

PULS

DC BACKUP SOLUTIONS

Reliable DC Backup Power for Critical Loads



pulpower.us

DC-UPS with Battery Storage

BE PREPARED FOR THE NEXT POWER DISRUPTION



The installation of a DC-UPS system requires three essential elements: a power supply, a DC-UPS controller and a battery.

PULS **DC-UPS controllers** increase system reliability and prevent unplanned and expensive downtime, as well as **a loss of data.**

DC-UPS controllers are responsible for monitoring and charging the batteries, as well as controlling the seamless transition between normal and buffer mode. They bridge power failures or voltage fluctuations **from minutes to hours to days.**

ADVANTAGES OF PULS DC-UPS CONTROLLERS:

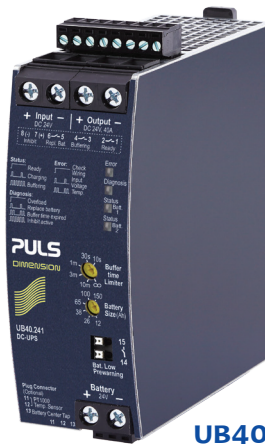
- » **1-Battery Concept:** Each Battery is Individually Charged & Monitored to Maximize Battery Life
- » No Need for Matched Batteries
- » Output De-coupled from the Input, Allowing Buffered & Unbuffered Branches
- » 50% Power Reserves for 5 Seconds
- » Fixed Output Voltage in Backup Mode for 10 A & 20 A Models
- » 22.5-26 V Adjustable Output Voltage in Backup Mode for the UB20.241
- » Selectable Backup Time Limiter to Extend Battery Life (on select models)



UB10.241



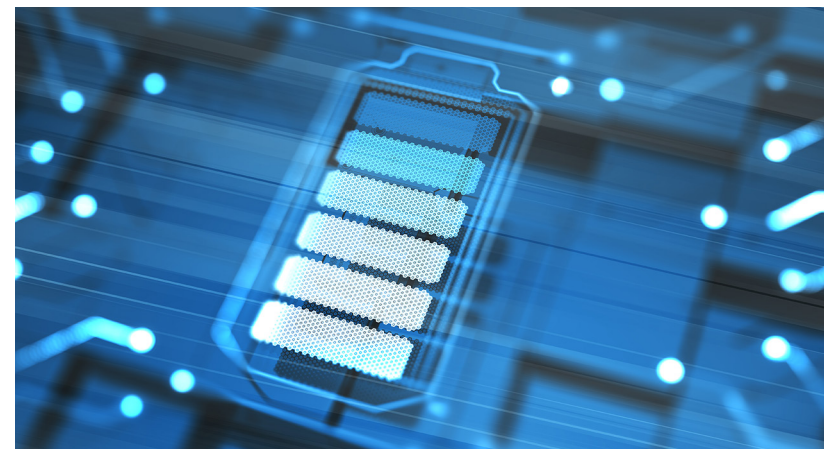
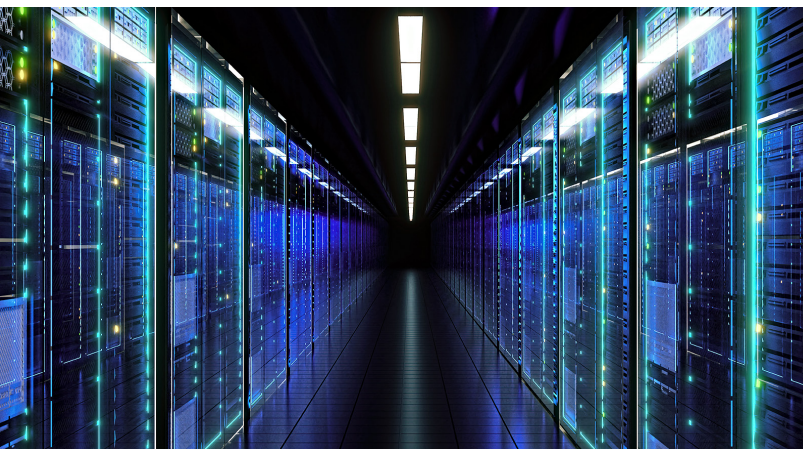
UB20.241



UB40.241



UBC10.241



DC-UPS with Battery Storage

WATCH THE DC-UPS VIDEO



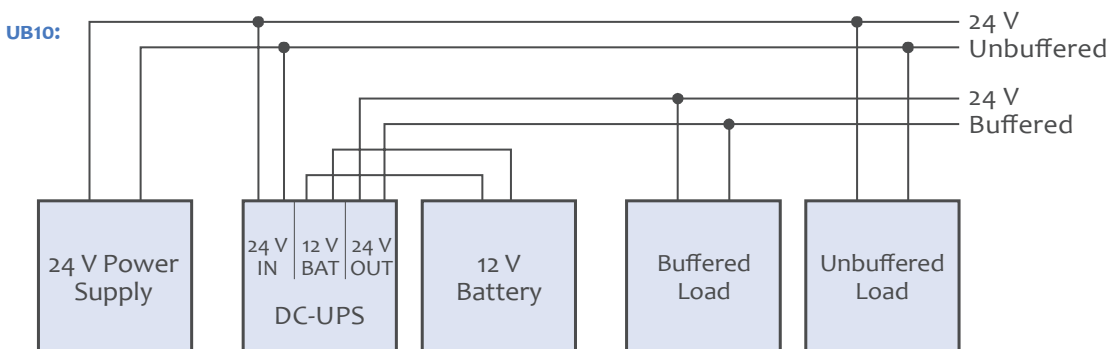
| Output Voltage | Output Current | Catalog Number | Width (mm) | Battery Requirements | Note |
|----------------|----------------|----------------|------------|--------------------------------|----------------------|
| 24 V | 10 A | UBC10.241 | 123.0 | Integrated, 12 V, 5 Ah | Battery Included |
| | | UBC10.241-N1 | | Integrated, 12 V, 5 Ah | |
| | | UB10.241 | 49.0 | External, 12 V, 3.9-40 Ah | Battery Not Included |
| | | UB10.242 | | External, 12 V, 17-130 Ah | |
| 24 V / 12 V | 10 A / 5 A | UB10.245 | 46.0 | External, 12 V, 3.9-40 Ah | |
| 24-26 V | 20 A | UB20.241 | | External, (2) 12 V, 3.9-150 Ah | |
| 24 V | 40 A | UB40.241 | | External, (2) 12 V, 12-200 Ah | |

NOTE: All UPS controllers and buffer modules require a 24VDC input from a power supply or other source

Backup Times

| Backup Current | 0.5 A | 1 A | 3 A | 5 A | 7 A | 10 A | 15 A | 20 A | 40 A |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| UBC10.241 | 3 h 50 min | 2 h | 30 min | 16 min | 11 min | 6 min | - | - | - |
| UB10 + 7 Ah Battery (12 V) | 5 h 10 min | 2 h 30 min | 38min | 20 min | 13 min | 6 min | - | - | - |
| UB10 + 12 Ah Battery (12 V) | 10 h 41 min | 5 h 17 min | 1 h 40 min | 46 min | 28 min | 16 min | - | - | - |
| UB10 + 26 Ah Battery (12 V) | 23 h 6 min | 11 h 23 min | 3 h 40 min | 2 h 10 min | 1 h 30 min | 55 min | - | - | - |
| UB10.242 + 65 Ah Battery (12 V) | 2 d 11 h | 1 d 5 h | 9 h 53 min | 5 h 51 min | 4 h | 2 h 45 min | - | - | - |
| UB10.242 + 100 Ah Battery (12 V) | 3 d 19 h | 1 d 21 h | 14 h 53 min | 8 h 41 min | 6 h | 4 h 7 min | - | - | - |
| UB10.242 + 130 Ah Battery (12 V) | 4 d 23 h | 2 d 11 h | 19 h 21 min | 11 h 18 min | 7 h 48 min | 5 h 21 min | - | - | - |
| UB20 + 7 Ah Battery (2,12 V) | 9 h 26 min | 5 h 16 min | 1 h 30 min | 46 min | 30 min | 19 min | 10 min | 6 min | - |
| UB20 + 12 Ah Battery (2,12 V) | 17 h 13 min | 9 h 51 min | 3 h 29 min | 2 h 2 min | 1 h 23 min | 46 min | 27 min | 16 min | - |
| UB20 + 26 Ah Battery (2,12 V) | 1 d 13 h | 21 h 34 min | 7 h 32 min | 4 h 26 min | 3 h 7 min | 2 h 10 min | 1 h 17 min | 55 min | - |
| UB20 + 65 Ah Battery (2,12 V) | 3 d 19 h | 2 d 4 h | 20 h 5 min | 11 h 56 min | 8 h 25 min | 5 h 50min | 3 h 49 min | 2 h 49 min | - |
| UB20 + 100 Ah Battery (2,12 V) | 6 d 3 h | 3 d 11 h | 1 d 6 h | 18 h 30 min | 13 h 10 min | 9 h 11min | 6 h 3 min | 4 h 31 min | - |
| UB20 + 140 Ah Battery (2,12 V) | 8 d 12 h | 4 d 21 h | 1 d 19 h | 1 d 1 h | 18 h 26 min | 12 h 52min | 8 h 27 min | 6 h 19 min | - |
| UB40 + 12 Ah Battery (2,12 V) | 24 h 4 min | 11 h 20 min | 3 h 55 min | 2 h | 1 h 17 min | 47 min | 27 min | 18 min | 7 min |
| UB40 + 26 Ah Battery (2,12 V) | 2 d 5 h | 1d1h27min | 8 h 44 min | 4 h 44 min | 3 h 38 min | 2 h 17 min | 1 h 21 min | 55 min | 21 min |
| UB40 + 38 Ah Battery (2,12 V) | 3 d 9 h | 1 d 11 h | 12 h 14 min | 7 h 24 min | 5 h 17 min | 3 h 28 min | 2 h 8 min | 1 h 31 min | 36 min |
| UB40 + 65 Ah Battery (2,12 V) | 6 d 1 h | 2 d 23 h | 17 h 18 min | 13 h 53 min | 9 h 56 min | 6 h 49 min | 4 h 23 min | 3 h 4 min | 1 h 14 min |
| UB40 + 100 Ah Battery (2,12 V) | 9 d 3 h | 4 d 12 h | 1 d 2h | 20 h 50 min | 14 h 56 min | 10 h 7 min | 6 h 33 min | 4h 48 min | 1 h 59 min |
| UB40 + 200 Ah Battery (2,12 V) | 19 d 16 h | 9 d 18 h | 2d9h8min | 1 d 21 h | 1d8h49min | 22 h 27 min | 14 h 44 min | 10 h 52 min | 4 h 55 min |

The UB10, UB20 and UB40 tables show approximate typical buffer times of new battery modules without the aging effect included. PULS recommends adding 30-50% battery capacity to account for battery wear and aging. Please review specific datasheets for additional buffer times.



Buffer Modules with Capacitor Storage



UC10.241 DC-UPS with capacitor storage, 24 V, 15 A

**AVOID DOWNTIME
AVOID DATA LOSS
LIVE MAINTENANCE-FREE**

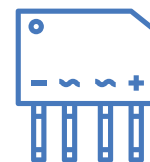


The **uc series** DC-UPS utilizes an Electrochemical Double Layer Capacitor (EDLC), commonly known as Ultracapacitors or Supercapacitors, to store energy. They can bridge power failures or voltage fluctuations and supply voltage to the 24 VDC bus, which allows for a safe shut-down of the system. Expensive downtimes, long restart cycles and loss of data can be avoided.

UF40.241 Electrolytic Capacitor Buffer Module, typ. 250 ms at 40 A



**BRIDGE POWER FAILURE
ENJOY PEACE OF MIND**



The **uf series** buffer modules with electrolytic capacitors work similarly to a DC-UPS and can bridge power failures in the 24 VDC or 48 VDC bus for periods measured in milliseconds to seconds.

In buffer mode, the output voltage is regulated and the change from normal to buffer mode occurs without interruptions. All modules are protected against overload and short-circuit and have a wide operating temperature range.

| Output Voltage | Output Current | Catalog Number | Width (mm) | Storage Capacity | Storage Element |
|----------------|----------------|----------------|--------------------------------------|---------------------------------------|------------------------|
| 24 V | 15 A | UC10.241 | 126.0 | 6 kW - Buffer Time: 9 s at 15 A | Ultracapacitor (EDLC) |
| | | UC10.242 | 198.0 | 12 kW - Buffer Time: 18 s at 15 A | |
| | 20 A | UF20.241 | 64.0 | 0.2 kW - Buffer Time: 310 ms at 20 A | Electrolytic Capacitor |
| | 40 A | UF40.241 | | 0.32 kW - Buffer Time: 250 ms at 40 A | |
| 48 V | 20 A | UF20.481 | 0.2 kW - Buffer Time: 150 ms at 20 A | | |

Buffer Times

| Buffer Current | 0.5 A | 1 A | 3 A | 5 A | 7 A |
|----------------|--------|--------|-------|--------|--------|
| UF20.481 | 6.4 s | 3.2 s | 1 s | 660 ms | 470 ms |
| UF20.241 | 12.7 s | 6.5 s | 2.2 s | 1.3 s | 950 ms |
| UF40.241 | 20 s | 10.6 s | 3.6 s | 2.1 s | 1.5 s |
| UC10.241 | 340 s | 200 s | 68 s | 39 s | 26 s |
| UC10.242 | 680 s | 400 s | 136 s | 78 s | 53 s |

| Buffer Current | 10 A | 15 A | 20 A | 30 A | 40 A |
|----------------|--------|--------|--------|--------|--------|
| UF20.481 | 300 ms | 220 ms | 150 ms | - | - |
| UF20.241 | 670 ms | 450 ms | 310 ms | - | - |
| UF40.241 | 1 s | 730 ms | 500 ms | 350 ms | 250 ms |
| UC10.241 | 16.5 s | 9 s | - | - | - |
| UC10.242 | 33 s | 18 s | - | - | - |

Battery Modules for DC-UPS

Battery modules use maintenance-free VRLA batteries (valve regulated lead-acid). Battery modules can be ordered with a battery (UZK Series) or without a battery (UZO Series). All battery modules from PULS support our 1-Battery Concept. The 24 V battery modules for use with the UB20 and UB40 battery modules from PULS Series are equipped with a center-tap, which are protected against overcurrent and with an integrated temperature sensor.

Users who opt for using their own batteries should use a high quality VRLA, Gel Cell or Glass Mat battery. When using batteries for the UB20 and UB40 Series, it is recommended to use the appropriate sensor board with a PT1000 temperature sensor included, and a center-tap to take advantage of the PULS 1-Battery Concept.



UZK12.072
Battery Module with Battery, 12 V

| Catalog Number | Description | Dimensions (W x H x D) |
|----------------|---|------------------------|
| UZB12.051 | 12 V, 5 Ah replacement battery for UBC10.241 | 90 x 106 x 70 mm |
| UZB12.071 | 12 V, 7 Ah replacement battery for UZK12.071 and UZK24.071 a) | 151 x 100 x 65 mm |
| UZB12.121 | 12 V, 12 Ah replacement battery for UZK24.121 a) | 151 x 100 x 98 mm |
| UZB12.261 | 12 V, 26 Ah replacement battery for UZK12.261 | 175 x 166 x 125 mm |
| UZK12.071 | 12 V, 7 Ah battery module for UB10 | 155 x 124 x 112 mm |
| UZK12.072 | 12 V, 7 Ah battery module for UB10 (Class I Division 2) | 155 x 124 x 112 mm |
| UZK12.261 | 12 V, 26 Ah battery module for UB10 | 214 x 179 x 153 mm |
| UZK24.071 | 24 V, 7 Ah battery module for UB20 | 137 x 186 x 124 mm |
| UZK24.121 | 24 V, 12 Ah battery module for UB20 | 203 x 186 x 124 mm |
| UZK24.122 | 24 V, 12 Ah battery module for UB40 | 203 x 186 x 125 mm |
| UZK24.262 | 24 V, 26 Ah battery module for UB40 | 214 x 179 x 167 mm |
| UZK24.262-E1 | 24 V, 26 Ah Battery Module with Battery extension kit included | 214 x 179 x 128 mm |
| UZO12.07 | Mounting Bracket for use with 7 Ah Battery | 155 x 124 x 112 mm |
| UZO12.072 | Mounting Bracket for use with 7 Ah Battery (Class I Division 2) | 155 x 124 x 112 mm |
| UZO12.26 | Mounting Bracket for use with 26 Ah Battery | 214 x 179 x 153 mm |
| UZO24.071 | Mounting Bracket for use with 7 Ah Battery Pair for UB20 | 137 x 186 x 124 mm |
| UZO24.121 | Mounting Bracket for use with 12 Ah Battery Pair for UB20 | 203 x 186 x 124 mm |
| UZO24.122 | Mounting Bracket for use with 12 Ah Battery for UB40 | 203 x 186 x 125 mm |
| UZO12.262 | Mounting Bracket for use with 26 Ah Battery for UB40 | 214 x 179 x 167 mm |
| UZO24.262-E1 | Battery extension kit for 26 Ah Batteries | 214 x 179 x 128 mm |
| UZS24.100 | Sensorboard with PT1000 temperature sensor & center-tap for use with UB20.241 | 23 x 110.5 x 15 mm |
| UZW24.100 | Wiring kit for UB40 for Batteries up to 26 Ah not supplied by PULS. Includes connection cables. | |
| UZW24.101 | Connection module for UB40 for larger batteries not supplied by PULS. Cables not included. | |

a) Two required for UZK24 battery modules

PULS

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