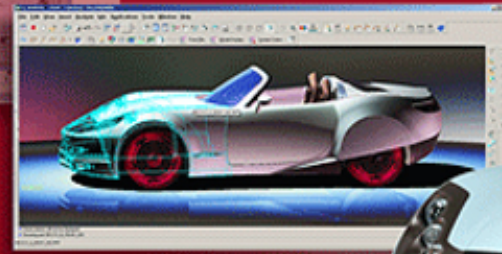
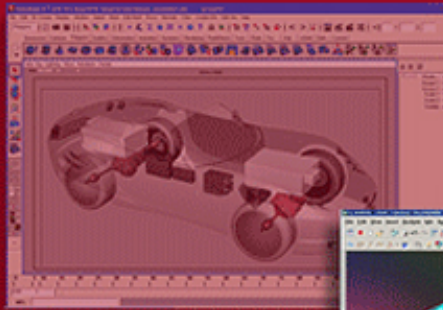


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Infrastructure for  
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**For E-totem specifications see:  
<http://www.protoscar.com/e-totem/>**

# Available supply systems (EU overview)

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Name	Domestic	Normal - STANDARD	Accelerated	Full	Fast	Battery swap	Modular energy pack	Range Extender (modular)
Type	AC	AC	AC	AC	DC	DC or AC	DC or AC	AC
Power	<b>2kW</b>	<b>3kW</b>	<b>7kW</b>	<b>21kW</b>	<b>100kW</b>	<b>Irrelevant</b>	<b>Variable</b>	<b>Variable</b>
Voltage	240V	240V	240V	400V	400V	Irrelevant	Irrelevant	TBD
Current	10A	16A	32A	32A	250A	Irrelevant	Irrelevant	TBD
Installation of charger	On board	On board	On board	On board	Stationary	Stationary	Stationary	Trailed
								

... allowing this performances (considering a 30 kWh BEV with 20 kWh/100 km from grid = 150 km range/charge)

Charging of 80% of battery capacity	12 (hours)	8 (hours)	3'30 (hours, min)	1'10 (hours, min)	0'15 (hours, min)			
Charging 100% of battery capacity*	15 (hours)	11 (hours)	6'30 (hours, min)	4'10 (hours, min)	3'15 (hours, min)	3' (min) for swapping next "charged" module.	3' (min) for fixing next "charged" module.	3' (min) for fixing next "charged" trailer.
Km range per hour of connection	8,3 (km)	12,5 (km)	29,2 (km)	87,5 (km)	130 (km)	100% of nominal performances after change of module.	100% of nominal performances after change of module.	Variable: it depends on range extender power and use.
Km range after 3 min.	0,4 (km)	0,6 (km)	1,5 (km)	4,4 (km)	20 (km)			

\* = assumption: equalisation charge (from 80% SOC to 100% SOC) is always done at max. power of 2kW.

# LAMPO standard plug (7kW)

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Systembereich	Ladestation	Ladekabel		Fahrzeug
				
Bauteil	Steckdose	Stecker Ladestation	Stecker Fahrzeug	Steckdose
				
Spezifikation	<p>Stromstärke: max. 32A</p> <p>Hauptkontakte: 1p + N + PE</p> <p>Steuerkontakte: 4p</p> <p>Steckerverriegelung: keine</p> <p>Schutzart: IP 44</p> <p>Deckel: Klappdeckel</p> <p>Durchmesser: 55 mm</p>	<p>max. 32A</p> <p>1p + N + PE</p> <p>4p</p> <p>-</p> <p>IP 44</p> <p>-</p> <p>55 mm</p>	<p>max. 32A</p> <p>1p+N+PE+1 freier Kontakt</p> <p>1p</p> <p>-</p> <p>-</p> <p>-</p> <p>55 mm</p>	<p>max. 32A</p> <p>2p + N + PE</p> <p>1p</p> <p>keine</p> <p>-</p> <p>-</p> <p>55 mm</p>



1 Connector	4 Communication protocols
2 Position of the charging cable	5 On-/off-board charging
3 Physical protection	6 Value-added services



Daimler and RWE host OEM-Utility workshops on smart-charging standards.

## PROVEN QUALITIES, TO BE CONFIRMED (also see Marechal samples on PSA vehicles):

- Easy to handle (low-force rotation instead of coaxial shifting)
- Clear “end of position” (guaranteeing complete contact surface)
- Easy to position (not “round”)
- Protected because closed by cover (snow/rain and vandalism)
- Locked (with central locking)
- Illuminated by opening of cover (night)
- Charging beginning shown by “blinkers”



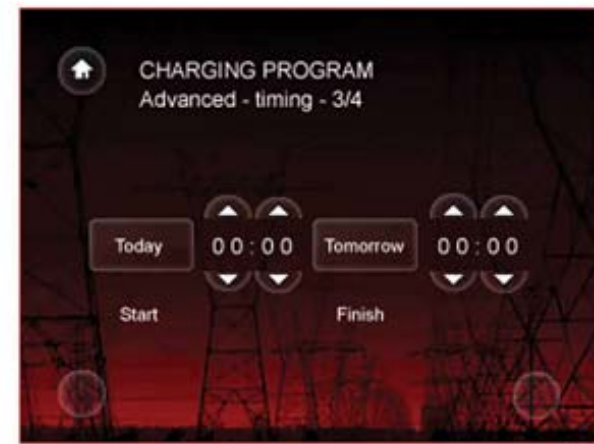
## ASPECTS TO BE IMPROVED:

- Durability of handle and pins (shocks, dust, lubrication )
- Physical tolerances (temperature & age related)
- Charging status end (not recognizable)
- Cable characteristics (weight, length, stiffness)
- Cable logistics (danger while used, storage while wet or dirty)

# LAMPO Intelligent charging (optional settings)

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Thanks for your  
attention !

[Protoscar.com](http://Protoscar.com)