

DBL1600/3W

Intelligent Charging Computer

Intelligent charger for motor vehicles starter battery
 (Lead acid / Gel / AGM / VRLA)



Abbildung ähnlich / device similar to figure



- 100% qualified for motor vehicles on-board electronic system / airbag
- Use as battery charger, power supply and motor vehicles energy supply in buffer mode (support during diagnosis / flash programming)
- Extensive protection functions and self-protection functions
- Short circuit and reverse polarity protection
- Protection against defective batteries
- Reliable sparking suppression
- Comfortable menu navigation / charging parameter configurable
- Built-in communication interface
- Housing version 'B': Advantageous for industrial production lines
- Status indication via display and high power LEDs
- Menu navigation: English, French, German, Italian, Spanish
- Electrical safety - certifications: EN60335-1, EN60335-2-29, EN61010, EN62233 UL1236,
- Utilized and approved by well known automotive manufacturers
- Wide range of accessories e.g. external visualization of operating state (DBL-SIG-LR remote indicator), mains and charging cable, wall mount adapter etc.

Option: With mounted heat-sink

Option: Customized charging parameters

Option: Operation with low temperature until -40°C

Option: Battery diagnostic system

Option: Regeneration charging for deep discharged batteries

DBL1600/3W-derivative table

| Type | Input voltage | Output voltage (configurable) | | Output current | Cat. No. |
|----------------------|---------------|-------------------------------|--------------------------|----------------|--------------|
| | | FSV | Charge/trickle (typical) | | |
| DBL1600/3W-14-B-HAN | 3AC 380-500V | 14,4VDC | 14,4/13,8VDC | 90A / 105A | 107201/0/000 |
| DBL1600/3W-14-B-HAN* | 3AC 380-500V | 14,4VDC | 14,4/13,8VDC | 90A / 105A | 107140/0/000 |

*Version with alternative pin assignment of the input connection, see fig. 8.2

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Mit den Angaben im Katalog und in den Datenblättern werden Produkte beschrieben, nicht Eigenschaften zugesichert. Belastung mit „Grenzwerten“ (einfache Kombination) ist zulässig ohne bleibende Schäden der Produkte. Betrieb der Geräte mit Grenzwertbelastung für längere Zeit kann die Zuverlässigkeit beeinträchtigen. Grenzwerttoleranzen unterliegen üblichen Schwankungen. | 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.

1 Input

| | | |
|--|-------------------------|---|
| Input voltage AC | nom. 3x 380-500VAC | Tolerance: 320-552VAC TN-S, TN-C, TT, IT systems |
| Input frequency | 50 - 60Hz | Tolerance: 45 - 65Hz |
| Input voltage DC | 450 - 700VDC | Tolerance: 400-780VDC |
| Inrush current | No Inrush current | Active regulated limitation / Option: Values modifiable on request (e.g. mains switch-on time delay etc.) |
| Current consumption at full load | 4,5A | - |
| Power factor | typ. 0,95 | - |
| Hold up time | > 3ms | @ Uout > Uout -10% |
| Input fuse | - | Externally, a 3-pole circuit breaker with characteristic $\geq B$ must be provided. The circuit-breaker must be dimensioned in accordance with the country-specific regulations and to the maximum rated current specification. |
| Transient over voltage protection | Varistor (4,5kA / 71J) | L1, L2, L3; active transient voltage filter (1000V/1.3ms) |
| Input connector | 3-phase mains connector | Connection of 3AC mains cable at the front side of the device with Harting Connector HAN6E/B in two versions: 107201: L1(Pin-1), L2(Pin-2), L3(Pin-4), PE(contacts external) 107140: L1(Pin-1), L2(Pin-2), L3(Pin-3), PE(contacts external) PIN assignment – see technical drawing 8.2); Connection of N [neutral] is not permitted! HAN: Mains connection via Harting connector HAN6E/B (Note: Mains connection is NOT hot pluggable! Attention: Included in delivery is only the plug on the device side, The mating plug can be ordered from Deutronic cat. no.: 140442) Further optional connector variants on request: a) 4-pole, plug-able screw terminal (4x 0.5-4mm ²) b) Mains connection kit with protective cover (cat. no.: 140742) c) Fully pre-assembled mains connection kit (protective cover [see b]), CEKON mains plug as well as customized design / length of mains cable) |

2 Output

| | | |
|--------------------------------------|-----------|--|
| Output voltage (configurable) | 2 - 17VDC | For an output voltage > 15,5VDC the default OVP limit must be changed. |
| continuous output current | max. 90A | - |

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| | | |
|--|--|--|
| Short-term output current (Boost) | max. 105A | - |
| Boost | Adaptive process | Cooling time depends on boost time (max. 1min). After 1min boost ($I_{out} > 90A$) automatic cooling phase ($I_{out} \leq 90A$) of 4min. |
| Current limiting | typ. $\pm 1\%$ of adjusted value | - |
| Output power | $\leq 1600W$ with boost | Automatic power adjustment depending on input voltage, ambient temperature and load condition |
| Output connector | Welding cable connector | Plug [-] / socket [+] for wire cross section 16 / 25mm ² |
| operating modes | charge- / power supply- / AUTO – mode | Further modes on request |

3 Regulation accuracy

| | | |
|--|-----------------------|---------------------------------|
| Tolerance | $\pm 2\%$ over all | - |
| Load regulation static (10-90%) | < 0,5 % | typ. 0,05% |
| Load regulation dyn. (10-90%) | < 5 % | - |
| Recovery time | < 1 ms | - |
| Temperature drift | -25°C ... +50°C: < 1% | (typ. 0,5%; @0-40°C: typ. 0,4%) |
| Voltage ripple | < 50 mVpp | - |
| Switching spikes | < 300 mVpp | - |

4 EMC (Electromagnetic Compatibility)

| | | |
|-----------------------------------|-----------------|--|
| RF-emission | EN55011 class B | With signal lamp / interface connection: class A |
| Harmonic current emissions | EN61000-3-2 | - |
| Immunity | EN61000-6-2 | - |

5 Enviroment

| | | |
|------------------------------|--------------------------------|---|
| Operating temperature | -25°C...+60°C | Automatic output power derating – see cooling; down to -40°C on request |
| Storage temperature | - 40°C ... + 85°C | - |
| Cooling | Convection and internal fan | Automatic power reduction at too high temperature due to insufficient convection. In case of fan failure, power reduction to emergency program; processor-controlled fan control and monitoring |

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| | | |
|-------------------|-----|--|
| Humidity | 95% | No operation during dew; coated PCB by varnish |
| Pollution degree | 2 | EN61010 |
| Climatic category | 3K3 | EN60721 |

6 General data

| | | |
|-------------------|--|---|
| Electrical safety | | UL1236, EN60335-1, EN60335-2-29, EN61010 |
| Protection class | class I | - |
| Isolation voltage | 3000VAC 500VDC | Input / Output Output / Housing |
| Efficiency | typ. 91% | - |
| Housing | | Metal, especially designed for car manufacture and service stations. Mounting option at the devices side via 4 screws, size M6 (height of thread 10mm) |
| Dimensions | 390 x 355 x 118mm 390 x 355 x 143mm | standard-version option with heat-sink see figure 8.1 |
| Weight | ca. 7,7 kg ca. 10 kg | standard-version option with heat-sink (both without cables and package) |

7 Interfaces

| | | |
|---|------|--|
| Interface (25-pol. SUB-D) ^{[*1][*2]} | | For various purposes (e.g. floating Relays, Remote ON/OFF etc.) |
| RS232 (9-pol. SUB-D) ^{[*1][*2]} | | For communication or firmware update (standard PC interface) |
| | [*1] | A shielded cable must be used to connect external equipment. |
| | [*2] | ATTENTION: GND-Pins not galvanically isolated to the power output! When connecting the device with an external control a galvanic isolation must be provided! |
| Signals | | 3 high power LED's for operating state indication / alarming |
| Display | | Big sized graphic display |
| 3-key operator panel | | Menu navigation as well as configuration / parametrization of operation mode and individual device parameters (among others output voltage, current limits, security parameters, start / stop behavior, short circuit reaction etc.) Extensive functional description see operating instructions |

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8 Dimensions

All dimensions are given in millimeters and have a general tolerance according to DIN ISO 2768 - m.

B-HAN version: Display on the top, interface and connector on the front - mains connection via Harting connector HAN6E/B (Attention - included in delivery is only the plug on the device side, not the mating plug).

The heat sink shown here on the bottom of the device is a selectable option and is not included in delivery.

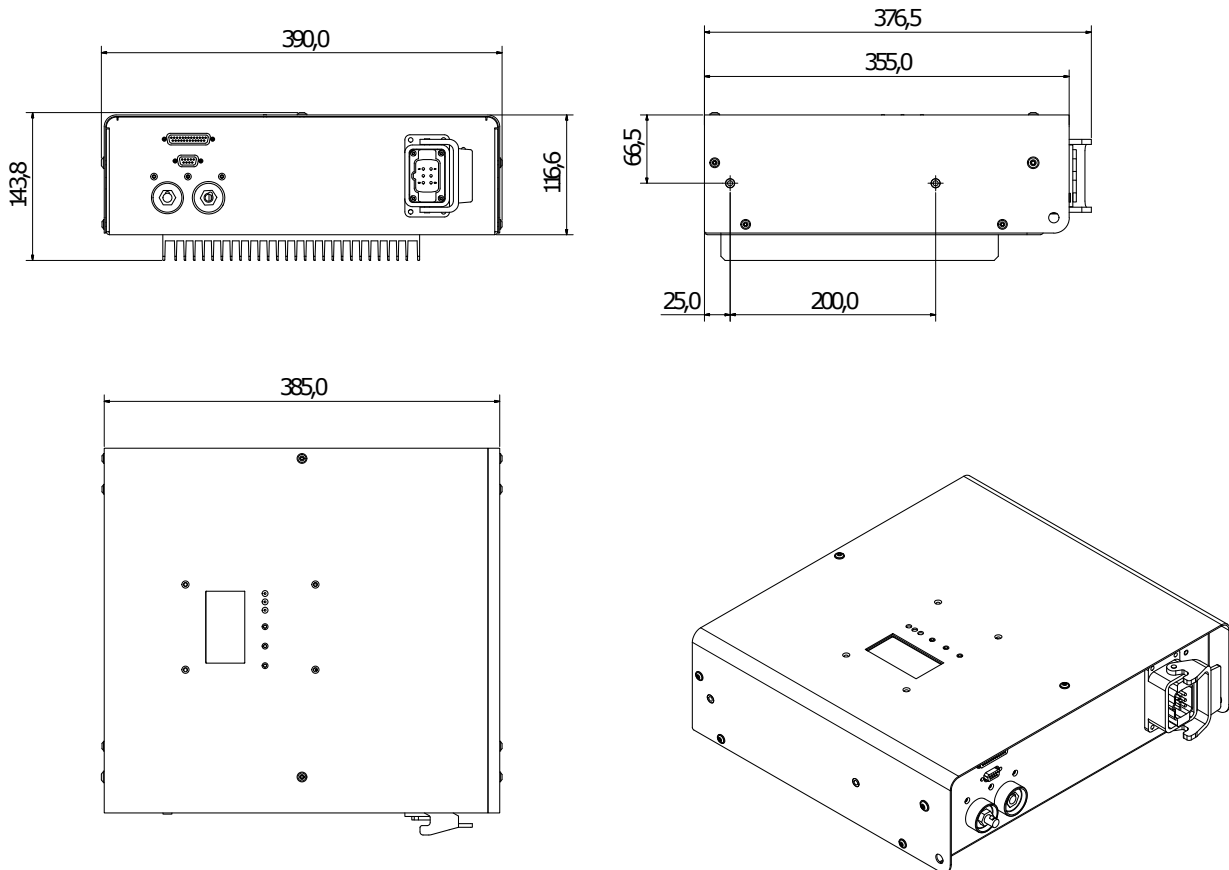


Figure 8.1: dimensions

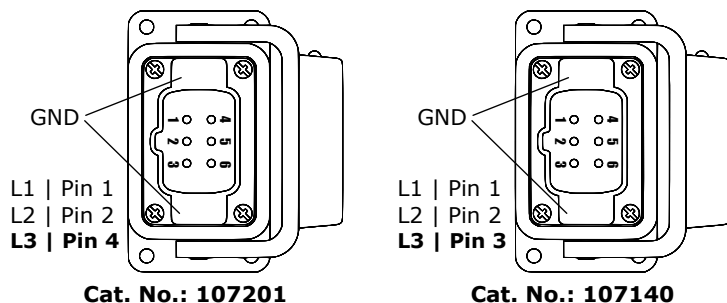


Figure 8.2: pin assignment of the input connection

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9 Function description

| | |
|---------------------------------------|--|
| Attributes | load detection, reverse polarity-, short circuit- and over voltage protection (OVP), cable compensation |
| Output (Factory settings) | Output voltage monitored by OVP (Over Voltage Protection) and complete disable of output current if preset charging voltage limit is exceeded. Extensive functional description of the charger's features - see operating instructions. |
| Charge Mode (Factory settings) | When starting the DBL the predefined charging voltage is set (e.g. 14,4VDC). If charging current goes under the predefined limit (e.g. 2,5A) then the charging voltage is reduced to trickle charge (e.g. 13,2VDC). If additional current is required, the charger will again increase the charging voltage (to e.g. 14,4VDC). |
| Current limiting | Current limit is user selectable. According to the operation state the current limit is automatically adjusted during operation, depending on mains voltage operating temperature, load characteristic etc. The maximum current limit value / boost (see table on page 1) is provided for max. 1 minute continuously followed by a cooling period for approximately 4 minutes. |

10 Optional accessories for DBL series chargers

Charging cables (3 and 5 meters), external signal lamp, Ethernet/WLAN adapter, PC software and more accessories you will find on our webpage www.deutronic.com.

(For DBL series chargers with max. output current >100A we recommend using charging cables with a diameter of at least 25mm²).

11 Installation and safety instructions

The general installation and safety instructions for automotive power processor from the DBL and SC series apply. These can be found at: www.deutronic.com

Generally it is recommended to use by Deutronic released equipment, only. Because only in this way an appropriate technical suitability and an adequate dimensioning can be ensured for professional use.

Equipment and accessories have to be selected and installed in accordance with the requirements and under attention of the existing safety guidelines.

Note: Mains cables / charging cables must be used in completely unrolled condition only, to ensure a sufficient cooling! Moreover pay attention of a safety interlocksystem at the respective device to ensure the operational safety and to avoid damages. If worn, the cables must be replaced immediately!