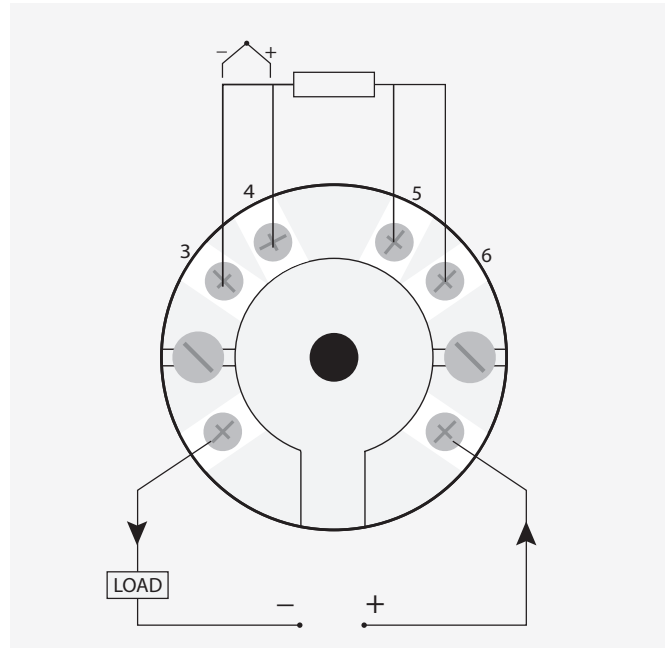


HBS4600

Temperature Transmitter

Temperature Transmitters



The HBS4600 is a ATEX Exia IECEx HART® 7 enabled high accuracy head-mounted programmable transmitter suitable for RTD Pt100 or Thermocouple inputs. The temperature transmitter is loop powered and the HART® communications protocol enables online digital communication concurrent with a 4 to 20mA analogue signal.

The RTD and Thermocouple input types and ranges including upscale or downscale error detection can be programmed with a HART® hand held communicator, PC & HART® modem or by using the configuration kit HBSUSB9.

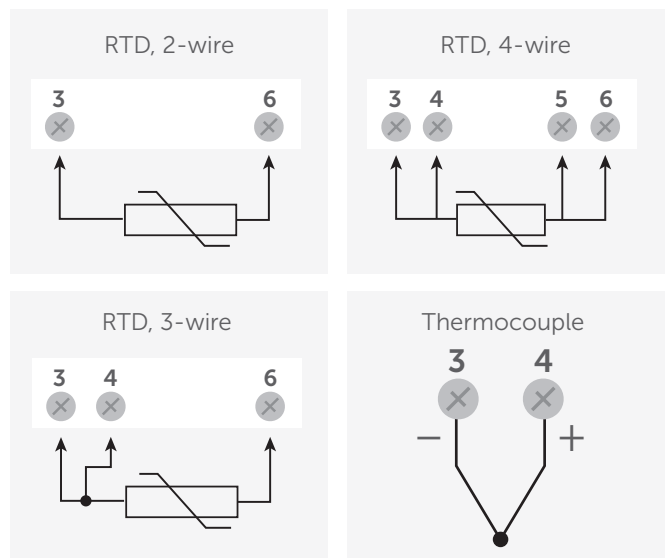
Connections:

Linear Resistance Input:

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

Thermocouple Input:

Sensor Type	Range (°C) Min Temp - Max Temp	Minimum Span
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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Environmental Conditions

Specifications Range	-40°C to +85°C
Calibration Temperature	+20°C
Ambient Storage Temperature	(0 to 95) °C
Ambient Humidity Range	(10 to 100) % RH noncondensing

Mechanical Specifications

Dimensions	Ø43.0 mm x 24 mm
Weight Approx	43 g

Common Specifications

Input/Output Breakdown Isolation	500V AC rms
Response Time (filter off)	0.5s (to 90% of final value)
Filter Factor	Programmable: Off, selective between 1s and 32s or adaptive
Warm-up Time	120s to full accuracy
Power Supply	(10 to 40) Volts dc
Stability	0.1% of full range Input or 0.1 °C / year

HBS4600 Working Parameters

Ui	30V
Ii	100 mA
Pi	750 mW
Ci	10 nF
Li	0µH

Enhanced Features

Sensor Referencing
The HBS4500 sensor referencing via the HBSUSB9 Config software allows for close matching to a known reference sensor eliminating possible sensor errors.

User Calibration
In addition to sensor referencing, user offset and current output trimming is possible via the HART® commands.

Custom Linearisation
The custom linearization facility allows the HBS4500 to be programmed with a custom linearisation to suit non standard sensors or sensors with unusual or unique characteristics.

Sensor Burn Out Detection
If any sensor wire is broken or becomes disconnected the HBS4500 output will automatically go to its user defined level (upscale or downscale). This happens irrespectively of which wire is broken.

Output Current Preset
For ease of system calibration and commissioning the output can be set to a pre-defined level anywhere within the 4 to 20 mA range.

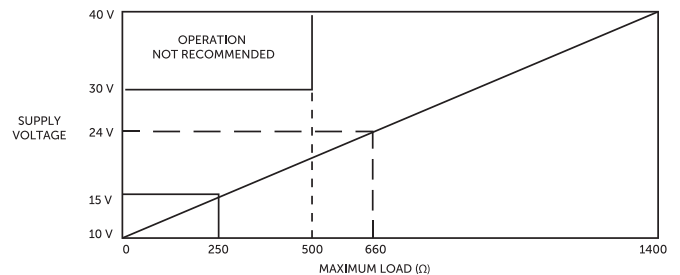
Input Specifications - RTD (PT100)

Sensor Type	PT100 100 Ohms @ 0°C 2,3 or 4 wire
Sensor Range	-200 to +850 °C
Sensor Connection	Screw terminal
Minimum Span	25 °C
Linearisation	BS-EN60751 BS1904 DIN 43760 JISC 1604 JISC 1604
Measurement Accuracy	0.01% of full range input ± 0.07% of Reading
Thermal Drift	Zero 0.008 °C / °C Span 0.01% / °C
Excitation Current	300 to 500 uA
Maximum Lead Resistance	50 Ohms per leg

Input Specifications – Thermocouple

Measurement Accuracy	± 0.04% of full range input ± 0.04% of reading or 0.5 °C (whichever is greater)
Linearisation	BS EN60584-01, BS4937, IEC584-1
Cold Junction Error	±0.5 °C
Cold Junction Tracking	0.05 °C / °C
Cold Junction Range	-40 to +85 °C
Thermal Drift	Zero 0.1 uV / °C Span 0.01% / °C

Output Specifications



Output Type	2 wire (4 to 20) mA current loop
Output Range	Min 3.75 mA, Max 21.5mA
Output Connection	Screw terminal
Maximum Output	21.5mA
Accuracy	±5 uA
Loop Voltage Effect	0.2 uA / V
Thermal Drift	1 uA / °C
Maximum Output Load	[(Vsupply-10)/21.5]K Ohms, 250 Ohms minimum loop load

For supply voltages over 30V a minimum load loop of 500 Ω is necessary

HBS4600

Temperature Transmitter

Approvals

EMC
ATEX

BS EN 61326
II1GEExia IICT4-T6

Communications with a PC

Communication with a PC is easily accomplished by using the HART® modem supplied with the communications kit, HBSUSB9 the menu-driven software product from H&B sensors enables the following functions to be quickly and easily performed:

- Change sensor type, range, select burnout direction, filter(damping), factor.
- Set tag numbers, assembly numbers, calibration details, messages
- Print or save to file all relevant documentary information.
- Read next calibration date.
- Perform basic calibration (TrimDac, user offset).
- Monitor sensor status and read transmitter diagnostics.
- Real-time reading of process variable.
- Supports up to 15 devices in multi-drop mode.

Communicating with the HBS4600 HART® Transmitters

The HBS4600 can communicate digitally, concurrent with the analogue 4 to 20 mA output signal. This can be achieved in a number of ways:

- Proprietary hand held communicator.
- PLC's, DCS's with HART® interface.
- PC Computers HBS Software available download from www.hbsensors.com and a HART® modem.

Communicating with a Hand Held Communicator

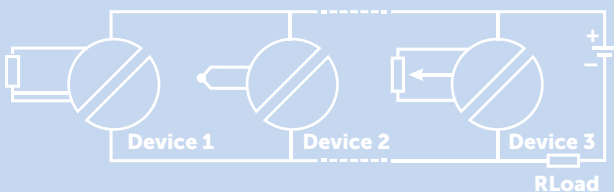
The HBS4600 will communicate with any proprietary HART® communicator and access to all universal commands is available from the communicator. In order to access all the parameters available, the communicator must have the correct HART® Device Description (DD) installed.

Communicating with PLC's or DCS's

Any system that supports HART® field devices using such software packages as AMS-Plant WebTM or CornerstoneTM will communicate with the HBS4600 enabling access to advanced system features such as self documentation and diagnostics. The correct DD must be installed for full access to all parameters.

Multidrop HART®

As well as operating in standard mode the HBS4600 supports HART® Multidrop mode whereby up to 15 devices can be connected to the same pair of wires enabling full digital functionality with each device.



*in multi-drop mode the current output is set at 4 ma