

Title (en)  
METHOD AND DEVICE FOR THE HIGHLY ACCURATE DIGITAL MEASUREMENT OF AN ANALOGUE SIGNAL

Title (de)  
VERFAHREN UND VORRICHTUNG ZUR HOCHGENAUEN DIGITALEN MESSUNG EINES ANALOGSIGNALS

Title (fr)  
PROCEDE ET DISPOSITIF DE MESURE NUMERIQUE DE HAUTE PRECISION D'UN SIGNAL ANALOGIQUE

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Application  
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Abstract (en)  
[origin: WO2006021266A1] The invention relates to a method for the highly accurate digital measurement of an analogue signal and to a corresponding device. A measuring clock pulse ( $f_{M</SUB>}$ ) is generated from a clock pulse signal ( $f_{T</SUB>}$ ). In a first calibration step, a capacitor (C) is charged with a constant current ( $I_{K</SUB>}$ ) during the entire period of the clock pulse signal ( $f_{T</SUB>}$ ). The charge voltage is maintained and is converted into a digital comparison number. In a subsequent measuring step, a first portion ( $T_{1</SUB>}$ ) of the duration of the analogue signal is determined as an appropriately selected, whole-numbered multiple (m) of the duration ( $T_{0</SUB>}$ ) of the period of the clock pulse signal ( $f_{T</SUB>}$ ). The capacitor (C) is charged with the same constant current ( $I_{K</SUB>}$ ) from the end of the first portion ( $T_{1</SUB>}$ ) until the occurrence on the specified flank of the received signal ( $f_{E</SUB>}$ ). The charge voltage is maintained and converted into a digital measuring number. The measuring number is divided by the comparison number, which permits the duration of a second portion ( $T_{2</SUB>}$ ) of the analogue signal to be calculated as a fraction of a measuring clock pulse period. The measured value of the analogue signal is calculated from the first portion ( $T_{1</SUB>}$ ) and the second portion ( $T_{2</SUB>}$ ).

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