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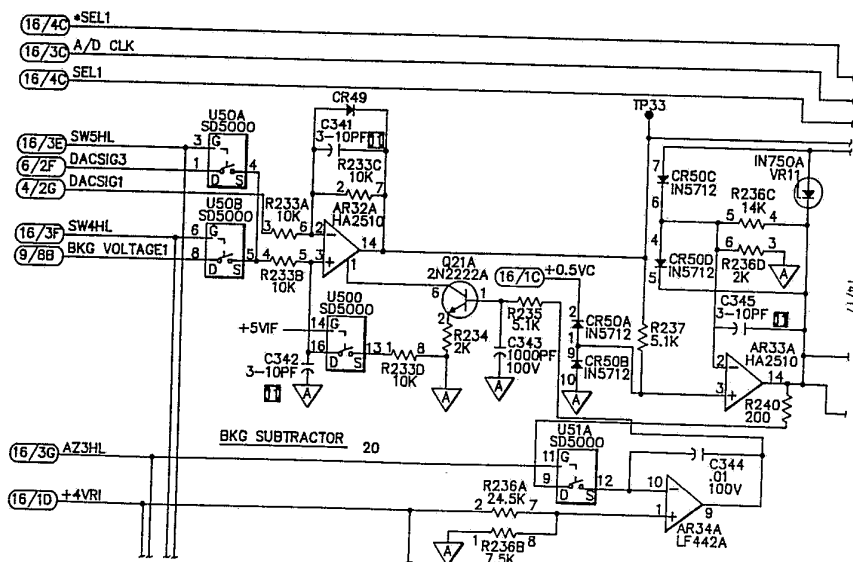
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(54) Title: EXTREMELY HIGH SPEED, REAL-TIME BACKGROUND FILTER FOR RADIATION DETECTORS

(57) Abstract

A five stage background filter circuit (10) which is capable of responding to background radiation changes at speeds which are from one to two orders of magnitude faster than conventional prior filter. The invention utilizes a cross can multiplexing technique in combination with filter circuitry depicted in schematic over view in (Fig. 1). Circuit (10) includes a differential amplifier (12), a sample and hold device (14), a responsivity corrector (16), a recursive filter (18), and a background subtractor (20). Output signals (11) from a focal plane array of detectors (Fig. 3) are passed through impedance matching input resistors (12a, b) to an amplifier. A sample and hold circuit (14a) cyclically selects and stores a signal received from first stage (12). The detector outputs are then normalized by responsivity corrector stage (16) which employs a digital-to-analog converter (16a) and random access memory (16c). A threshold band comparison and time-out logic circuit (21) within background subtractor stage (20) controls the operation of recursive filter stage (18) in order to suppress signals due to sensed radiation bursts and to eliminate the unwanted, dynamically varying background radiation portion of the signal present at node (17b). A processed output signal present at node (20i) is then passed to a target detection processor.



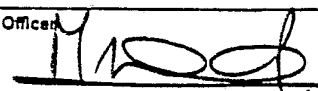
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INTERNATIONAL SEARCH REPORT

International Application No PCT/US 86/02781

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) *		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC ⁴ : H 04 N 5/33; H 04 N 5/21		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC ⁴	H 04 N 3 H 04 N 5 G 01 S	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	US, A, 4399464 (HIX et al.) 16 August 1983 see column 5, lines 34-58; column 9, lines 37-48; figure 1 --	1-4
A	US, A, 4298887 (RODE) 3 November 1981 see column 4, lines 6-47; figure 1 --	2
A	GB, A, 2004435 (THE SECRETARY OF STATE FOR DEFENCE) 28 March 1979 see page 1, line 65 - page 2, line 8; figure 1 -----	1
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
12th October 1987		24 NOV 1987
International Searching Authority		Signature of Authorized Officer
EUROPEAN PATENT OFFICE		M. VAN MOL 

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/US 86/02781 (SA 16861)

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 03/11/87

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A- 4399464	16/08/83	None	
US-A- 4298887	03/11/81	None	
GB-A- 2004435	28/03/79	FR-A, B 2402987	06/04/79
		DE-A- 2839890	29/03/79
		CA-A- 1122697	27/04/82
		SE-A- 7809590	14/03/79
		SE-B- 440718	12/08/85