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GAS WATER HEATER AND PARAMETRIC CODE TRANSFORMATION METHOD AND APPARATUS THEREFOR

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A gas water heater and a parametric code transformation method and apparatus therefor. The gas water heater comprises a gas source dial switch (100). The transformation method comprises the following steps: (S1) acquiring dial state information of a gas source dial switch (100), and determining a gas source of a gas water heater according to the dial state information, wherein the gas source of the gas water heater comprises natural gas and liquefied gas; (S2) if the gas source is natural gas, transforming a parametric code of the gas water heater into a first parametric code; and (S3) if the gas source is liquefied gas, acquiring a parametric code difference value, and transforming the parametric code of the gas water heater into a second parametric code according to the first parametric code and the parametric code difference value.

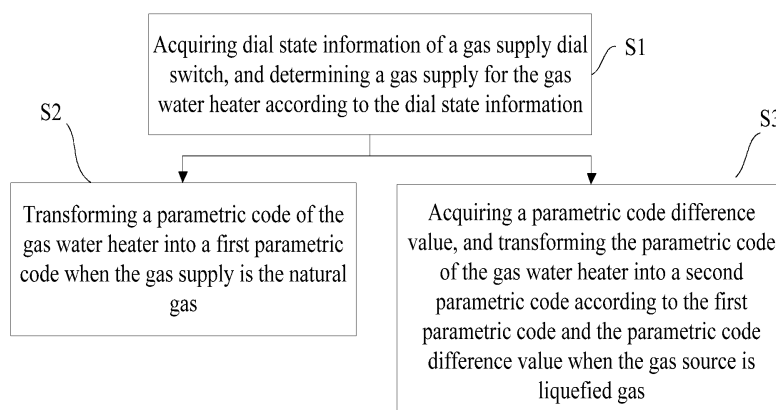


Fig. 1

Description**CROSS-REFERENCE TO RELATED APPLICATION**

5 [0001] This application is based on and claims priority to Chinese Patent Application Serial No. 201711479483.8, filed on December 29, 2017, the entire content of which is incorporated herein by reference.

FIELD

10 [0002] The present disclosure relates to the field of gas water heater technology, and more particularly to a parametric code transformation method for a gas water heater, a non-transitory computer readable storage medium, a parametric code transformation apparatus for a gas water heater and a gas water heater.

BACKGROUND

15 [0003] In general, a default parametric code of a gas water heater is set with natural gas as gas supply. However, the gas supply in some families may be liquefied gas. Therefore, it needs to transform the parametric code according to the gas supply for the gas water heater.

20 [0004] Due to the larger difference of heat values between gas supplies, there are many parametric codes needed to be adjusted, such as a proportional valve maximum secondary pressure code, a maximum wind speed code and a proportional valve minimum secondary pressure code. For ordinary installers, due to the high level of complexity, adjustment errors are prone to occur, and the costs and time to complete such adjustment training are high.

25 [0005] In the related art, the parametric codes between gas supplies, in general, are switched automatically by a gas supply dial switch. For the same model of gas water heaters, the parametric code corresponding to the liquefied gas is preset in the gas water heater. When the gas supply for the gas water heater is changed, the parametric code may be directly switched by dialing the gas supply dial switch. For example, for a gas water heater with the natural gas being defaulted as the gas supply, when the gas supply is the natural gas, the maximum secondary pressure code is C1, when the gas supply is the liquefied gas, the maximum secondary pressure code is C9, and the switch between the two parametric codes can be completed by dialing the gas supply dial switch.

30 [0006] By the above method, when the gas supply for the gas water heater is changed from the natural gas to the liquefied gas, the parametric codes of the gas water heaters with the same model are the same. However, components, such as proportional valves and fans, of different gas water heaters have some differences to a certain extent, even they have the same model. Therefore, the parametric code transformation by the above method may cause problems, for example, the output of the gas water heater goes beyond the deviation specification, the smoke exceeds a specified range, and the ignition fails, thereby affecting working performance of the gas water heater.

SUMMARY

40 [0007] Embodiments of the present disclosure aim to solve at least one of technical problems in the related art to some extent. Therefore, the present disclosure provides a parametric code transformation method for a gas water heater by which the parametric code is transformed according to a parametric code difference value when the gas supply for the gas water heater is changed, thereby effectively making up errors of the components among gas water heaters and effectively ensuring the working performance of the gas water heater.

[0008] The present disclosure also provides a non-transitory computer readable storage medium.

45 [0009] The present also provides a parametric code transformation apparatus for a gas water heater.

[0010] The present disclosure also provides a gas water heater.

[0011] Embodiments of a first aspect of the present disclosure provide a parametric code transformation method for a gas water heater. The gas water heater includes a gas supply dial switch. The method includes: acquiring dial state information of the gas supply dial switch, and determining a gas supply for the gas water heater according to the dial state information, wherein the gas supply for the gas water heater includes natural gas and liquefied gas; transforming a parametric code of the gas water heater into a first parametric code when the gas supply is the natural gas; acquiring a parametric code difference value and transforming the parametric code of the gas water heater into a second parametric code according to the first parametric code and the parametric code difference value when the gas supply is the liquefied gas.

55 [0012] With the parametric code transformation method for a gas water heater according to embodiments of the present disclosure, the dial state information of the gas supply dial switch is acquired first, and the gas supply for the gas water heater is determined according to the dial state information; when the gas supply is the natural gas, the parametric code of the gas water heater is transformed into the first parametric code; when the gas supply is the liquefied gas, the

parametric code difference value is acquired, and the parametric code of the gas water heater is transformed into the second parametric code according to the first parametric code and the parametric code difference value. Therefore, the parametric code is transformed according to the parametric code difference value when the gas supply for the gas water heater is changed, and thus the errors of components among gas water heaters can be effectively made up and the working performance of the gas water heater can further be effectively ensured.

[0013] Embodiments of a second aspect of the present disclosure provide a non-transitory computer readable storage medium having stored therein a computer program that, when executed by a processor, causes the processor to implement a parametric code transformation method for a gas water heater as described in embodiments of the first aspect of the present disclosure.

[0014] With the non-transitory computer readable storage medium according to embodiments of the present disclosure, the dial state information of the gas supply dial switch is acquired first, and the gas supply of the gas water heater is determined according to the dial state information; when the gas supply is the natural gas, the parametric code of the gas water heater is transformed into the first parametric code; when the gas supply is the liquefied gas, the parametric code difference value is acquired, and the parametric code of the gas water heater is transformed into the second parametric code according to the first parametric code and the parametric code difference value, thereby effectively making up errors of the components among gas water heaters and effectively ensuring the working performance of the gas water heater.

[0015] Embodiments of a third aspect of the present disclosure provide a parametric code transformation apparatus for a gas water heater. The gas water heater includes a gas supply dial switch. The apparatus includes: an acquiring module, connected to the gas supply dial switch and configured to acquire dial state information of the gas supply dial switch; a determining module, connected to the acquiring module and configured to determine the gas supply for the gas water heater according to the dial state information, wherein the gas supply for the gas water heater includes natural gas and liquefied gas; a parameter transforming module, connected to the determining module, and configured to transform a parametric code of the gas water heater into a first parameter code when the gas supply is the natural gas, and to acquire a parametric code difference value and transform the parametric code of the gas water heater into a second parametric code according to the first parametric code and the parametric code difference value when the gas supply is the liquefied gas.

[0016] With the parametric code transformation apparatus for a gas water heater according to embodiments of the present disclosure, the acquiring module acquires the dial state information of the gas supply dial switch, the determining module determines the gas supply for the gas water heater according to the dial state information, the parameter transformation module transforms the parametric code of the gas water heater into the first parametric code when the gas supply is the natural gas; and acquires the parametric code difference value, and transforms the parametric code of the gas water heater into the second parametric code according to the first parametric code and the parametric code difference value when the gas supply is the liquefied gas. Therefore, the parametric code is transformed by the apparatus according to the parametric code difference value when the gas supply for the gas water heater is changed, and thus the errors of components among gas water heaters can be effectively made up and the working performance of the gas water heater can further be effectively ensured.

[0017] Embodiments of the fourth aspect of the present disclosure provide a gas water heater, including the parametric code transformation apparatus for a gas water heater as described in embodiment of the third aspect of the present disclosure.

[0018] The gas water heater as described in embodiments of the present disclosure transforms the parametric code according to the parametric code difference value when the gas supply for the gas water heater is changed, thereby effectively making up the errors of components and further efficiently ensuring the working performance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The above and/or additional aspects and advantages of the present disclosure will become apparent and easily understood from the following description made for embodiments with reference to the drawings, in which:

Fig. 1 is a flow chart of a parametric code transformation method for a gas water heater according to an embodiment of the present disclosure;

Fig. 2 is a flow chart of a parametric code transformation method for a gas water heater according to an embodiment of the present disclosure; and

Fig. 3 is a block diagram of a parametric code transformation apparatus for a gas water heater according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0020] Reference will be made in detail to embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings. The same or similar elements and the elements having same or similar functions are denoted by like reference numerals throughout the descriptions. The embodiments described hereinafter with reference to drawings are explanatory, illustrative, and used to generally understand the present disclosure. The embodiments shall not be construed to limit the present disclosure.

[0021] Description will be made hereinafter to a parametric code transformation method for a gas water heater, a non-transitory computer readable storage medium, a parametric code transformation apparatus for a gas water heater and a gas water heater according to embodiments of the present disclosure with reference to the accompanying drawings.

[0022] Fig. 1 is a flow chart showing a parametric code transformation method for a gas water heater according to an embodiment of the present disclosure. The gas water heater includes a gas supply dial switch. As shown in Fig. 1, the parametric code transformation method includes the following steps:

At S1, dial state information of the gas supply dial switch is acquired, and a gas supply for the gas water heater is determined according to the dial state information. The gas supply for the gas water heater includes natural gas and liquefied gas.

At S2, a parametric code of the gas water heater is transformed into a first parametric code when the gas supply is the natural gas.

At S3, a parametric code difference value is acquired, and the parametric code of the gas water heater is transformed into a second parametric code according to the first parametric code and the parametric code difference value when the gas supply is the liquefied gas.

[0023] In embodiments of the present disclosure, the parametric code of the gas water heater is defaulted to be the first parametric code.

[0024] In specific, the gas supply dial switch generally includes a first position and a second position, each of which corresponds to a dial code (1 and 2). There is a silkscreen on the gas supply dial switch, and the user could choose the gas supply for the gas water heater by dialing the silkscreen to a corresponding position. For instance, when the gas supply for the gas water heater is the natural gas, the gas supply dial switch is dialed to the first position, and when the gas supply for the gas water heater is the liquefied gas, the gas supply dial switch is dialed to the second position. The gas supply for the gas water heater is generally the natural gas, and thus the gas supply dial switch of the gas water heater, when leaving the factory, may be dialed to the position corresponding to the natural gas by default.

[0025] After the gas supply for the gas water heater is determined according to dial state information, if the gas supply for the gas water heater is the natural gas, the parametric code of the gas water heater is transformed into a parametric code (i.e., the first parametric code) corresponding to the natural gas; if the gas supply for the gas water supply is the liquefied gas, the parametric code difference value is acquired, and the parametric code of the gas water heater is transformed into the second parametric code according the first parametric code and parametric code difference value, in which the second parametric code equals to the first parametric code minus the parametric code difference value. Therefore, the method transforms the parametric code according to the first parametric code and the parametric code difference value when the gas supply for the gas water heater is changed to liquefied gas, thereby effectively making up the errors of components among the gas water heaters and further effectively ensuring the working performance of the gas water heater.

[0026] It should be understood that the first parametric code and the parametric code difference value may be preset in the gas water heater before the gas water heater leaves the factory.

[0027] In embodiments of the present disclosure, the parametric code may include: a proportional valve maximum secondary pressure code, a maximum wind speed code, a proportional valve minimum secondary pressure code, a minimum wind speed code, a proportional valve ignition secondary pressure code and an ignition wind speed code.

[0028] For example, as shown in Table 1 and taking a gas water heater as an example, the parametric code (the second parametric code) when the gas supply is the liquefied gas is equal to the parametric code (the first parametric code) corresponding to the case when the gas supply is the natural gas minus the parametric code difference value.

Table 1

Parametric Code	Natural Gas	Parametric Code Difference Value	Liquefied Gas
Dial state information			
PH (Proportional Valve Maximum Secondary Pressure)	99	10	89
FH (Maximum Wind Speed)	89	16	73
PL (Proportional Valve Minimum Secondary Pressure)	45	13	32
FL (Minimum Wind Speed)	32	6	2C
DH (Proportional Valve Ignition Secondary Pressure)	35	7	2E
DF (Ignition Wind Speed)	25	5	20

[0029] In embodiments of the present disclosure, the parameter code is a hexadecimal number, and each parameter code corresponds to a working parameter.

[0030] As shown in Table 1, the parametric code corresponding to the liquefied gas is related to the parametric code corresponding to the natural gas and the parametric code difference value. As shown in Table 1, the PH corresponding to the natural gas defaulted by the gas water heater is 99, then when the gas supply is changed to the liquefied gas, the corresponding PH is equal to 89, i.e., the corresponding $PH=99-10=89$. For the gas water heaters with the same model, due to the difference of the components, the first parametric code for each gas water heater may be slightly different. For example, for a gas water heater with the same model as the gas water heater shown in Table 1, if the default PH corresponding to the natural gas is 98, then when the gas supply is changed to the liquefied gas, the corresponding PH is equal to 88, i.e., the corresponding $PH=98-10=88$.

[0031] As can be seen from the above embodiments, when the gas supply for the gas water heater is changed from the natural gas to the liquefied gas, the parametric code needs to be transformed, and the parametric code difference value needs to be acquired for the transformation of the parametric code. In the following, how to acquire the parametric code difference value will be described with reference to the specific embodiments.

[0032] According to an embodiment of the present disclosure, as shown in Fig. 2, the parametric code difference value is acquired by the following step.

[0033] At S31, first optimal parametric codes for a plurality of gas water heaters when supplied with natural gas and second optimal parametric codes for the plurality of the gas water heaters when supplied with liquefied gas are acquired respectively. In an embodiment, the phrase "a plurality of" generally refers to 10 or more.

[0034] At S32, a difference value between the first optimal parametric code and the second optimal parametric code for each of the plurality of the gas water heaters when respectively supplied with natural gas and liquefied gas are calculated.

[0035] At S33, an average value of the difference values is calculated and the average value is taken as the parametric code difference value.

[0036] Specifically, before leaving the factory, at least 10 gas water heaters with the same model are tested. For each of the at least 10 gas water heaters, the first optimal parametric code is tested when the gas supply is the natural gas, the second optimal parametric code is tested when the gas supply is the liquefied gas, and the difference value between the first optimal parametric code and the second optimal parametric code is calculated. Then, the average value of the respective difference values of the at least 10 gas water heaters is calculated and taken as the parametric code difference value. For example, an optimal PH (natural gas) of a gas water heater is A3, and an optimal PH (liquefied gas) of the

gas water heater is 98, and thus a difference value therebetween is 11. In the similar way, the difference value of the PH values can be obtained for each of other gas water heaters. Then, an average value of all the difference values corresponding to the PH is calculated and taken as the parametric code difference value corresponding to the PH of the gas water heaters. Similarity, the respective parametric code difference values corresponding to other parametric codes, such as FH, PL, FL, DH or DF, may be obtained. Finally, all the parametric code difference values are preset in the gas water heater, such that the parametric code may be transformed when the gas supply for the gas water heater is changed from the natural gas to the liquefied gas, thereby making up the differences of components among gas water heaters.

[0037] In conclusion, with the parametric code transformation method for a gas water heater according to embodiments of the present disclosure, the dial state information of the gas supply dial switch is acquired first, and the gas supply for the gas water heater is determined according to the dial state information; when the gas supply is the natural gas, the parametric code of the gas water heater is transformed into the first parametric code; when the gas supply is the liquefied gas, the parametric code difference value is acquired, and the parametric code of the gas water heater is transformed into the second parametric code according to the first parametric code and the parametric code difference value. Therefore, the parametric code is transformed according to the parametric code difference value when the gas supply for the gas water heater is changed, and thus the errors of components among gas water heaters can be effectively made up and the working performance of the gas water heater can further be effectively ensured.

[0038] Embodiments of the present disclosure also provide a non-transitory computer readable storage medium having stored therein a computer program that, when executed by a processor, causes the processor to implement the parametric code transformation method for a gas water heater as described in embodiments of the present disclosure hereinbefore.

[0039] With the non-transitory computer readable storage medium according to embodiments of the present disclosure, the dial state information of the gas supply dial switch is acquired first, and the gas supply for the gas water heater is determined according to the dial state information; when the gas supply is the natural gas, the parametric code of the gas water heater is transformed into the first parametric code; when the gas supply is the liquefied gas, the parametric code difference value is acquired, and the parametric code of the gas water heater is transformed into the second parametric code according to the first parametric code and the parametric code difference value, thereby effectively making up errors of the components among gas water heaters and effectively ensuring the working performance of the gas water heater.

[0040] Fig. 3 is a block diagram of a parametric code transformation apparatus for a gas water heater according to an embodiment of the present disclosure. As shown in Fig. 3, the gas water heater includes a gas supply dial switch 100, and the parametric code transformation apparatus includes: an acquiring module 10, a determining module 20 and a parameter transforming module 30.

[0041] Among others, the acquiring module 10 is connected to the gas supply dial switch 100, and configured to acquire dial state information of the gas supply dial switch 100. The determining module 20 is connected to the acquiring module 10, and configured to determine a gas supply for the gas water heater according to the dial state information. The gas water heater includes natural gas and liquefied gas. The parameter transforming module 30 is connected to the determining module 20, and configured to transform a parametric code of the gas water heater into a first parametric code when the gas supply is the natural gas; and configured to acquire a parametric code difference value, and transform the parametric code of the gas water heater into a second parametric code according to the first parametric code and the parametric code difference value when the gas supply is liquefied gas.

[0042] In embodiments of the present disclosure, the parametric code of the gas water heater is defaulted to be the first parametric code.

[0043] In specific, the gas supply dial switch 100 generally includes a first position and a second position, each of which corresponds to a dial code (1 and 2). There is a silkscreen on the gas supply dial switch 100, and the user could choose the gas supply for the gas water heater by dialing the silkscreen to a corresponding position. For instance, when the gas supply for the gas water heater is the natural gas, the gas supply dial switch 100 is dialed to the first position, and when the gas supply for the gas water heater is the liquefied gas, the gas supply dial switch 100 is dialed to the second position. The gas supply for the gas water heater is generally the natural gas, and thus the gas supply dial switch 100 of the gas water heater, when leaving the factory, may be dialed to the position corresponding to the natural gas by default.

[0044] After the gas supply for the gas water heater is determined by the determining module 20 according to the dial state information, if the gas supply for the gas water heater is the natural gas, the parametric code of the gas water heater is transformed by the parameter transforming module 30 into a parametric code (i.e., the first parametric code) corresponding to the natural gas; if the gas supply for the gas water supply is the liquefied gas, the parameter transforming module 30 acquires the parametric code difference value, and transforms the parametric code of the gas water heater into the second parametric code according the first parametric code and parametric code difference value, in which the second parametric code equals to the first parametric code minus the parametric code difference value. Therefore, the apparatus transforms the parametric code according to the first parametric code and the parametric code difference value when the gas supply for the gas water heater is changed to the liquefied gas, thereby effectively making up the

errors of components among the gas water heaters and further effectively ensuring the working performance of the gas water heater.

[0045] It should be understood that the first parametric code and the parametric code difference value may be preset in the gas water heater before the gas water heater leaves the factory.

[0046] In embodiments of the present disclosure, the parametric code may include: a proportional valve maximum secondary pressure code, a maximum wind speed code, a proportional valve minimum secondary pressure code, a minimum wind speed code, a proportional valve ignition secondary pressure code and an ignition wind speed code.

[0047] For example, as shown in Table 1 and taking a gas water heater as an example, the parametric code (the second parametric code) when the gas supply is the liquefied gas is equal to the parametric code (the first parametric code) corresponding to the case when the gas supply is the natural gas minus the parametric code difference value.

Table 1

Parametric Code	Natural Gas	Parametric Code Difference Value	Liquefied Gas
Dial state information			
PH (Proportional Valve Maximum Secondary Pressure)	99	10	89
FH (Maximum Wind Speed)	89	16	73
PL (Proportional Valve Minimum Secondary Pressure)	45	13	32
FL (Minimum Wind Speed)	32	6	2C
DH (Proportional Valve Ignition Secondary Pressure)	35	7	2E
DF (Ignition Wind Speed)	25	5	20

[0048] In embodiments of the present disclosure, the parameter code is a hexadecimal number, and each parameter code corresponds to a working parameter.

[0049] As shown in Table 1, the parametric code corresponding to the liquefied gas is related to the parametric code corresponding to the natural gas and the parametric code difference value. As shown in Table 1, the PH corresponding to the natural gas defaulted by the gas water heater is 99, then when the gas supply is changed to the liquefied gas, the corresponding PH is equal to 89, i.e., the corresponding PH=99-10=89. For the gas water heaters with the same model, due to the difference of the components, the first parametric code for each gas water heater may be slightly different. For example, for a gas water heater with the same model as the gas water heater shown in Table 1, if the default PH corresponding to the natural gas is 98, then when the gas supply is changed to the liquefied gas, the corresponding PH is equal to 88, i.e., the corresponding PH=98-10=88.

[0050] As can be seen from the above embodiments, when the gas supply for the gas water heater is changed from the natural gas to the liquefied gas, the parametric code needs to be transformed, and the parametric code difference value needs to be acquired for the transformation of the parametric code. In the following, how the parameter conversion module 30 acquires the parametric code difference value will be described with reference to the specific embodiments.

[0051] According to an embodiment of the present disclosure, as shown in Fig. 2, the parameter conversion module 30 acquires the parametric code difference value by the following step.

[0052] At S31, first optimal parametric codes for a plurality of gas water heaters when supplied with natural gas and second optimal parametric codes for the plurality of the gas water heaters when supplied with liquefied gas are acquired respectively. In an embodiment, the phrase "a plurality of" generally refers to 10 or more.

[0053] At S32, a difference value between the first optimal parametric code and the second optimal parametric code for each of the plurality of the gas water heaters when respectively supplied with natural gas and liquefied gas is calculated.

[0054] At S33, an average value of the difference values is calculated and the average value is taken as the parametric code difference value.

[0055] Specifically, before leaving the factory, at least 10 gas water heaters with the same model are tested. For each of the at least 10 gas water heaters, the first optimal parametric code is tested when the gas supply is the natural gas, the second optimal parametric code is tested when the gas supply is the liquefied gas, and the difference value between the first optimal parametric code and the second optimal parametric code is calculated by the parameter conversion module 30. Then, the average value of the respective difference values of the at least 10 gas water heaters is calculated by the parameter conversion module 30 and taken as the parametric code difference value. For example, an optimal PH (natural gas) of a gas water heater is A3, and an optimal PH (liquefied gas) of the gas water heater is 98, and thus a difference value therebetween is 11. In the similar way, the difference value of the PH values can be obtained for each of other gas water heaters. Then, an average value of all the difference values corresponding to the PH is calculated and taken as the parametric code difference value corresponding to the PH of the gas water heaters. Similarly, the respective parametric code difference values corresponding to other parametric codes, such as FH, PL, FL, DH or DF, may be acquired by the parameter conversion module 30. The parametric code may be transformed by the parameter conversion module 30 according to the first parametric code and the parametric code difference value when the gas supply for the gas water heater is changed from the natural gas to the liquefied gas, thereby making up the differences of components among gas water heaters.

[0056] With the parametric code transformation apparatus for a gas water heater according to embodiments of the present disclosure, the acquiring module acquires the dial state information of the gas supply dial switch, the determining module determines the gas supply for the gas water heater according to the dial state information, the parameter transformation module transforms the parametric code of the gas water heater into the first parametric code when the gas supply is the natural gas; and acquires the parametric code difference value, and transforms the parametric code of the gas water heater into the second parametric code according to the first parametric code and the parametric code difference value when the gas supply is the liquefied gas. Therefore, the parametric code is transformed by the apparatus according to the parametric code difference value when the gas supply for the gas water heater is changed, and thus the errors of components among gas water heaters can be effectively made up and the working performance of the gas water heater can further be effectively ensured.

[0057] In addition, embodiments of the present disclosure also provide a gas water heater, including the above parametric code transformation apparatus for a gas water heater as described above.

[0058] The gas water heater as described in embodiments of the present disclosure transforms the parametric code according to the parametric code difference value when the gas supply for the gas water heater is changed, thereby effectively making up the errors of components and further efficiently ensuring the working performance.

[0059] In the description of the specification, it is to be understood that terms such as "central," "longitudinal," "lateral," "length," "width," "thickness," "upper," "lower," "front," "rear," "left," "right," "vertical," "horizontal," "top," "bottom," "inner," "outer," "clockwise," "counterclockwise," "axial," "radial," and "circumferential" should be construed to refer to the orientation or position relationships as then described or as shown in the drawings under discussion. These relative terms are only for convenience and simplification of description and do not indicate or imply that the apparatus or elements referred to should have the particular orientation or should be constructed or operated in a particular orientation. Therefore, these relative terms shall not be construed to limit the present disclosure.

[0060] In addition, terms such as "first" and "second" are used herein just for purposes of description and are not intended to indicate or imply relative importance or significance or to imply the number of indicated technical features. Thus, the feature defined with "first" and "second" may expressly or impliedly comprise at least one of this feature. In the description of the present invention, the phrase of "a plurality of" means at least two, such as two or three, unless specified otherwise.

[0061] In the present invention, unless specified or limited otherwise, the terms "mounted," "connected," "coupled," "fixed" and the like are used broadly, and may be, for example, fixed connections, detachable connections, or integral connections; may also be mechanical or electrical connections; may also be direct connections or indirect connections via intervening structures; may also be inner communications or interaction of two elements, which can be understood by those skilled in the art according to specific situations.

[0062] In the present invention, unless specified or limited otherwise, a structure in which a first feature is "on" or "below" a second feature may include an embodiment in which the first feature is in direct contact with the second feature, and may also include an embodiment in which the first feature and the second feature are not in direct contact with each other, but are contacted via an additional feature formed therebetween. Furthermore, a first feature "on," "above," or "on top of" a second feature may include an embodiment in which the first feature is right or obliquely "on," "above," or "on top of" the second feature, or just means that the first feature is at a height higher than that of the second feature; while a first feature "below," "under," or "on bottom of" a second feature may include an embodiment in which the first feature

is right or obliquely "below," "under," or "on bottom of" the second feature, or just means that the first feature is at a height lower than that of the second feature.

[0063] Reference throughout this specification to "an embodiment," "one embodiment," "some embodiments," "an example," "a specific example," or "some examples," means that a particular feature, structure, material, or characteristic described in connection with the embodiment or example is included in at least one embodiment or example of the present disclosure. Thus, the appearances of the phrases such as "in some embodiments," "in one embodiment", "in an embodiment", "in an example," "in a specific example," or "in some examples," in various places throughout this specification are not necessarily referring to the same embodiment or example of the present disclosure. Furthermore, the particular features, structures, materials, or characteristics may be combined in any suitable manner in one or more embodiments or examples. In addition, in the absence of contradiction, those skilled in the art can combine the different embodiments or examples described in this specification, or combine the features of different embodiments or examples.

[0064] Although explanatory embodiments have been shown and described above, it would be appreciated by those skilled in the art that the above embodiments are illustrative, cannot be construed to limit the present disclosure, and changes, alternatives, variants and modifications can be made in the embodiments without departing from the scope of the present disclosure.

Claims

1. A parametric code transformation method for a gas water heater, wherein the gas water heater comprises a gas supply dial switch, and the parametric code transformation method comprises:

acquiring dial state information of the gas supply dial switch, and determining a gas supply for the gas water heater according to the dial state information, wherein the gas supply for the gas water heater comprises natural gas and liquefied gas;

transforming a parametric code of the gas water heater into a first parametric code, when the gas supply is the natural gas;

acquiring a parametric code difference value and transforming the parametric code of the gas water heater into a second parametric code according to the first parametric code and the parametric code difference value, when the gas supply is the liquefied gas.

2. The parametric code transformation method for a gas water heater according to claim 1, wherein the parametric code difference value is acquired by:

acquiring respectively first optimal parametric codes for a plurality of gas water heaters when supplied with natural gas and second optimal parametric codes for the plurality of the gas water heaters when supplied with liquefied gas;

calculating a difference value between the first optimal parametric code and the second optimal parametric code for each of the plurality of the gas water heaters when respectively supplied with natural gas and liquefied gas; and

calculating an average value of the difference values and taking the average value as the parametric code difference value.

3. The parametric code transformation method for a gas water heater according to claim 1 or 2, wherein the parametric code comprises: a proportional valve maximum secondary pressure code, a maximum wind speed code, a proportional valve minimum secondary pressure code, a minimum wind speed code, a proportional valve ignition secondary pressure code and an ignition wind speed code.

4. The parametric code transformation method for a gas water heater according to claim 1, wherein a default parametric code of the gas water heater is the first parametric code.

5. A non-transitory computer readable storage medium having stored therein a computer program that, when executed by a processor, causes the processor to implement the parametric code transformation method for a gas water heater according to any one of claims 1 to 4.

6. A parametric code transformation apparatus for a gas water heater, wherein the gas water heater comprises the gas supply dial switch, and the parametric code transformation apparatus comprises:

an acquiring module, connected to the gas supply dial switch , and configured to acquire dial state information of the gas supply dial switch ;

a determining module, connected to the acquiring module , and configured to determine a gas supply of the gas water heater according to the dial state information, wherein the gas supply for the gas water heater comprises natural gas and liquefied gas; and

a parameter transforming module, connected to the determining module , and configured to transform a parametric code of the gas water heater into a first parameter code when the gas supply is natural gas, and to acquire a parametric code difference value and transform the parametric code of the gas water heater into a second parametric code according to the first parametric code and the parametric code difference value when the gas supply is liquefied gas.

7. The parametric code transformation apparatus for a gas water heater according to claim 6, wherein the parameter transforming module is configured to acquire the parametric code difference value by:

acquiring respectively first optimal parametric codes for a plurality of gas water heaters when supplied with natural gas and second optimal parametric codes for the plurality of the gas water heaters when supplied with liquefied gas;

calculating a difference value between the first optimal parametric code and the second optimal parametric code for each of the plurality of the gas water heaters when respectively supplied with natural gas and liquefied gas; and

calculating an average value of the difference values and taking the average value as the parametric code difference value.

8. The parametric code transformation apparatus for a gas water heater according to claim 6 or 7, wherein the parametric code comprises: a proportional valve maximum secondary pressure code, a maximum wind speed code, a proportional valve minimum secondary pressure code, a minimum wind speed code, a proportional valve ignition secondary pressure code and an ignition wind speed code.

9. The parametric code transformation apparatus for a gas water heater according to claim 6 , wherein a default parametric code of the gas water heater is the first parametric code.

10. A gas water heater, comprising a parametric code transformation apparatus for a gas water heater according to any one of claims 6 to 9.

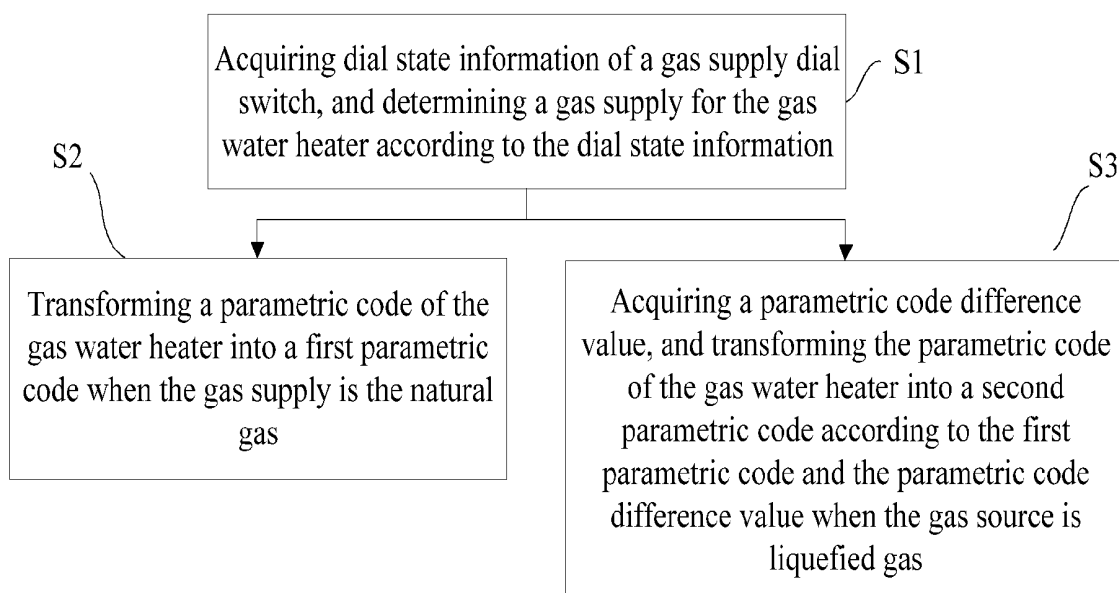


Fig. 1

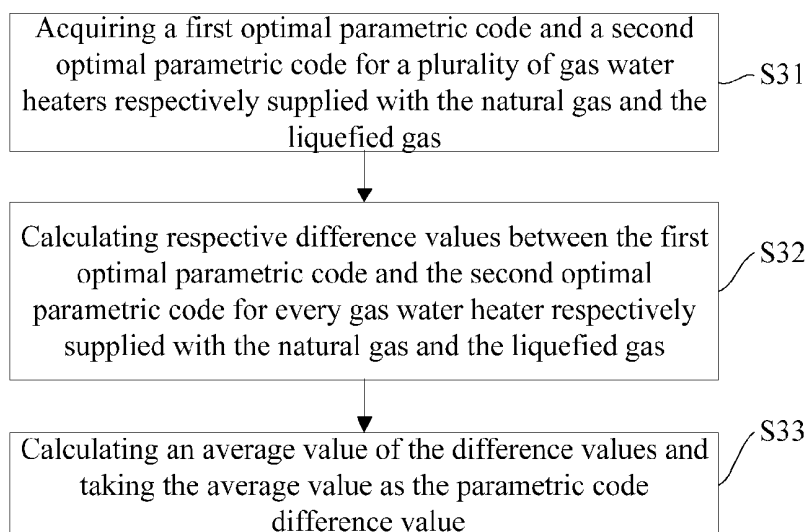


Fig. 2

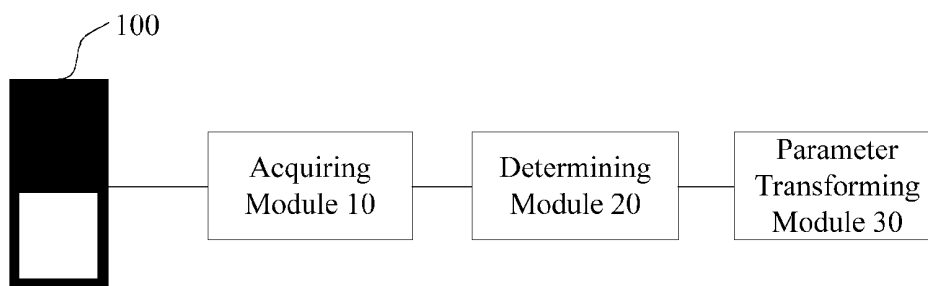


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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