

STRUCTURE OF A CABLE DISTRIBUTION PLATE AND A CABINET FRAME RACK BODY OF OPTICAL FIBER CABLES

Field of the Invention

The invention is related to a structure of a cable distribution plate and a cabinet frame rack body of optical fiber cables, in particular to a cabinet frame rack body accommodating a cable distribution plate for deploying optical fiber cables, with a view to having proper positions and spaces therein for deploying optical fiber cables for a more convenient, simple, easy maintenance and cable deployment.

Background of the Invention

An optical fiber is a kind of fiber made of glass or plastic, which transmits light along the fiber by the process of total internal reflection. Optical fibers have many advantages, such as large transmission capacity and data privacy. Therefore, communication through optical fiber cables has become the most important platform used nowadays. Optical fiber cables are often used by telephone companies to transmit telephone, Internet or cable TV signals, where one optical fiber cable can accommodate all the aforesaid signals simultaneously.

With optical fibers' compactness, light weight and flexibility, it is easy to bundle them as an optical fiber cable. Therefore, during the deployment of optical fiber cables, the pipeline space can be saved, and the utilization rate of the pipeline can be effectively improved, bringing extremely high cost-effective space for cable deployment. On the other hand, the existing structure of cable distribution plates and cabinet frame rack body of optical fiber cables is not customized for the cable deployment personnel nor for various industry requirements. Due to optical fibers' flexibility, it is also necessary to reserve an adequate amount of space for winding optical fiber cables during the deployment of optical fiber cables, as well as a structure design of a cabinet frame rack body which can prevent the risk of optical fiber fracture due to external force.

Summary of the Invention

A principal objective of this invention's structure of a cable distribution plate and a cabinet frame rack body of optical fiber cables is to provide the cable deployment personnel with a way to conveniently manage the optical fiber cables' leading in to the cable

distribution plate, and ensure that the optical fibers will not be squeezed by external force or damaged by winding.

Another objective of this invention is to provide a customized cabinet frame rack body that can meet diverse industry requirements.

To achieve the aforesaid objectives, this invention specifically proposes multiple structural designs, wherein optical fiber cables are led in to each cable distribution plate one by one via the plurality of cable inlet holes on the top of the cabinet frame rack body and with the cables passing through the plurality of horizontal cable brackets at the rear end of the cabinet frame rack body. Moreover, the inner side of the front door of the cabinet frame rack body is longitudinally provided with a temporary storage region for temporarily placing optical fiber cables during the deployment of optical fiber cables to avoid unidentifiable sources of optical fiber cables caused by intertwining of optical fiber cables. A plurality of horizontal cable management racks are installed at the front end (which is the end of the front door), wherein optical fiber cables can be fixed on the plurality of horizontal cable management racks through winding optical fiber cables up and down among the plurality of horizontal cable management racks, a cable duct used for optical fiber cables shuttling and deploying therein is installed on the right side of each horizontal cable management rack, and a cable winding reel is installed last on the rightmost side of each cable duct for winding excess optical fiber cables or accommodating reserved optical fiber cables therein. With the design of the aforesaid cabinet frame rack body and other relevant structural components therein, the provision of the structural design of temporary storage area required for deploying the optical fiber cables, the reservation of an adequate amount of space for winding optical fiber cables and the mechanism of cable management and accommodation individually after the deployment of optical fiber cables are beneficial, whereby the risk of optical fiber fracture caused by an external force can be prevented.

Brief Description of the Drawings

FIG. 1 is a perspective view of a structure of a cable distribution plate and a cabinet frame rack body according to the present invention.

FIG. 2 is another perspective view of a structure of a cable distribution plate and a cabinet frame rack body of the present invention.

FIG. 3 is the other perspective view of a structure of a cable distribution plate and a cabinet frame rack body according to the present invention.

FIG. 4 is a front view of a structure of a cable distribution plate and a cabinet frame rack

body according to the present invention.

FIG. 5 is a schematic diagram of leading in cables to a cable distribution plate and a cabinet frame rack body according to the present invention.

FIG. 6 is another schematic view of leading in cables to a cable distribution plate and a cabinet frame rack body according to the present invention.

FIG. 7 is a schematic view of leading in cables to two cabinets of a cable distribution plate and a cabinet frame rack body according to the present invention.

FIG. 8 is a schematic view of leading in cables to a cable distribution plate via cable management racks of a cable distribution plate and a cabinet frame rack body according to the present invention.

Descriptions of the symbols of major components

cabinet frame rack body A

rear door 10

front door 20

cable brackets 1

temporary storage region 2

cable winding reel 3

cable inlet holes 4

cable duct 5

horizontal cable management rack 6

Description of the Preferred Embodiment

Please first refer to FIG. 1 and FIG. 2 for a structure of a cable distribution plate and a cabinet frame rack body according to the present invention, wherein the cabinet frame rack body A is rectangular in shape, and the number of the cabinet frame body A can be configured horizontally side by side as required. A front door 20 and a rear door 10 are the said cabinet frame rack body A's front end and rear end respectively to facilitate the ease of deployment or maintaining optical fiber cables. The inner side of the front door 20 is longitudinally provided with a temporary storage region 2 for temporarily placing optical fiber cables during the deployment of optical fiber cables to avoid unidentifiable sources of optical fiber cables caused by the intertwining of optical fiber cables. A plurality of cable inlet holes 4 used for leading in optical fiber cables are formed on the top of the cabinet frame body A close to the rear part thereof, wherein the plurality of cable inlet holes 4 are formed by two symmetric sheets. If a large number of optical fiber cables need to be led in, the two symmetrical sheets can also be disassembled.

A plurality of horizontal cable brackets 1 are arranged at the rear door 10 of the cabinet frame rack body A, wherein the plurality of horizontal cable brackets 1 are segmented with a plurality of spaces for accommodating cable distribution plates, and a horizontal cable management rack 6 is installed at the front end (which is the end of the front door 20) of each of the plurality of horizontal cable brackets 1, as shown in FIG. 3 and FIG. 4: wherein a cable duct 5 used for optical fiber cables shuttling and deploying therein is installed on the right side of each horizontal cable management rack 6, and a cable winding reel 3 is installed last on the rightmost side of each cable duct 5 for winding excess optical fiber cables or accommodating reserved optical fiber cables therein.

As shown in FIG. 5, wherein optical fiber cables B are led in to each cable distribution plate one by one via the plurality of cable inlet holes 4 on the top of the cabinet frame rack body and passing through the plurality of horizontal cable brackets 1 at the rear end of the cabinet frame rack body.

As shown in FIG. 6 and FIG. 7, wherein optical fiber cables B can be fixed on the plurality of horizontal cable management racks 6 through winding optical fiber cables B up and down among the plurality of horizontal cable management racks 6, and excess optical fiber cables B or reserved optical fiber cables B are wound on the cable winding reel 3 afterwards, and then are placed in the temporary storage area 2 for accommodation.

As shown in FIG. 8, where a multiple set of cabinet frame rack bodies are required,

plurality of the cabinet frame rack bodies (A) can be configured to adjoin horizontally side by side, wherein optical fiber cables B in one cabinet frame rack body A can be first fixed on the horizontal cable management rack 6, followed by optical fiber cable B's being wound on the cable winding reel 3 on the right side therein, after that optical fiber cables B are wound and deployed via the plurality of cable ducts 5, and then optical fiber cables B are led in to another adjoining cabinet frame body A, and afterwards therein optical fiber cables B continue to pass through the plurality of cable ducts 5 and be wound on the cable winding reel 3, and finally optical cables B are fixed on another horizontal cable management rack 6 therein.

With the design of the aforesaid cabinet frame rack body A and other relevant structural components therein, the provision of the structural design of temporary storage area required for deploying the optical fiber cables B, the reservation of an adequate amount of space for winding optical fiber cables B and the mechanism of cable management and accommodation individually after the deployment of optical fiber cables, whereby the risk of optical fiber fracture caused by external force can be prevented.

The above description is merely a preferred model of the present invention and are not intended to limit the claims of the present invention; meanwhile, the above description is sufficient for those skilled in the art to understand and implement, and therefore other equivalent variations or modifications that can be made without departing from the scope and spirit disclosed in the present invention shall fall in the protection extent of the following claims.

What is claimed is:

- 1 · A structure of a cable distribution plate and a cabinet frame rack body of optical fiber cables, wherein the said cabinet frame rack body is a rectangular cabinet frame rack body, a plurality of cable inlet holes used for leading in optical fiber cables are formed on the top of the said cabinet frame body, a front door and a rear door are set at the said cabinet frame rack body's front end and rear end respectively, and the inner side of the said front door is longitudinally provided with a temporary storage region for temporarily placing optical fiber cables; a plurality of horizontal cable brackets are arranged at the said rear door of the said cabinet frame rack body, wherein the said plurality of horizontal cable brackets are segmented with a plurality of spaces for accommodating the said cable distribution plates, and a horizontal cable management rack is installed at the end of the front door of each of the plurality of horizontal cable brackets, and a cable duct and a cable winding reel is installed on the right side of each horizontal cable management rack for winding or accommodating reserved optical fiber cables therein so as to reserve an adequate amount of space for winding and accommodating optical fiber cables, and thereby prevent the risk of optical fiber fracture caused by external force.
- 2 · The said structure of a cable distribution plate and a cabinet frame rack body of optical fiber cables according to claim 1, wherein the said cabinet frame rack body is rectangular in shape, and the number of the cabinet frame bodies can be configured horizontally side by side as required.
- 3 · The said structure of a cable distribution plate and a cabinet frame rack body of optical fiber cables according to claim 1 or 2, where a plurality of the said cabinet frame rack bodies are configured to adjoin horizontally side by side, wherein optical fiber cables are led in through each corresponding horizontal cable management rack, and on the right side of which, each corresponding cable duct and cable winding reel.
- 4 · The said structure of a cable distribution plate and a cabinet frame rack body of optical fiber cables according to claim 1, wherein the said plurality of cable inlet holes are formed by two symmetric sheets, which may be disassembled as needed.