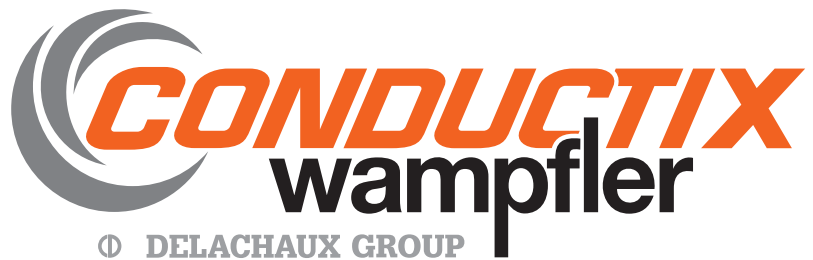


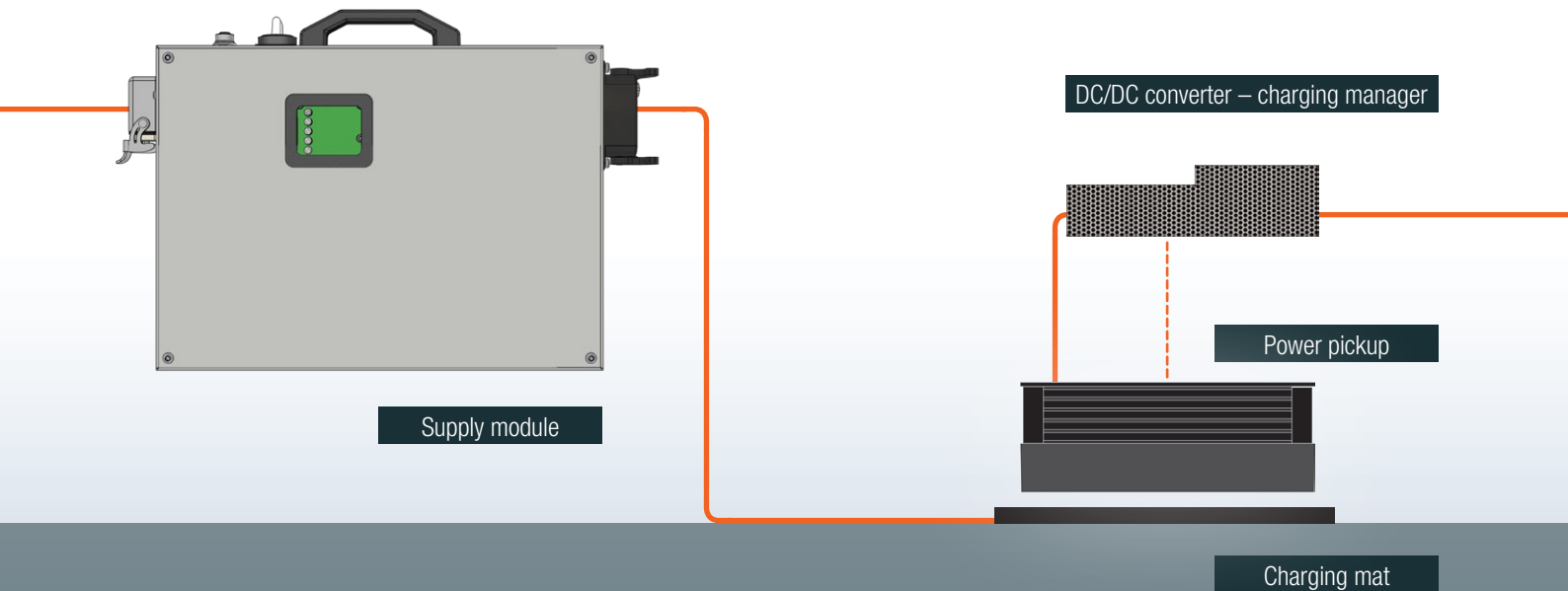


Wireless Charger

Inductive charging system for AGVs



Inductive charging system for Automated Guided Vehicles



Functional principles

The system allows the wireless charging of mobile units such as:

- Automated guided vehicles (AGVs)
- Shuttles in warehouse systems
- Amusement rides
- Mobile service robots

The electrical energy is transmitted between a stationary and a moving coil using the principle of induction.

Power is transmitted with a high degree of efficiency over an air gap of 10 mm.

On the stationary side, the electrical energy from the grid is converted into a high-frequency electromagnetic field, which in turn is regulated in the vehicle to a DC voltage for charging the batteries.

Key features

Multiple vehicles can share one charging station, designed for 100% DC

Possible combination with charging while driving

Current and voltage regulation to gently charge the batteries

Easy installation of stationary charging mats above floor level

Compact design of the vehicle-side components

High efficiency



Photo: GRENZBAUCH

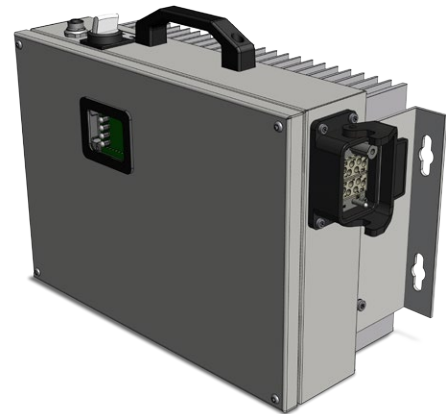
Stationary components

Supply module

The VM-100 supply module converts the grid power supplied into an alternating current of 20 kHz. Further control and protection circuits ensure optimum charging and overload protection.

The module can be operated independently or controlled by a higher-level controller via contacts. Status information is displayed on the device and can also be retrieved by a controller.

Depending on the version, up to four charging mats can be supplied by a supply module.

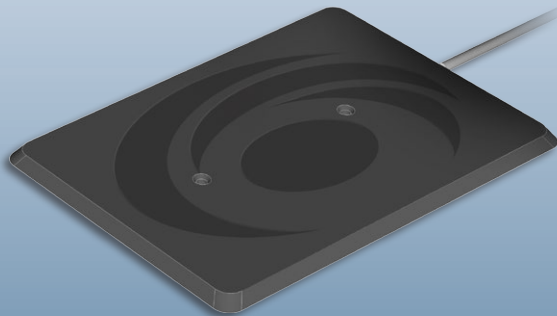


Technical specifications

Feed voltage:	1x 110-240 V AC or 3x 380-480 V AC
Power frequency:	50/60 Hz
Dimensions:	H 265 mm x W 435 mm x D 157 mm
Weight:	approx. 9 kg
Type of protection:	IP54
Output current:	5 A or 30 A
Output power:	1.5 kW (maximum 2.1 kW)

Charging mat

The charging mat generates the magnetic field, which is received by the pickup on the vehicle side. Alternatively, a track with two conductors can be installed in the ground, to charge in motion.



Technical specifications

Dimensions:	H 7 mm x W 435 mm x D 180 mm
Weight:	approx. 0.7 kg
Fastened to the floor with 2 screws	

Distributor

To connect four charging mats to one supply module, with a cable length of 3 m each.



Mobile components

Power pickup

The power pickup for the consumer takes the required power from the magnetic field of the charging mat or track to supply the mobile consumer with energy. Coils, internal control electronics, connections to the DC/DC converter, mounting plate, and heat sink are all integrated into a single device. The status of the charging coil and the temperature are reported to the outside, while the charging voltage can be reduced depending on the state of the batteries.



Technical specifications PUB-0.85-55_B

Dimensions:	H 80.3 mm x W 222 mm x D 216 mm
Weight:	approx. 7 kg
Output voltage:	55-57 V DC
Output current, long-term:	10 A
Interface signals:	Temperature, charging loop status, voltage reduction
Protection class:	IP54
Distance to:	10 mm
Tolerances to charging mat:	Along +/- 30 mm Across +/- 15 mm

DC/DC converter – charging manager

The electronically controlled charging manager controls the power supply in the vehicle or the charging process of batteries using the associated power pickup.



The charging manager is equipped with a 24 V switching regulator which supplies the connected electronics with 6 A in continuous operation. When the power pickup is on the power loop, it takes over the supply of power to the circuit board and the batteries are charged. The circuit board measures the charge current and regulates it constantly to 12 A (48 V). The temperature of the pickup is monitored and status messages are transmitted to the vehicle electronics.

Technical specifications LM-2-180/24

Dimensions:	H 118 mm x W 155 mm x D 48 mm
Weight:	approx. 0.6 kg
Output voltage	
on power connection:	24 V DC
Output current	
on power connection:	6 A (7.5 A briefly)
Constant charging current:	12 A
Output power:	144 W (maximum 180 W)

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