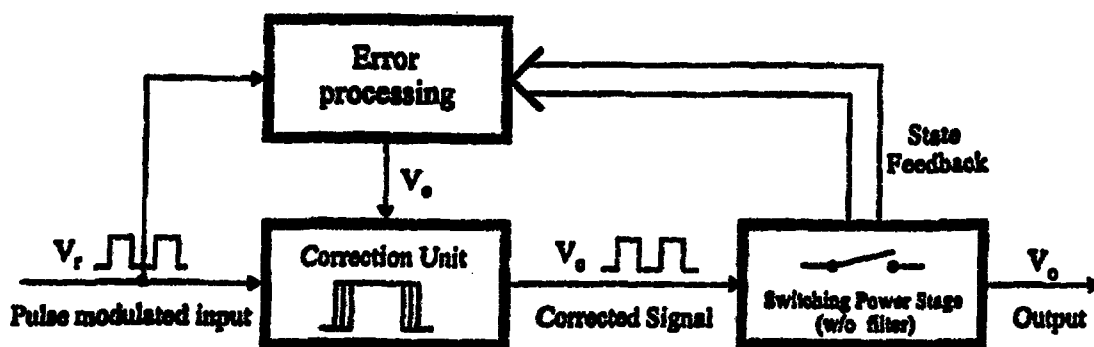




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H03F 3/217, 1/32	A2	(11) International Publication Number: WO 98/44626 (43) International Publication Date: 8 October 1998 (08.10.98)
(21) International Application Number: PCT/DK98/00133 (22) International Filing Date: 1 April 1998 (01.04.98) (30) Priority Data: 0375/97 2 April 1997 (02.04.97) DK (71)(72) Applicant and Inventor: NIELSEN, Karsten [DK/DK]; Rævehøjparken 19, 2. tv., DK-2800 Lyngby (DK). (74) Agent: K. SKØTT-JENSEN PATENTINGENIØRER A/S; Lemmingvej 225, DK-8361 Hasselager (DK).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published Without international search report and to be republished upon receipt of that report.

(54) Title: PULSE REFERENCED CONTROL METHOD FOR ENHANCED POWER AMPLIFICATION OF A PULSE MODULATED SIGNAL



(57) Abstract

To correct for any source of non-linearity and noise introduced in the power amplification of a pulse modulated signal, a correction unit is applied in-between the pulse modulator and the switching power amplification stage. The correction unit is controlled to have a compensating effect, by introducing continuous delays on the individual pulse edges on the basis of error information provided by an error processing block. One preferred embodiment of the invention comprises: a Correction Unit with means to control the delays of the individual pulse edges as a function of a control input signal v_c ; a state feedback block A with compensation; a reference shaping block R to modify the pulsed reference v_r for optimized error estimation; a difference block to generate an error signal and a compensator C to shape this error. The invention makes it possible to implement practical digital to analog power conversion, with efficient compensation of any non-linearity and noise introduced in the switching power stage and filter, such that great efficiency, high performance and low system complexity is combined. Applications are direct digital to audio power conversion and improved general DC-DC or DC-AC power conversion systems controlled from the digital domain.