



DIN Rail DC-Sag UPS with Backup Battery

# Micron *DINergy*™

## DIN Rail

## DC-Sag-UPS Module

**24VDC, 10 Amp  
External Battery Option**

### KEY FEATURES

- No-Maintenance Sag Protection
  - Optional External Backup Battery Pack. Up to 10 minutes (extra Battery Packs available separately)
  - Industrial Design and Construction; Compact Size with Rugged Metal Case
  - Standard DIN Mounting
  - 700 msec. Backup at 10A, (no Ext. Battery)  
4 min. Backup at 10A (with Ext. Battery)
- No fans for high MBTF
  - "DC OK" Signal
  - "CHARGING" Indicator LED
  - Circuit and Damage Protection
  - Meets:  
UL/C-UL, EN 50081-2, EN 61000-6-2

### DESCRIPTION

DC Power is a critical energy to most automation solutions today. Loss of power can collapse data communication, diminishing product and process quality, and system productivity. Micron gives customers the ability to increase this 24Volt DC availability by the use of its DC Sag Buffer/UPS product. The DC-Sag Buffer/UPS (Sag Buffer plus Uninterruptible Power Supply) can help equipment ride through many nuisance sags and help provide orderly shutdown in a more sustained power loss. .

The DC Sag Buffer/UPS uniquely takes the guesswork out of power availability to DC control systems and equipment, especially where power issues are difficult to quantify. Featuring a unique two stage Sag-buffer plus optional Battery back-up function, customers can tailor their power availability needs from milliseconds to minutes depending on their environment, location, or equipment.

The DC Sag Buffer/UPS features a 24V buffer stage that protects against one of the most common forms of power quality problems: the sag. Using maintenance-free, ultra capacitors, the unit can provide up from 700ms to 10 seconds of hold-up (load dependent). For increased hold-up time, an integral battery charger allows the user to add batteries for hold-up up from 4 - 10 minutes. Customers can purchase the unit for sag protection, and if longer run times are required, buy the optional DIN Rail mount battery packs.

The DC Sag Buffer/UPS is a compact, highly reliable solution to DC availability. The life expectancy of the product is extremely high when compared to its AC UPS competition due to its Industrial temperature range, zero fans, a lower component count, and the optional/replaceable batteries.

The DC Sag Buffer/UPS complements a broad range of Industrial DC Power Supplies to gives its customers the ultimate in DC power reliability.

**MODEL SELECTION GUIDE**

DCSagUPS Model	Configuration	Rating	Battery
MDBPS-1024L	DC-UPS (with External Battery)	10 Amps / 2.6 AH	Sealed Lead Acid
MDBPS-(tbd)	DC-UPS Module only	10 Amps	N/A
MDBPS-BATTERYL24	External Battery only	10 Amps / 2.6 AH	Sealed Lead Acid

**SPECIFICATIONS**

NOTE: Products are rated for industrial environments and are not to be used nor are warranted in aerospace, medical or life safety applications.

**GENERAL (DC-UPS with External Battery)**

Operating Temperature	0 to +75 C
Storage Temperature	-15 to +75 C
Relative Humidity (25C)	≤ 95%RH, non-condensing

Weight	2.5 lbs (1.13 kg): DC-UPS 6.0 lbs (2.7 kg): Ext. Batt.
Vibration / Shock	2.3g, 90min / 30g
Certifications	Meets: UL/C-UL(60950) EN 50081-2, EN 61000-6-2

## ELECTRICAL

### DC-UPS Module (1)

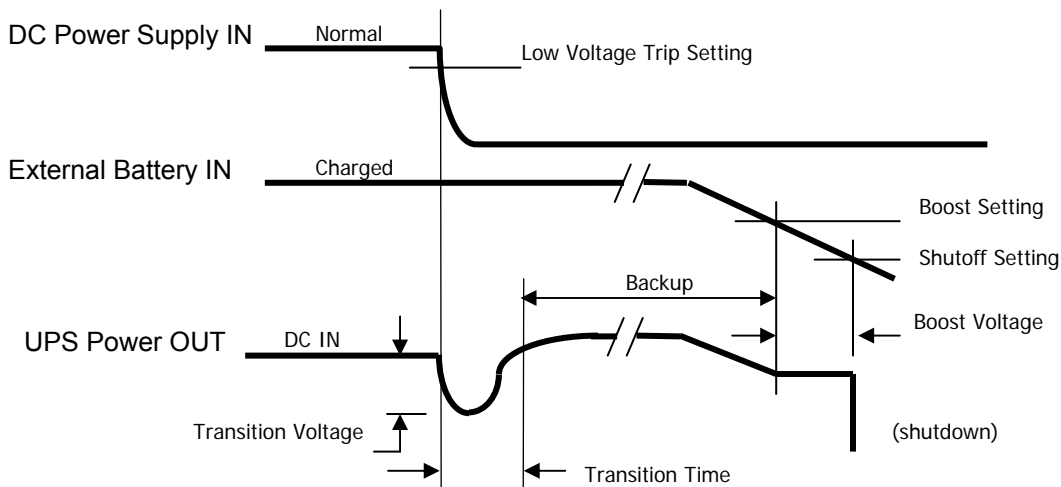
Rated DC Input	24 VDC +/- 5%, 11 A (Internal usage: < 1 A)	DC Output Transition	< 0.8 ms, with < -10% DC output drop
Rated DC Output	24 VDC +/- 10%, 10 A	DC Output Protection	Front Access Fuse, 12A
Charger Output (1)	27.3 VDC, ≤ 0.5 A	Battery Status	" CHARGING " LED " DC OK " Signal (open collector, 5 mA)
Charging Time (1)	4 Hr. max.	Connections	See Mechanical Dwg.
Low Voltage Trip Points (falling / recovering)	22.7 VDC / 22.8 VDC	MTBF	> 500,000 Hrs
Low Voltage Boost	≥ 22.1 VDC	Warranty	2 years
Low Voltage Shutdown	≤ 19.8 VDC Battery & ≤ 22.3 VDC DC Input		

### External Battery Module (1)

Battery Type	Sealed Lead Acid	Connectors	See Mechanical Dwg.
Rating	24VDC, 2.6 AH / 20 Hr	Warranty	1 Year

(1) For Battery protection against damage, the external charger source connected to the Sealed Lead Acid Backup Battery module must only be the DC-UPS model MDBPS-1024L charger.

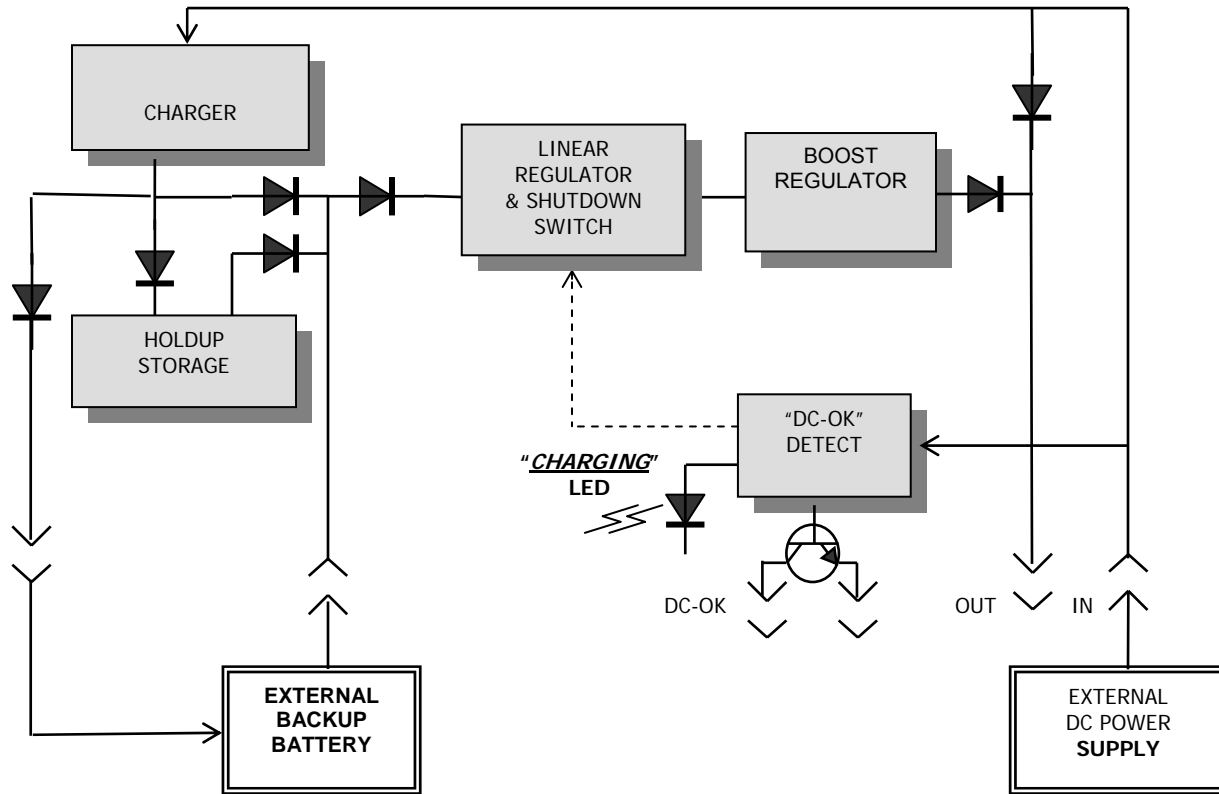
### OUTPUT TRANSITION (supply power to battery power; at 10 Amps load)



### OUTPUT CURRENT HOLD TIME

Output Load Current	No External Battery	With External Battery
5 Amps	2 sec	10 min
10 Amps	0.7 sec	4 min

**BLOCK DIAGRAM**



**OPERATION**

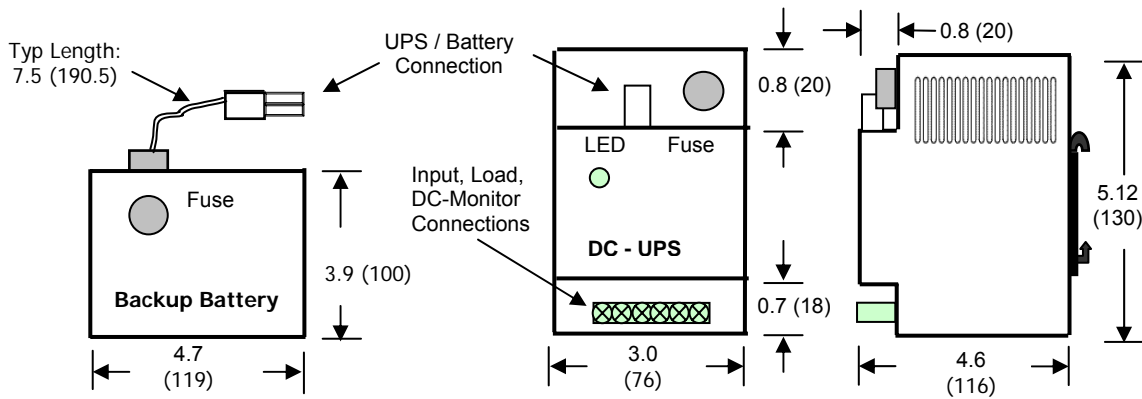
As shown in the diagram above, the 24 VDC Input External Power Supply feeds the Charger. The Charger charges the Holdup Storage capacitor and the (optional) External Backup Battery. When the DC Input voltage becomes low, the DC-UPS switches the DC Output to the Battery source. The Linear Regulator and Boost Regulator work together to convert the energy of the Holdup Storage and Backup Battery to a regulated Holdup output voltage.

- **NORMAL** – When the 24 VDC Input power source is normal and above the low voltage trip point, the DC Input voltage is routed to the DC Output terminals.
- **LOW VOLTAGE** – When the 24 VDC Input power source fails or a transient occurs below the “Boost” trip point, the DC-UPS switches to the Internal Storage or optional Backup Battery source. The Linear Regulator and Boost Regulator maintain the DC Output energy at the Boost Voltage.
- **SHUTDOWN** – When the Holdup Buffer storage capacitor or (optional) External Backup Battery falls below the “Automatic Shutdown” point, the DC-OK Detection circuit automatically shuts off the DC Output. This protects the Battery from persistent overload and possible damage.
- **RECOVERY** – If Input power source should recover, the Holdup circuit will resume normal operation and the Charger will resume charging the External Backup Battery.

**BATTERY STATUS**

LED	DC OK Signal
ON – Normal DC Input, Backup source is charging	CONDUCTING (5ma) – DC Input is Normal.
OFF – Low Voltage DC Input, Backup source is not charging	OPEN (Bvce 36V) – DC Input is not Normal.

**MECHANICAL** (not to scale)



**CONNECTIONS**

TERMINAL	DESCRIPTION
IN 24V	24 VDC External Power Input (+/-).
OUT 24V	24 VDC Output Load (+/-).
DC-OK	Open Collector output signal (+/-).
UPS / Battery Cable	24 VDC (+/-) between UPS and Battery only.



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