



OPT-LINE

▶ Intelligent busbar system for data center



MEGA TECHNOLOGY (ZHENJIANG) CO.,LTD.
OPTIMUS TECHNOLOGY CO., LTD.
MEGA ENERGY (THAILAND)CO.,LTD.
OPTIMUS POWERTECH PRIVATE LIMITED(INDIA)

Optimus *PRO*

Makes Power Distribution
More flexible, safe and energy efficient!

MEGA



Company Profile

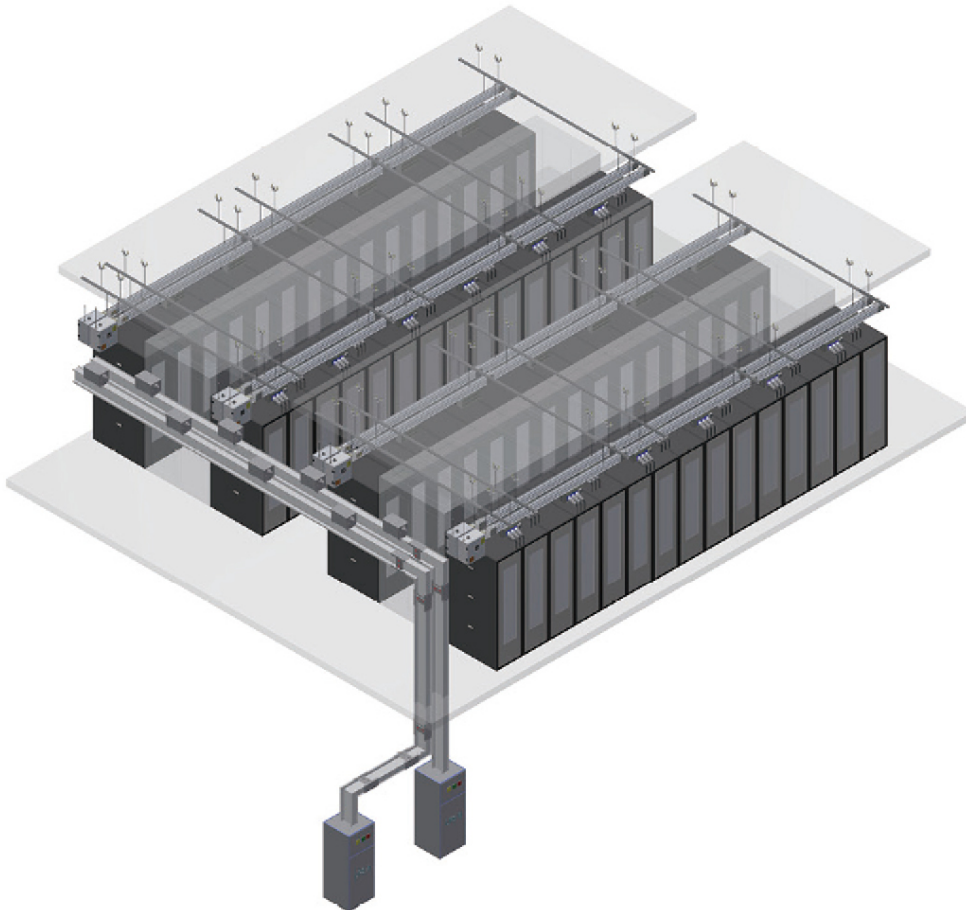
Founded in October 2008, Mega Technology (Zhenjiang) Co., Ltd. is located in the Yangzhong Economic Development Zone, the power and electrical industry base of the national torch plan. It is a professional manufacturer and supplier of high and low voltage complete electrical equipment, bus duct, intensive intelligent bus duct, special intelligent small bus for data center, enclosed bus, cable bridge and related software products, and integrates research, development and design High tech enterprise integrating planning, production and sales.

Since its establishment, the company has been adhering to the tenet of “carrying things with great virtue, promoting industry and serving the country”, adhering to the concept of “unity, innovation, cooperation and development”, taking the market as the leader, science and technology as the driving force, management as the guarantee, and efficiency as the center, to create the core competitiveness of Mega. It has become one of the world famous brands to build green, harmonious and century old Mega.

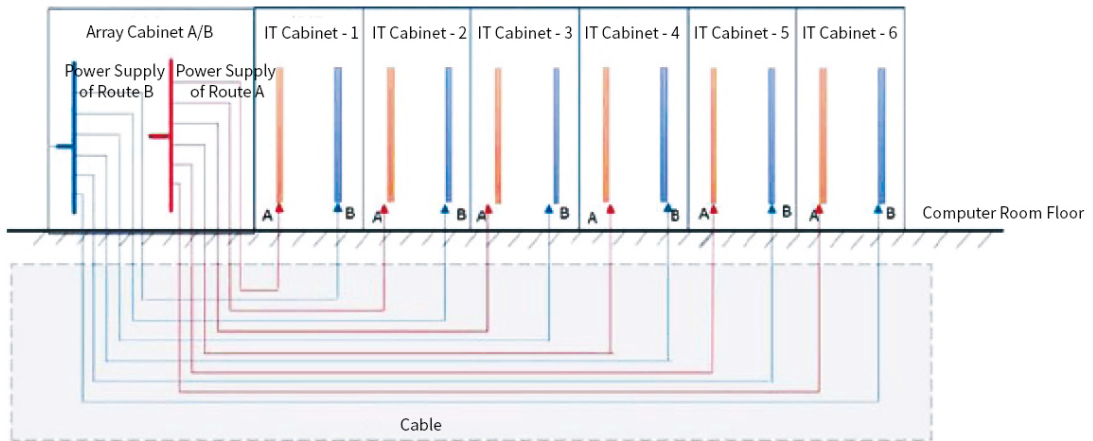
Distribution advantages

Introduction

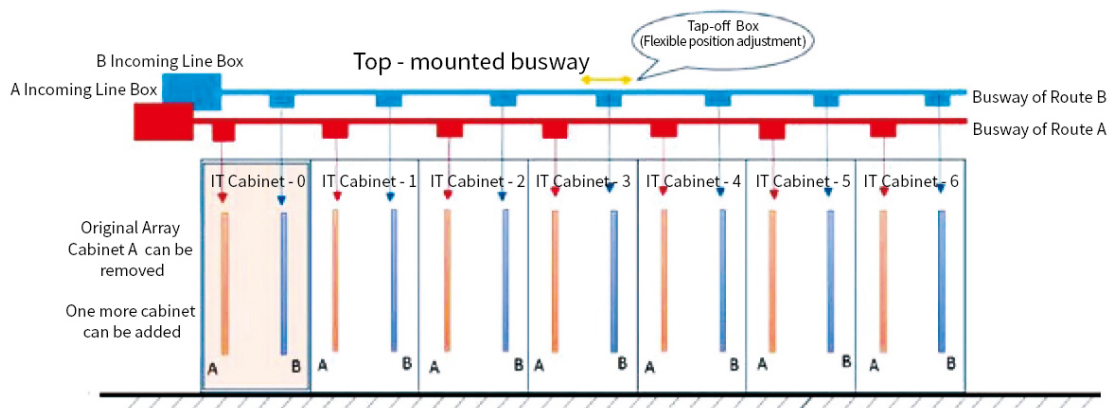
With the wide application of artificial intelligence and big data technology, higher requirements are put forward for the construction of data centers. Meanwhile, higher requirements are also put forward for power supply devices with the increase of power supply load and security level of data center room. Zhenjiang Sigma Electric Co., Ltd. gives full play to the technological advantages of the data center industry, developed a smarter and more precise intelligent power distribution busbar system. The products cover the high-current connection busbars for power distribution rooms, and the intelligent low-current busbars for power distribution in terminal data rooms. All of the above busbars can be equipped with intelligent temperature measurement system and intelligent electricity monitoring system, to provide early warning for the operation of the data rooms and convenient daily operation and maintenance for customers!



Distribution advantages



Power Distribution diagram of "Array Cabinet+cable"



Power Distribution diagram of "Smart busbar system"

Convenience and flexibility

- The modular design greatly shortens the installation cycle and makes the late-changes (including online expansion of the cabinet, deployment increasing, redeployment, etc.) easier.
- Three phase five wire trunk system, supporting AC single-phase, AC three-phase, DC output;
- The tap-off box can be plugged into the busbar trunk anywhere, and can be plugged in and out quickly.
- Can be installed in ceiling hanging installation, cabinet supporting installation, etc.
- Branch output adopts industrial joint-pack, phase sequence automatically corresponds.

Distribution advantages

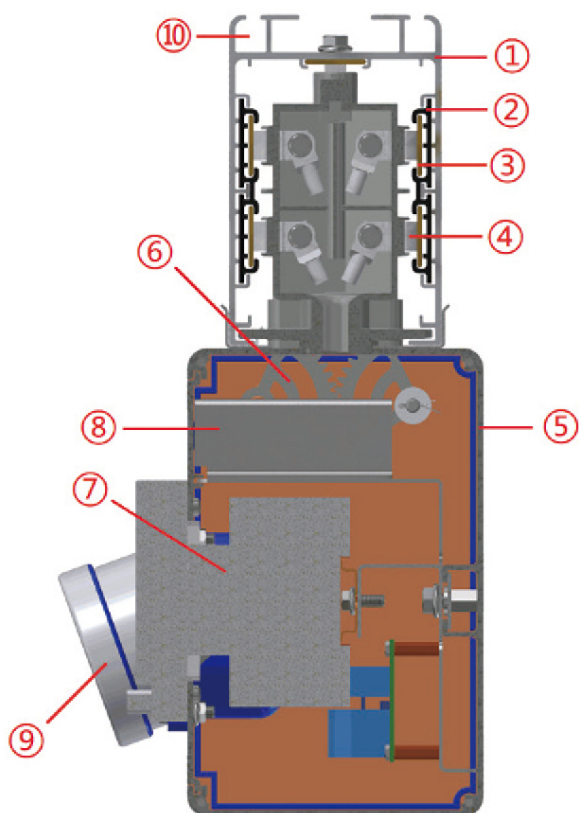
Energy-saving and safety

- The power transmission of busbar trunk is realized by copper bars, and the metal housing dissipates quickly. The system generates less heat and has better heat dissipation.
- The reduction of heat generation and the reduction of the air conditioning refrigeration burden, achieving two-way energy saving.
- The double promotion of heat generation and heat dissipation makes the busbar system have lower temperature rise and better short-resistance ability, which improves safety and service life.
- The main materials include high flame retardant insulation material, which greatly improve the fireproof capacity of the system.
- Halogen-free in the event of heat during operation or fire, meeting environmental requirements.
- Tap-off box plugs can be configured with temperature monitoring device to improve warning capabilities for critical.

Cost advantage in full life cycle

- The life cycle of 'Array cabinet + cable' is about 10-15 years, while the life cycle of busbar system is about 25-30 years.
- The cancellation of the array cabinets increases 5% of the cabinet space for the operator.
- Based on the above two aspects, calculated according to the full life cycle of systems, the busbar system saves about 30% of the cost allocation upon each single cabinet compared to the array cabinet system.
- The investment can be distributed, the bus duct part shall be deployed first, and the plug-in box shall be deployed gradually as required.
- Nearly zero cost of routine maintenance, saving operation and maintenance costs.
- The busbar system is highly reusable, and the cost of moving or relocating the data center room is greatly reduced.

Major structure



- Three-sided integrated profile + linear sheath and conductor, forming the orbital structure of busbar system.

- The high-elasticity and high-conductivity electrical terminal is powered and shunted from the main busbar.

- The branch current is output to the PDU by the industrial joint pack, with the protection of micro-circuit breaker.

- Configured with full power and temperature monitoring module.

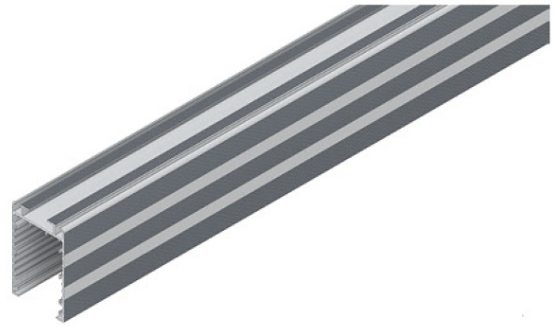
- The tap-off box has its own locking mechanism, can be fixed to the base of busbar quickly.

- ① Busbar housing
- ② Insulation sheath
- ③ Main copper bar
- ④ Electrical terminal
- ⑤ Tap-off box
- ⑥ Interlock mechanism
- ⑦ Micro-circuit breaker
- ⑧ Monitoring module
- ⑨ Industrial socket
- ⑩ Communication slot

Material introduction

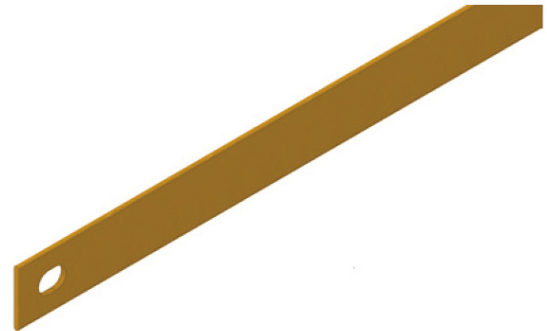
Busbar housing

- 6063(T5)aluminum-magnesium alloy profile, thickness $\geq 2.5\text{mm}$, Brinell hardness $\geq 60\text{HB}$.
- Surface anodizing or electrostatic powder painting according to customer requirements.
- Good appearance, high mechanical strength, fast heat dissipation and strong anti-oxidation ability (salt spray test 1800h).



Busbar conductor

- High-purity and oxygen-free electrical copper bar, with the purity $\geq 99.98\%$.
- Resistivity $\leq 0.0152 \times 10^{-6}\Omega\text{m}$, IACS conductivity $\geq 98\%$.
- Overall surface tin or silver plating.
- Insulation sheath
- Flame retardant and glass reinforced PC (polycarbonate) extruded profiles.
- Insulation class B, with temperature resistance above 130°C .
- Flame retardant grade V0, halide-free, toxic gases-free under high temperature or fire environment.



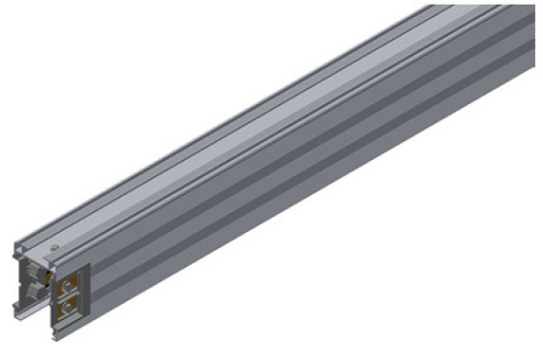
Major structure

Item	Data							
Standard	IEC61439.1/6/8;GB7251.1/6/8							
System	AC3P5W(51); AC3P5W(52); DC double loop							
EA	-5~+40°C ,average temperature not exceed +35°C for 24 hours							
IP degree	IP54/IP43							
Rated insulation voltage	1000V/500V							
Rated frequency	50/60 HZ							
Standard length	3.0m; 2.4m; 1.8m; 1.2m; 0.6m Can be customized as needed							
Distance between supports	1.5m							
Rated current	100A	160A	200A	250A	315A	400A	630A	800A
Dimension(mm)	H×W=134.5×86.6						134.5*96.6	
Weight(kg/m)	7.37	7.37	7.74	8.63	9.21	10.11	13.87	17.33
I _{cw} (KA)	20	20	20	20	20	20	30	30
I _{pk} (KA)	40	40	40	40	40	40	63	63
(MΩ/m)Resistance	0.318	0.318	0.257	0.182	0.158	0.122	0.084	0.068
(MΩ/m)Reactance	0.064	0.064	0.051	0.046	0.037	0.029	0.022	0.020
(MΩ/m)Impedance	0.347	0.347	0.281	0.206	0.172	0.134	0.095	0.073
(V/m,cos=0.8)Voltage drop	0.081	0.081	0.092	0.075	0.081	0.080	0.087	0.092
Grounding system	Housing entirely grounded/additional copper bar grounded, capacity not less than50% of phase line							
Color of busbar housing	Silver white (anodized),or color chosen as customer specified							
Color of tap-off box	Signal gray RAL7004, or color chosen as customer specified							
Current of tap-off box	10A; 16A; 20A; 25A; 32A; 40A; 50A; 63A; 80A; 100A; 125A							

Major unit

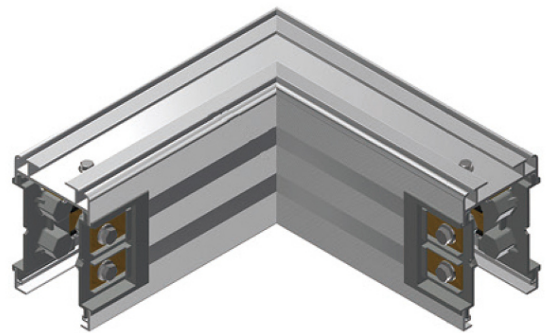
Straight length

- Standard size:0.6m;1.2m;1.8m ;2.4m;3.0m
- Special size: 0.3~3.0m (any length)

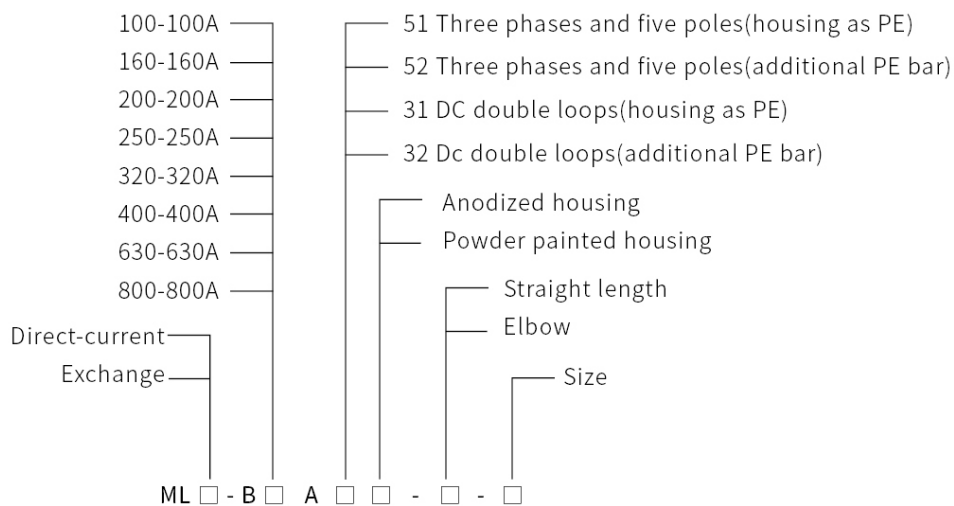


L-shaped elbow unit

- L-shaped elbow unit
- Standard size: X0.4m/Y0.4m
- Special size: X0.3m/Y0.3m(Min)
X1.0m/Y1.0m(Max)



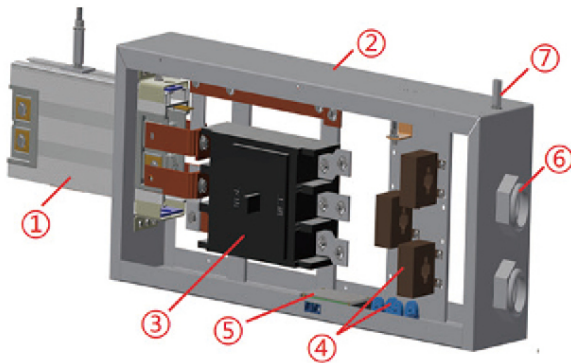
Product code of busbar



Major unit

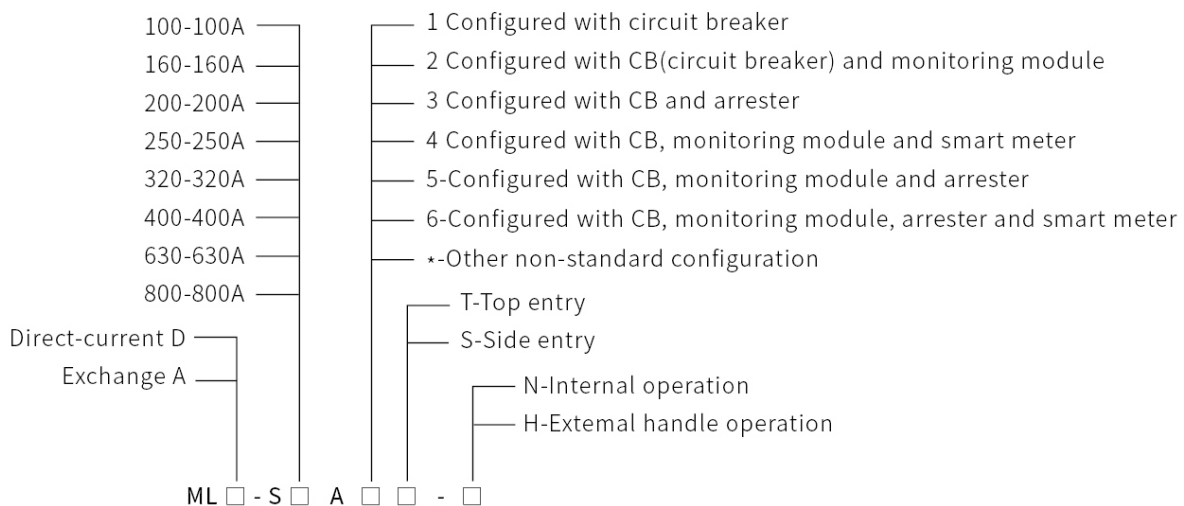
Entry box

- One-piece design, connected to the busbar trunk with a normal joint pack.
- Alternatively variety of configuration (circuit breakers, surge arresters, monitoring module, intelligent meters, etc).
- Set the mode of cable incoming and operation as needed.



- ① Busbar
- ② Entry box
- ③ Circuit breaker
- ④ Current transformer
- ⑤ Monitoring module
- ⑥ Cable sheath
- ⑦ Suspension clamp

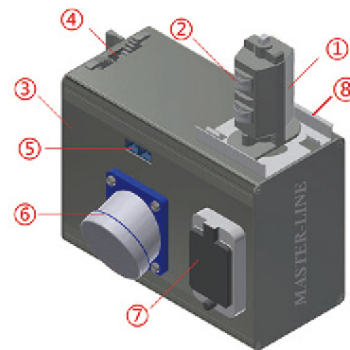
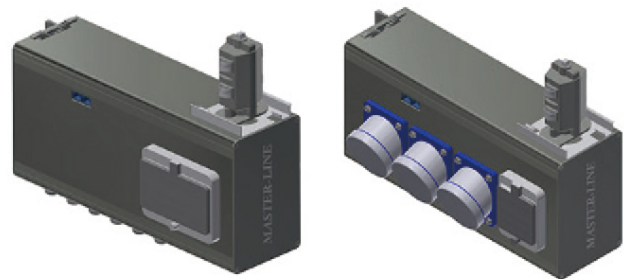
Product code of entry box



Major unit

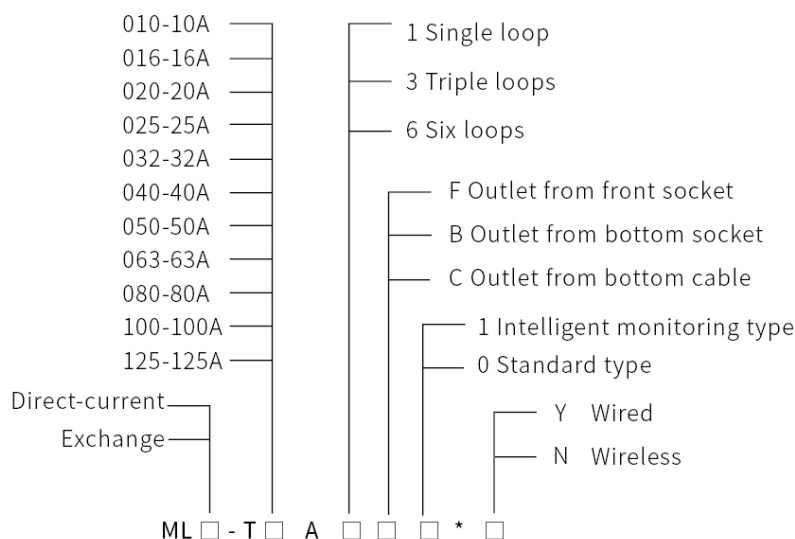
Tap-off box

- Aluminum alloy/engineering plastic composite box, high-strength and light-weight;
- High elastic and conducting electrical terminals made with beryllium-copper, with the performance of long-lasting contact stress and low temperature rise;
- Full electric parameter + four-point temperature monitoring, real-time monitoring and early warning of system operating status;
- Feed out from industrial joint pack quickly and easily;
- Single, triple and six loops are available to meet multiple needs;
- Configure with anti-misalignment positioning plates, to ensure that the phase sequence of tap-off box and busbar automatically corresponded;
- Fast locking mechanism makes installation and replacement quicker and easier.



- ① Plug device
- ② Plug device
- ③ Tap-off box
- ④ Interlock mechanism
- ⑤ Communication port
- ⑥ Industrial socket
- ⑦ Protection cover for micro-circuit breaker
- ⑧ Positioning plate

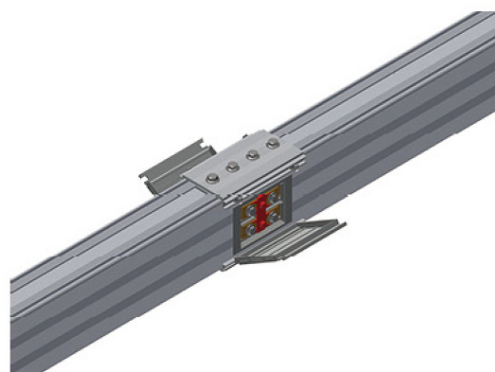
Product code of tap-off box



Major unit

Joint pack

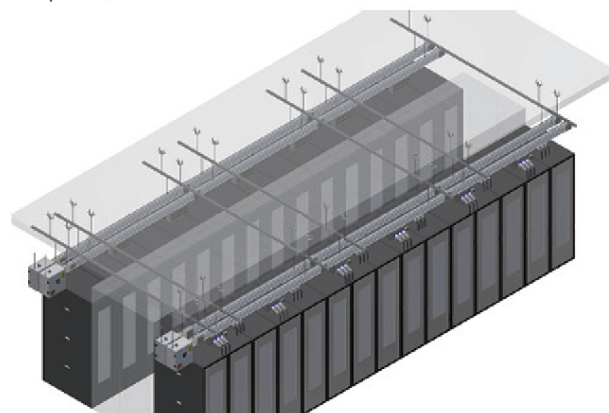
- The appearance parts are made of aluminum alloy profiles and engineering plastics, which are exquisite and aesthetic;
- Connecting plates made of high-strength aluminum alloy ensure reliable mechanical connection and electrical continuity of enclosures.
- Connection can be completed only by torque wrench, without any special tools.
- The connection of conductors are intuitive and reliable, also easy for maintenance.



Customized solutions

Two power supplies each two-row of cabinets

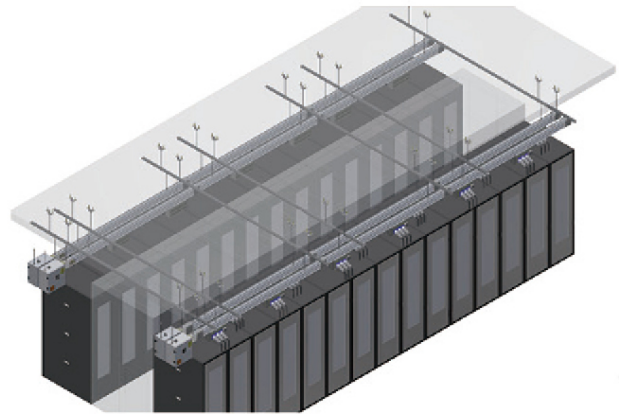
- Save half of UPS output loop;
- Save half amount of busbar entry boxes;
- Increase the busbar on the aisle and occupy the aisle space;
- Increase the capacity of busbar;
- Suitable for the layout of cabinets less than ten.



Customized solutions

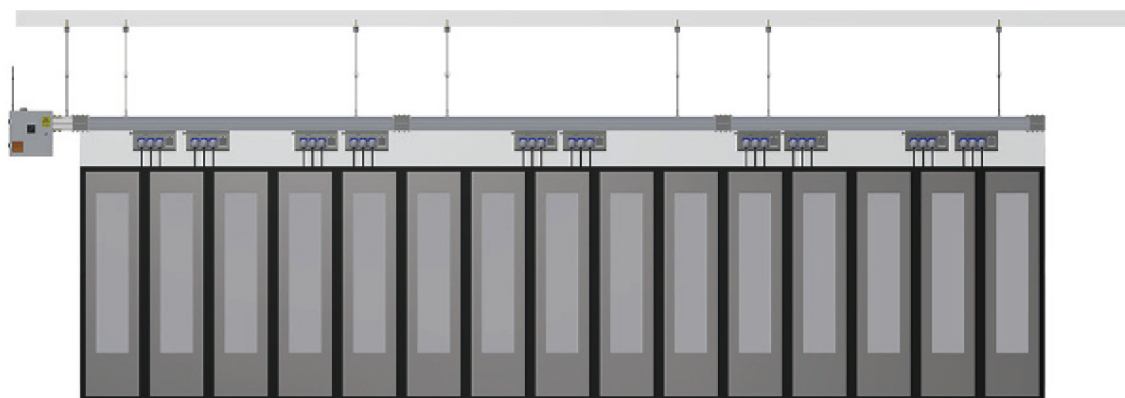
Each row of cabinets has two power supplies

- Standard configuration, occupying only the above space of the respective cabinet.
- The capacity of single line is small.
- The configuration of UPS output loop is clear and easy for management.
- For the layout of cabinets more than ten.



Tap-off box provides one-to-three power supply

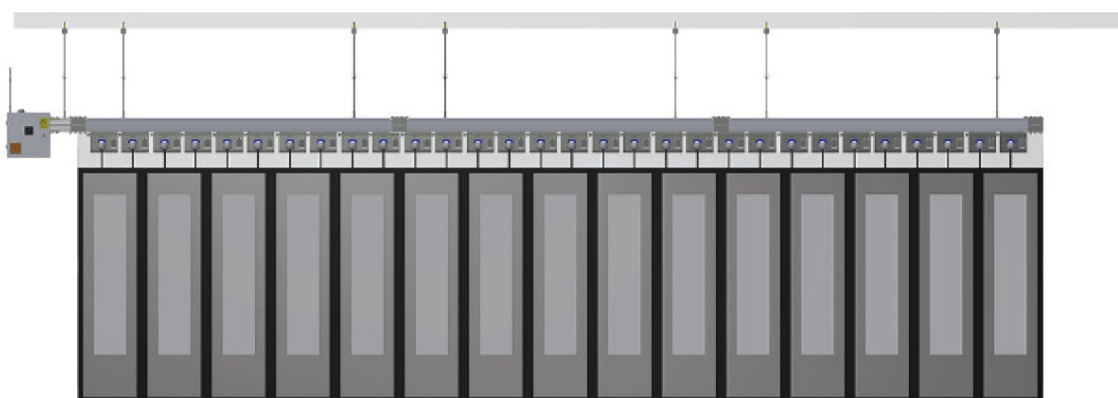
- The number of tap-off boxes is $\frac{2}{3}$ times of number of cabinets;
- For a 220V single phase cabinet, each phase of three gets average distribution theoretically;
- The power supply for three cabinets is affected by maintenance of one tap-off box.
- Standard solution which is cost-effective.



Customized solutions

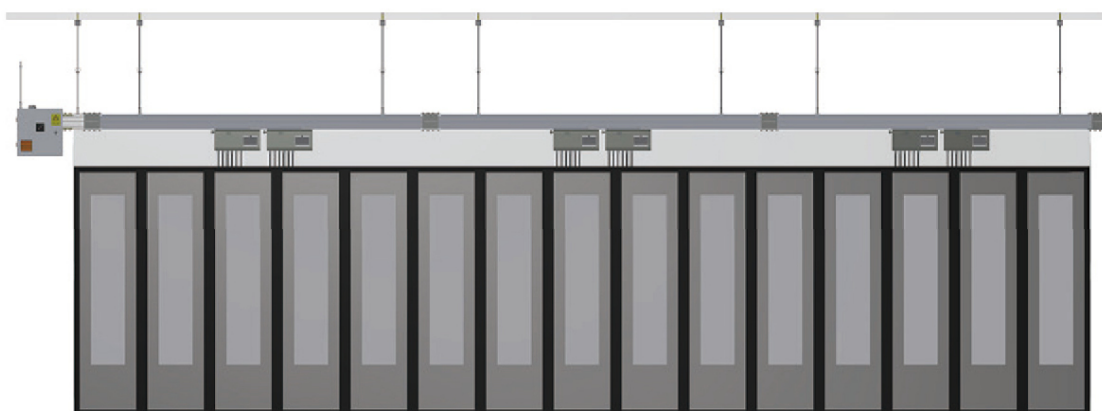
Tap-off box provides one-to-one power supply

- The number of tap-off boxes is 2/3 times of number of cabinets;
- For a 220V single phase cabinet, each phase of three gets average distribution theoretically;
- The power supply for three cabinets is affected by maintenance of one tap-off box.
- Standard solution which is cost-effective.



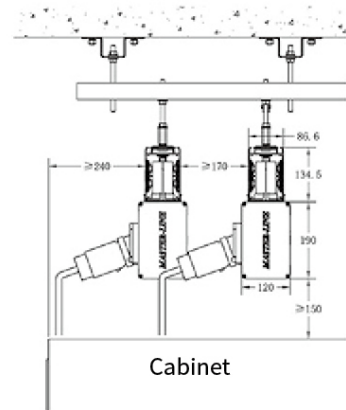
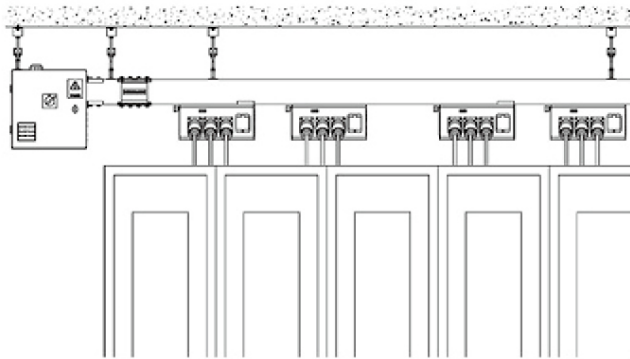
Tap-off box provides one-to-six power supply

- The number of cabinets is 3 times of number of tap-off boxes;
- For a 220V single phase cabinet, each phase of three gets average distribution theoretically;
- The capacity of single cabinet does not exceed 6KW;
- The power supply for six cabinets is affected by maintenance of one tap-off box.
- It is an economical solution.

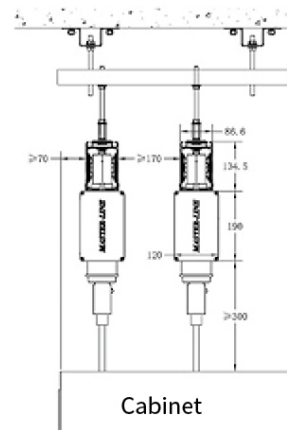
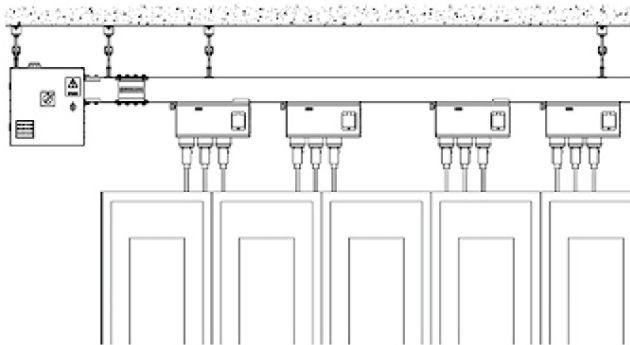


Installation space requirements On-site

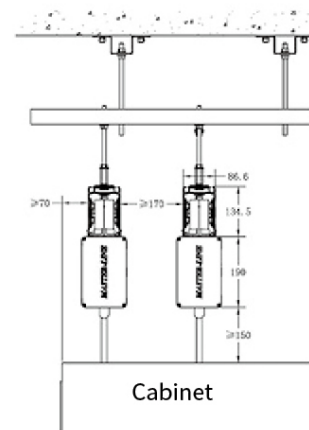
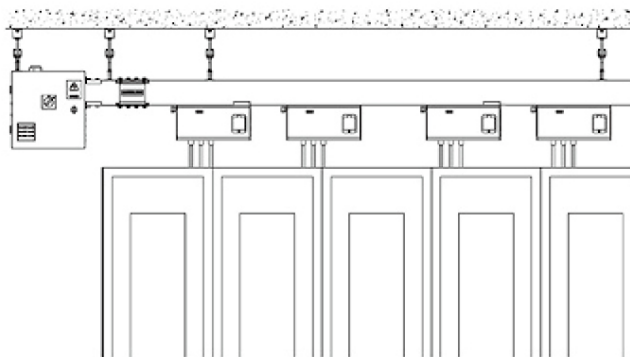
Cable outlet in front of industrial



Cable outlet under industrial socket



Industrial joint pack connection above the top of cabinet



Production and testing equipment



- Temperature rise testing machine
- HV testing machine
- Tensile testing machine
- Hardness tester
- Ground resistance tester
- DC resistance tester

Enterprise qualification



- CNC punching machine
- Laser cutting machine
- CNC shearing machine
- CNC bending machine
- Pneumatic punch machine
- Four-column hydraulic pressing machine
- Copper bar cutting machine
- Aluminum profile sawing machine
- Automatic assemblyline for compact busbar system
- Automatic wire stripper



Service System

All for our customer

Factory Vist

In order to ensure the demanded busway type, customers can visit our factory at anytime. We are pleased to do all the arrangement.



Technical Consultant

We will provide technical consultant service including detailed system introduction, To provide the most satisfied product is our service guideline!



Technical Consultant

Before the final agreement is achieved, a detailed technical description of the chosed product will be done to make the feature and technical parameter clearer.



Training Service

We will provide professional training to explain the product features and advantages, including installation procedure and method.

Meanwhile, busbar operation and maintenance training is available to present the operation and maintenance regulation and faults disposal.



Service System

Solutions to customer any menace from the “rear”

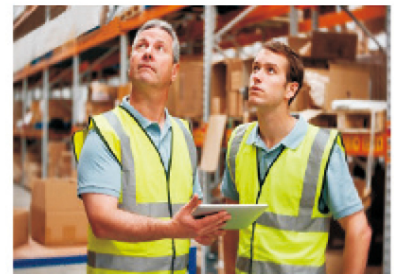
Production Supervise

After the final agreement has been achieved, customers can supervise and test the ordered product. Once the production comes to an end, customers will be informed to inspect products at workshop.



Service on site

During the installation, technical engineers will conduct installation instruction on the project site and also commission after electrified.



Product Maintenance

Perfect repair service is available by sending out experienced engineers when requested.



Complaint Response

Any complains about our products and service from customer are supposed to be responded with in 2 hours.



Notes

Warning

1. Busway system belongs to low voltage whole-set electrical equipment, please handle it per the instruction of electrical operation specification.
2. Before, during or after installation, busway should be protected from the ingress or corrosion of water, salt, concrete or other foreign matter.
3. Before the complete installation, care should be taken to prevent rain and storm for outdoor device.
4. Sit, stand or walk on the busway is strictly forbidden.

Loading

1. Avoid moisture, rain or chemical substances.
2. While loading, avoid stress on the busway or collision.
3. When lifting the busway, make sure the busway weight is distributed and balanced, Never drag busway on the ground.
4. Use a forklift to handle the busway.

Storage

1. Avoid dust and liquid, away from the aisle.
2. Never put it outdoor, avoid direct sun exposure.
3. Busway should stack on the wood block and keep apart; no more than five pieces should be stack on the top of each other.
4. Do not remove the whole packing material before installation.

Notes

Usage

1. Check the phase sequence of busbar and slot system should be correct and consistent.
2. Confirm that the bus channel system is not invaded by liquid or solid.
3. Ensure that the bracket of busbar groove is installed stably and the bolt connection is reliable.
4. Measuring the insulation resistance of bus-bar system shall not be less than 0.4M.
5. Bus bar shall not be loaded when power transmission begins.
6. Check that the total load current shall not exceed the main bus current or the design current.

Maintenance

1. Power should be cut off before maintaining the busway system.
2. Check the tightness of bolt after first use of 3 months, and then check it annually.
3. Cut off power if any abnormal condition occurs, and then find out the reasons and take measures.
4. Keep the system away from the adverse factors, such as water, powder, and heat source.



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