

Title (en)

SEMICONDUCTOR RUN-TO-RUN CONTROL SYSTEM WITH STATE AND MODEL PARAMETER ESTIMATION

Title (de)

HALBLEITER-RUN-TO-RUN-STEUERSYSTEM MIT ZUSTANDS- UND MODELLPARAMETERSCHÄTZUNG

Title (fr)

SYSTEME DE COMMANDE SEQUENTIELLE POUR SEMI-CONDUCTEUR A ESTIMATION DE PARAMETRES D'ETAT ET DE MODELE

Publication

EP 1444556 A4 20060607 (EN)

Application

EP 02806777 A 20021023

Priority

- US 0233853 W 20021023
- US 4635901 A 20011023
- US 17175802 A 20020614

Abstract (en)

[origin: WO03096130A1] A method for a run-to-run (R2R) control system includes processing materials using a process input and producing a process output, storing the process input in a database, the storing including using a timestamp, and storing at least one measurement of the process output in the database aligned with each process input using the timestamp. The method further includes iterating over the data in the database to estimate one or more coefficients for a model, and, if one or more measurements is missing, replacing the missing measurements based on a prediction from said model. The model is updated with said coefficient estimates. The method additionally includes iterating over the data from the database to estimate a process state, and, if one or more of the measurements is missing from the database, replacing the missing measurements based on prediction from the model. The model is updated with said process state estimate. A controller may receive the updated model and utilize the model to produce the next process input. The updated model may also be utilized to generate an estimate for a measurable process variable, wherein the estimate can be compared to an actual measurement to determine if the estimate is within confidence limits. If the estimate is not within confidence limits, a fault is indicated.

IPC 8 full level

H01L 21/66 (2006.01); **G05B 13/04** (2006.01); **G05B 17/02** (2006.01)

CPC (source: EP)

G05B 13/042 (2013.01); **G05B 13/048** (2013.01); **G05B 17/02** (2013.01); **H01L 22/20** (2013.01)

Citation (search report)

- [XA] US 5710700 A 19980120 - KURTZBERG JEROME M [US], et al
- [XA] WO 0079355 A1 20001228 - SEMY ENGINEERING INC [US]
- [X] US 5926690 A 19990720 - TOPRAC ANTHONY JOHN [US], et al
- [A] US 5859964 A 19990112 - WANG QINGSU [US], et al
- See references of WO 03096130A1

Designated contracting state (EPC)

DE NL

DOCDB simple family (publication)

WO 03096130 A1 20031120; AU 2002367635 A1 20031111; CN 100354776 C 20071212; CN 1592873 A 20050309; EP 1444556 A1 20040811; EP 1444556 A4 20060607

DOCDB simple family (application)

US 0233853 W 20021023; AU 2002367635 A 20021023; CN 02823393 A 20021023; EP 02806777 A 20021023