Logging & Sawmill

BONITRON

Cranes
Hoists
Conveyors
Debarkers
Saws
+ More!

- *Maximize drive system efficiency and reliability*
- *Safely lower loads without tripping drives*
- *Utilize braking current to power other drives*
- *Backup power to protect from sags and outages*

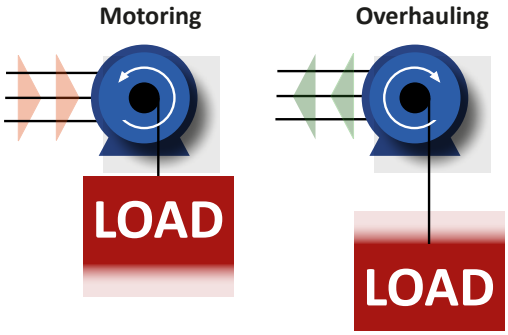
Products

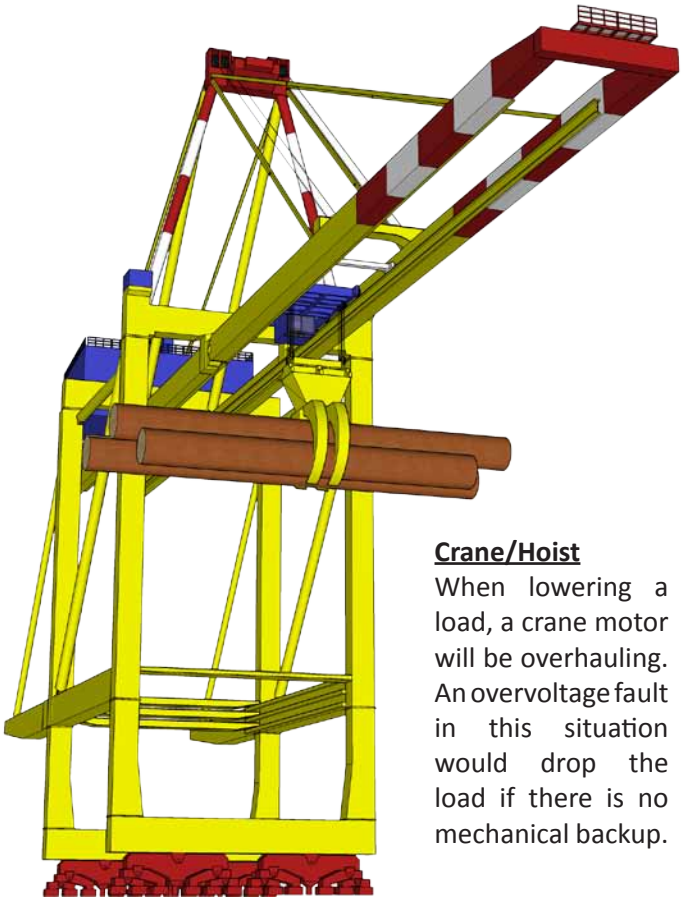
Braking Resistors
Braking Transistors
Line Regeneration
Common Bus Power Supplies
Common Bus Diodes
Uninterruptible Power for Drives

Overvoltage Solutions

A motor connected to a load will be either "**motoring**" or "**overhauling**". A motoring motor is converting electrical energy into mechanical energy as is the case when a load is being lifted. An overhauling motor is being driven by the load and is converting mechanical energy in to electricity, acting as a generator. When the load is being lowered the motor acting as a generator is also acting as a brake for the load.

An overhauling load is generating power that, if left alone, could potentially cause an overvoltage fault in the drive. If this happens the motor will be out of control and will need to rely on mechanical stops. This situation could be a safety hazard or could potentially damage the equipment being run by the motor. The overvoltage fault can be avoided by implementing either a dynamic brake or a regenerative brake.





Crane/Hoist

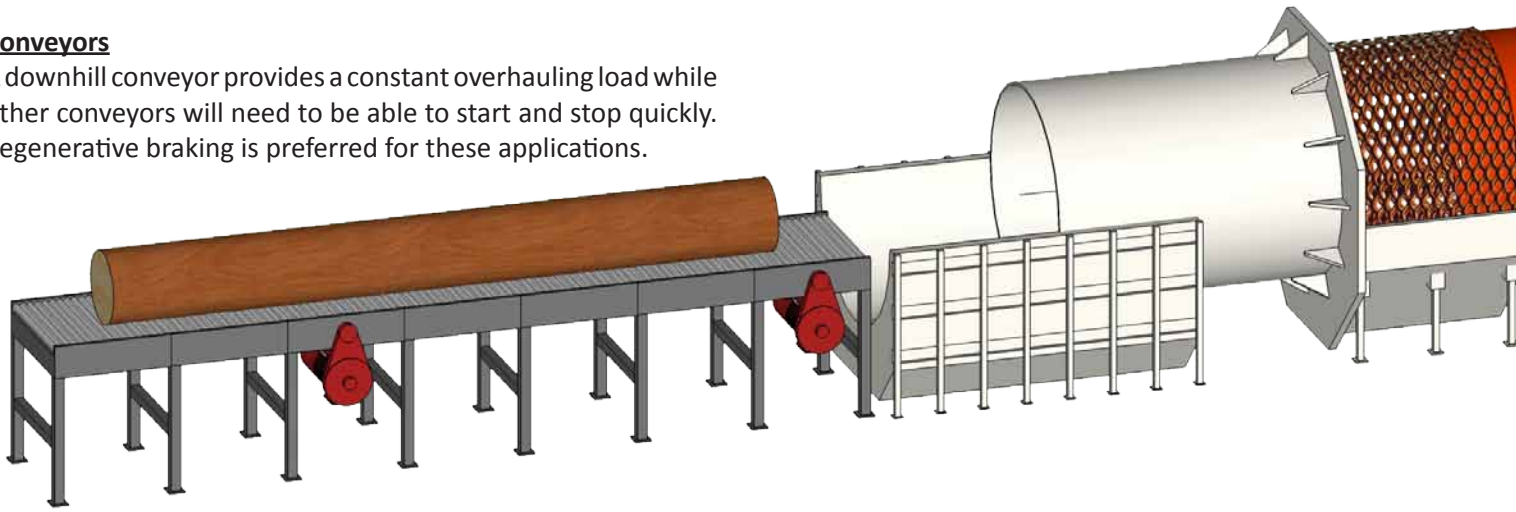
When lowering a load, a crane motor will be overhauling. An overvoltage fault in this situation would drop the load if there is no mechanical backup.

Saws

Saws are used extensively and must be started and stopped quickly. Emergency stop is required for the safety of the workers. Regenerative braking increases safety and efficiency.

Conveyors

A downhill conveyor provides a constant overhauling load while other conveyors will need to be able to start and stop quickly. Regenerative braking is preferred for these applications.

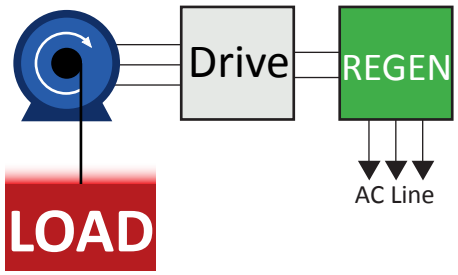


www.bonitron.com 615-244-2825 info@bonitron.com

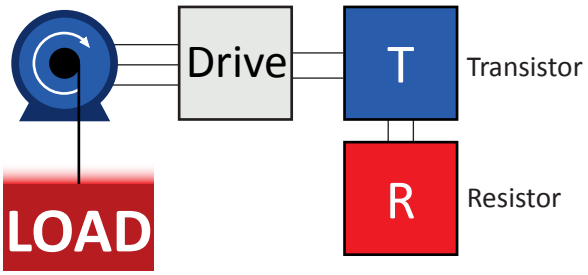
Transistor & Resistor vs. Line Regeneration

Braking units prevent overvoltage faults on drives. A **dynamic brake** or "chopper" uses transistors, which detect overvoltage situations, together with resistors to dissipate the excess energy. A **regenerative brake** channels the energy back onto the utility grid where it can be used by other equipment within the facility.

Line Regeneration

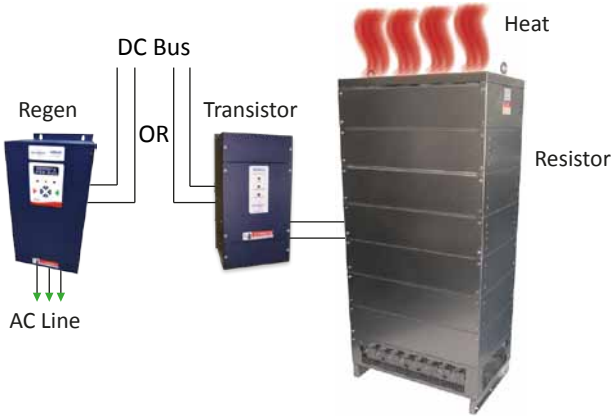


Dynamic Braking



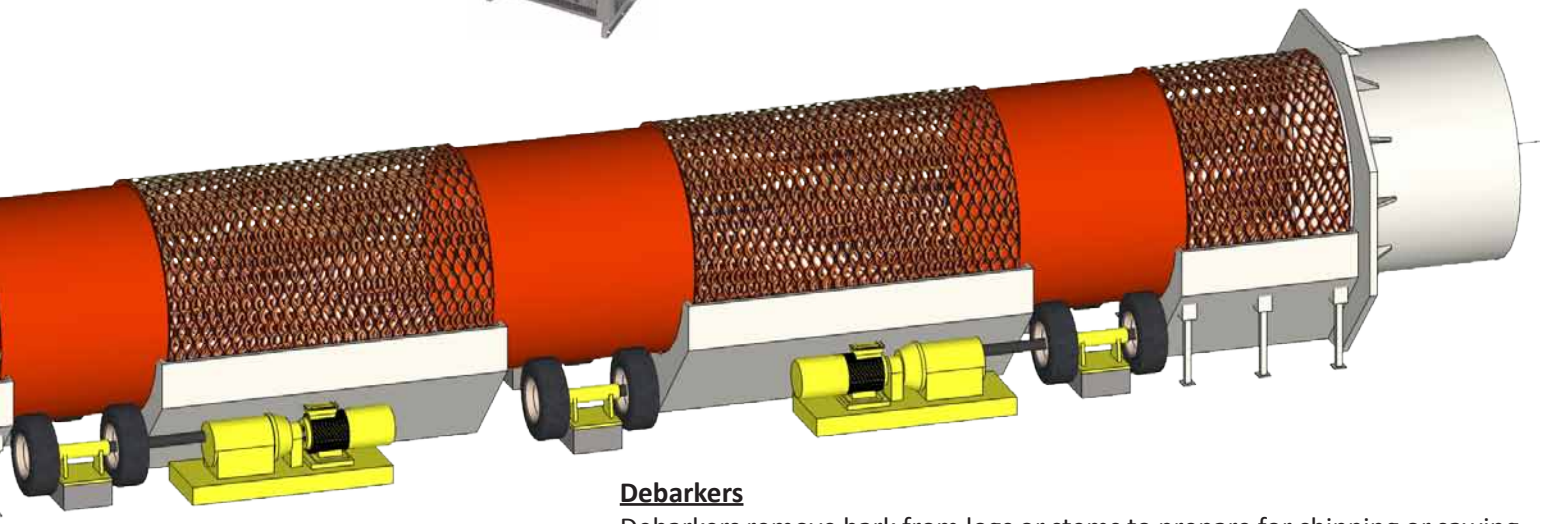
Dynamic Braking

The dynamic brake method typically has a lower upfront cost, but heat generated by resistors can increase cost two ways. If the resistors are indoors, added cooling capacity may be required for the room. Large resistor banks may be kept outside, far from the drive, but this results in more wiring and conduit cost. Resistors also need time to cool down after a braking cycle. ***Regen units are rated for continuous use and so are typically a better choice for high duty applications where utility power is used.***



Line Regeneration

Line regen solutions have many advantages. First, because the unit does not generate high levels of heat (99% efficient), it can be integrated into the drive cabinet. Second, the lack of heat generation allows its use in environments where there might be flammable material such as dust or wood. ***The regen also boosts energy efficiency as it puts electricity back onto the AC line where it can be used by other equipment, considerably reducing the demand from the utility. The Bonitron Regen is available for single and 3-phase systems.***



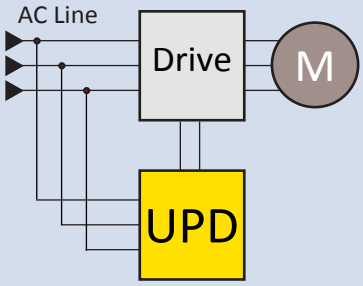
Debarkers

Debarkers remove bark from logs or stems to prepare for chipping or sawing into lumber. There are four main types of debarkers: ring, drum, Rosser Head, and flail debarkers. Rotating components of these systems need to be stopped and started quickly.

UPD Lite

For emergency power

Logging & Sawmill applications may not require uninterruptible power, but only enough to shut down safely or reset the equipment to a default position in case of a power outage. For these applications the Uninterruptible Power for Drives (UPD) system can be undersized to 10-20% of the motor HP, greatly reducing the cost.



Common DC Bus

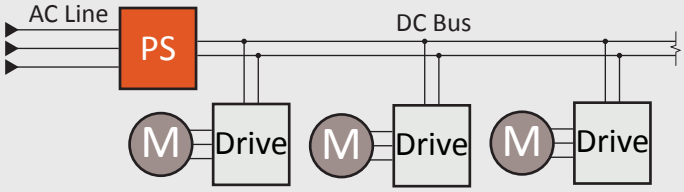
Logging & Sawmill applications can require the use of multiple electric motors in a system and can benefit from the use of a common DC bus. The use of a common bus allows for the **reduction of wiring and components** in the system as the linked drives can now share many components. It can also allow for the direct **sharing of power between drives**, reducing amount of power needed from the grid. This can be achieved with either a common bus power supply or with diode sharing.

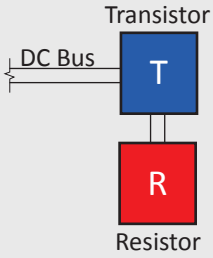
Common Bus Power Supply

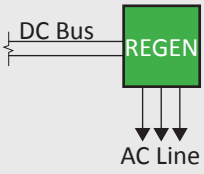
M3712, M3713

Using a common bus power supply reduces the amount of wiring and components in a system, resulting in a reduction of maintenance and footprint of the system. In a system with multiple motors, some motors may be regenerating while others are motoring. ***The common bus allows the regenerating drives to share power with the motoring drives, thus reducing the amount of power needed from the grid.*** If the drives are creating a net surplus of energy, a single line regen or braking unit can be installed to dissipate the excess energy.

A common bus power supply can also allow the use of single phase AC power with 3-phase motors without having to oversize the drive. The M3712 can create a common DC bus from single phase power while the M3713 uses 3-phase input power.



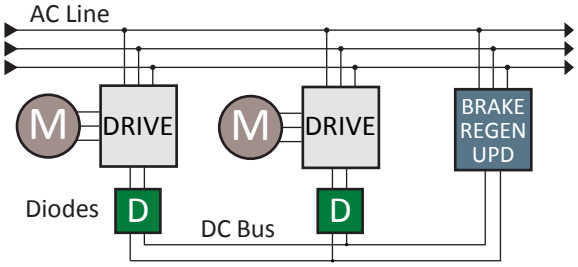




Common Bus Diodes

Common Bus Sharing Diodes

- M3345CBM
- Allows for shared power and components between drives on the DC bus
- Prevents potentially damaging circulating currents between drives



Common Bus Isolation Diodes

- M3460D
- Allows one-way flow of power
- Create a common DC Bus to share components while isolating the drives from each other

521 Fairground Court | Nashville, TN 37211 | U.S.A.
Monday - Friday 8:00am - 5:00pm CT | Tel: 615-244-2825
Email: info@bonitron.com | Fax: 615-244-2833 | www.bonitron.com