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# Datasheet for the decision of 14 November 2024

Case Number: T 1823/21 - 3.2.03

Application Number: 17163314.2

Publication Number: 3242091

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F24F11/30, F24F11/62

Language of the proceedings: ΕN

#### Title of invention:

CONFIGURATION OF A VENTILATION SYSTEM BY RANDOMIZED SELECTION

#### Patent Proprietor:

Swegon Operations AB

#### Opponents:

Siemens Schweiz AG TROX GmbH

#### Relevant legal provisions:

EPC Art. 100(b), 83, 100(a), 52(1), 54, 56, 69(1) EPC R. 115(2), 43(7) RPBA 2020 Art. 15(3)

# Keyword:

Sufficiency of disclosure - (yes) - relationship between Article 83 and Article 84

Novelty - (yes)

Inventive step - (yes) - common general knowledge as closest prior art

## Decisions cited:

G 0003/14, T 0410/96



# Beschwerdekammern Boards of Appeal

Chambres de recours

Boards of Appeal of the European Patent Office Richard-Reitzner-Allee 8 85540 Haar GERMANY Tel. +49 (0)89 2399-0

Case Number: T 1823/21 - 3.2.03

DECISION
of Technical Board of Appeal 3.2.03
of 14 November 2024

Appellant: TROX GmbH

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Decision under appeal: Interlocutory decision of the Opposition

Division of the European Patent Office posted on 10 August 2021 concerning maintenance of the European Patent No. 3242091 in amended form.

# Composition of the Board:

Chairman C. Herberhold Members: M. Olapinski

N. Obrovski

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# Summary of Facts and Submissions

I. The appeal was filed by opponent 2 (appellant) against the interlocutory decision of the opposition division finding that, on the basis of auxiliary request 4, the patent in suit (the patent) met the requirements of the EPC.

II. Oral proceedings were held before the Board.

Opponent 1 had been duly summoned and announced that it would not attend the oral proceedings in the letter dated 26 August 2024. The oral proceedings were continued without that party (Rule 115(2) EPC and Article 15(3) RPBA).

III. The parties' requests were as follows.

The appellant requested that the decision under appeal be set aside and the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed and the patent be maintained on the basis of auxiliary request 4 (main request) or, in the alternative, on the basis of one of auxiliary requests 5 to 7, re-filed with the reply to the statement of grounds of appeal.

The party as of right, opponent 1, did not submit any request.

IV. Reference is made to the following documents:

D1: US 2011/0046801 Al

D8: HomeMatic WebUI Handbuch

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D9: HomeMatic Montage- und Inbetriebnahmeanleitung Zentrale CCU2 HMCen-O-TW-x-x-2

D10: HomeMatic Installations-und Bedienungsanleitung Funk-Heizkörperthermostat HM-CC-RT-DN

D11: HomeMatic Installations-und Bedienungsanleitung Funk-Wandthermostat HM-TC-IT-WM-W-EU

D12: "LON-Technologie", ed. D. Dietrich et al., Hüthig, Heidelberg, 1997, ISBN 3-7785-2581-6

- V. Claim 1 of <u>auxiliary request 4</u> reads (with feature denominations in square brackets):
  - "[M1] A method for configuring components (1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h) in an air treatment system (100), e.g. a Heating and Ventilating Air-Conditioning (HVAC) system,
  - [M2] said air treatment system (100) comprising one or several components (1a-1h) being selected to be from the groups of flow control components (1a, 1b, 1c, 1d), sensor components (1e, 1f, 1g) or input control components (1h),
  - [M3] said components (1a-h) being connected to a central control system (101) when the components (1a-h) are configured and the air treatment system (1) is in use,
  - [M4] said components (1a-h) being provided with a transmitter and/or receiver (2) for sending an input signal to the central control unit (105) to be used for computing a control output command by the central control unit (105) and/or receiving an output signal from the central control system (105) in order to control the component (1a-h) associated with the respective transmitter and/or receiver (2),

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[M5] each of said components (1a-h) further being provided with an indicator (3) and an Electronic Control Unit (4) being programmed to activate the indicator (3) so as to indicate when the component has been selected by an identifier sending an identification signal selecting one or several of the components (1a-h)

[M6] wherein said configuration comprises the steps of:

#### I. PREPARATION

[M6a] a. Locating at least one component (1a-h) at its intended physical position in the air ventilation system (100), said component (1a-h) being assigned a unique component ID (cID) before or after it has been located at its intended position

[M6b] b. Providing the identifier with a system description of the air ventilation system (100) including a configuration list with system location IDs (sl-ID) for components (1a-h) to be connected to the central control system (101)

#### II. SELECTION PROCEDURE

[M6c] c. Identifying the physical location in the air ventilation system (100) of the desired component (1a-h) to be configured and locate the identifier to be in reach for wireless communication with the desired component (1a-h)

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[M6d] d. Using the identifier for sending an identifying signal in order to identify the desired component (1a-h)

[M6e] e. Repeating step c [sic!] until the indicating signal from the indicator (3) of the desired component (1a, 1b, 1c, 1d, 1e, 1f) is indicating a selected state and the identifier displays only the desired component (1a, 1b, 1c, 1d, 1e, 1f), or displays only one component (1a, 1b, 1c, 1d, 1e, 1f) being in the same selected state as indicated by the indicator, of the components in the configuration list

#### III. CONFIGURATION

[M6f] f. Initiating a pairing event in which the desired component (1a-h) having its unique component ID (cID) and indicated to be in a selected state by the indicator (3) is paired with the system location ID, which is displayed in the identifier, such that the desired component (1a-h) may be recognized by the central control unit (105) by the system location ID."

VI. The appellant's arguments can be summarised as follows.

#### Sufficiency of disclosure

The invention as defined in claim 1 of auxiliary request 4 (main request) contained several gaps and open questions. The subject-matter of claim 1 was thus broader than justified by the disclosure in the patent, and not even the patent disclosed the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

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Novelty

The subject-matter of claim 1 of auxiliary request 4 was not novel over the HomeMatic smart home system as disclosed in documents D8 to D11.

Inventive step, starting from D8 to D11 in combination with D12

Starting from the HomeMatic smart home system as disclosed in documents D8 to D11, the skilled person would have implemented the well-known configuration scheme of the LON (local operation network) technology described in D12, which disclosed Features M6a to M6f and allowed configuration of larger projects without mistakes, thus arriving at the subject-matter of claim 1 of auxiliary request 4 without involvement of an inventive step.

Inventive step, starting from common general knowledge in combination with D12

Starting from the common general knowledge of a generic HVAC (heating, ventilation and air conditioning) system with Features M1 to M5 as exemplified in D1, the skilled person would have adopted the configuration scheme of D12 to put the generic system into practice, thus arriving at the subject-matter of claim 1 in an obvious manner. Hence, the subject-matter of claim 1 of auxiliary request 4 does not involve an inventive step.

VII. The respondent essentially argued as follows.

Sufficiency of disclosure

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The patent disclosed the invention as defined in claim 1 in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Filling any potential gaps in the specification was within the skilled person's common general knowledge, and the alleged gaps in the definition of claim 1 were not an issue under Article 83 EPC. If anything, they were related to clarity.

#### Novelty

The subject-matter of claim 1 of auxiliary request 4 was novel over the HomeMatic smart home system as disclosed in documents D8 to D11, which did at least not disclose Features M6b, M6d and M6e.

Inventive step, starting from D8 to D11 in combination with D12

Starting from the HomeMatic smart home system as disclosed in documents D8 to D11, it would not have been obvious to adopt the configuration scheme from D12. Nor would D12, which did not disclose at least Feature M6e, have led the skilled person to the subject-matter of claim 1 of auxiliary request 4.

Inventive step, starting from common general knowledge in combination with D12

The alleged abstract common general knowledge of an HVAC system with Features M1 to M5 was too broad, vague and remote to qualify as a suitable starting point for inventive step. Moreover, D12 did not disclose all distinguishing features, either. Hence, the subjectmatter of claim 1 of auxiliary request 4 involved an inventive step.

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#### Reasons for the Decision

## 1. Sufficiency of disclosure

1.1 The invention of claim 1 of auxiliary request 4 found allowable by the opposition division (main request) concerns a method for configuring (pairing, Feature M6f) components in an "air treatment system" (Features M1 to M3), respectively an "air ventilation system" (Features M6a to M6c), the components - when the air treatment system is in use - being connected to a "central control system" (Features M3, M4 and M6b), respectively a "central control unit" (CCU) (Features M4 and M6f). Each component comprises a receiver and/or transmitter for communicating with the CCU and an electronic control unit (ECU) programmed to activate an indicator (Features M3 to M5).

The method further involves the use of an "identifier", a tool which is provided with a "system description" including "system location IDs" (sl-IDs) of components and which can send an "identification signal" to select one or several of the components (Feature M5), each of which is assigned with a unique component ID (cID) ("Preparation", Features M6a, M6b).

After mounting (or at least placing) one or more components at their intended destination (Feature M6a), the physical location of a "desired" component to be configured (i.e. its "system location" in the system description) is identified, and the identifier is brought within reach for wireless communication with the desired component (Feature M6c). The identifier is then used "for sending an identifying signal in order

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to identify the desired component" (Feature M6d). Although Features M5 and M6d are slightly differently worded ("identification signal" vs "identifying signal"), in the Board's view, they both refer to technically the same signal.

The identifying process involves retrieving the cID of one or more components selected by the identifying signal (see also the discussion in point 1.5.3 below) and activating the indicators on the selected components. According to Feature M6e, step M6d (not step c - this being an obvious error in the claim, see e.g. paragraph [0020] of the specification and point 1.6.4 below) is repeated until the indicator of the desired component indicates a selected state, and the identifier displays only the desired component or only a single component in the same selected state.

The process is concluded by "initiating a pairing event" between the cID of the desired component that is in the selected state and the sl-ID displayed on the identifier (Feature M6f).

1.2 The appellant submitted that the disclosure of the invention in claim 1 and in the patent specification contained several gaps and open questions, so that the invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. It was not disclosed how the ECU knew the cID, how the identifier identified the desired component, how the identifier knew the cID and how the ECU knew when to activate the indicator, and how group selection and pairing were to be carried out.

These issues are dealt with in detail in the following subsections 1.3 to 1.7.

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- 1.3 How does the ECU know the cID?
- 1.3.1 The appellant submitted that for the invention to work, it was essential that the component's ECU knew the cID to be able to communicate with the CCU. However, this was not specified in claim 1.

Furthermore, how could the ECU know the cID, in particular in the case where the cID was only assigned "after" the component had been "located at its intended position" (Feature M6a; paragraph [0050])? The appellant pointed to paragraph [0037], which disclosed only optionally that the cID "could be programmed into the ECU" or "comprised in a RFID". Hence, according to claim 1 and the teaching of the patent, the invention also had to be workable without the cID being programmed into the ECU. Moreover, the patent was silent as to how the cID could be programmed into the ECU. Hence, the invention could not be carried out.

The Board does not agree with this line of argument.

1.3.2 According to Features M4 and M5, and expressed more clearly in paragraph [0036], the component's ECU is responsible for communicating with the CCU over a transmitter and/or receiver and for controlling the component.

Feature M6f requires that, after pairing, the component can be addressed and recognised by the CCU by the sl-ID. For this purpose it would, in principle, be sufficient that the ECU knows the sl-ID. Assigning the component the sl-ID is disclosed in paragraph [0022] (column 9, lines 23 to 27) of the patent as one option of how the pairing event can be carried out. However,

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this passage discloses that the component can be "recognised by the system location ID as well as by its original component ID". Likewise, the other alternatives for the pairing process disclosed in paragraph [0022] involve translation of the sl-ID into the cID and addressing the component by its cID.

Accordingly, the Board agrees that the skilled person understands, and the patent discloses, that the ECU  $\underline{\text{must}}$  know the cID to be able to communicate with the CCU.

1.3.3 Feature M6a requires that the component be "assigned" a unique cID before or after it has been located at its intended position. While the claimed assignment comprises a situation where the ECU knows the cID, the claimed subject-matter is not necessarily limited to this embodiment. However, as set out above, the skilled person inevitably derives from the patent as a whole that the ECU must know the cID before the pairing event. In fact, the cID must be assigned to the ECU as part of the "Preparation" phase I of Feature M6 before the "Selection procedure" (phase II of Feature M6) so as to be able to transmit the cID to the identifier, to recognise it has been selected by the identifier and to activate the indicator (see point 1.5 below). Hence, the alleged missing essential feature is at least implicitly present in the "component being assigned a unique component ID" in Feature M6a.

Moreover, regardless of whether an explicit specification of an <u>allegedly essential feature is</u> missing from current claim 1, which corresponds to claim 1 as granted, may be an issue under Article 84 EPC which cannot be considered in opposition (appeal) proceedings pursuant to G 3/14, it does not represent

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an insufficiency of disclosure as the skilled person is aware that this feature must be present and of how it can be reduced to practice (see point 1.3.5 below).

- 1.3.4 The Board agrees that the description does not seem to be limited to the ECU's knowledge of the cID. Paragraph [0013] discloses that the cID could be "comprised in the components" only as one of different options.

  Likewise, according to paragraph [0016] the product may comprise "an ECU having the cID in its memory" and according to paragraph [0037] the cID "could [...] be programmed into the ECU" as optional features. However, as the skilled person understands that it is a requirement that the ECU know the cID, and thus the cID must be programmed into the ECU, a lack of adaptation of the patent's description in this regard does not amount to an insufficiency of disclosure, either.
- 1.3.5 The Board considers that programming the cID into the ECU, either during manufacturing at the factory (paragraphs [0009], [0016] and [0050]) or after it has been located (mounted) at its intended position, is within the common general knowledge of the skilled person.

In the Board's view, there is also no issue with the uniqueness of a cID assigned after mounting. It is no undue burden for the manufacturer to keep track of the issued cIDs and to safeguard that each component is assigned with or at least accompanied by a unique cID (to be programmed into the component after mounting).

Hence, in spite of gaps in claim 1 and in the patent, the submitted issues of the assignment of the cID do not prejudice the skilled person's ability to carry out the invention.

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- 1.4 How does the identifier "identify the desired component"?
- 1.4.1 The appellant submitted that the patent did not disclose how the identifier knew how to identify the correct component matching the desired sl-ID. According to the wording of claim 1 in Feature M6d, the identification was a function of the identifier and did not involve user interaction. Furthermore, the task of identifying the component matching the correct sl-ID, possibly from hundreds of components in a room all looking the same, was beyond a user's skills. It was thus not apparent how the invention's objective of a correct and error-free configuration could be achieved.
- 1.4.2 Feature M6d specifies a step of "using the identifier for sending an identifying signal in order to identify the desired component". However, the Board disagrees with the appellant's understanding that this implied that the "identifier" alone was able to automatically identify and select the component corresponding to the correct sl-ID (or that the component had to provide information about the component's sl-ID).

The term "using" in Feature M6d already means that an operator is involved in the method. Furthermore, "in order to identify the desired component" does not imply that the component addressed with the identifier is automatically identified as being the desired component. In the Board's understanding, the selection of the correct component is performed by a user (a technician) with the help of the identifier as follows.

1.4.3 The "Selection procedure" in claim 1 (phase II of Feature M6) begins with Feature M6c comprising the

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steps of identifying the physical location of "the desired component to be configured" and "locat[ing] the identifier to be in reach for wireless communication with the desired component". These steps require involvement of a user bringing the identifier to the right location. This is confirmed in paragraph [0019], according to which the "person who is configuring the system will walk to be in the vicinity of the desired component to be configured".

- Also, the reference to the "desired" component "to be 1.4.4 configured" in Feature M6c is understood to imply user selection of the sl-ID of the component according to the system description (Feature M6b). As disclosed in paragraph [0017], the system description comprises, inter alia, information "where in the air ventilation system they [the components] are located". According to paragraph [0046], an "operator" selects a defined sl-ID, e.g. from a list of components in the identifier, and thus selects a "component to be identified". The operator subsequently "position[s] himself where the component is mounted, at a location where the component ID may be identified by using the identifier". Hence, the desired component is selected by the operator before the identifier is used to send the identifying signal (paragraph [0046]).
- 1.4.5 Moreover, the indicator activated by the component's ECU "so as to indicate when the component has been selected by an identifier" (Feature M5) also addresses the operator and serves as confirmation for the operator of the selection (Feature M5) before the pairing event is initiated (Features M6e and M6f).
- 1.4.6 Accordingly, claim 1 and the patent specification disclose that the actual selection of the correct

component corresponding to the desired sl-ID is carried out by an operator. Hence, neither does the identifier alone need to be able to identify the correct component, nor does the component need to be provided with its sl-ID before the pairing.

1.4.7 In the Board's view, the selection of the correct component is not beyond a technically qualified operator's skills, either. According to paragraph [0032], the invention addresses a "technician" performing the configuration. Just as technicians are able to mount specific components correctly at a given position according to a plan ("system description", paragraphs [0017] and [0051]), they are also able to relocate components already mounted or located at their intended position in the plan. The patent emphasises in paragraph [0019] that the "person who is at the location should also be aware of which of the components in the system he is selecting as the desired product".

The Board also does not agree with the appellant's objection that the invention was not workable because mistakes in the configuration process could not be entirely excluded when proceeding as set out above. First, the objective of the patent is not to rule out but only to "reduce the probability for mistakes made in the configuration" (paragraph [0006]) as compared to the manual approach in the prior art set out in paragraph [0004]. Second, and more importantly, this objective is not specified in the claims and thus does not form part of what the skilled person must be able to achieve when carrying out the invention (see Case Law of the Board of Appeal of the EPO, 10th edn., 2022 (Case Law), II.C.3.2).

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- 1.4.8 Hence, the appellant's objections according to point 1.4.1 are without merit.
- 1.5 How does the identifier know the cID, and how does the ECU know when to activate the indicator?
- 1.5.1 The appellant submitted that neither claim 1 nor the patent disclosed how the identifier got to know the cID and how the ECU knew that the component had been "selected by an identifier" and was in "a selected state" so as to "activate the indicator" (Features M5, M6e and M6f). Claim 1 and the patent were silent as to the link between the identifying signal, the selection, the reception of the cID and the activation of the indicator.
- 1.5.2 Feature M5 specifies a further function of the component's ECU, namely to "activate the indicator" so as to indicate when the component has been "selected by an identifier sending an identification signal selecting one or several of the components". The indication of a corresponding "selected state" by the indicator is used in Features M6e and M6f as a confirmation of the correct identification on the desired component itself and as a prerequisite before initiating the pairing event (Feature M6f) in claim 1.
- 1.5.3 Claim 1 does not specify what exactly the "identification signal" refers to and how the ECU knows that the component has been selected by it, but it is clear that the ECU must be able to recognise its selected state upon receiving the identification signal. Furthermore, claim 1 does not specify how exactly the identifier retrieves the cID so that it can display the selected components (Feature M6e) and initiate the pairing event (Feature M6f).

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The patent discloses different possibilities of how this can be carried out, as set out in the following.

The cID could be "marked on the product such that it may be read automatically [...] by an identifier", e.g. in the form of a visible label such as a barcode (paragraphs [0009], [0016] and [0037]) or "comprised in a RFID" (paragraphs [0016], [0037]; paragraph [0046] explicitly discloses that "the component ID may be identified by using the identifier, e.g. by sending a signal selecting one or several RFID"). In these cases, it is clear how the identifier retrieves the cID, but the reading of the cID is not automatically recognised by the ECU. In these cases, the identifier must inform the ECU of the selection (by sending an identifying signal) after having read the cID. The patent discloses that this can be done by "identifying the component with its component ID" (paragraph [0012]) after reading the cID. This is also disclosed in paragraph [0028] as a "component specific signal corresponding to a single unique component ID".

As the cID is known to the ECU at the latest at the end of the "Preparation" phase I of Feature M6 (see point 1.3), the identifier could also retrieve the cID from the ECU. Paragraph [0029] and claim 8 disclose that the desired component could be selected by "pointing at or being within a prescribed distance from the physical component to be selected whereby a signal from said identifier causes the unique component ID of the desired component to be transmitted to the identifier". This wording covers barcodes and RFIDs (see previous paragraph). It also encompasses the exchange of cIDs by other electromagnetic means.

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According to paragraphs [0023] to [0027] and claims 2 to 6, the selection procedure could be based on a "group selective identifying signal" from the identifier specifying a certain group of components, e.g. according to a "product category" (paragraph [0027]). Types and subtypes of the components are encoded in the cID, paragraphs [0038] to [0040], so that the ECU has all the necessary information to respond to a group selective identifying signal by transmitting its cID and activating a specific indicator signal. Hence, the identifier receives a list of cIDs from all components in the vicinity corresponding to the selected group. In one or more repetitions, the selection can be narrowed down to subgroups or by selecting one of the cIDs at the identifier and sending a "component specific" identifying signal (paragraph [0028]) until only the desired component is selected (Features M6e and M6f).

The exchange of cIDs by electromagnetic means before pairing in limited reach local wireless connections (such as in Bluetooth connections mentioned by the respondent) is well known to the skilled person.

In all the above cases, it is presupposed that the ECU knows the cID to be able to transmit its cID and/or to activate the indicator upon reception of the identifying signal (see point 1.3).

1.5.4 In the Board's view, in combination with the information provided in the patent specification, the alternatives discussed above for notifying the ECU and retrieving the cID all come within the routine and common general knowledge of a person skilled in the art of network control, communication and configuration and

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can be implemented without further detailed teaching in the patent.

- It is true that steps M6c to M6f do not explicitly 1.5.5 specify a step of activating the indicator by the ECU but merely rely on its indicating signal. However, it is clear for the skilled person from Feature M5 alone, as well as from the teaching in the patent set out above, how the indicating signal is linked with the selection of the component by the identifier (via the identifying signal). In this regard, data processing features for carrying out a function such as "being programmed to activate" in Feature M5 do not only imply a suitability but an adaptation for carrying out the function (see T 410/96, Reasons 4 to 6). Hence, the ECU must be programmed to activate the indicator upon the defined conditions. Furthermore, Features M6e and M6f, by their wording alone, require that the indicator be activated as confirmation of the selection before the pairing event is initiated.
- 1.5.6 The appellant also submitted that the fact that the ECU had to be able to receive a signal from the identifier (and, as set out above, was possibly also required to transmit the cID), presupposed that each component had to have at least a receiver (and most also a transmitter) controlled by the ECU. In contrast, claim 1 merely required a "transmitter and/or receiver" in Feature M4, and it was not apparent how the invention could be carried out without a receiver (or, in the cases referred to above, without a transmitter).

The Board, first, notes that Feature M4 only concerns a transmitter/receiver for communication with the CCU (which could be by wire, paragraph [0010]). Hence, claim 1 does not even specify a wireless receiver or

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transmitter for communication with the identifier. However, regarding the communication with the identifier, paragraph [0011] suggests a "separate wireless interface" and paragraph [0020] discloses a "receiver or transceiver".

In any case, the mere fact that a feature is not explicitly claimed or described does not prevent the skilled person from carrying out an invention if they understand that this feature must be present and know how to implement it.

- 1.5.7 Hence, the objections of insufficiency of disclosure discussed in point 1.5 are not convincing.
- 1.6 Group selection and repetition
- 1.6.1 The appellant further submitted that the patent did not disclose how a group selective identification could be carried out to result in a correct pairing. How could a group of components be selected without knowledge of their cIDs? How could all components in a group be selected, not only those in the vicinity? How could the group selection result in a single component? And how could the identifier know that it has retrieved the correct cID of the desired component?

Moreover, step M6e required repeating "step c" (Feature M6c), identifying the physical location of the desired component and locating the identifier within reach, which did not change anything and did not make sense. It was not apparent that instead step d (Feature M6d) was meant and why paragraph [0020] should be correct, not the claim. Furthermore, even if step d was meant, claim 1 did not specify that the location or the identifying signal was changed between repetitions. It

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was thus not disclosed how repeating the identifying signal would result in a more specific selection.

The Board does not agree.

- As set out under point 1.5.3, sending a group selective 1.6.2 identifying signal does not require prior knowledge of each individual cID. Some group-specific characteristics such as the type of component are encoded in the cIDs and thus known to the ECU so that it can respond to a respective query signal. All components of the selected group within reach of the identifier (i.e. which receive the query signal) may respond by transmitting their respective cIDs, so that the identifier is provided with a list of candidate cIDs. It is not necessary that all components of the same group in the entire system respond because, as agreed by the appellant, the purpose of the selection procedure is to identify only the cID of the one "desired" component, which corresponds to a specific sl-ID and is placed at a specific physical location, where the identifier is brought to (Feature M6c).
- 1.6.3 After carrying out step M6d with a group selective identifying signal, it could be that only one component, i.e. the desired component, has replied. In this case, the user verifies that the exit conditions of Feature M6e are fulfilled: the indicator of the desired component indicates a selected state and the identifier displays "only the desired component". Hence, no repetition is carried out, and the method proceeds with step M6f (paragraph [0025]).

If more than one component replies, it could be that the desired component can already be unambiguously identified because it belongs to a subgroup containing - 21 - T 1823/21

only one component. According to paragraphs [0020] and [0023], the affiliation to different subgroups could be indicated differently by the indicator. In this case, the user recognises that the desired component "is indicating a selected state" and the identifier "displays only one component being in the same selected state", i.e. the alternative exit conditions of Feature M6e for proceeding to step M6f without a repetition.

If the group selection results in a list of more than one candidate cIDs (in a group or subgroup), the group selection can be refined and repeated by sending "another group selective identifying signal" to divide the components "into at least two new groups" to narrow down the selection (paragraphs [0023] and [0024]).

Alternatively, it is also possible "to make a selection from the list" of candidate components "which could be tried for being the desired component" (paragraph [0013]) by sending a "component specific signal corresponding to a single unique component ID" (paragraph [0028]).

- 1.6.4 It is true that step M6e erroneously refers to repeating "step c" instead of step d, but the skilled person recognises this error and understands that it was meant to refer to step d in view of the disclosure in the patent as a whole. This is explicitly disclosed in paragraph [0020] (column 8, lines 44 to 51), paragraph [0054] (column 17, lines 27 to 34), claim 7 and Figure 6. Hence, it is obvious that Feature M6e contains an error and how it is to be understood instead.
- 1.6.5 In this way, which is disclosed in the patent in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, a group

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selection, if necessary in combination with one or more repetitions of step M6d according to Feature M6e, results in the identification of the single cID of the desired component.

- 1.6.6 In view of the above, it is clear to the skilled person how the repetition of step M6d can improve the identification of the desired unit, namely by modifying the identifying signal. Likewise, Feature M6d refers to sending "an" identifying signal, and repeating this step does not imply that the same identical identifying signal is sent again.
- 1.6.7 The appellant further submitted that Feature M6e only referred to the desired components with reference signs la to 1f, not to all desired components (with reference signs la to 1h according of Feature M6c). This amounted to an insufficiency of disclosure of how to configure the desired components lg and 1h. However, under Rule 43(7) EPC, reference signs must not be construed as limiting the claim, and inconsistencies with reference signs thus do not have an impact on the workability of the invention either.
- 1.6.8 Accordingly, the patent sufficiently discloses how the cID of the desired component is retrieved by using the identifier with a group selective identifying signal and possibly repeating this step.
- 1.7 How is the pairing event carried out?
- 1.7.1 The appellant submitted that Feature M6f specified "initiating a pairing event" between the cID and the sl-ID by which "the desired component may be recognized by the central control unit by the system location ID". However, claim 1 did not disclose any details on how

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the pairing event could be carried out. Claim 1 did not define whether or how the identifier was connected to the CCU for exchanging information. Paragraphs [0032] and [0058] did also not specify exactly which information was transferred and how. In the appellant's understanding, it was necessary that both IDs be transmitted to the CCU to fulfil the requirements of Feature M6f.

- 1.7.2 Indeed, Feature M6f does not define the technical details of how the pairing event is carried out.

  However, the requirement of sufficiency of disclosure applies to the disclosure in the patent as a whole.
- 1.7.3 The patent teaches different workable approaches for implementing the pairing event of Feature M6e such that the component is recognised by the CCU by the sl-ID, e.g. in paragraphs [0022] and [0046].

Contrary to the view of the appellant, not all these approaches require that the identifier transmit the result of the pairing to the CCU. For example, instead of notifying the CCU of the cID paired with a sl-ID, the sl-ID could be assigned "to the component such that it may be recognized by the system location ID as well as by its original component ID" (column 9, lines 23 to 27). Furthermore, the "paired system location ID and component ID" could alternatively be "stored in a separate memory and be used as a look up table or translator" (column 9, lines 33 to 37).

But paragraph [0022] also discloses that "information [...] to recognize the component ID" for communicating with the component corresponding to "the selected system location ID used in this pairing event" could be sent to the CCU (column 9, lines 27 to 33). This

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information could, for example, first be "stored in a local memory connected to the identifier" and "later on be transferred to the CCU" (paragraph [0032], column 11, lines 20 to 25). According to paragraph [0058], the identifier "could be designed to either directly transfer the information to the central control unit or storing a number of paired components to be transferred as batch".

In the Board's view, it is clear both from the passages in the patent and from the skilled person's technical understanding that the information to be transmitted to the CCU according to the alternative of column 9, lines 27 to 33 includes the "paired system location ID and component ID" (column 9, lines 33 to 37). The Board also has no doubt that all options disclosed in the patent including a configuration of the identifier for direct transfer to the CCU (paragraph [0058]) come within the customary practice of the skilled person and do not represent obstacles for carrying out the invention.

- 1.8 Insufficiency of disclosure vs missing essential features
- 1.8.1 The appellant asserted that in line with the established case law, an independent claim had to contain all features essential for the invention to be workable. It argued that a lack of essential features in claim 1 resulted in a broader scope of protection than justified by the disclosure of the patent and, hence, led to a violation of the requirements of Article 83 EPC.

The Board disagrees.

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- 1.8.2 Contrary to the uncited alleged case law referred to by the appellant, it is generally not sufficient to establish a lack of clarity of the claims to establish lack of compliance with Article 83 EPC. Rather, it is necessary to show that the patent as a whole (i.e. not only the claims) does not enable the skilled person who can avail themselves of the description and their common general knowledge to carry out the invention (Case Law, II.C.8.2, first paragraph). In the current case, it has been set out above how the skilled person's common general knowledge and the patent as a whole provide information missing from claim 1 and enable the skilled person to carry out the invention.
- 1.8.3 The Board also does not share the appellant's concern that due to missing essential features the scope of protection of claim 1 was broadened to an extent that violated the "general principle that the protection obtained with the patent had to be commensurate with the disclosed teaching" (Case Law, II.C.5.4, fifth paragraph). Features which are not explicitly defined in claim 1 but, as understood by a skilled person, must inevitably be present, are implicit features of claim 1 which limit its subject-matter. Moreover, features which are disclosed as essential or explained in more detail in the description will be taken into account when determining the scope of protection under Article 69(1) EPC and the Protocol on the Interpretation of Article 69 EPC. Hence, in the Board's view, the disclosure gaps submitted by the appellant - if present at all - do not bring the above-mentioned legal principle out of balance.
- 1.9 In summary, none of the objections submitted regarding insufficiency of disclosure are convincing. Taking into account implicit features and the skilled person's

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common general knowledge, the patent discloses the invention as defined in claim 1 in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Hence, the ground for opposition under Article 100(b) EPC does not prejudice the maintenance of the patent according to auxiliary request 4 maintained by the opposition division, which consists of claims 1 to 9 as granted.

### 2. Novelty

- 2.1 It is common ground that documents D8 to D11 were published in 2013 and relate to the same HomeMatic smart home system.
- 2.2 D8 ("WebUI Handbuch") is a manual for the web user interface (WebUI) of the HomeMatic CCU. As explained on page 6 in D8, the CCU runs a web server providing the WebUI, which is accessible via a web browser on a processing device such as a PC over an Ethernet or USB connection (Figure 4.1 on page 7; chapter 5 on page 9). D8 explains, inter alia, how smart home components can be configured and connected (paired) with the CCU with the help of the WebUI.

D11 is a manual for the HomeMatic Wireless Room
Thermostat HM-TC-IT-WM-W-EU, which is a wireless sensor
component of the HomeMatic smart home system. It shows
a component with a display (page 21).

There was agreement that the device on which the WebUI is executed can be considered the "identifier" of claim 1 and that the HomeMatic system according to D8 to D11 thus at least discloses Features M1 to M5, steps M6a and M6c, and initiating a pairing event of Feature M6f.

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2.3 The appellant submitted that claim 1 (of auxiliary request 4 considered allowable in the decision under appeal) lacked novelty over the HomeMatic smart home system according to D8 to D11.

It submitted that Figure 76 and pages 124 to 127 of D8 disclosed a configuration list with sl-IDs defined by a functional group (No. 8 "Gewerk") and a room (No. 9 "Raum") taken together. The sl-IDs, which necessarily had to be defined before allocating a component to them, represented, broadly, a "system description" which was, via the WebUI, provided to the identifier (Feature M6b).

D8 disclosed two methods for wirelessly establishing a connection between the components and a CCU. In the direct learning method ("direktes Anlernen", top of page 121), a learning mode is activated on the identifier via the WebUI, at which point an identifying signal is sent out. The alternative method based on reading the serial number printed on the component ("Anlernen mit Seriennummer", pages 121 to 122) was in the skilled person's view understood to be performed automatically by a smartphone with a light source and a camera as the identifier. Hence, the component was identified by an "identifying" light signal reading the cID. Accordingly, both methods disclosed Feature M6d.

As to Feature M6e, repeating an unsuccessful identification attempt was commonly known and also disclosed in D11 when establishing a communication with the CCU failed (error code "nAC", "Anlernprozess fehlgeschlagen", "Anlernmodus neu starten", page 39). In this context, the display of the wall thermostat of D11 (page 21) disclosed an indicator as in the claim. According to the first bullet point on page 22, the

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display showed an antenna symbol and a countdown indicating a selected state in the configuration process. The antenna symbol was also present when the connection with the CCU was established by another method. According to page 39, a blinking antenna symbol indicated a connection error. After connection with the CCU was established, the desired component was displayed on the indicator in the device inbox, and a pairing event with a sl-ID could be manually initiated. Hence, the HomeMatic system also disclosed Features M6e and M6f.

#### 2.4 Feature M6b

Figure 76 on page 126 in D8 depicts an entry in the device inbox ("Geräte Posteingang") where newly recognised components are shown and can be configured. The entry for a new component includes its serial number (column 4) corresponding to a unique cID, and the components can be allocated (manually, by a user) to a functional group ("Gewerk", column 8) and a room ("Raum", column 9), as disclosed on pages 126 ff.

The Board agrees with the appellant that the information on new components in the device inbox could be considered to represent a configuration list and that a functional group and a room in combination could be considered to fall, broadly, within the term "system location ID". However, D8 does not disclose a system description and sl-IDs within the meaning of the claim 1 as a whole as explained in the following.

Claim 1 specifies that the identifier is provided with a system description as part of the "Preparation" phase I of Feature M6, i.e. <u>before</u> the "Selection procedure" and before "initiating a pairing event" (phases II and

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III of Feature M6). The knowledge of the system description, including the sl-IDs, allows identifying the physical location of "the desired component to be configured" (Feature M6c). That is, the system description must contain sufficient information for a technician to "position himself where the component is mounted, at a location where the component ID may be identified by using the identifier" (see points 1.4.4 and 1.4.7).

By contrast, D8 does not disclose that the functional group and the room include sufficient information (such as details of physical locations or interconnections with other components) for locating and identifying a desired component among a multitude of similar components in the same room.

Moreover, D8 does not disclose that the functional group and the room, respectively a "system description", are defined and provided to the identifier before the component is located and selected (see point 2.5). It is true that the functional groups and rooms must have been defined before a component can be allocated to them. However, according to D8, new rooms and functional groups can be defined at any time, also after a new component has been detected. Hence, while it is possible to define a plan or system description before implementing and configuring the system, D8 does not directly and unambiguously disclose that the CCU or the identifier is provided with such a system description before configuring components. Indeed, typically, the system description in a small smart home project instead only develops step by step in the course of the configuration process with every new component added.

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Accordingly, D8 does not disclose Feature M6b.

#### 2.5 Feature M6d

In chapter 23 ("Geräte anlernen", pages 120 to 123), D8 discloses how a connection between the CCU and a new component can be established. For a wireless component ("Funk-Komponente"), two options are available: either a direct learning method ("direktes Anlernen", top of page 121), which requires activation of a learning mode both on the CCU (over the WebUI) and on the component (by manual activation); or "Anlernen mit Seriennummer" (pages 121 to 122) based on the serial number printed on the component.

In both cases, the wireless communication of the identifier displaying the WebUI with the components takes place via the CCU. In contrast to the respondent's view, Feature M6d is not limited to a direct communication between the identifier and the components, so sending the identifying/identification signal selecting the component (see point 1.5.3 above) could, in principle, take place via the CCU.

However, D8 does not directly and unambiguously disclose that activation of the direct learning mode at the CCU (via the WebUI on the identifier) involves using the identifier to send an "identifying signal in order to identify the desired component". Rather, the desired component is identified by manually activating its learning mode. D8 does not disclose details of the communication between the CCU and the components - it thus may be that the CCU merely listens for the cIDs transmitted from activated components. Any potential subsequent confirmation message sent by the CCU after the identification of the manually activated desired

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component is not considered "sending an identifying signal in order to identify the desired component" (Feature M6d).

The alternative method "Anlernen mit Seriennummer" involves manually entering the serial number printed on the component or noted down before installation at a hidden location in D8 ("Tragen Sie die Seriennummer des anzulernenden Geräts in das Feld 'Seriennummer eingeben:' ein", page 21, last bullet point). D8 discloses neither a smartphone with a camera as an identifier, nor that the serial number printed on the component is automatically read. Even if the skilled person had contemplated this, it is not inevitable and thus not implicitly disclosed in D8. Hence, the reading and manual entry of the serial number does not involve sending an identifying signal, nor does any possible subsequent confirmation message (see preceding paragraph).

Hence, D8 does not disclose Feature M6d.

# 2.6 Feature M6e

- 2.6.1 Feature M6e specifies repeating the step of using the identifier to send an identifying signal to identify the desired component (Feature M6d) until certain exit conditions are met. As the HomeMatic system does not disclose Feature M6d, it cannot disclose repeating this step, either.
- 2.6.2 Furthermore, D11 discloses a display of the wall thermostat (page 21) showing an antenna symbol when the learning mode is activated on the component (first bullet point on page 22). This disclosure relates to the direct learning method discussed above, which

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requires manual activation of the component (last bullet point on page 21). This means, however, that the activation of the indicator only indicates a selection by the user; it is not related to a selection using the identifier. Hence, the antenna symbol in this method does not indicate a "selected state" within the meaning of claim 1.

The appellant argued that the antenna symbol was also present if the connection with the CCU was established by the other method based on the serial number ("Anlernen mit Seriennummer"). As the ECU does not recognise the reading of the serial number, the antenna symbol can only be activated when the ECU receives a confirmation message that its cID has been retrieved. However, D8 or D11 does not explicitly disclose such a message or details about the communication. It is thus not derivable that the identifier is involved in sending such a message and that the antenna symbol in the method based on the serial number indicates a "selected state" within the meaning of claim 1.

The error codes ("nAC" or in the form of a blinking antenna symbol) on page 39 relate to communication/connection failures and do also not indicate a selected state after a successful identification.

The appellant's written submissions are also understood such that the indicator could be seen in the pop-up window requiring to enter a security key for accessing the component (D8, page 122, second bullet point). However, this window appears in the WebUI displayed on the identifier and thus does not represent an indicator of the component (Feature M5) controlled by the ECU.

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Hence, the HomeMatic system does not disclose the exit condition regarding the indicating signal of Feature M6e.

- 2.6.3 Moreover, while D8 discloses that newly connected components are displayed on the identifier in the device inbox, it does not disclose the other exit condition that it displays "only the desired component" or "only one component being in the same selected state" of Feature M6e, either. Rather, the device inbox contains all new components until they are manually paired with a room and functional group and the configuration is manually finished ("12. Fertig", page 127). Hence, the HomeMatic system does not disclose that the exit condition of Feature M6e regarding the display on the identifier is always met, either.
- 2.6.4 It follows from the above that the HomeMatic system does not disclose Feature M6e.
- 2.7 Accordingly, the subject-matter of claim 1 of auxiliary request 4 (main request) is novel over the HomeMatic smart home system according to D8 to D11 and differs from it at least by Features M6b, M6d and M6e.
- 3. <u>Inventive step starting from the HomeMatic smart home</u> system according to D8 to D11 in combination with D12
- 3.1 The appellant submitted that starting from D8, which was primarily suitable for home automation, the skilled person would have sought to solve the problem of how to provide a system and method for configuring larger projects without mistakes. The skilled person in building automation knew suitable models such as LON (local operation network) technology, a well-established standard for control networking, e.g. of

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HVAC (heating, ventilation and air conditioning) systems, covered in textbook D12.

D12 disclosed a configuration method for complex building automation systems (pages 311 to 312), including Features M6a to M6f as follows.

A PC provided with a plan including sl-IDs of components and their connections and a barcode reader were brought to the real network mounted according to the plan ("das inzwischen montierte reale Netzwerk auf der Baustelle", Feature M6a) and connected to the network (page 313, section 13.2.4, first paragraph) to pair ("zuordnen") the component's IDs ("Neuron IDs") with corresponding sl-IDs ("den logischen Knoten seines Projekts", page 313, section 13.2.4, second paragraph; Feature M6f).

The pairing required user interaction, for example according to the manual entry method ("Manuelle Eingabe", D12, page 314) disclosing that the cID could be read from a barcode label on the component by a barcode reader. The PC together with the barcode reader represented an "identifier" provided with the plan, the "system description" (Feature M6b). Reading the barcode represented the step of "sending an identifying signal in order to identify the desired component" (Feature M6d) and presupposed identifying the physical location of the component and bringing the identifier within reach (Feature M6c).

As to Feature M6e, the manual entry method could be refined by the "Find and Wink" method (page 314), according to which the component activated an indicator for indicating that it had been selected by the identifier by a corresponding message addressed to its

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cID ("spezielle Nachricht", page 65, second paragraph). Find and Wink was not an alternative identification method but could be used to complement the manual entry method. Moreover, D12 disclosed that the manual entry method was concluded by sending a first management message to the component addressed to the cID and including its network address information ("Das allererste Management-Telegramm an einen Knoten [...] darf nur mit dessen Neuron ID addressiert sein", page 314, section "Manuelle Eingabe", second last sentence). Upon receipt of this message, which could be considered a selection by the identifier via the CCU, the component controlled its indicator to indicate its status, e.g. as completely configured ("vollständig konfiguriert", page 65, Table 3-4). Hence, D12 disclosed the exit condition of the indicator indicating a selected state according to Feature M6e.

The skilled person was aware that the configuration scheme disclosed in D12 was suitable for large systems ("Dies erleichtert die Übersicht in der Montagepraxis großer Systeme", page 65, second paragraph, last sentence, in D12). As the skilled person was also aware of other suitable technologies, they would not necessarily have adopted the complete LON technology including the neuron chip. However, they would have incorporated the general configuration scheme from D12 in the HomeMatic smart home system according to D8 to D11 and would thus have arrived at the subject-matter of claim 1 in an obvious manner.

- 3.2 The Board is not convinced by this line of argument.
- 3.2.1 The provision of a system description (plan) before the configuration (according to Feature M6b) and the use of an indicator as a confirmation of the selection before

initiating the pairing event (according to Feature M6e, see point 1.5.2) can be considered to facilitate the setup and configuration of large systems with many components without mistakes.

However, starting from the HomeMatic smart home system of D8 to D11, which addresses and works well for small home automation projects, the skilled person would not have been confronted with the submitted problem concerning complex systems with many components. Hence, either D8 is not a suitable starting point, or the skilled person starting from the HomeMatic system would not have sought to solve the problem - and "would" thus not have arrived at the subject-matter of claim 1 in an obvious manner.

3.2.2 Moreover, even if the skilled person had considered D12 for solving the problem submitted by the appellant, they would have tried to adopt the LON technology completely. The idea of borrowing only some selected concepts or method steps and integrating them with the technology of the HomeMatic smart home system alone suggests an inventive step - or an approach based on hindsight.

Adopting the LON technology in the system of D8 to D11 would have required a complete redesign of the control system of D8, including replacement of the ECU of the components of the HomeMatic system with the neuron chip required by the LON technology (mentioned throughout D12). This would by far exceed what a skilled person "would" have done.

3.2.3 Furthermore, D12 does not disclose the manual entry method and "Find and Wink" in combination, in particular not in the submitted sequence: the manual

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entry method requires that the user has found the component so that they can read the cID (with the barcode reader). Find and Wink, by contrast, is disclosed to help if the component cannot be located ("Ist der Knoten auf der Baustelle zunächst nicht auffindbar [...]", page 314, section "Find and Wink", first line), not as confirmation of the selection. Hence, D12 does not disclose the submitted "refinement" of the manual input method by using Find and Wink additionally after having read the cID from the barcode.

It is true that according to the manual entry method, the configuration is completed with a first management message with configuration data (network addresses). According to Table 3-4 on page 65, the completion of configuration ("vollständig konfiguriert") is indicated by the LED indicator switching off. Irrespective of whether this can be considered an "activation" of the indicator, the first management message is only sent after the pairing is completed ("Nach der Identifizierung der Knoten und der entsprechenden Vervollständigung der Projektdatenbank und aller Pläne" and after allocating logical addresses, page 314, section "Manuelle Eingabe", at the beginning of the second paragraph).

Hence, D12 does not disclose that the indicator is activated to indicate a selected state as confirmation of the "Selection procedure" (phase II of Feature M6) before a pairing event is initiated in the subsequent "Configuration" step (phase III of Feature M6). For this reason, D12 does not disclose at least Feature M6e, either.

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- 3.3 Accordingly, starting from D8 in combination with D12, the subject-matter of claim 1 of auxiliary request 4 (main request) involves an inventive step.
- 4. <u>Inventive step starting from common general knowledge</u> in combination with D12
- The appellant submitted that a generic HVAC system with Features M1 to M5 was known from the common general knowledge, as exemplified by document D1. Starting from such a system as the closest prior art, the problem was how to implement a specific configuration method, in particular a method that avoided mistakes made in the configuration of large projects (paragraph [0006] of the patent). In view of this problem, the skilled person would have consulted D12 disclosing Features M6a to M6f and would thus have arrived at the subjectmatter of claim 1 of auxiliary request 4 (main request) in an obvious manner for similar reasons as submitted for lack of inventive step starting from D8 (see point 3.1 above).

The Board does not agree with this line of argument.

Regardless of whether the patent document D1 can be considered proof of the alleged common general knowledge, if an HVAC system including network-controlled components with ECUs, receivers and/or transmitters and an indicator (Features M3 to M5) is part of the skilled person's common general knowledge, at least a basic communication and configuration scheme implemented on the components and the CCU is also part of that common general knowledge (as can also be seen in D1).

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However, the specifics of the alleged common general knowledge relevant to the current case, that is the details of the communication and configuration scheme, have not been established by the appellant. The vague common general knowledge of an HVAC system submitted by the appellant is thus merely an abstract concept, isolated from its technical context, not a technically well-defined starting point.

In the absence of the relevant technical details in the alleged common general knowledge, it is not possible to establish the concrete distinguishing features of claim 1, to consider their technical effects vis-à-vis the disclosure of the closest prior art and to define an objective technical problem tailored to the distinguishing features and their effects. Basing the analysis on a thus abstracted torso of common general knowledge would result in a technical problem defined depending on what features the appellant has decided to omit, i.e. it would not be based on objectively determined differentiating technical features, thus resulting in an artificial, possibly hindsight-based analysis. Moreover, without being able to assess the extent of modifications and potential incompatibilities with the technical details of the closes prior art, it is not possible to conclude on whether the skilled person "would" (and not only "could") have implemented the features of D12 in the HVAC system according to the alleged common general knowledge in an obvious manner.

Hence, the abstract common general knowledge submitted by the appellant in the case at hand does not allow properly assessing inventive step. The Board thus concludes that the submitted common general knowledge in the current case is too vague and does not represent - 40 - T 1823/21

a valid starting point for the assessment of inventive step.

- 4.3 Moreover, D12 does not disclose at least Feature M6e, either, as set out under point 3.2.3 above.
- 4.4 Accordingly, the subject-matter of claim 1 of auxiliary request 4 (main request) also involves an inventive step when starting from common general knowledge in combination with D12.
- 5. Summary

As none of the appellant's objections against auxiliary request 4 considered allowable by the opposition division (main request) succeeds, the appeal is to be dismissed.

#### Order

#### For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Grundner C. Herberhold

Decision electronically authenticated