

10 kW Wireless Charging System

MOOV^{air} 10

Highly efficient wireless charging for industrial electric vehicles providing up to 280 A. Ideal for fast and opportunity charging.

- One primary unit can charge multiple vehicles with different battery voltages
- IP69 for harsh industrial environments
- Fully automated charging of all battery types with BMS
- Suitable for fast and frequent charging of Lithium-Ion batteries
- Patented wireless Pad-to-Pad Link (PPL) communication

Wireless Power Transfer

Industrial

Logistics

DELTA

MOOVair 10 Wireless Charging System

Versatile Charging

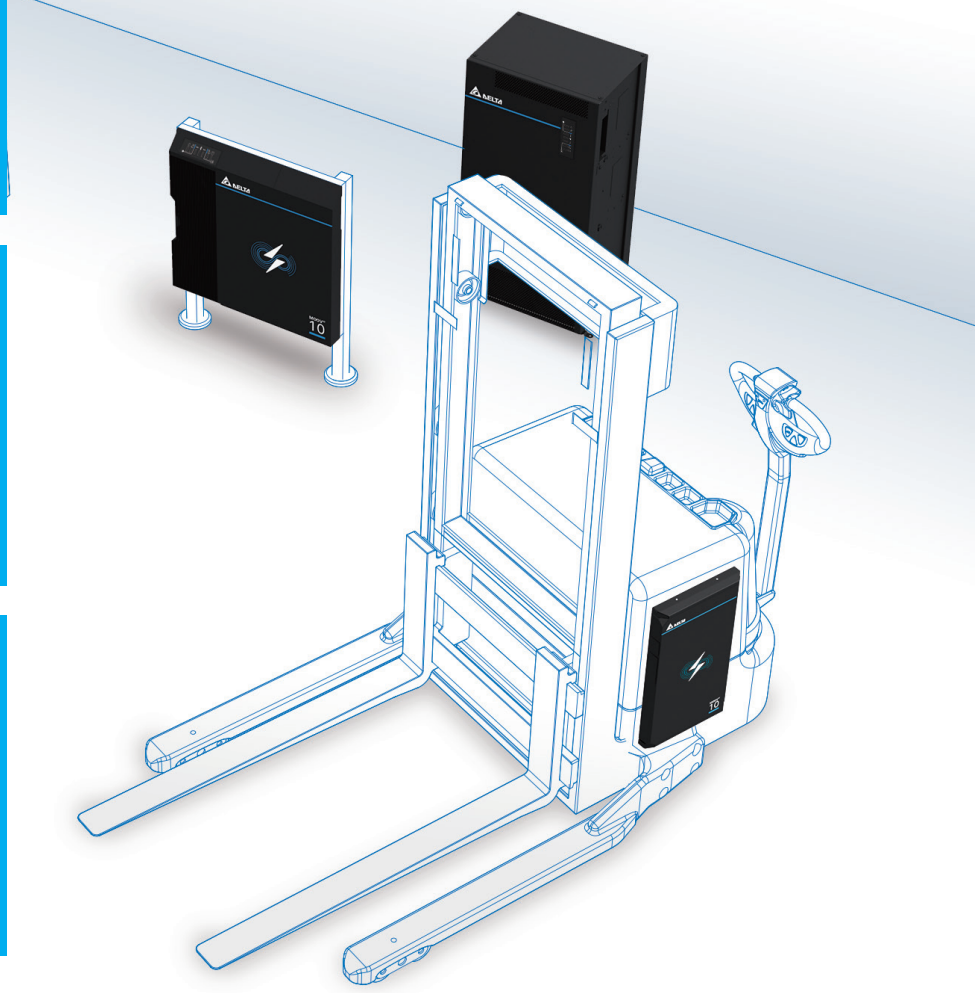
- One primary unit can charge multiple vehicles with different battery voltages
- Unmanned 24/7 operation
- Wireless Secondary Unit (WSU) available in two DC output voltage ranges (24/36 VDC or 50 VDC)

Easy Integration

- Automatic charging
- Ethernet for integrating to a warehouse management system
- CAN bus for connecting vehicle systems
- Patented system-internal PPL communication for faster and more stable connectivity

Wireless Power Transfer

- Efficiency meets or exceeds traditional wired chargers
- Safe operation. Meets all industrial standards for wireless power transfer
- Power transfer over up to 185 mm (7.3”) gap
- Omnidirectional misalignment tolerance



System Components



Wireless Primary Box (WPB)



Wireless Primary Pad (WPP)



Wireless Secondary Unit (WSU)

Primary Unit

Specifications

Product Line		MOOV^{air}10 Wireless Charging System		
System Components				
Delta Part Numbers				
Wireless Primary Box		EOE17010813		
Wireless Primary Pad		EOE17010951		
24 / 36 VDC Wireless Secondary Unit		EOE17011077		
50 VDC Wireless Secondary Unit		EOE17010950		
AC Input		**Wireless Primary Box (WPB)**		
AC Input Rated Voltage		400 to 480 VAC, 3-phase		
AC Input Voltage Range		360 to 528 VAC, 3-phase		
AC Input Frequency		47 to 63 Hz		
Maximum AC Input Current		18 A		
Power Factor (100% Load)		0.95		
Peak Efficiency		> 92%		
Standby Power [1]		≤ 10 W		
DC Output		**24 / 36 VDC WSU**		**50 VDC WSU**
DC Output Nominal Voltage		24 V_{DC}	36 V_{DC}	50 VDC
DC Output Voltage Range		18 to 29 VDC	26 to 44 VDC	36 to 60 VDC
Maximum Charge Current		280 A		200 A
Maximum Output Power		8.12 kW	10 kW	10 kW
Suitable Battery Types		All with Battery Management System (BMS)		
Output Protection		Over voltage, over current, short circuit, reverse connection		
Parallel Operation		Available on request		
Standby Power [2]		< 2 W		
Charging Control Modes		via CANopen® or Ethernet		
Environmental Conditions				
Operating Temperature	WPB	+5 to +40 °C (+41 to +104 °F)		
	WPP	-40 to +70 °C (-40 to 158 °F)		
	WSU	-40 to +80 °C (-40 to 176 °F)		
Storage Temperature		-45 °C to +70 °C (-49 to 158 °F)		
Relative Humidity	WPB	5 to 85%, non-condensing		
	WPP	4 to 100%		
	WSU	15 to 100%		
Maximum Operating Altitude		3,000 m (9,842 ft)		
Ingress Protection	WPB	IP21		
	WPP	IP69		
	WSU	IP69		
Mechanical Design				
Pad Air-gap Range				
24 / 36 VDC WSU at 24 VDC		135 ±5 to 185 ±5 mm (5.3 ± 0.2 to 7.3 ± 0.2 in)		
24 / 36 VDC WSU at 36 VDC		105 ±5 to 155 ±5 mm (4.1 ± 0.2 to 6.1 ± 0.2 in)		
50 VDC WSU		105 ±5 to 155 ±5 mm (4.1 ± 0.2 to 6.1 ± 0.2 in)		
Maximum Alignment Tolerance (Misalignment)		± 50 mm (± 2.0 in) up/down and left/right		

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Mechanical Design		
Dimensions (L x W x H)	WPB	1,050 x 550 x 400 mm (41.3 x 21.7 x 15.7 in)
	WPP	665 x 695 x 75 mm (26.1 x 27.4 x 2.95 in)
	WSU	565 x 327 x 50 mm (22.2 x 12.9 x 2 in)
Weight	WPB	107 kg (235.9 lbs)
	WPP	42 kg (92.6 lbs)
	WSU	20 kg (44.1 lbs)
Cable Lengths	WPB → WPP	5.0 m (196.8 in)
	WSU (DC Output)	2.0 m (78.7 in)
	WSU AUX / COMM	0.5 m (19.7 in)
Cooling	WPB	Forced air
	WPP	Convection
	WSU	Convection
Status LED's		WPB & WPP, stack light interface

Approvals and Compliance	Europe (EEA/EFTA/UK)	USA	Canada
Safety Marks	CE	$_{C}$CSA$_{US}$	
Safety	EN 62368-1:2014 + A11:2017	ANSI/UL 1564 (4th Edition); CAN/CSA C22.2 NO. 107.2-01 (R2021)	
EMC	EN 303 446-2 V1.2.1; EN 301 489-1 V2.2.3; EN 301 489-3 V2.3.2; EN 55011:2016 + A1:2017 + A11:2020 EN IEC 61000-6-2:2019	47 CFR Part 18, Subpart C	RSS-216 Issue 3
RF	EN 300 330 V2.1.1:2017	47 CFR Part 15.225 in conjunction with ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024	RSS-Gen Issue 5; RSS-210 Issue 11 in conjunction with ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024
EMF	EN IEC 62311:2020	47 CFR FCC Part 1.1307; KDB 447498 D01 v06; KDB 680106 D01 v04r01	RSS-102 Issue 6; RSS-102.NS.MEAS Issue 1

1) WPB connected AC but not charging
2) Secondary Unit connected to battery and not charging

USA

Delta Electronics (Americas) Ltd.
Raleigh Office
5101 Davis Dr, Morrisville, NC 2756
U.S.A.
+1-919-767-3800
IEV.sales@deltaww.com
www.delta-americas.com

Europe / Global

Delta Energy Systems (Germany) GmbH
Tscheulinstraße 21
79331 Teningen
Germany
+49-7641-455-0
IEV.sales@deltaww.com
www.delta-emea.com

Product Webpage

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