

# YSDU20 SERIES 24V



Yingjiao's 20A DIN rail type DC-UPS module, and it is paired with a power supply and an external battery to achieve the backup function. When the AC mains fails or is interrupted, the load will be immediately connected to the battery pack to avoid interruption and to ensure the continuous operation of the entire system (the operating time depends on the capacity of the battery pack).



## Features

- Uninterruptible DC-UPS controller
- Suitable for 24V systems, up to 20A
- Complete diagnostic and monitoring for DC BUS OK, battery discharge, battery fail
- Protections: Battery reverse polarity protection & Short circuit (By internal detection) Battery overcharge/overdischarge
- Width only by 40mm
- Three Years Warranty

## DC UPS INPUT

DC NORMAL OPERATING VOLTAGE	22Vdc/Vin-1Vdc
DC OPERATING VOLTAGE RANGE	22-29Vdc
OUTPUT CURRENT(max.)	20A

## DC UPS OUTPUT

VOLTAGE RANGE	21 ~ 29Vdc
DISCHARGE CURRENT RANGE	0 ~ 20A
CHARGING CURRENT	2A

## BATTERY

NORMAL BATTERY VOLTAGE	24Vdc ( 2 x 12Vdc in series or 1 x 24Vdc)
BATTERY TYPE	Lead-acid battery
EXTERNAL BATTERY CAPACITIES	4AH ~ 135AH

## PROTECTION

BATTERY POLARITY	Protected by internal detection, No Damage, recovers automatically after fault conduction is removed
OVER LOAD	This protection only works when batteries are not connected. External fuse is recommended when batteries are connected.
OVER DISCHARGE CURRENT	21~23A , After 3 sec. unit will cut-off battery discharging by relay
BATTERY DEEP DISCHARGE	Cut-off battery discharging by relay after fault condition removed

## FUNCTION

<b>RELAY CONTACT RATINGS (max.)</b>	30VDC/1A resistive load
<b>DC BUS OK</b>	Relay contact : Short when DC voltage between 21~29V( 2%), relay contacts LED(Green) : DC BUS OK : light ; DC BUS fail : dark
<b>BATTERY FAIL</b>	Short when battery voltage falls below 22V( 2%) or battery failure is observed through the battery test function, relay contacts LED(Red) : Battery over-discharge warning or battery broken : light ; Battery OK : dark.
<b>BATTERY DISCHARGE</b>	Relay contact : Short when battery in discharge condition, relay contacts LED(Yellow) : light : Battery discharging ; dark : Battery is not discharging or discharging current < 1.0A

## ENVIRONMENT

<b>COOLING</b>	Free air convection
<b>WORKING TEMP.</b>	-30 ~ +70 °C (Refer to "Derating Curve")
<b>WORKING HUMIDITY</b>	5 ~ 95% RH non-condensing
<b>STORAGE TEMP.</b>	-40 ~ +85 °C
<b>TEMP. COEFFICIENT</b>	± 0.03%/°C (0 ~ 60 °C)
<b>VIBRATION</b>	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6
<b>OPERATING ALTITUDE</b>	2000 meters/OVC II

## SAFETY & EMC(Note.4)

<b>SAFETY STANDARDS</b>	EAC TP TC 004 approved		
<b>WITHSTAND VOLTAGE</b>	IP/OP - Chassis : 0.5KVac IP/OP- Relay : 0.5KVac Relay - Chassis : 0.5KVac		
<b>ISOLATION RESISTANCE</b>	IP/OP - Chassis, IP/OP- Relay, Relay - Chassis:>100M Ohms / 500Vdc / 25 / 70% RH		
<b>EMC EMISSION</b>	Parameter	Standard	Test Level / Note
	Conducted	-	-
	Radiated	BS EN/EN55032(CISPR32)	Class B
	Voltage Flicker	-	-
	Harmonic Current	-	-
<b>EMC IMMUNITY</b>	BS EN/EN55035, BS EN/EN61000-6-2, BS EN/EN61204-3		
	Parameter	Standard	Test Level / Note
	ESD	BS EN/EN61000-4-2	Level 3, 8KV air ; Level 2, 4KV contact; criteria B Level 2, 4KV air ; Level 1, 2KV contact; criteria A
	Radiated	BS EN/EN61000-4-3	Level 3, 10V/m ; criteria A
	EFT / Burst	BS EN/EN61000-4-4	Level 3, 2KV ; criteria A
	Surge	BS EN/EN61000-4-5	Level 3, 0.5KV(DC input ports)
	Conducted	BS EN/EN61000-4-6	Level 3, 10V ; criteria A
	Magnetic Field	BS EN/EN61000-4-8	Level 4, 30A/m ; criteria A

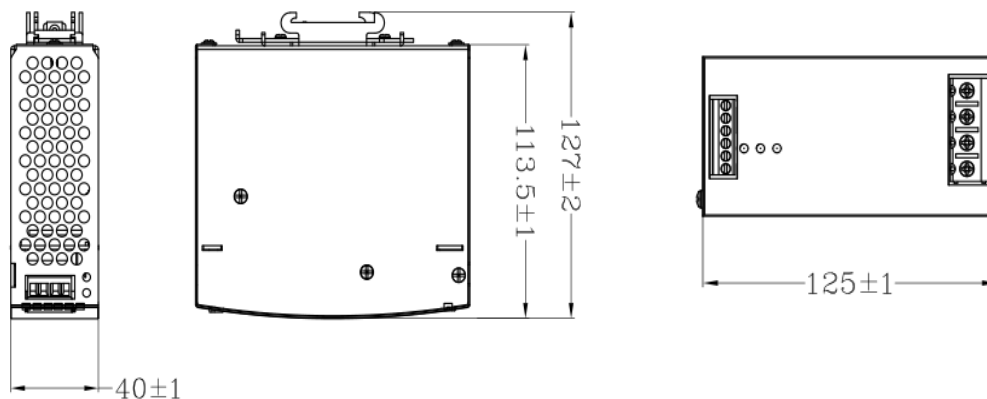
## Dimensions & Weight

<b>Length</b>	40mm / 1.57in
<b>Width</b>	125mm / 4.92in
<b>Height</b>	113mm / 4.45in
<b>Weight</b>	0.31kg

## Packing

<b>Carton Size</b>	31.5 x 30 x 30 CM
	12.4 x 11.8 x 11.81in
<b>Master Carton Quantities</b>	20pcs/Carton

## Mechanical Specification



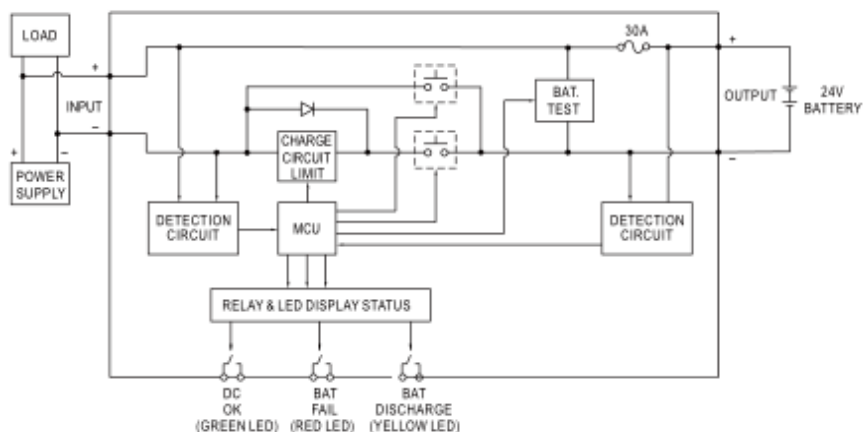
Output

Pin No.	Assignment	LED
1	BAT Discharge	YELLOW
2		
3	BAT Fail	RED
4		
5	DC OK	GREEN
6		

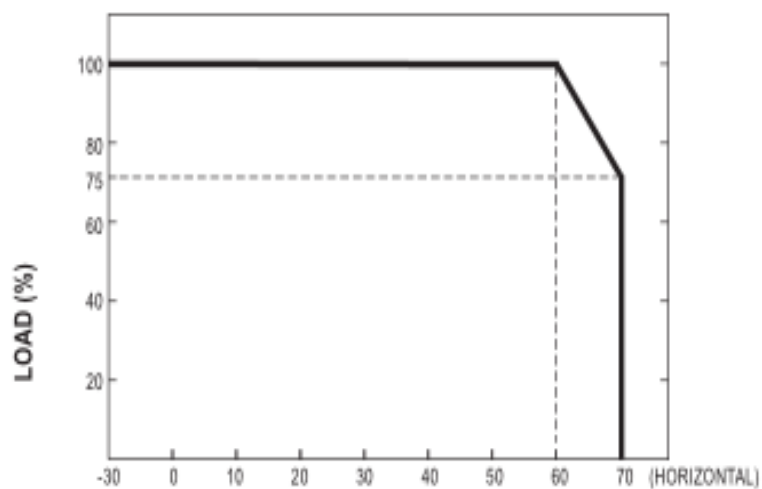
Input

Pin No.	Assignment
1	BAT INPUT +
2	BAT INPUT -
3	DC INPUT -
4	DC INPUT +

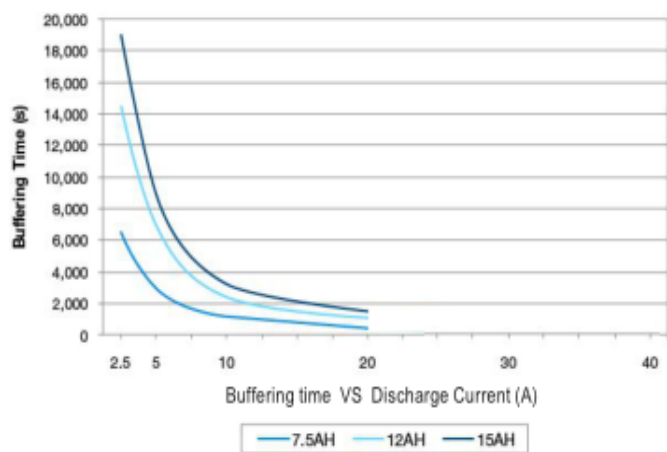
## Block Diagram



## Derating Curve



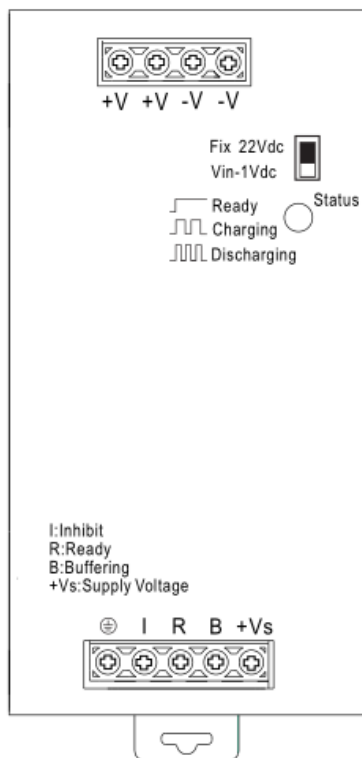
## Buffering Time



Discharge Current	Buffering Time(Reference)		
	7.5AH	12AH	15AH
2.5A	6500s	14500s	19000s
5A	3000s	7000s	9000s
10A	1200s	2400s	3200s
20A	400s	1100s	1500s

# Function Manual

## 1. User Elements



Back-up Threshold Voltage Selectable by Switch:

Option 1: Fixed mode ( in Switch Fix 22Vdc)

The unit switches to buffer mode as soon as the voltage falls below 22Vdc.

Option 2: mode ( in - Dynamic Switch V n 1Vdc i )

Unit switches to buffer mode when input voltage decreases by 1Vdc.

Note: Factory setting is fixed mode

LED Indicator Status:

LED : OFF Capacitors are discharged.

LED . ON Capacitors are fully charged :

LED Flashing slowly (1Hz): Capacitors are getting charged.

LED Flashing quickly (10Hz): Capacitors are getting discharged.

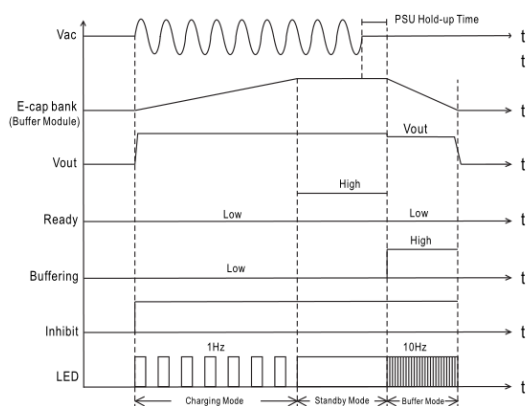
Signal Connector:

-Inhibit, +Vs - V(I) < 6Vdc: Buffer module ON; +Vs - V(I) > 10Vdc: Buffer module OFF.

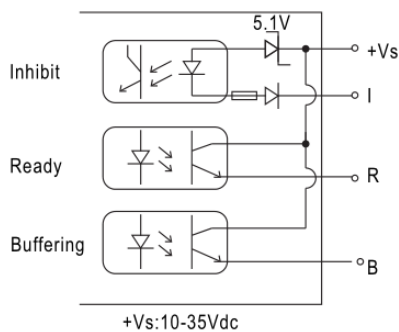
-Ready, Charged ready: V(R) > +Vs - 2Vdc; Unready: V(R) < 1Vdc.

--Buffering, Buffering: V(B) > +Vs - 2Vdc; Other mode: V(B) < 1Vdc.

## 2. Operating Diagram



## 3. Signal Schematics



(+Vs can connected to DBUF20 "+V" or external voltage source, Please refer to "Typical Application Notes")