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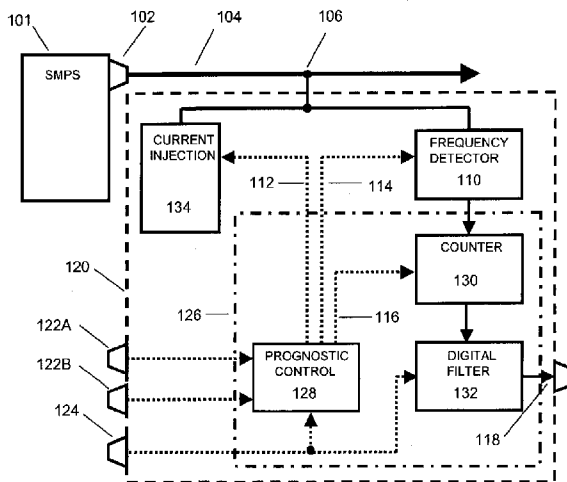
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(54) Title: PROGNOSTIC HEALTH MONITORING IN SWITCH-MODE POWER SUPPLIES WITH VOLTAGE REGULATION



(57) Abstract: The system includes a current injection device (134) in electrical communication with the switch mode power supply (101). The current injection device 9134) is positioned to alter the initial, non-zero load current when activated. A prognostic control (128) is in communication with the current injection device (134), controlling activation of the current injection device (134). A frequency detector (110) is positioned to receive an output signal from the switch mode power supply (101) and is able to count cycles in a sinusoidal wave within the output signal. An output device (126) is in communication with the frequency detector (110). The output device (126) outputs a result of the counted cycles, which are indicative of damage to a remaining useful life of the switch mode power supply (101).

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/73706

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **G05F 1/40(2006.01),1/56(2006.01)**

 USPC: **323/282,285**
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 323/282, 285, 268, 271, 283

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EAST: prognostic or monitor, counting (pulses or cycles), frequency detect\$4

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7,173,446 A (ISAKHAROV et al) 06 February 2007, see Figs. 1, 4	1, 9, 16, 21
A	US 7,154,254 A (BRAY) 26 December 2006, see Fig. 2	1, 9, 16, 21
A	US 6,873,204 A (MATSUDA) 29 March, 2005, see Fig. 1	1, 9, 16, 21
A	US 6,011,414 A (MAJID et al) 04 January 2000, see Fig. 7	1, 9, 16, 21
A	US 4,531,065 A (NAKAYAMA et al) 23 July 1985, see Fig. 1	1, 9, 16, 21

Further documents are listed in the continuation of Box C. See patent family annex.

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