

Contacting Conductivity Sensor Addendum

Transmitter Compatibility



Rosemount 56, 1056, 1057, 1066 Transmitters



Measurement Choices

Conductivity, resistivity, total dissolved solids, salinity, % concentration

Salinity: Uses practical salinity scale

Total dissolved solids: Calculated by multiplying conductivity at 25 °C by 0.65

% Concentration selections *: 0-12% NaOH, 0-15% HCl, 0-20% NaCl, and 0-25% or 96-99.7% H₂SO₄.

Temperature Compensation Options

Manual slope (X%/°C), high purity water (dilute sodium chloride), cation conductivity (dilute hydrochloric acid) and raw (Rosemount 56 only)

Input Filter

Time constant 1-999 seconds, default 2 seconds

Response Time

3 seconds to 100% of final reading

* *The conductivity concentration algorithms for these solutions are fully temperature compensated.*



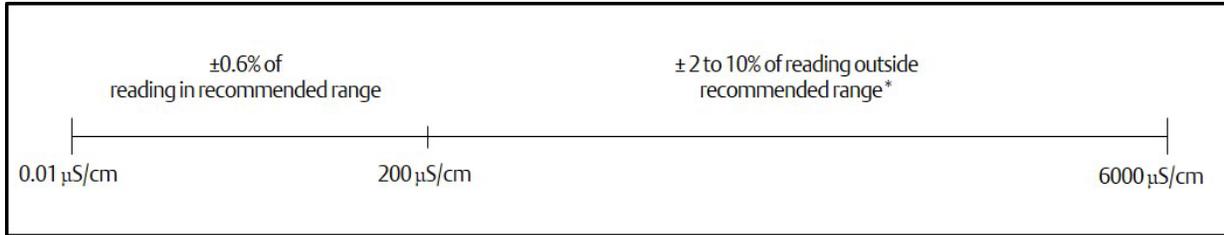
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Below specifications apply to stated transmitters used with the following Rosemount conductivity sensor models:

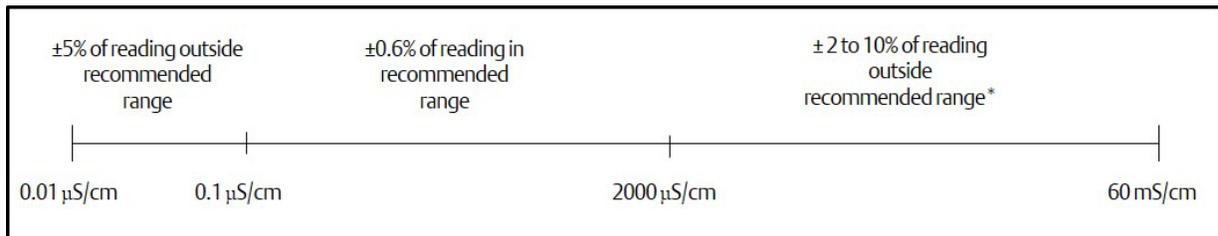
400, 400VP, 402, 402VP, 403, 403VP, 404, and 410VP

Figure 1. Cell constant linearity for Rosemount Transmitters 56, 1056, 1057, and 1066; 0.01/cm cell constant



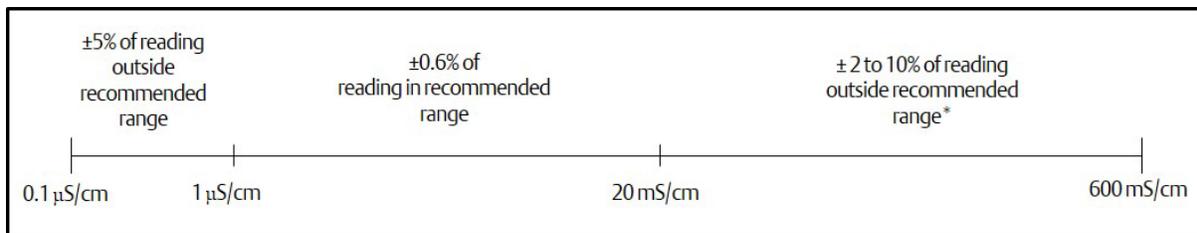
* The Rosemount 1066 transmitter has a cell constant linearity of $\pm 2\%$ of reading in the recommended range of 200 $\mu\text{S}/\text{cm}$ to 2000 $\mu\text{S}/\text{cm}$. Conductivity range above 2000 $\mu\text{S}/\text{cm}$ does not apply to the Rosemount 1066 transmitter.

Figure 2. Cell constant linearity for Rosemount Transmitters 56, 1056, 1057, and 1066; 0.1/cm cell Constant



* The Rosemount 1066 transmitter has a cell constant linearity of $\pm 2\%$ of reading in the recommended range of 2000 $\mu\text{S}/\text{cm}$ to 20 mS/cm . Conductivity range above 20 mS/cm does not apply to the Rosemount 1066 transmitter.

Figure 3. Cell constant linearity for Rosemount Transmitters 56, 1056, 1057, and 1066; 1.0/cm cell constant



* The Rosemount 1066 transmitter has a cell constant linearity of $\pm 2\%$ of reading in the recommended range of 20 mS/cm to 200 mS/cm . Conductivity range above 200 mS/cm does not apply to the Rosemount 1066 transmitter.

Figure 4. Cell constant linearity for Rosemount Transmitters 56, 1056, 1057, and 1066; 4-electrode sensors



Table 1. Rosemount 56, 1056, 1056, and 1066 Transmitter temperature specifications

Temperature Range ⁽¹⁾	0 to 200 °C
Temperature Accuracy, Pt-1000, 0-50 °C	± 0.1 °C
Temperature Accuracy, Pt-1000, > 50 °C	± 0.5 °C

1. Temperature range for the Rosemount 1056 transmitter is 0 to 150 °C.

Rosemount 5081 Transmitter

Table 2. Rosemount 5081 suggested conductivity ranges per cell constant ⁽¹⁾

Cell constant	Suggested conductivity range
0.01/cm	Up to 50 $\mu\text{S}/\text{cm}$
0.1/cm	1.0 to 500 $\mu\text{S}/\text{cm}$
1.0/cm	10 to 20,000 $\mu\text{S}/\text{cm}$

1. Applicable Rosemount Conductivity Sensor Models: 140, 141, 142, 150, 400, 402, 402VP, 403, 403VP, and 404.

Note: The conductivity values shown in the above chart are for UNCOMPENSATED (or RAW) conductivity at 25 °C. Maximum range values will vary due to temperature compensation selection, process temperature, and other process conditions.

Table 3. Rosemount 5081 Transmitter specifications at 25 °C

Measured range	0 to 20,000 $\mu\text{S}/\text{cm}$
Accuracy	$\pm 0.5\%$ of reading and $\pm 0.001 \mu\text{S}/\text{cm}$
Repeatability	$\pm 0.25\%$ of reading
Stability	0.25% of output range per month, non-cumulative
Ambient temperature coefficient	$\pm 0.05\%$ of reading per °C
Temperature slope adjustment	0 to 5% per °C

Table 4. Rosemount 5081 loop specifications

Accuracy *	
Up to 5,000 $\mu\text{S}/\text{cm}$:	$\pm 1.0\%$ and ± 2 least significant digit
From 5,000 to 20,000 $\mu\text{S}/\text{cm}$:	$\pm 2\%$ of reading and ± 2 least significant digit

* Under controlled laboratory conditions at 77 °F (25 °C) with perfectly calibrated 400 series sensor of appropriate cell constant.

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