

ReLight2010

MANUAL

INTRODUCTION

The ReLight2010 is a servicing and diagnosis device for electric vehicles of the PSA group which are equipped with SAFT ® nickel cadmium accumulators.

THE DEVICE IS COMPATIBLE BY THE FOLLOWING VEHICLES:

- Citroen Berlingo Electrique
- Citroen Saxo Electrique
- Peugeot Partner Electrique
- Peugeot 106 Electrique (the newer Model)*

* A small number of vehicles have diagnosis Plugs with unusual 30 Pin. Here an adaptor is required. It costs at the moment approx. 22 euros.

The major task of the device is the possibility of servicing the accumulators to refill the water of the accumulators.

DESCRIPTION

The ReLight2010 was conceived as a mobile device and may not be installed firmly in the vehicle. The ReLight may not be used in public traffic. Do not use the device at temperatures less than 0 degrees centigrade – the display could be destroyed at temperatures below zero. Carry out the water servicing not at temperatures less than 0 degrees centigrade. Read the manual carefully before beginning the watering procedure.

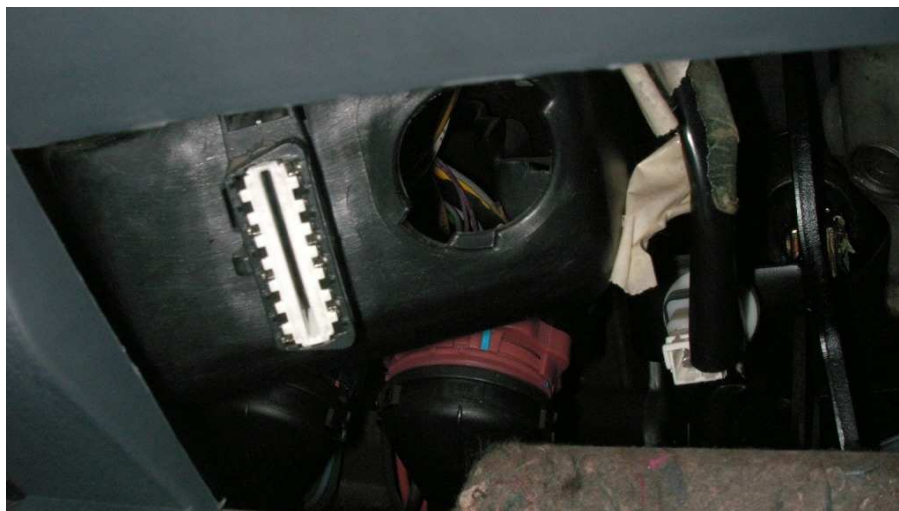


Picture1: The ReLight2010

The menu structure of the device contains several menus which can be selected with the "Up" and the "Down" key. The functions on the single menu pages can be activated by pressing the "Enter" key.

CONNECTION

With the Berlingo/partner: The connection socket sits behind the removeable plastic cover directly under the steering wheel (on the left from the protection box).



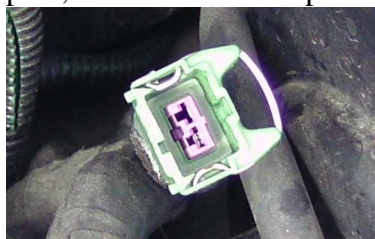
Picture2: socket Berlingo/Partner

106/Saxo: The connection socket is behind the removeable plastic cover directly on the left under / beside the steering wheel.

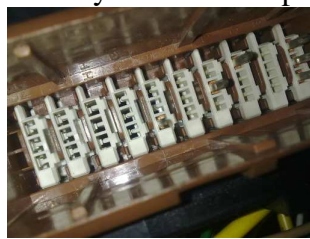


Picture3: 106/Saxo

The historical: There are 3 different sockets in the PSA models. The oldest socket is the 2-pole, then came the 30-pole and finally came the 16-pole version.



2-pole

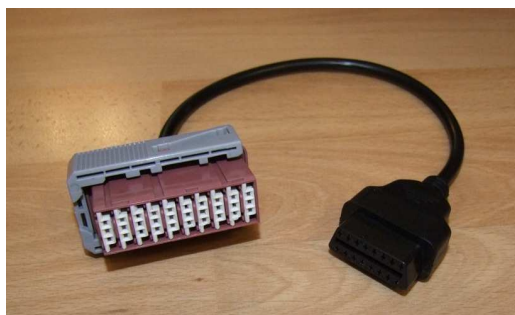


30-pole



16-pole

For the 30-pole version there is an adaptor which can be acquired on the Internet for approx. 30 euros.



For the 2-pole socket an adaptor must be produced. I dispatch all Pin assignment on inquiries.

Furthermore there are 3 different board computer versions. In detail the ReLight was checked only in the newer version (from approx. 1998 upwards).

The ReLight has, from the software version 1.7 on, more than two different modes. Mode0 is used for models before 1998 and Mode1 for newer models. The Default mode is 1. In mode 0 the voltage and the current are differently given. With older models the voltage and the current are approx. 24% too high, because the calculation basis has changed with the newer models. To switch the mode do the following:

- 1.) Put the ReLight to the vehicle and hold the "OK" key down
- 2.) Hold the "OK" key as long down until "MODE" appears then release the "OK" key.
- 3.) By pressing the "OK" key again you can switch the mode between 0 and 1.
- 4.) If you have put the desired mode, press the "Down" key and the device starts as usual.

Question: How can I tell if I have an older version on-board computer?

At the start of the self-diagnosis the version of the ReLight is displayed. All versions smaller than 32 have the older board computer – Version 32 and greater are the newer ones. Older board computers provide no battery information.

From **software version 2.0**, in the same menu as in the mode menu, a voltage threshold can be set. You can choose between OFF and a voltage between 102 and 111 volts. With the "Up and Down" keys it is possible to switch between the mode and the warning threshold.

An arrow indicates the currently active element. If the upper element (MODE) is selected, you can leave the menu with the "Up" button. The Relight will start automatically. If you have selected the menu "warning threshold voltage" and press the Down button the Relight will start. The values are stored in the processor internal EPROM. After separation of the Relight from the car the information will not be lost.

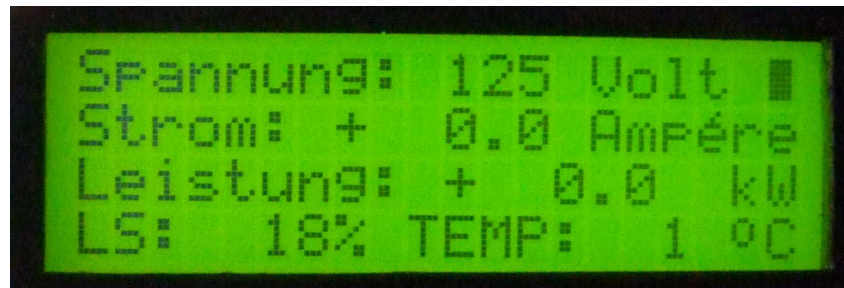
HINT: If a warning level - for example of 104 volts - is set the Relight warns from 108 volts on with a beeping sound. The interval will decrease if the battery voltage approaches the preset threshold of 104 volts. When falling below 104 volts the Relight beeps continuously. As mentioned above, the threshold 102-111 volts can be adjusted. At 111 volts, the Relight begins beeping at 115 volts.

TIP: With a high threshold of 115 volts, the red zone of the "econometer" can be avoided by the acoustic warning. Lower voltage thresholds are suitable for emptying the car's batteries.

The connection should be produced only with switched off ignition!

The device begins with the welcoming screen „Becker Elektronik“ and the software version obstructed in the ReLight. The first published version is 1.6.

After the connection has been established with the ReLight2010 the display is switched on and the water pump of the vehicle starts to run. On the display the serial number of the vehicle will be shown and next the first side with general information is indicated (see Pict4).



Picture4

The first side is the standard side (main menu). It indicates useful information, e.g., about the accumulators. In the first line the voltage of the accumulators is indicated. In the second line the topical current is indicated. In the third line the engine power. Negative values mean that energy flows into the accumulators, as for example during the charging process or during the rekuperation (braking). The fourth line indicates the topical charge state and the coolant temperature.

Note please that the measurement of the current is not very exact. The gradation occurs in 2.5 amperes steps. This inaccuracy comes from the vehicle calculator itself. Therefore the power is also exact only on approx. ± 200 watts.

The main menu is helpful to “empty” the accumulators. If the voltage sinks for some seconds less than approx. 105 volts, the light „please charge car“ will be activated . From less than 10% on one should accelerate only in the green area. Remember that the ReLight may not be used on public streets. The usage in public traffic occurs on own risk.

By pressing to the "Upwards" key you can enter the next menus. The menu structure looks as follows:

Mainmenu -> Over charge counter -> maintanance charge -> balance charge -> inital charge -> cancel charge -> reset water -> read errors -> delete errors

By pressing the "Down" key you can go through the menu backward, until you reach the main menu.

Menu Overcharge:

In this menu the overcharge counter is indicated. At this point the counter cannot be cleared. The counter will be reset in the menu „reset water“. From approx. 500 Ah on, the water servicing should be carried out. ATTENTION: with older vehicles the board computer delivers no accumulator data (no overcharge counter information).

Menu maintenance charge

Here the maintenance charge can be set. With the next charging process this is carried out. The fact that the putting of the charge was successful, can be recognised by 3 horizontal lines behind the maintenance charge. If the charging cable is stuck on afterwards and the charge runs, behind the 3 horizontal lines a twiddle sign can be seen. This registers that the voltage is present and the car is charging. In the main menu you can see the current with a negative sign.

The menus balance charge and Init-charge behave the same.

Attention: Do not use the function Init charge, unless you have new accumulators which must be formatted.

Menu cancel charge

Up to the version 1.7 this function does not work correctly. If you have put falsely a charge and like to clear it, draw the main fuse of the car. From version 1.8 this function works correctly.

Menu Read Errors

With this menu the errors can be read.

Menu Clear Errors

In this menu the errors can be cleared. However, permanent errors will appear again. Only sporadic errors will disappear. If you have permanent errors contact an expert.

THE WATER - REFILLKIT

To refill water to the accumulators a special connection adaptor and a water container available at Citroen are required. Because these costs approx. 60 euros a Water – Refillkit is offered by me optionally. This Kit contains the connection adaptor and the inlet tube as well as the connection carbine to a water container (I use 5 litres containers from the property market (distilled water). In addition you need for example a round cable canal and some string and a 5 litre container itself.



5a



5b



5c

Picture 5a, 5b, 5c. Picture 5a: The Waterkit, in the delivery state, picture 5b: after it was connected to a water container. Please note that the lid should not be too small (picture 5c, left canister). The diameter of the drilling which must be drilled in the lid should be 15-20 mm.



Picture 5d, 5e, 5f : additional to the waterkit a 5 litres of plastic bottle is required. Cut open the ground of the bottle (see picture 5b), drill al hole on every side of the bottle put through a round cable canal and fasten it with a cord (also picture 5b). Drill a 15 - 20-mm-hole in the screw cap and extend it if necessary (see picture 5e). Now the thread part of the tube adaptor is put in this hole and fastened from the inside with the screw nut (see picture 5f). I recommend to seal the screw combination inside with some silicone. Screw the lid on the bottle and hang up the bottle in the locking of the bonnet (5b).

Don't try to fill water before you haven't read the whole manual!

BATTERIE MAINTANANCE

Distilled water must be supplied to the cells of the accumulators in periodical distances to compensate the vaporisation and the water loss. To prevent a drifting apart concerning the voltage of the accumulators the batteries will be charged with a smaller current in the end than in the main charging phase. The cells will be levelled on the same voltage level. The overcharge ampere-hours are added up by the board computer. From a certain size of the overcharge counter the „accumulator water refill needed“ light will flash. If the vehicle is moved further (and charged) you will have approx. 10 times of charge until the car will stop operating. From which overcharge on the lamp starts to shine is dependent on your model:

Berlingo/Partner:

From 850Ah overcharge (5.000 – 7000 Km)

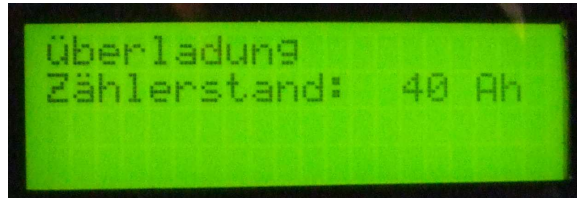
Saxo/106:

At 1.000 – 1.100Ah overcharge (5.000 – 7.000 Km)

The practise has shown that these servicing intervals are too big, it comes to the impairment of the accumulators and to cell damages.

Therefore the accumulator servicing should be carried out in every 500 Ah (all models). The life span of the accumulators can be thereby extended. The amount in water which is decomposed, nevertheless, depends very much on the personal driving style, on the surroundings temperature and on the regularity of the vehicle use.

In the menu "Over charge" the overcharge counter is shown (not in mode 0). To appeal this menu press the "up" key in the main menu. The overcharge counter indicates the overcharge in the following manner: Counter: xxx Ah.



Pict. 6

To be able to refill water a maintenance charge is necessary. The maintenance charge brings the accumulators to a higher temperature and the electrolyte level in the accumulators on the maximum state. WATER MAY BE FILLED IN ONLY AFTER COMPLETION OF A MAINTANANCE CHARGE. If you refill water without maintenance charge the danger insists that the following charges will bring the electrolyte to an overflow and thereby the electrolyte concentration drops. This is not reversible and reduces the efficiency and the life span of the accumulators.

Before the battery maintenance:

Make sure you have all mentioned parts of the Waterkit and fresh (maximum 1-month-old) unopened distilled water in sufficient amount.

Check with the ReLight2010 the overcharge counter. Make battery maintenance about 500 Ah. If you have approx. 500 Ah overcharge you will need:

20 litres for the Berlingo/partner
15 litres for the Saxo / 106

If the counter points clearly more than 500 Ah you will need:

Up to 30 litres for the Berlingo/partner
Up to 20 litres for the Saxo / 106.

Note that the quality of your accumulators stands in direct connection with the quality of the accumulator maintenance.

You can maximise the life span of your accumulators, if you carry out the accumulator maintenance with 500 Ah and/or 10 litres in required water with the Saxo / to 106 and 14 litres with the Berlingo/partner.

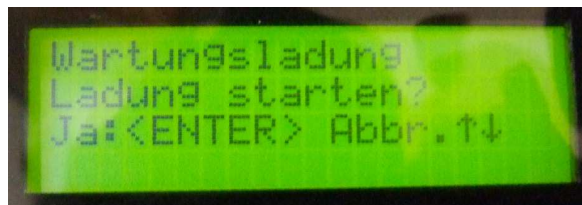
The maintenance charge should be never carried out at temperatures less than 0 degrees centigrade (or if it is to be seen that the temperature falls during the maintenance charge to less than 0 degrees centigrade). The maintenance charge should not be done at temperatures more than 35 degrees centigrade.

Also the temperature of the distilled water should not be less than 20 degrees centigrade.

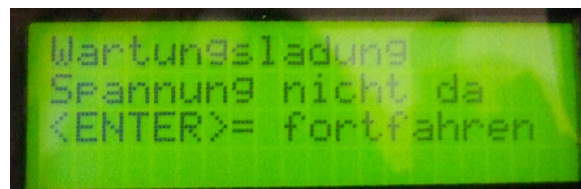
The maintenance charge should not be carried out if it is to be seen that the procedure must be broken off right in the middle (e.g., if the vehicle must be moved or be separated from the outlet).

How to perform the battery maintenance

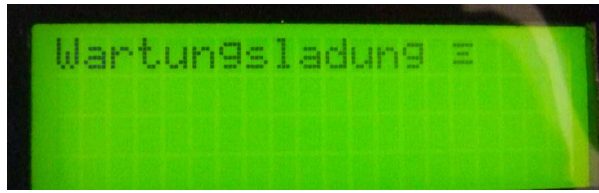
- 1.) Park the vehicle on level ground. Do not pocket the charging cable yet.
- 2.) Connect the ReLight2010 with the car and choose "Maintenance charge". Then press „Enter“.



- 3.) If you want to start the maintenance charge press „ENTER“ again (if not, press „up“ or „Down“). If you press „Enter“ you will see the following:



- 4.) Press „ENTER“ again. The ReLight restarts.
- 5.) The ReLight has restarted itself. Remain in the main menu. Connect the charging cable to the car, do not close the loading charge-flap yet. Put the plug in the outlet and close the charging flap. All 4 direction indicators shine for some seconds. Go to the menu maintenance charge. A twiddle sign should stand behind 3 horizontal lines which shows, that the charge is active. This indicates that charging takes place and the charging voltage was recognised. If 3 horizontal lines do not appear the loading process should be cancelled – start again from the beginning. Only if 3 horizontal lines appear, a maintenance charge is carried out! Remove the ReLight from the interface. **Warning: In Mode0 the twiddle sign is not shown. Older car computers are not able to provide this information.**



5.) Now the accumulators are charged to 100%, then a 5-hour overcharge phase starts. (If the capacity was at 0% to the beginning of the charging phase the complete charge lasts 8 hours + 5 hours = 13 hours). The ReLight2010 can be let connected to the car if wished. Remark: However, I recommend disconnecting the Relight from the car. This relieves the board computer and extends the life span of the ReLight.

6.) **If the maintenance charge is concluded, the warning light „water refill needed” is on again.** (*If the light “Water refill needed” was off before the maintenance it should be on now). Now the battery charger does a 72 hours preservation load, besides, the electrolyte level is held on maximum. Now the accumulator water can be refilled. Either you fill it in during the running preservation load, or you separate the vehicle from the electricity supply and fill in the water within 30 minutes after the separation. If you do not carry out the fill-up of the water during the 30 minutes after separation of the charging plug, the maintenance charge must be carried out once more.

7.) Take the water container of the locking of the bonnet and fill it with some litres of distilled water. Fill only little water and shake until the tube is completely filled with water. Put the water container back to the locking of the bonnet and fill the container to 70-80%

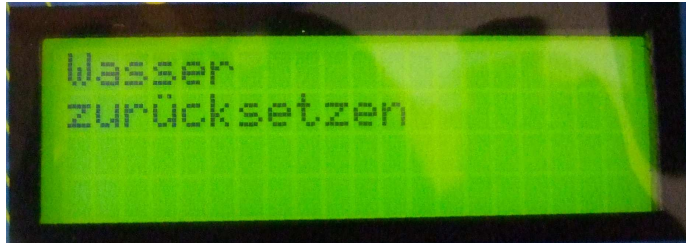
8.) I personally fill the water **after removing** the loading plug. Remove the loading plug (if not already done) also remove the ReLight.

9.) Remove the cover of the filling connections in the vehicle (if available) and clean the connection carabines of dust and mud.

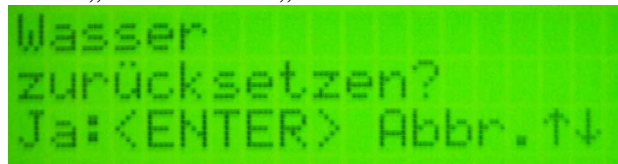
10.) Connect the connection tube with the first carbine. Begin with the right carbine. (The locking ring of the water connection must be pulled – while retiring as well as while drawing off the plug - to the back).

11.) **Hold the water container always full as long as the water runs slowly into the accumulators.** After some litres drainage water will flow out off the corresponding drainage tube. Separate the connection tube of the waterkit directly after water runs out the drainage). The resigning water is distilled water, however, it should be caught and be decontaminated in the canal. Repeat this procedure with the next connection on the left from topical (and so on).

12.) The fill-up of the water is concluded. Now the ampere-hour counter and the warning lamp "refill water" will be reset. Connect the ReLight2010 to the car and go to the menu „reset water“ and press "ENTER".



13.) You should now see „reset water?“ „Yes:<ENTER>...“. Press „enter“ again.



14.) Now the ReLight2010 will restart itself and the warning light „refill water“ goes out (if it weren't already). Draw off the ReLight if it indicates "RESTART".

15.) **Wait after the separation of the ReLights 10 seconds and switch on the ignition (wait 5 - 10 seconds) and then off again.**

16.) Connect the ReLight2010 again and make sure that the overcharge counter shows 0 (only Mode1) and that all loads are inactive (no three horizontal beams). **FINISHED.** Attention: with older models no overcharge information is indicated! Here this step can be cancelled.

Remark: The complete procedure should be concluded within 30 minutes. Normally it lasts approx. 15 minutes.

The carbines (Berlingo/Partner)



Pict6

(from right to left):
 Connector AVsup
 Connector INTM G
 Connector INTM D
 Connector AR
 Connector AVinf

Upper Block front – Drainage in the middle behind the electric motor
 middle Block left side – Drainage in front of the left back wheel
 middle Block right – Drainage in front of the right back wheel
 rear Block – Drainage beside right back wheel
 lower Block front – Drainage beside right front wheel

The Carbines Saxo/106



Pict7

(from right to left):

Connector AR G
 Connector AR D
 Connector AV inf
 Connector AV sup

rear left Block – Drainage behind left back wheel
 rear right Block – Drainage behind right back wheel
 lower Block front – Drainage neben dem linken Vorderrad
 upper Block front – Drainage behind the electric motor

INITIALCHARGE

If a new accumulator stack is inserted in the vehicle an "initialization charge" is necessary. On the whole this load corresponds to the servicing load. Indeed, the accumulators are loaded with the initialization load in general with, 150 ah. Then the replenishment of the water must occur.

Then ALL counters relevant for accumulator are put back. The aim of this procedure is a levelled voltage state of all accumulators.

BATTERY CARE

If a vehicle was not used for longer time or some cells were substituted it is necessary to rebuild the capacity of the accumulators. Therefore you should charge some level cycles before you try to determine the maximum reach. Charge, for example, from 80%, then 60% then 40%.

Avoid "full power,, (red area) if you are less than 70%. If you are in the green area of the Ecometer the discharge current of the accumulators is approx. 100 amperes and less (approx. 1C). This is healthy for the accumulators.

Do not try to drive the accumulator empty several times one after the other to the orange warning light „Charge necessary“. The voltage drops below 102 volts. The danger, on this occasion, is that the weakest cells can reverse its polarity. If this happens sporadically it is no problem, if this happens on occasion it can become a problem. Nevertheless, you should drive every 5 – 10 times the accumulators empty. Accelerate from 20% on only in the green area.

DIAGNOSIS AND TEST

Fehlercodes auslesen (NOT TRANSLATED SO FAR)

Drücken Sie im Menu „Fehler auslesen“ die „ENTER“ Taste und warten Sie bis etwas auf dem Display erscheint. Werden Fehler angezeigt, können Sie die folgende Liste zur Auswertung verwenden:

A	A0	Permanenter Fehler Drehzahlsensor
	A1	Permanenter Fehler Drehzahlsensor
	A2	Permanenter Fehler Motor-Temperaturfühler, Kurzschluss an Masse
	A3	Permanenter Fehler Motor-Temperaturfühler, Kurzschluss Plus oder Unterbrechung
	A4	Permanenter Fehler Gaspedalstellungsgeber Kurzschluss – oder Unterbrechung
	A5	Permanenter Fehler Gaspedalstellungsgeber Kurzschluss an Plus
	A6	Permanenter Fehler Wählhebel Automatikgetriebe Kurzschluss an Plus
	A7	Permanenter Fehler Wählhebel Automatikgetriebe Kurzschluss an – oder Unterbrechung

B	B0	Permanenter Fehler Lade-Stecker angeschlossen
	B1	Fehler Funktion Überstromschalter
	B2	Fehler Funktion Antriebsstrom - Zerhacker
	B3	Fehler Funktion Bremsstrom – Zerhacker
	B4	Fehler Elektrisches Steuergerät
	B5	Fehler Funktion 12 Volt Umformer
	B6	Fehler Funktion Hochspannungs-Ladeinheit (Ladegerät)
	B7	Fehler Hochspannungsbatterie

C	C0	Fehler Thermische Sicherheit Ladegerät
	C1	Nicht vorhanden
	C2	Nicht vorhanden
	C3	Nicht vorhanden
	C4	Nicht vorhanden
	C5	Nicht vorhanden
	C6	Nicht vorhanden
	C7	Nicht vorhanden

D	D0	Nicht vorhanden
	D1	Nicht vorhanden
	D2	Nicht vorhanden
	D3	Nicht vorhanden
	D4	Permanenter Fehler Parameter des Steuergeräts
	D5	Fehler Unvereinbarkeit von Steuergerät und Batterietyp
	D6	Nicht vorhanden
	D7	Nicht vorhanden

E	E0	Permanenter Fehler Isolation
	E1	Permanenter Fehler Temperaturfühler Elektronikeinheit, Kurzschluss an Masse
	E2	Permanenter Fehler Temperaturfühler Elektronikeinheit, Kurzschluss an Plus oder Unterbrechung.
	E3	Permanenter Fehler Kühlmittel-Temperaturfühler, Kurzschluss an Masse
	E4	Permanenter Fehler Kühlmittel-Temperaturfühler, Kurzschluss an Plus oder Unterbrechung
	E5	Fehler Wassermangel
	E6	Fehler Gefahr, Wassermangel
	E7	Permanenter Fehler Messung Hochspannungsbatterie

F	F0	Fehler Sicherheit Hochspannungs-Ladeeinheit
	F1	Fehler Überstrom beim Schließen des Schalters
	F2	Nicht vorhanden
	F3	Nicht vorhanden
	F4	Nicht vorhanden
	F5	Nicht vorhanden
	F6	Nicht vorhanden
	F7	Nicht vorhanden

G	G0	Nicht vorhanden
	G1	Nicht vorhanden
	G2	Nicht vorhanden
	G3	Permanenter Fehler Bremslichtrelais Kurzschluss an Plus
	G4	Permanenter Fehler Warnblinkrelais Kurzschluss an Plus
	G5	Permanenter Fehler Rückfahrscheinwerferrelais Kurzschluss an Plus
	G6	Nicht vorhanden
	G7	Nicht vorhanden

H	H0	Permanenter Fehler Stopp Kontrollleuchte Kurzschluss an Plus
	H1	Permanenter Fehler Kontrollleuchte Kurzschluss an Plus
	H2	Permanenter Fehler Summerrelais Antriebsmotor vergessen, Kurzschluss an Plus
	H3	Permanenter Fehler Relais Kühlerventilator des Kühlsystems: Kurzschluss an Plus
	H4	Permanenter Fehler Kontrollleuchte Bremszerhacker, Kurzschluss an Plus
	H5	Permanenter Fehler Antriebsbatterien- Ladekontrollleuchte Kurzschluss an Plus
	H6	Permanenter Fehler Warnleuchte für Batteriewassermangel, Kurzschluss an Plus
	H7	Permanenter Fehler Warnleuchte für 12 Volt Umformer, Kurzschluss an Plus

I	I0	Nicht vorhanden
	I1	Permanenter Fehler Relais Wasserpumpe und Kombiinstrument, Kurzschluss an Plus
	I2	Permanenter Fehler Relais Stromversorgung Kühlerlüfter hohe Drehzahl, Kurzschluss an Plus
	I3	Nicht vorhanden
	I4	Permanenter Fehler Kontrollleuchte vorübergehende Beeinträchtigung Kurzschluss an Plus
	I5	Permanenter Fehler Kontrollleuchte für Rückwärtsfahrt, Kurzschluss an Plus
	I6	Permanenter Fehler Ladekontrollleuchte Kurzschluss an Plus
	I7	Permanenter Fehler Kontrollleuchte für Vorwärtsfahrt, Kurzschluss an Plus

J – L : Nicht vorhanden

M	M0	Sporadischer Fehler Drehzahlsensor
	M1	Sporadischer Fehler Drehzahlsensor
	M2	Sporadischer Fehler Motor-Temperaturfühler, Kurzschluss an Masse
	M3	Sporadischer Fehler Motor-Temperaturfühler, Kurzschluss Plus oder Unterbrechung
	M4	Sporadischer Fehler Gaspedalstellungsgeber Kurzschluss – oder Unterbrechung
	M5	Sporadischer Fehler Gaspedalstellungsgeber Kurzschluss an Plus
	M6	Sporadischer Fehler Wählhebel Automatikgetriebe Kurzschluss an Plus
	M7	Sporadischer Fehler Wählhebel Automatikgetriebe Kurzschluss an – oder Unterbrechung

N	N0	Nicht vorhanden
	N1	Nicht vorhanden
	N2	Sporadischer Fehler Funktion Antriebsstrom Zerhacker
	N3	Sporadischer Fehler Funktion Bremsstrom Zerhacker
	N4	Nicht vorhanden
	N5	Nicht vorhanden
	N6	Nicht vorhanden
	N7	Nicht vorhanden

O, P Nicht vorhanden

Q	Q0	Sporadischer Fehler Isolation
	Q1	Sporadischer Fehler Temperaturfühler Elektronikeinheit, Kurzschluss an Masse
	Q2	Sporadischer Fehler Temperaturfühler Elektronikeinheit, Kurzschluss an Plus oder Unterbrechung.
	Q3	Sporadischer Fehler Kühlmittel-Temperaturfühler, Kurzschluss an Masse
	Q4	Sporadischer Fehler Kühlmittel-Temperaturfühler, Kurzschluss an Plus oder Unterbrechung
	Q5	Nicht vorhanden
	Q6	Nicht vorhanden
	Q7	Sporadischer Fehler Messung Hochspannungsbatterie

R Nicht vorhanden

S	S0	Nicht vorhanden
	S1	Nicht vorhanden
	S2	Nicht vorhanden
	S3	Sporadischer Fehler Bremslichtrelais Kurzschluss an Plus
	S4	Sporadischer Fehler Warnblinkrelais Kurzschluss an Plus
	S5	Sporadischer Fehler Rückfahrscheinwerferrelais Kurzschluss an Plus
	S6	Nicht vorhanden
	S7	Nicht vorhanden

T	T0	Sporadischer Fehler Stopp Kontrollleuchte Kurzschluss an Plus
	T1	Sporadischer Fehler Kontrollleuchte Kurzschluss an Plus
	T2	Sporadischer Fehler Summerrelais Antriebsmotor vergessen, Kurzschluss an Plus
	T3	Sporadischer Fehler Relais Kühlerventilator des Kühlsystems: Kurzschluss an Plus
	T4	Sporadischer Fehler Kontrollleuchte Bremszerhacker, Kurzschluss an Plus
	T5	Sporadischer Fehler Antriebsbatterien- Ladekontrollleuchte Kurzschluss an Plus
	T6	Sporadischer Fehler Warnleuchte für Batteriewassermangel, Kurzschluss an Plus
	T7	Sporadischer Fehler Warnleuchte für 12 Volt Umformer, Kurzschluss an Plus

U	U0	Nicht vorhanden
	U1	Sporadischer Fehler Relais Wasserpumpe und Kombiinstrument, Kurzschluss an Plus
	U2	Sporadischer Fehler Relais Stromversorgung Kühlerlüfter hohe Drehzahl, Kurzschluss an Plus
	U3	Nicht vorhanden
	U4	Sporadischer Fehler Kontrollleuchte vorübergehende Beeinträchtigung Kurzschluss an Plus
	U5	Sporadischer Fehler Kontrollleuchte für Rückwärtsfahrt, Kurzschluss an Plus
	U6	Sporadischer Fehler Ladekontrollleuchte Kurzschluss an Plus
	U7	Sporadischer Fehler Kontrollleuchte für Vorwärtsfahrt, Kurzschluss an Plus

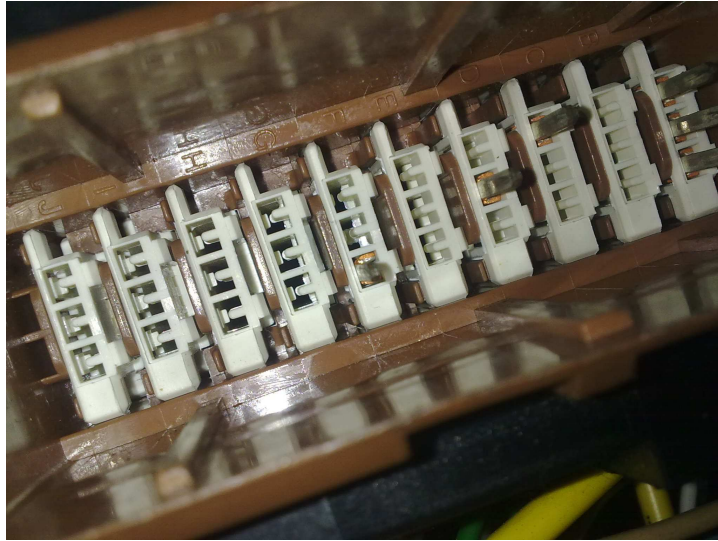
V, W, X Nicht vorhanden

Für die Vollständigkeit und die Korrektheit wird keine Haftung übernommen!

RESET ERRORS

This function can be helpfully with sporadically appearing errors. It is no repair, but pure resetting of the error memory. You can achieve the same effect by the drawing of the main fuse. **Lasting or periodically appearing errors cannot be put back.**

APPENDIX A: 30 PIN CONNECTOR



The ReLight2010 uses the Data signal on C1. The power supply is derived from A1 (plus) and A3 (minus).

The following picture shows the adapter connector.



Disclaimer:

The device and the procedures which are described in this document should be correct, however, no guarantee is taken over for it. For damages of all kind to devices or to people which will follow this instructions in this document I will assume no liability. For all damages which can be originated from the use of the ReLight2010 the Author/manufacturer/developer can not be made responsible for.

The ReLight2010 may not be mounted firmly in the vehicle. Do not put it out to temperatures under the freezing point. The display can be destroyed by it. This damage is no guarantee case.

The ReLight2010 may not be used on public streets.

The ReLight2010 has a guarantee of 2 years of the date of the acquisition (for components and manufacturing).

The job of the ReLights2010 is the water servicing. All procedures of the ReLight which are used for the water servicing, were checked in several beta tests successfully. For all other functions I will assume no liability, because these could not be checked to 100%.

FAQ's

Q: I have activated by mistake a wrong charge kind. How can I extinguish this again?

A: The function of the ReLight2010 „cancel charge“ works from version 1.8 on.

Q: Can I count on all indicated values?

A: You should always check everything twice.

Q: The device restarts itself now and again by itself (communication mistake). Is this normal?

A: Yes. The error protocol is complicated. I am still working on the communication protocol to fix this. Untill then the ReLight restarts itself if it bumps into an unknown protocol mistake.

With other questions feel free to contact me: info@becker-elektronik.net

Known Errors:

If one presses the "down" key in main menu, this should be ignored. Unfortunately, the ReLight hangs up with the version 1.8. This was corrected with version 1.9

The main function of the ReLight is the water servicing. All functions in connection with the water servicing were tested. The functionality of all other menu points cannot be guaranteed.

History:

Version 1.6 The first version of the ReLight

With this version there was no possibility to switch between newer and older board computers. With older vehicles (<1998) the voltage and the current are indicated too high. Furthermore the overcharge counter showed consistently 160 Ah because the older vehicles deliver no battery info, as for example the overcharge counter.

Version 1.7: From this version on it can be switched between mode 0 and 1. Mode 0 is for older board computers and mode 1 for the newer models. The voltage will now be correct shown but the current is still too high.

Version 1.8: Canceling the charge was corrected. If one presses the "Down" key in the main menu, however, the ReLight crashes.

Version 1.9: Now in the mode 0 the current is indicated correctly. The problem with the crash by this pressing the "Down" key in the main menu was corrected.

Version 2.0: Uses a "bigger" processor, which is 100% compatible with the old processor. The program memory, however, is twice as large as the "old" processor's.

The following functions are new:

- Audible alarm with adjustable threshold, monitoring the battery voltage. Helpful for driving the batteries empty. To change the warning threshold: See page 5
- New feature for deleting errors. After clearing the errors it will be examined, whether all errors were actually deleted. If there are still errors (permanent error that can not be deleted), detected this will be indicated.

- The capacity of the battery is no longer shown as LS (load level) but as CAP (capacity). (See main menu)

Attention: The ReLight may not be used in public traffic. The use of the ReLight public traffic occurs on own risk.

END OF DOCUMENT