













Back























Features

- · Charger for lead-acid batteries (Gel, flooded and AGM) and Li-ion batteries (lithium iron and lithium manganese)
- Built-in default 3 stage charging curves and programmable curve
- Built-in I²C interface, PMBus protocol (Optional CANBus protocol)
- Universal AC input / Full range
- Built-in active PFC function
- · Forced air cooling by built-in thermal controlled DC fans
- · Output voltage and current programmable
- Built-in OR-ing FET
- Active current sharing up to 6400W(1+1)
- Protections: Battery under voltage / Battery no connection / Short circuit / Over voltage / Over temperature
- · Optional conformal coating
- 5 years warranty

Applications

- · Large scale DC UPS or emergency backup system
- · Marine battery charger module
- Electric scooter or vehicle charger station
- Wastewater treatment system
- Electrolysis system

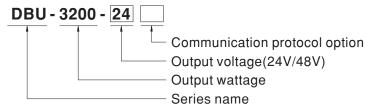
GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

DBU-3200 is a 3200W single output AC/DC enclosed charger in 1U low profile with high power density, 37W/inch3. It is an intelligent charger that has pre-loaded programmable charging curves for different types of lead-acid and li-ion batteries. Output programmable function allows user to adjust the charging voltage and current via the built-in potentiometer or PMBus protocol. Various protection mechanisms as well as the temperature compensation function are provided to assure normal and safe system operation.

■ Model Encoding / Order Information



| Туре | Communication Protocol | Note |
|-------|------------------------|------------|
| Blank | PMBus protocol | In Stock |
| CAN | CANBus protocol | By request |



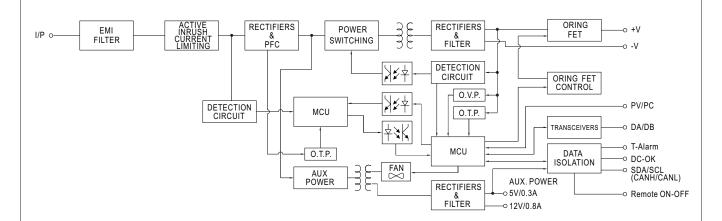
SPECIFICATION

| MODEL | | DBU-3200-24 | | DBU-3200-48 | |
|---|---------------------------------------|---|--------------------------|---------------------|---|
| | BOOST CHARGE VOLTAGE(Vboost)(default) | 28.8V | | 57.6V | |
| | FLOAT CHARGE VOLTAGE(Vfloat)(default) | 27.6V | | 55.2V | |
| | CONSTANT CURRENT(CC)(default) | 110A | | 55A | |
| | VOLTAGE ADJ. RANGE | By built-in potentiometer, SVR | | | |
| OUTPUT | VOLTAGE ADJ. RANGE | 23.5 ~ 30V | | 47.5 ~ 58.8V | |
| | RECOMMENDED BATTERY | 220 400045 | | 400 FF0AL | |
| | CAPACITY(AMP HOURS) Note.3 | 330 ~ 1000Ah | | 180 ~ 550Ah | |
| | LEAKAGE CURRENT FROM | 4.5 4 | | | |
| | BATTERY (Typ.) | 1.5mA | | | |
| | VOLTAGE RANGE Note.4 | 90 ~ 264VAC 127 ~ 370VDC | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | |
| | POWER FACTOR (Typ.) | 0.97/230VAC at full load | | | |
| INPUT | EFFICIENCY (Typ.) | 93.5% | | 94.5% | |
| | AC CURRENT (Typ.) Note.4 | 17A/230VAC | | | |
| | INRUSH CURRENT (Typ.) | COLD START 55A/230VAC | | | |
| | LEAKAGE CURRENT | <2mA / 230VAC | | | |
| | | 31.5 ~ 37.5V | | 63 ~ 75V | |
| PROTECTION | OVER VOLTAGE | Protection type : Shut down o/p voltage, re | e-power on to recover | | |
| | OVER TEMPERATURE | Shut down o/p voltage, recovers automatic | · | oes down | |
| | OUTPUT VOLTAGE PROGRAMMABLE(PV) | • • | | | ease refer to the Function Manual. |
| | | Adjustment of output voltage is allowabl | | | |
| | AUXILIARY POWER | 5V @ 0.3A, tolerance \pm 10%, ripple 150m | nVp-p, 12V @ 0.8A, tolei | ance ±10%, ripple 4 | 50mVp-p |
| FUNCTION | REMOTE ON-OFF CONTROL | By electrical signal or dry contact Powe | | | |
| | TEMPERATURE COMPENSATION | -3mV / °C / cell / (12V = 6 cells ; 24V = 12 | cells : 48V = 24 cells) | • | |
| | ALARM SIGNAL | Isolated signal output for T-alarm and DC- | | | |
| | WORKING TEMP. | -30 ~ +70°C (Refer to "Derating Curve") | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | |
| ENVIRONMENT | STORAGE TEMP., HUMIDITY | -40 ~ +85°C, 10 ~ 95% RH non-condensir | 10 | | |
| | TEMP. COEFFICIENT | ±0.03%/°C (0~50°C) | <u> </u> | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | |
| | SAFETY STANDARDS | UL62368-1, CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC | | | |
| | ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500 | 0VDC / 25°C / 70% RH | | |
| | | Parameter | Standard | | Test Level / Note |
| | | Conducted | BS EN/EN55032 (CIS | PR32) | Class B |
| | EMC EMISSION | Radiated | BS EN/EN55032 (CIS | PR32) | Class A |
| | | Harmonic Current | BS EN/EN61000-3-2 | · | Class A |
| | | Voltage Flicker | BS EN/EN61000-3-3 | | |
| SAFETY & | | BS EN/EN55035, BS EN/EN61000-6-2 | ' | | |
| EMC (Note 6) | | Parameter | Standard | | Test Level / Note |
| (Note o) | | ESD | BS EN/EN61000-4-2 | | Level 3, 8KV air ; Level 2, 4KV contact |
| | | Radiated | BS EN/EN61000-4-3 | | Level 3 |
| | EMC IMMUNITY | EFT / Burst | BS EN/EN61000-4-4 | | Level 3 |
| | EINIC IININIONI I I | Surge | BS EN/EN61000-4-5 | | 2KV/Line-Line 4KV/Line-Earth |
| | | Conducted | BS EN/EN61000-4-6 | | Level 3 |
| | | Magnetic Field | BS EN/EN61000-4-8 | | Level 4 |
| | | Voltage Dips and Interruptions | BS EN/EN61000-4-11 | ı | >95% dip 0.5 periods, 30% dip 25 period >95% interruptions 250 periods |
| | MTBF | 494.2K hrs min. Telcordia SR-332 (Bell | lcore) ; 44.8K hrs min. | MIL-HDBK-217F (25 | °C) |
| OTHERS | DIMENSION | 325.8*107*41mm (L*W*H) | | , | |
| PACKING 2.76Kg;4pcs/12Kg/0.83CUFT | | | | | |
| 1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and MEAN WELL for details 2. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 3. This is MEAN WELL's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitatio 4. Derating may be needed under low input voltages. Please check the derating curve for more details. 5. The charger is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit of a 600mm*900mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance of perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf) 6. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000 Product Liability Disclaimer: For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx | | ture. kimum charging current limitation. executed by mounting the unit on EMC directives. For guidance on how to erating altitude higher than 2000m(6500ft) | | | |



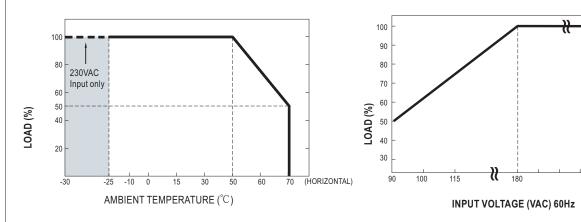
■ BLOCK DIAGRAM

PFC fosc: 110KHz PWM fosc: 90KHz



■ DERATING CURVE

■ STATIC CHARACTERISTICS





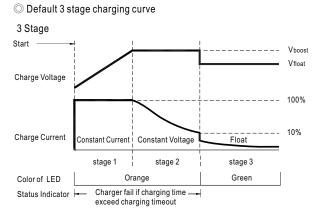
■ FUNCTION MANUAL

1.PMBus Communication Interface

DBU-3200 supports PMBus Rev. 1.1 with maximum 100KHz bus speed, allowing information reading, status monitoring, output trimming, etc. For details, please refer to the Installation Manual.

2. Charging Curve

- * By factory default, this charger performs the default curve which can be programmed via PMBus.
- ** To disable / enable the charging curve, change to a 2 stage curve, a different curve frequently used for certain types of batteries in the industry, and so on, please refer to the Installation Manual.
- X To program the parameters of the charging curve, SBP-001, the smart battery charging programmer designed by MEAN WELL, and a personal computer are needed. Please contact MEAN WELL for details.



© Suitable for lead-acid batteries (flooded, Gel and AGM) and Li-ion batteries (lithium iron and lithium manganese).

© Embedded 3 stage charging curves

| MODEL | Description | Vboost | Vfloat | CC(default) |
|-------|------------------------------|--------|--------|-------------|
| | Default, programmable | 28.8 | 27.6 | |
| 24V | Pre-defined, gel batter | 28 | 27.2 | 4404 |
| 24 V | Pre-defined, flooded battery | 28.4 | 26.8 | 110A |
| | Pre-defined, AGM battery | 29 | 27 | |
| | Default, programmable | 57.6 | 55.2 | |
| 48V | Pre-defined, gel batter | 56 | 54.4 | 55A |
| 400 | Pre-defined, flooded battery | 56.8 | 53.6 | SSA |
| | Pre-defined, AGM battery | 58 | 54 | |

Note:

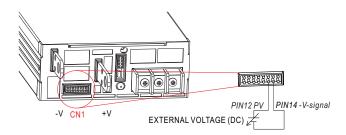
When using this charger unit, please configured the system with recommended battery capacity defined by specification. Should battery capacity in use be much smaller so that user needs to set a low current for charging, under such condition it might cause higher current ripple.

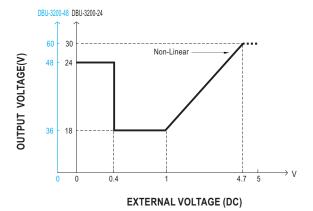
3. Front Panel LED Indicators & Corresponding Signal at Function Pins

| LED | Description | |
|--|--|--|
| Green | Green Float (stage 3) | |
| Orange | Orange Charging (stage 1 or stage 2) | |
| Red | The LED will present a constant red light when the abnormal status (OTP, OLP, fan fail and charging timeout) arises. | |
| Red (Flashing) The LED will flash with the red light when the internal temperature reaches 60°C; under this condition, the unit still operate | | |
| Red (Flashling) | without entering OTP. (In the meantime, an alarm signal will be sent out through the PMBus interface.) | |

4. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed by applying EXTERNAL VOLTAGE.

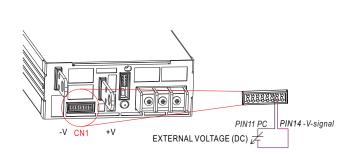


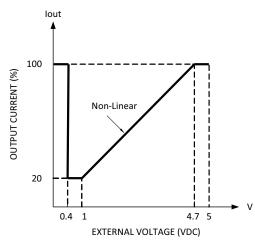




5. Output Current Programming (or, PC / remote current programming / dynamic current trim)

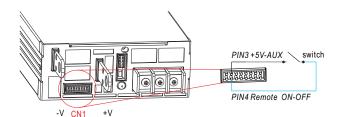
% The output current can be trimmed to 20~100% of the rated current by applying EXTERNAL VOLTAGE.





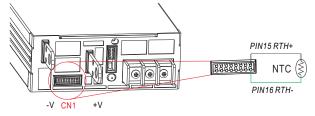
6. Remote ON-OFF Control

The power supply can be turned ON/OFF individually or along with other units in parallel by using the "Remote ON-OFF" function.

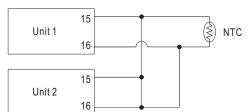


| Between Remote ON-OFF and +5V-AUX | Power Supply Status |
|-----------------------------------|---------------------|
| Switch Short | ON |
| Switch Open | OFF |

7. Temperature Compensation



- To exploit the temperature compensation function, please attach the temperature sensor, NTC, which is enclosed with the charger, to the battery or the battery's vicinity.
- The charger is able to work normally without the NTC.

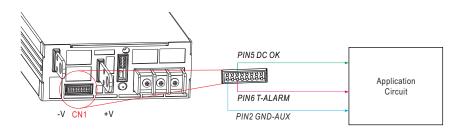


When multiple chargers are connected in parallel, please configure with the NTC as exhibited in the diagram .

If the temperature compensation is not required, RTH+ (PIN15) and RTH- (PIN16) from each unit still need to be connected.

8. Alarm Signal Output

** There are 2 alarm signals, DC OK and T-ALARM, in TTL signal form, on CN1. These signals are isolated from output. The maximum sink current is 10mA.





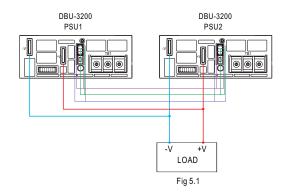
9. Current Sharing

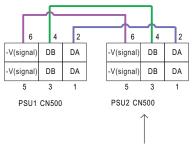
DBU-3200 has the built-in active current sharing function and can be connected in parallel, up to 2 units, to provide higher output power as exhibited below:

- % The power supplies to be paralleled should use short and large diameter wiring and then connected to the load.
- X Difference of output voltages among parallel units should be less than 0.2V.
- ** The total output current must not exceed the value calculated by the following equation: Maximum output current at parallel operation=(Rated current per unit) * (Number of unit) * 0.9
- When the total output current is less than 5% of the total rated current, or say (5% of Rated current per unit)
 べ(Number of unit) the current shared among units may not be balanced.
- ※ CN500/SW1 Function pin connection

| Parallel | PS | U1 | PS | iU2 |
|----------|-------|-----|-------|-----|
| i araner | CN500 | SW1 | CN500 | SW1 |
| 1 unit | Х | ON | _ | _ |
| 2 unit | V | ON | V | ON |

(V: CN500 connected; X: CN500 not connected.)

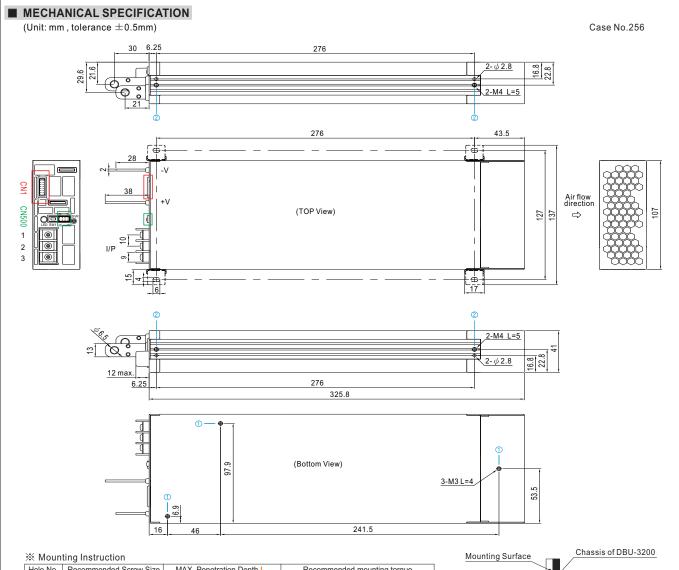




If the lines of CN500 are too long, they should be twisted in pairs to avoid the noise.

O DA, DB and -V(signal) are connected mutually in parallel.





| Hole No. | Recommended Screw Size | MAX. Penetration Depth L | Recommended mounting torque |
|----------|------------------------|--------------------------|-----------------------------|
| 1 | M3 | 4mm | 6~8Kgf-cm |
| 2 | M4 | 5mm | 7~10Kgf-cm |

Mounting Screw

 $\fint \cite{MCONTOLEMENT} \cite{MCONTOLEMENT}$ Control Pin No. Assignment (CN1): HRS DF11-16DP-2DS or equivalent



| Mating Housing | HRS DF11-16DS or equivalent |
|----------------|-----------------------------|
| Terminal | HRS DF11-**SC or equivalent |

| Pin No. | Function | Description | |
|----------|------------------|---|--|
| 1 | +12V-AUX | Auxiliary voltage output, 10.6~13.2V, referenced to GND-AUX (pin2). The maximum load current is 0.8A. This output has the built-in "Oring diodes" and is not controlled by "Remote ON-OFF". | |
| 2 | GND-AUX | Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V). | |
| 3 | +5V-AUX | Auxiliary voltage output, 4.5~5.5V, referenced to GND-AUX (pin2). The maximum load current is 0.3A. This output has the built-in "Oring diodes" and is not controlled by "Remote ON-OFF | |
| 4 | Remote ON-OFF | The unit can turn the output ON/OFF by electrical signal or dry contact between $Remote\ ON/OFF\ $ and $+5V-AUX$. (Note.2) Short $(4.5\sim5.5V)$: Power ON; Open $(-0.5\sim0.5V)$: Power OFF; The maximum input voltage is 5.5V. | |
| 5 | DC-OK | High (3.5 ~ 5.5V): When the Vout \leq 16V/32V \pm 1V. Low (-0.5 ~ 0.5V): When Vout \geq 16V/32V \pm 1V. The maximum sourcing current is 10mA and only for output. (Note.2) DC OK is associated with battery low protection. | |
| 6 | T-ALARM | High (3.5 ~ 5.5V): When the internal temperature exceeds the limit of temperature alarm, or when Fan fails. Low (-0.5 ~ 0.5V): When the internal temperature is normal, and when Fan works normally. The maximum sourcing current is 10mA and only for output(Note.2) | |
| 7,8,9 | A0,A1,A2 | PMBus interface address lines. (Note.1) | |
| 10 | D0 | DIP-switch interface lines for charging curve selection. (Note.1) | |
| 11 | PC | Connection for output current programming. (Note.1) | |
| 12 | PV | Connection for output voltage programming. (Note.1) | |
| 13 | +V (Signal) | Positive output voltage signal. It cannot be connected directly to the load. | |
| 14 | -V (Signal) | Negative output voltage signal. It is for certain function reference; it cannot be connected directly to the load. | |
| 15 16 | RTH+ RTH- | Temperature sensor(NTC, 5KOhm) comes along with the charger can be connected to the unit to allow temperature compensation of the charging voltage. | |

Note1: Non-isolated signal, referenced to the [-V(signal)]. Note2: Isolated signal, referenced to GND-AUX.



3200W Intelligent Single Output Battery Charger

DBU-3200 series

ightarrowAC Input Terminal Pin No. Assignment

| | Pin No. | Assignment | Diagram | Maximum mounting torque |
|---|---------|------------|-----------|-------------------------|
| | 1 | FG ± | . 1 2 3 . | |
| ĺ | 2 | AC/N | | 8Kgf-cm |
| | 3 | AC/L | | |

 $\label{lem:control} \begin{tabular}{ll} \verb&\%Control Pin No. Assignment (CN500): HRS DF11-8DP-2DS or equivalent \\ \end{tabular}$

| R | 2 | |
|-----|-----|--|
| | | |
| 0 | 000 | |
| 0 | 000 | |
| 7 | 4 | |
| - / | 1 | |

| Mating Housing | HRS DF11-8DS or equivalent |
|----------------|-----------------------------|
| Terminal | HRS DF11-**SC or equivalent |

| Pin No. | Function | Description |
|---------|-------------|---|
| 1, 2 | DA | Differential digital signal for parallel control. |
| 3, 4 | DB | Differential digital signal for parallel control. |
| 5, 6 | -V (Signal) | Negative output voltage signal. It is for local sense; and certain function reference; it cannot be connected directly to the load. |
| | NC | For standard model: None. |
| 7 | SDA | For PMBus model: Serial Data used in the PMBus interface. (Note) |
| | CANH | For CANBus model: Data line used in CANBus interface. (Note) |
| | NC | For standard model: None. |
| 8 | SCL | For PMBus model: Serial Clock used in the PMBus interface. (Note) |
| | CANL | For CANBus model: Data line used in CANBus interface. (Note) |

Note: Isolated signal, referenced to GND-AUX.

※Control Pin No. Assignment.(SW1)

| Pin No. | Function | Description |
|---------|---------------------|--|
| 1, 2 | Terminal resistance | SW1 is the selector of terminal resistor that is designed for DA/DB signals and parallel control function. |

■ INSTALLATION MANUAL

Please refer to : http://www.meanwell.com/manual.html