



# AVC-UPS-DC-40

# Datasheet

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## 24V/40A Uninterruptible DC UPS Module

### AVC-UPS-DC-40

The AVC-UPS-DC-40 is a 40A 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).

The main features of AVC-UPS-DC-40 include: fast installation, suitability for 24V battery packs and various capacities of 4AH~135AH, 2A battery charging current, low voltage disconnect for battery protection and more. The product is suitable for use in data centers, security systems, emergency lighting wireless communication UPS, central monitoring systems, etc.



### Features & Benefits

- Uninterruptible DC-UPS controller
- Parallel connection to DC BUS (Power supply + DC-UPS Module + Batteries + Load)
- Suitable for 24V system, up to 40A
- 2A Battery charging current
- Allows 4AH~135AH lead-acid various battery capacities
- Complete diagnostic and monitoring for DC BUS OK, battery discharge, battery fail
- LED indicator for signal status
- Protections: Battery reverse polarity protection & Short circuit (By internal detection)/ Battery discharge / Over discharge current
- Cooling by free air convection
- 3 years warranty
- Suitable for industrial control system, semiconductor fabrication equipment, factory automation and electro-mechanical apparatus



### Ordering Information

Part No.	DC UPS Input			DC UPS Output			Battery	
	Normal Input Voltage	Input Voltage Range	Rated Current	Voltage Range	Discharge Current Range	Discharging Current	Normal Battery Voltage	External Battery Capacities
<b>AVC-UPS-DC-40</b>	24Vdc	24 ~ 29Vdc	40A	21 ~ 29Vdc	0 ~ 40A	2A	24Vdc (2 x 12Vdc in series or 1 x 24Vdc)	4AH ~ 135AH

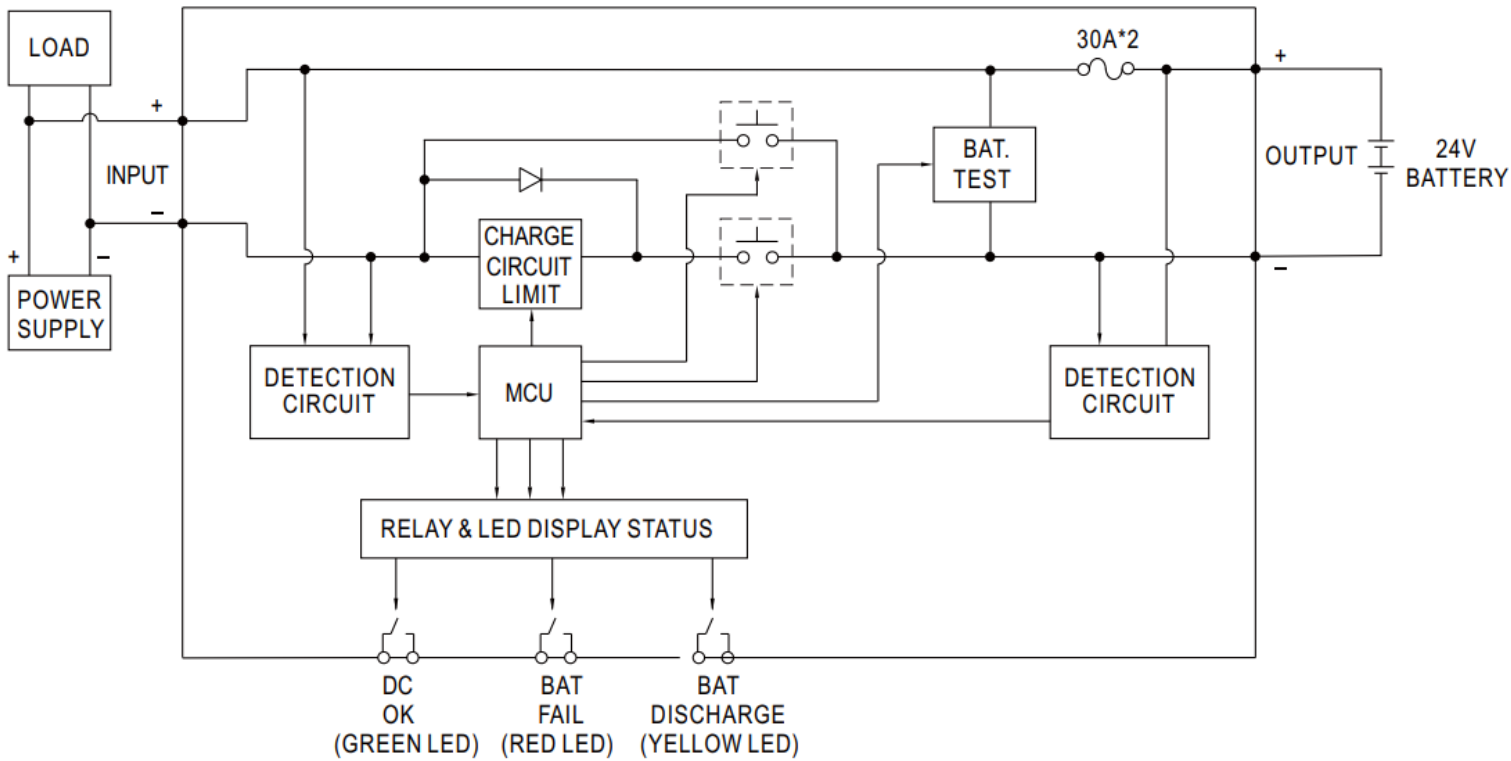
## Specifications

DC UPS Input	
Normal Input Voltage	24Vdc
Input Voltage Range	24 ~ 29Vdc
Rated Current	40A
DC UPS Output	
Voltage Range	21 ~ 29Vdc
Discharge Current Range	0 ~ 40A
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
Short Circuit	This protection only works when batteries are not connected, No Damage. External fuse is recommended when batteries are connected.
Over Discharge Current	42~46A, After 3 sec., unit will cut-off battery discharging by relay
Battery Deep Discharge	Cut-off battery discharging by relay
Function	
Relay Contact Ratings (Max.)	30VDC/1A resistive load
DC BUS OK	Relay contact : Short when DC voltage between 21~29V ( $\pm 2\%$ ), relay contacts LED(Green) : DC BUS OK : light ; DC BUS fail : dark
Battery Fail Note.2	Short when battery voltage falls below 22V ( $\pm 2\%$ ) 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
Battery Discharge	Relay contact : Short when battery in discharge condition, relay contacts LED(Yellow) : light : Battery discharging ; dark : Battery is not discharging or discharging current < 2.0A
Environment	
Cooling	Free air convection
Working Temp. Note.3	-30 ~ +70°C (Refer to "Derating Curve")
Working Humidity	5 ~ 95% RH non-condensing
Storage Temp.	-40 ~ +85°C
Temp. Coefficient	$\pm 0.03\%/^{\circ}\text{C}$ (0 ~ 60°C)
Vibration	Component: 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6
Operating Altitude Note.4	2000 meters/OVC II

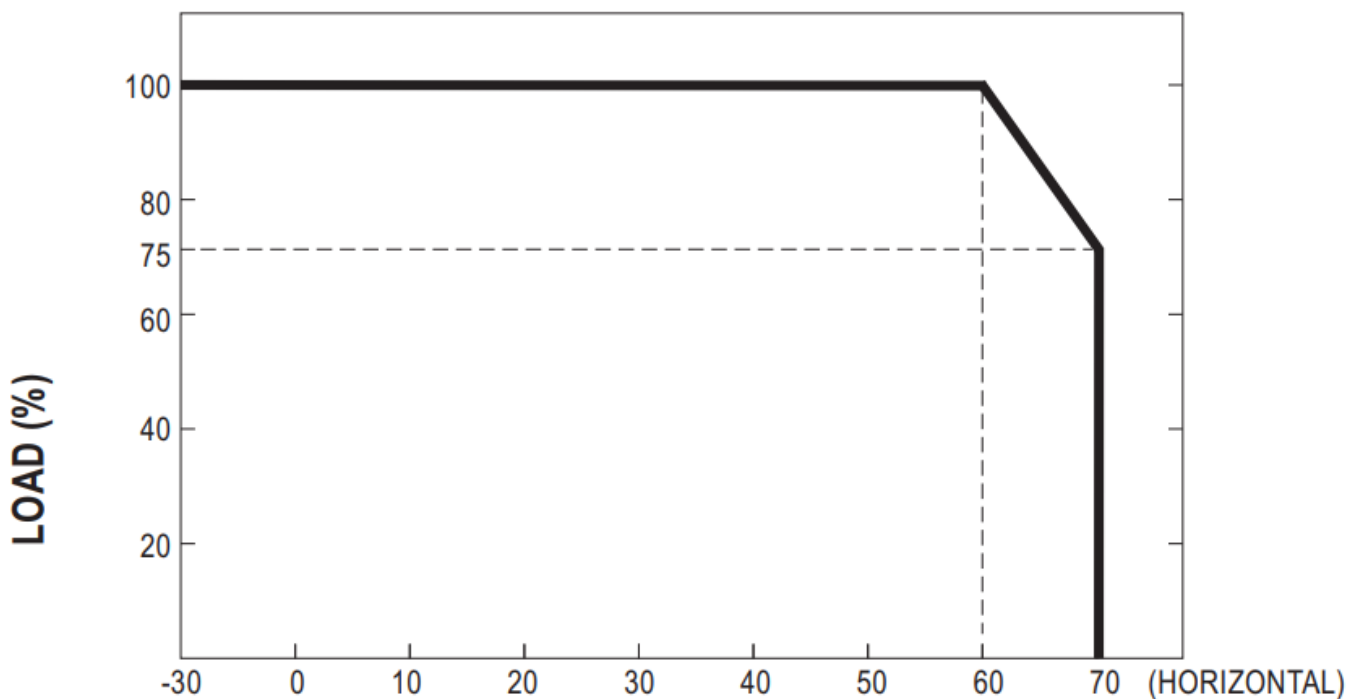
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Safety & EMC (Note.5)			
<b>Safety Standards</b>	EAC TP TC 004 approved		
<b>Withstand Voltage</b>	IP/OP - Chassis : 0.5KVac ; IP/OP- Relay : 0.5KVac ; Relay - Chassis : 0.5KVac		
<b>Isolation Resistance</b>	IP/OP - Chassis, IP/OP- Relay, Relay - Chassis:>100M Ohms / 500Vdc / 25°C/ 70% RH		
<b>EMC Emission</b>	<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>
	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		
	<b>Parameter</b>	<b>Standard</b>	<b>Test Level / Note</b>
	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
<b>Others</b>			
<b>MTBF</b>	465.7K hrs min. Telcordia SR-332 (Bellcore) ; 499.5K hrs min. MIL-HDBK-217F (25°C)		
<b>Dimension</b>	63*125.2*113.5mm (W*H*D)		
<b>Packing</b>	0.42Kg; 20pcs/9.4Kg/1.57CUFT		
<b>Note</b>			
<ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at normal input(24V) , rated load and 25°C of ambient temperature.</li> <li>Every 30 seconds, unit will test the battery.If the testing result is faulty, unit will turn on "Battery Fail" relay contact and "Red LED" indicator.</li> <li>Derating may be needed over high ambient temperature. Please check the derating curve for more details.</li> <li>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 2000m(6500ft).</li> <li>The unit 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 360*720mm metal plate with 1mm of thickness.</li> </ol>			

## ➤ Block Diagram

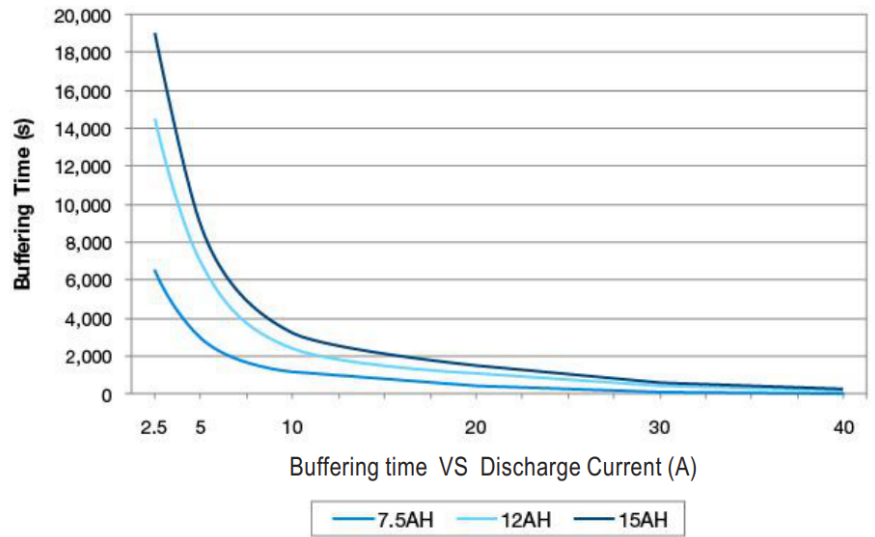


## ➤ Derating Curve



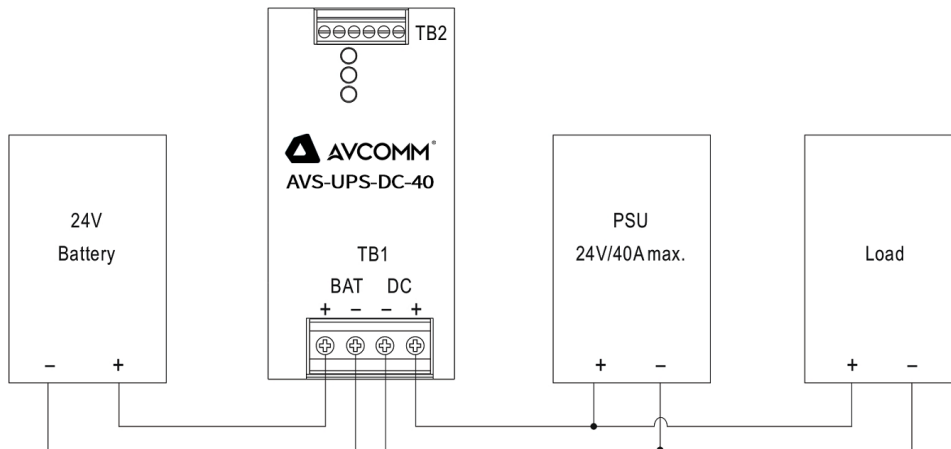
## ➤ Buffering Time

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
30A	120s	450s	600s
40A	25s	200s	280s

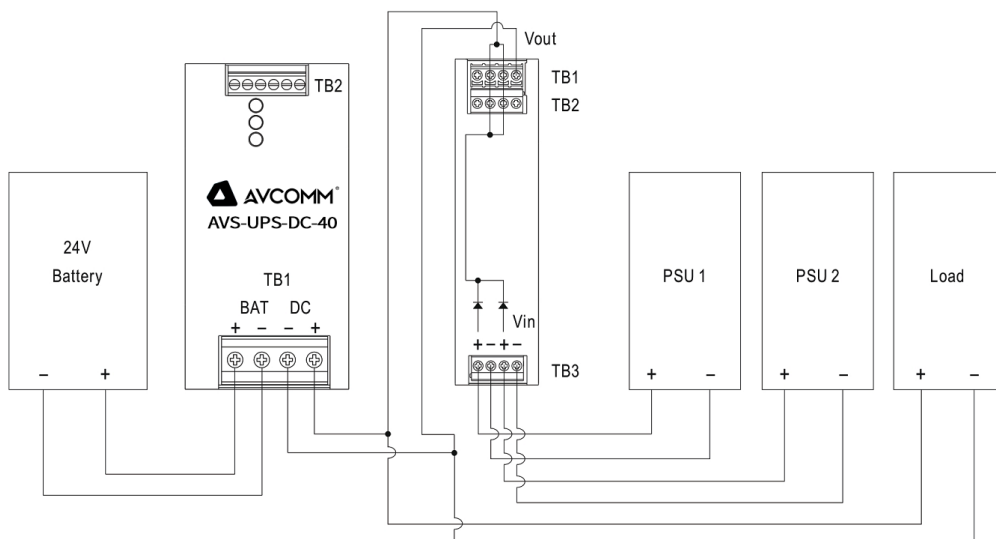


## ➤ Suggested Application

### 1. Back up connection for AC interruption

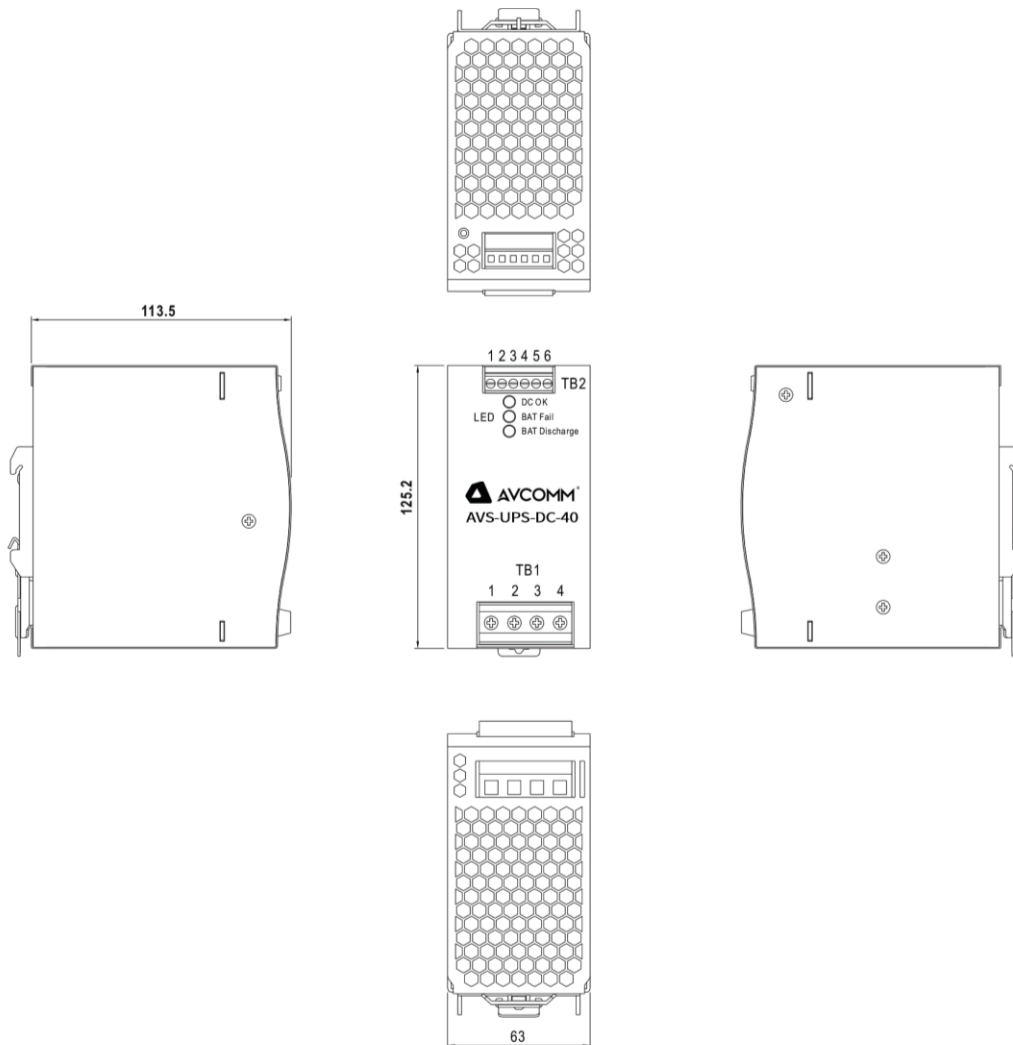


### 2. Combine redundancy module to back up AC interruption or failure of PSU



## Installation dimensions

Unit: mm



### Terminal Pin No. Assignment (TB1)

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

### Terminal Pin No. Assignment (TB2)

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