

# HBS4400

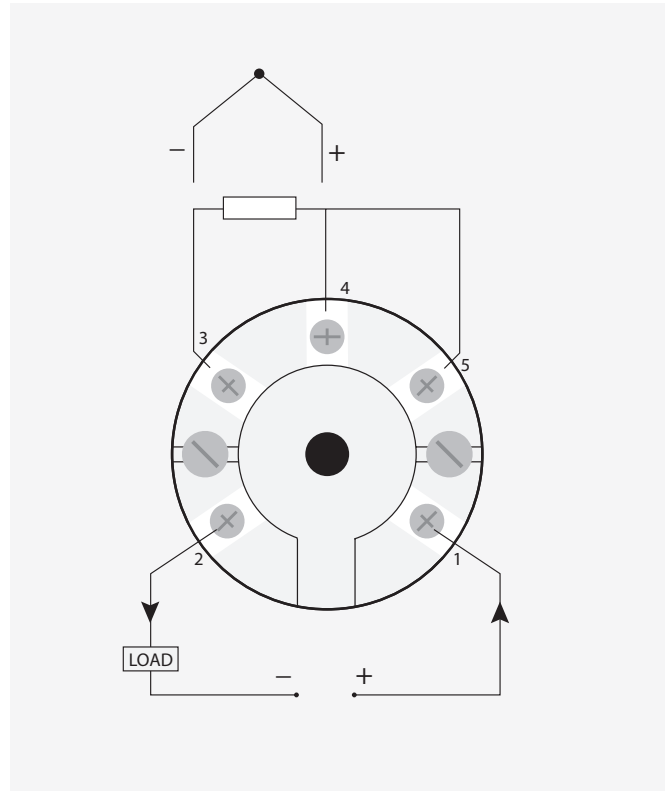
## Temperature Transmitter

Temperature Transmitters

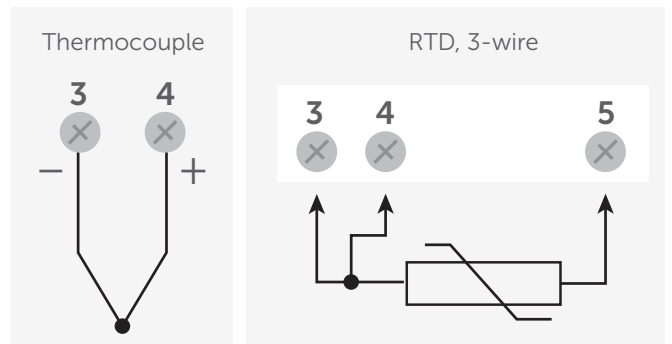


The HBS4400 is an ATEX Exia IECEx and FM approved high accuracy head-mounted programmable transmitter suitable for RTD Pt100 or Thermocouple inputs. The temperature transmitter is loop powered and converts the input signal into a 4 to 20mA current output.

The RTD and Thermocouple input types and ranges including upscale or downscale error detection can be programmed using the configuration kit HBSUSB9.



### Connections:



#### Linear Resistance Input:

| Type  | Min. Value | Max. Value | Min. Span |
|-------|------------|------------|-----------|
| Pt100 | -200°C     | +850°C     | 25°C      |

#### Thermocouple Input:

| Sensor Type | Range (°C) |          | Minimum Span |
|-------------|------------|----------|--------------|
|             | Min Temp   | Max Temp |              |
| K           | -200       | +1370    | 50           |
| J           | -100       | +1200    | 50           |
| E           | -200       | +1000    | 50           |
| N           | -180       | +1300    | 50           |
| T           | -200       | +400     | 25           |
| R           | -10        | +1760    | 100          |
| S           | -10        | +1760    | 100          |
| L           | -100       | +600     | 50           |

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## Temperature Transmitter

### Environmental Conditions

|                                    |                                |
|------------------------------------|--------------------------------|
| <b>Specifications Range</b>        | -40°C to +85°C                 |
| <b>Calibration Temperature</b>     | +20°C                          |
| <b>Ambient Storage Temperature</b> | (-50 to 100) °C                |
| <b>Ambient Humidity Range</b>      | (10 to 100) % RH noncondensing |

### Mechanical Specifications

|                      |                    |
|----------------------|--------------------|
| <b>Dimensions</b>    | Ø43.0 mm x 21.3 mm |
| <b>Weight Approx</b> | 40 g               |

### Common Specifications

|   |   |
|---|---|
| <b>Input/Output Breakdown Isolation</b> | 500V AC rms                               |
| <b>Update Time</b>                      | 250 ms                                    |
| <b>Response Time (filter off)</b>       | <1 second                                 |
| <b>Filter Factor</b>                    | Programmable: Off, 2s, 10s or adaptive    |
| <b>Warm-up Time</b>                     | 120s to full accuracy                     |
| <b>Power Supply</b>                     | (10 to 35) Volts dc                       |
| <b>Stability</b>                        | 0.1% of full range Input or 0.1 °C / year |

### HBS4400 Working Parameters

|           |        |
|-----------|--------|
| <b>U</b>  | 30V    |
| <b>Ii</b> | 100 mA |
| <b>Pi</b> | 750 mW |
| <b>Ci</b> | 10 nF  |
| <b>Li</b> | 0      |

### Input Specifications - RTD (PT100)

|                                |   |
|--------------------------------|---|
| <b>Sensor Type</b>             | PT100 100 Ohms @ 0°C 3 wire                       |
| <b>Sensor Range</b>            | -200 to +850 °C                                   |
| <b>Sensor Connection</b>       | Screw terminal                                    |
| <b>Minimum Span</b>            | 25 °C   |
| <b>Linearisation</b>           | BS-EN60751 BS1904 DIN 43760 JISC 1604             |
| <b>Measurement Accuracy</b>    | ± 0.01% of full range input<br>± 0.05% of reading |
| <b>Thermal Drift</b>           | Zero 0.008 °C / °C<br>Span 0.01% / °C             |
| <b>Excitation Current</b>      | 350 to 550 uA                                     |
| <b>Lead Resistance effect</b>  | 0.002 °C / Ohm                                    |
| <b>Maximum Lead Resistance</b> | 50 Ohms per leg                                   |

### Input Specifications – Thermocouple

|                               |   |
|-------------------------------|---|
| <b>Measurement Accuracy</b>   | ± 0.04% of full range input ±<br>0.04% of reading or 0.5 °C<br>(whichever is greater) |
| <b>Linearisation</b>          | BS4937/EC584-3  |
| <b>Cold Junction Error</b>    | ±0.5 °C   |
| <b>Cold Junction Tracking</b> | 0.05 °C / °C  |
| <b>Cold Junction Range</b>    | -40 to +85 °C   |
| <b>Thermal Drift</b>          | Zero 0.1 uV / °C<br>Span 0.01% / °C   |

### Output Specifications

|                            |  |
|----------------------------|--|
| <b>Output Type</b>         | 2 wire (4 to 20) mA current loop         |
| <b>Output Range</b>        | (<3.8 to 20.2) mA                        |
| <b>Output Connection</b>   | Screw terminal                           |
| <b>Maximum Output</b>      | 23mA                                     |
| <b>Accuracy</b>            | ±5 uA                                    |
| <b>Loop Voltage Effect</b> | 0.2 uA / V                               |
| <b>Thermal Drift</b>       | 1 uA / °C                                |
| <b>Maximum Output Load</b> | [(Vsupply-10)/21]K Ohms (700 Ohms @ 24V) |

### Approvals

|             |                        |
|-------------|------------------------|
| <b>EMC</b>  | BS EN 61326            |
| <b>ATEX</b> | II 1G EEx ia IIC T4-T6 |
| <b>FM</b>   | IS/1/1/ABCD/T4         |