

Turbidity and Temperature Sensor

The 165D6042P003 module measures the turbidity (amount of suspended particles) of the wash water in washing machines and dishwashers. An optical sensor for washing machines is a measuring product for a turbid water density or an extraneous matter concentration using the refraction of wavelength between photo transistor and diode. By using an optical transistor and optical diodes, an optical washing machine sensor measures the amount of light coming from the source of the light to the light receiver, in order to calculate water turbidity.



Theory of Operation

The sensor operates on the principle that when light is passed through a sample of water, the amount of light transmitted through the sample is dependent on the amount of soil in the water. As the soil level increases, the amount of transmitted light decreases. The turbidity sensor measures the amount of transmitted light to determine the turbidity of the wash water. These turbidity measurements are supplied to the dishwasher controller, which makes decisions on how long to wash in all the cycles. These decisions are made based on a comparison between clean water measurements (taken at the beginning of the wash cycle) and the wash water turbidity measurement taken at the end of each wash cycle. By measuring the turbidity of the wash water, the dishwasher can conserve energy on lightly soiled loads by only washing as long as necessary. This will result in energy savings for the consumer.

Specifications

Part Number

165D6042P003

Rated Voltage

DC 5V (between No #4 & Ground)

Voltage Differential

2.9V \pm 20%

Test Method

After testing voltage in water (0 NTU),
voltage test in water (4000 NTU))
(Voltage between No #2 pin & Ground)

Operating Temperature Range

0°C ~ 85°C

Storage Temperature Range

-20°C ~ 85°C

Resistance

R25°C = 10k Ω \pm 5%

B Value

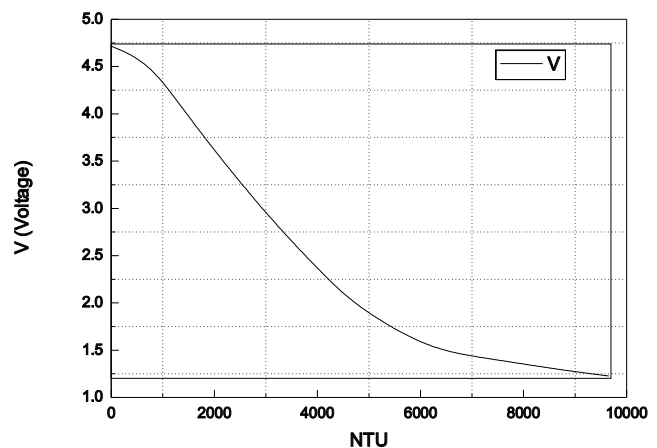
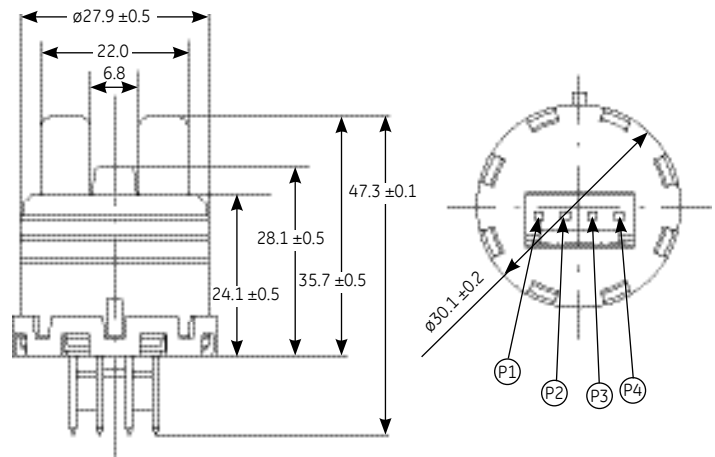
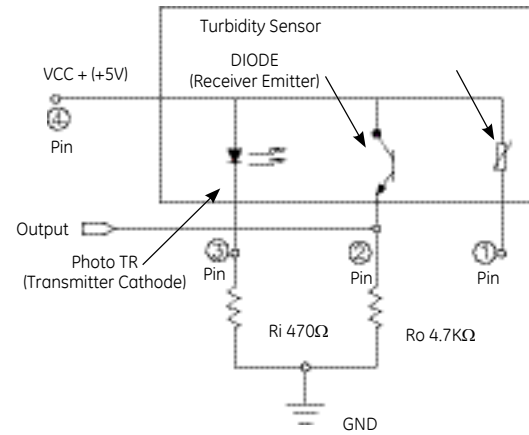
B(25/85) = 4100K \pm 2%

Rated Current

Max. 30 mA

Insulation Resistance

Min 100 M Ω by 500V DC



Application Section

Detecting the turbidity degree of water



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920-480B