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(12) **EUROPEAN PATENT APPLICATION**

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03716792.1 / 1 489 961

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(54) **Improving performance for an analyte monitoring device**

(57) The present invention comprises one or more microprocessors programmed to execute methods for improving the performance of an analyte monitoring device including prediction of glucose levels in a subject by utilizing a predicted slower-time constant (1/k2). In another aspect of the invention, pre-exponential terms (1/c2) can be used to provide a correction for signal decay (e.g., a Gain Factor). In other aspects, the present invention relates to one or more microprocessors comprising programming to control execution of (i) methods for conditional screening of data points to reduce skipped measurements, (ii) methods for qualifying interpolated/extrapolated analyte measurement values, (iii) various integration methods to obtain maximum integrals of analyte-related signals, as well as analyte monitoring devices comprising such microprocessors. Further, the present invention relates to algorithms for improved optimization of parameters for use in prediction models that require optimization of adjustable parameters.

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European Patent Office

PARTIAL EUROPEAN SEARCH REPORT

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number EP 06 07 6174

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,A	WO 01/88534 A (CYGNUS THERAPEUTIC SYSTEMS) 22 November 2001 (2001-11-22) * page 57, line 13 - page 58, line 5 * * page 59, line 26 - page 60, line 4 * -----	1,23	INV. A61B5/00
A	XU LIANG ET AL: "Optimization method for simultaneous kinetic analysis" ANALYTICAL CHEMISTRY JUN 1 1996 ACS, WASHINGTON, DC, USA, vol. 68, no. 11, 1 June 1996 (1996-06-01), pages 1842-1850, XP002260240 page 1843, right-hand column; Equation 8b -----	1,23	

TECHNICAL FIELDS SEARCHED (IPC)

A61B
G01N

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
The Hague	15 August 2006	Knüpling, Moritz

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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EPO FORM 1503 03.82 (P04C07)

European Patent Office

INCOMPLETE SEARCH SHEET C

Application Number
EP 06 07 6174

Claim(s) not searched:
38-45

Reason for the limitation of the search (non-patentable invention(s)):

Article 52 (2)(a) EPC - Mathematical method
Article 52 (2)(c) EPC - Scheme, rules and method for performing mental acts

European Patent Office

Application Number
EP 06 07 6174

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-23

European Patent Office

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 06 07 6174

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-23

   System and method for glucose monitoring comprising correcting for signal decay of sensor

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2. claims: 24-29

   System and method for glucose monitoring comprising skin conductance readings and data integrity screen

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3. claims: 30-34

   System for glucose monitoring comprising qualifying whether signal should be replaced by interpolation or extrapolation

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4. claims: 35-37

   System for glucose monitoring comprising selecting current integration method

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5. claims: 46-67

   System for glucose monitoring using inverse of rate constant

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 07 6174

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

15-08-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0188534 A	22-11-2001	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	提高分析物监测设备的性能		
公开(公告)号	EP1702561A3	公开(公告)日	2006-12-20
申请号	EP2006076174	申请日	2003-03-21
[标]申请(专利权)人(译)	马斯TECH		
申请(专利权)人(译)	马斯技术有限责任公司		
当前申请(专利权)人(译)	马斯技术有限责任公司		
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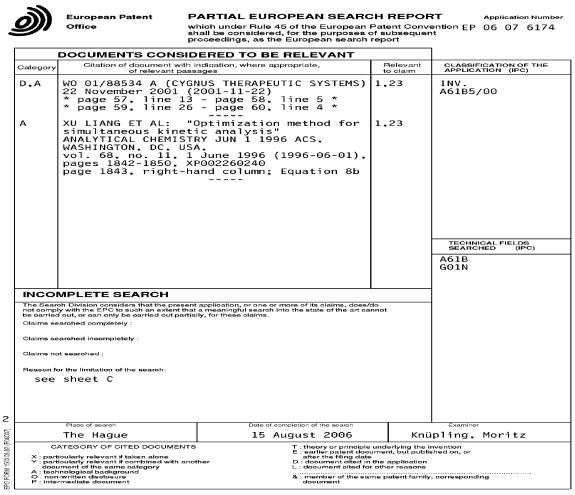
发明人	BARTKOWIAK, MIROSLAW HARPER, WESLEY S. KULCU, ERAY LESHO, MATTHEW J. TAMADA, JANET A.		
IPC分类号	A61B5/00 G01N27/26 A61B5/053 A61B5/145 A61B5/1477 G01N27/28 G01N27/327 G01N27/416 G01N33/487		
CPC分类号	A61B5/681 A61B5/0531 A61B5/14532 A61B5/7242 G01N27/3271 Y10T436/144444		
优先权	60/367087 2002-03-22 US 60/413989 2002-09-25 US		
其他公开文献	EP1702561A2 EP1702561B1		
外部链接	Espacenet		

摘要(译)

本发明包括一个或多个微处理器，其被编程以执行用于改善分析物监测装置的性能的方法，包括通过利用预测的较慢时间常数（1 / k2）来预测受试者中的葡萄糖水平。在本发明的另一方面，指前项（1 / c2）可用于提供信号衰减的校正（例如，增益因子）。在其他方面，本发明涉及一种或多种微处理器，包括用于控制（i）用于条件筛选数据点以减少跳过的测量的方法的执行的程序，（ii）用于限定内插/外推的分析物测量值的方法，（iii）用于获得分析物相关信号的最大积分的各种积分方法，以及包括这种微处理器的分析物监测装置。此外，本发明涉及用于改进参数优化的算法，该参数用于需要优化可调参数的预测模型。



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& : member of the same patent family, corresponding document

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