

DRU30 SERIES

30A DC UPS CONTROLLER



FEATURES

- BATTERY CONTROLLER FOR DIN RAIL UPS SYSTEM
- BUILT-IN BATTERY TEST FUNCTION
- BATTERY POLARITY PROTECTION
- PARALLEL CONNECTION TO DC BUS
- RELAY CONTACT SIGNAL OUTPUT
- LED INDICATOR FOR DC BUS OK, BATTERY FAIL AND BATTERY DISCHARGE
- BATTERY CONTROLLER FROM 4 TO 12 AH
- 3 YEARS WARRANTY



MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT
Single Output Models			
DRU30-12	11 ~ 14 VDC	10.5 ~ 13.5 VDC	30A
DRU30-24	22.5 ~ 28 VDC	22 ~ 27.5 VDC	30A

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL						
Characteristics	Conditions		min.	typ.	max.	unit
Isolation voltage	Input / Relay contact				500	VDC
Isolation resistance	Input / Relay contact, @ 100VDC		100			MΩ
Ambient temperature	Operating at Vi nom		-40		71	°C
Derating (see derating curve)	Vi nom, from +51 to +71°C				2.5	% / °C
Storage temperature	Non operational		-40		85	°C
Relative humidity	Vi nom, Io nom		20		95	% RH
MTBF	Bellcore Issue 6 @40°C, GB	12V		555,000		Hours
		24V		558,000		Hours
Altitude during operation	IEC 60068-2-13				4,850	m
Dimension	Screw terminal type		L90 x W54 x D114			mm
Cooling	Free air convection					
Installation position	Vertical (other direction may derating using)					
Pollution degree			2			
Degree of protection			IP20			

INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
DC input	Nominal input voltage	12V		12		V
		24V		24		V
	Input voltage range	12V	11		14	V
		24V	22.5		28	V
	Current consumption	No load			0.2	A
		Charging			3.5	A
		Maximum			35	A
Battery	Voltage range	12V	9.6		14.25	V
		24V	19.2		28.5	V



SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Switching threshold	12V	Vin < 11V		dynamic Vout - 1V / 100ms		
	24V	Vin < 22.5V		dynamic Vout - 1V / 100ms		

OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
DC output	Nominal output voltage	12V		12		V
		24V		24		V
	Output voltage range	12V	10.5		13.5	V
		24V	22		27.5	V
Battery output	Current range				30	A
					13.75	V
	Voltage range	12V	9.1		13.75	V
		24V	18.7		28.0	V
Output voltage drop	Current range				30	A
	Vi - Vout			0.55		V
Ripple & Noise	Battery - Vout			0.45		V
	Vi nom, Io nom				100	mV
Battery reverse voltage		12V			14.25	V
		24V			28.5	V
Battery output fuse			Internal 40A fuse			
Suggest external battery			4AH / 7AH / 12AH			
Selection of charge current	2AH ~ 5AH			0.5		A
	5AH ~ 10AH			1		A
	> 10AH			2.5		A
Selection of charge voltage	12V	Nominal charge voltage			13.6	V
		Fast charge voltage			14.25	V
	24V	Nominal charge voltage			27.2	V
		Fast charge voltage			28.5	V
Discharge current	To suggest discharge current					
	0.1CA ~ 3CA				30	A
	CA is battery capacity					

CONTROL FUNCTION

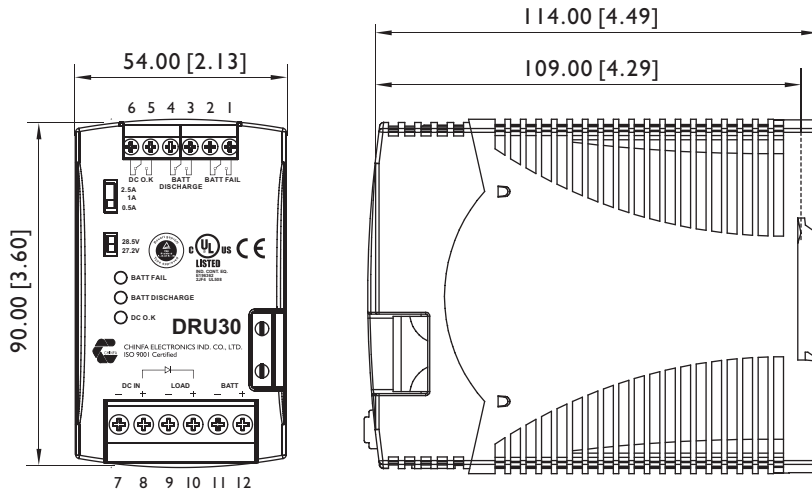
Characteristics	Conditions
Charge voltage	12V model : Nominal → 13.6 VDC, Fast → 14.25 VDC 24V model : Nominal → 27.2 VDC, Fast → 28.5 VDC
Battery Low-voltage protection for discharge voltage	12V model : ≤ 9.6V 24V model : ≤ 19.2V
Charge voltage protection for Battery Low-voltage	12V model : ≤ 8V 24V model : ≤ 16V
DC O.K	Relay Status : When DC Voltage between 22.5 ~ 28V (24V model), 11 ~ 14V (12V model) relay contacts DC ON
Battery fail	Relay Status : When battery fail is observed through the battery test function, relay contacts battery fail.
Battery discharge	Relay Status : When battery in discharge condition, relay contacts battery discharge.
NOTE	Propose the battery manufacturer and capacity of battery choose the same type to avoid any damage of battery.

APPROVALS AND STANDARDS

UL / CUL	UL 508 Listed, UL 60950-I Recognized
TUV	EN 60950-I
CE	EN 61000-6-3, EN 55022 class B, EN 61000-6-2, EN 55024, EN 61204-3 EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-6, EN 61000-4-8
Vibration resistance	meet IEC 60068-2-6 (Mounting by rail : 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)

MECHANISM & PIN CONFIGURATION

mm [inch]



CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail; no tools required even to remove

INSTALLATION

Ventilation / Cooling
Normal convection
All sides 25mm free space
For cooling recommended
Connector size range
IN / OUT : AWG18-8 (0.6~6mm²)
flexible / solid cable, connector can withstand torque at maximum 9 pound-inches.
10~11mm stripping at cable end recommends.
Relay : AWG24-12 (0.2~2.5mm²)
flexible / solid cable, connector can withstand torque at maximum 5 pound-inches.
7mm stripping at cable end recommends
Use copper conductors only, 60/ 75 °C

GENERAL TOLERANCE

0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

PIN ASSIGNMENT

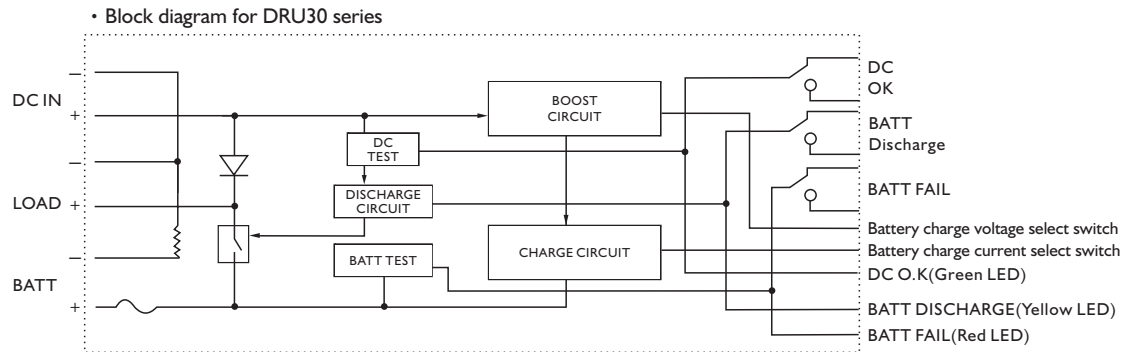
PIN NO.	Designation	Description
1, 2	BATT FAIL	Signal port
3, 4	BATT DISCHARGE	Signal port
5, 6	DC O.K	Signal port
7	DC IN (-)	Input voltage
8	DC IN (+)	Input voltage
9	LOAD (-)	Output voltage
10	LOAD (+)	Output voltage
11	BATT (-)	Battery mode connection
12	BATT (+)	Battery mode connection
	0.5A / 1A / 2.5A	Battery charge current select switch
	27.2V / 28.5V (24V model)	Battery charge voltage select switch
	13.6V / 14.25V (12V model)	Battery charge voltage select switch
	BATT FAIL (Red LED)	Battery low fail indicator LED
	BATT DISCHARGE (Yellow LED)	Battery discharge indicator LED
	DC O.K (Green LED)	Battery charge indicator LED

PHYSICAL CHARACTERISTICS

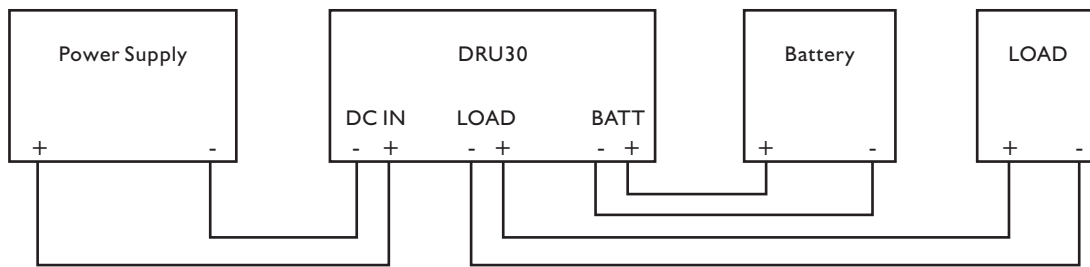
CASE SIZE

Screw terminal type	90 x 54 x 114 mm (3.60 x 2.13 x 4.49 inches)
Case material	Plastic
Weight	370g
Packing	0.45kg ; 32pcs / 15.5kg / 1.85CUFT

CIRCUIT SCHEMATIC



APPLICATION



LED INDICATOR STATE

LED		BATT FAIL (RED)	BATT DISCHARGE (YELLOW)	DC O.K (GREEN)
STATE				
Battery Status @ DC IN O.K	Battery open circuit	ON	OFF	ON
	Fuse open circuit			
	Battery reverse polarity			
	Battery over discharge protection			
DC IN OK Battery charging		OFF	OFF	ON
12V model : DC IN < 11V, Battery discharge, Batt > 10V		OFF	ON	OFF
24V model : DC IN < 22.5V, Battery discharge, Batt > 20.5V				
12V model : DC IN < 11V, Battery discharge, Batt < 10V		ON	ON	OFF
24V model : DC IN < 22.5V, Battery discharge, Batt < 20.5V				
12V model : DC IN < 11V, Batt ≤ 9.6V		OFF	OFF	OFF
24V model : DC IN < 22.5V, Batt ≤ 19.2V				

DERATING CURVE

