

eTape

Continuous Fluid Level Sensor PN-6573P-8



• Description

The eTape sensor is a solid state, continuous (multi-level) fluid level sensor for measuring levels in water, non-corrosive water based liquids and dry fluids (powders). The eTape sensor is manufactured using printed electronic technologies which employ additive direct printing processes to produce functional circuits.

• Theory of Operation

The eTape sensor's envelope is compressed by hydrostatic pressure of the fluid in which it is immersed resulting in a change in resistance which corresponds to the distance from the top of the sensor to the fluid surface. The eTape sensor provides a resistive output that is inversely proportional to the level of the liquid: the lower the liquid level, the higher the output resistance; the higher the liquid level, the lower the output resistance.

• Specifications

Sensor Length: 10.1" (256.5mm)

Thickness: 0.015" (0.381mm)

Active Sensor Length: 8.6" (218.4mm)

Sensor Output: 385Ω empty, 60Ω full, ± 10%

Resolution: 1/32 inch (0.794mm)

Resistance Gradient: 40Ω /inch (16Ω /cm), ± 10%

Width: 1.0" (25.4mm)

Connector: Crimpflex Solder Tabs

Substrate: Polyethylene Terephthalate (PET)

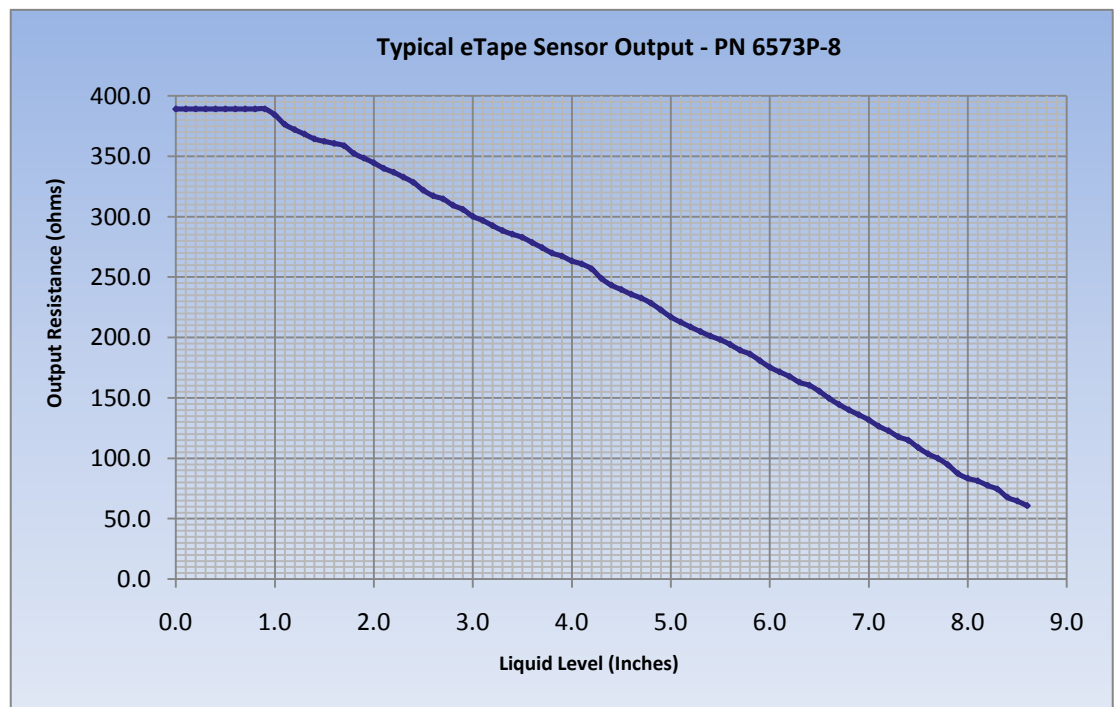
Actuation Depth: Nominal 1 inch (25.4mm)

Temperature Range: 15°F - 140°F (-9°C - 60°C)

Power Rating: 0.5 Watts (VMax = 5V)

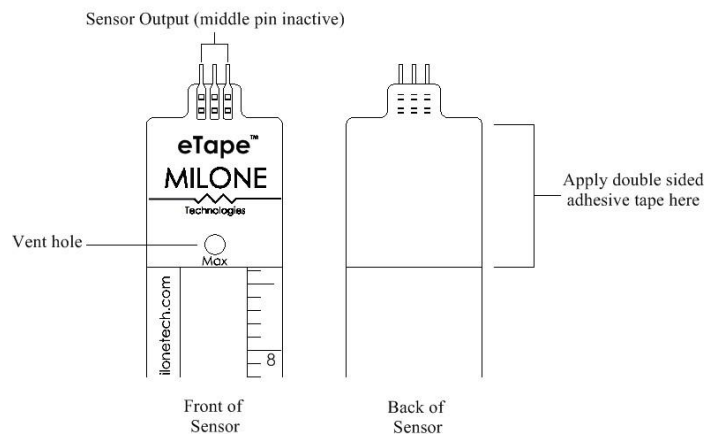
• Sensor Output

The eTape can be modeled as a variable resistor (60 – 385 Ω ± 10%). The typical output characteristics of the eTape sensor are shown in the figure below:



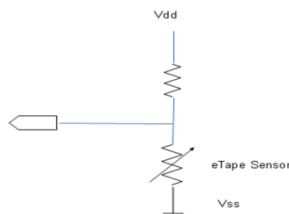
• Connection and Installation

Connect to the eTape by attaching alligator clips or by soldering leads to the crimp pin connectors. Do not over heat with soldering iron. The outer pins are the sensor output, the middle pin is inactive. Suspend the eTape sensor in the fluid to be measured. To work properly the sensor must remain straight and must not be bent vertically or longitudinally. Double sided adhesive tape may be applied to the upper back portion of the sensor to adhere the sensor to the inside wall of the container to be measured. Only apply tape to the upper back portion of the sensor as shown in the figure below. If adhesive tape is applied to any other portion of the sensor it may not work properly. The vent hole located above the max line allows the eTape to equilibrate with atmospheric pressure. The vent hole is fitted with a hydrophobic filter membrane to prevent the eTape from being swamped if inadvertently submerged.

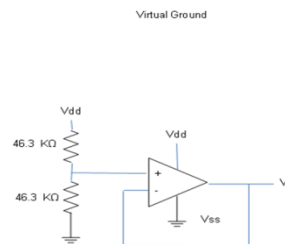


• Sample Circuits

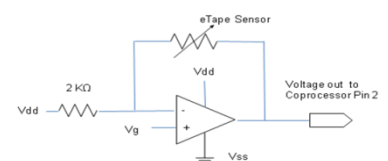
Simple Voltage Divider Circuit



Active Resistance to Voltage converter
Using an inverting Op Amp and Virtual Ground



Inverting Op Amp



• Custom Applications

The eTape sensor can be manufactured in custom lengths to fit any application. Contact Milone Technologies if you have an application that requires specific length, configuration or output characteristics.

• Technical Support

If you require technical support for the eTape liquid level sensor, please contact our technical support department by email at: techsupport@milonetech.com.

Innovative Fluid Sensing

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