



Letter to the Editor

Notes on “A methodology for combustion detection in diesel engines through in-cylinder pressure derivative signal”

The recent paper by Luján et al. [1] considers methods for analyzing the instant variation of the combustion chamber pressure, directly obtained from the electric signal provided by a traditional piezoelectric sensor. The authors claim to have introduced a new alternative for signal processing that, in opposition to the commercial conditioner, directly measures the intensity in the piezoelectric sensor through

$$U_{out} = Ri = R \frac{dq}{dt} = Rk \frac{dP}{dt} \quad (1)$$

where R is a resistor connected to a current-to-voltage converter circuit, k the sensitivity of the sensor and dP/dt the in-cylinder pressure derivative. Thus, the authors proposed the use of a current-to-voltage converter circuit to obtain an electrical signal proportional to the derivative of the pressure, as can be seen on Fig. 2 of the paper by Luján et al. [1].

We must say that this methodology has been previously published in the paper “A new engine indicating measurement procedure for combustion heat release analysis” [2]. The pressure derivative is expressed as

$$\frac{dP}{dt} = \frac{U_{out}}{Rk} \quad (2)$$

in Eq. (4) of Ref. [2]. Furthermore, the circuit proposed by Luján et al. as an alternative in opposition to the commercial conditioner appears as follows in our paper (Fig. 1).

It is surprising to us that the authors have not noticed this and did not acknowledge our work. Our paper was available online since 5 August 2008, 3 months before the above mentioned paper was submitted to your journal.

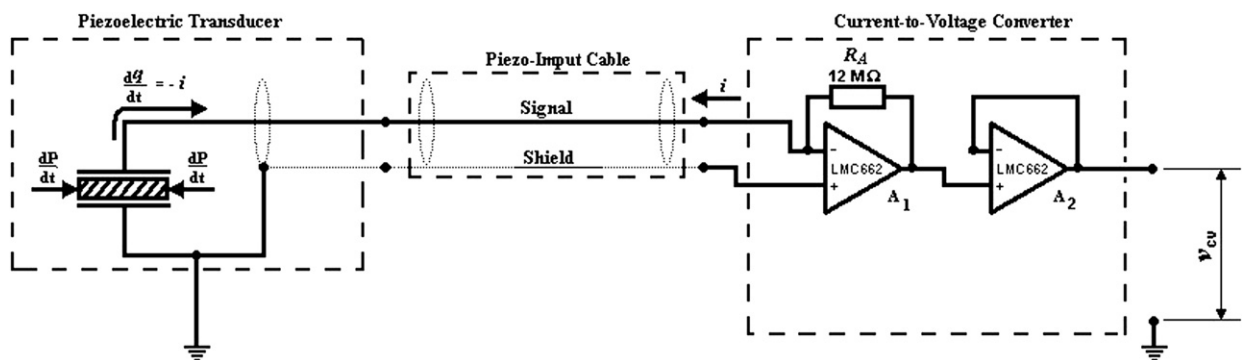


Fig. 1. Transducer signal conditioning through a current-to-voltage converter [2].

References

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