

Instruction Manual

DBL 430-14/115UL / DBL 430-14/230UL DBL 430-14 / DBL 1000-14

Charging computer for 12V lead-acid batteries (Output current 30A/70A)

DBL 430-28 / DBL 1000-28

Charging computer for 24V lead-acid batteries (Output current 15A/35A)

DBL 1000-42

Charging computer for 42V lead-acid batteries (Output current 23A)

Software Version 3.0



Before initial operation of the charging computer read the instruction manual carefully. Operate the unit according to the instructions.

IMPORTANT SAFETY INSTRUCTIONS

1. SAVE THESE INSTRUCTIONS

This manual contains important safety and operating instructions.

2. Do not expose charger to rain or snow
3. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
4. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
5. An extension cord should not be used unless absolutely necessary. Use of improper extension cord results in a risk of fire and electric shock. If extension cord must be used, make sure:
 - a) That pins on plug of extension cord are the same number, size, and shape as those of plug on charger
 - b) That extension cord is properly wired and in good electrical condition; and
 - c) That wire size is large enough for ac ampere rating of charger
6. Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
7. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
8. Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
9. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or clearing. Turning off controls will not reduce this risk.

10. WARNING – RISK OF EXPLOSIVE GASES

- a) **WORKING IN THE VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS: BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION: FOR THIS REASON; IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER; YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY:**
- b) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary marking on these products and on engine.

11. PERSONAL PRECAUTIONS

- a) Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.
- b) Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- c) Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.

- d) If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.
- e) NEVER smoke or allow a spark or flame in vicinity of battery or engine
- f) Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- g) Remove personal metal items such as rings, bracelets, necklaces, and watches when working with lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like of metal, causing a severe burn.
- h) Use charger for charging a LEAD ACID battery only. It is not intended to supply power to a low voltage electrical system other than in starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
- i) NEVER charge a frozen battery.

12. PREPARING TO CHARGE

- a) If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- b) Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.
- c) Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- d) Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cell. Do not overfill. For a battery without cell-caps, carefully follow manufacturers recharging instructions.
- e) Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- f) Determine voltage of battery by referring to car owner's manual and make sure it matches output rating of battery charger.

13. CHARGER LOCATION

- a) Locate charger as far away from battery as dc cables permit.
- b) Never place charger directly above battery being charged; gases from battery will corrode and damage charger.
- c) Never allow battery acid to drip on charger when reading gravity or filling battery.
- d) Do not operate charger in a closed-in area or restrict ventilation in any way.
- e) Do not set a battery on top of charger.

14. DC CONNECTION PRECAUTIONS

- a) Connect and disconnect dc output clips only after setting any charger switches to off Position and removing ac cord from electric outlet. Never allow clips to touch each other.
- b) Attach clips to battery and chassis as indicated in 15(e), 15(f), 16(b), and 16(d)

15. FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION: TO REDUCE RISK OF SPARK NEAR BATTERY:

- a) Position ac and dc cords to reduce risk of damage by hood, door, or moving engine part.
- b) Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- c) Check polarity of battery posts POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.
- d) Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to chassis (as in most vehicles), see (e). If positive post is grounded to the chassis, see (f)
- e) For negative-grounded vehicles, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts.
- f) For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts.
- g) When disconnecting charger, turn switches to off, disconnect AC cord, and then remove clip from battery terminal.
- h) See operating instructions for length of charge information

16. FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION: TO REDUCE RISK OF SPARK NEAR BATTERY:

- a) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
- c) Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery.
- d) Connect NEGATIVE (BLACK) charger clip to free end of cable.
- e) Do not face battery when making final connection.
- f) When disconnecting charger, always do so in reverse sequence of connecting procedure.

50.5 GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS

Versions having **120-volts** nominal input voltage:

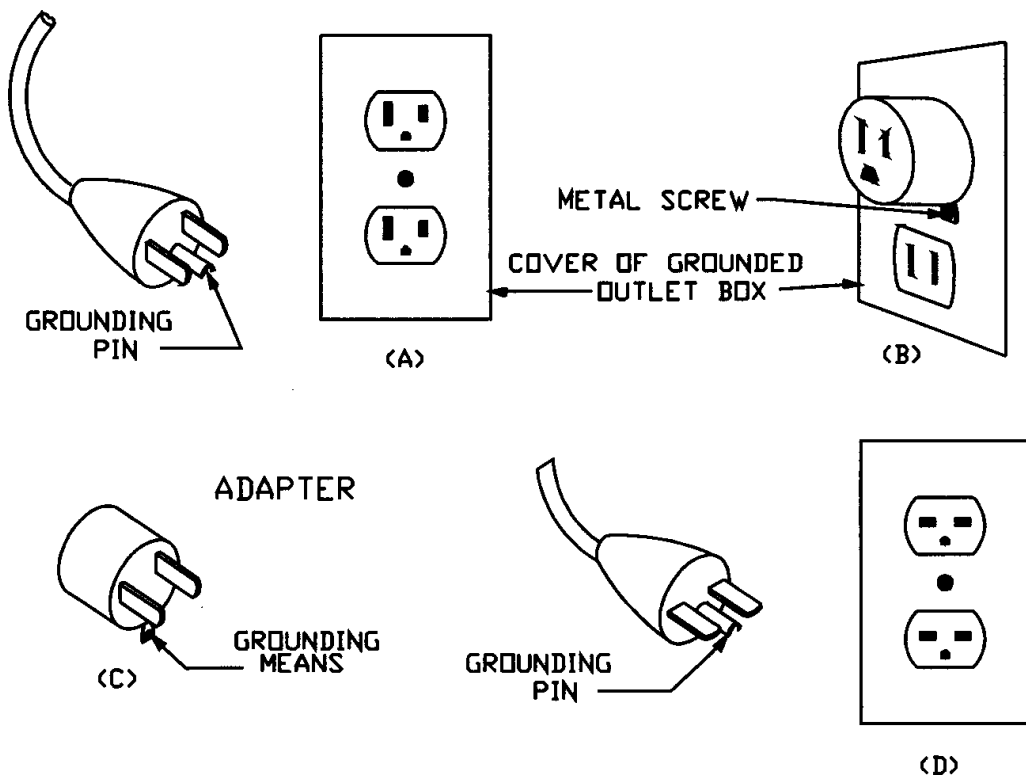
This battery charger is for use on a nominal 120-volt circuit, and has a grounding plug that looks like the plug illustrated in sketch A in Figure 50.1. A temporary adapter, which looks like the adapter illustrated in sketch B and C, may be used to connect this plug to a two-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.

DANGER – Before using adapter as illustrated, be certain that center screw of outlet plate is grounded. The green-colored rigid ear or lug extending from adapter must be connected to a properly grounded outlet – make certain it is grounded. If necessary, replace original outlet cover plate screw with a longer screw that will secure adapter ear or lug outlet cover plate and make ground connection to grounded outlet.

Versions having **230-volts** nominal input voltage:

This battery charger is for use on a circuit having a nominal rating more than 120-volts and is factory-equipped with a specific electric cord and plug to permit connection to an acceptable electric circuit. Make sure that the charger is connected to an outlet having the same configuration as the plug. No adapter should be used with this charger.

Figure 50.1 Grounding Methods



(D)

CONTENT

IMPORTANT SAFETY INSTRUCTIONS	2
CONTENT	6
USER INFORMATION	7
UNIT CHARACTERISTICS AND PERFORMANCE FEATURES	8
INITIAL OPERATION	9
Operation Mode Battery Charger	9
Operation Mode Power Supply	9
Operation Mode Battery Charger	9
Turning off the unit	9
Error messages and error correction	10
Short Circuit Detection	10
Cable compensation	11
Defect Battery Detection	11
Charging Stand-Alone Batteries	12
Special Functions	12
Control elements	12
OPERATING INSTRUCTIONS on SOFTWARE	13
Adjustable parameters (settings):	13
Procedures for changing the parameters (settings):	14
Parameter survey	21
Menue-Report	22
Deutronic DBL430 / DBL1000 program flow chart for Software 2.1	23

Battery Charger DBL430 / DBL1000

For 12V or 24V-Lead-Acid Batteries only • Output current 30A/70A (15A/35A)

OPERATION FOR TRAINED AND AUTHORISED PERSONS ONLY

Suitable for use with on-board electronic systems

USER INFORMATION

1. Before using the battery charger, read the operating instructions carefully.

3. Pusch main switch to position I.
Display shows status.
4. Start the charge process by pushing the Start/Stop-button.
The charging process is in operation and is indicated by the LED

The charging jaws may not be disconnected in this operational state due to danger from sparking.

5. The charging process ends when the LED begins to blink.
The operation mode changes to float charging mode automatically.
6. The charger unit can be stopped by pushing the Start/Stop-button.
The LED's darken.
The charging cable can now be detached without any danger.

In case of malfunction or alarm messages, read operation instruction.

The display text depends on individual settings and software-versions.

Read operation instructions carefully.

Warranty: Deutronic has a 2 year warranty on the charging unit as long as the unit is used in correspondence with specifications and corresponding regulations. This warranty is limited to material and functional defects. Wear and tear through use of the unit is not covered under the warranty, as well as all parts that are subject to wear-out failure (for example cables, clips etc.).

No liability: The customer is responsible for the use of the unit according to specifications. Regardless of the type, Deutronic is not liable for damage incurred through the use of the unit.

UNIT CHARACTERISTICS AND PERFORMANCE FEATURES

- Battery Chargers for starter batteries from Deutronic were developed in consideration of all knowledge on the requirements of modern batteries and vehicles. The charging procedure is controlled by a micro-processor and depends on the individual charge state of the battery. Overvoltage of the battery and consequently danger from gas emission is therefore excluded, the on-board electronics are protected.
- After charging, the unit switches over to float charge automatically guaranteeing a fully charged battery, ready for use and assures optimal battery efficiency.
- The unit recognises operational malfunctions such as short circuits, reversed polarity, overvoltage or undervoltage of the battery, contact problems and interruptions on the charging clips automatically as well as overheating through insufficient heat dissipation. Charging power is discontinued immediately and automatically and the LCD indicator shows the reason.
- Malfunction signals as well as interference immunity are verified according to current standards.
- The build-up of the charging current is carried out after testing the polarity so that sparking caused by a short-circuit or reversed polarity is not possible.
- The unit operates with a permanent charge current maximum of 70 amps (35 amps) at 25°C ambient temperature. At the beginning of the charging process it is possible to take a charge current of 90 amps (45 amps) for a while. The time from starting with 45 amps and reducing to 30 amps depends on the charger unit temperature and ambient temperature (typ. 15 - 20 min.).
- Units have a built-in fans without a fresh air intake into the internal of the charger, to avoid dust from entering into the inside of the unit.
- Remote control of the unit is provided and allows for operation remote from location of the unit.
- All charging units from Deutronic are capable of being integrated to the on-board power supply and can assume the energy supply of the on-board power supply if the batteries are detached. Therefore, a data loss in the on-board computer is avoided. The on-board operation is guaranteed for all operational situations even during the attachment and detachment of the clips to the battery. Therefore, since the battery does not have to be removed for charging, there is a substantial cost savings in the manufacture of the automobile.
- A higher efficiency of the unit enables optimal energy storage in the battery and shorter charging times. Less energy is consumed, creating less pollution of the environment.
- Small dimensions, ergonomically design and a low weight are distinguishing features of the Deutronic charging unit as well.
- Operational modes: Charging unit or auxiliary power supply.
- Charging current can be read from the LCD indicator, additional information is available by pressing the Start/Stop button.
- The start-up of the charging current has an integrated delay which can be set. (Factory set: 3 seconds.)
- The charging current is automatically turned off when the clips from the charging cable are detached.
- Charging cable, remote control, and mains cable are plug-in units. Changing defective cables without opening the unit is possible.
- **Accessories:** Different mounting brackets, charging cable, mains connector, remote switch.
(please aske for quotation)

GENERAL SAFETY INFORMATION

- The unit may not be opened. Opening the unit will result in the invalidation of the test certificate.
- Only connect 12 volt (DBL 430/1000-14) and/or 24V (DBL 430/1000-28) and/or (DBL1000-42) voltage rated batteries!
- Batteries may under no circumstances be charged in the operational power supply mode (PS-Mode) !
- **Batteries must have a minimum rated capacity of 1 amp hour.**

INITIAL OPERATION

*Note:

The basics description refers on 12V.

Deviation on 24V or 42V versions are pointed to explicitly.

Operation Mode Battery Charger

The unit only starts if the battery voltage is greater than 5 volts (adjustable: 2V to 15V), the current consumption of load is greater than 10 mA and the charging cable's polarity is correct. The charging current and the charging voltage are shown in this operation on the display. If the Start/Stop button is pressed longer than 3 seconds, additional information is shown on the display.

Operation Mode Power Supply

The unit starts without batteries attached as well, and in general the conditions valid in the operational mode charging are valid here as well. (Unit works as a mains power supply). In this operational mode the message "Power Supply - Mode" (second line) as well as the output voltage (upper right) and outgoing current (upper left) are shown.

The switchover between the operation modes as well as the change of basic settings are taken from the section on settings in the parameter menu.

Operation Mode Battery Charger

1. Connect only to power supply system after the voltage is adjusted to the data on the type plate.
2. Attach the charging cable and the network cable to the unit.
3. Position the mains switch [12] to 1, the digital display blinks the message "standby" and the second message battery error, if no battery is attached.
4. Attach charging clips to the battery and/or charging points and make sure they are secure. The output voltage (battery voltage) is shown in the upper trace of the display.
5. Start the unit by pressing the Start/Stop button [6] or remote switch, the green LED [2] lights up, the message standby appears and the actual charging current is shown in the display. All other consumers connected must be turned off so that the value shown corresponds to the charging current. Output current = charging current + current consumption of the additional consumers.
6. The unit starts after a 3 second delay. If this is not the case please read "Error Messages and Error Correction" on page 10.

ATTENTION: The charging clips may not be detached in this operational state due to danger from sparking

7. By pressing the Start/Stop button longer than 3 seconds additional information in 3 different info levels, is shown in the display.
Info-level 0: Output current and output voltage
Info-level 1: Peak-value of the output current and current limit
Info-level 2: Charging time and ampere hours
8. The charging process is ended when the LED begins to blink. The charging computer has now switched over to float charge. To change the individual output values, timer and indicators, please read the operating instructions of the software.

To change the settings or readings, please read operation instruction of the software.

Turning OFF the unit

1. Turn off the unit by pressing the Start/Stop button [6] or remote switch, the green LED in function [2] disappears, the message "standby" appears in the display.
2. The charging cable can now be detached without any danger.
3. To continue the process see step 4 under Initial Operation.
4. If work with the unit has been completed, switch the mains switch [12] to 0. The indicators will remain active for 15 seconds until the unit's stored energy is let off.

Error messages and error correction

Indicator	Meaning	Trouble shooting
Short circuit	Short-circuited at output	Remove charging cable, correct short circuit
Polarity reversed	The polarity connectors on the battery are reversed.	Connect red jaw to plus, black jaw to minus
Over voltage	On the output a voltage of more than 16 V has appeared longer than 5 seconds. (32V at 28V version, 48V at 42V version)	<ol style="list-style-type: none"> 1. Checke connected load for errors (incorrect battery) 2. Turn off the mains switch [12] 3. Wait 20 seconds [till the indicator is gone] 4. Turn on the mains again If the error appears again, the unit is defective and must be repaired.
Battery-Error	Unit is set to „battery charger“, no battery attached.	<ul style="list-style-type: none"> - Battery voltage < 5V * - Charging clips not connected. - Charging cable defective.
Shorted cell	In case of good battery: Erratic message	In case battery is definitely good: Disconnect load in parallel, or set shorted cell detection to NO (Gernal Configuration) an Ah-Settings
Power Supply	Unit is switched to “auxiliary power supply”.	If battery is charged switch unit over in parameter menu to charge mode.
Ampere-Hours Over	Charger has terminated at preset ampere-hours	<ul style="list-style-type: none"> -battery defect - increase the ampere-hours setting It is advisable to adjust an approx. 20% higher ampere-hour as pronted on the battery to be charged.
CL-Error	Currentlimit was exceeded (only active in PS-Mouds)	Disconnect charging cables. Check attached equipment and change current limit if necessary.
Device-Error NTC´s open or Overttemperature	There is a temperature fault	<ul style="list-style-type: none"> - charger is operated outside the permitted ambien temperature - The charger is defect an must be sent in for inspection
Device-Error CRC-Error	The stored check-sum doesn´t match with the calculated one	Parameters were change by RS232 without calculating check-sum newly <ol style="list-style-type: none"> 1. Press “← “ and “→” at the same time 2. Press “Enter” 3. to “save value” select “Yes” 4. “save value – sure” select “Y”
Device-Error Transfer-Failure	Fault at access to the EEPROM	The charger is defect and must be sent for inspection
Adapting Voltage	This message doesn´t die after 3 seconds at usual	<ul style="list-style-type: none"> - active in the menue “Factory-Settings” see p.18 [30], - The chargingvoltage must be higher than battery voltage - The charger is defect and must be sent for inspection

* = Factory setting, changeable

Short Circuit Detection

The unit can be used to supply all 12VDC- components from a vehicle without any connected battery in the power supply mode. In case of short circuit, in this operation mode flows an output current more than 45 Amps (or the preset current limit value) for a short time. The unit detects overcurrent and the output voltage collapses. If the output voltage falls under a specific value (adjustable from 0V to 7V; factory setting: 4 V) the unit detects short circuit and reduces the output current to 10 amps. If the short circuit disappears the unit regains the adjusted output voltage again. The re-entering to normal operation can be programmed to individual load situations.

Cable compensation

The indicated output voltage in the display is the voltage between the two output connectors in the front of the unit and not the voltage between the two charger clips because of the voltage drop over the charging cables. The power supply operation with long cables forces extreme voltage drops. To avoid voltage drops and errors, it is possible to compensate for the cable resistance. For a successful cable compensation please read the operation instruction under [18] Cable Comp. After Compensation the indicated voltage at the display is the voltage between the two charging clips. Cable compensation is only possible in the Power Supply Mode.

Defect Battery Detection

To detect defect batteries it is necessary to adjust the maximum Amps Hours (under [2] Operation Instruction) before the charge operation starts.

The adjusted ampere hours should be not smaller than the written ampere hours on the battery. The unit stops charging before the battery is charged high enough.

The best way to detect defect batteries is to adjust the ampere hours 10 to 20% higher than the written ampere hours on the battery. For example a battery with 50 ampere hours should be adjusted in the charger unit with 60 ampere hours.

In any case should the ampere hours in the charger unit be adjusted, even when the "Defect Battery Detection" is "Off", because the ampere hours - menu limits the charge process and avoids extreme over charging. If the "Defect Battery Detection" is active, the charge process is stopped twice for 30 seconds automatically. During that hold the charger makes measurements from the battery voltage and the internal computer separates good and bad batteries. In case of defect batteries stops the charging process and in the display appears "DEFECT BATTERY". To run this feature correctly, no load impedance may be connected in parallel with the battery in charge.

Charging Stand-Alone Batteries

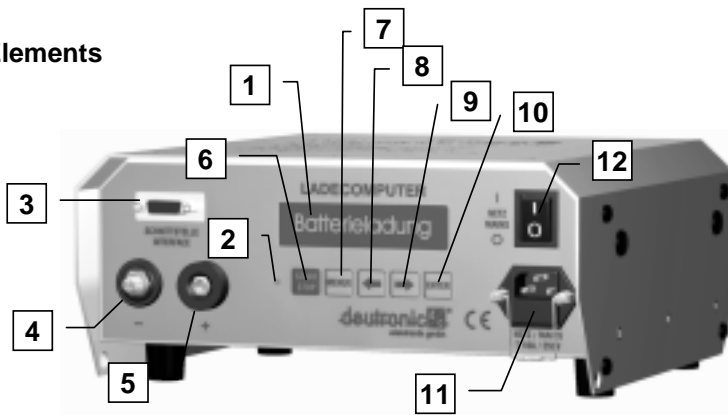
For reasons of direct access to on-board electronic systems, it is mandatory in operation mode “Battery Charger” not to exceed a maximum value of charging voltage. This voltage is 14.2V (28,4V). It is not possible to fully (100%) charge batteries with this relatively low value. By selecting “Stand Alone Battery” (general configuration menu), the charger switches to so called “TOP-Mode” instead to reduced FC-voltage, if the battery is fully charged. After charging to maximum value the display shows “Battery full”.

In this special cold-charging technique short increases of output voltage are performed. The actual agreed maximum values for on-board electronic systems are exceeded by a small amount (15.2V / 31,5V). For this reason it is recommended in this operation mode, to disconnect the battery at least with one pole, if there is the fear of interference with on-board electronic systems. On the other hand, the low charging capability in regular charging configuration (85% full), is sufficient for practical use. After starting the combustion motor, the generator takes care for further charging the battery.

Special Functions

For reasons of continued improvement of the product, new measurement functions and regulation functions are added to the package from time to time. The preferred field of application is professional automobil manufacturing and maintenance. Detailed descriptions can be found at the actual operating instructions for software of Deutronic battery chargers.

Control Elements



- [1] LCD display
- [2] LED
- [3] Interface
- [4] Battery cable connector (black jaw - negative)
- [5] Battery cable connector (red jaw + charging point)
- [6] Start/Stop button
- [7] Menu button
- [8] Reduce button
- [9] Increase button
- [10] Enter button
- [11] Jack for mains cable
- [12] Mains switch

OPERATING INSTRUCTIONS ON SOFTWARE

VERSION 2.1 FOR DBL 430 / DBL1000

Adjustable parameters (settings):

- [1] Language German or English
 - [2] Automatic Start Unit starts automatically when the Line voltage and Battery have been correctly attached.
- Charge Configuration
- [3] Charging Voltage Output voltage during charging operations.
 - [4] FC Voltage Float charging voltage
 - [5] Starting Voltage Starting sequence-threshold voltage: minimal battery voltage at which the charging process begins
 - [6] Current Limit Maximum charging current
 - [7] FC Current Charging current value at which the float charge operation mode is initialised.
 - [8] Re-start Current Current at which the charging process is re-started.
 - [9] Ampere Hours Maximum ampere hours in charging operation

PS-Configuration

- [10] PS Voltage Output voltage for Power Supply operation
- [11] PS Current Maximum output current in Power Supply operation
- [12] ZRT-Timer Time sequence mode
- [13] ZRT-Timer Time Setting of time interval length
- [14] ZRT-Current limit Setting the value of current limit during time interval
- [15] ZRT-Current limit Time Setting the current limit time duration during time interval
- [16] ZRT-Time out Time Setting the dead time after the time interval

General Configuration

- [17] Power On Mode BC mode : Unit functions as a Battery Charger
PS mode: Unit functions as auxiliary Power Supply
- [18] Ext. Mode change Switchover of Operational mode between PS and BC modes after pressing the menu button 3 times
- [19] Voltage Read-out Number of digits after decimal point (1,2,3)
- [20] Current Read-out Number of digits after decimal point (1,2)
- [21] Settings Lock Option to lock control panel buttons with present settings
- [22] Defkt.Bat.Detec. Defective Battery detection
- [23] Short Circuit V Determines the Short circuit voltage level for shut down.
- [24] Ah-Settings Ampere hours settings
- [25] Stand-Alone Battery Stand-Alone Battery. Charging with TOP-Mode.
- [26] Short-Circuit max. Change short-circuit current
- [27] Short-Circuit Short-Circuit activate or deactivate
- [28] Timer 1 Start delay after pressing the start button to the beginning of the charging process
- [29] Timer 2 Time interval after which the earliest switchover to float charging is carried out
- [30] Timer 3 Time interval after which the latest switchover to float charging is carried out.
- [31] Cable Comp Measures and compensates for losses in the output cables.

Factory Settings

- [32] Factory Settings Reset all parameters to factory settings
- [33] Inf. Selection Determines type of information to be displayed as standard.
 - 0: Charging current and Charging voltage
 - 1: Current - peak value and Current limit
 - 2: Summary: Charge current output in (Ah)
Start time in (hh:mm)
Charge time in (hh:mm)

Procedures for changing the parameters (settings):

MENUE -Button	Working through the menu step by step, only in forward direction. Following new beginning. After end of submenu, reentering main menu
“ ← ” or “→”	Entrance to the submenu
ENTER	Leaving the menu
PO	The display flashes PO in the bottom left hand corner, meaning that this settings will not be activated on the next start-up of the unit.
P	The display flashes P in the bottom left hand corner, meaning that this settings will be immediately activated.

Important hint:

The software is a multitasking system. Changes of settings are allowed during simultaneous work off of a preset mode.

[0] Preparing the charger unit:

1. Connect only to an Input voltage rating as differentiated on the specifications label.
2. Attach the network cable and charging cables to the unit.
3. Set the network switch [12] to position I, the digital display flashes the message **Standby** and a second message **Battery failure**, if no battery is attached.
4. By pushing the buttons “←” and “→” simultaneously, you enter the parameter menu which is indicated by a flashing “**P**” in the lower left corner.

[1] Language

Prepare charger unit (see [0] steps 1 to 4)

5. With the buttons “ ← ” or “→” set the desired option.

[2] Automatic Start (on/off):

Prepare charger unit (see [0] steps 1 to 4)

5. Press the “menu” button until **Automatic Start** is shown on the display.
6. Select the desired operation parameter with the “ ← ” or “→” button.
7. Press “enter” button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and = No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

Entrance to the Charge Config. Menu

Prepare charger unit (see [0] steps 1 to 4).

5. Press “menu” button until **Charging Voltage** is shown on the display.
6. With the buttons “←” or “→” you enter the charge menu. The message Charging Voltage will appear in the display.

[3] Changing Charging Voltage:

See entrance to the Charge Config. Menu steps 1 to 6.

7. Set the desired value with the “←” or “→” button.
8. Press “enter” button in order to leave the menu. The question Save settings Yes/No will appear in the display (← = Yes and → = No). Selecting No, the value is only stored until the unit is turned off. Selecting Yes, the value is stored in memory and will be available when the unit is turned on again. With No, the message Caution! Are values synchron appears for a short time in the display

[4] Changing FC Voltage (Float Charging Voltage):

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press “menu” button until **FC Voltage** is shown on the display.
8. Set the desired value with the “←” or “→” button.
9. Press “enter” button in order to leave the menu. The question Save settings Yes/No will appear in the display (←= Yes and ⇒= No). Selecting No, the value is only stored until the unit is turned off. Selecting Yes, the value is stored in memory and will be available when the unit is turned on again. With No, the message Caution! Are values synchron appears for a short time in the display.

[5] Changing Starting Voltage:

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **Starting Voltage** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[6] Changing Current Limit (max. charge / output current):

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **Current Limit** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[7] Changing FC Current (float charging current):

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **FC Current** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[8] Changing Re-start Current :

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **Re-start Current** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[9] Changing Ampere Hours limit:

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **Ampere Hours** is shown in the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display.

Entrance to the PS-Config. Menu

Prepare charger unit (see [0] steps 1 to 4).

5. Press "menu" button until **PS-Config** is shown on the display.
6. With the buttons "←" or "→" you enter the PS-Config menu. The message PS Voltage will appear in the display.

[10] Changing the PS Voltage (Power supply output voltage):

See entrance to the PS-Config. Menu steps 1 to 6.

7. Press the "menu" button until **PS Voltage** is shown in the display.
8. Select the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display.

[11] Changing the PS Current (Power Supply Current):

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **PS Current** is shown in the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[12] Changing ZRT-Timer (=ZRT-Timer derived from: Zeit-Raster-Timer)

See entrance to the Charge Config. Menu steps 1 to 6.

7. Press the "menu" button until **PS Timer** is shown in the display.
8. Select the desired option with the "←" or "→" button.

Function:

The ZRT-Timer (PS-Timer) gives the option, to monitoring a presetable current limit inside a presetable time window. Exceeding the current limit longer than the preset time will turn off the unit.

[13] Changing ZRT-Timer Time

See entrance to the Charge Config. Menu steps 1 to 6.

9. Press the "menu" button until **PS Timer Time** is shown in the display.
10. Set the desired value with the "←" or "→" button.
Preset range: 1-999 seconds (total time of interval)
After expire of select value the unit switches to standby.
Restart of ZRT-Time (PS-Time) via START/STOP-Button.

[14] Changing ZRT-Current limit

See entrance to the Charge Config. Menu steps 1 to 6.

9. Press the "menu" button until **ZRT-Current limit** is shown in the display.
10. Select the desired option with the "←" or "→" button.
Yes: ZRT-Current limit is preset current limit (PS Current) reduced by 300 mA.
No: ZRT-Time interval ends after expire of preset ZRT-time.

[15] Changing ZRT-Current limit Time

See entrance to the Charge Config. Menu steps 1 to 6.

9. Press the "menu" button until **ZRT-Current limit Time** is shown in the display.
10. Set the desired value with the "←" or "→" button.

Preset range: 1-25 seconds (interval length of current limit monitoring)

Function: only valid inside ZRT-Interval

As soon as the load current equals the selected ZRT-Current limit, the monitoring timer gets started.

If the load current maintains the current limit value until the monitoring time expires, the unit switches to STOP. Additional displays the message: "SG-Error" (SG=Strom Grenze=Current limit).

Restart of new ZRT-Interval via START-Button (or remote control unit)

Reduction of load current below ZRT-Current limit before monitoring timer expires (short current pulse) is disregarded (reset of timer).

Once more crossing the ZRT-Current limit restarts the monitoring timer from zero.

[16] Changing ZRT-Time out Time

See entrance to the Charge Config. Menu steps 1 to 6.

9. Press the "menu" button until **ZRT-Time out Time** is shown in the display.
10. Set the desired value with the "←" or "→" button.

Preset range: 1-120 seconds (interval length of dead time)

Function: only valid inside ZRT-Interval

A dead time can be selected after expire of ZRT-interval, or premature shut down because of SG-Error. No reaction of unit to START-button during this time.

Entrance to the General Config. Menu

Prepare charger unit (see [0] steps 1 to 4).

- Press "menu" button until **General Config** is shown on the display.
- With the buttons "←" or "→" you enter the General Config menu. The message Power ON Mode will appear in the display.

[17] Changing the **Power ON Mode**

See entrance to the General Config. Menu steps 1 to 6.

- Press the "menu" button until **Power ON Mode** is shown on the display.
- Select the desired operation with the "←" or "→" button.
(← = PS and → = BC-mode) hold the button longer than 1 second.
BC-Modus operation as charging unit
PS-modus operation as auxiliary Power Supply
- Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (← = Yes and → = No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[18] Enabling **Ext. Mode Change (External Mode Change) (yes/no)**:

See entrance to the General Config. Menu steps 1 to 6.

- Press the "menu" button until **Ext. Mode Change** is shown on the display.
- Select (**Yes** or **No**) with the "←" or "→" button
- Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (← = Yes and → = No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[19] **Voltage Read-out variation in indication** :

See entrance to the General Config. Menu steps 1 to 6.

- Press the "menu" button until **Voltage Read-out** is shown on the display.
- Select with the "←" or "→" button the desired number of digits (1;2;3) after the decimal point.
- Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (← = Yes and → = No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[20] **Current Read-out variation in indication** :

See entrance to the General Config. Menu steps 1 to 6.

- Press the "menu" button until **Current Read-out** is shown on the display.
- Select with the "←" or "→" button the desired number of digits (1;2) after the decimal point.
- Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (← = Yes and → = No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[21] **Settings Lock** :

ATTENTION: If the Settings Lock is activated with "?"(Yes), It can only be deactivated with a Code connector plug (available at Deutronic Elektronik GmbH)

See entrance to the General Config. Menu steps 1 to 6.

- Press the "menu" button until **Settings Lock** is shown on the display.
- Set the desired operation with the "←" or "→" button (← = Yes and → = No).
- Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (← = Yes and → = No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[22] Short Circuit Detection variation:

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Short-Circuit-Detec.** is shown on the display.
8. Connect the charger cables together (Short Circuit)
9. Switch the unit on ("Start/Stop"-button);

If the value of the short circuit voltage is already adjusted properly high, the display shows an Output Current of $I_{Out} = 10A$; (upper trace left)

If the value of the short circuit voltage is adjusted to low, the display shows the actual Output Current ($I_{Out} =$ Current Limit [4]) and the voltage drop along the charger cables. (bottom trace, right) Select with the "←" button the desired Short Circuit Voltage until the output current in the display shows $I_{Out} = 10A$.

The Short Circuit Voltage depends only on the charger cables (Short Circuit during the test routine on the cables). To detect short circuits exactly it is recommended to adjust the value of the short circuit voltage higher by 1V (Press button "→").

Variation of short circuit detection only possible in PS-Mode.

[23] Defect Battery Detection :

To test defect batteries it is necessary to adjust the Ampere Hours [2] (Ampere Hours are written on the battery) before the charge process starts. The detection of defect batteries is out of function if the value of the ampere hours from the charge computer is smaller than the written value on the battery. The detection works exactly if the value is up to 20% higher than the value of the battery.

For example: battery 50Ah, settings 60Ah.

If the detection is active, it stops the charging process twice for 30 seconds. During that breaks the charge computer makes measurements. If the battery is defect, it stops the charge process and the display shows "DEFECT BATTERY".

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Defect Battery Detection** is shown on the display.
8. Press the "→" button to start the detection. / Press the "←" button to stop the detection
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[24] Ah-Settings:

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Ah-Settings** is shown on the display.
8. Set the desired value with the "←" or "→" button .
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[25] Stand-Alone Battery:

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Stand-Alone Bat.** is shown on the display.
8. Select the desired operation with the "←" or "→" button .
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **Yes**, coming down from regular charging current, the unit switches to so called "TOP-Mode" after the charging current equals the preset float charge limit (FC-Current). With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[26] Change Short-Circuit Current

See entrance to the General Config. steps 1 to 6

7. Press the "Menue" button until "Short-Circuit max" is shown on the display
8. + 9. see **[29]**

[27] Short-Circuit Yes/No

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "Menue" button until "Short-circuit Yes/No is shown on the display
8. + 9. see **[29]**

[28] Changing Timer 1 :

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Timer 1** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[29] Changing Timer 2:

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Timer 2** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[30] Changing Timer 3:

See entrance to the General Config. Menu steps 1 to 6.

7. Press the "menu" button until **Timer 3** is shown on the display.
8. Set the desired value with the "←" or "→" button.
9. Press "enter" button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

[31] Cable Compensation :

See entrance to the General Config. Menu steps 1 to 6.

7. Press the “menu” button until **Cable Comp.** is shown on the display.
8. Set the desired option with the “← “ or “→” button.
9. Connect the charger cables together (Short Circuit)
10. Press “→” button.
11. Switch the unit on (“Start/Stop”-button);
After a few seconds the value of the compensation is shown in the display.
12. Press the “ENTER” button to save the settings.

[32] Change all parameters to Factory Settings :

Prepare charger unit (see [0] steps 1 to 4)

5. Press the “menu” button until **Factory Settings** is shown in the display.
6. Select (**Yes** or **No**) with the “← or→” button
7. Press “enter” button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display.

[33] Changing the Inf. Selection:

Prepare charger unit (see [0] steps 1 to 3)

4. Press the “menu” button until **Inf. Selection** is shown on the display.
5. Set the desired selection type with the “← “ or “→” button.

0: Charging current and Charging voltage

1: Current-peak-value and Current limit

2: Summary Charge load in (Ah)

Starting time in (hh:mm)

Charge time in (hh:mm)

Changing several parameters consecutively

Prepare charger unit (see [0] steps 1 to 4)

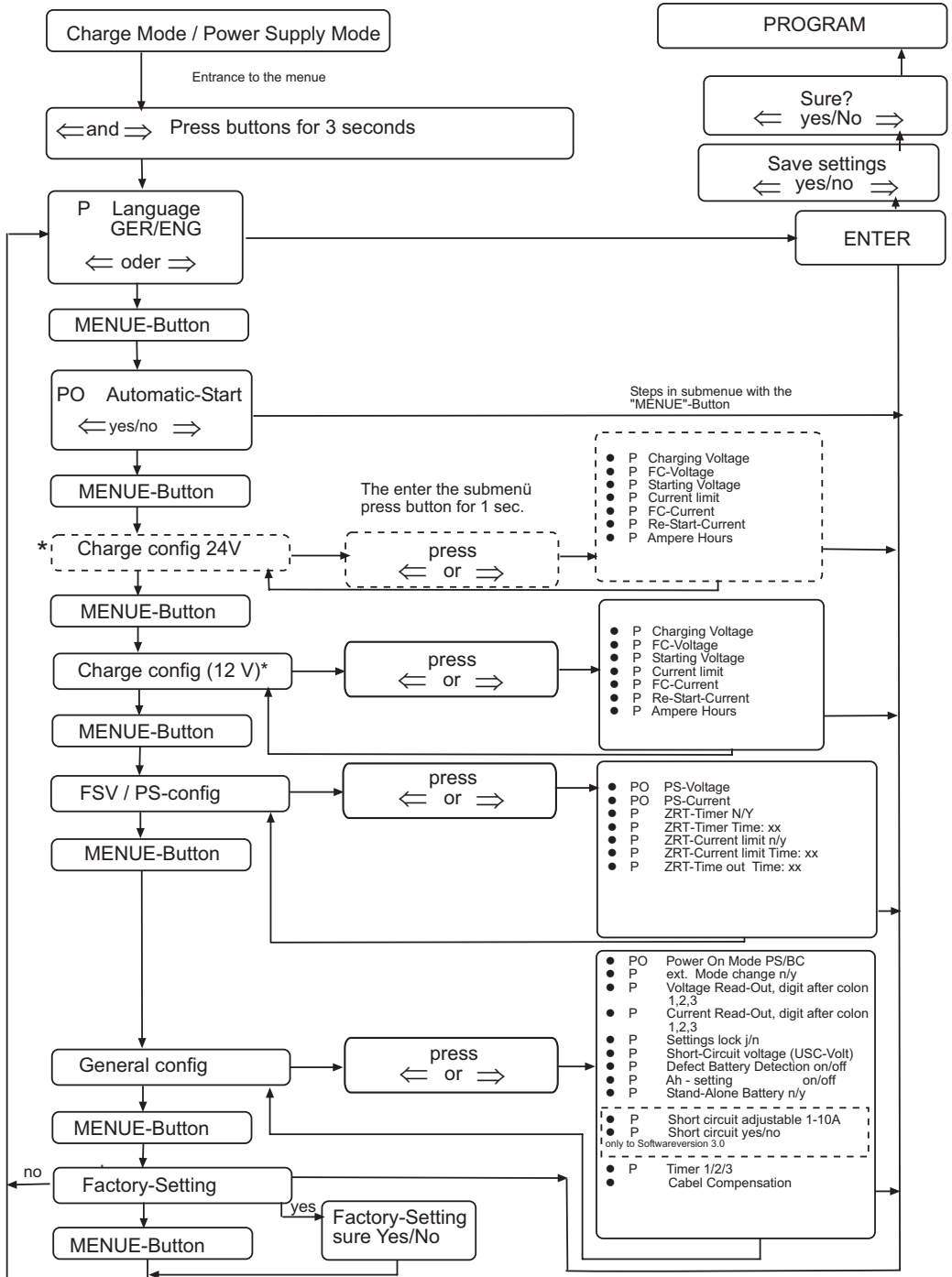
5. Press the “menu” button until the desired parameter is shown in the display.
6. Set the desired value with the “← “ and/or “→” button.
7. Move to the next value to be changed with the “menu” button and follow the same procedure.
8. Press “enter” button in order to leave the menu. The question **Save settings Yes/No** will appear in the display (←= Yes and →= No). Selecting **No**, the value is only stored until the unit is turned off. Selecting **Yes**, the value is stored in memory and will be available when the unit is turned on again. With **No**, the message **Caution! Are values synchron** appears for a short time in the display

Important: All parameters can be changed during the charging process or operation as auxiliary power supply. To change the settings from cable compensation and short circuit detection it is necessary to switch over into Power Supply Mode.

Parameter survey

Parameter	Factory settings		Minimum value	Maximum value		Resolution
Language	english					ger. / engl.
Automatic Start	no					yes, no
Charging voltage	14,2 V	28,4	2,00 V	15,5 V	32,0	0,02 V
FC Voltage	13,2 V	28,4	2,00 V	15,5 V	32,0	0,02 V
Starting Voltage	5,0 V	10,0	2,00 V	14,7 V		0,02 V
Current Limit DBL 430	45,0	23,0	0,0 A	45,0	23,0	0,05 A
Current limit DBL 1000	70,0A	35,0A	0,0A	70,0A	35,0A	0,05A
FC Current	2,5 A		1,1 A	10,0 A		0,02 A
Recharge current	3,5 A		0,0 A	31,0 A		0,02 A
Ampere-hours	250 Ah		0 Ah	6.000 Ah		10 Ah
PS Voltage	14,2 V	28,4V	2,00 V	15,0 V	32,0V	0,02 V
PS Current DBL 430	45 A	23A	0 A	45 A	23A	0,05 A
PS Current DBL 1000	90A	45A	0 A	90A	45A	0,05A
ZRT-Timer	inactive					yes, no
ZRT-Timer Time	60sec		1 sec	999 sec		1 sec
ZRT-Current limit	active					yes, no
ZRT-Current limit Time	2 sec		1 sec	25 sec		1 sec
ZRT-Time out Time	20 sec		1 sec	120 sec		1 sec
Power On Mode	BC mode					BC/PS mode
Ext. Mode change	yes					yes, no
Voltage Read-out	Digits: 1					Digits: 1 - 3
Current Read-out	Digits: 1					Digits: 1 or 2
Settings lock	no					yes, no
Defect Batt. Detec.	active					yes, no
Short Circuit Volt.	3V		0V	7V		0,1V
Ah-Settings	yes					yes, no
Stand-Alone Battery	no					yes, no
Short-Circuit	10A		1A	10A		1A
Short-Circuit	Yes					Yes/No
Timer 1	3 sec.		0,5 sec.	60 sec.		0,1 sec.
Timer 2	15 min.		1 min.	240 min.		1 min.
Timer 3	600 min.		1 min.	3000 min.		1 min.
Cable Comp.	no					yes, no
Info Selection	0					0,1,2
Factory settings	not applicable					yes, no

Menu-Report software version 3.0



Technical Features Battery Charger DBL430

BATTERY CHARGER DBL430 / DIPL430

Typ	Input	Output Voltage	Output Current *	Cat Nr.
DBL430-14	230VAC -10%+15%	14.2/13.2VDC	30A/45A	107021
DBL430-28	230VAC -10%+15%	28.4/26.4VDC	15A/23A	107022
DBL430-14 / 115	115VAC -10%+15%	14.2/13.2VDC	30A/45A	107025
DBL430-28 / 115	115VAC -10%+15%	28.4/26.4VDC	15A/23A	107026
DBL430-14VDE	230VAC -10%+15%	14.2/13.2VDC	30A/45A	107041

*Maximum Output Current: duration limited by dynamic temperature control (Approx. 20 minutes at room temperature),

Other input voltages on request

Input	230V/4A (207-264VAC), 47Hz - 63Hz 115V/10A (103-133AC), 47Hz - 63Hz Standard universal connector at front plane (IEC320) 10A
Output (Factory settings)	Plug-in charge cables with fully isolated clamping jaws switching-off relays. Output voltage monitored by Over Voltage Protection and limited to 16VDC or alternative 32VDC. If the output voltage goes to 16VDC or alternatively 32VDC for a period longer than 5 seconds, the current is automatically switched off. Remote control switching via cable. Electronic current limiting adjustable.
Charge Mode (Factory settings)	The unit starts with a charging voltage of 14,2VDC or alternatively 28,4VDC. If charging current falls below 2,5A then the charging voltage will drop to 13,2VDC or alternatively to 26,4VDC.
Load regulation stat. 10-90%:	< 50mVSS
Load regulation dyn. 20-90%:	< 300mVSS

Operation power supply (PS-configuration): Parameter for output can be change at any time during operation.

	DBL430	Factory setting	Adjustable about operation panel	Resolution
Output Voltage	-14 -28	14,2VDC 28,4VDC	2VDC-15VDC 2VDC-30VDC	0,02V 0,02V
Output current limitation	-14 -28	45A 23A	0A-45A 0A-23A	0,05A 0,05A

EMC

Electrical noise on charging cables	150kHz; 80dB bis 30MHz 50dB linear fallend
RFI emission (EN50081-2)	EN5502 Classe B.
Immunity (EN50082-2)	EN61000-4-2 15KV(ESD); ENV50140 10V/m, typ. 30V/m (HF-Fields); IEC801-4 4kV; IEC801-4 4kV (Burst); IEC801-5 4kV/2kV (Surge); FTZ12 TR1 part 21; IEC1000-4-6 (HF on power cords), 10V; IEC1000-4-11 (dips)

Features

Efficiency	87%
Safety/Protective system	EN60335 Protection Class I; DBL430-14 VDE certified
Cooling	Convection cooling, supported by internal controlled and regulated fan. Controlled power reduction at high temperatures in conditions of inadequate convectional cooling.
Ambient temperature operating	-20°C ... +40 (+60°C)
Case	Especially designed for car manufacture and maintenance
Dimensions	ca. 240x295x120mm (TxBxH)
Weight	ca. 3.7kg (ohne Kabel)
Accessories	Wall mount, carry handle, floor stand, charging cables (3/5 meters), mains cable (3/5 meters), remote cable, programming unit, external working indicator (relay box), external large display, calibration unit

Prestable charging parameters

- charging voltage	- the earliest switchover to float charge
- float charging voltage	- latest switchover to float charge
- charging starting voltage	- selection of info-lever
- current limit	- Standby ON/OFF
- float charging current	- Digital-Volt Meter ON/OFF
- start delaytime	

Technical features battery-charger DBL1000

BATTERY CHARGER DBL1000

Typ	Input	Output		Cat Nr.
		Output Voltage	Output Current	
DBL1000-14	230VAC -10%/+15%	14,2/13,2VDC	70A/90A*	107011
DBL1000-28	230VAC -10%/+15%	28,4/26,4VDC	35A/45A*	107012
DBL1000-42	230VAC -10%/+15%	42,6/ VDC	23A/ A*	107044

Versions with other Input on request.

*Maximal current for 30 Seconds to 2 Minute (temperature supervised)

Input	230V/10A (207VAC to 264VAC), 47Hz to 63Hz, Standard Universal connector at front plane (IEC320) 10A
Output (Factory settings)	Plug-in charge cables with fully isolated clamping jaws switching-off relays. Output voltage controlled by Over Voltage Protection and limited at 16VDC or alternative 32VDC. If the output voltage goes to 16VDC or alternatively 32VDC for a Period longer than 5 seconds, the current is automatically switched off.
Charge Mode (Factory Settings)	The unit starts with a charging voltage of 14,2VDC or alternatively 28,4VDC. If the charging current falls below 2,5A then the charging voltage will drop to 13,2VDC or alternatively to 28,4VDC.
Voltage ripple	< 50mVSS
Switching spike	< 300mVSS

Operation power supply (PS-configuration): parameters for output can be changed at any time during operation.

	DBL1000	Factory-Setting	Adjustable about operation panel	Resolution
Output Voltage	-14	14,2VDC	2VDC-15VDC	0,02V
	-28	28,4VDC	2VDC-30VDC	0,02V
	-42	42,8VDC	2VDC-48VDC	0,02V
Output current limitation	-14	70A	0A-70A	0,05A
	-28	35A	0A-35A*	0,05A
	-42	23A	0A-23A	0,05A

EMC

Electrical noise on charging cables	150kHz: 80dB bis 30MHz 50dB linear fallend
RFI emission (EN50081-2)	EN55022 class A (Option class B)
Immunity (EN50082-2)	EN61000-4-2 15kV (ESD); EN50140 10V/m, typ. 30V/m (HF-Fields); IEC801-4 4kV (Burst); IEC801-5 4kV/2kV (surge); FTZ12 TR1 part 21; IEC1000-4-6 (HF on power cords), 10V; IEC1000-4-11 (Dips).

Features

Efficiency	87% typ.
Safety	EN60950, protection class
Cooling	Convection cooling, supported by internal controlled and regulated fan. Controlled power reduction at high temperatures in conditions of inadequate convectonal cooling
Ambient temperature operating	-20°C... +40°C
Protection	IP52 (Option: IP54)
Case	Especially designed for car manufacture and maintenance
Dimensions	ca. 300x292x130mm (LxHxH)
Weight	ca. 7,4kg
Accessories	Wall mount, carry handle, floor stand, charging cables (3/5 meters), mains cable (3/5 meters), remote cable, programming unit, external working indicator (Rely box), External large display calibration unit

Presetable charging parameters

- Charging voltage	- the earliest switchover to float charge
- Float charging voltage	- latest switchover to float charge
- Charging starting voltage	- selection of info-layer
- Current limit	- Standby ON/OFF
- Float charging current	- Digital-Volt Meter ON/OFF
- Start delaytime	

All data at nominal input, full load and 25° C ambient temperature, if not marked otherwise.

Technical modifications and mistakes reserved.

Products are described by information contained in catalogs and data-sheets. It is not considered as assured qualities. Stresses listed under „Maximum Rating“ (one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.