



# RAY

Product Manual  
Produkthåndbok



# CHARGE AMPS

# RAY

## ENG/NO

### Technical Specifications/

### Tekniske Spesifikasjoner

	Type/Type 1	Type/Type 2
Description/ Beskrivelse	RAY 1P 16A T1	RAY 1P 16A T2
Product number/ Produktnummer	100310	100312
Vehicle interface/ Grensesnitt for kjøretøy	SAE J1772 (IEC Type 1)	62196-2 (IEC Type 2)
Voltage/Spenning		220- 240 V
Frequency/Frekvens		50/60 Hz
Current/Strøm		6-16 A
Cable length/Kabellengde		7,5 m
Protective earth conductor/Jording		Non-switched/Automatisk tilbakestilling
Standby power/Hvilestrøm		< 5 W
Power requirement while charging		< 10 W
Encapsulation/Innkapsling		IP66
Operating temperature/Driftstemperatur		- 35 °C - + 45 °C
Ground fault protection/Jordfeilbryter		RCD type/type A, <30 mA
Self-tests/Jordfeiltest		Self-test of the RCD is performed at the insertion into the car. The relays are continuously monitored for welding. / Når bilen kobles til utfører RAY en automatisk test av jordfeilbryterne. Reléene overvåkes kontinuerlig for kontaktsveising.
Standards/Standarder		IEC 61851-1 Ed.3 IEC 62196-2



CHARGE AMPS

# RAY

ENG

## User Guide

READ SAFETY PRECAUTIONS BEFORE USE

### Charging current

You should always have good knowledge about the electrical installation before you start charging to make sure the installation handles the load correctly.

Charging with high current requires that the outlet is rated for the load continuously and that the cable dimensions between the electric central and the outlet is of adequate size. You should also make sure that the installation and outlet is in good shape and can handle the continuous load.

If you are uncertain about the quality or capacity of the electrical installation consult your certified electrician.

See safety precautions for more information

### To start charging

1. Connect RAY to an outlet socket. Make sure to always do this step **first**.
2. RAY will start and indicate the selected charging current on the display.
3. Make sure the RAY cable is not creating a coil.
4. Select the desired charging current by manoeuvring the touch sensors. Press settings (gear-wheel) and then adjust current with the up/down arrows on the screen and end with OK (green check).
5. Insert the RAY into the EV. Charging starts automatically. The display will begin to show a charging graphic.

### To stop charging

To prevent arcing and wear on plugs and outlet, the order of removal is important. The following procedure minimizes the risk of arcing.

1. Unlock your car.
2. Remove RAY from your car
3. Remove the socket plug from the outlet.



# RAY

NO

## Brukerveiledning

LES SIKKERHETSINSTRUKSJONENE FØR BRUK

### Ladestrøm

Du må ha god kunnskap om den elektriske installasjonen før du begynner lading for å forsikre deg om at installasjonen kan håndtere ladelasten på korrekt måte. Lading med høy strøm krever at stikkontakten er klassifisert for kontinuerlig last og at kabeldimensjonene mellom den elektriske sentralen og stikkontakten har egnet dimensjon. Du bør også forsikre deg om at installasjonen og stikkontakten er i god stand og kan håndtere kontinuerlig lading.

Hvis du er usikker på kvalitet eller kapasitet for stikkontakten du bruker, bør du alltid konsultere en sertifisert elektriker.

### Slik starter du lading

1. Koble til RAY i en stikkontakt. Utfør alltid dette trinnet **først**.
2. RAY starter och indikerer den valgte effekten (6-16 A) på displayet.
3. Sørg for at RAY-kabelen er fullstendig utrullet.
4. Velg ønsket effekt ved å manøvrere berøringssensorene. Trykk på innstillinger (tannhjulet) og juster effekten med opp-/nedpilene på displayet. Avslutt ved å trykke på OK (det grønne merket).
5. Koble til RAY i bilen. Ladingen startes automatisk. Displayet vil vise et bilde som forteller at lading pågår.

### Slik avslutter du lading

For å forebygge lysbuer og slitasje på ladekontakten og uttaket er det viktig at kabelen frakobles i riktig rekkefølge. Følgende prosedyre minimerer risikoen for lysbuer:

1. Lås opp bilen.
2. Dra ut RAY fra bilen.
3. Dra ut pluggen fra stikkontakten.



# RAY

## Safety precautions

### Warning

Due to mishandling a dangerous condition might occur such as electric shock or fire.

- Before you connect the RAY make sure the correct charging current is selected. You must ensure that the outlet and circuit has enough current capacity to charge your vehicle safely. The outlet and circuit must be earthed and protected by a dedicated circuit breaker (max 16A) or fuse (max 16A). If in any doubt, consult a qualified electrician. Overloading an outlet may result in fire.
- Do not use an extension cord or adapter.
- Always connect the RAY to a RCD protected outlet. The RAY is equipped with a RCD to protect the cable, connector and car from ground faults, but always use a RCD protected outlet for your personal safety.
- Do not disassemble or try to repair. Contact vendor if service is required.
- Stop using the RAY if a failure or abnormality occurs or the cable is damaged.
- Stop using the RAY if the display shows any faults.
- Stop using the RAY if it gets very hot. The RAY will get warm during charging, this is normal.
- Keep the plug dry and take appropriate care when operating in wet conditions.
- Do not touch the electric terminals of the RAY.
- Do not use the RAY if any parts are broken, worn, cracked, and open or show any indication of damage. Contact vendor if you are uncertain if it is safe to use your RAY.
- Not for use by children.
- Ensure the electrical supply is 220-240V 50/60Hz.
- Handle the RAY with care; do not drop and do not pull the cable strongly.
- Ensure that the RAY is placed to avoid submersion in water.
- Do not hang the RAY in the cable.

### Caution

Parts could be damaged due to mishandling

- Prevent foreign matter from getting into the terminal parts of the RAY.
- Avoid stepping on, folding, driving over, or putting tight kinks in the cable.
- Avoid using the RAY during electrical storms or thunderstorms.
- Do not place heavy objects on the RAY.
- When charging, make sure the RAY is not covered by objects preventing cooling of the RAY.
- Do not drop the RAY.





WARNING – This manual contains important instructions for the RAY electric vehicle charger that must be followed during operation, and maintenance of the unit. When using electric products, basic precautions should always be followed, including the following instructions.



CAUTION - Instructions pertaining to a risk of fire or electric shock. Save these important safety instructions.



WARNING - Do not use RAY for any other purpose than to charge an electric vehicle.

---

#### DISCLAIMER:

Charge Amps AB is not responsible for damages, either direct or indirect, relating to the use of these instructions.

Charge Amps AB cannot guarantee completeness, accuracy or timeliness of the information found in this manual, and we reserve the right to make changes at anytime without notice.



#### DISPOSAL

The RAY contains electronic components and should be recycled as such. Contact your local recycling centre for information about recycling and where to dispose of you electronic products.



You can also send items back to Charge Amps for proper disposal. Contact [info@charge-amps.com](mailto:info@charge-amps.com) for instructions.

---

## Charge Amps AB

Gustav III:s Boulevard 42

16973 SOLNA

SWEDEN

[charge-amps.com](http://charge-amps.com)

+46(0) 8-55 11 2000



CHARGE AMPS