

## Document details

Back to results | 1 of 1

Full Text

View at Publisher

Export

Download

Add to List

More...

Proceedings - 6th International Conference on Computer and Communication Engineering: Innovative Technologies to Serve Humanity, ICCCE 2016

29 December 2016, Article number 7808304, Pages 172-176

6th International Conference on Computer and Communication Engineering, ICCCE 2016; International Islamic University Malaysia Kuala Lumpur, Malaysia; 25 July 2016 through 27 July 2016; Category number E5811; Code 125901

## Low Noise Inverter for Poly Phase Microgrid System (Conference Paper)

Rahman, T., Motakabber, S.M.A., Ibrahimy, M.I.

Department of Electrical and Computer Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

### Abstract

[View references \(6\)](#)

The **inverter** is a power electronics device which changes DC voltage to AC voltage or vice versa. The synchronous **phase inverter** is used in the **microgrid system** to connect the renewable energy sources of minimum **phase** error. For a high-efficiency power transmission and distribution **system**, a three-**phase inverter** is used. The electronic switches of the **inverter** are controlled by a controller circuit which can be a two-level pulse width modulation (PWM), **phase** lock loop (PLL) controller, etc. A fixed reference DC voltage and current generators are used for a stable input-output voltage and current to reduce the higher harmonic distortions. An LC lowpass filter has been designed and simulated for the input and output of the **system** by using MATLAB2014a. The input filter is utilized to reduce the AC ripple component in the DC input supply, and the output filter is used to reduce the higher frequency harmonic distortion from the **inverter** output supply to maintain the IEEE standard THD < 5%. A balanced **microgrid** star configuration load and the input DC voltage of 250V have been considered in this design. The overall conversion efficiency of the **inverter** is 97.62% and THD < 5%. The results show that the design has better performance and can be used efficiently in the **microgrid system**. © 2016 IEEE.

### Author keywords

**inverter** control; LC filter; micro-grid; three **phase inverter**

### Indexed keywords

**Engineering controlled terms:** Electric inverters; Electric switches; Harmonic distortion; **Low** pass filters; Passive filters; **Phase** locked loops; Pulse width modulation; Renewable energy resources; Voltage control

Higher-frequency harmonics; **Inverter** control; LC filter; Micro grid; Overall conversion efficiency; Power electronics devices; Power transmission and distributions; Three-**phase inverter**

**Engineering main heading:** Electric machine control

ISBN: 978-150902427-8 Source Type: Conference Proceeding Original language: English

DOI: 10.1109/ICCCE.2016.46 Document Type: Conference Paper

Sponsors: 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

☐ Blaabjerg, F., Teodorescu, R., Liserre, M., Timbus, A.V.

1 **Overview of control and grid synchronization for distributed power generation systems**

(2006) *IEEE Transactions on Industrial Electronics*, 53 (5), pp. 1398-1409. [Cited 2028 times](#).

doi: 10.1109/TIE.2006.881997

[View at Publisher](#)

☐ Bhutia, B., Ali, S.M., Tiadi, N.

2 Design of three phase PWM voltage source inverter for photovoltaic application

(2014) *International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering*, 2 (4), pp. 1364-1367. [Cited 3 times](#).

### Cited by 0 documents

Inform me when this document is cited in Scopus:



[Set citation alert](#)



[Set citation feed](#)

### Related documents

#### Design of a Switching Mode Three Phase Inverter

Rahman, T., Motakabber, S.M.A., Ibrahimy, M.I.

(2016) Proceedings - 6th International Conference on Computer and Communication Engineering: Innovative Technologies to Serve Humanity, ICCCE 2016

#### Phase Synchronous Inverter for Microgrid System

Rahman, T., Motakabber, S.M.A., Ibrahimy, M.I.

(2016) Proceedings - 6th International Conference on Computer and Communication Engineering: Innovative Technologies to Serve Humanity, ICCCE 2016

#### New control and automation system for an islanded microgrid with energy storage systems

Zadeh, M.R.D., Hajimiragha, A., Adamiak, M.

(2011) 2011 IEEE PES Conference on Innovative Smart Grid Technologies - Middle East, ISGT Middle East 2011

[View all related documents based on references](#)

Find more related documents in Scopus based on:



[Authors](#)



[Keywords](#)