

CONNECTION DEVICE BASED ON INTEGRATED WIRING HARNESS OF DIESEL GENERATOR

TECHNICAL FIELD

The present disclosure relates to the technical field of circuits, in particular to a connection device based on an integrated wiring harness of a diesel generator.

BACKGROUND

In a secondary wiring process, it will be extremely complicated if more wiring harnesses are arranged in a device. Taking the secondary wiring process for a diesel generator system as an example, it is possible that tens of or even hundreds of wiring harnesses are arranged in a diesel generator system container; during secondary wiring, it is usually necessary to screen a plurality of first type wiring harnesses and a plurality of second type wiring harnesses from the plurality of wiring harnesses arranged in the diesel generator system container, connect the plurality of first type wiring harnesses to a plurality of wiring harnesses arranged in a joint cabinet of the diesel generator system separately and connect the plurality of second type wiring harnesses to a plurality of wiring harnesses arranged in a control cabinet of the diesel generator system separately. If there is error in the secondary wiring process, for example, the wiring harnesses in the diesel generator system container which should be used in conjunction with the joint cabinet of the diesel generator system are connected to the control cabinet of the diesel generator system, it may affect the normal operation of the whole diesel generator system, and even cause the whole diesel generator system to collapse. Therefore, it can be seen that normal operation of the system can be guaranteed by accomplishing secondary wiring work accurately.

In the prior art, the secondary wiring process is usually accomplished manually. Specifically, a working personnel may select wiring harnesses matched with first wiring harness images in a work manual from a plurality of wiring harnesses as first

wiring harnesses and screen second wiring harnesses corresponding to function of the first wiring harnesses from the plurality of wiring harnesses so as to connect the first wiring harnesses with the second wiring harnesses. However, in an actual operating process, the plurality of wiring harnesses are usually twisted together and each wiring harness is relatively similar in structure, so that it is hard for the working personnel to select the first and second wiring harnesses accurately and it takes a longer time on secondary wiring. Therefore, there are technical problems of low accuracy and poor work efficiency by accomplishing secondary wiring manually.

In a word, there is urgent need for a connection device based on an integrated wiring harness of a diesel generator to solve the technical problems of low accuracy and poor work efficiency during secondary wiring in the diesel generator system in the prior art.

SUMMARY

The embodiment of the present disclosure provide a connection device based on an integrated wiring harness of a diesel generator to solve the technical problems of low accuracy and poor work efficiency during secondary wiring in the diesel generator system in the prior art.

The connection device based on the integrated wiring harness of the diesel generator provided in the embodiment of the present disclosure is applied to the diesel generator system. The diesel generator system includes a joint cabinet of the diesel generator and a diesel generator container; the connection device includes a first embedded wire tube, and a first aviation plug and a second aviation plug that are respectively arranged at two ends of the first embedded wire tube; wherein, the first embedded wire tube is provided therein with a plurality of first wiring harnesses whose first ends are connected with the joint cabinet of the diesel generator through the first aviation plug and second ends are connected with the diesel generator container through the second aviation plug.

In the embodiment of the present disclosure, with the connection device connecting the joint cabinet of the diesel generator and the diesel generator container, there is no need to search for correspondences between the first wiring harnesses manually, thereby liberating labor. In an actual operation, the plurality of first wiring harnesses may be arranged in the first embedded wire tube, so that the sequence of the plurality of first wiring harnesses may be arranged according to requirements of a user; correspondingly, the user may determine the plurality of first wiring harnesses by examining the first aviation plug and the second aviation plug, so that it is more convenient to connect the joint cabinet of the diesel generator and the diesel generator container; that is to say, compared with the prior art, by employing the connection device in the embodiment, it is possible to improve the accuracy of secondary wiring in the diesel generator system and improve the work efficiency.

Optionally, the joint cabinet of the diesel generator comprises a plurality of second wiring harnesses therein, and is provided with a third aviation plug on a first side surface thereof, and the plurality of second wiring harnesses are arranged with first ends thereof on the third aviation plug; the plurality of first wiring harnesses are connected with first ends thereof to the joint cabinet of the diesel generator, wherein: the first aviation plug and the third aviation plug are connected such that first ends of the plurality of first wiring harnesses are connected with first ends of the plurality of second wiring harnesses; correspondingly, the diesel generator container comprises a plurality of third wiring harnesses therein, and is provided with a fourth aviation plug on a second side surface thereof, and the plurality of third wiring harnesses are arranged with first ends thereof on the fourth aviation plug; the plurality of first wiring harnesses are connected with second ends thereof to the diesel generator container, wherein: the second aviation plug and the fourth aviation plug are connected, such that second ends of the plurality of first wiring harnesses are connected with first ends of the plurality of third wiring harnesses.

According to the embodiment of the present disclosure, by arranging the first, second, third and fourth aviation plugs, it allows a user to determine the

correspondences between the multiple first wiring harnesses according to the correspondences between the aviation plugs, thereby simplifying the secondary wiring process in the diesel generator system, reducing the complexity of its operation and facilitating implementation, and at the same time improving experience of the user.

Optionally, the first embedded wire tube is connected with a first end thereof to the first aviation plug by a sealant; and the first embedded wire tube is connected with a second end thereof to the second aviation plug by a sealant. Here, the first embedded wire tube, the first aviation plug and the second aviation plug are fixed with the sealant, so that in the secondary wiring process, the joint cabinet of the diesel generator and the diesel generator container are connected more firmly, thus preventing dropping of wire harnesses.

Optionally, the plurality of first wiring harnesses are provided with sensors located inside the first embedded wire tube; the first aviation plug is provided with signal processing transmitters connected with the sensors; the sensors may detect data information being transmitted on the plurality of first wiring harnesses during communication between the joint cabinet of the diesel generator and the diesel generator container, and correspondingly, the signal processing transmitters can acquire information detected by the sensors and send the information detected by the sensors to the first aviation plug.

In the embodiment of the present disclosure, by providing the sensors and the signal processing transmitters, on the one hand, it is possible to achieve data transmission via the plurality of first wiring harnesses and guarantee normal communication between the joint cabinet of the diesel generator and the diesel generator container; on the other hand, it is possible to monitor a data transmission condition on the plurality of first wiring harnesses anytime, and thus allow the system to act in response to the detected information and maintain operation of the system.

Optionally, the plurality of first wiring harnesses may include a first wiring sub-harness, a second wiring sub-harness and a third wiring sub-harness, the first wiring sub-harness may transmit an alternating current data signal when the joint cabinet of

the diesel generator is in communication with the diesel generator container, the second wiring sub-harness may transmit a direct current data signal when the joint cabinet of the diesel generator is in communication with the diesel generator container, and the third wiring sub-harness may transmit a shielding data signal when the joint cabinet of the diesel generator is in communication with the diesel generator container.

In the embodiment of the present disclosure, by dividing the plurality of first wiring harnesses into a plurality of wiring sub-harnesses, it is possible to select different wiring sub-harnesses for different signals to transmit data, so that the communication process between the joint cabinet of the diesel generator and the diesel generator container is simpler and clearer and is convenient to control; moreover, in the embodiment of the present disclosure, the plurality of first wiring harnesses can also be divided according to the requirements of the user, so that it allows the connection device to better meet the actual need and expands the application scenario of the connection device.

Optionally, the first, the second and the third wiring sub-harnesses are of different colors. By identifying different wiring sub-harnesses in color, it allows the user to determine the types of the wiring harnesses according to the colors of the wiring harnesses, thus making the secondary wiring process simpler, and improving the work efficiency and user satisfaction.

Optionally, the diesel generator system further comprises a control cabinet of the diesel generator; the connection device further comprises a second embedded wire tube, and a fifth aviation plug and a sixth aviation plug that are respectively arranged at two ends of the second embedded wire tube; the second embedded wire tube are provided with a plurality of fourth wiring harnesses whose first ends are connected with the joint cabinet of the diesel generator through the fifth aviation plug and second ends are connected with the control cabinet of the diesel generator through the sixth aviation plug.

In the embodiment of the present disclosure, the connection device further may connect the joint cabinet of the diesel generator and the control cabinet of the diesel

generator, and thus achieve the communication between the two. That is to say, the connection device in the embodiment of the present disclosure can adapt to the scenario where devices in the diesel generator system are in communication connection, for example, it is possible to achieve communication between the joint cabinet of the diesel generator and a plurality of containers of the diesel generator and/or the control cabinet of the diesel generator.

Optionally, the third aviation plug comprises a first plug jack and a second plug jack; the plurality of second wiring harnesses are arranged with first ends thereof on the first plug jack; the first aviation plug may be connected with the first plug jack such that the plurality of first wiring harnesses are connected with the plurality of second wiring harnesses; correspondingly, the joint cabinet of the diesel generator are further provided with a plurality of fifth wiring harnesses therein whose first ends are arranged on the second plug jack; the fifth aviation plug may be connected with the second plug jack such that the plurality of fourth wiring harnesses are connected with the plurality of fifth wiring harnesses.

Optionally, the first and second plug jacks may be universal serial bus USB jacks or earphone jacks. Here, by setting the types of the first plug jack and the second plug jack, it allows the joint cabinet of the diesel generator to be in communication connection with the diesel generator container and the control cabinet of the diesel generator separately. The USB jack and the earphone jack are common jack types, so that the connection device in the embodiment of the present disclosure can be applied to various occasions.

Optionally, second ends of the plurality of first wiring harnesses, after passing through the second aviation plug, may form at least one wire core which is plugged onto the diesel generator container through a plug terminal; correspondingly, second ends of the plurality of fourth wiring harnesses, after passing through the sixth aviation plug, may form at least one wire core which is plugged onto the control cabinet of the diesel generator through a plug terminal. By converting the plurality of

first wiring harnesses into the at least one wire core, it is possible to simplify the structure of the connection device and save the cost thereof.

It is more clear and easy to understand these implementations of the application in description of the embodiment below.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to explain the technical schemes in the embodiment of the present disclosure more clearly, brief introduction will be made below on the drawings used in the description of the embodiment. It is obvious that the drawings in the following description are only some of the embodiment of the present disclosure, and for those of ordinary skill in the art, other drawings can be obtained based on these drawings without creative efforts.

Fig. 1 is a schematic diagram of system architecture of a diesel generator system as provided in an embodiment of the present disclosure;

Fig. 2 is a structural schematic diagram of a connection device as provided in an embodiment of the present disclosure;

Fig. 3a is a structural schematic diagram of an embedded wire tube as provided in an embodiment of the present disclosure;

Fig. 3b is a structural schematic diagram of an embedded wire tube as provided in the embodiment of the present disclosure;

Fig. 3c is a structural schematic diagram of an embedded wire tube as provided in an embodiment of the present disclosure;

Fig. 4 is a structural schematic diagram of a connection device connecting a joint cabinet of the diesel generator and a diesel generator container, as provided in an embodiment of the present disclosure; and

Fig. 5 is a structural schematic diagram of a connection device connecting a joint cabinet of the diesel generator, the diesel generator container and a control cabinet of the diesel generator, as provided in an embodiment of the present disclosure.

DETAILED DESCRIPTION

In order to further clarify the purposes, technical schemes and advantages of the present disclosure, the present disclosure will be further described below in detail in combination with the drawings. Obviously, the described embodiment is merely a part of embodiment of the present disclosure, rather than all of embodiment. On a basis of the embodiment in the present disclosure, all of other embodiment obtained by those skilled in the art without creative efforts shall fall within the scope of protection of the present disclosure.

Fig. 1 is a schematic diagram of system architecture of a diesel generator system as provided in the embodiment of the present disclosure. As shown in Fig. 1, the diesel generator system can include the joint cabinet 100 of the diesel generator, the diesel generator container 200 and the control cabinet 300 of the diesel generator. Any two of the joint cabinet 100 of the diesel generator, the diesel generator container 200 and the control cabinet 300 of the diesel generator therebetween can be in communication connection in a wired manner.

Taking a communication connection process shown in Fig. 1 as an example, in a specific embodiment, the joint cabinet 100 of the diesel generator can be provided therein with hundreds of wiring harnesses (wiring harnesses a1-a200 shown in Fig. 1). Correspondingly, the diesel generator container 200 can be provided therein with hundreds of wiring harnesses (wiring harnesses b1-b100 shown in Fig. 1) corresponding to the wiring harnesses a1-a100. The control cabinet 300 of the diesel generator can be provided therein with hundreds of wiring harnesses (wiring harnesses c1-c100 shown in Fig. 1) corresponding to the wiring harnesses a1-a200. During secondary wiring of the diesel generator system shown in Fig. 1, on the one hand, it is necessary for the user to select the wiring harnesses a1-a100 corresponding to the wiring harnesses b1-b100 and the wiring harnesses a100-a200 corresponding to the wiring harnesses c1-c100 from the wiring harnesses a1-a200, separately. On the other hand, it is necessary for the user to connect the screened wiring harnesses a1-a100 to the corresponding wiring harnesses b1-b100 together and connect the

screened wiring harnesses a100-a200 to the corresponding wiring harnesses c1-c100 together, separately.

In a possible embodiment, the screening and connecting processes can be performed manually. However, the secondary wiring process in this way is quite complicated, and thus manual screening or manual connection may lead to errors in the wiring harnesses connection, resulting in failure of the whole diesel generator system.

In a word, there is urgent need for a connection device based on an integrated wiring harness of a diesel generator to solve the technical problems of low accuracy and poor work efficiency during secondary wiring in the diesel generator system in the prior art.

It should be noted that a connection device based on an integrated wiring harness of a diesel generator is provided in the embodiment of the present disclosure, that is, the connection device can be applied to the diesel generator system to realize the connection between the various devices in the diesel generator system. It can be understood that the connection device in the embodiment of the present disclosure can be further applied to other systems, which is not defined specifically.

Based on the system architecture shown in Fig. 1, Fig. 2 is a structural schematic diagram of a connection device as provided in the embodiment of the present disclosure. As shown in Fig. 2, the connection device can include a first embedded wire tube 101, and a first aviation plug 111 and a second aviation plug 112 that are arranged at two ends of the first embedded wire tube 101, separately. The first aviation plug 111 and the second aviation plug 112 may be in either the same or different types, which are not defined specifically. For example, both the first aviation plug 111 and the second aviation plug 112 are male aviation plugs or female aviation plugs, or the first aviation plug 111 is a male aviation plug and the second aviation plug 112 is a female aviation plug, or the first aviation plug 111 is a female aviation plug and the second aviation plug 112 is a male aviation plug.

In the embodiment of the present disclosure, the first embedded wire tube 101 may have a variety of possible structures. In one example, the first embedded wire tube may have a square cross-section, as shown in Fig. 3a. At the moment, the first embedded wire tube 101 may be a cube structure or a cuboid structure with a hollow inner space (area a1 as shown in Fig. 3a). In another example, the first embedded wire tube 101 may have a round cross section, as shown in Fig. 3b. At the moment, the first embedded wire tube 101 may be a columnar structure or an elliptic cylindrical structure which may have a hollow inner space (area a2 as shown in Fig. 3b). In another example yet, the first embedded wire tube 101 may have a cross section in an irregular shape, for example, as shown in Fig. 3c, the first embedded wire tube 101 may have an externally square and internally round structure which may have a hollow inner space (an area a3 shown in Fig. 3c). In other possible examples, the first embedded wire tube 101 may have other structures, which is not defined specifically.

Further, the first embedded wire tube 101 may be provided therein with a plurality of first wiring harnesses. The number of the first wiring harnesses can be set by those skilled in the art according to actual needs or can also be determined according to the length of the hollow space included in the first embedded wire tube 101, which is not defined specifically. Preferably, the first embedded wire tube 101 may be provided therein with 50 first wiring harnesses, each of which may have a cross-sectional area of 0.3 square millimeter. In the embodiment of the present disclosure, the sequence of the plurality of first wiring harnesses can be further set, for example, set by those skilled in the art according to experience or set according to requirements of a user.

Fig. 4 is a structural schematic diagram of the connection device connecting a joint cabinet of the diesel generator and a diesel generator container, as provided in the embodiment of the present disclosure. As shown in Fig. 4, the plurality of first wiring harnesses may be connected with first ends thereof to the joint cabinet 100 of the diesel generator through the first aviation plug 111, and the plurality of first wiring harnesses may be connected with second ends thereof to the diesel generator container

200 through the second aviation plug 112. At the moment, the joint cabinet 100 of the diesel generator and the diesel generator container 200 can achieve data transmission through the plurality of first wiring harnesses.

The joint cabinet 100 of the diesel generator and the diesel generator container 200 can be any one or two of a terminal device, an industrial device and an electronic home appliance. The terminal device can include a notebook computer, a mobile phone, a desktop and etc., the industrial device can include a machine tool, an industrial robot and etc., and the electronic home appliance can include a washing machine, a refrigerator, a liquid crystal television and etc. The joint cabinet 100 of the diesel generator and the diesel generator container 200 can be in either the same or different types, for example, the joint cabinet 100 of the diesel generator and the diesel generator container 200 are notebook computers, or the joint cabinet 100 of the diesel generator is the notebook computer and the diesel generator container 200 is the robot and etc.

In the embodiment of the present disclosure, with the connection device connecting the joint cabinet of the diesel generator and the diesel generator container, there is no need to manually search for correspondences between the first wiring harnesses, thereby liberating labor. In practical operation, correspondingly, the user can determine plurality of first wiring harnesses by examining the first aviation plug and the second aviation plug, so that it is more convenient to connect the joint cabinet of the diesel generator and the diesel generator container. That is to say, compared with the prior art, by employing the connection device in the embodiment of the disclosure, it is possible to improve accuracy of secondary wiring in the diesel generator system, and also to improve work efficiency.

In a possible embodiment, the joint cabinet 100 of the diesel generator can include therein a plurality of second wiring harnesses, and be provided with a third aviation plug 113 on a first side surface thereof, and first ends of the plurality of second wiring harness can be arranged on the third aviation plug 113. The third aviation plug 113 and the first aviation plug 111 can be of different types, for example,

if the first aviation plug 111 is the male aviation plug, the third aviation plug 113 can be the female aviation plug; if the first aviation plug 111 is the female aviation plug, the third aviation plug 113 can be the male aviation plug. In a specific embodiment, as shown in Fig. 4, the first aviation plug 111 and the third aviation plug 113 can be plugged together when the connection device is connected to the joint cabinet 100 of the diesel generator, so that first ends of the plurality of first wiring harnesses and first ends of the plurality of second wiring harnesses are connected.

Correspondingly, the diesel generator container 200 can include therein a plurality of third wiring harnesses, and be provided with a fourth aviation plug 114 on a second side surface thereof, and first ends of the plurality of third wiring harnesses can be arranged on the fourth aviation plug 114. The fourth aviation plug 114 and the second aviation plug 112 can be in different types, for example, if the second aviation plug 112 is the male aviation plug, the fourth aviation plug 114 can be the female aviation plug; if the second aviation plug 112 is the female aviation plug, the fourth aviation plug 114 can be the male aviation plug. In a specific embodiment, as shown in Fig. 4, the second aviation plug 112 and the fourth aviation plug 114 can be plugged together when the connection device is connected to the diesel generator container 200, so that second ends of the plurality of first wiring harnesses and first ends of the plurality of third wiring harnesses are connected.

As shown in Fig. 4, the connection device can connect the joint cabinet 100 of the diesel generator and the diesel generator container 200 by connecting the first aviation plug with the third aviation plug 113 and connecting the second aviation plug 112 with the fourth aviation plug 114. In the embodiment of the present disclosure, by arranging the first, second, third and fourth aviation plugs, the user can determine the correspondences between the plurality of first wiring harnesses according to the correspondences between the aviation plugs, thereby enabling a simpler secondary wiring process, easier implementation and increased satisfaction of the user.

In one example, the first embedded wire tube may be connected with a first end thereof to the first aviation plug 111 by a sealant, and correspondingly, the first

embedded wire tube may be also connected with second end thereof to the second aviation plug 112 by the sealant. Here, by fixing the first embedded wire tube, the first aviation plug and the second aviation plug by the sealant, it makes the connection between the joint cabinet of the diesel generator and the diesel generator container during the secondary wiring process firmer, and therefore avoids dropping of the plurality of wiring harnesses.

It should be noted that the above example is only a schematic connection embodiment for first end of the first embedded wire tube with the first aviation plug and second end of the first embedded wire tube with the second aviation plug. In other possible examples, other embodiments for connection between the first end of the first embedded wire tube with the first aviation plug and connection between the second end of the first embedded wire tube with the second aviation plug are also possible, for example, by fixed connection via super glue. Further, first end of the first embedded wire tube with the first aviation plug and second end of the first embedded wire tube with the second aviation plug may be of the same or different means for connection, which is not defined specifically.

In the embodiment of the disclosure, the first embedded wire tubes can be further provided therein with the sensors as well as signal processing transmitters connected with the sensors. The sensors can be arranged on the plurality of first wiring harnesses and configured to detect, when it is determined that the joint cabinet 100 of the diesel generator and the diesel generator container 200 are in communication with each other, data information being transmitted on the plurality of first wiring harnesses to obtain a detected value. Specifically, the position where the sensors are arranged can be determined by those skilled in the art according to actual needs, for example, the sensors can be arranged in a position, close to the first aviation plug 111, of the first embedded wire tube or can be arranged in the middle position of the first embedded wire tube or can be further arranged in a position, close to the second aviation plug 112, of the first embedded wire tube, which is not defined specifically. Further, the signal processing transmitters can be located in the first embedded wire tube. If the

diesel generator container 200 sends the data information to the joint cabinet 100 of the diesel generator, the signal processing transmitters can be arranged on the first aviation plug 111. In a specific embodiment, the signal processing transmitters can acquire detected values from the sensors and send the detected values to the first aviation plug 111, so that the first aviation plug 111 sends the detected values to the joint cabinet 100 of the diesel generator, thereby realizing data communication between the diesel generator container 200 and the joint cabinet 100 of the diesel generator.

In the embodiment of the present disclosure, by arranging the sensors and the signal processing transmitters, on the one hand, it is possible to achieve data transmission on the plurality of first wiring harnesses and guarantee normal communication between the joint cabinet 100 of the diesel generator and the diesel generator container 200; on the other hand, it is possible to monitor data transmission condition on the plurality of first wiring harnesses anytime, so that the system can act in response to the detected information, and therefore operation thereof is maintained.

In a possible embodiment, a plurality of first wiring harnesses can be divided in advance into a plurality of wiring sub-harnesses; each wiring sub-harness can include at least one first wiring harness and can transmit specific data. In a specific embodiment, the number of the plurality of wiring sub-harnesses can be set by those skilled in the art according to actual needs, or can be set according to the plurality of second and third wiring harnesses included in the joint cabinet 100 of the diesel generator and the diesel generator container 200, which is not defined specifically. In the embodiment of the present disclosure, after dividing the plurality of first wiring harnesses into the plurality of wiring sub-harnesses, further division may be separately performed to the plurality of second wiring harnesses included in the joint cabinet 100 of the diesel generator and the plurality of third wiring harnesses included in the diesel generator container 200. It should be noted that, suppose that the plurality of first wiring harnesses are divided into n wiring sub-harnesses, the number of the wiring sub-harnesses obtained by dividing the plurality of second wiring harnesses

included in the joint cabinet 100 of the diesel generator can be smaller than or equal to n , and the number of the wiring sub-harnesses obtained by dividing the plurality of third wiring harnesses included in the diesel generator container 200 can be smaller than or equal to n .

In an application scenario of the diesel generator system, the plurality of first wiring harnesses can be divided into first, second and third wiring sub-harnesses. The first wiring sub-harnesses can transmit an alternating current data signal during communication between the joint cabinet 100 of the diesel generator and the diesel generator container 200, the second wiring sub-harnesses can transmit a direct current data signal during communication between the joint cabinet 100 of the diesel generator and the diesel generator container 200, and the third wiring sub-harnesses can transmit a shielding data signal during communication between the joint cabinet 100 of the diesel generator and the diesel generator container 200. In the embodiment of the present disclosure, different wiring sub-harnesses can be selected for different signals by dividing the plurality of first wiring harnesses into a plurality of wiring sub-harnesses, so that the communication process of the joint cabinet of the diesel generator and the diesel generator container is simpler and clearer and more convenient to control. Moreover, in the embodiment of the present disclosure, the plurality of first wiring harnesses may be divided according to the requirements of the user, so that it is possible to better meet the actual need of the connection device, and enrich the application scenario of the connection device.

In one example, the first, second and third wiring sub-harnesses may be different in color, for example, the first wiring sub-harnesses can be set to be red, the second wiring sub-harnesses can be set to be cyan, and the third wiring sub-harnesses can be set to be yellow. By identifying the different wiring sub-harnesses in different colors, the types of the different wiring sub-harnesses can be determined according to the colors of the wiring harnesses, thereby enabling a simpler secondary wiring process, improved work efficiency and increased satisfaction of the user.

Fig. 5 is a structural schematic diagram of the connection device connecting the joint cabinet 100 of the diesel generator, the diesel generator container 200 and the control cabinet 300 of the diesel generator, as provided in the embodiment of the present disclosure. As shown in Fig. 5, the connection device further includes a second embedded wire tube 102, and a fifth aviation plug 115 and a sixth aviation plug 116 that are arranged at two ends of the second embedded wire tube 102, separately. The fifth aviation plug 115 and the sixth aviation plug 116 can be either in the same or different types, which is not defined specifically. For example, the fifth aviation plug 115 and the sixth aviation plug 116 may be male aviation plugs, or the fifth aviation plug 115 and the sixth aviation plug 116 may be female aviation plugs, or the fifth aviation plug 115 may be the male aviation plug and the sixth aviation plug 116 may be the female aviation plug, or the fifth aviation plug 115 may be the female aviation plug and the sixth aviation plug 116 may be the male aviation plug.

In a specific embodiment, a plurality of fourth wiring harnesses may be arranged in the second embedded wire tube 102, the plurality of fourth wiring harnesses may be connected with first ends thereof to the joint cabinet 100 of the diesel generator through the fifth aviation plug 115, and may be connected with second ends thereof to the control cabinet of the diesel generator through the sixth aviation plug 116. It can be seen from Fig. 5, the connection device in the embodiment of the present disclosure may be connected to both the joint cabinet 100 of the diesel generator and the diesel generator container 200, and a joint cabinet 110 of the diesel generator and the control cabinet 300 of the diesel generator, thereby realizing communication interaction between the joint cabinet 100 of the diesel generator, the diesel generator container 200 and the control cabinet 300 of the diesel generator. That is to say, the connection device in the embodiment of the present disclosure can be suitable for scenarios of a plurality of devices in communication connection.

In a possible embodiment, the third aviation plug 113 can include a first plug jack 1131 and a second plug jack 1132, and first ends of the plurality of second wiring harnesses can be arranged on the first plug jack 1131. In a specific embodiment, the

first aviation plug 111 may be connected with the first plug jack 1131, so that the plurality of first wiring harnesses and the plurality of second wiring harnesses are connected, thus realizing the communication connection between the joint cabinet 100 of the diesel generator and the diesel generator container 200; correspondingly, the joint cabinet 100 of the diesel generator can be further provided therein with a plurality of fifth wiring harnesses, first ends of the plurality of fifth wiring harnesses can be arranged on the second plug jack 1132, and the fifth aviation plug 115 may be connected with the second plug jack 1132, so that the plurality of fourth wiring harnesses and the plurality of fifth wiring harnesses are connected, thus realizing communication connection between the joint cabinet 100 of the diesel generator and a control cabinet 300 of the diesel generator.

In the embodiment of the present disclosure, the first plug jack 1131 and the second plug jack 1132 can be any one of universal serial buses (USB) jacks or earphone jacks. In a specific embodiment, the first plug jack 1131 and the second plug jack 1132 may be of either the same or different types, for example, both the first plug jack 1131 and the second plug jack 1132 may be USB jacks, or both the first plug jack 1131 and the second plug jack 1132 may be earphone jacks, or the first plug jack 1131 may be a USB jack and the second plug jack 1132 may be an earphone jack, or the first plug jack 1131 may be an earphone jack and the second plug jack 1132 may be a USB jack, which are not defined specifically.

It should be noted that the types of the first and second plug jacks are not limited hereto, that is, the types of the first and second plug jacks can be set as other types of jacks according to actual needs. By setting the types of the first and second plug jacks, the joint cabinet 100 of the diesel generator can be in communication connection with the diesel generator container 200 and the control cabinet of the diesel generator, separately. The USB jack and the earphone jack are two common jack types, and therefore, the connection device in the embodiment of the present disclosure can be applied to various occasions.

In a possible embodiment, second ends of the plurality of first wiring harnesses, after passing through the second aviation plug 112, form at least one wire core (abbreviated as a first wire core for convenience of description) which is plugged onto the diesel generator container 200 through a plug terminal; correspondingly, second ends of the plurality of fourth wiring harnesses, after passing through the sixth aviation plug 116, form at least one wire core (abbreviated as a first wire core for convenience of description) which is plugged onto the control cabinet 300 of the diesel generator through a plug terminal. The quantities of the first and second wire cores can be set by those skilled in the art according to actual needs, which is not defined specifically. Preferably, the quantities of first and second wire cores may both be 4.

In one example, heat-shrinkable sleeves may be arranged at positions of the first and second wire cores, so that the second aviation plug 112 and the sixth aviation plug 116 may be separately connected to the diesel generator container 200 and the control cabinet 300 of the diesel generator. Specifically, the first heat-shrinkable sleeve can be arranged at positions of the second aviation plug 112 and the first wire cores, the second heat-shrinkable sleeve can be arranged at positions of the sixth aviation plug 116 and the second wire cores, the first wire cores and the first heat-shrinkable sleeve can be arranged in the first embedded wire tube, and the second wire cores and the third heat-shrinkable sleeve can both be arranged in the second embedded wire tube 102. In the embodiment of the present disclosure, by turning the plurality of first wiring harnesses into the at least one wire core, it is possible to simplify the structure of the connection device and thus save the cost.

It can be seen from above that in the embodiment of the disclosure, the connection device includes the first embedded wire tube, and the first aviation plug and the second aviation plug that are separately arranged at two ends of the first embedded wire tube; wherein, the first embedded wire tube is provided with a plurality of first wiring harnesses therein whose first ends are connected to a joint cabinet of a diesel generator through a first aviation plug and second ends are

connected to a diesel generator container through a second aviation plug. In the embodiment of the present disclosure, with the connection device connecting the joint cabinet of a diesel generator and the diesel generator container, there is no need to search for correspondences between the first wiring harnesses manually, thus liberating labor. Further, the user can determine the plurality of first wiring harnesses by examining the first aviation plug and the second aviation plug, enabling a more convenient connection between the joint cabinet of the diesel generator and the diesel generator container; that is to say, with the connection device of the embodiment, it is possible to improve the accuracy of secondary wiring and increase the work efficiency.

Those skilled in the art shall understand that the embodiment of the present disclosure can be provided as a method or a computer program product. Therefore, the present disclosure can take the form of an entirely hardware embodiment, an entirely software embodiment or an embodiment containing both hardware and software elements. Besides, the present disclosure can take the form of computer program products wherein computer medium usable program code embodied on one or more computer usable storage medium (including but not limit to disk memory, CD-ROM, optical memory).

The present disclosure is described with reference to the flow diagram and/or the block diagram of the method, device (system) and computer program product according to the embodiment of the present disclosure. It should be understood that each flow and/or block in the flow diagram and/or the block diagram and combination of flow and/or block in the flow diagram and/or the block diagram can be implemented by computer program commands. These computer program commands can be provided to processors of a universal computer, a dedicated computer, an embedded processor or other programmable data processing devices to generate a machine, so that commands executed by the processors of the computer or other programmable data processing devices generate a device for implementing appointed

functions in one or more flows in the flow diagram and/or one or more blocks in the block diagram.

These computer program commands can be further stored a computer readable memory capable of guiding the computer or other programmable data processing devices to work in a special mode, so that the commands stored in the computer readable memory generate a manufactured product including the command device, and the command device implements appointed functions in one or more flows in the flow diagram and/or one or more blocks in the block diagram.

These computer program commands can be further loaded to the computer or other programmable data processing devices, so that a series of operating steps are executed on the computer or other programmable data processing devices to generate processing implemented by the computer, and therefore, the commands executed on the computer or other programmable data processing devices provide a step of implementing appointed functions in one or more flows in the flow diagram and/or one or more blocks in the block diagram.

Although preferred embodiment of this application is already described, once those skilled in the art understand basic creative concept, they can make additional modification and alteration for these embodiment. Therefore, the appended claim is intended to comprise preferred embodiment and various changes and modifications within the scope of the disclosure.

It will be apparent to those skilled in the art that various modifications and variations of the present disclosure can be made without departing from the spirit or scope of the disclosure. If these various modifications and variations of the present disclosure belong to the scope of the claim and equivalent technical scope, the disclosure is intended to comprise these modifications and variations.

CLAIMS

1. A connection device based on an integrated wiring harness of a diesel generator, **characterized in that** the device is applied to a diesel generator system which comprises a joint cabinet of the diesel generator and a diesel generator container; the connection device comprises a first embedded wire tube, and a first aviation plug and a second aviation plug that are respectively arranged at two ends of the first embedded wire tube; and

the first embedded wire tube is provided therein with a plurality of first wiring harnesses whose first ends are connected with the joint cabinet of the diesel generator through the first aviation plug and second ends are connected with the diesel generator container through the second aviation plug.

2. The device according to claim 1, **characterized in that**

the joint cabinet of the diesel generator comprises a plurality of second wiring harnesses therein, and is provided with a third aviation plug on a first side surface thereof, the plurality of second wiring harnesses being arranged with first ends thereof on the third aviation plug; the plurality of first wiring harnesses are connected with first ends thereof to the joint cabinet of the diesel generator, wherein: the first aviation plug and the third aviation plug are connected such that first ends of the plurality of first wiring harnesses are connected with first ends of the plurality of second wiring harnesses; and

the diesel generator container comprises a plurality of third wiring harnesses therein, and is provided with a fourth aviation plug on a second side surface thereof, and the plurality of third wiring harnesses are arranged with first ends thereof on the fourth aviation plug; the plurality of first wiring harnesses are connected with second ends thereof to the diesel generator container, wherein: the second aviation plug and the fourth aviation plug are connected such that second ends of the plurality of first

wiring harnesses are connected with first ends of the plurality of third wiring harnesses.

3. The device according to claim 2, **characterized in that**

the first embedded wire tube is connected with a first end thereof to the first aviation plug by a sealant; and

the first embedded wire tube is connected with a second end thereof to the second aviation plug by a sealant.

4. The device according to claim 2, **characterized in that**

the plurality of first wiring harnesses are provided with sensors located inside the first embedded wire tube; the first aviation plug is provided with signal processing transmitters connected with the sensors;

the sensors are configured to detect, during communication between the joint cabinet of the diesel generator and the diesel generator container, data information being transmitted on the plurality of first wiring harnesses; and

the signal processing transmitters are used for acquiring information detected by the sensors and sending the information detected by the sensors to the first aviation plug.

5. The device according to any one of claims 1-4, **characterized in that** the plurality of first wiring harnesses comprise a first wiring sub-harness, a second wiring sub-harness and a third wiring sub-harness;

the first wiring sub-harness is configured to transmit an alternating current data signal during communication between the joint cabinet of the diesel generator and the diesel generator container;

the second wiring sub-harness is configured to transmit a direct current data signal during communication between the joint cabinet of the diesel generator and the diesel generator container; and

the third wiring sub-harness is configured to transmit a shielding data signal during communication between the joint cabinet of the diesel generator and the diesel generator container.

6. The device according to claim 5, **characterized in that** the first wiring sub-harness, the second wiring sub-harness and the third wiring sub-harness are of different colors.

7. The device according to any one of claims 2-4, **characterized in that** the diesel generator system further comprises a control cabinet of the diesel generator; the connection device further comprises a second embedded wire tube, and a fifth aviation plug and a sixth aviation plug that are respectively arranged at two ends of the second embedded wire tube; and

the second embedded wire tube are provided with a plurality of fourth wiring harnesses whose first ends are connected with the joint cabinet of the diesel generator through the fifth aviation plug and second ends are connected with the control cabinet of the diesel generator through the sixth aviation plug.

8. The device according to claim 7, **characterized in that**

the third aviation plug comprises a first plug jack and a second plug jack; the plurality of second wiring harnesses are arranged with first ends thereof on the first plug jack; the first aviation plug is connected with the first plug jack such that the plurality of first wiring harnesses are connected with the plurality of second wiring harnesses; and

the joint cabinet of the diesel generator are further provided with a plurality of fifth wiring harnesses therein whose first ends are arranged on the second plug jack; the fifth aviation plug is connected with the second plug jack such that the plurality of fourth wiring harnesses are connected with the plurality of fifth wiring harnesses.

9. The device according to claim 8, **characterized in that** the first and second plug jacks are universal serial bus USB jacks or earphone jacks.

10. The device according to claim 8, **characterized in that**
second ends of the plurality of first wiring harnesses, after passing through the second aviation plug, form at least one wire core which is plugged onto the diesel generator container through a plug terminal; and

second ends of the plurality of fourth wiring harnesses, after passing through the sixth aviation plug, form at least one wire core which is plugged onto the control cabinet of the diesel generator through a plug terminal.