

Regenerative DC Bus Power Supply



Common Bus
Solutions

M3645P



BONITRON

M3645P Series

Regenerated voltage occurs when the speed of the motor exceeds the set speed on the drive. This can be due to braking or an overhauling load. In applications with extended braking times, high horsepower, or where frequent regeneration occurs, the M3645P Regenerative DC Bus Power Supply is the economical solution for controlling regenerative voltage. While resistor solutions waste regenerated energy as heat, the Bonitron M3645P returns the regenerated energy back to the input AC line. M3645P also acts as a rectifier, supplying power to the drive bus during motoring.

The M3645P Regenerative DC Bus Power Supply synchronizes to the frequency of the incoming power line, allowing it to automatically adapt to 50Hz or 60Hz input. Under normal conditions, the M3645P rectifies the AC line and supplies power to the load. During a braking event, as the DC bus rises above the AC line peak, the M3645P redirects current from the DC bus into the AC line to limit the rise in bus voltage and prevent overvoltage faults. While regenerating the M3645P will automatically fold back in an overcurrent condition, or shut down in the event that unsafe conditions are detected.

With the optional digital display, the current status of the M3645P is shown and fault records are stored, along with a lifetime count of regenerative energy.

Up to two 300A M3645P units can be run in parallel for high-power applications.

Add -R for precharge option.

	Line Regen									Fuse Plate	Reactor	
	Phase	Power		Display Type	Model Number	Current		Watt Loss	Dimensions (H x W x D)	Model Number	Model Number	
		Cont.	Peak			Cont.	Peak					
208 - 240VAC												
	3	14.4 HP	21 .6 HP	LEDs+Digital	M3645P-L030-M10-D	30 A	45 A	180W	20.00" x 10.00" x 10.10"	M3645F-H030		
	3	24.0 HP	36.0 HP	LEDs+Digital	M3645P-L050-M11-D	50 A	75 A	265W	22.00" x 11.30" x 10.60"	M3645F-H050		
	3	48.0 HP	72.0 HP	LEDs+Digital	M3645P-L100-M12-D	100 A	150 A	470W	24.00" x 12.00" x 12.10"	M3645F-H100		
	3	96.0 HP	120 HP	LEDs+Digital	M3645P-L300T-M15-D	300 A	375 A	2980W	26.00" x 13.90" x 11.11"	M3645F-H300	M3645-L300R	
380 - 415VAC												
	3	25.0 HP	37.5 HP	LEDs+Digital	M3645P-E030-M10-D	30 A	45 A	180W	20.00" x 10.00" x 10.10"	M3645F-H030		
	3	41.7 HP	62.6 HP	LEDs+Digital	M3645P-E050-M11-D	50 A	75 A	265W	22.00" x 11.30" x 10.60"	M3645F-H050		
	3	83.4 HP	125.2 HP	LEDs+Digital	M3645P-E100-M12-D	100 A	150 A	470W	24.00" x 12.00" x 12.10"	M3645F-H100		
	3	250 HP	312.5 HP	LEDs+Digital	M3645P-E300T-M12-D	300 A	375 A	2980W	26.00" x 13.90" x 11.11"	M3645F-H300	M3645-E300R	
460 - 480VAC												
	3	28.8 HP	43.2 HP	LEDs+Digital	M3645P-H030-M10-D	30 A	45 A	180W	20.00" x 10.00" x 10.10"	M3645F-H030		
	3	48.0 HP	72.0 HP	LEDs+Digital	M3645P-H050-M11-D	50 A	75 A	265W	22.00" x 11.30" x 10.60"	M3645F-H050		
	3	96.0 HP	144.0 HP	LEDs+Digital	M3645P-H100-M12-D	100 A	150 A	470W	24.00" x 12.00" x 12.10"	M3645F-H100		
	3	288 HP	360 HP	LEDs+Digital	M3645P-H300T-M15-D	300 A	375 A	2980W	26.00" x 13.90" x 11.11"	M3645F-H300	M3645-H300R	
575 - 600VAC												
	3	36.0 HP	54.0 HP	LEDs+Digital	M3645P-C030-M10-D	30 A	45 A	180W	20.00" x 10.00" x 10.10"	M3645F-C030		
	3	60.0 HP	90.0 HP	LEDs+Digital	M3645P-C050-M11-D	50 A	75 A	265W	22.00" x 11.30" x 10.60"	M3645F-C050		
	3	120.0 HP	180.0 HP	LEDs+Digital	M3645P-C100-M12-D	100 A	150 A	470W	24.00" x 12.00" x 12.10"	M3645F-C100		
	3	360 HP	450 HP	LEDs+Digital	M3645P-C300T-M12-D	300 A	375 A	2980W	26.00" x 13.90" x 11.11"	M3645F-C300	M3645-C300R	



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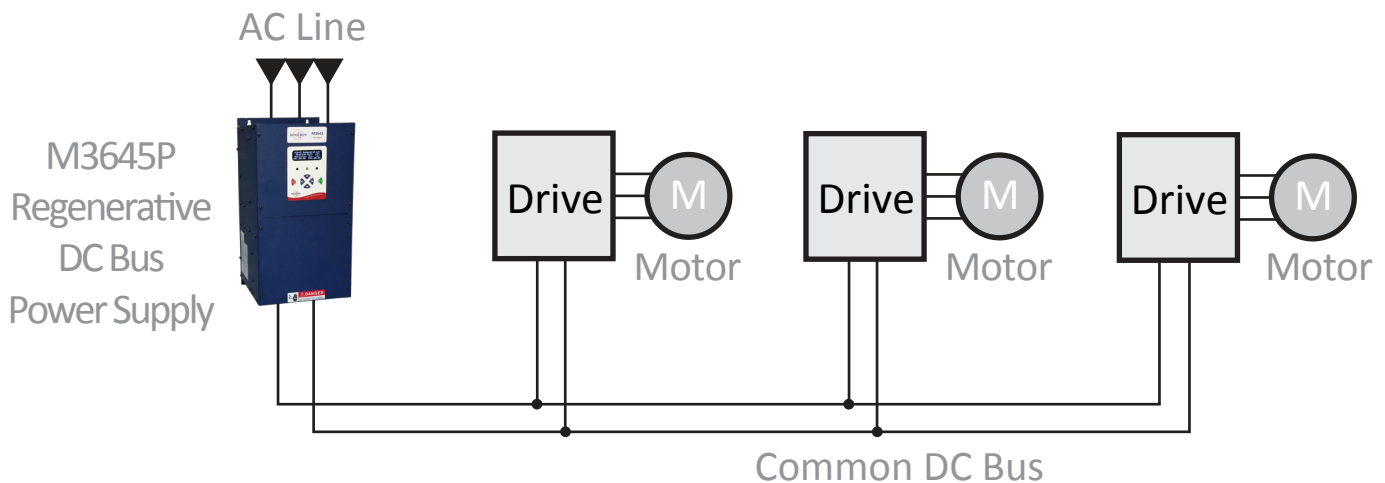
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Palletizer Application

Palletizers use several drives for lowering, pallets, moving and stopping conveyors, and arranging packages for stacking layers. These operations generate regenerative energy when the drive is braking or overhauling. This excess energy causes a voltage rise on the DC bus, which may cause drives to trip on overvoltage.

Connecting the drives in a palletizer together with a common DC bus and adding a M3645P Regenerative DC Bus Power Supply allows the operation to return regenerative energy to the AC line. When the operation is not braking, the drives will be powered by the M3645P through the common DC bus.



Savings Calculator

Bonitron Line Regen units return regenerative energy back to the AC line where it can be used by equipment within the facility. This reduces the amount of power required from the utility; reducing utility costs.

The formula to the right is an example for a 100HP application. Visit Bonitron.com/RegenCalculator to see your potential savings.

The calculator does not include the cost of the Line Regen itself. Contact Bonitron for pricing and to discuss your application. When comparing a Line Regen to a Resistor, consider the added cost of wiring, conduit, or cooling for a resistor. While many resistors produce enough heat that they need to be located outside, Bonitron Line Regens are 99% efficient and are designed to be integrated into the drive cabinet.

Bonitron.com/RegenCalculator

Formula:

(Continuous HP)
x (Duty Cycle %)
x (Days of Operation)
x (Hours of Operation per Day)
x (Cost per kWh)
x (0.746)
= Savings

Example:

(100)
x (0.40)
x (350)
x (12)
x (0.10)
x (0.746)
= \$12,527.76

*Contact Bonitron to discuss your application's possible savings.