

Claims

1. A method of processing data and generating an electronic report which can be printed on paper or displayed on a monitor screen, wherein
- said electronic report relates to operation characteristics of a system (1) which performs product manufacturing, processing and/or analysis steps,
  - said data include a plurality of physical parameters which are characteristic of the operation of said system and which have been recorded by said system during operation thereof, have been set by an operator (6) during operation of said system and/or are provided independent of said system by a user (8), and
  - said data are stored in a database (4) with the physical parameters being stored as a function of time and batch,
- said method further comprising the steps of:
- (a) selecting one of a plurality of report templates stored in a report template library (14), wherein each report template comprises at least one sub-report corresponding to a particular type of representation of data within an electronic report based on the respective report template (10) and including at least one data item, each data item comprising
    - a reference to one of said physical parameters or to an arithmetic operation to be performed on at least one of said physical parameters and
    - a static or dynamically assignable reference to a batch or time range,
  - (b) for each data item for which the reference to a batch or time range is dynamically assignable, associating the respective data item with a respective particular batch or time range by assigning the respective reference to said batch or time range,

- (c) generating an electronic report based on the selected report template (10) and on the batches and/or time ranges associated with the respective data items,
- (d) optionally storing the generated report in a report library (16), and
- 5 (e) printing (20) the generated report or displaying it on a monitor screen (18).
2. The method as claimed in claim 1, wherein for each data item having a dynamically assignable reference to a batch or time range the association of said data item with a batch or time range is either selectable by a user or performed automatically.
- 10 3. The method as claimed in claim 1 or claim 2, wherein said system (1) comprises a plurality of devices (2a, 2b, 2c) and each report template stored in the report template library (14) relates to one or more of said devices, wherein each sub-report relates to one of said devices with each of the data items of a particular sub-report relating to one or more physical parameters which are characteristic of the operation of the corresponding device.
- 15 20 4. The method as claimed in claim 3, wherein for each device (2a, 2b, 2c) the physical parameters relating to that device are stored in a separate area of said database (4).
- 25 5. The method as claimed in claim 4, wherein for each device (2a, 2b, 2c) the physical parameters recorded by said system (1) or set by an operator (6) during operation of said system, the physical parameters provided independent of said system by a user (8), and said arithmetic operations to be performed on at least one of said physical parameters are stored in a separate sub-area of said database (4).
- 30 35 6. The method as claimed in claim 4 or claim 5, wherein upon installing a new device (2a, 2b, 2c) in said system (1) a

corresponding area is automatically initialized within said database (4), and the new device is automatically registered in and linked to said database such that physical parameters relating to said device are stored in the respective area.

7. The method as claimed in any of the preceding claims, further comprising the step of generating a new report template, said step including

(a) creating a group of at least one sub-report, each corresponding to a particular type of representation of data within an electronic report based on the respective report template and including at least one data item, each data item comprising

- a reference to one of said physical parameters or to an arithmetic operation to be performed on at least one of said physical parameters and
- a static or dynamically assignable reference to a batch or time range, and

(b) storing the report template including the sub-reports from said group within said report template library (14).

8. The method as claimed in claim 7, wherein creating said group of at least one sub-report comprises the steps of selecting at least one predetermined sub-report stored in a sub-report library (22) and adding the selected sub-reports to said group.

9. The method as claimed in claim 8 and any of claims 3 to 6, wherein upon installing each of said devices (2a, 2b, 2c) in said system (1) at least one predetermined sub-report relating to the respective device is automatically provided from the respective device to said sub-report library (22) and stored therein.

10. The method as claimed in any of claims 7 to 9, wherein creating said group of at least one sub-report comprises

the steps of generating at least one new sub-report and adding at least one of said new sub-reports to said group, wherein a new sub-report is generated by

- 5 (a) selecting a sub-report template stored in a sub-report template library (24) and corresponding to a particular type of representation of data within an electronic report based on the new report template,
- (b) adding at least one data item to the sub-report to be represented in accordance with the type of representation corresponding to the sub-report,
- 10 (c) for each data item setting a reference to one of said physical parameters available in said database (4) or to an arithmetic operation to be performed on at least one of said physical parameters available in said database,
- 15 (d) for each data item setting a static reference to a particular batch or time range or defining a dynamically assignable reference to a batch or time range,
- (e) storing the sub-report including the added data items within a sub-report library (22).
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11. The method as claimed in claim 10 and any of claims 3 to 6, wherein upon installing each of said devices (2a, 2b, 2c) in said system (1) at least one predetermined sub-report template relating to the respective device is automatically provided from the respective device to said sub-report template library (24) and stored therein.

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12. The method as claimed in any of claims 7 to 11, further including the step of ordering the sub-reports from said group, wherein the order of said sub-reports determines the order of the corresponding representations of data within an electronic report based on the new report template.

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### Claims

1. A method of processing data and generating an electronic report which can be printed on paper or displayed on a monitor screen, said electronic  
5 report relating to operation characteristics of a system (1) which performs product manufacturing, processing and/or analysis steps, said data including a plurality of physical parameters which are characteristic of the operation of said system and which have been recorded by said system during operation thereof, and optionally data which have been set by an  
10 operator (6) during operation of said system and/or are provided independent of said system by a user (8),  
said method comprising the step of storing said data in a database (4) with the physical parameters being stored as a function of time and batch,  
said method further comprising the steps of:
- 15 (a) selecting one of a plurality of report templates stored in a report template library (14), wherein each report template comprises at least one sub-report corresponding to a particular type of representation of data within an electronic report based on the respective report template (10) and including at least one data  
20 item, each data item comprising
- a reference to one of said physical parameters or to an arithmetic operation to be performed on at least one of said physical parameters and
  - a static or dynamically assignable reference to a batch or  
25 time range,
- (b) for each data item for which the reference to a batch or time range is dynamically assignable, associating the respective data item with a respective particular batch or time range by assigning the respective reference to said batch or time range,
- 30 (c) generating an electronic report based on the selected report template (10) and on the batches and/or time ranges associated with the respective data items,

(d) optionally storing the generated report in a report library (16), and  
(e) printing (20) the generated report or displaying it on a monitor  
screen (18),

5 wherein said system (1) comprises a plurality of devices (2a, 2b, 2c)  
and each report template stored in the report template library (14)  
relates to one or more of said devices, wherein each sub-report  
relates to one of said devices with each of the data items of a  
particular sub-report relating to one or more physical parameters  
which are characteristic of the operation of the corresponding device,  
10 wherein for each device (2a, 2b, 2c) the physical parameters relating  
to that device are stored in a separate area of said database (4),  
wherein upon installing a new device (2a, 2b, 2c) in said system (1) a  
corresponding area is automatically initialized within said database  
(4), and the new device is automatically registered in and linked to  
15 said database such that physical parameters relating to said device  
are stored in the respective area.

2. The method as claimed in claim 1, wherein for each data item having a  
dynamically assignable reference to a batch or time range the association  
of said data item with a batch or time range is either selectable by a user  
20 or performed automatically.
3. The method as claimed in claim 1 or claim 2, wherein for each device (2a,  
2b, 2c) the physical parameters recorded by said system (1) or set by an  
operator (6) during operation of said system (1) or set by an operator (6)  
during operation of said system, the physical parameters provided  
25 independent of said system by a user (8), and said arithmetic operations  
to be performed on at least one of said physical parameters are stored in a  
separate sub-area of said database (4).
4. The method as claimed in any of the preceding claims, further comprising  
the step of generating a new report template, said step including  
30 (a) creating a group of at least one sub-report, each corresponding to  
a particular type of representation of data within an electronic

report based on the respective report template and including at least one data item, each data item comprising

- a reference to one of said physical parameters or to an arithmetic operation to be performed on at least one of said physical parameters and
- a static or dynamically assignable reference to a batch or time range, and

(b) storing the report template including the sub-reports from said group within said report template library (14).

5. The method as claimed in claim 4, wherein creating said group of at least one sub-report comprises the steps of selecting at least one predetermined sub-report stored in a sub-report library (22) and adding the selected sub-reports to said group.

6. The method as claimed in claim 5, wherein upon installing each of said devices (2a, 2b, 2c) in said system (1) at least one predetermined sub-report relating to the respective device is automatically provided from the respective device to said sub-report library (22) and stored therein.

7. The method as claimed in any of claims 4 to 6, wherein creating said group of at least one sub-report comprises the steps of generating at least one new sub-report and adding at least one of said new sub-reports to said group, wherein a new sub-report is generated by

(a) selecting a sub-report template stored in a sub-report template library (24) and corresponding to a particular type of representation of data within an electronic report based on the new report template,

(b) adding at least one data item to the sub-report to be represented in accordance with the type of representation corresponding to the sub-report,

(c) for each data item setting a reference to one of said physical parameters available in said database (4) or to an arithmetic operation to be performed on at least one of said physical parameters available in said database,

(d) for each data item setting a static reference to a particular batch or time range or defining a dynamically assignable reference to a batch or time range,

(e) storing the sub-report including the added data items within a sub-report library (22).

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8. The method as claimed in claim 7, wherein upon installing each of said devices (2a, 2b, 2c) in said system (1) at least one predetermined subreport template relating to the respective device is automatically provided from the respective device to said sub-report template library (24) and stored therein.

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9. The method as claimed in any of claims 4 to 8, further including the step of ordering the sub-reports from said group, wherein the order of said sub-reports determines the order of the corresponding representations of data within an electronic report based on the new report template.