

# **TWIKE Discharge & Charge Logic**

## **with switch for timer**

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### **Introduction**

To preserve the optimal performance of NiCd batteries it is important to use them regularly and to discharge them completely from time to time. This might not be possible during normal day to day use. The TWIKE Discharge & Charge Logic takes care of this for you. Depending on its setting it discharges and charges your batteries in different modes. It is a good idea to also use a conventional timer that is put between plug and socket. Due to safety reasons the charge always starts only after a 10 second pause after connecting the TWIKE with the power grid.

Additionally to the ordinary charge function the TWIKE Discharge & Charge Logic provides you with the following charging possibilities:

### **Discharge with following charge**

You can charge your TWIKE batteries automatically after they have been discharged completely.

For this feature you have to choose the setting

*LADEN (3) – “erst nach der ENTLADUNG“.*

*(CHARGE (3) – “only after DISCHARGE“)*

## Charge on schedule with previous discharge (recommended)

You can charge your TWIKE batteries at a preset time with previous discharge (the discharge might be incomplete due to a possible lack of time).

For this you have to choose the option

*LADEN (3) – “mit SCHALTUHR“.*

*(CHARGE (3) – “with TIMER“)*

If the discharge isn't finished once the timer switches to ON, it is discontinued and the charge begins. With this feature it is certain that the TWIKE starts charging at the time you chose and that it will be fully charged when you need it.

## Charge on schedule without previous discharge

Of course you can charge your TWIKE batteries without a previous discharge, too. In this case you only have to connect the charge plug with the preset timer. You don't have to switch on the main switch of the logic, the Emergency Stop Switch should be pushed down (switched off). The charge will take place as long as the timer connects the TWIKE with the power grid.

The discharge will continue down to approximately 250V and can be chosen to proceed in one or two steps. In the modus

*ENTLADELAST (4) – “nur HEIZLÜFTER“*

*(DISCHARGE LOAD (4) – “HEATERS only“)*

the batteries are discharged using only the heaters. In the modus

*ENTLADELAST (4) – “HEIZLÜFTER dann LICHT“*

*(DISCHARGE LOAD (4) – “HEATERS then lights“)*

the heaters discharge until the LowBat LED lights up. Following this the batteries are discharged with the head lights and therefore a smaller current. This leads to a deeper discharge.

The charge of the batteries takes place with the programmed normal charge current (Recommendation for SANYO batteries: PROG 92: RED CHARGE CURR maximum of 2A per battery and PROG 91: MAX CHARGE CURR any value, 9A in the UK).

We recommend the use of a timer to allow for the TWIKE to switch off after charging. This prolongs the life of the batteries and saves energy.

## Operation

- (0) PREPARATION:  
The last full charge should not date back longer than 2 days and the TWIKE should be driven as far as possible with this charge (to make sure that as many miles as possible are driven with the batteries, to save energy and to make sure that the discharge doesn't take too long). **All** switches in **off**-position: Head lights, fog tail light, indicators, hazard light, and wipers. Engage forward gear (TWIKE active: put the gear lever 'forwards/backwards' into the middle position) and don't apply the foot brake to prevent the braking lights from taking damage.
- (1) Switch „HAUPTSCHALTER“ („MAIN SWITCH“):  
Switches the Discharge Logic on (EIN) and off (AUS). Can also be used to stop the discharge (ABBRUCH). During normal charge or while driving this switch should be set to off (AUS).
- (2) Push button „ENTLADEN“ („DISCHARGE“):  
This starts the discharge. The TWIKE is switched on automatically.
- (3) Switch „LADEN“ („CHARGE“):  
Without timer this has to be switched to *“erst nach der ENTLADUNG“* (*“only after DISCHARGE“*). When using a timer you can choose whether the charge should start when the timer switches on *“mit SCHALTUHR“* (*“with TIMER“*) (to make sure that the charging time is long enough), or after the discharge is finished *“erst nach der ENTLADUNG“*.
- (4) Switch „ENTLADELAST“ („DISCHARGE LOAD“):  
Here you can choose whether the discharge uses only the heaters (faster) or after lighting of the LowBat LED switches to the head lights (less current and deeper). When using the head lights for discharging they become very hot and might crack if the glass has been damaged before. Also it might happen that the LowBat LED flashes once when the discharge starts. In this case you can switch to the heaters by pressing *“START“* (2) again.

(5) „VERBRAUCHER“ („LOADS“):

Make sure that all loads are switched **off** and the **Emergency Stop Switch** is pushed down.

This ensures that during the pause between discharge and charge, and after charging the TWIKE can be switched off by the Logic. This doesn't work without a timer!

(6) „LADESTECKER“ („POWER PLUG“):

Finally connect the plug with the timer or the power socket.

In case you want to do a scheduled charge without previous discharge, you have to plug into the set timer with the Emergency Stop Switch pushed down (off).

**Attention:** If you plug the TWIKE into the power socket before having started the discharge, you have to disconnect it again before you can start the discharge.

After the discharge the charge starts automatically, except when the start is delayed by a timer or the plug is not connected.

We recommend the discharge only in combination with a following charge. The interval between discharge and charge might be a couple of hours (e.g. over night with timer) but should not be several days because this will delay the start of the charge due to a deep discharge.

Before driving the TWIKE you should switch the main switch of the Logic to off (AUS). Otherwise the heaters might be switched on accidentally by operating the push button „ENTLADEN“.

### Option: Discharge with an external 12V load

For this TWIKE Discharge & Charge Logic you can get an optional connector box for discharging with an external 12V load (up to 100W). This box has a switch to choose between discharge by the heaters or any connected external 12V load.

**FINE**MOBILE<sup>GMBH</sup>

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