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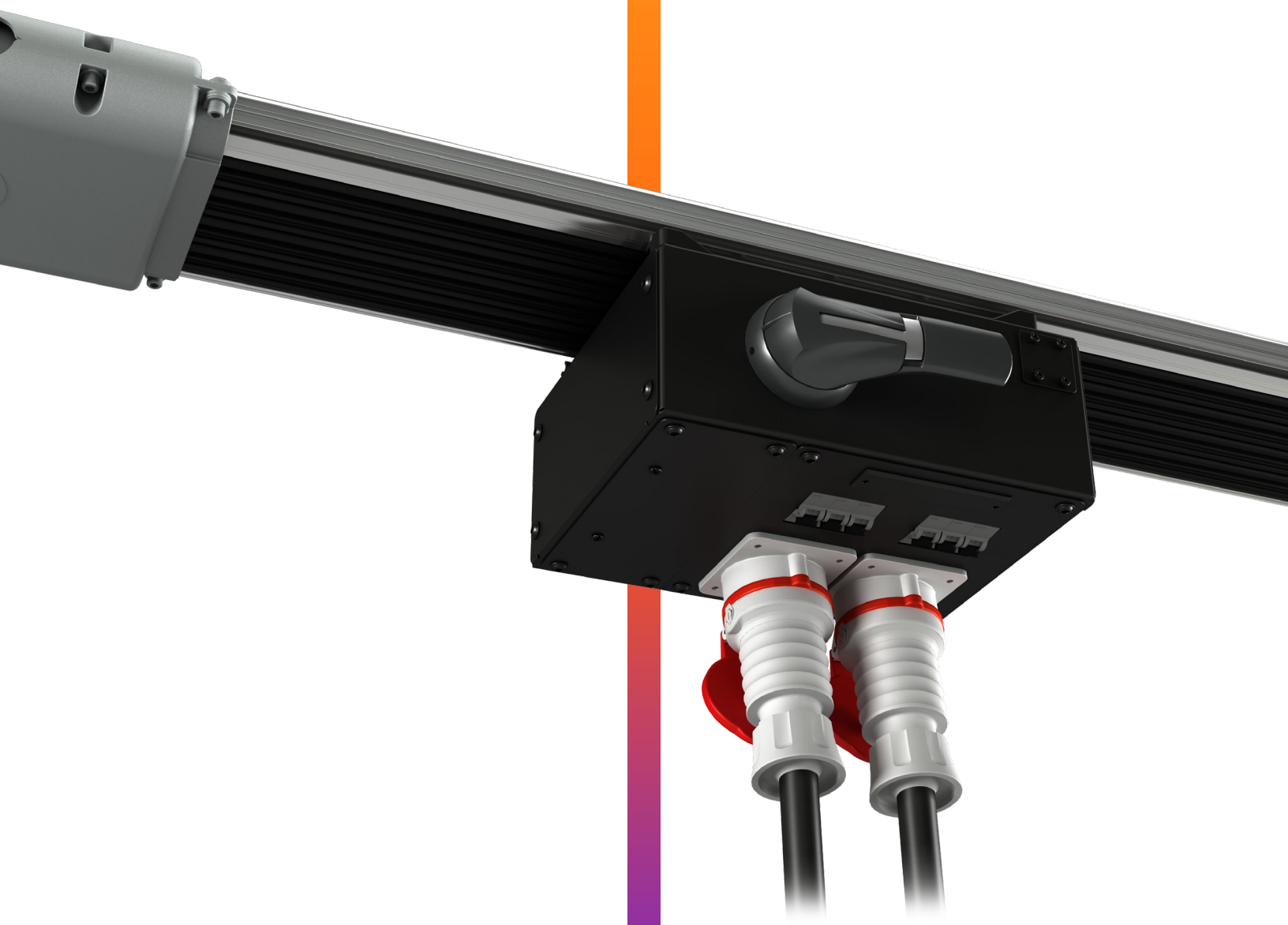
Vertiv™ PowerBar iMPB IEC



Vertiv™ PowerBar iMPB

Our data center customers benefit from unparalleled flexibility to adapt as their needs evolve, thanks to the innovative overhead power distribution system of the Vertiv™ PowerBar iMPB, offering seamless integration and scalable design. Supported by our robust global manufacturing network and efficient inter-regional product transfers, we effectively mitigate supply chain disruptions. This streamlined approach accelerates deployment, minimizing delays and ensuring smooth operations. With Vertiv's expertise, we simplify the design and integration of your entire power chain, delivering a tailored solution that sets us apart in offering unmatched, customized power solutions in the market.

Key Product Features

- Scalable: works in centers of any size.
- Flexible: supports myriad connection configs.
- Low Lead Times: Leaner lead times.
- Eco-Friendly: Lighter, easy to recycle aluminum conductor.
- Modular: Add tap-off boxes anywhere.
- Open track: Changes made easy.
- Integration: Works with Vertiv™ Switchgear and power products.
- Safe: IP2X/3X finger-safe rated.
- Easy install: thanks to sandwich-style joints.
- IEC 61439-6 compliant.

Overview

The Vertiv™ Powerbar iMPB is a medium power encased track busway system offering a variety of capacity and connection configurations to match your IT rack equipment requirements. With a range of 160A-1250A, this aluminium chassis IP2X-rated busway provides optimal flexibility.

Ideally Suited For:

- Data centers of any size.
- Data centers with frequent or planned configuration changes.
- Single or dual-bus configurations.
- Raised and non-raised floors.

Benefits:

- Finger / touch safe IP2X certified.
- Live plug-n-play with the add-on capability of tap-off boxes.
- Solid Joint Pack construction.
- Open-face track allows for tap-off boxes to be placed anywhere along the busway.
- Tap-off boxes have mechanical and electrical interlocks utilizing an earth-first, break-last safety feature.
- Industry's most reliable and user friendly plug-in tap-off box design.

Technical Features

- Vertiv™ PowerBar iMPB is constructed from high density, high conductivity copper or 55% conductivity aluminum. The conductors are insulated with a custom IEC certified thermoplastic material with outstanding heat characteristics. The insulation has excellent dielectric strength and is impact resistant.
- Vertiv PowerBar iMPB is constructed with an aluminium housing providing a durable structure which also acts as a ground path.
- The Vertiv PowerBar iMPB range can be engineered with an over-rated neutral option for busbar systems with non-linear loads. The additional neutral capacity prevents overloading caused by zero sequence harmonic currents.
- Vertiv offers a 100% fully isolated ground for systems where earth isolation is required e.g. systems with heavy microprocessors, based loads or large computer based installations.
- The modular design of Vertiv PowerBar iMPB allows it to be easily installed horizontally or vertically depending on specific project requirements. Hanger brackets are supplied per length. These can be easily attached to drop rods for a seamless installation process. Vertiv PowerBar iMPB can also be connected directly to Vertiv's High PowerBar (HPB) to provide a full power solution.

Copper	Housing Size (mm)	
Busbar Rating (Amps)	**4 Pole**	**5 Pole**
160A	175x44mm	210x44mm
250A	175x44mm	210x44mm
400A	175x44mm	210x44mm
630A	180x52mm	215x52mm
800A	180x52mm	215x52mm

Aluminium	Housing Size (mm)	
Busbar Rating (Amps)	**4 Pole**	**5 Pole**
160A	173x50mm	205x50mm
250A	173x50mm	205x50mm
400A	173x50mm	205x50mm
630A	177x59mm	209x59mm
800A	200x81mm	232x81mm
1000A	200x81mm	232x81mm
1250A	200x104mm	232x104mm

Phase Configurations

Configuration	Phases	Neutral	Earth
TP/N	100%	100%	Case
TP/NE	100%	100%	100%

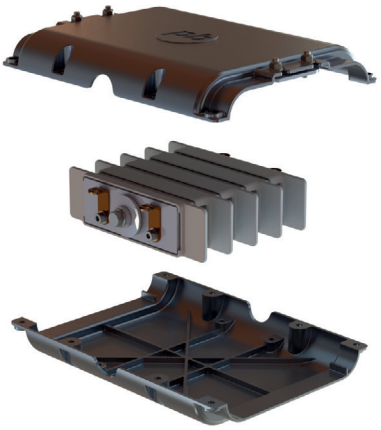
**Overrated Neutral options available for 250A- 160% and 400A- 200%*

Lengths and Joints

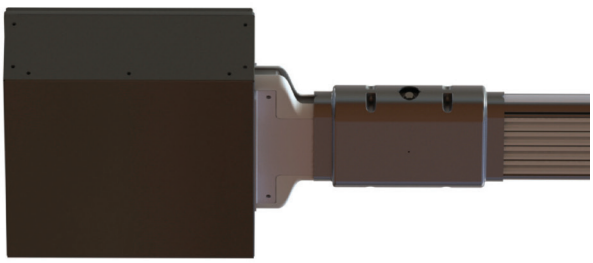
Distribution lengths

- Distribution lengths are designed as an open track system; tap off units can be plugged in anywhere along the length of the busbar. The opening is finger safe meeting a rating of IP2X.
- Straight lengths can be supplied at any length from 600mm - 4000mm.
- The Vertiv™ PowerBar iMPB joint pack securely locks two feeder lengths together with a traditional busbar bolted joint. No special tooling is required and joints may be disassembled and reassembled easily.
- iMPB uses custom designed thermally and electrically secure joint packs. Temperature monitoring of joints is available as an option.

Distribution Lengths



Busway Joints



End Feeds

Vertiv can provide standard cable end boxes with options for cable entry from various points. Centre feeds and load bank feeds can also be supplied to meet specific project requirements.

Tap Off Units

Vertiv™ Powerbar iMPB gives data center managers flexibility, control, and peace of mind when changing and adapting to keep pace with hardware requirement demands.

All tap off units have an 'earth first, break last' safety feature and can be safely installed using Vertiv Powerbar's SafeWork Technology.

1. The units interlock onto the busway with a ground strip. This ensures that the ground is the first point of contact with the busbar system during installation.
2. The mechanical interlock secures the unit to the bar using high tensile strength lockable hardware which cannot be fitted incorrectly.
3. Once fitted to the bar, the engager handle can be turned. This lifts the contacts into the busway and has a positive lock once fully rotated.

Tap-off Box Benefits:

- Change power requirements easily.
- Plug and play to rack/rack PDU.
- No interruption to existing critical loads.
- No electrician required for installation.
- Amps and receptacles sized to meet server needs.
- Relocate and reuse tap-off boxes anywhere along the busway to maximize investment.

Tap-off Box Features:

- Up to 125A per tap off Box.
- Up to 600VAC.
- 15 to 25kA short circuit breaking capacity with higher kA circuit breakers available upon request.
- Accommodates up to 5 receptacles per box.
- Flush-mounted receptacles or drop cords with connectors.
- Can be placed anywhere along the busway.
- Tap-off boxes are easily installed on energized busway and are fully interchangeable.

Metering

Vertiv™ PowerBar iMPB offers advanced metering which allows the user to monitor, integrate and display data centre power information via RJ45 Ethernet plug-in connections.

Final circuit monitoring is integrated into the busway to measure the total load of the busbar and tap off units. Power calculations of total input power for each busway run can also be provided.

Options:

- Voltage for all three phases
- Current - phase, ground and neutral
- kW, KVa, kVAR, power factor, kWH

Advanced options:

- Voltage total harmonic distortion
- Overvoltage/ undervoltage alarm threshold
- Minimum and maximum current
- Demand and percentage load current
- Crest factor
- Warning and alarm threshold

It is also possible to monitor closed and trip status for each MCB. The status signals are fed back to the end feed using the integrated Ethernet cabling. The modules run in a daisy chain from meter to meter utilising the side channel in the housing for cabling.

Technical Data

Copper

Rated Current (A)	160	250	400	630	800
Rated Operational Voltage (V)	600	600	600	600	600
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000
Short Circuit					
Short Circuit Current Rating (rms symmetrical 1 second) KA	25	25	36	36	35
Peak Value (kA)	52.5	52.5	77	77	77
Short Circuit Conditional Rating (KAIC)	100	100	100	100	100
Phase Conductor					
Cross Sectional Area (mm²)	122	122	210	255	320
Neutral Conductor					
Cross Sectional Area (mm²)	122	122	210	255	320
Isolated Ground Conductor					
100% Earth Cross Sectional Area (mm²)	122	122	210	255	320
Housing Ground Path					
Cross Sectional Area of 4 Bar System (mm²)	1761	1761	1761	2222	2222
Cross Sectional Area of 5 Bar System (mm²)	2025	2025	2025	2543	2543
Overall Dimensions					
Height x Width of 4 Bar System (mm)	44 x 175	44 x 175	44 x 175	52 x 180	52 x 180
Height x Width of 5 Bar System (mm)	44 x 210	44 x 210	44 x 210	52 x 215	52 x 215
Weight					
Weight of 4 Bar System (kg/m)	9.45	9.45	14.2	19.4	23.2
Weight of 5 Bar System (kg/m)	11.81	11.81	17.75	24.25	29
Resistance (R)					
Resistance (mΩ/m) at 20°C	0.161	0.167	0.096	0.89	0.065
Reactance (X)					
Reactance (mΩ/m) at 50Hz	0.131	0.114	0.088	0.094	0.089
Impedance (Z)					
Impedance (mΩ/m) at 20°C at 50Hz	0.208	0.202	0.130	0.129	0.110
Voltage Drop at Full Load 50Hz					
Power Factor = 0.7 (V/m)	0.061	0.094	0.103	0.168	0.177
Power Factor = 0.8 (V/m)	0.062	0.097	0.105	0.170	0.175
Power Factor = 0.9 (V/m)	0.062	0.097	0.103	0.167	0.168
Power Factor = 1.0 (V/m)	0.051	0.084	0.085	0.136	0.127

Aluminium

Rated Current (A)	160	250	400	630	800	1000	1250
Rated Operational Voltage (V)	600	600	600	600	600	600	600
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000	1000	1000
Short Circuit							
1 Second (kA rms)	30	30	30	36	50	50	50
Peak Value (kA)	63	63	63	75.6	105	105	105
Short circuit conditional	100	100	100	100	100	100	--
Phase Conductor							
Cross Sectional Area (mm^2)	222	222	222	352	806	806	1125.6
Neutral Conductor							
Cross Sectional Area (mm^2)	222	222	222	352	806	806	1125.6
Isolated Earth Conductor							
100% Earth Cross Sectional Area (mm^2)	222	222	222	352	806	806	1125.6
Housing Earth Path							
Cross Sectional Area - 4Bar (mm^2)	1014	1014	1014	1073	2939	2939	3493
Cross Sectional Area - 5Bar (mm^2)	1151	1151	1151	1210	3341	3341	3971
Overall Dimensions							
Height x Width of 4 Bar System (mm)	50x173	50x173	50x173	59x177	81x200	81x200	104x200
Height x Width of 5 Bar System (mm)	50x205	50x205	50x205	59x209	81x232	81x232	104x232
Weight							
Weight of 4 Bar System (kg/m)	8	8	8	10	17	17	23
Weight of 5 Bar System (kg/m)	10	10	10	13	21	21	28
Resistance							
Resistance (mΩ/m) at 20°C	0.165	0.165	0.165	0.101	0.05	0.05	0.037
Reactance							
Reactance (mΩ/m) at 50 Hz	0.087	0.098	0.105	0.081	0.062	0.063	0.049
Impedance							
Impedance (mΩ/m) at 50 Hz at 20°C	0.187	0.192	0.196	0.129	0.08	0.08	0.062
Voltage Drop at Full Load 50Hz							
Power Factor = 0.7 (V/m)	0.052	0.087	0.152	0.166	0.122	0.156	0.148
Power Factor = 0.8 (V/m)	0.055	0.091	0.158	0.171	0.121	0.155	0.147
Power Factor = 0.9 (V/m)	0.056	0.092	0.16	0.171	0.116	0.148	0.14
Power Factor = 1.0 (V/m)	0.05	0.081	0.143	0.147	0.087	0.112	0.104

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SL-71226-EMEA (R05/25)