3 Specifications and Environmental Conditions

3.1 Specifications

Specification	1575	1590
Resistance Measurement Range	0 to 500 kΩ	
Resistance Ratio Accuracy		
0 to .25Ω input (1Ω refr, 10 mA)	0.00001Ω	0.000005Ω
0.25 to 4Ω input (1Ω refr, 10 mA)	40 ppm	20 ppm
2.5 to 40Ω input (10Ω refr, 3 mA)	20 ppm	5 ppm
0 to 25Ω input (100Ω refr, 1 mA)	0.0001Ω	0.000025Ω
25 to 400Ω input (100Ω refr, 1 mA)	4 ppm	1 ppm
400 to 1000Ω input (100Ω refr, 0.1 mA)	20 ppm	4 ppm
0 to 2.5 kΩ input (10 kΩ refr, 0.01 mA)	0.025Ω	0.012Ω
2.5 to 40 kΩ input (10 kΩ refr, 0.01 mA)	10 ppm	5 ppm
40 to 100 kΩ input (10 kΩ refr, 0.005 mA)	50 ppm	25 ppm
100 to 500 kΩ input (10 kΩ refr, 0.002 mA)	200 ppm	120 ppm
Resistance Accuracy		
0 to .25Ω input (1Ω refr, 10 mA)	0.000025Ω	0.00001Ω
0.25 to 4Ω input (1Ω refr, 10 mA)	100 ppm	40 ppm
2.5 to 40Ω input 10Ω refr, 3 mA)	40 ppm	20 ppm
0 to 25Ω input (100Ω refr, 1 mA)	0.0002Ω	0.00015Ω
25 to 400Ω input (100Ω refr, 1 mA)	8 ppm	6 ppm
400 to 1000Ω input (100Ω refr, 0.1 mA)	25 ppm	10 ppm
0 to 2.5 kΩ input (10 kΩ refr, 0.01 mA)	0.05Ω	0.025Ω
2.5 to 40 kΩ input (10 kΩ refr, 0.01 mA)	20 ppm	10 ppm
40 to 100 kΩ input (10 kΩ refr, 0.005 mA)	60 ppm	30 ppm
100 to 500 kΩ input (10 kΩ refr, 0.002 mA)	200 ppm	120 ppm
Typical Temperature Accuracy, External Reference		
0.25Ω SPRT (0°C, 1Ω refr, 10 mA)	0.01°C	0.005°C
2.5Ω SPRT (0°C, 10Ω refr, 3 mA)	0.005°C	0.0013°C
25Ω SPRT (0°C, 100Ω refr, 1 mA)	0.001°C	0.00025°C
100Ω SPRT (0°C, 100Ω refr, 1 mA)	0.001°C	0.00025°C
10 kΩ thermistor (25°C, 10 kΩ refr, 0.01 mA)	0.00025°C	0.00013°C
Typical Temperature Accuracy, Internal Reference		
0.25Ω SPRT (0°C, 1Ω refr, 10 mA)	0.025°C	0.01°C
2.5Ω SPRT (0°C, 10Ω refr, 3 mA)	0.01°C	0.005°C
25Ω SPRT (0°C, 100Ω refr, 1 mA)	0.002°C	0.0015°C

Specification	1575	1590
100Ω SPRT (0°C, 100Ω refr, 1 mA)	0.002°C	0.0015°C
10 kΩ thermistor (25°C, 10 kΩ refr, 0.01 mA)	0.0005°C	0.00025°C
Typical RMS Measurement Noise	**No Filter**	**20 Second Filter**
0.25Ω input (1Ω refr, 10 mA)	25 ppm	8 ppm
2.5Ω input (10Ω refr, 3 mA)	8 ppm	2.5 ppm
25Ω input (100Ω refr, 1 mA)	2.5 ppm	0.8 ppm
100Ω input (100Ω refr, 1 mA)	1 ppm	0.3 ppm
400Ω input (100Ω refr, 1 mA)	2.5 ppm	0.8 ppm
10 kΩ input (10 kΩ refr, 0.01 mA)	6 ppm	2 ppm
Minimum Sample Period	2 seconds	
Maximum Current		
1Ω reference, 1Ω input	20 mA	
10Ω reference, 10Ω input	15 mA	
100Ω reference, 100Ω input	5 mA	
10 kΩ reference, 10 kΩ input	0.1 mA	
Typical Current Accuracy	2% or 0.0002 mA	
Power	100–125/200–250 VAC (user-switchable), 50-60 Hz, 1A max	
Specified Operating Temperature	20 to 27°C (68 to 81°F)	
Operating Temperature Limits	10 to 40°C (50 to 104°F)	
Storage Temperature	–10 to 50°C (14 to 122°F)	
Safety	OVER VOLTAGE (Installation) CATEGORY 11, Pollution Degree 2 per IEC1010-1	
Size	516 mm x 320 mm x 178 mm (20.3" W x 12.6" D x 7.0" H)	
Weight	16 kg (35 lb)	

Notes:

- Specifications stated in ppm are relative to the reading.
- Accuracy specifications are applicable for a one-year calibration interval. In line with normal prudent metrology practices, Hart recommends a short-cycle calibration interval of six months for new units during the first year to ensure that all components are as stable as expected.
- Accuracy specifications do not include noise which is stated separately and depends on the digital filter settings.
- For measurements above 100kΩ the conversion time should be set to 4 seconds.
- The specifications are applicable within the specified operating temperature range. Resistance accuracy is derated 10 ppm if using the 1 ohm resistor, 5 ppm if using the 10Ω or 10 kΩ resistors, and 2 ppm if using the 100Ω resistor for every degree Celsius outside the specified operating temperature range.
- Temperature accuracy specifications do not include sensor errors or external resistor uncertainty.