Document details

2017 IEEE International Conference on Smart Instrumentation, Measurement and Applications, ICSIMA 2017
Volume 2017-November, 9 March 2018, Pages 1-3
4th IEEE International Conference on Smart Instrumentation, Measurement and Applications, ICSIMA 2017; Putrajaya; Malaysia; 28 November 2017 through 30 November 2017; Category numberCFP1YAG-ART; Code 135221

A proposed resistance-to-time converter with switching impulse calibrators for resistive bridge sensors (Conference Paper)

Zahangir, M.[a], Khan, S.[a], Adam, I.[b], Abdul Kadir, K.[b], Nordin, A.N.[a], Ibrahim, S.N.[a]

[a]Department of Computer Engineering, International Islamic University of Malaysia, Gombak, Selangor, 53100, Malaysia
[b]British Malaysian Institute, University of Kuala Lumpur, Gombak, Selangor, 53100, Malaysia

Abstract

View references (6)

This paper presents a simple resistance-to-time converter . It consists of two voltage comparators, a ramp voltage generator, two logic gates and impulse voltage calibrators . A square-wave generator circuit is suggested in this paper. The design is simple and independent of the OPAMP offset issues. The resulting square-wave is rectified to get its DC equivalent and to a triangular output; the two outputs are applied to a comparator for generating a digital output with duty cycle proportional to a change in resistance upon which is dependent the DC. © 2017 IEEE.

SciVal Topic Prominence

Topic: Capacitive sensors | Capacitance | Capacitance-to-digital converter

Prominence percentile: 84.948

Author keywords

impulse voltage calibrators | ramp voltage generator | resistance-to-time converter

Indexed keywords

Engineering controlled terms: Comparator circuits | Operational amplifiers | Square wave generators

Engineering uncontrolled terms: Digital output | Duty-cycle | Impulse voltage | Ramp voltage | Resistance-to-time converter | Resistive bridge sensors | Square waves | Switching impulse

Engineering main heading: Comparators (optical)

ISBN: 978-153863960-3
Source Type: Conference Proceeding
Original language: English
DOI: 10.1109/ICSIMA.2017.8312017
Document Type: Conference Paper
Sponsors: International Islamic University Malaysia (IIUM),UCSI University,Universiti Kuala Lumpur British Malaysian Institute (UniKL BMI),Universiti Teknologi Malaysia (UTM),Universiti Teknologi MARA (UiTM),University Putra Malaysia (UPM)
Publisher: Institute of Electrical and Electronics Engineers Inc.

References (6)

View in search results format ›

All | Export | Print | E-mail | Save to PDF | Create bibliography

1 Mochizuki, K., Watanabe, K.

A high-resolution, linear resistance-to-frequency converter

(1996) *IEEE Transactions on Instrumentation and Measurement*, 45 (3), pp. 761-764. Cited 59 times.
doi: 10.1109/19.494596

View at Publisher

2 Kaliyugavaradan, S.

A linear resistance-to-time converter with high resolution

(2000) *IEEE Transactions on Instrumentation and Measurement*, 49 (1), pp. 151-153. Cited 38 times.
doi: 10.1109/19.836326

View at Publisher

3 Ferrari, V., Marioli, D., Taroni, A.

Oscillator-based interface for measurand-plus-temperature readout from resistive bridge sensors

(2000) *IEEE Transactions on Instrumentation and Measurement*, 49 (3), pp. 585-590. Cited 38 times.
doi: 10.1109/19.850399

View at Publisher

4 Morlán, C.B., Buafull, B.O., Miranda, G.M., Regueiro-Gómez, A.

A low-cost circuit with direct digital output for pressure measurement

(1999) *IEEE Transactions on Instrumentation and Measurement*, 48 (4), pp. 817-819. Cited 8 times.
doi: 10.1109/19.779180

View at Publisher

5 Kim, H., Chung, W.-S., Son, S.-H., Kim, H.-J.

A bridge resistance deviation-to-time interval converter for resistive sensor bridges (Open Access)

(2007) *IEICE Electronics Express*, 4 (10), pp. 326-331. Cited 5 times.
http://www.jstage.jst.go.jp/article/elex/4/10/326/_pdf
doi: 10.1587/elex.4.326

View at Publisher

6 Chung, W.-S., An, M.-Y., Son, S.-H.

A simple resistance-to-time converter for resistive bridge sensors (Open Access)

(2008) *IEICE Electronics Express*, 5 (9), pp. 310-315. Cited 6 times.
http://www.jstage.jst.go.jp/article/elex/5/9/310/_pdf
doi: 10.1587/elex.5.310

View at Publisher