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Evaluation of temperature sensors used in automotive applications type NTC and PTC

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Abstract

The coolant temperature sensor is an important tool for measuring the temperature of the engine improving performance and life time. Using this information's the engine control module control different parameters achieving optimal engine control. Thermistor-based temperature sensors have been the choice for a variety of automotive applications enhancing the performance of car systems. In this paper, an experimental stand was designed and realized in the laboratory to evaluate the accuracy of two thermistors NTC and PTC used to measure the engine coolant temperature. Based on the variation of the temperature characteristics curves function of resistance will be determined.

Keywords: coolant temperature sensors, engines, thermistors, coolants

References

1. *Wood SD, Mangum BW, Filliben JJ and Tillett SB 1978 Journal Of Research of the National Bureau of Standards **B3** May-June*
Go to reference in article
Google Scholar
2. *Sugiarto T, Putra DS and Purwanto W 2017 Analysis on the role of engine coolant temperature sensor in gasoline engine, ISSN 2528-2611, e-ISSN 2528-2700 **2** 145-152 December*
Go to reference in article
Google Scholar
3. *Jagtap S, Rane S, Gosavi S and Amalnerkar D 2008 Preparation, characterization and electrical properties of spinel-type environment friendly thick film NTC thermistors Journal of the European Ceramic Society **28** 2501-2507*
Go to reference in article
Google Scholar
4. *Liu X, Luo Y and Li X 2008 Electrical properties of BaTiO3-based NTC ceramics doped by BaBiO3 and Y2O3 Journal of Alloys and Compounds **459** 45-50*
Go to reference in article
Google Scholar

5. *Zubair MA and Leach C 2008 The influence of cooling rate and SiO2 additions on the grain boundary structure of Mn-doped PTC thermistors Journal of the European Ceramic Society* ***28*** *1845-1855*
Go to reference in article
Google Scholar
6. *Lee WY, Kim TM, Kim MJ, Ko YW and Kim JD 2015 User-friendly Calibration Tool for Temperature Measurements of PCR Devices with NTC Thermistors International Journal of Control and Automation* ***8*** *13-24*
Go to reference in article
Google Scholar
7. *Dumcius A, Gailius D and Kuzas P 2014 Stability of Negative Resistance Coefficient Thermistors for Long-term Temperature Elektronika Ir Elektrotechnika* ***20*** *ISSN 1392-1215*
Go to reference in article
Google Scholar