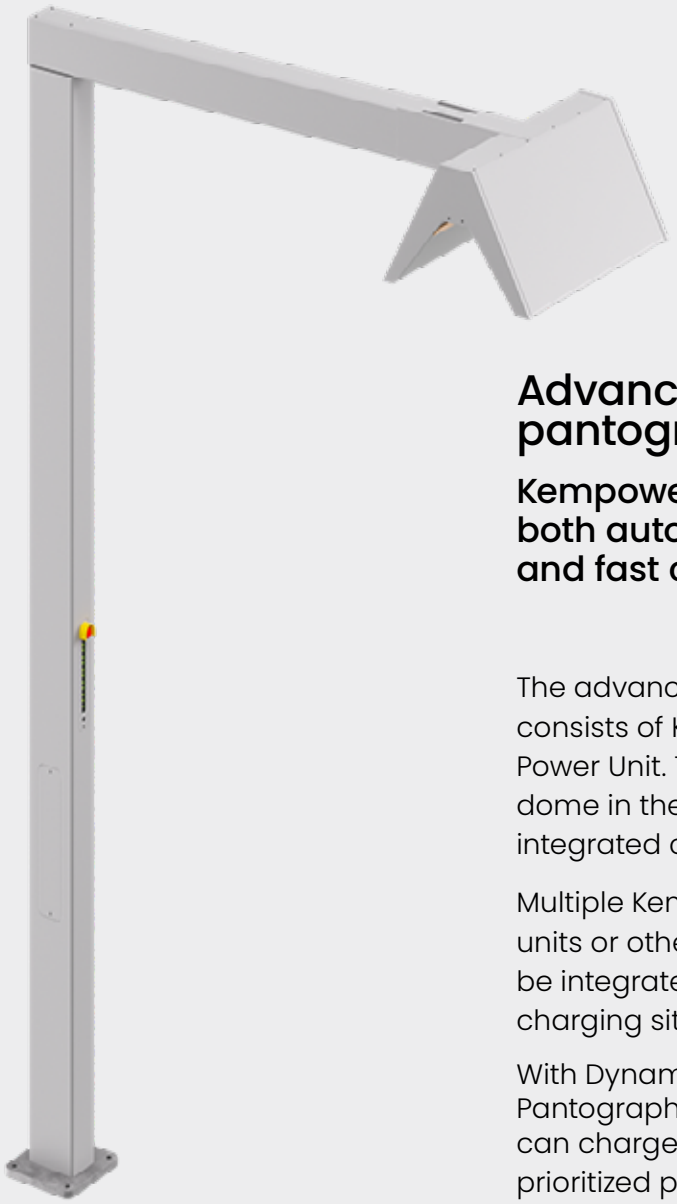
KEMPOWER

Technical Datasheet

Kempower Pantograph Up



Advanced bus charging pantograph system

Kempower Pantograph Up provides both automated charging sequence and fast charging of electric buses.

The advanced pantograph charging system consists of Kempower Pantograph Up and Power Unit. The Pantograph Up has a contact dome in the end of a robust steel frame, and integrated charging control electronics

Multiple Kempower Satellites, Pantograph units or other power delivery units can also be integrated to the same Power Unit at the charging site.

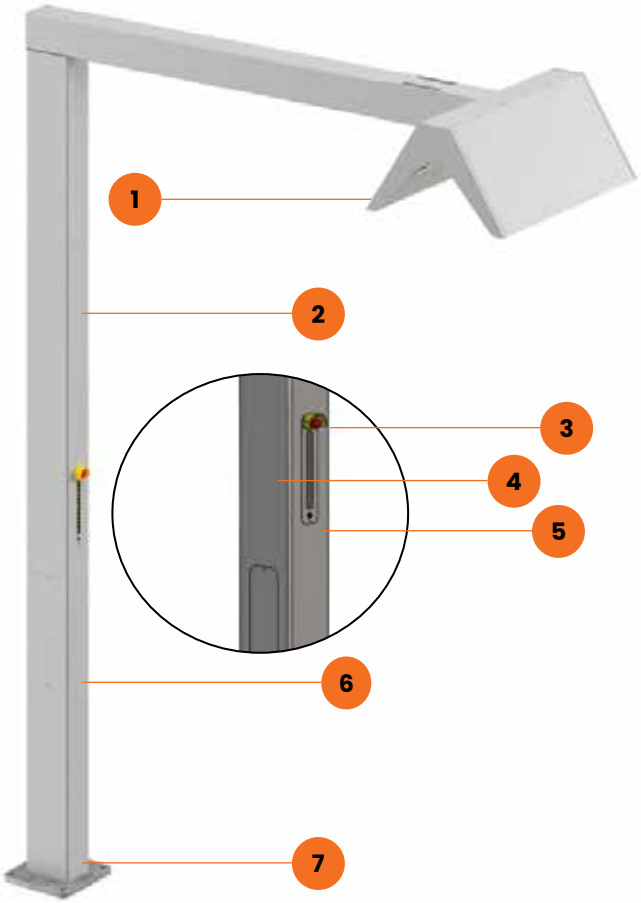
With Dynamic Power distribution, maximum 8 Pantographs or Satellites in any combination can charge simultaneously with equal or prioritized power distribution

Power range of the system

500 kW

Number of charging outputs in the system

1-8



1. Contact dome
2. Steel mast
3. Equipment stop
4. Charging status indication LEDs
5. Charging stop
6. Control electronics hatch
7. Mounting flange

Optimal fast charging solution for buses

Supporting charging power of up to 500 kW

Also suitable for overnight charging of electric buses

Flexibility in designing the charging system topology

The recommended cabling distance between Power Unit and Pantograph Up is up to 80 meters

Kempower ChargEye solution provides advanced charging control and customisation options

Product code interpretation examples:

PTPUE	Control electronics**
PTUHxxxWxxx	Steel mast (grey RAL7047) (see table below)
9901296	Contact dome

**Control electronics including control unit, indication LEDs, equipment and charging stop and internal cabling from control unit to contact dome

Steel mast order code instructions, example:

PTUH450W300

P	Pantograph
T	Tower structure
U	Charging method: CCS (pantograph up)
H450*	Height vertical pole, H450 = 4500 mm (4500 to 5200 mm in steps of 100 mm)
W355*	Length horizontal pole, W300 = 3000 mm (3000 - 4000 mm in steps of 250 mm)

*When placing an order, define the height (H) and lenght (W) of the steel pole.

*Note: Drive-under height (lowest point of of contact dome) is 250 mm lower than height (H) of vertical pole in the order.

General electric specifications

Charging method	CCS protocol (Pantograph up contact dome)
Nominal charging current	700 A
Voltage	Max. 1000 VDC
Standby power	25 W
Charging power at 800 VDC (with C800)	500 kW

Environmental specifications

Operating temperature	-30...+50˚C
Current derating	-1.5% of max. charging current per 1°C (above +40˚C)
Maximum altitude	2000 m (without altitude derating)
Altitude derating	-1.4% of max. charging current per 100 m (above 2000 m)
Storage temperature	-40...+60˚C
Enclosure	IP54, IK10
Ambient air humidity	< 95% relative humidity

Connections & Protocols (via Power Unit / Station Charger)

WiFi	802.11 b/g/n (2.4/5 GHz)
Cellular / GPS	LTE-FDD, LTE-TDD, WCDMA, GSM
Ethernet	RJ45, IEEE 802.3 / 802.3u
OCPP	1.6j / 2.0.1
Connectivity	Kempower ChargEye solution
CCS	DIN70121:2012, ISO15118:2013, ISO15118:2010

Electrical protections

Charging cable temperature monitoring
Earth leakage monitoring

Features

Equipment stop
Charging status indication LEDs
Charging stop

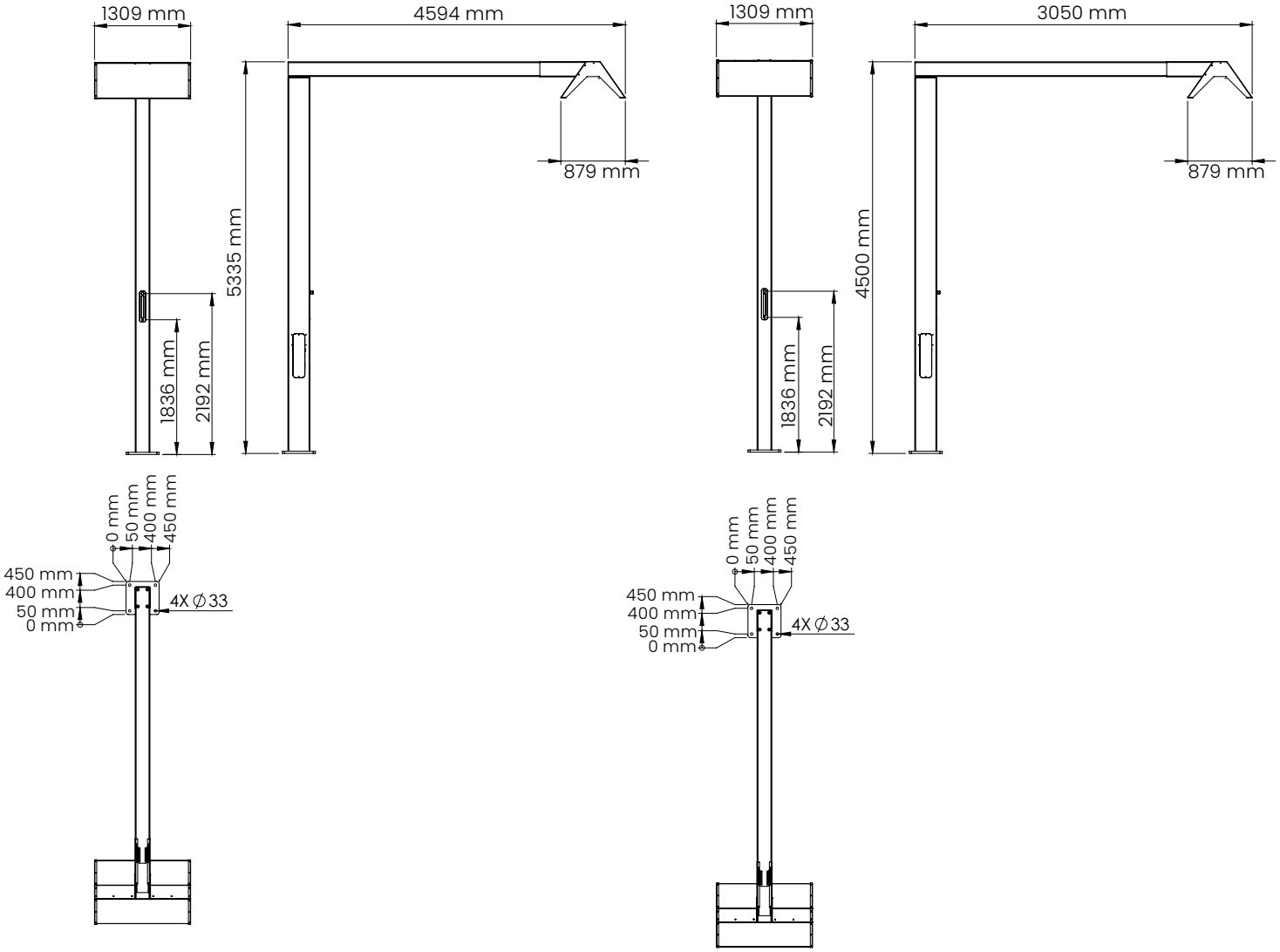
Weight

Ca. 600 kg

Mechanical dimensions (WxHxD)

Maximum 1309 x 5335 x 4594 mm

Minimum 1309 x 4500 x 3050 mm



Compliance to standards

Electrical safety	IEC 61851-1, IEC 61851-23
EMC, Harmonics	IEC 61851-21-2