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**(54) Title (EN):** AUTOMATED PRECISION ALIGNMENT OF DATA IN A UTILITY MONITORING SYSTEM

**(54) Title (FR):** ALIGNEMENT PRECIS AUTOMATISE DE DONNEES DANS UN SYSTEME DE CONTROLE UTILITAIRE

**(57) Abstract:**

**(EN):** A data alignment algorithm that automatically aligns data from multiple monitoring devices to the same zero-crossings at the same point in time. Cycle-by-cycle frequency data is received from each monitoring device and a cross-correlation algorithm is performed to determine a correlation coefficient between a reference monitoring device and another monitoring device.

The data of the other monitoring device is shifted by one cycle and another correlation coefficient is calculated by the cross-correlation algorithm. The data of the two monitoring devices is aligned at the point at which the maximum correlation coefficient is calculated or the point at which the correlation coefficient exceeds a threshold value. The clocks of the monitoring devices can also be synchronized at the same point of alignment.

**(FR):** On décrit un algorithme d'alignement de données qui aligne automatiquement des données provenant de plusieurs dispositifs de contrôle sur les mêmes passages par zéro, à un même moment donné. Des données de fréquence cycle par cycle sont reçues de chaque dispositif de contrôle et un algorithme de corrélation croisée est mis en oeuvre pour déterminer un coefficient de corrélation entre un dispositif de contrôle de référence et un autre dispositif de contrôle. Les données de l'autre dispositif de contrôle sont décalées d'un cycle et un autre coefficient de corrélation est calculé par l'algorithme de corrélation croisée. Les données des deux dispositifs de contrôle sont alignées au point où le coefficient de corrélation maximal est calculé, ou au point où le coefficient de corrélation dépasse une valeur de seuil. Les horloges des dispositifs de contrôle peuvent également être synchronisées au même point d'alignement.

**International search report:**

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European Patent Office (EPO) : AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR

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### **Declarations:**

Declaration made as applicant's entitlement, as at the international filing date, to claim the priority of the earlier application, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii))