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**Datasheet for the decision
of 21 January 2025**

Case Number: T 0646/22 - 3.4.03

Application Number: 11178341.1

Publication Number: 2434850

IPC: H05K7/14, G08B5/36, G08B21/18

Language of the proceedings: EN

Title of invention:

Input/output circuits and devices having physically corresponding status indicators

Patent Proprietor:

Rockwell Automation Technologies, Inc.

Opponent:

Festo SE & Co. KG

Headword:

Relevant legal provisions:

EPC Art. 52(1), 54(1), 54(2), 56, 100(a), 100(c)

Keyword:

Grounds for opposition - added subject-matter (no) - lack of patentability (no) - novelty (yes), inventive step (yes)

Decisions cited:

Catchword:

The objective technical problem formulated in the context of the problem-solution approach should stem from a technical effect the distinguishing features provide to the claimed invention with respect to the closest prior art and not from a possible improvement of the prior art itself (see Reasons 4.5.1).



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0646/22 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 21 January 2025

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
12 January 2022 concerning maintenance of the
European Patent No. 2434850 in amended form.**

Composition of the Board:

Chairman T. Häusser
Members: M. Papastefanou
E. Mille

Summary of Facts and Submissions

- I. Both the patent proprietor and the opponent filed appeals against the interlocutory decision of the opposition division maintaining European patent No. 2 434 850 B1 in amended form.
- II. The opposition against the entire patent was based on the grounds for opposition under Article 100 (a) to (c) EPC. In the decision under appeal, the opposition division concluded, among others, that claim 1 of the patent as granted (main request) was sufficiently disclosed but contained added subject-matter, as did claim 1 of auxiliary request 1. Auxiliary request 2 (filed as auxiliary request 6 on 17 January 2020) was found to meet the requirements of the EPC and the patent was maintained on that basis.
- III. Reference is made to the following documents, cited in the impugned decision:
- D1: DE 20 2006 005 168 U1
D7: EP 1 315 248 A1
- IV. At the end of the oral proceedings before the board the parties' requests were as follows:
- The **appellant - patent proprietor** ("proprietor") requested that the decision under appeal be set aside and the patent be maintained as granted as its main request, or as amended on the basis of one of auxiliary requests 1 to 10, 3A to 3C, 4A to 4C, 5A to 5C, 6A to 6C, 7A to 7C, 8A to 8C, 9A to 9C or 10A to 10C.
- Auxiliary request 1 corresponds to the respective

auxiliary request underlying the impugned decision. Auxiliary request 2 corresponds to the respective auxiliary request upon which the patent was maintained by the opposition division. Auxiliary requests 3A to 10C were filed with the proprietor's reply dated 6 October 2022 to the appeal of the opponent, while auxiliary requests 3 to 10 correspond to the respective requests filed during the opposition proceedings.

The **appellant - opponent** ("opponent") requested that the decision under appeal be set aside and the patent be revoked.

V. Claim 1 as granted has the following wording (feature labelling as used by the parties):

[1.1] An input/output (I/O) terminal block (30) comprising:

[1.2] a housing (86);

[1.3] a plurality of terminals (34) disposed on a front face of the I/O terminal block (30);

[1.4] a terminal opening (36) of each of the plurality of terminals, the terminal opening configured to receive a field wire from a field device;

[1.5] a plurality of terminal status indicators (70) capable of displaying a status of a respective terminal, each terminal status indicator being positioned on the I/O terminal block (30),

[1.6] wherein each terminal (34) is associated with a first terminal status indicator (76) capable of displaying a first status of the terminal, and

[1.7] a second terminal status indicator (78) capable of displaying a second status of the terminal, wherein the first and second statuses are different from each other, and

[1.8] wherein the first terminal status indicator (76) is disposed directly adjacent to the respective terminal (34) along the front face of the I/O terminal block, and

[1.9] the second terminal status indicator (78) comprises a transparent or translucent portion of the front face of the I/O terminal block surrounding the terminal opening (36) of the respective terminal (34).

VI. The wording of the claims of the auxiliary requests is not relevant for this decision.

VII. The parties' relevant arguments can be summarised as follows:

On added subject-matter

The **opponent** agreed with the examining division that claim 1 as granted extended beyond the content of the application as originally filed.

The **proprietor** argued that a basis for the feature combination in claim 1 could be found in the original claims, Figures 6 and 9B and in paragraph [0055] of the description as originally filed.

On novelty

According to the **opponent**, D7 disclosed all features of claim 1 as granted. In particular, the two status indicators in D7 ("Lichtaustrittsfläche" 12 and 13) were also capable of displaying different statuses depending on the light emitted by their respective light source. Moreover, the light guiding ring ("Lichtleitring" 15) corresponded to the front face of

feature [1.9] and it was also surrounding the terminal opening (see Figure 2 of D7).

The **proprietor** was of the opinion that the two status indicators of D7 were not capable of displaying two different statuses as they were either both "on" or both "off". Feature [1.9] defined that it was the second status indicator which was surrounding the terminal opening and not the front face of the I/O block, and this was clearly not the case in D7. The subject-matter of claim 1 was thus new.

On inventive step

The **opponent** was of the opinion that the features distinguishing claim 1 from D7 were to be assessed separately as no synergistic technical effect was apparent. It would have been obvious to the skilled person to provide an additional status indicator in D7 to display a second status, if they so desired. Moreover, it would have been obvious to extend the two status indicators along the light guiding ring ("Lichtleitring" 15), surrounding thus the terminal opening if the skilled person wished to improve visibility of the indicators from all sides. The subject-matter of claim 1 was therefore not inventive.

According to the **proprietor**, the distinguishing features provided a synergistic technical effect and should be assessed together for inventive step. There was nothing in D7 indicating that the two indicators were capable of displaying different statuses. The opponent's argument was based on hindsight. The description of D7 was also clear that the size of the the two status indicators (12, 13) was limited along the light guiding ring ("Lichtleitring" 15) and there

was no motivation for the skilled person to extend any of them around the terminal opening. The subject-matter of claim 1 involved thus an inventive step.

Reasons for the Decision

1. The claimed invention

The claimed invention relates to an input/output terminal block, e.g. see reference sign "30" in Figure 3 of the patent.

The block comprises terminals (34), each one having an opening (36). In these openings external ("field") devices may be connected. Each terminal has two associated indicators, which emit light indicating a status of the terminal (see e.g. Figures 4 to 8). The two indicators display different statuses of the terminal, for example one status relates to the data being transmitted to the terminal from the external device and the other to the operating status of the external (field) device connected to the terminal.

Claim 1 of the patent defines that one (first) of the status indicators is placed directly adjacent to the terminal it is associated with, while the other (second) comprises a portion surrounding the opening of its associated terminal.

Patent as granted (proprietor's main request)

2. Added subject-matter (Article 100(c) EPC)

2.1 Feature [1.2] - "a housing"

According to the opponent there was no disclosure in the application as originally filed of an I/O terminal block with the features of claim 1 as granted including also a housing.

- 2.1.1 The board, however, agrees with the proprietor and the opposition division (see point 1.2.1 of the Reasons of the impugned decision) that at least Figure 9A discloses an I/O terminal block comprising a housing (see also paragraph [0052] of the application as published, which is considered to correspond to the originally filed application).

There is no intrinsic connection between the housing of the I/O block in the embodiment of Figure 9A and the other features of the I/O terminal block shown in Figure 9A (and 9B) so that the housing is not to be considered as a feature of that particular embodiment only. Moreover, there are several other mentions of the housing of the I/O terminal block throughout the application (see e.g. paragraphs [0040], [0058], [0059], [0064], [0065]) which corroborate that the housing of the I/O terminal block is a feature comprised in all described embodiments and not related to only one or some of them.

Therefore, feature [1.2] does not constitute added subject-matter in the context of claim 1 as granted.

2.2 Features [1.6] and [1.7] - terminal status indicators

- 2.2.1 Features [1.6] and [1.7] are defined in original claim 5. This claim, which depends (indirectly) on original claim 1, defines an I/O device (of claim 1)

comprising a terminal block (the terminal block is defined in claim 1 as part of the claimed I/O device). Original claim 11 defines an I/O terminal block comprising features [1.1], [1.3], [1.4] and [1.5]. Original claim 12, which depends on claim 11, defines *[t]he I/O terminal block of claim 11, adapted in accordance with one or more of claims 2, 4 and 5.*

2.2.2 The opposition division held that there was no direct and unambiguous disclosure of an I/O terminal block comprising features [1.6] and [1.7] because the reference of original claim 12 to original claim 5 was ambiguous *leaving uncertainty as to exactly which features [were] taken from claim 5 and combined with claim 12.* Claim 5 defined an I/O device and not an I/O terminal block. Being dependent (ultimately) on claim 1, claim 5 was considered to comprise all the features of the I/O device defined in that claim. It was therefore not clear whether (any of) the features of claim 5 belonging to that I/O device (but not necessarily of the I/O terminal block) were to be considered as included in the reference of claim 12 to claim 5 ("The I/O block of claim 11, adapted in accordance with one or more of claims 2, 4 and 5"). The opposition division then sought basis for this feature combination in the originally filed description of the application but found none (see point 1.2.2 of the Reasons of the impugned decision).

2.2.3 The board does not share this opinion of the opposition division and agrees with the proprietor that the combination of original claims 11, 12 and 5 provides the necessary basis for the combination of the features in claim 1 as granted, including features [1.6] and [1.7].

Original claims 11 and 12 define an I/O terminal block. The features in original claim 5 are features of the I/O terminal block which is defined as part of the I/O device in claim 1. There is no reason for the skilled person to understand the reference of claim 12 to claim 5 to include any other features of the I/O device not belonging to the I/O terminal block since claim 12 defines only an I/O terminal block and there is no room for any features not belonging to this I/O terminal block. Moreover, claim 5 defines only features belonging to the I/O terminal block, as well. In the board's view, the skilled person would derive from original claim 12, directly and unambiguously, an I/O terminal block comprising features [1.6] and [1.7] (through the reference to claim 5), in combination with features [1.1], [1.3], [1.4] and [1.5] as defined in original claim 11.

2.3 The board's conclusion is thus that claim 1 of the patent as granted does not contain added subject-matter and the ground for opposition under Article 100(c) EPC does not prejudice the maintenance of the patent as granted.

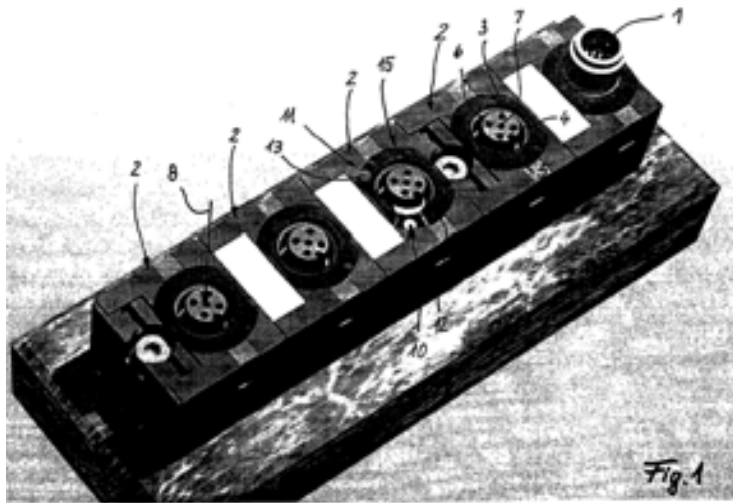
3. Novelty (Articles 100(a), 52(1) and 54(1) EPC)

3.1 According to the opponent, claim 1 as granted was not new over document D7.

3.2 It is common ground that D7 discloses features [1.1], [1.2], [1.3], [1.5] and [1.8] of claim 1 as granted.

3.3 Regarding feature [1.4], as it can be seen in Figure 1 of D7, the I/O terminal block comprises terminals ("Steckbuchsen" 2), each one having five terminal openings ("Kontakte" 3 to 7). As described in paragraph

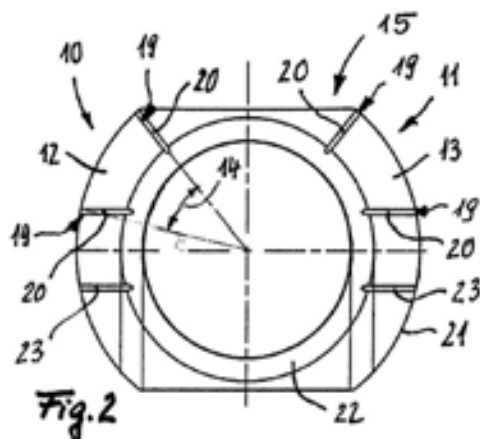
[0013], each opening of the terminal can receive different wires, including from a field device ("angeschlossenes Element"). Since there is no limitation in the claim that each terminal has only one opening, the board concludes that feature [1.4] is disclosed in D7.



D7, Figure 1

This was not contested by the parties.

- 3.4 Regarding the status indicators (features [1.6] and [1.7]), it is uncontested that the I/O terminal block comprises two status indicators, see "Zustandsanzeige" in paragraphs [0002] and [0003] and the light emission area ("Lichtaustrittsfläche") 12 and 13 in Figure 2 and paragraph [0015].



D7, Figure 2

3.5 The main point of contention is whether these status indicators are capable of displaying respectively a first and a second status of a terminal, the second status being different from the first status.

3.5.1 In a first line of argument, the opponent argued that when these two status indicators in D7 were both "on" (i.e. emitting light), one of them (e.g. 12) displayed a first status. When they were both "off" (i.e. no light was emitted), the other indicator (e.g. 13) was displaying a second status, which was different from the first status.

Claim 1 of the patent did not define that the two status indicators displayed the two different statuses simultaneously and so the two status indicators of D7 (12 and 13) *were capable of displaying* a first and a second status where the second status was different from the first. Features [1.6] and [1.7] were thus disclosed in D7.

3.5.2 The board does not find this argument persuasive.

The opponent is correct in saying that claim 1 does not define that the two status indicators have to display

the two different statuses simultaneously. It is, however, uncontested that the two indicators (12, 13) in D7 show always the same status, i.e. they are either both "on" (emitting light) or both "off" (not emitting light). Referring to only one of indicators and to the status it displays at a specific point in time while ignoring that the other indicator is displaying the same status at the same time does not do justice to the actual operation of the indicators in D7. Therefore, it cannot be seen to correspond to the operation of the claimed status indicators according to features [1.6] and [1.7].

- 3.5.3 In a different line of argument, the opponent pointed out that the claim defined only that the status indicators were *capable of displaying* different statuses. It also noted that the light emitters (sources) which emitted the light indicating a status, the light pipes guiding the light from the emitters to the status indicators and the activation circuit for the light emitters were defined separately, in dependent claims 4, 5 and 6. These elements were thus not part of the status indicators of claim 1 (see also Figure 13 and paragraphs [0064]-[0065] of the application as filed).

The opponent concluded thus that the status indicators of claim 1 were only passive transparent (plastic) surfaces which displayed light according to what light was emitted from the light sources and guided through the light pipes, which were installed underneath those surfaces. The same was valid for the status indicators in D7 ("Lichtaustrittsfläche" 12, 13). As Figures 3 and 6 of D7 showed, two light sources (LEDs 25) were installed underneath the status indicators (12 and 13). As there was one LED for each indicator, the status

indicators 12 and 13 were *capable* of displaying different statuses should the two LEDs emit different lights. Features [1.6] and [1.7] were thus disclosed in D7.

3.5.4 The board is not convinced by this argument, either.

The board does not agree with the appellant's interpretation of the claimed definition of the status indicators. Claim 1 defines a first and a second "terminal status indicator", each of them capable of showing a status of a terminal. In the board's understanding this definition includes everything necessary to display a status. In other words, it cannot convincingly be said that the definition is limited only to a passive transparent surface which merely allows light to be transmitted through it because such a surface would not be able to indicate a status on its own, i.e. without light sources, activation circuit, etc. If this were the case, the definition in claim 1 would not make sense. In the board's view, the definition in claim 1 is rather a functional one, because the important aspect at this stage is that two different statuses are indeed indicated. The structural and operational details of those status indicators are subsequently defined in more detail in the dependent claims 4, 5 and 6 as the opponent indicated. Hence, the status indicators of features [1.6] and [1.7] are not to be understood only as passive transparent surfaces.

3.5.5 Even if the opponent's argument were to be followed, there is nothing in D7 to indicate that the two light sources (LEDs 26) can emit different lights to the respective indicators (12 and 13), as they are only either both "on" or both "off". A possibility that the

two LEDs are able to emit different lights is not directly and unambiguously disclosed in D7. In the board's view, the two status indicators in D7 are not *capable of displaying* different statuses in the sense of feature [1.7].

3.5.6 The board's conclusion is therefore that the status indicators capable of showing two different statuses (feature [1.7]) are not disclosed in D7. This is sufficient to conclude that claim 1 as granted is new. Hence the ground for opposition under Articles 100(a), 52(1) and 54(1) and (2) EPC does not prejudice the maintenance of the patent as granted.

3.6 In view of the discussion on inventive step below, an assessment of the novelty of feature [1.9] is also carried out.

3.6.1 The opponent argued that the formulation of feature [1.9] was ambiguous because it was not clear whether the term "surrounding" referred to the "front face" of the I/O terminal block or to its "transparent or translucent portion" (feature [1.9] defines that "*the second terminal status indicator ... comprises a transparent or translucent portion of the front face of the I/O terminal block surrounding the terminal opening ...*"; underlining by the board).

Following the former interpretation, i.e. that it was the front face of the I/O block which surrounded the terminal opening, feature [1.9] was disclosed in D7. Since the two status indicators (12 and 13) were part of the light guiding ring ("Lichtleitring" 15), the "front face" of the claim corresponded to this light guiding ring 15. As it could be seen in Figures 1 and 2 of D7, the light guiding ring 15 surrounded the opening

of the terminal, anticipating thus feature [1.9].

Even if the latter interpretation were followed, i.e. that it was the "transparent or translucent portion" which surrounded the terminal opening, the feature was still disclosed in D7. Feature [1.9] did not define that the portion had to surround the opening completely. As Figure 2 of D7 showed, the status indicators 12 and 13 were extending over an arc of the light guiding ring ("Lichtleitring" 15), which surrounded the terminal opening. This was sufficient to conclude that each of the status indicators 12 and 13 surrounded the terminal opening, anticipating thus feature [1.9].

- 3.6.2 The board does not agree with the opponent on that point, either.

Claim 1 of the patent defines that the I/O terminal block has a plurality of terminals disposed in its front face (feature [1.3]) and each terminal has an opening (feature [1.4]). Hence, the terminal openings are by definition disposed on (included in) the front face of the terminal block. In the board's view, it would not make sense to define again in feature [1.9] that the front face of the I/O terminal block surrounds the terminal opening and the skilled reader would not contemplate such an interpretation of the term "surrounding" in feature [1.9]. The board considers it clear that the term "surrounding" refers to the "transparent or translucent portion" and that feature [1.9] defines that the transparent or translucent portion of the second terminal status indicator surrounds the terminal opening.

- 3.6.3 The board does not accept, either, that each of the status indicators 12 and 13 in D7 surrounds the terminal opening. As claim 4 of D7 defines, these indicators extend over an arc of 30° to 45° (see also Figure 2 of D7). Even if feature [1.9] does not explicitly specify that the portion surrounds the terminal opening completely, no skilled reader would consider a portion of only 45° to be "surrounding" the opening in the centre of the light guiding ring ("Lichleitring" 15).
- 3.7 The board's conclusion is therefore that D7 does not disclose feature [1.9], either.
4. Inventive step (Articles 100(a), 52(1) and 56 EPC)
- 4.1 It follows from the above conclusions on novelty that claim 1 as granted differs from D7 in that the two status indicators are capable of displaying different statuses (part of feature [1.7]) and that the second status indicator comprises a transparent or translucent portion which surrounds the terminal opening (feature [1.9]).
- 4.2 The parties did not agree whether or not these features provided together a synergistic technical effect over D7. In view of the outcome of the discussion on inventive step (see below), the board decides to leave this question open and follow the line of argument which was the least favourable to the proprietor. Hence, it is assumed that the distinguishing features do not provide a synergistic effect and are to be assessed separately with regard to inventive step.
- 4.3 Regarding the two status indicators displaying different statuses, the opponent argued that if it were

considered that both indicators 12 and 13 in D7 displayed the same status, they could be seen as one status indicator corresponding to the second status indicator of claim of the patent. In that case, the feature missing from D7 would be another (first) status indicator, adjacent to the terminal opening, which was capable of displaying a status which was different from the one displayed by the existing status indicator (i.e. feature [1.6], part of feature [1.7] and feature [1.8]).

4.3.1 According to the opponent, the technical problem solved by this distinguishing feature was how to display a second status of the terminal in the I/O block of D7. The skilled person would have thus sought a position in the I/O terminal block to place a second indicator to display a second status. Given the structure of the block (see e.g. Figure 1, also reproduced in point 3.3 above), it would have been obvious to place an additional indicator next to the terminal, i.e. "directly adjacent" to the terminal as defined in feature [1.8]. These features were thus obvious to the skilled person.

4.4 The board does not follow this argument of the appellant, mainly because it does not accept the formulated technical problem. This formulation of the technical problem takes for a given that the skilled person wishes to display a second terminal status of the terminal in D7 and that the only problem is how to do that. However, there is nothing in D7 that indicates that there is a second status to be displayed. As explained earlier (see point 3.5.5 above) D7 does not envisage the display of any second status different from the status it already displays through indicators 12 and 13. Hence, it cannot be accepted that the only

problem the skilled person would be faced with is how to display such a second status. In the board's opinion, in order to arrive at the claimed invention the skilled person when starting from D7 would first have to find a motivation for displaying a second status of the terminal, then to find a way to modify the described light sources such that they were capable of displaying different statuses and would only then have to start contemplating where to place an additional status indicator. The board considers that such activities go beyond what could be considered obvious for the skilled person in the present context.

- 4.5 Regarding feature [1.9], the opponent pointed to the description of D7, according to which the front face of the surface of the terminal block was curved and the purpose of having the two indicators 12 and 13 placed at opposite sides of the light guiding ring ("Lichtleitring" 15) was to make them visible from both sides of the terminal block (see also paragraphs [0006], [0007] and Figure 6). It would thus have been obvious for the skilled person to increase the size of the indicators 12 and 13 if they wanted to improve visibility from all sides even further. In such a case, the indicators 12 and 13 would extend to a greater arc along the light guiding ring 15, surrounding thus the terminal opening. According to the opponent, in such a case, the combined indicators 12 and 13 would correspond to the second status indicator of feature [1.9], while another status indicator, corresponding to the first status indicator of claim 1 would have been placed directly adjacent to the terminal, also in an obvious manner, as argued with respect to feature [1.6], part of feature [1.7] and feature [1.8].

4.5.1 The board does not follow the opponent in this respect, either. The formulated technical problem of improving the visibility of the status indicator is not related to the claimed invention. The terminal block of the claimed invention has no curved front face (see also Figures 3, 10 or 11 of the patent) and the problem of rendering the indicators better visible from all sides does not arise.

In the so-called "problem-solution-approach", the formulated objective technical should be one that corresponds to the technical effect obtained by the features distinguishing the claimed invention from the prior art. In other words, these distinguishing features should provide a technical advantage to the claimed invention that the prior art has not.

In the present case, the terminal block of the claimed invention has no curved surface and there is no technical advantage related to the visibility of the status indicators from all sides. The problem of improving the visibility of the status indicators concerns only D7 and the I/O block it describes, but is not a problem to be solved which relates to any technical effect the distinguishing features provide to the claimed invention with respect to the prior art. The board, hence, finds the opponent's argument not convincing.

4.6 A further line of arguments against the presence of inventive step, which was discussed during the written proceedings, was based on a possible combination of D7 with D1.

4.6.1 Regarding D1, it is common ground that it does not disclose features [1.7] and [1.9] (see also opponent's

statement of the grounds of appeal, point 1.3.3).

Hence, a combination of D7 with D1 would still miss figures [1.7] and [1.9]. Since these features were not obvious to the skilled person, as explained above, a combination of D7 and D1 would not render obvious the subject-matter of claim 1 as granted.

4.6.2 In addition, the board agrees with the opposition division that the I/O devices of D1 and D7 appear to be different structurally (compare e.g. Figure 1 of D7 with Figures 1 and 2 of D1). The board considers it thus at least questionable that they can be combined in a straightforward manner, i.e. without the need for further modifications, which would go beyond what can be considered obvious for the skilled person in the present context (see also the decision under appeal, page 17, last paragraph). The opponent did not provide any further arguments on that point.

4.7 The board's conclusion is, hence, that the subject-matter of claim 1 of the patent as granted involves an inventive step. Claims 2 to 14 depend all on claim 1, directly or indirectly, and are thus also found to involve an inventive step.

4.8 Hence the ground for opposition under Articles 100(a), 52(1) and 56 EPC does not prejudice the maintenance of the patent as granted.

5. Sufficiency of disclosure (Articles 100(b) and 83 EPC)

The parties did not question the opposition division's conclusion that the ground for opposition under Article 100(b) EPC does not prejudice the maintenance of the patent as granted (see point 1.1 of the Reasons for the

decision).

6. Since none of the invoked grounds for opposition under Article 100 EPC prejudices the maintenance of the patent as granted, the opposition has to be rejected and the patent be maintained as granted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is maintained as granted.

The Registrar:

The Chairman:



S. Sánchez Chiquero

T. Häusser

Decision electronically authenticated