelessly gather/distribute sensor data
- Map I/O anywhere within the network
- Modbus master/slave functionality
- Ethernet connectivity facilitates IoT and IIoT implementation
- 2x Configurable Serial ports (RS232/RS485)
- Data logging capabilities / web server
- -40 °C to 80 °C
- 900 MHz / 2.4 GHz / 915 MHz
- Secure AES encryption

#### DH2-W
- Wirelessly gather/distribute sensor data
- Map I/O points anywhere within the network
- Point-to-multipoint, peer-to-peer connectivity
- Modbus master/slave functionality
- Serial interface (RS232 or RS485)
- I/O Expansion Modules available (isolated)
- Small form factor
- -40 °C to 80 °C
- 900 MHz / 2.4 GHz / 915 MHz
- Secure AES encryption
I/O Signal Replication Using Wireless Technology

This point-to-point system allows you to quickly and easily monitor and control remote assets without the need to run conduit and wire, saving you significant time and resources. You can even use your existing sensors and 4 to 20 mA transmitters. The system is extremely easy to use since there is no software needed to program.

2 Distinct Platforms

**RM 4**: Wireless I/O System with fixed count
**RM1K**: Modular Wireless I/O System allowing you to fully customize and scale the I/O mix and count

### RM4
- Integrated radio and on-board I/O design
- Two 4-20 mA inputs/outputs (Radio Module A to B)
- Two configurable discrete I/O (Bi-directional)
- Designed for use in non-hazardous locations
- 900 MHz/915 MHz/2.4 GHz
- Secure AES encryption

### RM1K
- Fully customizable modular I/O solution
- Kit includes 2 factory paired Radio Modules and mounting hardware
- Supports 4-20 mA with BM-A420-122 module
- 868 MHz, 900 MHz or 2.4 GHz radio option
- Just add matching pairs of I/O Modules
- Class I, Division 2 (Zone 2)
- Secure AES encryption

### BM-A420-122 (For use with RM1K)
- 4 to 20 mA IO Module
- Provides two (2) isolated inputs
- Provides two (2) isolated outputs
- Accuracy: < 0.28 % of full scale
- Receives power from Radio Module
- Class I, Division 2 (Zone 2)
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
</table>
| SA1000-AK2  | 3 dBi Phantom Antenna Kit with 24 inch cable  
  - Black Phantom Antenna (SA1000-AT1)  
  - 24 inch cable assembly, N to MMCX (SA1000-CA1) |
| SA1000-AK5  | 3 dBi Phantom Antenna Kit with 48 inch cable  
  - Black Phantom Antenna (SA1000-AT1)  
  - 48 inch cable assembly, N to MMCX (SA1000-CA5) |
| SA1000-AK1  | 3 dBd Omni Antenna Kit with 24 inch cable  
  - 25 inch Omni-Directional Antenna (SA1000-AT2)  
  - Lightning Arrestor (SA1000-LA1)  
  - Antenna Mounting Bracket (SA1000-AMB)  
  - 24 inch Cable Assembly, N to MMCX (SA1000-CA1)  
  - 15 foot Cable Assembly, N to N (SA1000-CA2) |
| SA1000-AK4  | 3 dBd Omni Antenna Kit with 48 inch cable  
  - 25 inch Omni-Directional Antenna (SA1000-AT2)  
  - Lightning Arrestor (SA1000-LA1)  
  - Antenna Mounting Bracket (SA1000-AMB)  
  - 48 inch Cable Assembly, N to MMCX (SA1000-CA5)  
  - 15 foot Cable Assembly, N to N (SA1000-CA2) |
| SA1000-AK3  | 6 dBd Yagi 3 Element Antenna Kit with 24 inch cable  
  - 3-Element Yagi Antenna (SA1000-AT4)  
  - Lightning Arrestor (SA1000-LA1)  
  - 24 inch Cable Assembly, N to MMCX (SA1000-CA1)  
  - 15 foot Cable Assembly, N to N (SA1000-CA2) |
| SA1000-AK6  | 9 dBd Yagi 6 Element Antenna Kit with 48 inch cable  
  - 6-Element Yagi Antenna (SA1000-AT5)  
  - Lightning Arrestor (SA1000-LA1)  
  - 48 inch Cable Assembly, N to MMCX (SA1000-CA5)  
  - 15 foot Cable Assembly, N to N (SA1000-CA2) |
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA1000-AT1</td>
<td>3 dBi Phantom Antenna</td>
</tr>
<tr>
<td>SA1000-AT2, 900 MHz</td>
<td>3 dBi 25 inch Omni-directional Antenna</td>
</tr>
<tr>
<td>SA1000-AT3</td>
<td>6 dBi 65 inch Omni-directional Antenna</td>
</tr>
<tr>
<td>SA1000-AT4</td>
<td>6 dBi 3-Element Yagi Antenna</td>
</tr>
<tr>
<td>SA1000-AT5</td>
<td>9 dBi 6-Element Yagi Antenna</td>
</tr>
<tr>
<td>SA1000-CA1</td>
<td>24 inch Antenna Cable N to MMCX Connection</td>
</tr>
<tr>
<td>SA1000-CA2</td>
<td>15 foot Antenna Cable N to N Connection</td>
</tr>
<tr>
<td>SA1000-CA4</td>
<td>30 foot Antenna Cable N to N Connection</td>
</tr>
<tr>
<td>SA1000-CA5</td>
<td>48 inch Antenna Cable N to MMCX Connection</td>
</tr>
<tr>
<td>SA1000-CA10</td>
<td>24 inch Antenna Cable SMA to N Connection</td>
</tr>
<tr>
<td>SA1000-CA11</td>
<td>48 inch antenna cable SMA to N Connection</td>
</tr>
<tr>
<td>SA1000-LA1</td>
<td>Lightning Arrestor N to N Connection</td>
</tr>
<tr>
<td>SX1000-CON</td>
<td>4-20 mA to 1-5 V Converter</td>
</tr>
<tr>
<td>SX1000-RND</td>
<td>Resistor Network Divider WIO® Analog 4-20 mA I/O Module</td>
</tr>
<tr>
<td>SA1000-AMB</td>
<td>Antenna Mounting Brackets</td>
</tr>
<tr>
<td>SX1000-BP3</td>
<td>Replacement battery for C1 D1 OleumTech transmitters.</td>
</tr>
<tr>
<td>SX1000-BP2</td>
<td>Replacement battery for OleumTech® general purpose transmitters.</td>
</tr>
<tr>
<td>SX1000-CC2</td>
<td>All-in-one configuration cable Works with all OleumTech® wireless devices</td>
</tr>
<tr>
<td>WX1001-CA1</td>
<td>3 foot Extension Cable for DH3 LCD</td>
</tr>
<tr>
<td>WX1001-CA2</td>
<td>15 foot USB to mini-USB cable Works with DH3, DH2-W, GP wireless nodes, Sigfox GP Nodes, WIO system</td>
</tr>
<tr>
<td>SX1000-XCT</td>
<td>DC Charger Cable For solar power pack SP2-10E and SP2-10S</td>
</tr>
<tr>
<td>WX1000-LCD</td>
<td>Local HMI display for DH3 wireless gateway</td>
</tr>
</tbody>
</table>
Burns Engineering has a long history of designing and building temperature sensors to meet the measurement needs of unique and varied applications. Our application engineering group is here to help you select, configure, or custom design the right product for your specific needs. Contact us today at info@burnsenegineering.com.