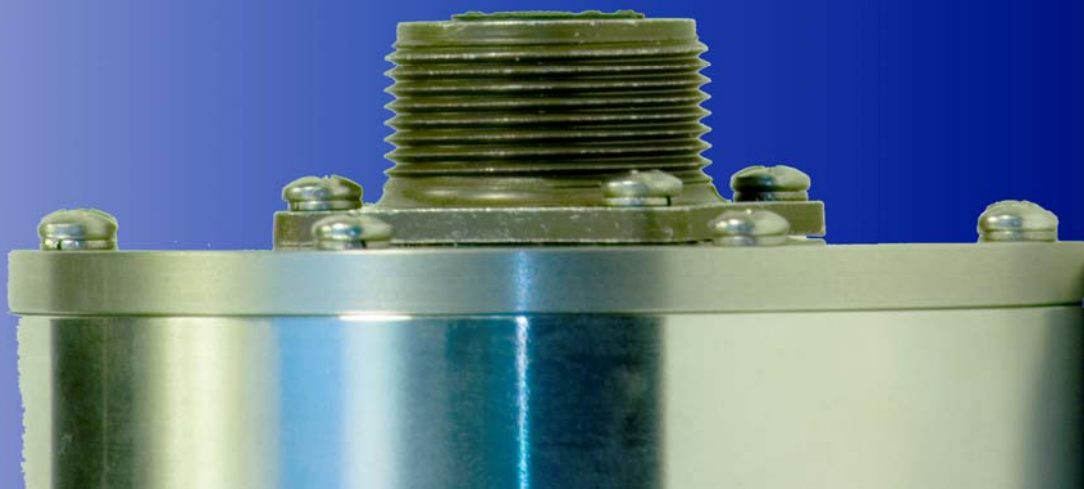


Aerospace Temperature
and Liquid Level
Measurement



Aerospace Signal Conditioning Modules

Series 39 Signal Conditioning Modules

The Series 39 is a microprocessor-based signal conditioning module offers rugged construction and linearized 0-5 volt outputs. The Series 39s are designed to be used in conjunction with Series 44 Temperature probes.

Specifications

Enclosure: Stainless steel housing, gasket sealed for adverse environment; per KSC-S-126.

Temp Scaling: Specific ranges -255°C to +260°C.

Operating: -25°C to +80°C.

Insulation Resistance: Greater than 100 megohms at 50 VDC between all terminals in parallel and case.

Isolation Resistance: Greater than 100 megohms at 50 VDC measured between input and output leads.

Signal Conditioner: 24 to 32 VDC; reverse polarity protected up to +/- 100 volts at 10 millisecond pulse.

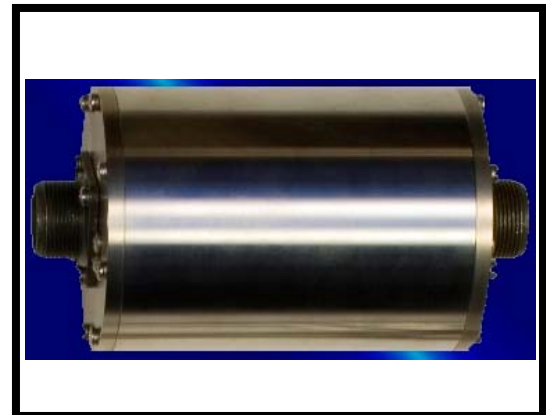
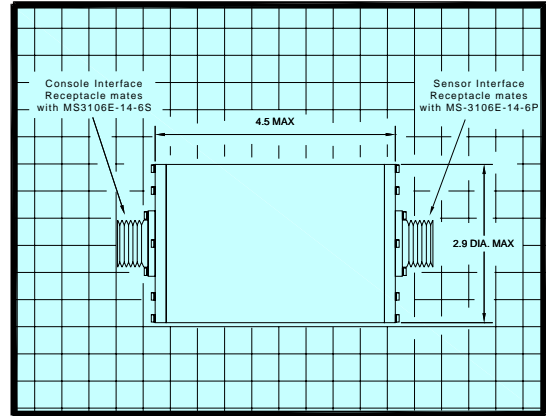
Sensor: 1.0 ma DC for PRT and 10µA DC for diode; four leaded.

Output Voltage: 0.000 to 5.000 +/- 0.025 VDC.

Repeatability: Less than +/- 10 mV DC.

Stability: Less than +/- 25 mV DC.

Error Band: Within +/- 75 mV for all error sources.



SI Part Number	Temperature Range	Corresponding Temperature Probe
39C - 6 - 5 (LH2)	-255°C to -245°C	-6 (1000 ohm PRT) for use with 44C probe.
39C - 6 - 11 (O2)	-185°C to -170°C	-6 (1000 ohm PRT) for use with 44C probe.
39D - 5 - 9	-255°C to 0°C	-5 (Silicon Diode) for use with 44D temp. probe.
39C - 2 - 22	-17.7°C to +260°C	-2 (200 ohm) for use with 44B temp. probe.
39C - 2 - 2	-20°C to +150°C	-2 (200 ohm) for use with 44B temp. probe.

SII Notes:

- Middle letter (X) defined by sensing element.
- Microprocessor version defined by letter "D".
- Other temperature ranges available, consult factory for details.

Aerospace Temperature Probes

Series 44 Signal Temperature Probes

The Series 44 Temperature Probes are constructed of stainless steel and are hermetically sealed units allowing for installation into hazardous environments. These temperature probes are available with customer specified insertion lengths of 2" to 30".

Specifications

Enclosure: All wetted areas are 316 SS.

Insertion Length: 2" to 30" customer specified.

Media Connection: MS-33656-E4 Boss seal capable of withstanding 2000 PSI media pressure.

Temperature Range:

Series 44B - -40°C to +290°C

Series 44C - -260°C to +125°C

Series 44D - -255°C to +125°C

Insulation Resistance: Greater than 100 megohms at 50 VDC between all terminals in parallel and case.

Excitation: 1.0 mA DC, four leaded. 10µA for diodes.

Ice Point Resistance:

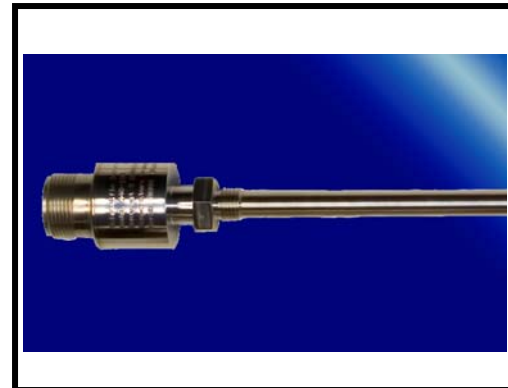
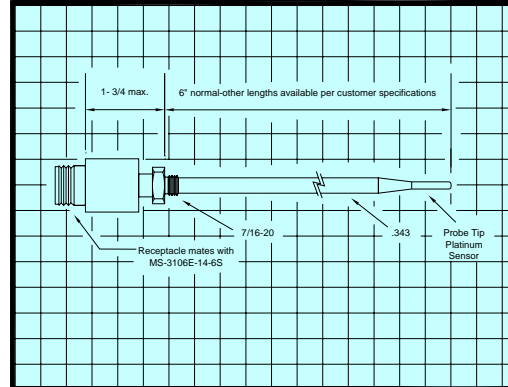
Series 44B - 200 +/- 1.0 Ohms

Series 44C - 1000 +/- 1.0 Ohms

Ice Point Output:

Series 44D - 0.6180 V +/- .0128 V.

Sensor Coefficient: .003890 Ω/Ω/°C determined from calibration data taken at 0°C and 100°C.



SI Part Number	Temperature Range	Corresponding Signal Conditioning Module
44B-XXX	-40°C to +290°C	(200 ohm) for use with 39C Signal Conditioning Module.
44C-XXX	-260°C to +125°C	(1000 ohm PRT) for use with 39C Signal Conditioning Module.
44D-XXX	-255°C to +125°C	(Silicon Diode) for use with 39D Signal Conditioning Module.

SII Notes:

- Ending letter (X) defined by probe insertion length available from 2" to 30" customer specified.

Aerospace Liquid Level Probes

Series 40 Liquid Level Probes

The Series 40 Liquid Level Probes are designed for use with liquid oxygen, liquid hydrogen and liquid nitrogen. These hermetically sealed stainless steel assemblies are designed to withstand severe environmental conditions and feature a response time from vapor to liquid of 0.25 seconds.

Specifications

Enclosure: All wetted areas are 316 SS. Housing hermetically sealed 300 series SS.

Media Connection: MS-33656-E4 boss seal capable of withstanding 2000 PSI media pressure.

Temperature Range:

<u>Media</u>	<u>Temperature</u>
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Oxygen	-183.0°C
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Hydrogen	-252.9°C
----------	----------

Nitrogen	-195.8°C
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Boiling point at 1 atmosphere

Electronic Housing: -20°C to +80°C.

Isolation Resistance: Greater than 100 megohms at 50 VDC between all terminals in parallel and case.

Excitation: 24 to 32 VDC; reverse polarity protected. Unit protected up to +/- 100 volts at 10 millisecond pulse.

Output:

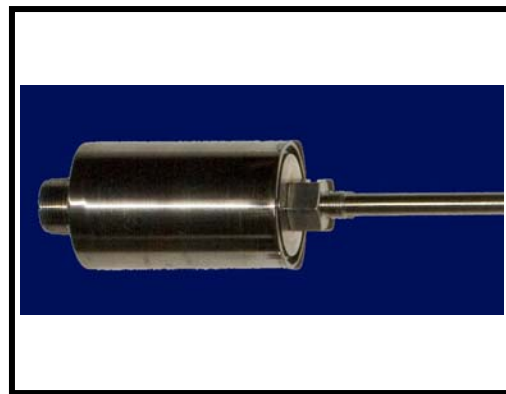
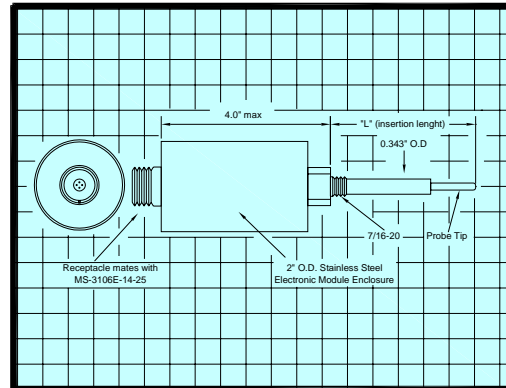
<u>Media State</u>	<u>Output State</u>
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Gaseous	Logic 0
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Liquid	Logic 1
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Note:

1. Logic 0 is nominal 0.0 VDC, (open circuit voltage +3.0, - 0.0 VDC.)
2. Logic 1 is nominal 28.0 VDC (supply voltage +0.0, -3.0, - 0.0 VDC.)
3. Voltage measurements referenced to external power return.



Repeatability: within +/- 0.10% F.S.O.

Response Time: Less than 0.25 sec for vapor to liquid.

SII Notes:

1. Probes available up to 24" in length.

SI Part Number	Temperature Range
40-1 (LOX)	-183.0°C
40-2 (H2)	-252.9°C
40-3 (N2)	-195.8°C