

Model 9100H Head Mount Sensor-Mate® HART Temperature Transmitter



- Head Mount Design (DIN Form B)
- 0.08% Accuracy
- Universal Inputs
- Microprocessor-Based Design
- HART® Communications
 - Handheld Configuration
 - PC Configuration
- Excellent Long-term Stability
- Input - Output Isolation
- Custom Input / Linearization Capabilities
- Two Year Warranty

The Model 9100H Sensor-Mate HART Temperature Transmitter is a highly accurate, microprocessor-based temperature transmitter. The 9100H accepts a wide range of inputs - resistance and millivolt. The 9100H is loop-powered and provides 4-20mA and HART output signals. Configure the 9100H through HART Communications with HART Communicator or a PC and WeedComm Software. The 9100H is a DIN Form B design for mounting in a sensor connection head. The transmitter can also be mounted in virtually any enclosure or easily wall mounted.



Optional Digital Display/Meter

The Weed Instrument Digital Display for the Model 9100H Temperature Transmitter provides local indication of the process temperature in °F or °C; 0-100% of scale; or the 4-20mA output. The transmitter and display are mounted in a windowed explosion proof instrument enclosure.

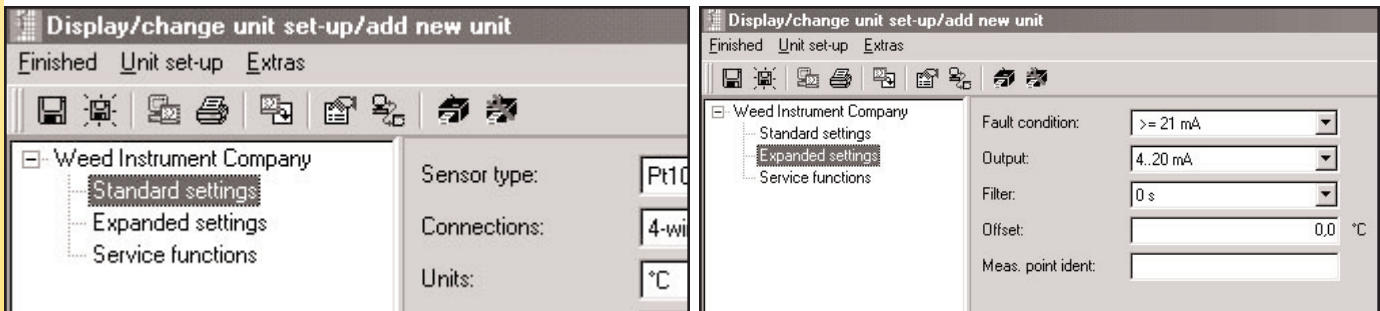
HART Communications

Configuration of the Model 9100H temperature transmitter can be achieved with the HC275 HART Communicator. You must have the 9100H Sensor-Mate Device Description (DD) loaded on the HC275 to achieve full functionality between the handheld device and the transmitter.



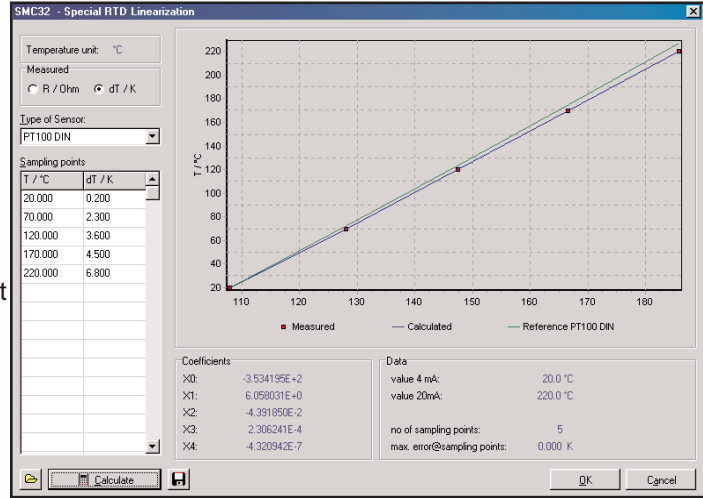
WeedComm Software

The WeedComm Software allows users to configure the 9100H transmitter using a PC and HART Modem. The software is menu driven, clear and concise. Configurations can be completed off-line, saved and loaded to the transmitter at a later time. Saved configurations can be looked up by filename. Use the WeedComm Software for Custom Linearization features.



Custom Linearization

The 9100H offers the capability of entering custom linearization for non-standard electrical inputs or increased accuracy of the temperature measurement system. The result is a linear 4-20mA output for nearly any type of RTD, Thermocouple, Resistance or Millivolt input.. Data is entered through the WeedComm Software.



Input Range:

Resistance Temperature Detector (RTD)

| Input | Designation | Settable Range | Minimum Span |
|-------------------------|-------------|--------------------------------|--------------|
| IEC 751 (0.00385055) | Pt 100 | -328 to 1562°F (-200 to 850°C) | 18°F (10°C) |
| | Pt 500 | -328 to 482°F (-200 to 250°C) | 18°F (10°C) |
| | Pt 1000 | -328 to 482°F (-200 to 250°C) | 18°F (10°C) |
| | Ni 100 | -76 to 356°F (-60 to 180°C) | 18°F (10°C) |
| | Ni 500 | -76 to 302°F (-60 to 150°C) | 18°F (10°C) |
| | Ni 1000 | -76 to 302°F (-60 to 150°C) | 18°F (10°C) |

- Connection type: 2, 3 or 4 wire configuration.
- Software compensation of cable resistance possible in the 2 wire system
- Sensor cable resistance max. 20 ohms per cable in the 3 and 4 wire system
- Sensor current: less than or equal to 0.2 mA

Resistance Transmitter

| Designation | Settable Range | Minimum Span |
|-------------|-----------------|--------------|
| Resistance | 10 to 400 ohms | 10 ohms |
| | 10 to 2000 ohms | 100 ohms |

Thermocouples (T/C)

| Input | Designation | Measuring Range Limits | Minimum Span |
|-------------------------------|-------------|---------------------------------|---------------|
| NIST Monograph 175 IEC 584 | Type B | 32 to 3308°F (0 to 1820°C) | 900°F (500°C) |
| | Type E | -454 to 1832°F (-270 to 1000°C) | 90°F (50°C) |
| | Type J | -346 to 2192°F (-210 to 1200°C) | 90°F (50°C) |
| | Type K | -454 to 2501°F (-270 to 1372°C) | 90°F (50°C) |
| | Type N | -328 to 2372°F (-200 to 1300°C) | 90°F (50°C) |
| | Type R | -58 to 3214°F (-50 to 1768°C) | 900°F (500°C) |
| | Type S | -58 to 3214°F (-50 to 1768°C) | 900°F (500°C) |
| | Type T | -454 to 752°F (-270 to 400°C) | 90°F (50°C) |
| ASTM E988 | Type C | 32 to 4208°F (0 to 2320°C) | 900°F (500°C) |
| | Type D | 32 to 4523°F (0 to 2495°C) | 900°F (500°C) |
| | Type L | -328 to 1652°F (-200 to 900°C) | 90°F (50°C) |
| | Type U | -328 to 1112°F (-200 to 600°C) | 90°F (50°C) |

- Internal cold junction (Pt 100)
- Accuracy of cold junction: +/- 1.8°F (1°C)

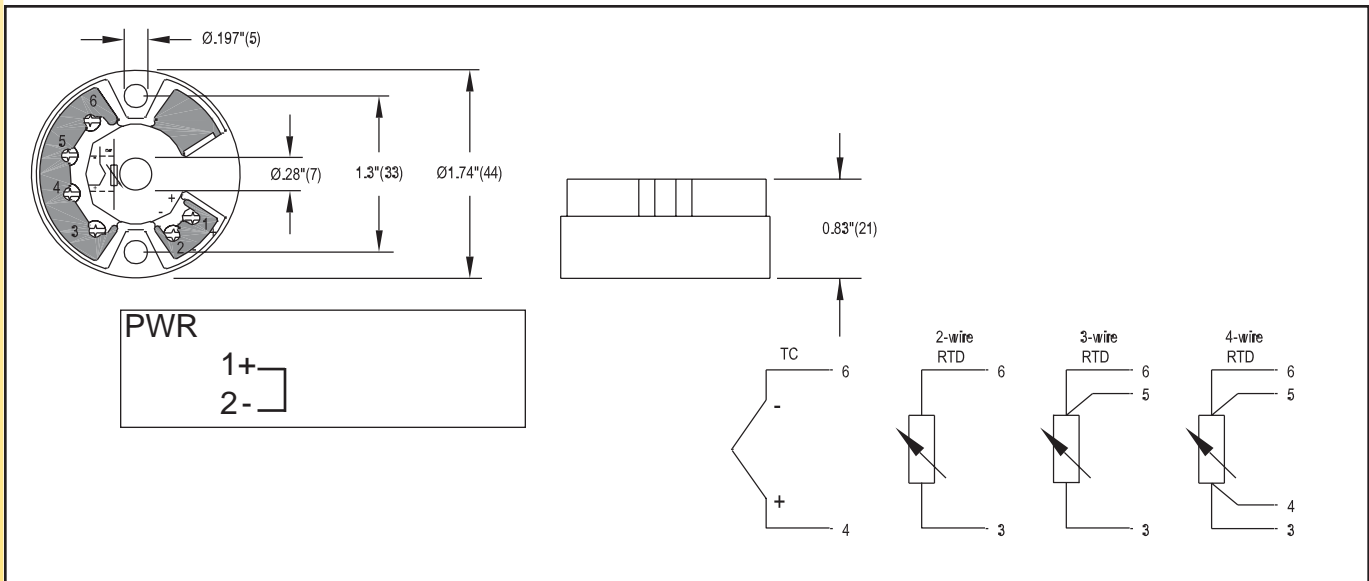
| Input | Designation | Measuring Range Limits | Minimum Span |
|-------------------------|----------------------------|------------------------|--------------|
| Voltage Transmitter(mV) | Millivolt transmitter (mV) | -10 to 75 mV | 5mV |

Specifications:

| | | |
|--------------------------------|--|-------------------------------------|
| Output | 4-20mA or 20-4mA. HART Signal (Superimposed on 4-20mA loop signal) | |
| Zero & Span Adjustments | Use HART Communicator or WeedComm Software. Can be set anywhere within sensor range under input section. Zero & Span are non interacting. | |
| Failsafe | Downscale 3.6 mA; Upscale 21.5 mA | |
| Response Time | 1 second | |
| Damping | User settable from 0 to 100 seconds | |
| Isolation | 2000 VAC, Input to Output | |
| Power Supply: | 11.5 to 35 VDC | |
| Load Resistance: | $R_{Max} \text{ (ohms)} = (V_{Supply} - 11.5V) / .022A$ | |
| Accuracy: | <u>Type</u> | <u>Measurement Accuracy</u> |
| RTD | Pt 100, Ni 100 | 0.36°F (0.2°C) or 0.08% of span |
| | Pt 500, Ni 500 | 0.9° F (0.5°C) or 0.20% of span |
| | Pt 1000, Ni 1000 | 0.54°F (0.3°C) or 0.12% of span |
| T/C | K, J, T, E, L, U | Typ. 0.9°F (0.5°C) or 0.08% of span |
| | N, C, D | Typ. 1.8°F (1.0°C) or 0.08% of span |
| | S, B, R | Typ 3.6°F (2.0°C) or 0.08% of span |
| Resistance Transmitters (ohms) | <u>Measurement Range</u> | <u>Measurement Accuracy</u> |
| | 10 to 400 ohms | +/- 0.1 ohms or 0.08% |
| Voltage Transmitters (mV) | 10 to 2000 ohms | +/- 0.5 ohms or 0.12% |
| | -10 to 75mV | +/- 20 μV or 0.08% |
| Whichever is greater. | | |
| Long-Term Stability | ±0.05% of calibrated span per year | |
| Cold Junction Compensation: | ± 1°C (Measured with Pt 100 IEC 751, Class B) | |
| Temperature Limit | -40°F to 185°F (-40°C to 85°C) | |
| EMI/RFI Effect | Conforms to European Union Directives (CE Mark). Meets IEC 61326 Amend 1, 1998 and NAMUR NE21. | |
| Approvals & Standards | Factory Mutual (FM) / Canadian Standards Association (CSA) / ATEX CENELEC - Intrinsically Safe (IS) - Optional - See ordering information. | |

Dimensions

Terminal Connections



| Model | Description | |
|-----------|---|--|
| 9H | Head Mount Sensor-Mate HART Temperature Transmitter | |
| 1 | Code | Sensor Type - RTD (3 or 4 wire) |
| | Q | Pt. 100, a = 0.0038505 |
| | C | Pt. 1000, a = 0.0038505 |
| | D | Ni 100 (DIN 43760) |
| | G | Ni 1000 (DIN 43760) |
| | P | Programmable/Custom Configuration |
| | Code | Thermocouple Type |
| | B | Type B |
| | E | Type E |
| | J | Type J |
| | K | Type K |
| | L | Type L |
| | N | Type N |
| | R | Type R |
| | S | Type S |
| | T | Type T |
| | C | Type C |
| | D | Type D |
| | U | Type U |
| | Code | Other |
| | O | Potentiometer/Resistance |
| | M | Millivolt |
| | 2 | Code |
| T | | With Temperature |
| | I | With Input |
| 3 | Code | Connection |
| | 2 | 2-wires (RTD) |
| | 3 | 3-wires (RTD) |
| | 4 | 4-wires (RTD) |
| | C | Cold Junction Compensation (Thermocouple) |
| | N | No Cold Junction Compensation (Millivolt or Potentiometer) |
| 4 | Code | Sensor Break (Burnout) |
| | U | Upscale |
| | D | Downscale |
| 5 | Code | Temperature Sign - Lower Range (4mA) |
| | + | Positive |
| | - | Negative |
| 6 | Code | Temperature Value - Lower Range (4mA) |
| | 050 | Example: 050 = 50°, 250 = 250° |
| 7 | Code | Temperature Sign - Upper Range (20mA) |
| | + | Positive |
| | - | Negative |
| 8 | Code | Temperature Value - Upper Range (20mA) |
| | 0300 | Example: 0300 = 300°, 1000 = 1000° |
| 9 | Code | Temperature Units |
| | C | Degrees Centigrade |
| | F | Degrees Farenheit With Input |
| 10 | Code | Approvals |
| | N | None |
| | F | FM |
| | C | CSA |
| | A | ATEX |
| 11 | Code | Digital Indicator with Explosion Proof enclosure, N/A with IS approval |
| | 21 | Scale (4-20 mA) |
| | 22 | Scale (0-100%) |
| | 23 | Scale (degree F, degree C) |
| 12 | Order "HART Modem" and "WeedComm" software as separate items. | |

| | | | | | | | | | | | |
|--------------------|---|---|---|---|---|-----|---|------|---|---|--|
| 9H | Q | T | 3 | U | - | 050 | + | 0300 | C | N | |
| Sample Part Number | | | | | | | | | | | |
| Your Part Number | | | | | | | | | | | |

