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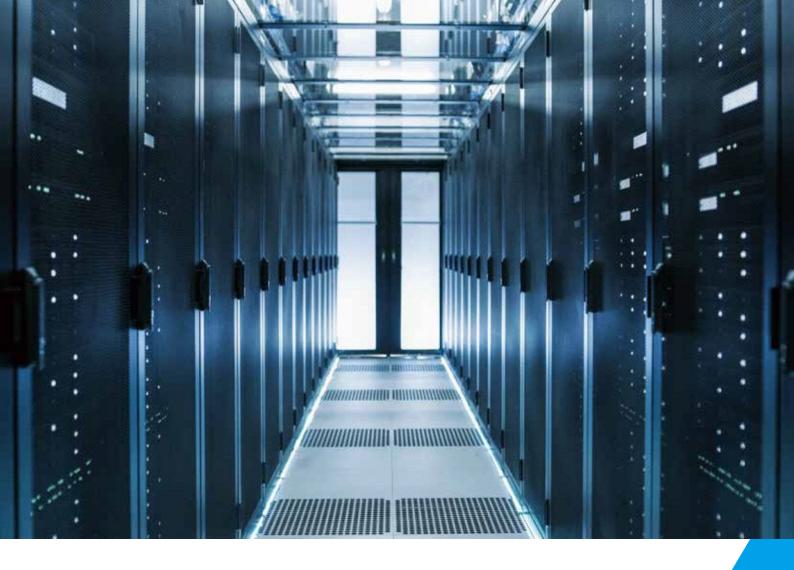
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The power behind competitiveness

Delta InfraSuite Cast Resin Busway System

BR Series, 250A-1600A



Delta Group

Leading expert in power management and thermal management solutions

Delta Group is the world's leading provider of power management and thermal management solutions, as well as a major source for components, visual displays, industrial automation, networking products, and renewable energy solutions. Delta Group is focused on three main businesses: power electronics, energy management, and smart green life. Delta Group has sales offices worldwide and manufacturing plants in Taiwan, China, Thailand, Japan, Mexico, India, Brazil and Europe.

As a global leader in power electronics, Delta's mission is, "To provide innovative, clean and energy-efficient solutions for a better tomorrow." Delta is committed to environmental protection and has implemented green, lead-free production and recycling and waste management programs for many years.

More information about Delta Group can be found at http://www.deltaww.com/

World no. 1 in Switching Power Supplies, DC Brushless Fans and Telecom Power Systems

163 sales offices and 39 manufacturing facilities worldwide

5%-6% of annual sales revenues invested in R&D with over 7.000 engineers in 64 R&D centers worldwide

Awarded **7**,**100+** patents and received **47** internationally recognized design awards including iF, Reddot, and the Taiwan Excellence awards.

No. 1 Supplier of Merchant Power Supplies

According to the IHS report, Delta Electronics remained the largest supplier of merchant power supplies with an estimated market share of 15.5% in 2016 of a global market value that was estimated to be \$21,869M.

The Total Merchant Power Supply Market 2016 \$M Revenue							
Ranking	Company Name	Market Share					
1	Delta Electronics	15.5%					
2	Axxxxxn	7.5%					
3	Lxxxxxx Technology	4.5 %					

Source: AC-DC & DC-DC Merchant Power Supplies, IHS, 2017

Global Footprint

	Asia-Pacific (China)	Americas	EMEA	
Sales Offices	104 (61)	20	39	163
Plant Sites	32 (19)	4	3	39
R&D Centers	43 (23)	7	12	64





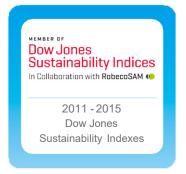
Awards

Delta Electronics outperformed 37 leading global companies in the Electronic Equipment, Instrument, and Component sector of the 2017 Dow Jones Sustainability Indexes (DJSI), and was selected for the DJSI World Index for the seventh consecutive year.









More information about Delta Group can be found at http://www.deltaww.com/



Mission Critical Infrastructure Solutions (MCIS)

With its expertise and experience in power management and energy efficiency, the Mission Critical Infrastructure Solutions (MCIS) business of Delta Electronics Inc. positions itself as:"The power behind competitiveness". MCIS plays an important role in making our customers' businesses more competitive. We fulfill this role by providing highly reliable and efficient power management products and data center infrastructure solutions to ensure the continuity of our customers' mission critical operations while reducing their Total Cost of Ownership (TCO). Delta MCIS is a powerful and trustworthy partner to companies that strive to outperform the competition.







Data Center



Containerized **Data Center**



Container

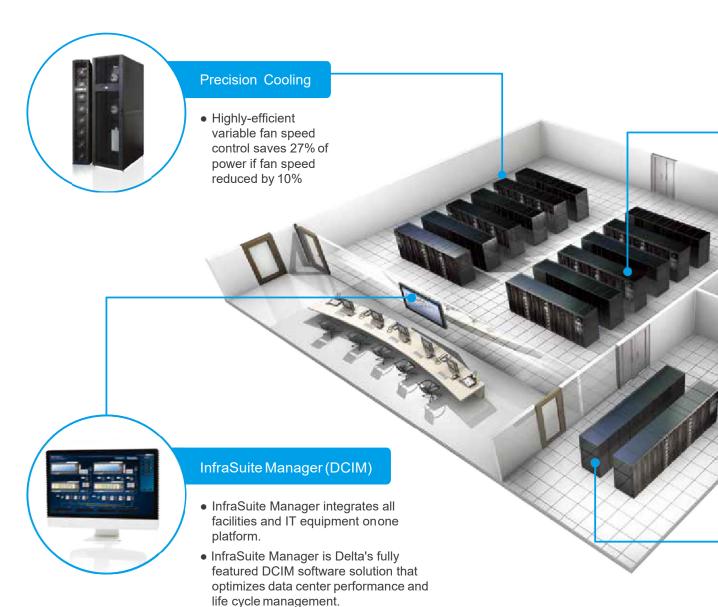








Power



With more than 15 years of experience in the UPS industry, Delta Electronics is a leading brand, featuring complete professional capacities ranging from product development, design and manufacturing for all UPS product lines. Our client base covers world class enterprises in the areas of semiconductors, optoelectronics, food processing, finance, petrochemicals and telecommunications. Additionally, our UPS solutions have been adopted extensively at major Asia events in recent years, including the World Expo 2010 Shanghai, the Guangzhou Asian Games and Universiade Shenzhen, just to name a few. Delta's UPS solutions play a critical role in power management for a number of public mega projects, including One of the major transportation system in Taiwan, that has been rated number one in reliability by Nova/CoMet five years in a row since 2004, and the recently launched Target Spacecraft in China. The most competitive companies in the world choose Delta because our products are designed to enhance competitiveness.



Power Distribution System

- Power Distribution Unit (PDU): Modular and hot-swappable output breaker with transformer
- Rack Power Distribution Unit (rPDU): Reliable branch circuit breaker protection
- Remote Power Panel (RPP): PDU without transformer
- Rack-Mount Remote Power Panel (rRPP): An ideal power distribution solution to small data centers
- Busway: Safe, reliable and efficient power distribution solutions

UPS System

- Fully modular design. Hot-scalable and hot-swappable
- Output PF up to 1
- Leading power efficiency up to 96.5% for remarkable energy savings



Rack and Accessories

- Modular server racks with high perforation rate over 70% which increases heat dissipation
- Avoids cold and hot air mixture to significantly improve PUE < 1.5







Contents

Product Introduction	2
Data Center Application	3
Customer Benefits	4
Product Advantages	5 - 6
• Colors	7
Technical Specification	8 - 9
• Plug-in Unit (Rv Series)	10 - 12
• Plug-in Unit (Rh Series)	13 - 14
 End Feed Box / End Cable Box 	15
Busway Configuration	16
Monitoring Module	17

Delta Cast Resin Busway System

A Flexible, Safe, and Reliable Low Voltage Power Distribution Solution

With the brand vision "Smarter, Greener, Together," Delta has utilized its industry-leading power electronics technology to develop the Busway BR Series for data center applications. Different from a conventional power cable system or sandwich busway solutions, Delta has adopted epoxy cast resin technology to significantly increase IP protection level, safety, and reliability. Delta's solution is ideal for use in a variety of industries and climate conditions. The superior electrical and mechanical characteristics of resin minimize the Busway BR Series' dimensions and simplify its structure. The Busway BR Series also has an extended product life cycle, increased reusability, and achieves significant energy savings for customers.

Customer Value

The Busway BR Series features:

- Successive plug-in slots are available for expansion and power distribution. Data centers can use them freely
- Ultra safe solution that satisfies the requirements of data centers
- Conforms to different standards, depending on market or customer needs, such as IEC, CNS and GB
- Space-saving and weight-saving solution that overcomes space and loading problems of the data center.
- Highly integrated composite materials that significantly reduce EMC and protect precision devices in the data center, and are safe for human health.

Delta's Busways vs, Traditional Cable

Delta's Busways excel over traditional cables in terms of safety, electrical properties, reliability, and scalability, making them the best choice for companies looking at optimum TCO.

	Cast Resin Busway System	Typical Power Distribution by Cables
System flexibility	Easily detaching joints, replaceable, re-usable and highly adaptable to system design changes	Need re-wiring in case of system changes
Installation and configuration	Quick installation and configuration	Wiring over premises, costly and time-consuming
Space use efficiency	Only 30% of traditional cable wiring, effective in saving installation space	Power distribution by cable needs PDU or RPP that occupies white space
Appearance	Easy to identify and manage at a glance	Messy power wiring, complicated looks
Fire resistance	High, IEC60331, BS6387	None
IP Rating	The protection level is primarily IP20 for data center applications. It can reach up to IP 55 per requirement	Not specified in the general technical data
Resistance to chemical and corrosion	Excellent	Poor
Instantaneous short-circuit strength	High	Low
Overload capacity (+25% 2hrs)	High	Low in heat resistance (up to about 60°C), thus being dangerous when overloaded, leading to accelerated insulating materials aging and reduced service life
Insulation rating	High, resin insulation Class F (155°C).	Low



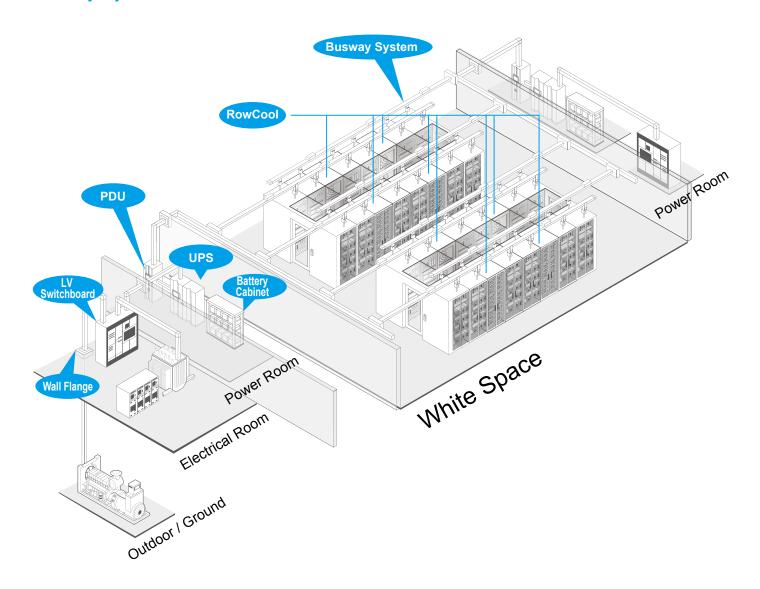
Busway for Data Center Applications

With the recent wave of Big Data and IoT, data centers are responsible for more computing, communication and storage functions. In addition to the increase of their scope, the power density of a single rack cabinet has gradually increased. Effective space utilization is a great challenge for data center construction.

The Delta Cast Resin Busway System BR Series is exclusive for data center applications. Thanks to the epoxy insulation technology, it has a compact structure and size, as well as low EMC that allows it to overcome space limitations in server rooms. Data center designers can easily do wiring construction close to data cables without fear of an impact on their health due to low electromagnetic radiation.

In addition, the plug-in unit can be customized per customers' requirement. It is flexible for use with different power supply systems of server racks. The plug-in unit also applies the flexible successive plug-in slots and is hot swappable. Therefore, it is not constrained by data center space. Customers can carry out expansion or distribution anywhere, which is very flexible.

Busway Systems in Data Center



Customer Benefits

Safe, Reliable, Flexible and Efficient



Safe

The IP55 protection level provides water resistance and is dustproof. The busway remains highly reliable even in harsh environmental conditions, such as high humidity and dripping water. Delta has considered all aspects of the structure design.

- Installation: Attentive foolproof designs are available for every installation step
- Operation: Tool-less design for users to easily install plug-in units
- Compliant with IEC 61439, UL857



Reliable

The busway structure is an Aluminum housing. The busway adopts epoxy cast technology, which is filled and molded into one piece. Its advantages include:

- Minimizes risk from the stronger structure during lifting and assembly on data center sites
- Shield technology ensures optimum sequencing of the conductor.
 The integrated composite materials reduce EMC significantly and mitigate the interference to precision devices
- No maintenance is required



Efficient

The product design and installation uses many plug-ins and modular design concepts and is easy-to-use during the installation, operation and expansion phases.

Benefits of the successive plug-in slots and modular design are:

- Unconstrained by space or location, the busway can be designed effectively and installed without professional technicians
- The plug-in unit adopts a modular design that can be expanded simply and quickly
- Customers can save time on waiting for materials if there is any change in design
- Users can save time and costs on installation, expansion, and alteration



Product Advantages

Busway Body

- Wide power ratings ranging from 250A to 2000A
- Up to 200% neutral
- Highly integrated cast resin technology with epoxy inside
- Pole locations can be reserved or customer can choose the successive plug-in slots upon request
- Numerous standard lengths are available, such as 1M, 2M, 3M, 4M
- Length can be customized upon customer request
- IP protection level up to IP55







Colors















	Black (Std.)	Dark Blue	Light Blue	Warm Red	Yellow
Pantone	Pantone	Pantone	Pantone	Pantone	Pantone
Color	Black C	2146 C	18-4538 TPG	7621 C	Yellow C











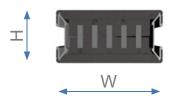
	Grayish White	Bright White	Blue Green	Orange	Gray
Pantone	Pantone	Pantone	Pantone	Pantone	Pantone
Color	13-4104 TPG	11-0601 TCX	7717 C	7577 C	7538 C

Technical Specification

Busway Rating		250A	400A	600A	800A	1000A	1250A	1600A			
Models	Copper	BRC02	BRC04	BRC06	BRC08	BRC10	BRC12	BRC16			
	Aluminum	BRA02	BRA04	BRA06	BRA08	BRA10	BRA12	BRA16			
Rated current	Α	250	400	600	800	1000	1250	1600			
Rated voltage	V	1000									
Frequency	Hz	50/60									
Conductor		Copper purity	r: 99.9% co	nductivity: 99.9	9% IACS						
		Aluminum pu	Aluminum purity: 98.8% conductivity: 56.0% IACS								
Conductor plating		Tin plating (S	td)								
Insulation material		Epoxy cast re	esin								
Insulation class		Class F (155°	°C)								
Enclosure/ housing	J	Epoxy/Alumir	num								
Fire protection		UL94 V0									
Ingress protection	rating	IP20 ; IP55 (d	optional)								
Mechanical Impact	:	IK10									
Earthquake test		0.8g [magnit	ude >7] ; Zone	4							
Plug-in Unit											
Contact design		Plug-in type									
Type		Rv: mounted to busway section vertically Rh: mounted to busway section horizontally									
Configuration											
Comiguration		Plug-in unit w/ MCB/ELCB/RCBO Plug-in unit w/ MCB/RCB + Socket-outlets Plug-in unit w/ MCB/RCBO + Power Meter Plug-in unit w/ MCB + Over Temperature Detect System									
Max. Rating		400A									
MCCB brands		ABB(Std.), M	itsubishi, Fuji, (GE, Schneider	or Customer sp	ecified					
Ingress protection	rating	IP20 ; IP42/55 (optional)									
Panel coating		Powder coate	ed paint								
Color		RAL 9011/ R/	AL9003								
General Data											
Standards				0331, IEC6033 S14165, CNS1							
Ambient temperatu	ire	-20°C /+50°C	avg. 35°C								
Altitude		Below 2000m	n from sea leve	I							



Technical Specification





Copper

Busway Rating		250A	400A	600A	800A	1000A	1250A	1600A
Models		BRC02	BRC04	BRC06	BRC08	BRC10	BRC12	BRC16
Rated current	Α	250	400	600	800	1000	1250	1600
Impedance values a	re for busw	ay operating a	t 20/80°C tempe	erature				
Resistance R ₂₀	$\mu\Omega/m$	178.0	117.8	74.6	55.8	37.2	24.6	18.8
Resistance R ₈₀	$\mu\Omega/m$	220.0	145.6	92.2	69.0	46.0	30.4	23.2
Reactance X ₅₀	$\mu\Omega/m$	129.5	87.8	67.8	49.8	38.5	25.5	20.1
Impedance Z ₅₀	μΩ/m	255.3	170.0	114.4	85.1	60.0	39.7	30.7
Reactance X ₆₀	$\mu\Omega/m$	155.4	105.3	81.3	59.8	46.2	30.6	24.1
Impedance Z ₆₀	$\mu\Omega/m$	269.3	179.7	122.9	91.3	65.2	43.1	33.5
Conductor cross-sec	ction area							
L1,L2,L3	$\rm mm^2$	72.5	145	232	307.4	464	696	928
N (100%)	mm²	72.5	145	232	307.4	464	696	928
G (Internal)	mm²	72.5	72.5	116	153.7	232	348	464
Busway Dimensions								
WxH	mm	117x58	117x58	117x73	117x86	117x113	117x153	117x193
Weight	Kg/m	13	15	23	32	46	59	65

Aluminum

Busway Rating		250A	400A	600A	800A	1000A	1250A	1600A
Models		BRA02	BRA04	BRA06	BRA08	BRA10	BRA12	BRA16
Rated current	Α	250	400	600	800	1000	1250	1600
Impedance values are for busway operating at 20/80°C temperature								
Resistance R ₂₀	$\mu\Omega/m$	213.0	122.0	93.5	62.6	49.7	41.8	25.4
Resistance R ₈₀	$\mu\Omega/m$	263.2	150.8	115.5	77.4	61.4	51.7	31.4
Reactance X ₅₀	μΩ/m	138.1	100.0	59.8	46.7	40.8	32.7	19.0
Impedance Z ₅₀	μΩ/m	297.2	180.9	130.1	90.3	73.8	61.1	36.7
Reactance X ₆₀	μΩ/m	165.7	120.0	71.7	56.0	49.0	39.2	22.8
Impedance Z ₆₀	μΩ/m	311.0	192.7	136.0	95.5	78.6	64.8	38.8
Conductor cross-se	ection area							
L1,L2,L3	mm ²	145	232	307.4	464	580	696	1160
N (100%)	mm²	145	232	307.4	464	580	696	1160
G (Internal)	mm²	72.5	116	153.7	232	290	348	580
Busway Dimension	S							
WxH	mm	117x58	117x58	117x83	117x113	117x133	117x150	117x230
Weight	Kg/m	12	14	21	30	42	54	59

Note: Please contact Delta technician for the data of Voltage drop and Loss KW/M .

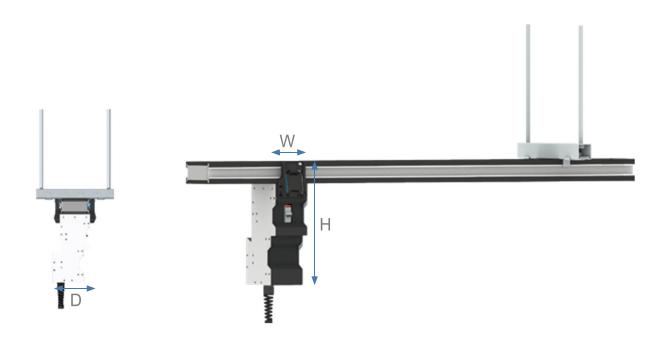
Plug-in Unit

SERIAL NO.

RvS-S3P32-PO.02 PRODUCT CODE Rv: VERTICAL BOX Rh: HORIZONTAL BOX ED: END FEED BOX BOX CODE S: SINGLE BOX D: DOUBLE BOX T: TRIPLE BOX Output Loop CODE S: SINGLE Loop D: DOUBLE Loop T: TRIPLE Loop POLE NO. 1P 2P 3P (L1,L2,L3) 4P (L1,L2,L3,N) ■ AMPERAGE RATING 16 32 63 COMPONENT P: POWER METER O: SOCKET-OUTLETS G: CABLE/PLUGS E: Earth-Leakage Circuit Breakers S: CAM SWITCHE



Plug-in Unit (Rv Type)



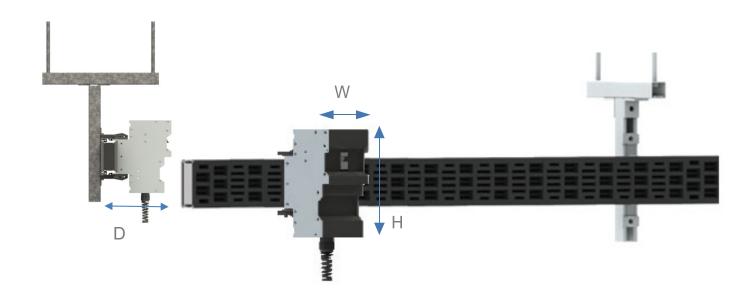
Rv type

Ratings		16A	32A	63A	125A	250A	400A
Height	mm	330	330	330	330	330	330
Depth	mm	165	165	165	165	165	165
Width	mm	100	100	100	200	300	300
IP Rating		IP42	IP42	IP42	IP42	IP42	IP42
Weight	kg	3	3	5	12	20	26

Standard Configurations for Plug-In Unit (Rv series)



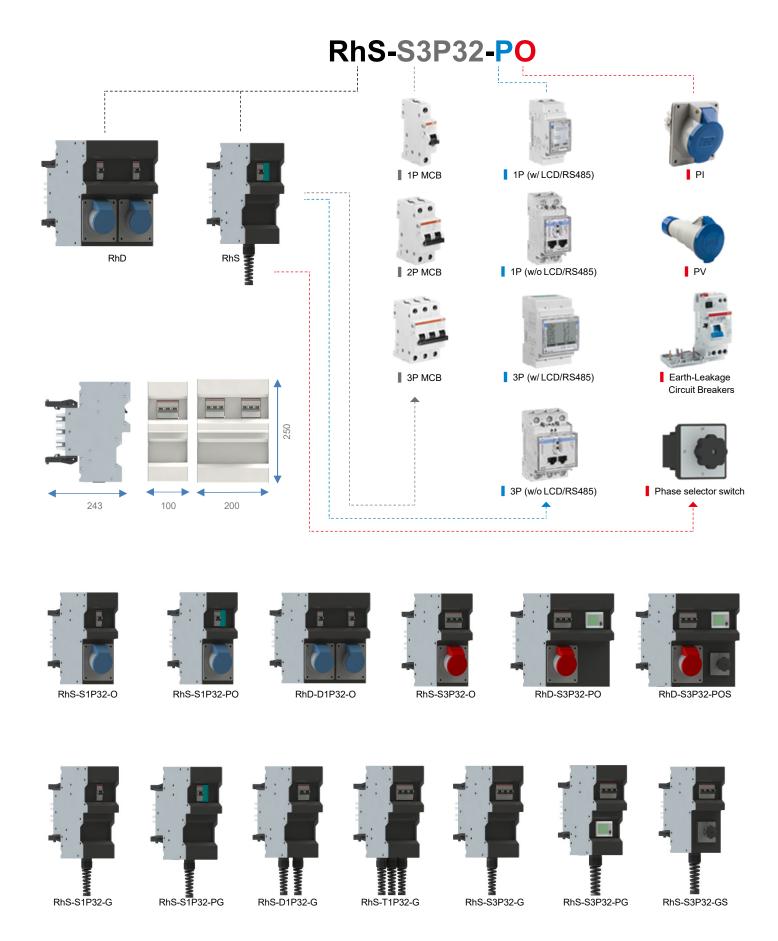
Plug-in Unit (Rh Type)



Rh type

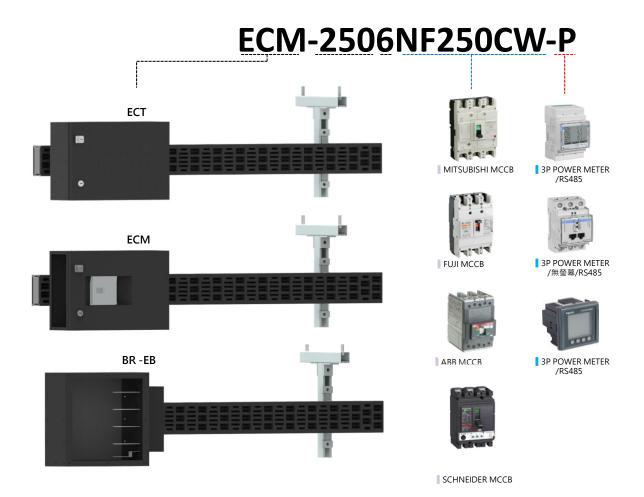
Ratings		16A	32A	63A	125A	250A	400A
Height	mm	250	250	250	250	250	250
Depth	mm	243	243	243	243	243	243
Width	mm	100	100	100	200	300	300
IP Rating		IP42	IP42	IP42	IP42	IP42	IP42
Weight	kg	3	3	5	12	20	26

Standard Configurations for Plug-In Unit (Rh series)





End Feed Box / End Cable Box



Ratings		25	0A	40	0A	63	0A	800A	1000A	1250A	1600A
Model (Ty	pe)	ECM-250 MCCB	ECT-250 Terminal	ECM-400 MCCB	ECT-400 Terminal	ECM-630 MCCB	ECT-630 Terminal	BRC086EB Terminal	BRC106EB Terminal	BRC126EB Terminal	BRC166EB Terminal
W	mm	480	430	480	430	480	430	500	500	500	500
Н	mm	300	300	300	300	300	300	650	650	650	650
D	mm	240	160	240	160	240	160	220	233	260	300
IP Rating		IP42	IP42	IP42	IP42	IP42	IP42	IP42	IP42	IP42	IP42
Weight	Kg	17	15	19	15	20	17	35	38	45	55
Front and Si View	de	H	1 ⊠	W				H			

Busway Configuration



Monitoring Module

The plug-in unit can fit within the monitoring module. The power information can be displayed or transmitted to the monitoring system via RS485.



InfraSuite Manager Data Center Infrastructure Management (DCIM)

Delta InfraSuite Manager is the fully featured Data Center Infrastructure Management (DCIM) software solution to deliver automation and visibility into the data center and increase the ease of management on a comprehensive platform. InfraSuite Manager optimizes the performance and life cycle management of the data center.















