



10 kW Wireless Charging System

MOOV^{air} 10

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

- Ideal for opportunity and in-process charging
- Reliable in harsh industrial environments
- Fully automated charging of all battery types with BMS
- Charges Lithium-Ion batteries fast and frequently
- Patented wireless Pad-to-Pad Link (PPL) communication



Wireless
Power
Transfer



Industrial



Logistics



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Versatile Charging

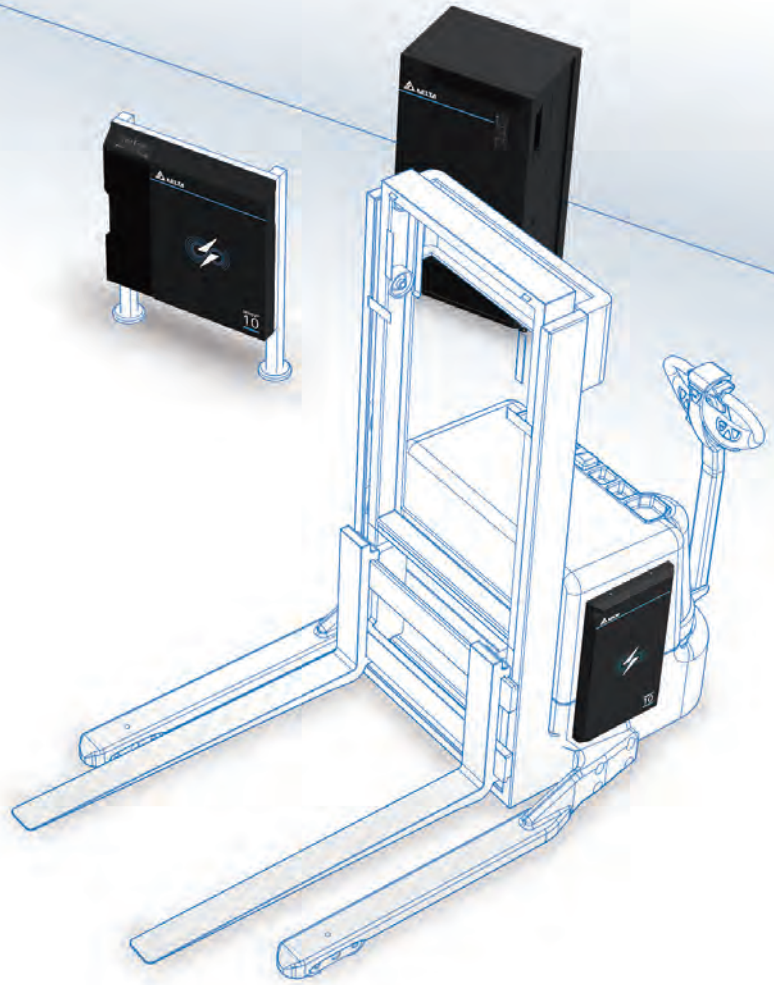
- One primary unit can charge multiple vehicles with different battery voltages
- Unmanned 24/7 operation
- Wireless Secondary Unit (WSU) available in two DC output voltage ranges (24/36 VDC or 50 VDC)

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
- No connector wear
- Safe operation. Meets all industrial standards for wireless power transfer
- Power transfer over up to 185 mm (6") gap



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 V _{AC} 3-phase			
AC Input Voltage Range	360 to 528 V _{AC} 3-phase			
AC Input Frequency	47 Hz 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 V _{DC}	
DC Output Voltage Range	18 to 29 V _{DC}	26 to 44 V _{DC}	36 to 60 V _{DC}	
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 ³⁾	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		

Product Line		MOOV ^{air} 10
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
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 (pending) (EEA/EFTA/UK)	USA	Canada (pending)
Safety Marks	CE	cCSA _{US}	cCSA _{US}
Safety	EN 62368-1:2014 + A11:2017	UL 62368-1:2019 Ed.3	CSA C22.2 No.62368-1:2019 Ed.3
EMC	EN 303 446-2 V1.2.1 EN 301 489-1 V2.2.3 EN 301 489-3 V1.6.1 EN 55011:2016 + A1:2017+A11 :2020 EN IEC 61000-6-2:2019	47 CFR Part 18, Sub-part C	RSS-216 Issue 3
RF	EN 300 330	47 CFR Part 15, Sub-part C	RSS-Gen Issue 5 RSS-102 Issue 6
EMF	EN 62311	47 CFR FCC Part 1.1307 KDB 447498 D01 KDB 680106 D01	RSS-102.NS.MEAS Issue 1

- 1) WPB connected AC but not charging
- 2) Secondary Unit connected to battery and not charging
- 3) Derating above 40 °C (104 °F)



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More information

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