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# Datasheet for the decision of 13 August 2008

**Case Number:** T 0265/07 - 3.4.01

**Application Number:** 99934909.5

**Publication Number:** 1099119

**IPC:** G01R 31/36

**Language of the proceedings:** EN

**Title of invention:**
Signalling system

**Applicant:**
Metrixx Limited

**Headword:**
-

**Relevant legal provisions:**
EPC Art. 123(2)
EPC R. 43(2)

**Relevant legal provisions (EPC 1973):**
EPC Art. 84, 111(1)

**Keyword:**
"Added subject-matter (no, with one exception)"
"Clarity (yes)"
"More than one independent claims in the same category (accepted)"
"Remittal (yes)"

**Decisions cited:**
-

**Catchword:**
-

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**Case Number:** T 0265/07 - 3.4.01

# D E C I S I O N
**of the Technical Board of Appeal 3.4.01**
**of 13 August 2008**

**Appellant:** Metrixx Limited
34 Albyn Place
Aberdeen AB10 1FW (GB)

**Representative:** Bird, Ariane
Bird Goën & Co
Klein Dalenstraat 42A
BE-3020 Winksele (BE)

**Decision under appeal:** **Decision of the Examining Division of the European Patent Office posted 1 August 2006 refusing European application No. 99934909.5 pursuant to Article 97(1) EPC 1973.**

**Composition of the Board:**

**Chairman:** B. Schachenmann
**Members:** H. Wolfrum
F. Neumann

## Summary of Facts and Submissions

I. European patent application 99 934 909.5 (publication No. 1 099 119) corresponding to published international application WO-A-00/05596 was refused by a decision of the examining division dispatched on 1 August 2006, on the ground of an infringement of the requirement of Article 123(2) EPC by the applicant's request then on file.

II. The applicant lodged an appeal against the decision and paid the prescribed fee on 17 August 2006. On 11 December 2006 a statement of grounds of appeal was filed.

The appellant requested that the decision be cancelled and a patent be granted on the basis of new sets of claims according to a main request and an auxiliary request. The board was further requested to remit the case to the first instance if the board considered refusal of the patent application on a substantive ground. Moreover, an auxiliary request for oral proceedings was made.

III. On 8 April 2008 the appellant was summoned to oral proceedings. In an annex to the summons pursuant to Article 15(1) RPBA the board pointed to a variety of problems concerning added subject-matter (Article 123(2) EPC) and lack of clarity (Article 84 EPC) for the requests on file.

IV. In response the appellant filed, by letter of 18 July 2008, further amended sets of claims according to a main request and an auxiliary request.

V. Oral proceedings were held on 13 August 2008.

As a result of the discussion, the appellant filed a new set of claims 1 to 5 as a sole request, replacing the former requests on file.

As regards subject-matter not covered by the new claims, the appellant reserved the right to file a divisional application.

VI. Independent claims 1, 2 and 3 of the appellant's request read as follows :

"*1. A signalling system for use with n series connected battery cells ($C_i$) comprising :*

*(a) signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$), each signalling device being associated with one or more of said n battery cells ($C_i$),*

*(b) each signalling device ($CM_i$) being provided with cell-monitoring sensors (35,37,39) and/or cell control devices to monitor or to control the status of the associated battery cell ($C_i$) and being further provided with a wire communication link (9; 9a or 9b) to a central battery monitoring/control system (3), the communication link (9; 9a or 9b) serving for transmitting either signals from the central battery monitoring/ control system (3) or cell-status signals indicative of the sensor data,*

*(c) the signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$) being electrically connected in series in such a manner that there is a wire communication link (9a or 9b) between the central battery monitoring/control system (3) and the first signalling device ($CM_1$) in the series and*

*further to each of the subsequent signalling devices in turn,*

*(d) each signalling device ($CM_i$) having its own cell identification or address so as to allow the signals from the central battery monitoring/control system (3) to be directed to a specific signalling device ($CM_i$) and to allow the central battery monitoring/control system (3) to identify the source of received cell-status signals from the signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$),*

*(e) each signalling device ($CM_i$) comprising a DC to DC converter (57) the input of which is to be connected to the positive terminal ($C_i^+$) and the negative terminal ($C_i^-$) of the respective battery cell ($C_i$) and which generates a third voltage ($V_{cc}^i$) for powering the respective signalling device ($CM_i$),*

*(f) wherein each signalling device ($CM_i$) further comprises :*

- *a microcontroller (31) which receives said signals from the central battery monitoring/control system (3) or said detected cell-status signals from said sensors (35,37,39) and converts them into corresponding digital signals,*
- *a potential divider (41 or 47) being associated with a comparator (43 or 49),*
- *and an output block (45 or 51),*

*(g) wherein the microcontroller (31) of a signalling device ($CM_i$) is adapted to receive a signal from an adjacent signalling device ($CM_{i-1}$ or $CM_{i+1}$) via the wire connection (9a or 9b) through the potential divider (41 or 47) and comparator (43 or 49) and is further adapted to, where appropriate, transmit via the*

*output block (45 or 51) a corresponding digital signal to the next adjacent signalling device ($CM_{i+1}$ or $CM_{i-1}$),*

*(h) wherein the output block (45 or 51) comprises an electronic switch ($Q_1^i$ or $Q_2^i$) having an input, an output and a control input, the microcontroller (31) being connected to the control input so that the electronic switch ($Q_1^i$ or $Q_2^i$) is either turned on or switched off in dependence on the digital signal from the microcontroller (31),*

*(i) wherein in one direction the electronic switch ($Q_1^i$) of the output block (45) of the signalling device ($CM_i$) is connected at its output by said wire connection (9a) to the potential divider (41) at the input of the next adjacent signalling device ($CM_{i+1}$) and is to be connected at its input to the negative terminal ($C_i^-$) of the cell ($C_i$) associated with said one signalling device ($CM_i$), or wherein in the other direction the electronic switch ($Q_2^i$) of the output block (51) of the signalling device ($CM_i$) is connected at its output by said wire connection (9b) to the potential divider (47) at the input of the next adjacent signalling device ($CM_{i-1}$) and at its input to said third voltage ($V_{cc}^i$) generated by the respective DC to DC converter (57),*

*(j) wherein in said one direction said one signalling device ($CM_i$) is adapted to receive signals via the potential divider (41), which is connected at a first end to the first wire connection (9a) from the previous adjacent signalling device ($CM_{i-1}$) and at a second end to said third voltage ($V_{cc}^i$) generated by said DC to DC converter (57), the potential divider (41) being adapted to deliver the divided potential to one input of the comparator (43), which is provided at its other input with a first reference voltage ($V_{ref1}^i$)*

*chosen to lie between the voltage levels which are applied at said one input of the comparator (43) when the electronic switch ($Q_1^{i-1}$) of the output block (45) of the previous adjacent signalling device ($CM_{i-1}$) is switched off or when it is turned on, whereby the output of the comparator (43) is connected to a first input of the microcontroller (31),*

*(k) or wherein in the other direction said signalling device ($CM_i$) is adapted to receive signals via its potential divider (47) which is connected at a first end to the wire connection (9b) from the previous adjacent signalling device ($CM_{i+1}$) and is to be connected at a second end to the negative terminal ($C_i^-$) of the cell ($C_i$) associated with said one signalling device ($CM_i$), the potential divider (47) being adapted to deliver the divided potential to one input of the comparator (49), which is provided at its other input with a second reference voltage ($V^i_{ref2}$) chosen to lie between the voltage levels which are applied at said one input of the comparator (49) when the electronic switch ($Q_2^{i+1}$) of the output block (51) of the previous adjacent signalling device ($CM_{i+1}$) is switched off or when it is turned on, whereby the output of the second comparator (49) is connected to a second input of the microcontroller (31).*"

"*2. A signalling system for use with n series connected battery cells ($C_i$) comprising :*

*(a) signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$), each signalling device being associated with one or more of said n battery cells ($C_i$),*

*(b) each signalling device ($CM_i$) being provided with cell-monitoring sensors (35,37,39) or cell control devices to monitor or control the status of the*

*associated battery cell ($C_i$) and being further provided with a single-wire communication link (9) to a central battery monitoring/control system (3), the communication link (9) serving for transmitting either signals from the central battery monitoring/control system (3) or cell-status signals indicative of the sensor data,*

*(c) the signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$) being electrically connected in series in such a manner that there is a wire communication link (9) in an uplink direction from the central battery monitoring/control system (3) via the first signalling device ($CM_1$) in the series to each of the subsequent signalling devices in turn and a communication link (9) in a downlink direction from the last signalling device ($CM_n$) in the series back through each of the signalling devices ($CM_{i+1}$, $CM_i$, $CM_{i-1}$) in the series to the central monitoring/control system (3),*

*(d) each signalling device ($CM_i$) having its own cell identification or address so as to allow the signals from the central battery monitoring/control system (3) to be directed to a specific signalling device ($CM_i$) and to allow the central battery monitoring/control system (3) to identify the source of received cell-status signals from the signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$),*

*(e) each signalling device ($CM_i$) comprising a DC to DC converter (57) the input of which is to be connected to the positive terminal ($C_i^+$) and the negative terminal ($C_i^-$) of the respective battery cell ($C_i$) and which generates a third voltage ($V_{cc}^i$) for powering the respective signalling device ($CM_i$),*

*(f) wherein each signalling device ($CM_i$) further comprises :*

- *a microcontroller (31) which receives said signals from the central battery monitoring/control system (3) or said detected cell-status signals from said sensors (35,37,39) and converts them into corresponding digital signals,*
- *a first and second potential divider (41,47) being associated with a first and second comparator (43,49), respectively,*
- *and a first and second output block (45,51),*

*(g) wherein the microcontroller (31) of a signalling device ($CM_i$) is adapted to receive a signal from an adjacent signalling device ($CM_{i-1}$ or $CM_{i+1}$) in the uplink direction via a wire connection (9) through the first potential divider (41) and first comparator (43) and in the downlink direction via a wire connection (9) through the second potential divider (47) and second comparator (49), and is further adapted to, where appropriate, transmit via the first or second output block (45,51), respectively, a corresponding digital signal to the next adjacent signalling device ($CM_{i+1}$ or $CM_{i-1}$),*

*(h) wherein each output block (45,51) comprises an electronic switch ($Q_1^i$, $Q_2^i$) having an input, an output and a control input, the microcontroller (31) being connected to the control input so that the electronic switch ($Q_1^i$, $Q_2^i$) is either turned on or switched off in dependence on the digital signal from the microcontroller (31),*

*(i) wherein in the uplink direction the electronic switch ($Q_1^i$) of the first output block (45) of one signalling device ($CM_i$) is connected at its output by said wire connection (9) to the first potential divider (41) at the input of the adjacent*

*uplink signalling device ($CM_{i+1}$) and is to be connected at its input to the negative terminal ($C_i^-$) of the cell ($C_i$) associated with said one signalling device ($CM_i$), whereas in the downlink direction the electronic switch ($Q_2^i$) of the second output block (51) of said one signalling device ($CM_i$) is connected at its output by said wire connection (9) to the second potential divider (47) at the input of the adjacent downlink signalling device ($CM_{i-1}$) and at its input to said third voltage ($V_{cc}^i$) generated by the respective DC to DC converter (57),*

*(j) wherein in the uplink direction said one signalling device ($CM_i$) is adapted to receive signals via its first potential divider (41), which is connected at a first end to the wire connection (9) from the adjacent downlink signalling device ($CM_{i-1}$) and at a second end to said third voltage ($V_{cc}^i$) generated by said DC to DC converter (57), the first potential divider (41) being adapted to deliver the divided potential to one input of the first comparator (43), which is provided at its other input with a first reference voltage ($V_{ref1}^i$) chosen to lie between the voltage levels which are applied at said one input of the first comparator (43) when the electronic switch ($Q_1^{i-1}$) of the first output block (45) of the adjacent downlink signalling device ($CM_{i-1}$) is switched off or when it is turned on, whereby the output of the first comparator (43) is connected to a first input of the microcontroller (31),*

*(k) wherein in the downlink direction said one signalling device ($CM_i$) is adapted to receive signals via its second potential divider (47) which is connected at a first end to the wire connection (9) from the adjacent uplink signalling device ($CM_{i+1}$) and*

*is to be connected at a second end to the negative terminal ($C_i^-$) of the cell ($C_i$) associated with said one signalling device ($CM_i$), the second potential divider (47) being adapted to deliver the divided potential to one input of the second comparator (49), which is provided at its other input with a second reference voltage ($V^i_{ref2}$) chosen to lie between the voltage levels which are applied at said one input of the second comparator (49) when the electronic switch ($Q_2^{i+1}$) of the second output block (51) of the adjacent uplink signalling device ($CM_{i+1}$) is switched off or when it is turned on, whereby the output of the second comparator (49) is connected to a second input of the microcontroller (31),*

*(l) and wherein the signalling system is arranged in such a manner that communications between adjacent signalling devices can occur in one direction only at any given time in that in case of an uplink communication the electronic switch ($Q_2^{i+1}$) of the second output block (51) of the adjacent uplink signalling device ($CM_{i+1}$) is switched off so that it does not affect the operation of the first potential divider (41) of the adjacent uplink signalling device ($CM_{i+1}$) and in case of a downlink communication the electronic switch ($Q_1^{i-1}$) of the first output block (45) of the adjacent downlink signalling device ($CM_{i-1}$) is switched off so that messages and signals pass via the second potential divider (49) and the second comparator (47) of the adjacent downlink signalling device ($CM_{i-1}$) into the microcontroller (31) of the adjacent downlink signalling device ($CM_{i-1}$)."*

*"3. A signalling system for use with n series connected battery cells ($C_i$) comprising :*

*(a) signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$), each signalling device being associated with one or more of said n battery cells ($C_i$),*

*(b) each signalling device ($CM_i$) being provided with cell-monitoring sensors (35,37,39) or cell control devices to monitor or to control the status of the associated battery cell ($C_i$) and being further provided with a two-wire communication link (9; 9a or 9b) to a central battery monitoring/control system (3), the communication link (9; 9a or 9b) serving for transmitting either signals from the central battery monitoring/ control system (3) or cell-status signals indicative of the sensor data,*

*(c) the signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$) being electrically connected in series in such a manner that there is a wire communication link (9a) in an uplink direction from the central battery monitoring/control system (3) via the first signalling device ($CM_1$) in the series to each of the subsequent signalling devices in turn and a communication link (9b) in a downlink direction from the last signalling device ($CM_n$) in the series back through each of the signalling devices ($CM_{i+1}$, $CM_i$, $CM_{i-1}$) in the series to the central monitoring/control system (3),*

*(d) each signalling device ($CM_i$) having its own cell identification or address so as to allow the signals from the central battery monitoring/control system (3) to be directed to a specific signalling device ($CM_i$) and to allow the central battery monitoring/control system (3) to identify the source of received cell-status signals from the signalling devices ($CM_{i-1}$, $CM_i$, $CM_{i+1}$),*

*(e) each signalling device ($CM_i$) comprising a DC to DC converter (57) the input of which is to be connected to the positive terminal ($C_i^+$) and the negative terminal ($C_i^-$) of the respective battery cell ($C_i$) and which generates a third voltage ($V_{cc}^i$) for powering the respective signalling device ($CM_i$),*

*(f) wherein each signalling device ($CM_i$) further comprises :*

- *a microcontroller (31) which receives said signals from the central battery monitoring/control system (3) or said detected cell-status signals from said sensors (35,37,39) and converts them into corresponding digital signals,*
- *a first and second potential divider (41,47) being associated with a first and second comparator (43,49), respectively,*
- *and a first and second output block (45,51),*

*(g) wherein the microcontroller (31) of a signalling device ($CM_i$) is adapted to receive a signal from an adjacent signalling device ($CM_{i-1}$ or $CM_{i+1}$) in the uplink direction via a first wire connection (9a) through the first potential divider (41) and first comparator (43) and in the downlink direction via a second wire connection (9b) through the second potential divider (47) and second comparator (49), and is further adapted to, where appropriate, transmit via the first or second output block (45,51), respectively, a corresponding digital signal to the next adjacent signalling device ($CM_{i+1}$ or $CM_{i-1}$),*

*(h) wherein each output block (45,51) comprises an electronic switch ($Q_1^i$, $Q_2^i$) having an input, an output and a control input, the microcontroller (31) being connected to the control input so that the*

*electronic switch ($Q_1^i$, $Q_2^i$) is either turned on or switched off in dependence on the digital signal from the microcontroller (31),*

*(i) wherein in the uplink direction the electronic switch ($Q_1^i$) of the first output block (45) of one signalling device ($CM_i$) is connected at its output by said first wire connection (9a) to the first potential divider (41) at the input of the adjacent uplink signalling device ($CM_{i+1}$) and is to be connected at its input to the negative terminal ($C_i^-$) of the cell ($C_i$) associated with said one signalling device ($CM_i$), whereas in the downlink direction the electronic switch ($Q_2^i$) of the second output block (51) of said one signalling device ($CM_i$) is connected at its output by said second wire connection (9b) to the second potential divider (47) at the input of the adjacent downlink signalling device ($CM_{i-1}$) and at its input to said third voltage ($V_{cc}^i$) generated by the respective DC to DC converter (57),*

*(j) wherein in the uplink direction said one signalling device ($CM_i$) is adapted to receive signals via its first potential divider (41), which is connected at a first end to the first wire connection (9a) from the adjacent downlink signalling device ($CM_{i-1}$) and at a second end to said third voltage ($V_{cc}^i$) generated by said DC to DC converter (57), the first potential divider (41) being adapted to deliver the divided potential to one input of the first comparator (43), which is provided at its other input with a first reference voltage ($V_{ref1}^i$) chosen to lie between the voltage levels which are applied at said one input of the first comparator (43) when the electronic switch ($Q_1^{i-1}$) of the first output block (45) of the adjacent downlink signalling device ($CM_{i-1}$) is switched off or*

*when it is turned on, whereby the output of the first comparator (43) is connected to a first input of the microcontroller (31),*

*(k) and wherein in the downlink direction said one signalling device ($CM_i$) is adapted to receive signals via its second potential divider (47) which is connected at a first end to the second wire connection (9b) from the adjacent uplink signalling device ($CM_{i+1}$) and is to be connected at a second end to the negative terminal ($C_i^-$) of the cell ($C_i$) associated with said one signalling device ($CM_i$), the second potential divider (47) being adapted to deliver the divided potential to one input of the second comparator (49), which is provided at its other input with a second reference voltage ($V^i_{ref2}$) chosen to lie between the voltage levels which are applied at said one input of the second comparator (49) when the electronic switch ($Q_2^{i+1}$) of the second output block (51) of the adjacent uplink signalling device ($CM_{i+1}$) is switched off or when it is turned on, whereby the output of the second comparator (49) is connected to a second input of the microcontroller (31).*"

Claim 4 is a dependent claim.

Claim 5 is directed to a "battery comprising n series connected battery cells and a signalling system according to any of the preceding claims."

## Reasons for the Decision

1. In the following reference is made to the provisions of the EPC 2000, which entered into force as of 13 December 2007, unless the former provisions of the EPC 1973 still apply to pending applications.

2. The appeal complies with the requirements of Articles 106 to 108 EPC 1973 and Rule 64 EPC 1973 and is, therefore, admissible.

3. *Amendments (Article 123(2) EPC)*

3.1 Independent claim 1 defines the basic structure of a one-way wire communication link for signal transmission in a signalling system which monitors and/or controls a plurality of series connected battery cells as is apparent in particular from the embodiments of Figures 1, 4, 5 and 9 taking into consideration the information provided on page 30, lines 6 to 21, of the published application, according to which the communication link between a central battery monitoring/control system and signalling devices associated with the series connected battery cells and further along the series of signalling devices may operate with any number of wires and in a single direction only.

More specifically, feature (a) is disclosed by Figures 1 and 9 and the corresponding description in combination with information given on page 29, lines 16 to 20, of the published application, according to which a signalling (monitoring) device can be used to monitor two or more battery cells so that there is no need for

the provision of a separate signalling (monitoring/controlling) device for each battery cell, as is shown in Figures 1 and 9.

With the exception of the phrase "and/or cell control devices" following the term "sensors (35,37,39)" (see point 3.5 below), the features summarised under (b) are disclosed by the examples of Figures 1, 4 and 9, which refer to a system with a central battery monitoring or a control system. Relevant pieces of information forming a basis of disclosure for the claimed separate or combined functions of monitoring and controlling and types of signals to be communicated are given on page 10, lines 11 to 35; page 13, line 28 to page 14, line16; page 26, lines 24 to 35; and page 30, lines 23 to 27, of the published application.

Feature (c) has a basis of disclosure in the description of Figures 4 and 5 in combination with the piece of information provided on page 30, lines 1 to 15, of the published application.

Feature (d) is disclosed on page 10, lines 2 to 9, of the published application.

Feature (e) is disclosed by Figures 4 and 6 and the passage on page 14, lines 28 to 35, of the published application.

The further constituents of a signalling device as claimed in feature (f) are disclosed by Figures 4 to 6 and the passages on page 13, lines 21 to 26, and page 14, lines 18 to 28, of the published application.

Feature (g) is disclosed by Figures 4 to 6 and corresponding passages on page 15, lines 17 to 20, and page 16, lines 6 to 9, of the published application.

Features (h) to (k) are disclosed by Figures 4 to 6 and corresponding passages on page 16, line 20 to page 18, line 29, of the published application.

3.2 Independent claim 2 is directed to a signalling system for monitoring or controlling a plurality of series connected battery cells which has a two-way single-wire communication link as it is disclosed by Figures 1, 6 and 9. Whereas Figures 1 and 6 and the corresponding passages on page 22, line 1 to page 23, line 13, of the published application refer specifically to a system for monitoring, the alternative function of controlling is expressly disclosed by Figure 9 and the passages on page 26, lines 24 to 35, and page 30, lines 23 to 25, of the published application.

The basic constituents of the signalling devices of the embodiment of Figure 6 are identical to those of the embodiment of Figures 4 and 5 so that the same passages as referred to above for claim 1 provide a basis of disclosure for features (a) to (k) of claim 2. Feature (l) is disclosed on page 22, lines 22 to 35, of the published application.

3.3 Independent claim 3 is directed to a signalling system for monitoring or controlling a plurality of series connected battery cells which has a two-way two-wire communication link as it is disclosed by Figures 1, 4, 5 and 9 in conjunction with page 30, lines 1 to 18, of the published application. Of these, Figures 1, 4 and 5

refer specifically to a system for monitoring, whereas, as for claim 2 above, the alternative function of controlling is expressly disclosed by Figure 9 and the passages on page 26, lines 24 to 35, and page 30, lines 23 to 25, of the published application.

The basis of disclosure of features (a) to (k) is provided by the same passages as cited for claim 1 above.

3.4 The additional features of dependent claim 4 are disclosed on page 15, line 17 to page 16, line 4, of the published application, and a battery as defined by claim 5 is apparent from Figures 1 and 9 of the published application.

3.5 Following the oral proceedings, the board has become aware of the fact that one amendment made by the appellant, namely the provision of "cell control devices" which would complement or replace cell-monitoring sensors for the monitoring or controlling the status of battery cells, as specified by the phrase "and/or cell control devices" or "or cell control devices", which is inserted after the term "sensors (35,37,39)" in feature (b) of claims 1 to 3, on file, does not have a basis of disclosure.
The appellant sees said amendment disclosed by information provided on page 1, lines 4 to 6, and page 26, lines 24 to 32, especially lines 31 and 32, and further supported by page 28, lines 15 to 20, of the published application.

However, the passages relied on by the appellant refer to the alternative or combined functions of monitoring

and controlling in general but do not mention "cell control devices" as an alternative to the "cell-monitoring sensors". In fact, the passage on page 26, lines 31 and 32, cited by the appellant, refers to "battery cell control devices $CC_i$" as alternatives to "cell monitoring devices $CM_i$", which, in the terminology of claims 1 to 3 on file, are the "signalling devices $CM_i$" defined by feature (a). In other words, "cell control devices" being subunits of "signalling devices" as defined in feature (b) of claims 1 to 3 on file have not been originally disclosed.

3.6 For the reason given in point 3.5 above, claims 1 to 3 include subject-matter which extends beyond the content of the application as originally filed so that the appellant's request on file does not comply with the requirement of Article 123(2) EPC.

In the board's view, this deficiency could be readily overcome by deleting the respective phrase "and/or cell control devices" or "or cell control devices" following the term "sensors (35,37,39)" in feature (b) of each of claims 1 to 3.

4. *Clarity of wording and support in the description*

In the board's view, independent claims 1 to 3 on file define in a comprehensible manner the function and structure of a signalling system for monitoring and/or controlling a plurality of series connected cells of a battery. In particular, the claims comprise the technical elements of the system which are necessary to achieve a solution to the specific problems indicated on pages 2 to 4 of the description, namely to provide a

signalling system which does not require the provision of parallel connections to each battery cell, on the one hand, nor dedicated circuits for opto-electronic decoupling, transformation without a DC path or DC level shifting in each cell signalling device associated with a battery cell, on the other hand.

A minor defect of editorial nature has come to the board's attention : in the penultimate line of claim 1 the word "*second*" in the phrase "*second comparator (49)*" has been inadvertently left from a draft version and should be deleted.

Moreover, the claimed subject-matter is supported by the description of Figures 1, 4 to 6 and 9.

For these reasons, the board, assuming the aforementioned editorial amendment will be made, considers the requirements of Article 84 EPC 1973 to be met, as far as the claims on file are concerned. For the avoidance of doubt it is however noted that the description comprises embodiments which are not consistent with the subject-matter of the claims and thus has still to be adapted to the claims.

5. *Rule 43(2) EPC*

Independent product claims 1 to 3 define alternative solutions to the aforementioned problems which cannot be combined into a single claim.

Therefore, the board considers the presence of three independent claims in the same category in line with

the exceptions indicated in Rule 43(2)(c) EPC and thus to be acceptable.

6. Given the fact that no examination has yet taken place as to the substantive merits of the claimed subject-matter in terms of novelty and inventive step, the board, in exercising its discretion under Article 111(1) EPC 1973, considers it appropriate to remit the case to the examining division for further prosecution.

## Order

## For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution.

The Registrar The Chairman

R. Schumacher B Schachenmann