

\* Fuse recommended. Please verify directive for applicable installation regarding fuses

## General Information

### Starter battery:

Typically 55Ah to 100Ah for automotive applications.

A start battery should never be deeply discharged.

### Solar panel:

Recommended output power range of 50W to 300W.  
Output voltage may not exceed specified voltage limit of the D250SA. Please see instruction manual.  
If possible, connect the negative wire directly to service battery (-).

### Wiring:

Please see instruction manual for suitable dimensions.  
Please verify directive for applicable installation regarding wiring.  
A thick wire generate less voltage drop than a thinner wire at high current.

### Service battery:

Size 40Ah to 300Ah

Batteries are connected in parallel to increase capacity (Ah).

Suitable deep cycle batteries should be used.

### Alternator:

If the alternator is a "smart alternator" that can adjust voltage level by the engine control module or similar.  
To get D250SA support a Smart alternator you connect the Red Smart Alternator cable to the ignition.

### Charge voltage:

You can choose between 14.4V and 14.7V (AGM) on D250SA.  
If you not connect the Black AGM cable you get 14.4V  
If you connect the Black AGM cable to minus you get 14.7V.

### D250SA:

Install according to instruction manual.

### Temperature sensor:

Attach the temperature sensor onto the service battery.

### SMARTPASS 120:

Install according to instruction manual.

### System Monitor:

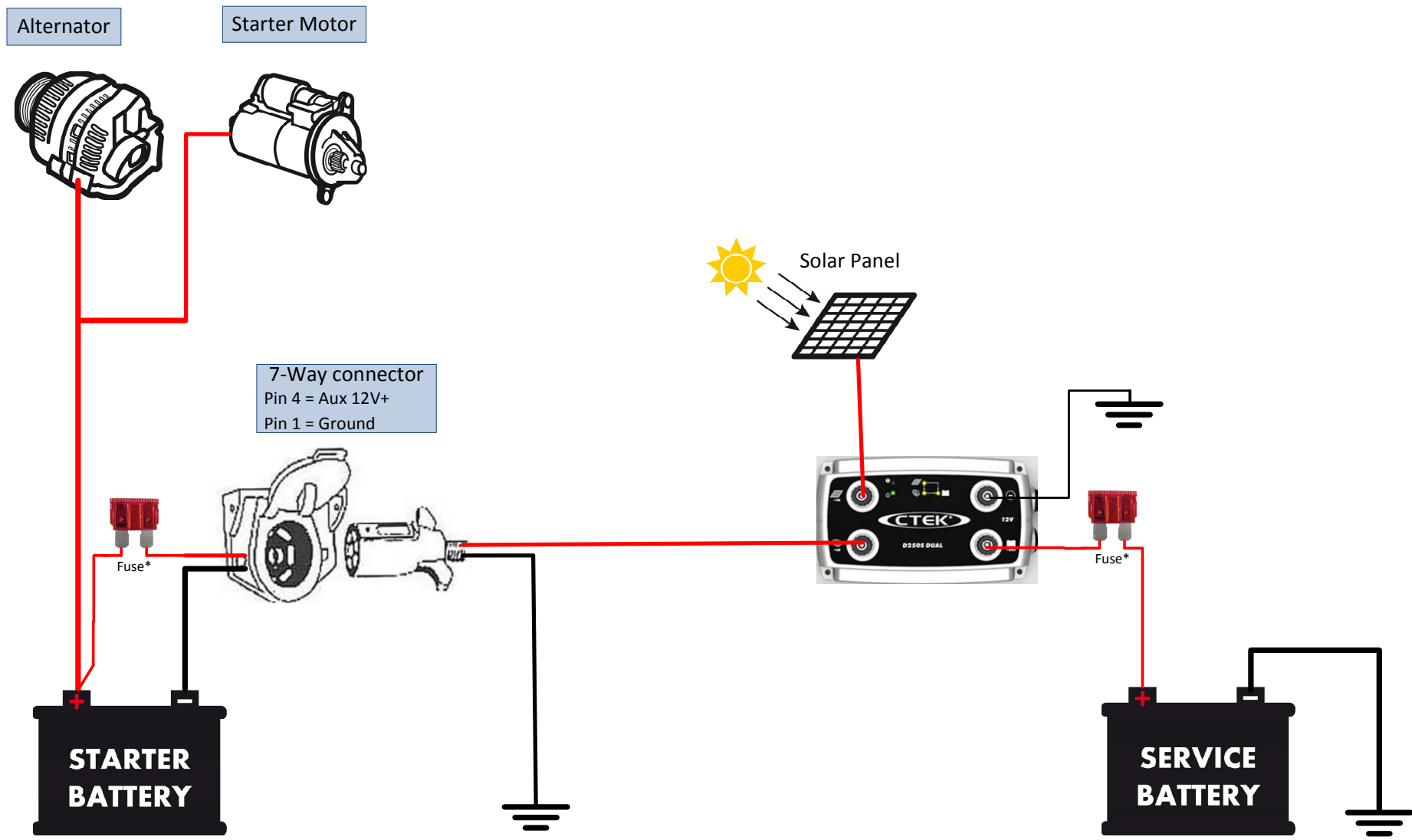
System Monitor continuously monitors voltage, current (charge and discharge) and calculates the charging status. System Monitor gives you a complete overview of your battery charge level and simply shows the percentage of charge remaining, as well as how many hours are left before the battery bank is empty.

### Fuses:

If fuses are used, mount the fuses as close to each battery as possible.  
Suitable fuse size:  
D250SA: 30A  
D250SA and SMARTPASS 120: 300A  
Battery Monitor: 1A  
Please verify directive for applicable installation regarding fuses.

### Start assistance.

SMARTPASS 120 automatically connects the service battery to the starter battery to assist, if the starter battery on its own is unable to start the engine. After the start assistance function has been activated, SMARTPASS 120 will display a fault indication until starting has been achieved without using the start assistance function.



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Date: 2016-04-18  
Version: 1.0

## Title: Liftgate DC/DC charger



### General Information

**Wiring:**

Input: Up to 30th = AWG 8. Up to 60th = AWG 4  
Output : AWG 10. Max 6th

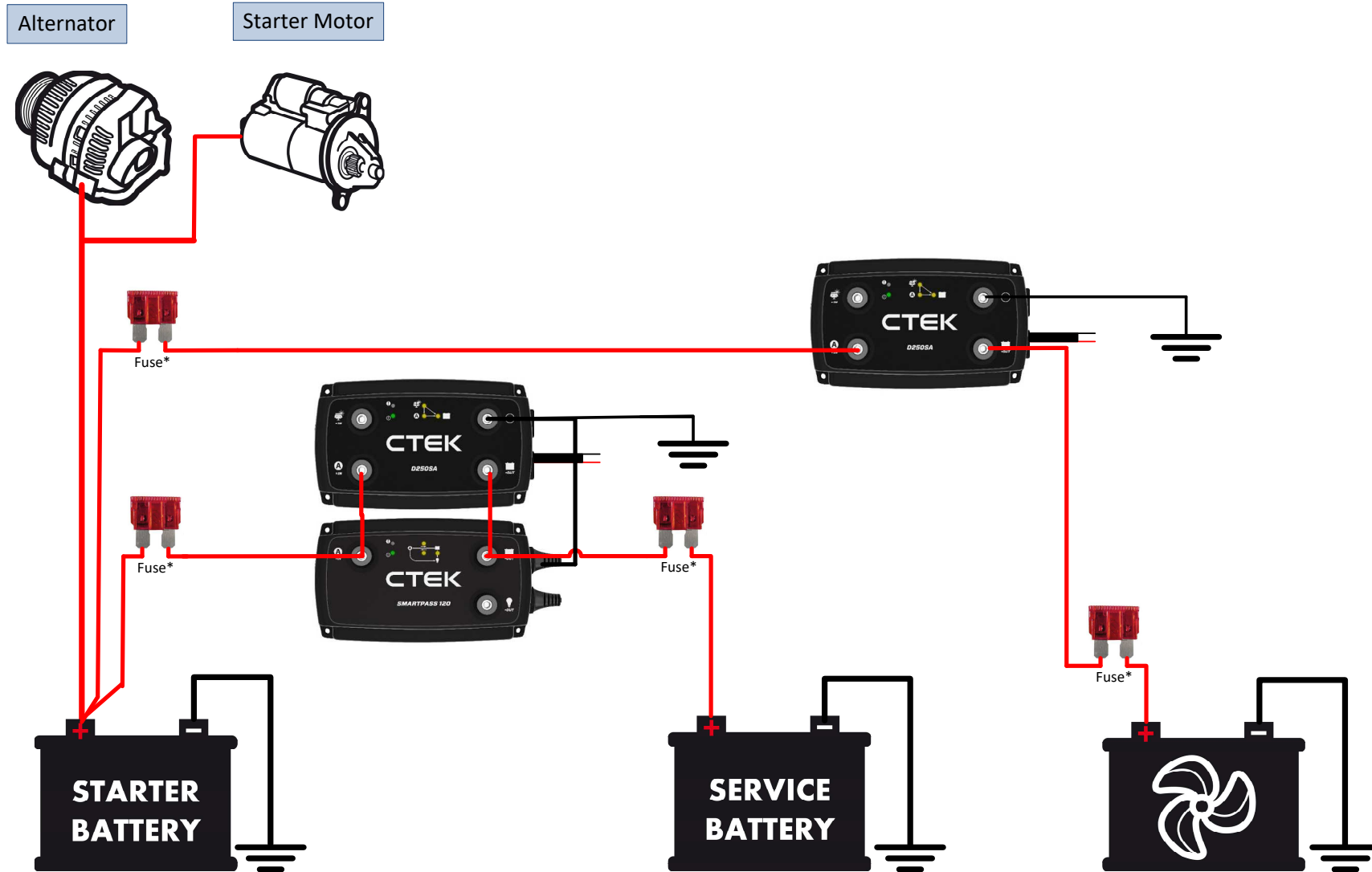
Negative: Up to 30th = AWG 8. Up to 60th = AWG 4. Or  
connect to groun/chassis.

**Fuses:**

Mount the fuses as close to each battery as possible.  
Suitable fuse size: 30A

**Temperature sensor:**

Attach the temperature sensor onto the service battery.



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## General Information

### Starter battery:

Typically 55Ah to 100Ah for automotive applications.

A start battery should never be deeply discharged.

### SMARTPASS 120:

Install according to instruction manual.

### Fuses:

If fuses are used, mount the fuses as close to each battery as possible.

Suitable fuse size:

D250SA: 30A

D250SA and SMARTPASS 120: 300A

Please verify directive for applicable installation regarding fuses.

### Service battery:

Size: 40Ah to 800Ah. (D250SA and SmartPass 120)  
Batteries are connected in parallel to increase capacity (Ah).

Suitable deep cycle batteries should be used.

### Wiring:

Please see instruction manual for suitable dimensions.  
Please verify directive for applicable installation regarding wiring.

A thick wire generate less voltage drop than a thinner wire at high current.

### Charge voltage:

You can choose between 14.4V and 14.7V (AGM) on D250SA.

If you not connect the Black AGM cable you get 14.4V  
If you connect the Black AGM cable to minus you get 14.7V.

### Bow thruster battery:

Typically 55Ah to 100Ah with high CCA (cold cranking amps) a Starter battery or equivalent.

A start battery should never be deeply discharged.

### Alternator:

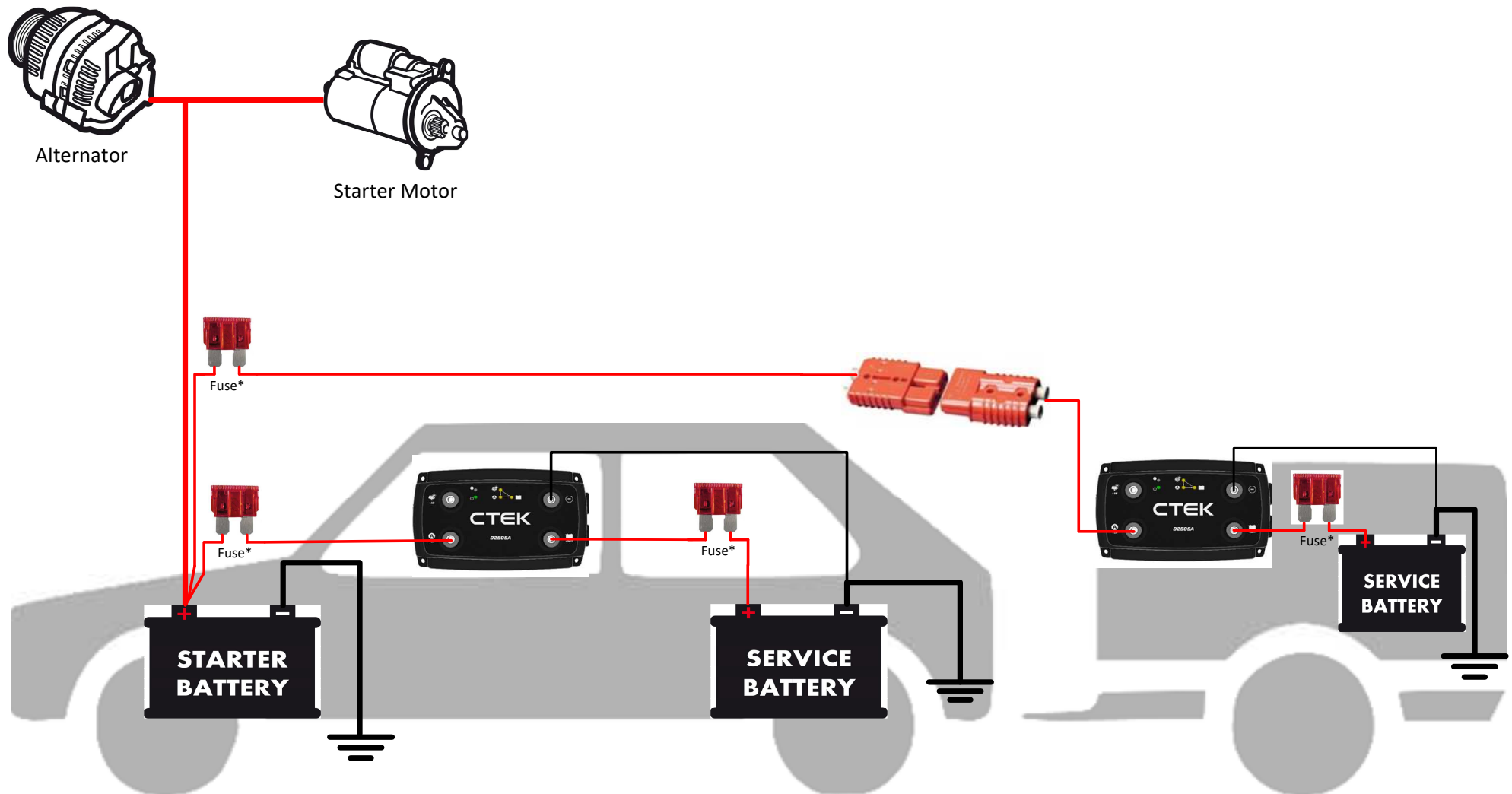
If the alternator is a "smart alternator" that can adjust voltage level by the engine control module or similar.  
To get D250SA support a Smart alternator you connect the Red Smart Alternator cable to the ignition.

### D250SA:

Install according to instruction manual.

### Temperature sensor:

Attach the temperature sensor onto the service battery.



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## General Information

**Starter battery:**

Typically 55Ah to 100Ah for automotive applications.

A start battery should never be deeply discharged.

**Alternator:**

If the alternator is a "smart alternator" that can adjust voltage level by the engine control module or similar. To get D250SA support a Smart alternator you connect the Red Smart Alternator cable to the ignition.

**Charge voltage:**

You can choose between 14.4V and 14.7V (AGM) on D250SA.

If you not connect the Black AGM cable you get 14.4V  
If you connect the Black AGM cable to minus you get 14.7V.

**Service battery:**

Size 40Ah to 300Ah. If Service battery is bigger than 100Ah, a SMARTPASS 120 is recommended together with D250SA to shorten the charging time. SMARTPASS 120 is also recommended if Service battery is less than 100Ah but have consumption during driving. Batteries are connected in parallel to increase capacity (Ah). Suitable deep cycle batteries should be used.

**Wiring:**

Please see instruction manual for suitable dimensions. Please verify directive for applicable installation regarding wiring. A thick wire generate less voltage drop than a thinner wire at high current.

**D250SA:**

Install according to instruction manual.

**Fuses:**

If fuses are used, mount the fuses as close to each battery as possible.  
Suitable fuse size:  
D250SA: 30A  
Please verify directive for applicable installation regarding fuses.

**Temperature sensor:**

Attach the temperature sensor onto the service battery.