UNINTERRUPTIBLE POWER FOR DRIVES (UPD)

1 – 800 KW, 110 – 690 VDC

LIVELINE™
POWER THAT PROTECTS

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UPD is a better option over an UPS for VFD or motor back up

UPDs are designed and manufactured to help VFDs to overcome input supply voltage sags and longer utility power outages. Like an UPS used for mission critical applications, UPDs can be used to provide uninterrupted power to the VFDs. It is an amazingly simple solution to give multiple benefits to the users of industrial applications.

UPDs are consisting of a AC-DC converter with a battery bank and together they provide DC power to the VFD DC bus and activates only when The VFD DC bus goes below a certain level. This way the UPD provides the VFD the ability to work without disturbances. The process remains uninterrupted and continuous.

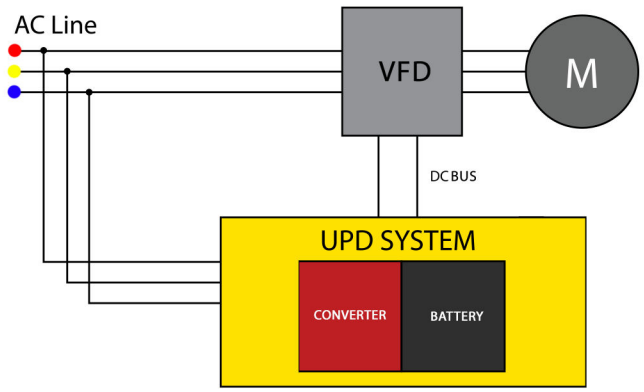
Like in many mission critical applications such as data centre, telecom, healthcare, process automation systems or DCSs etc where continuity of power is essential to keep the business process up and running, there are many VFD or motor applications that need continuity of power to keep the industrial manufacturing process running. And an UPD is the solution that can provide the peace of mind at a very affordable cost.

AC-DC Converter features:

- 110V, 220V & 690 VDC or any other
- Industrially rugged designs
- IP-42 class panel protection
- Constant voltage current limited output
- All battery related alarms and indications
- Digital Metering and annunciations
- Suitable for all types of batteries
- Customizable for variety of configurations
- Modbus/ Profibus/ CAN communication protocol
- RS-485 connectivity

Salient features of UPD solution

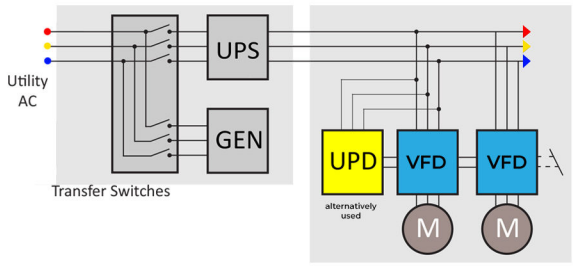
- Battery storage and can be sized for longer power outages
- Parallel connection to the VFD to enhance dependability
- Uninterrupted and smooth static transfer of VFD load from utility to Battery power and vice versa
- Increased efficiency
- Can be sized to the drive size, no oversizing
- Support single to multiple drives
- Suitable with all types of batteries



Typical schematic of a UPD

Advantages of UPD over UPS

- No unnecessary conversions. Eliminates DC to AC conversion.
- Exceptionally low cost. Only a low rated charger (almost 10% of the UPS charger capacity) is required to charge the batteries offline. No comparison to huge UPS prices as the inverter and a fully rated continuous duty charger are fully eliminated in UPD.
- Can supply multiple VFDs by way of DC bus paralleling. Can save space and conversion losses.
- Back up unit can be tested any time without process disturbances. 80% of UPS failure is attributed to battery failure. And, batteries fail due to lack of periodic testing constrained by the fact that UPS battery testing needs shutting down. Interestingly, a UPD is an offline system and activates only when it is required to feed the DC to the VFD.
- Efficient and incurs much lesser losses due to less no. of conversions.
- Makes money, pays for itself !



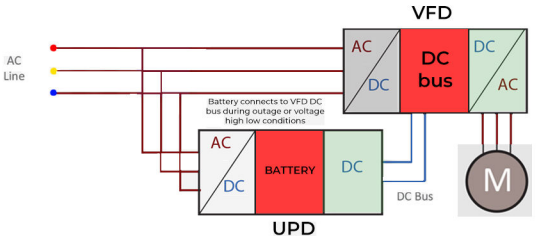
Typical plant schematic with UPS or UPD used

Disadvantages of an UPS systems

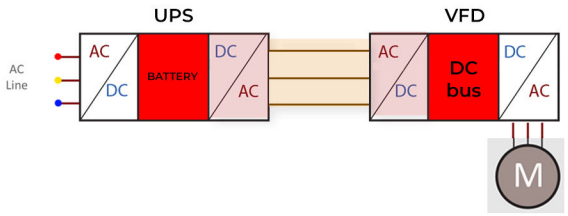
Expensive - Its exorbitantly priced and makes it difficult to acquire. One 100 KVA UPS may cost anything between rupees 5 lacs to 8 lacs without those batteries for back up. If added, the solution may cost well beyond 10 lacs for a 100KVA UPS with 30 min back up time. Many users find it difficult to spend that money. And the investments can sometime go well past a crore for larger applications.

Monetary loss – Due to double conversion of power, the UPS efficiency will be around 80% at best. A whopping 20% power loss! One can imagine the loss for an UPS of more than 100KVA capacity. And if calculated, considering the applicable tariff structure, the total loss would be the cost of the UPS in less than one and half years.

Reliability – More the conversions, more is the chance of failure. More complication means more components and that can make it even more complicated. Remember, drive does all of it again to control the motor and it takes the total no. of conversions to four. These unnecessary conversions further increase the total losses in the system



Typical schematic of UPD application



Typical schematic showing 4 conversions with UPS

UPD converter specifications

Enclosures

Type	: Wall or Floor cabinet
Cable entrance (wall)	: From bottom
Cable entrance (floor)	: From bottom or above
Size	: As required at the time engineering
Color	: RAL 7035 light grey
IP-enclosure	: IP42
Ventilation	: Natural

Environment

Ambient Temperature	: 0- 40 Degree
Humidity	: 90% RH non-condensed

Output DC

Output voltage	: 110VDC, 125 VDC, 220VDC, Or 690 VDC or any other
Current	: Up to 10-20% of the Battery AH capacity
Connection	: Terminal block

System Output to VFD DC Bus

- As per the battery discharge characteristics
- Output voltage to the VFD DC bus shall same as battery bank output

Input AC

Input voltage	: 3x380/415/480VAC, +10%/-15%
Frequency	: 45 65 Hz
Power factor	: > 0.95 at 3x400 VAC at full load
THDi	: < 5% at full load
Connection	: Terminal block

Note: PF & THDi is applicable for IGBT converters only

Metering & Indications

All kinds of metering, indications, alarms, and annunciation options for both converter and batteries

Communications

RS-485 with Modbus/Profibus/CAN bus protocol available

Sales Support

Our inhouse sales and engineering teams are available to answer your immediately on selection of right transformer for your application. They are technically trained and can answer most questions on the phone. Drawings, documentation, expediting, quotations, or technical information are always readily available. Our commitment to sales support is paramount and it means you will be an informed, relaxed, and satisfied customer as quickly as possible. Call our sales team or mail us at info@livelineindia.com or visit our website.

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