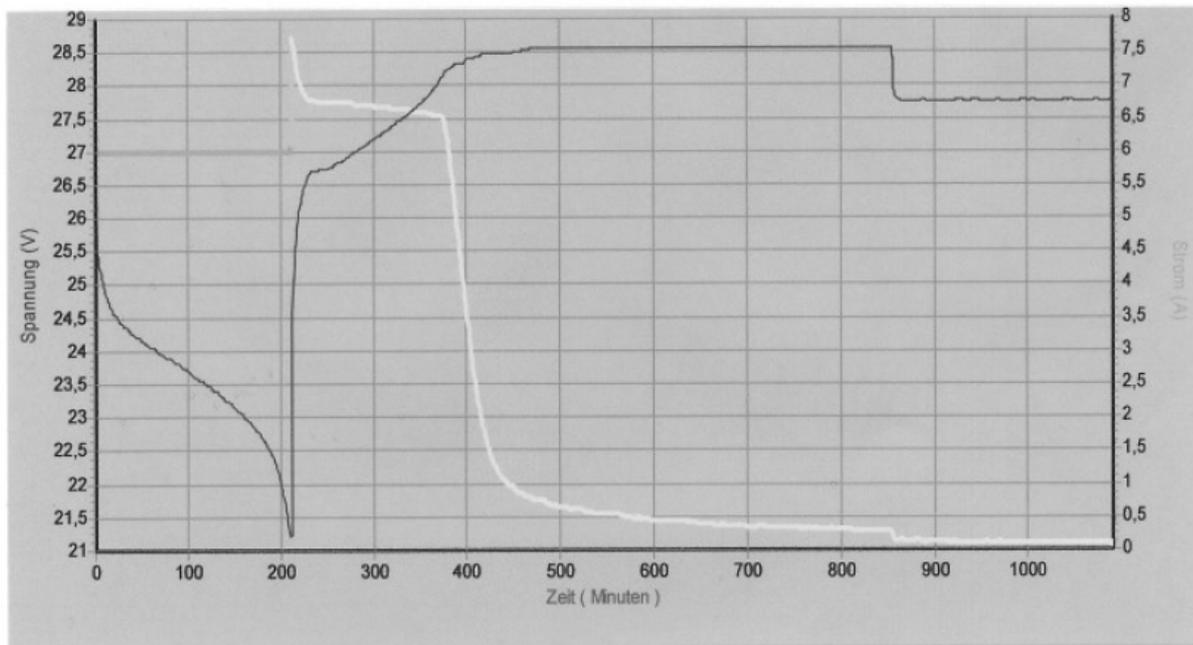


## Sizing a Cyrix battery combiner

Equalization current between batteries and other considerations.

[www.victronenergy.com](http://www.victronenergy.com)



The graph shows the discharge-charge curve of a 24V 210Ah battery  
 Discharge current: 65A  
 Charge current: 67A  
 Horizontal scale: 100 minutes per division

The graph shows that when the discharge starts (far left), the voltage immediately drops to 25,5V. When recharge starts, the voltage almost immediately increases to more than 25,5V.

This means that when a discharged battery is connected to a fully charged battery, a very short current spike of limited amplitude will be observed. The voltage will then stabilize at approximately 25,5V (12,75V for a 12V battery) and the current will quickly decrease to nearly zero.

A Cyrix can therefore be safely connected between batteries of up to 5 times the current rating of the Cyrix. A 200A Cyrix for example, can handle a battery capacity of up to 1000Ah.

The current rating of a Cyrix should however never be lower than the maximum continuous current that can be expected to flow from one battery to the other.

Examples:

- In case of a starter battery charged by a 200A alternator and a house battery connected to a 100A charger, the house battery should be connected to the starter battery with a 200A Cyrix
- If the house battery is connected to a set of chargers with a total rated current of 300A, the rating of the Cyrix should be at least 300A.
- If the 200A alternator and a 100A charger are connected to the same battery, again a Cyrix rated at least at 300A should be installed.

Finally, it is advisable to place the Cyrix closest to the smallest battery. (Which in general is the starter battery)  
 This is to minimize the influence of voltage drop along the cabling.