



# MEAN WELL DBU-3 200 3200W Intelligent Single Output Battery Charger User Guide

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## MEAN WELL DBU-3 200 3200W Intelligent Single Output Battery Charger



### Overview

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### 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 IC 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

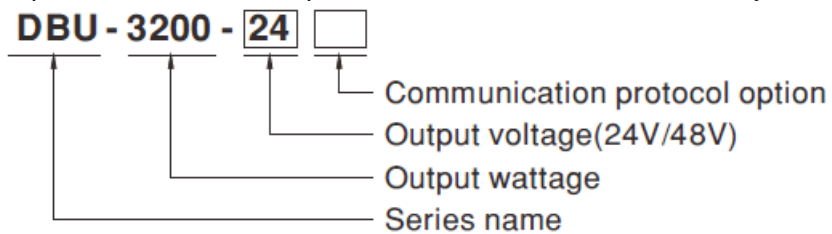
- Large scale DC UPS or emergency backup system
- Marine battery charger module
- Electric scooter or vehicle charger station
- Wastewater treatment system
- Electrolysis system

## 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/inch'. 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.



Type	Communication Protocol	Note
Blank	PMBus protocol	In Stock
CAN	CANBus protocol	By request

## Specifications

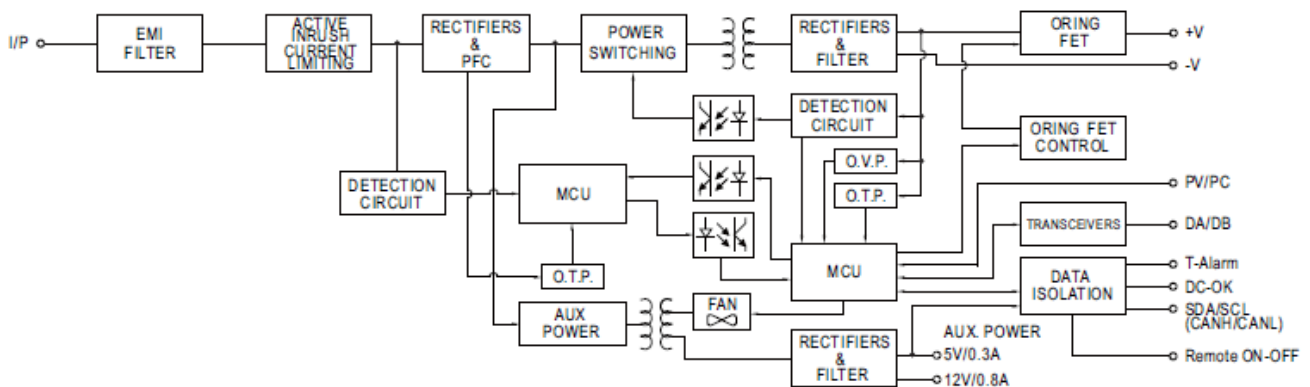
MODEL		DBU-3200-24	DBU-3200-48
OUTPUT	BOOST CHARGE VOLTAGE(Vboost)(default)	28.8V	57.6V
	FLOAT CHARGE VOLTAGE(Vfloat)(default)	27.6V	55.2V
	CONSTANT CURRENT(CC)(default)	110A	55A
	VOLTAGE ADJ. RANGE	By built-in potentiometer, SVR	
		23.5 ~ 30V	47.5 ~ 58.8V
	RECOMMENDED BATTERY CAPACITY(AMP HOURS) Note.3	330 ~ 1000Ah	180 ~ 550Ah
INPUT	LEAKAGE CURRENT FROM 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	
	EFFICIENCY (Typ.)	93.5%	94.5%
	AC CURRENT (Typ.) Note.4	17A/230VAC	
	INRUSH CURRENT (Typ.)	COLD START 55A/230VAC	
PROTECTION	LEAKAGE CURRENT	<2mA / 230VAC	
	OVER VOLTAGE	31.5 ~ 37.5V	63 ~ 75V
FUNCTION	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover	
	OUTPUT VOLTAGE PROGRAMMABLE(PV)	Shut down o/p voltage, recovers automatically after temperature goes down	
	OUTPUT CURRENT PROGRAMMABLE(PC)	Adjustment of output voltage is allowable to 75 ~ 125% of nominal output voltage. Please refer to the Function Manual.	
	AUXILIARY POWER	Adjustment of output voltage is allowable to 20 ~ 100% of rated current. Please refer to the Function Manual.	
	REMOTE ON-OFF CONTROL	5V @ 0.3A, tolerance $\pm 10\%$ , ripple 150mVp-p, 12V @ 0.8A, tolerance $\pm 10\%$ , ripple 450mVp-p	
	TEMPERATURE COMPENSATION	By electrical signal or dry contact Power ON:short Power OFF:open. Please refer to the Function Manual	
	ALARM SIGNAL	-3mV / $^{\circ}\text{C}$ / cell / (12V = 6 cells; 24V = 12 cells; 48V = 24 cells)	
ENVIRONMENT	WORKING TEMP.	Isolated signal output for T-alarm and DC-OK	
	WORKING HUMIDITY	-30 ~ +70 $^{\circ}\text{C}$ (Refer to "Derating Curve")	
	STORAGE TEMP., HUMIDITY	20 ~ 90% RH non-condensing	
	TEMP. COEFFICIENT	-40 ~ +85 $^{\circ}\text{C}$ , 10 ~ 95% RH non-condensing	
	VIBRATION	$\pm 0.03\%/^{\circ}\text{C}$ (0 ~ 50 $^{\circ}\text{C}$ )	
SAFETY & EMC (Note 6)	SAFETY STANDARDS	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
	WITHSTAND VOLTAGE	UL62368-1, CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved	
	ISOLATION RESISTANCE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC	
	EMC EMISSION	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25 $^{\circ}\text{C}$ / 70% RH	
		Parameter	Standard
		Conducted	BS EN/EN55032 (CISPR32)
		Radiated	BS EN/EN55032 (CISPR32)
		Harmonic Current	BS EN/EN61000-3-2
		Voltage Flicker	BS EN/EN61000-3-3
	EMC IMMUNITY	BS EN/EN55024, BS EN/EN61000-6-2	
		Parameter	Test Level / Note
		ESD	BS EN/EN61000-4-2
		Radiated	BS EN/EN61000-4-3
		EFT / Burst	BS EN/EN61000-4-4
		Surge	BS EN/EN61000-6-2
		Conducted	BS EN/EN61000-4-6
		Magnetic Field	BS EN/EN61000-4-8
		Voltage Dips and Interruptions	BS EN/EN61000-4-11

1. Modification for charger specification may be required for different battery specification. Please contact battery vendor and MEAN WELL for details.
2. All parameters INO specially mentone0 are measured at 250VAG INPput, raled ioad and 25 of amDient temperaure.
3. nis is MEAN WELLS SUGgested range. iease consUlt your datery manuiciurer tor their suggestions about maximum charging Current imitauon.
4. Derating may be needed under low input voltages. Please checkK 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 on a 600mm'90omm metal plate with 1mm of thickness. The final equipment must be re-confimed that it still meets EMC directives. For guidance on how to perform these EMC tests, please reter to "EMI testing of component power supplies.as available on <http://www.meanwell.com>)

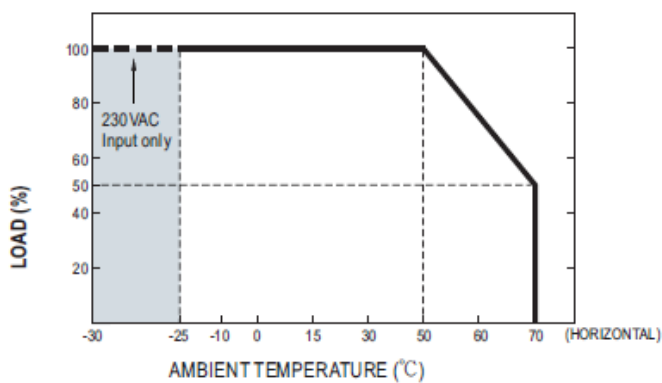
The ambient temperature derating of 3.5 C/100m with fanless models and of 5 C/1000m with fan models for operating attitude higher than 2000m(6500ft). Product Liability Disclaimer For detailed information. please refer to <https://www.meanwell.com/serviceDisclaimer.aspx>

#### ■ BLOCK DIAGRAM

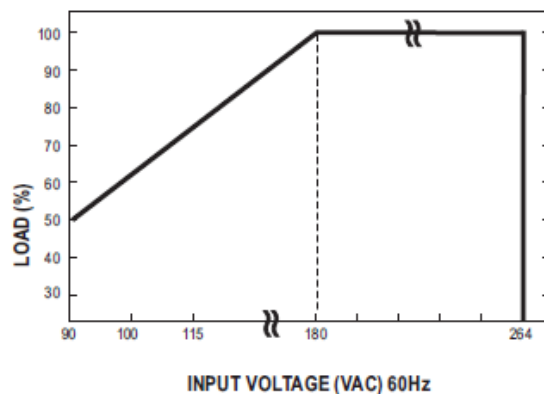
PFC fosc: 110KHz  
PWM fosc: 90KHz



#### ■ DERATING CURVE



#### ■ STATIC CHARACTERISTICS



## FUNCTION MANUAL

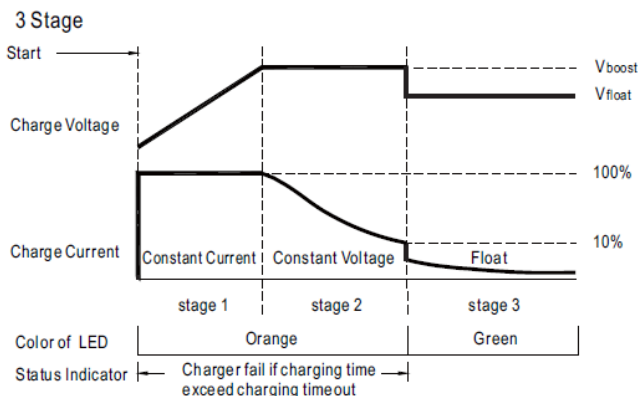
### PMBus Communication Interface

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

### 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. 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

☉ Default 3 stage charging curve



☉ Embedded 3 stage charging curves

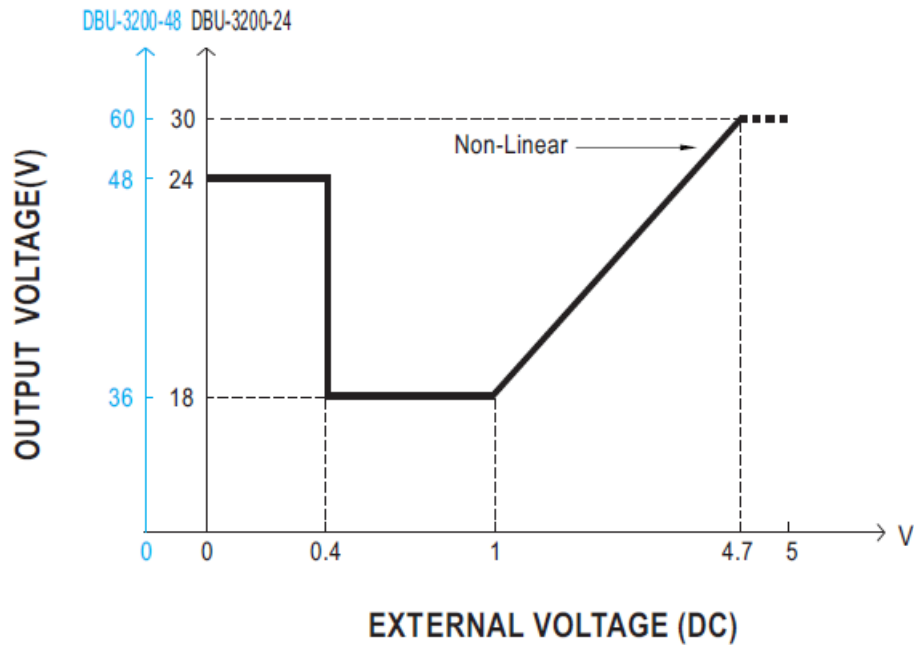
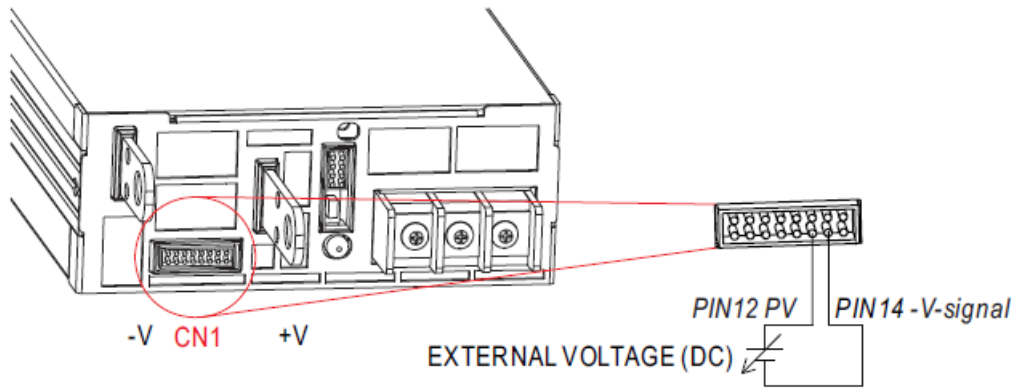
MODEL	Description	Vboost	Vfloat	CC(default)
24V	Default, programmable	28.8	27.6	110A
	Pre-defined, gel batter	28	27.2	
	Pre-defined, flooded battery	28.4	26.8	
	Pre-defined, AGM battery	29	27	
48V	Default, programmable	57.6	55.2	55A
	Pre-defined, gel batter	56	54.4	
	Pre-defined, flooded battery	56.8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

**Note:**

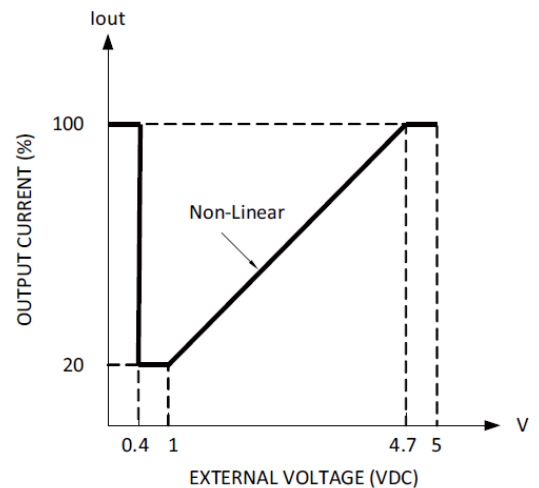
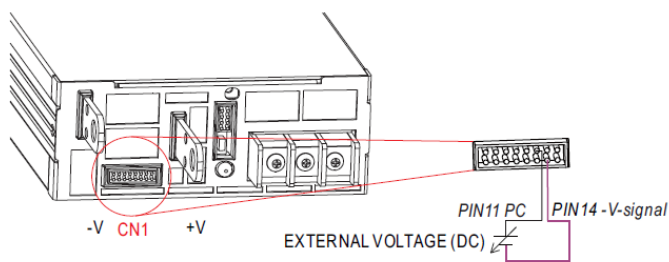
When using this charger unit, please configured the system with recommended battery capacity defined by specification. Should battery capacity in use be much smaller so that user needs to set a low current for charging, under such condition it might cause higher current ripple.

LED	Description
● Green	Float (stage 3)
● 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 operates normally without entering OTP. (In the meantime, an alarm signal will be sent out through the PMBus interface.)

output Voltage Programming (or, PVI 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.

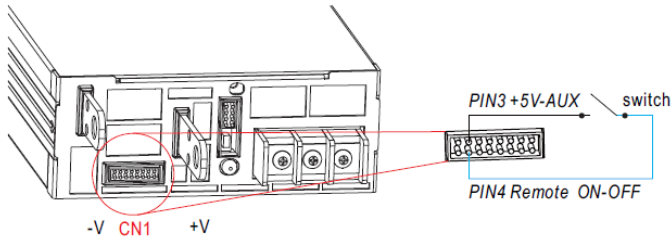


Output Current Programming (or, PCI remote current programming dynamic current trim) The output current can be trimmed to 20-100% of the rated current by applying EXTERNAL VOLTAGE.



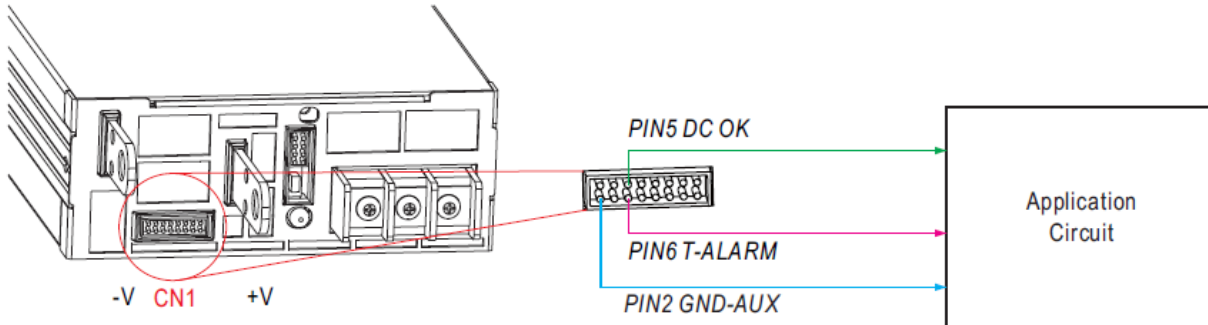
### Remote ON-OFF Control

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

## Temperature Compens



## 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. 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) X(Number of unit) X 0.9 K. When the total output current is less than 5% of the total rated current, or say (5% of Rated current per unit) X(Number of unit) the current shared among units may not be balanced. CN500/SW1 Function pin connection

Parallel	PSU1		PSU2	
	CN500	SW1	CN500	SW1
1 unit	X	ON	—	—
2 unit	V	ON	V	ON



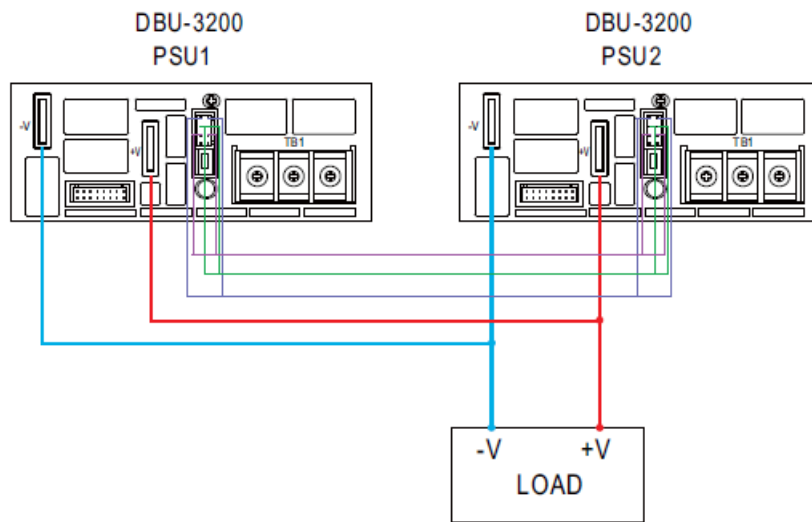
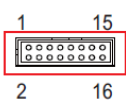
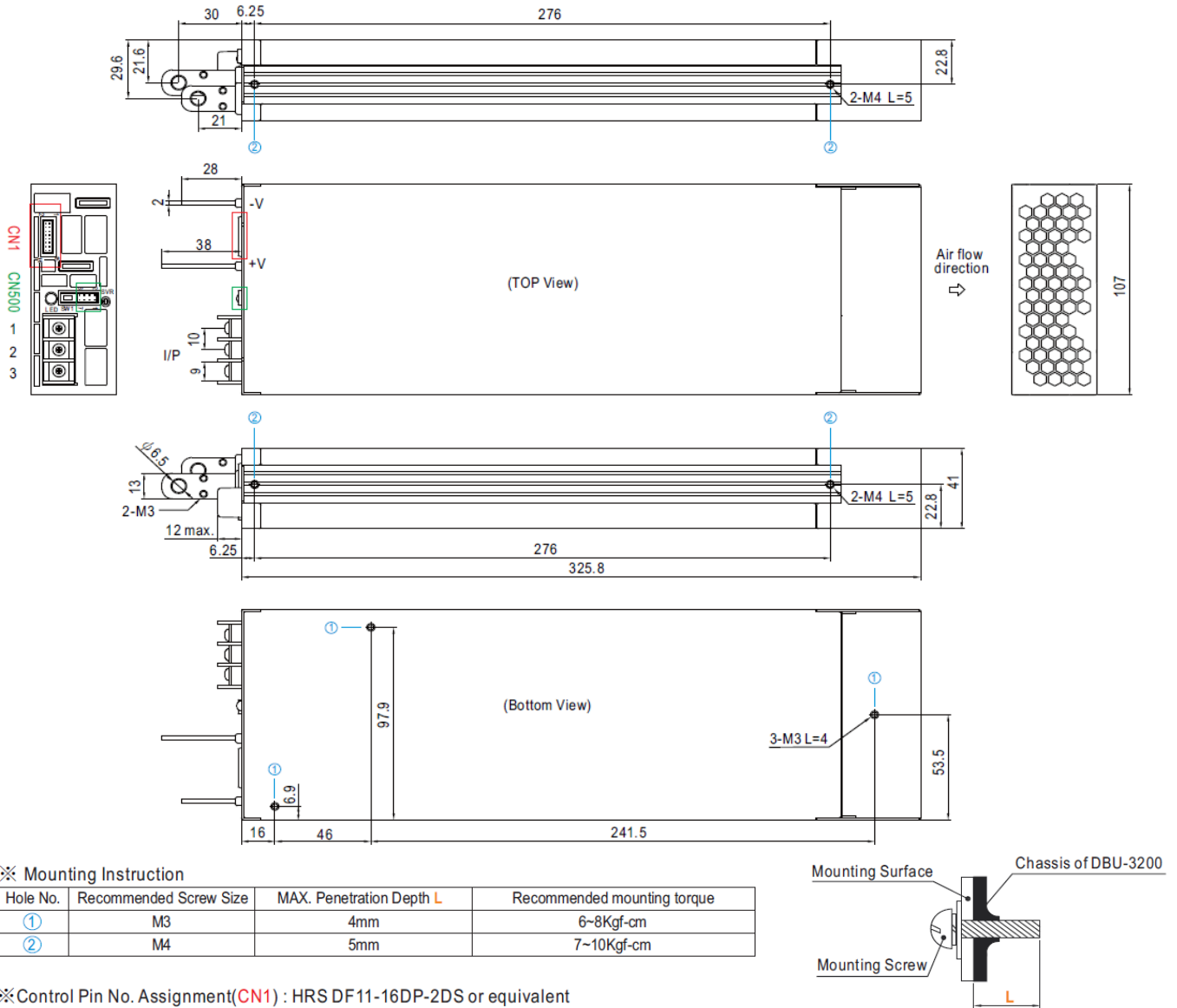


Fig 5.1

## MECHANICAL SPECIFICATION



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 <i>Remote ON/OFF</i> and +5V-AUX. (Note.2) Short (4.5 ~ 5.5V) : Power ON ; Open (-0.5 ~ 0.5V) : 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	RTH+	Temperature sensor(NTC, 5KOhm) comes along with the charger can be connected to the unit to allow temperature compensation of the charging voltage.
16	RTH-	


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

Note2: Isolated signal, referenced to GND-AUX.

## INSTALLATION MANUAL

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

## Documents / Resources

	<p><b><a href="#">MEAN WELL DBU-3 200 3200W Intelligent Single Output Battery Charger</a></b> [pdf] User Guide  DBU-3 200, 3200W Intelligent Single Output Battery Charger, DBU-3 200 3200W Intelligent Single Output Battery Charger, Intelligent Single Output Battery Charger, Single Output Battery Charger, Output Battery Charger, Battery Charger, Charger</p>
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## References

- [TÜV Rheinland - Home | US | TÜV Rheinland](#)
- [MEAN WELL Switching Power Supply Manufacturer](#)
- [Installation Manual-MEAN WELL Switching Power Supply Manufacturer](#)
- [Product Liability Disclaimer-MEAN WELL Switching Power Supply Manufacturer](#)