



Bonitron, Inc.



Dedicated to engineering quality industrial electronics since 1962!



Introduction

1336 Solutions

Common DC Bus

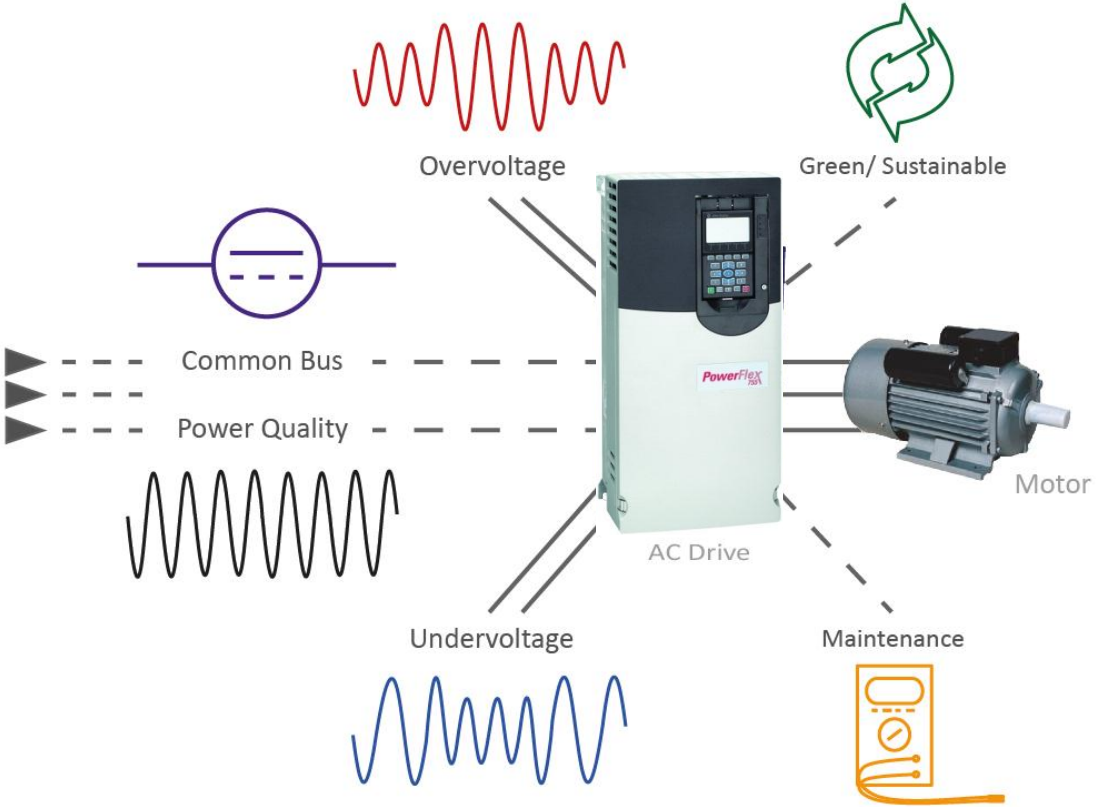
Braking Solutions

Drive Accessories

Question and Answer

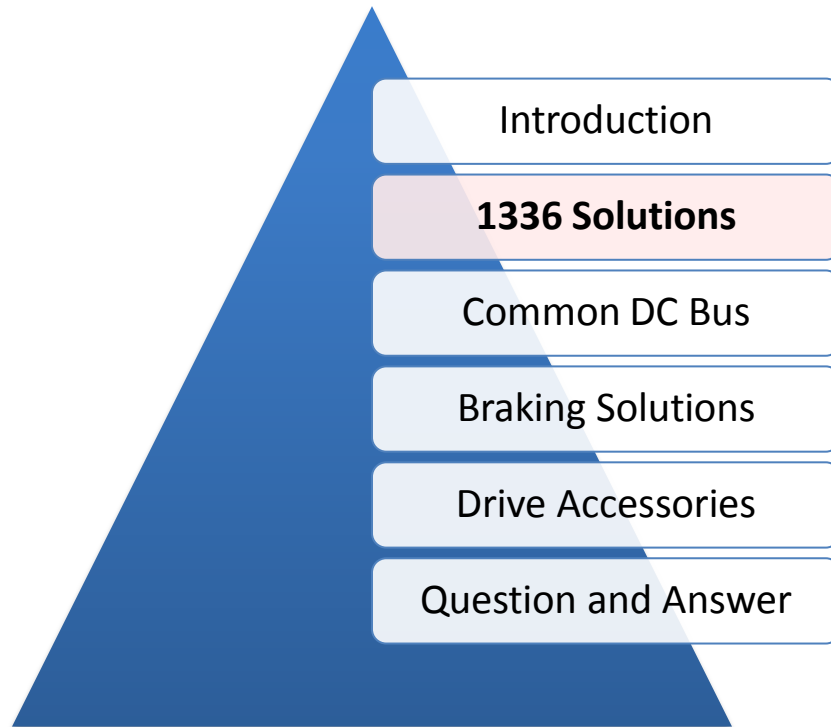
Solutions for AC Drives

- Reduce downtime and prevent drive faults
- Connect via DC terminals
- Ideal for PowerFlex and Kinetix drives



1336 Solutions

- Encompass Partner for over 20 years
- Bonitron is the preferred choice for 1336 Replacements.





SOLUTIONS FOR ROCKWELL AUTOMATION ALLEN-BRADLEY® DRIVES

[Bonitron](#) > [AB Rockwell Automation](#) > 1336

As an Encompass Partner, Bonitron strives to offer only the best solutions for Rockwell Automation Allen Bradley Drives. **Select your drive series** below to match Bonitron Braking Transistors, Resistors, Line Regeneration, or Single Phase Power Supplies with your drive.

1336 Replacement Solutions



1336 Series



[PowerFlex® 400](#)



[PowerFlex® 700](#)



[PowerFlex® 700S](#)



[PowerFlex® 753](#)



[PowerFlex® 755](#)



[Browse ProposalWorks](#)



[Cross References](#)



[ProposalWorks™](#)



[Downloads](#)



[App. Notes](#)



[Request Info.](#)

[1336-MOD-K Transistor/Resistor Combo](#)

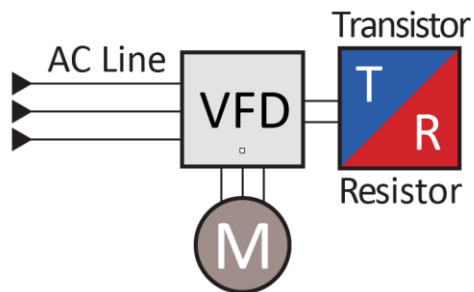
[1336R Line Regeneration Unit](#)

[1336-W Braking Transistor](#)

1336-MOD-K Transistor/Resistor Combo

1336R Line Regeneration Unit

1336-W Braking Transistor

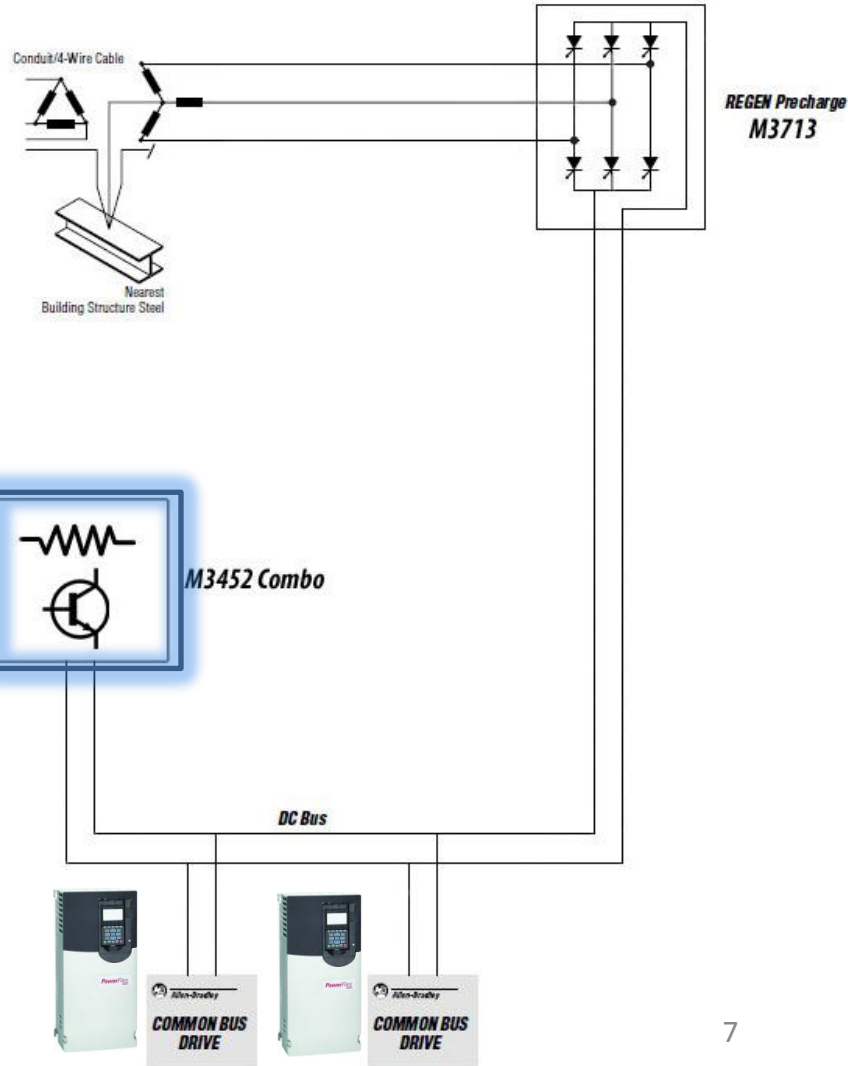


1336 Series	Model Number	Peak kW	Peak HP	Cont. Watts	Ohms	Dimensions (H x W x D)
230 VAC Drives "L" 375VDC Setpoint						
1336-MOD-KA005	M3452-L3B-R030	4.7 kW	6.3 HP	600 W	30.0	18.25" x 9.50" x 8.50"
1336-MOD-KA010	M3452-L9C-R015	9.4 kW	12.6 HP	1800 W	15.0	18.25" x 11.50" x 10.50"
1336-MOD-KA050	M3452-L75B7-A*	28.4 kW	37.5 HP	2800 W	2.7	17.75" x 7.00" x 8.10"
	M3775RK-L030A					11.50" x 29.00" x 18.00"
460 VAC Drives "H" 750VDC Setpoint						
1336-MOD-KB005	M3452-H9C-R108	5.2 kW	7.0 HP	1800 W	108.0	18.25" x 11.50" x 10.50"
1336-MOD-KB010	M3452-H9C-R050	11.3 kW	15.1 HP	1800 W	50.0	18.25" x 11.50" x 10.50"
1336-MOD-KB050	M3575T-H75*	56 kW	75 HP	5600 W	10.0	12.75" x 4.00" x 8.70"
	M3775RK-H075A					11.50" x 29.00" x 18.00"
575-600 VAC Drives "C" 940VDC Setpoint						
1336-MOD-KC005	M3452-C9C-R108	8.2 kW	11.0 HP	1800 W	108.0	18.25" x 11.50" x 10.50"
1336-MOD-KC010	M3452-C9C-R050	17.7 kW	23.7 HP	1800 W	50.0	18.25" x 11.50" x 10.50"
1336-MOD-KC050	M3452-C75B7-A*	56 kW	75 HP	5600 W	15.6	17.75" x 7.00" x 8.10"
	M3775RK-C075A					11.50" x 29.00" x 18.00"

* Requires separate chopper and resistor

M3452 Combination Unit

- Brake Transistor and Resistor in one enclosure
- 400 - 1800 Watts continuous
- 6 – 43 HP
- 230 - 575VAC



1336W Cross References

1336-MOD-K Transistor/Resistor Combo

1336R Line Regeneration Unit

1336-W Braking Transistor

Braking Transistors are used with AC drives to allow full power braking and eliminate overvoltage faults. This permits controlled braking and shortens motor stopping time. If DC bus overvoltage occurs, Braking Transistors shunt excess energy through an external braking resistor.



M3575T Braking Transistor



M3452 Braking Transistor

1336 Series	Model Number	Peak HP	Peak Amp	Cont. Amp	Min. Ohm	Dimensions (H x W x D)
230 - 240 VAC Drives		"L"		375VDC Setpoint		
1336-WA018	M3575T-L60	30 HP	30 A	15.5 A	6.25	12.75" x 4.00" x 7.70"
1336-WA070	M3452-L200K6-A	100.0 HP	200 A	200 A	1.90	20.00 x 7.12 x 10.50"
1336-WA115	M3452-L600K6-A	300.0 HP	600 A	300 A	1.25	20.00 x 7.12 x 10.50"
460 - 480 VAC Drives		"H"		750VDC Setpoint		
1336-WB009	M3575T-H75	75 HP	75 A	19 A	10.00	12.75" x 4.00" x 7.70"
1336-WB035	M3575T-H150	150 HP	150 A	38 A	5.00	17.75" x 6.50" x 8.00"
1336-WB110	M3575T-H600	600 HP	600 A	155 A	1.25	17.75" x 7.00" x 8.00"
575 - 600 VAC Drives		"C"		940VDC Setpoint		
1336-WC009	M3452-C75B7-A	95 HP	75 A	75 A	13.00	17.75 x 7.00 x 8.10"
1336-WC035	M3452-C75B7-A	95 HP	75 A	75 A	13.00	17.75 x 7.00 x 8.10"
1336-WC085	M3452-C600K6-A	760 HP	600 A	300 A	3.20	20.00 x 7.12 x 10.50"

1336R Cross References

1336-MOD-K Transistor/Resistor Combo

1336R Line Regeneration Unit

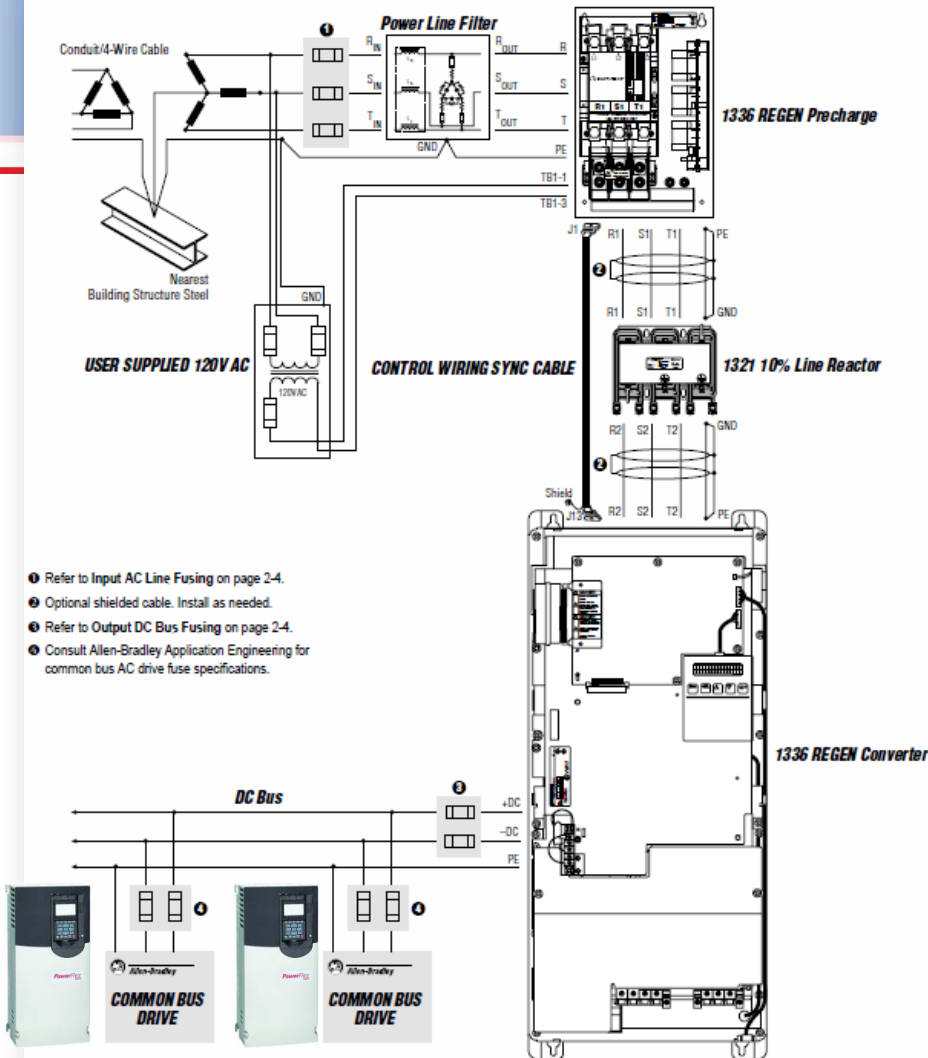
1336-W Braking Transistor



M3645 Line Regen

The M3645 is used as a regenerative brake. The M3713 is a common bus power supply.

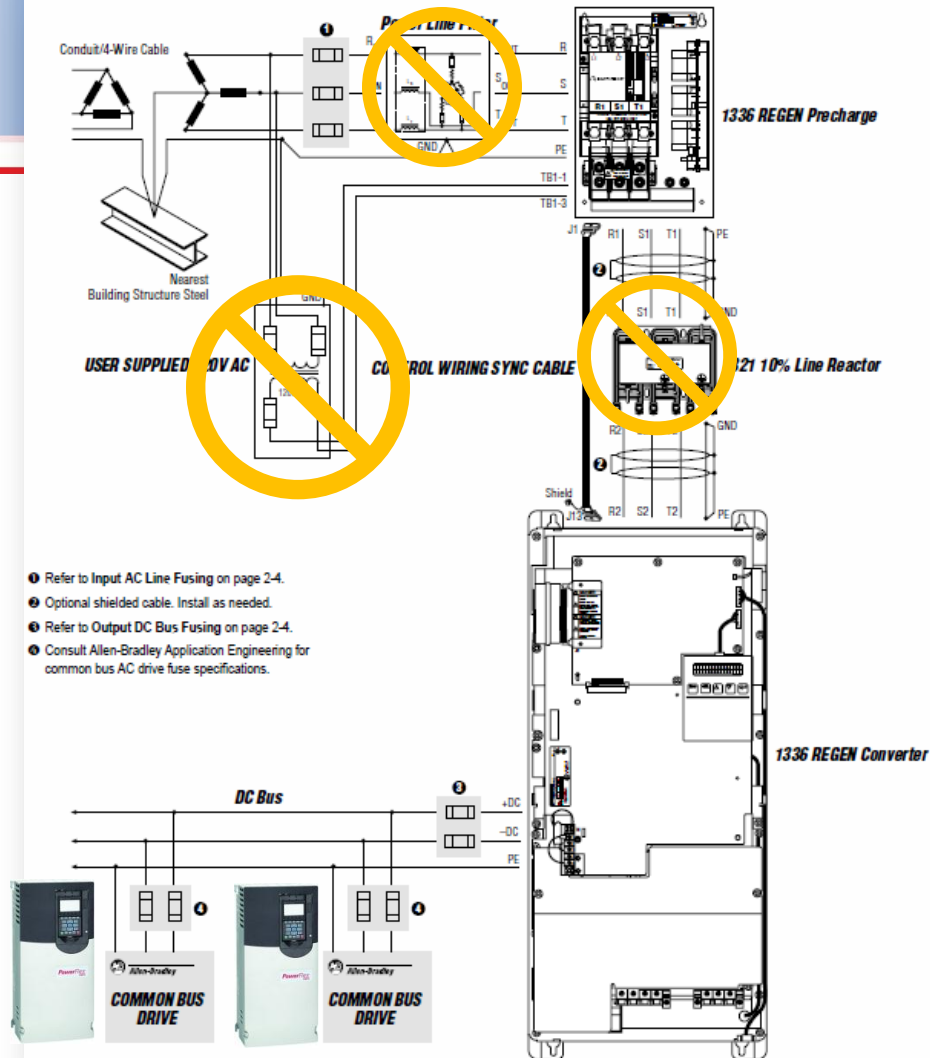
Rockwell	Bonitron		
1336R Series	Line Regeneration M3645	Common Bus Power Supplies	
		3-Phase with Precharge	3-Phase without Precharge
380-415 VAC Drives			
1336R-VB048	M3645-E050-M11-D	M3713SC-E075-B5	M3713DM-E075-B5
1336R-VB078	M3645-E100-M12-D	M3713SC-E150-K7	M3713DM-E150-K7
1336R-VB180	(2) M3645-E100-M12-D	M3713SC-E375-K10	M3713DM-E375-K10
460-480 VAC Drives			
1336R-VB048	M3645-H050-M11-D	M3713SC-H075-B5	M3713DM-H075-B5
1336R-VB078	M3645-H100-M12-D	M3713SC-H150-K7	M3713DM-H150-K7
1336R-VB180	(2) M3645-H100-M12-D	M3713SC-H375-K10	M3713DM-H375-K10



1336R

1336R Components

- **REGEN Precharge**
 - AC in. DC out.
- **REGEN Converter**
 - Return regenerative energy to AC Line
- **120VAC Controller**
- **Line Filter**
- **10% Reactor**



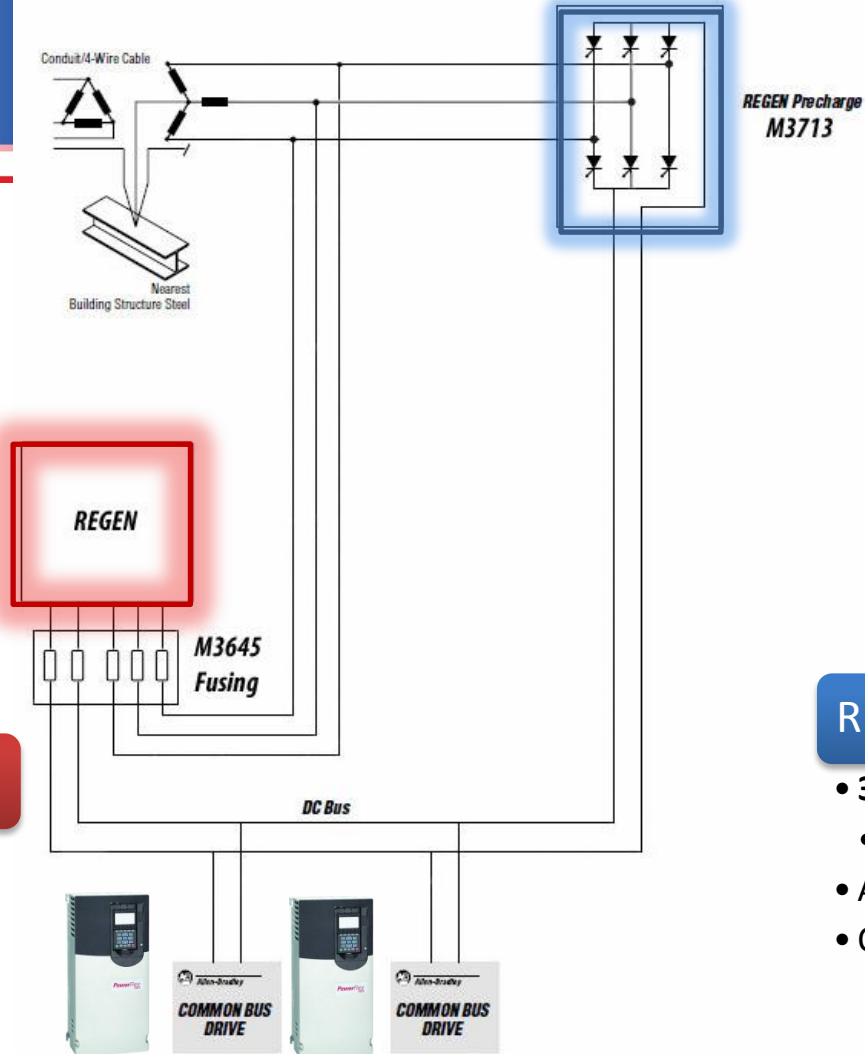
Not Required

- Line filter
- Reactor
- 120VAC controller



REGEN Converter

- Line Regen
- M3645
- Return regenerative energy to AC Line



REGEN Precharge

- 3-Phase Power Supply
 - M3713SC
- AC in. DC out
- Optional Precharge



Model Number Definitions

Rockwell

1336 REGEN Line Regeneration Package

Product Selection

1336 REGEN Catalog Number Explanation

1336R	-	VB	180	-	AA	-	HAB
Bulletin Number		Drive Rating (must be specified)	Nominal Current Rating (must be specified)		Enclosure Type (must be specified)		Human Interface Module, (must be specified)
Code		Voltage	Code		Enclosure		Description
VB		380-480VAC, Three-Phase, 50/60 Hz.	048 078 180		AA AN	IP 20 (NEMA Type 1) IP 00 (Open)	IP 20 (NEMA Type 1) HAB Blank - No Functionality HAP Programmer Only
			kW (Hp)				
			38.4 (48.2) 62.3 (78.2) 143.7 (180.4)				

Specifications

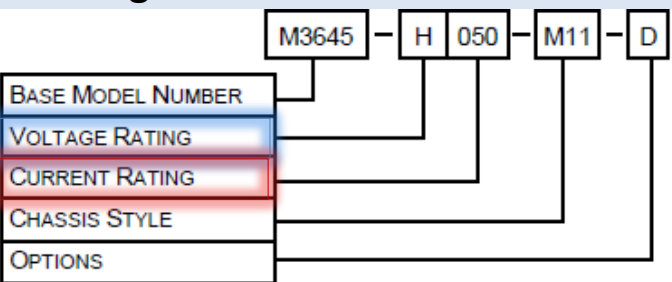
- System Voltage
- Current

1336 REGEN Package (Includes Converter and Precharge Module)

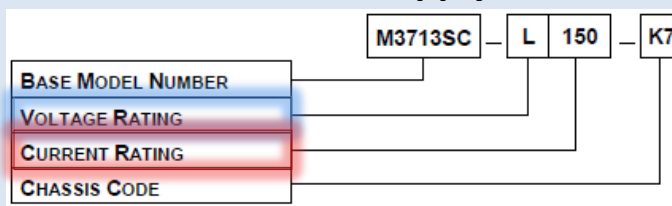
Frame	Nominal Brake Rating		IP00 (Open) No Enclosure	IP20 (NEMA Type 1) General Purpose
	Input Amps	Output kW	Code	Code
B	48.2	38.4	VB048-AN	VB048-AA
C	78.2	62.3	VB078-AN	VB078-AA
D	180.4	143.7	VB180-AN	VB180-AA

Bonitron

M3645 Line Regen



M3713SC Common Bus Power Supply



1336R – REGEN Converter

Bonitron Line Regen

M3645



Great return on investment

- Regenerative energy returned to AC line reduces utility power usage

Product Highlights

- 208 - 600VAC support with 50/60Hz auto select
- 30, 50, 100 Amp units
- 150% overload for 60 seconds
- Interactive Digital Display
- Event and usage logging
- Integrated filtering and transient suppression
- >99% efficient

3-Phase Power Supply

M3713SC with Precharge



Common Bus Drive Systems

- 230 - 600VAC
- 30 - 375A: Can be paralleled for more
- 12-18 Pulse Systems

Single phase

- Add bulk capacitance to drive system
- Power 3-Phase drives from single phase source

PowerFlex Cross References



[1336 Series](#)



[PowerFlex® 400](#)



[PowerFlex® 700](#)



[PowerFlex® 700S](#)



[PowerFlex® 753](#)



[PowerFlex® 755](#)



[App. Notes](#)



[Request Info.](#)

[Braking Transistor & Resistor Selection](#)

[Common Bus Supply Selection](#)

[Line Regen Selection](#)

PowerFlex® 755 Series		Bonitron Solutions		
RA Model Number	Normal Duty HP	Common Bus Power Supplies		
		Single Phase with Precharge	3-Phase with Precharge	3-Phase without precharge
460 - 480 VAC				
20Gxxx2P1	1	M3712-H030R	M3713SC-H030-B5	M3713DM-H030-B5
20Gxxx3P4	2			
20Gxxx5P0	3			
20Gxxx8P0	5			
20Gxxx011	7.5			
20Gxxx014	10			
20Gxxx022	15			

Common DC Bus



Introduction

1336 Solutions

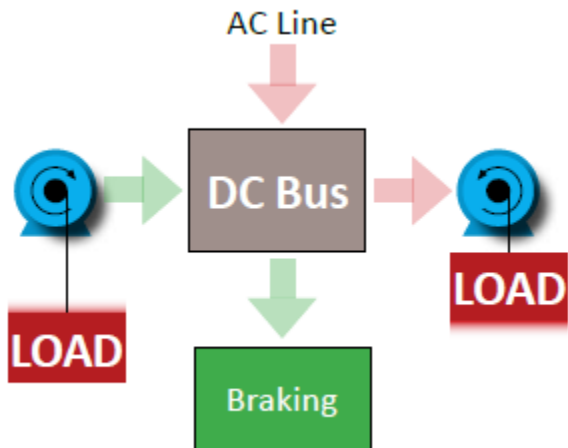
Common DC Bus

Braking Solutions

Drive Accessories

Question and Answer

Common DC Bus



Introduction

1336 Solutions

Common DC Bus

Braking Solutions

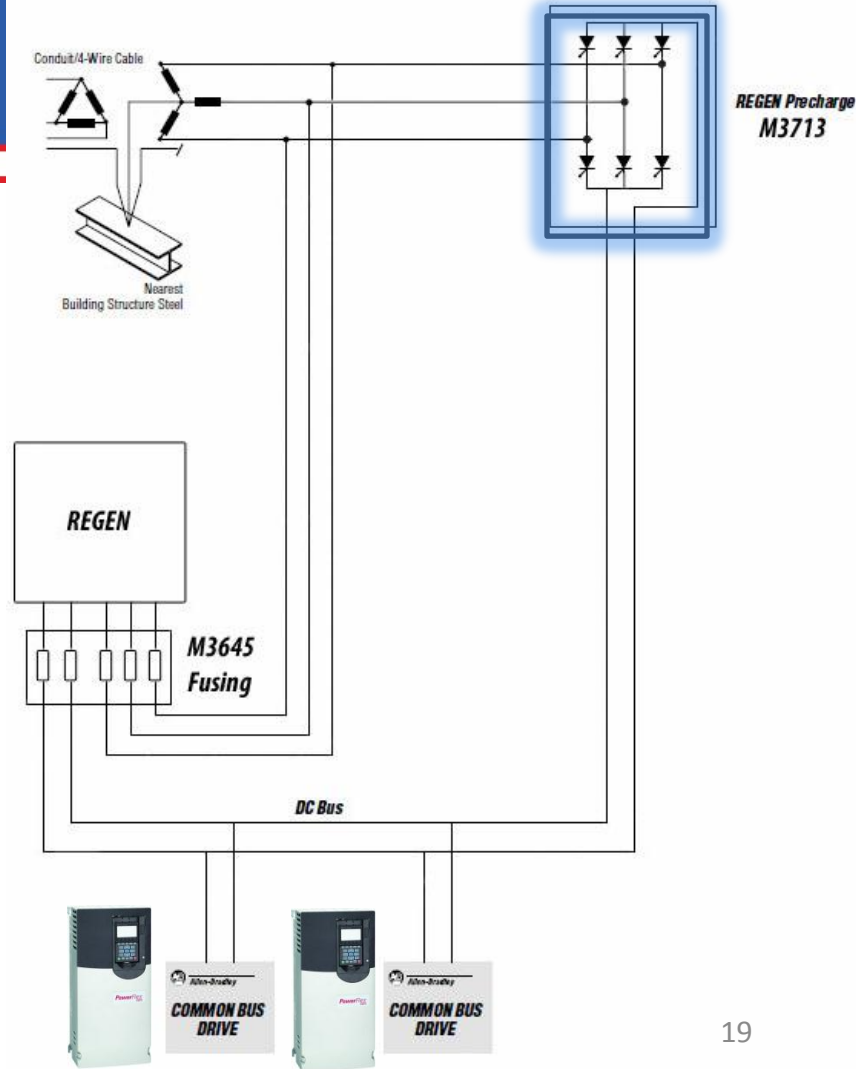
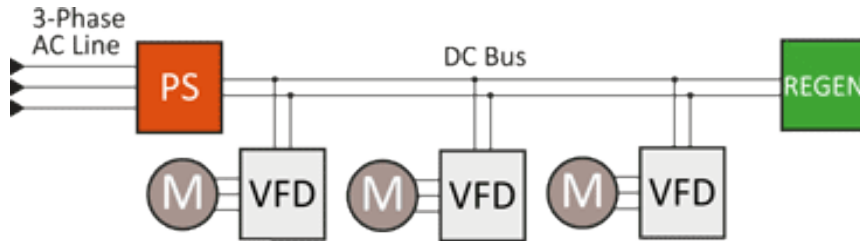
Drive Accessories

Question and Answer

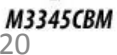
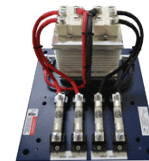
Multiple Drives

Common Bus Power Supply

- M3713
- DC powered drives
- Share circulating energy



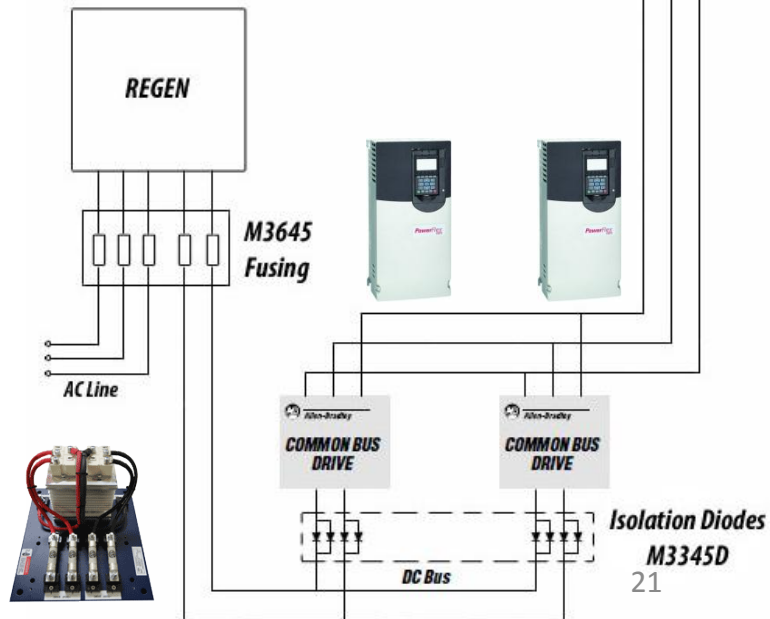
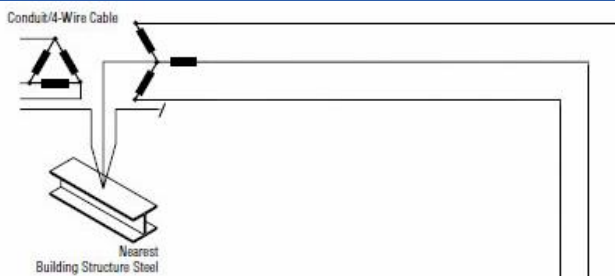
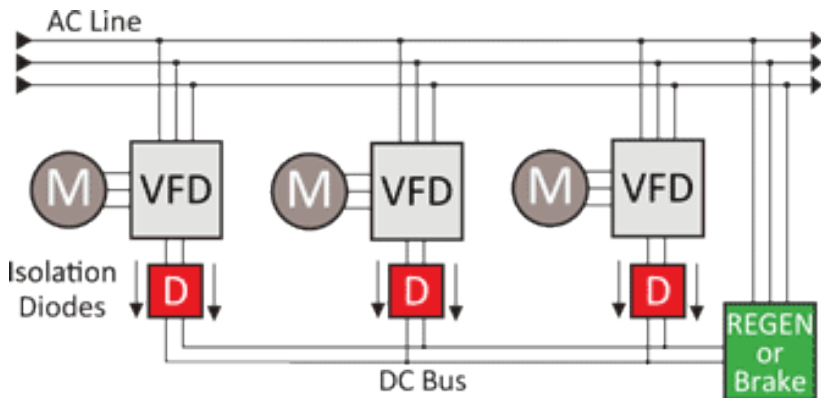
- M3345CBM
- AC powered drives
- Share circulating energy



Multiple Drives

Isolation Diodes

- DC powered drives
- Isolate circulating energy



Braking Solutions

1336W

- Replacements for 1336W

PowerFlex®

- Drives with no internal brake/7th IGBT
 - Braking Transistors
 - Braking Resistors

PowerFlex® 750 Series

- No Rockwell 7th IGBT add-on
 - Must be ordered with brake initially
- No 7th IGBT on drives above 400HP
 - Bonitron brakes 2300HP+



[1336 Series](#)



[PowerFlex® 400](#)



[PowerFlex® 700](#)



[PowerFlex® 700S](#)



[PowerFlex® 753](#)



[PowerFlex® 755](#)

PowerFlex Cross References



[1336 Series](#)



[PowerFlex® 400](#)



[PowerFlex® 700](#)



[PowerFlex® 700S](#)



[PowerFlex® 753](#)



[PowerFlex® 755](#)



[App. Notes](#)



[Request Info.](#)

Braking Transistor & Resistor Selection

Common Bus Supply Selection

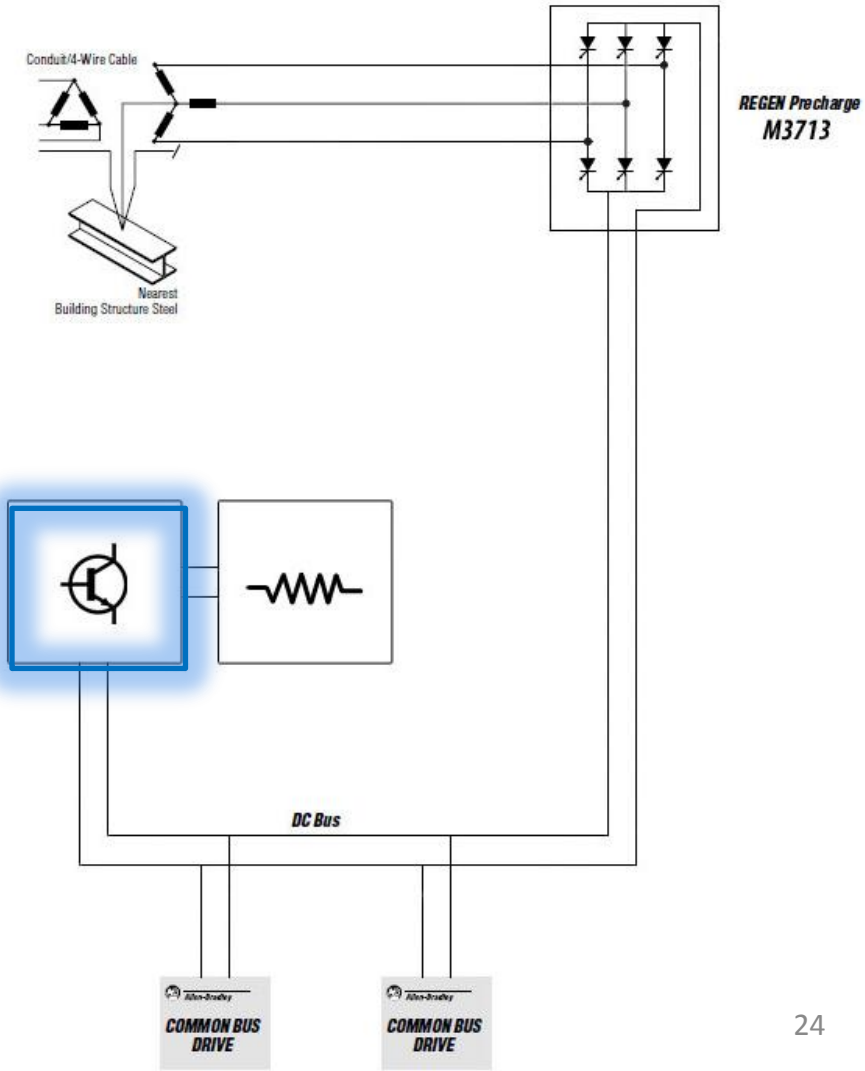
Line Regen Selection

PowerFlex® 755 Series				Bonitron Solutions					
RA Model Number	Normal Duty HP	Internal Transistor	External Resistor (Use w/ 7th IGBT) [Limited by drive min. ohm rating]	10% Overhauling 20% Braking		50% Overhauling		100% Overhauling	
				Transistor	Resistor	Transistor	Resistor	Transistor	Resistor
460 - 480 VAC									
20Gxxx2P1	1	YES	M3575R-H16BF	M3675T-H10	M3575R-H2MF	M3675T-H10	M3775RK-H1.50B	M3675T-H10	M3775RK-H1.50C
20Gxxx3P4	2	YES			M3575R-H3MF		M3775RK-H3.00B	M3575T-H15	M3775RK-H3.00C
20Gxxx5P0	3	YES			M3575R-H5BF	M3575T-H15	M3775RK-H5.00B	M3575T-H30	M3775RK-H5.00C
20Gxxx8P0	5	YES			M3575R-H8BF	M3575T-H30	M3775RK-H7.50B		M3775RK-H7.50C



Braking

Transistors/Choppers



Braking Transistors

M3452 – Heavy Duty Choppers

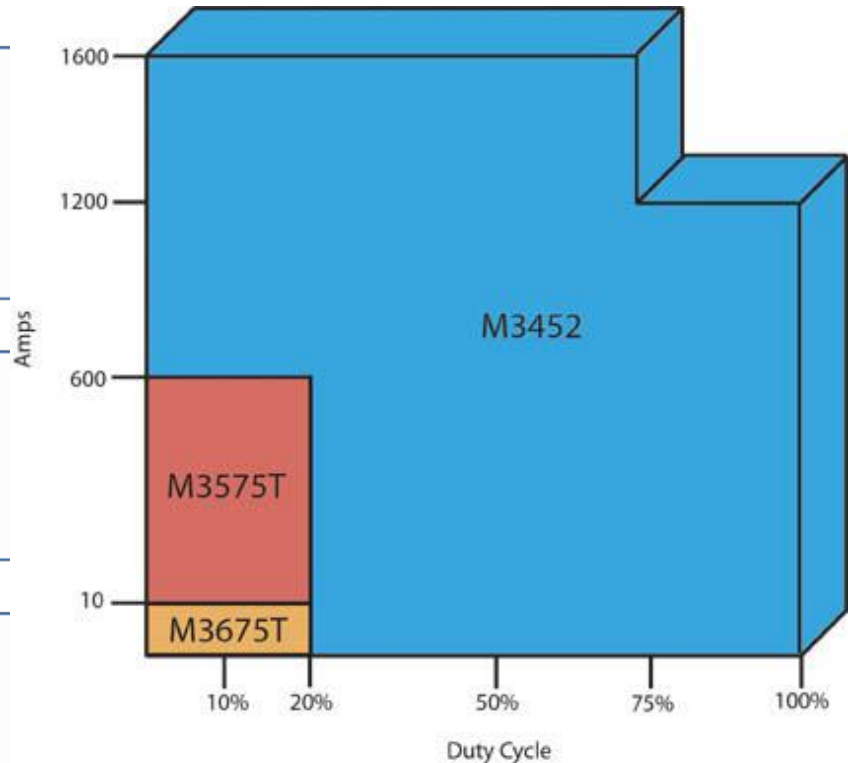
- High duty
- 75 – 1600 A
- 230 – 690 VAC
- Networking Options

M3575T – Standard Duty Choppers

- 20% duty
- 10 – 600 A
- 230 – 460 VAC

M3675T Braking Transistor

- Up to 10A
- 115 – 480VAC



Resistors

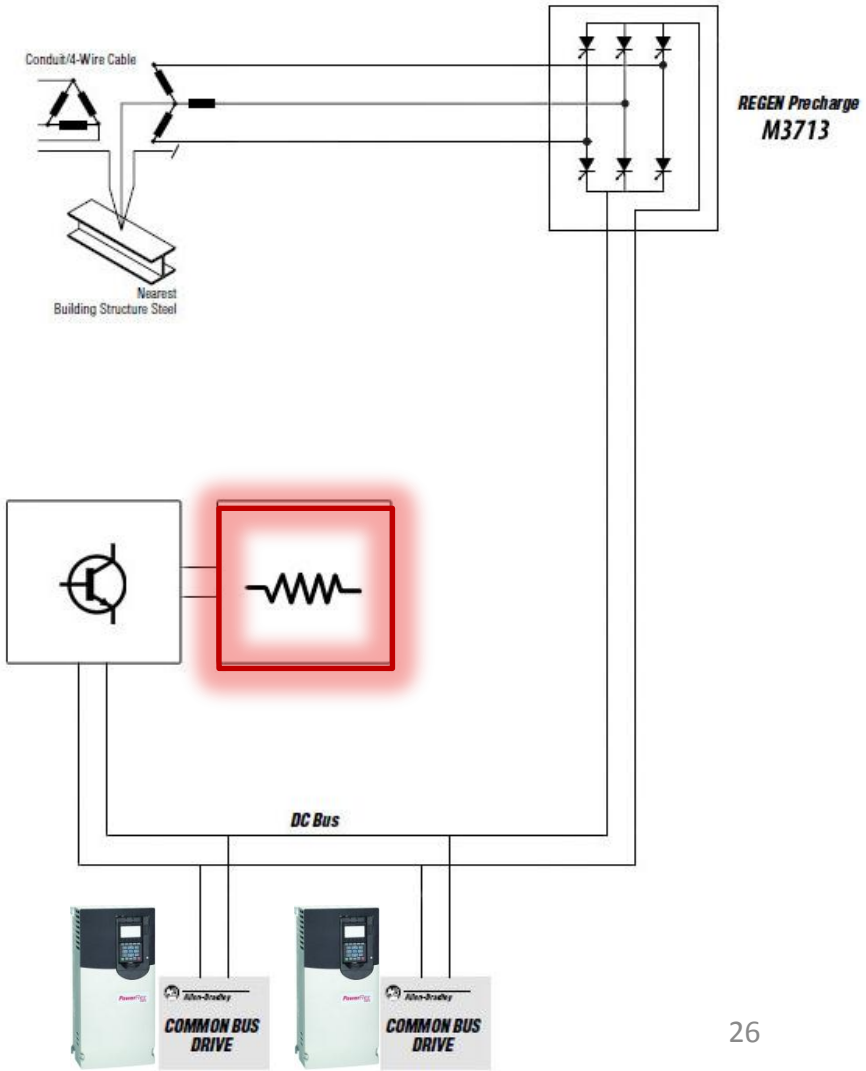


M3575R

or



M3775



Braking Resistors

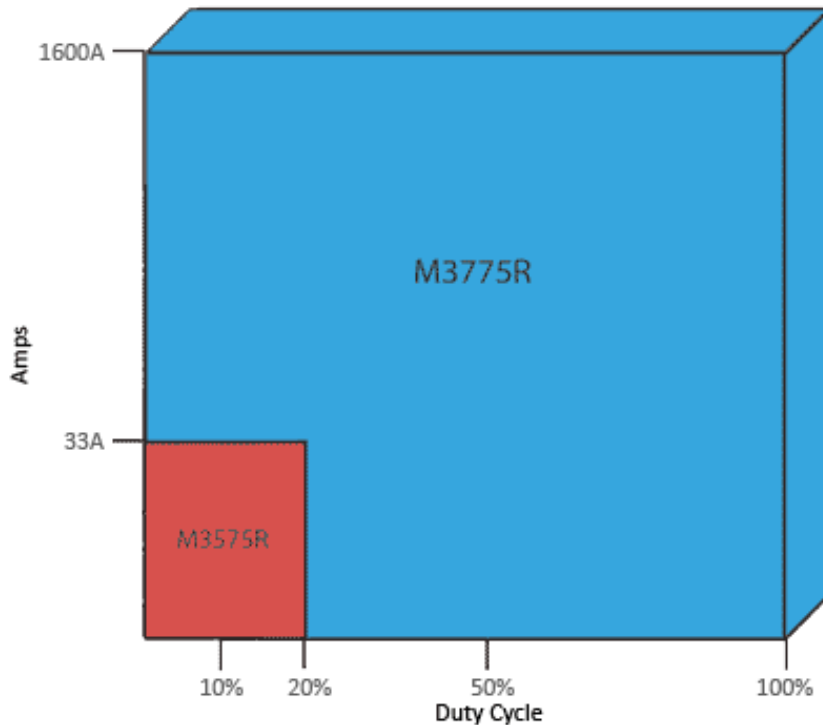
M3575R

- Up to 33A
- 6 or 20% Duty

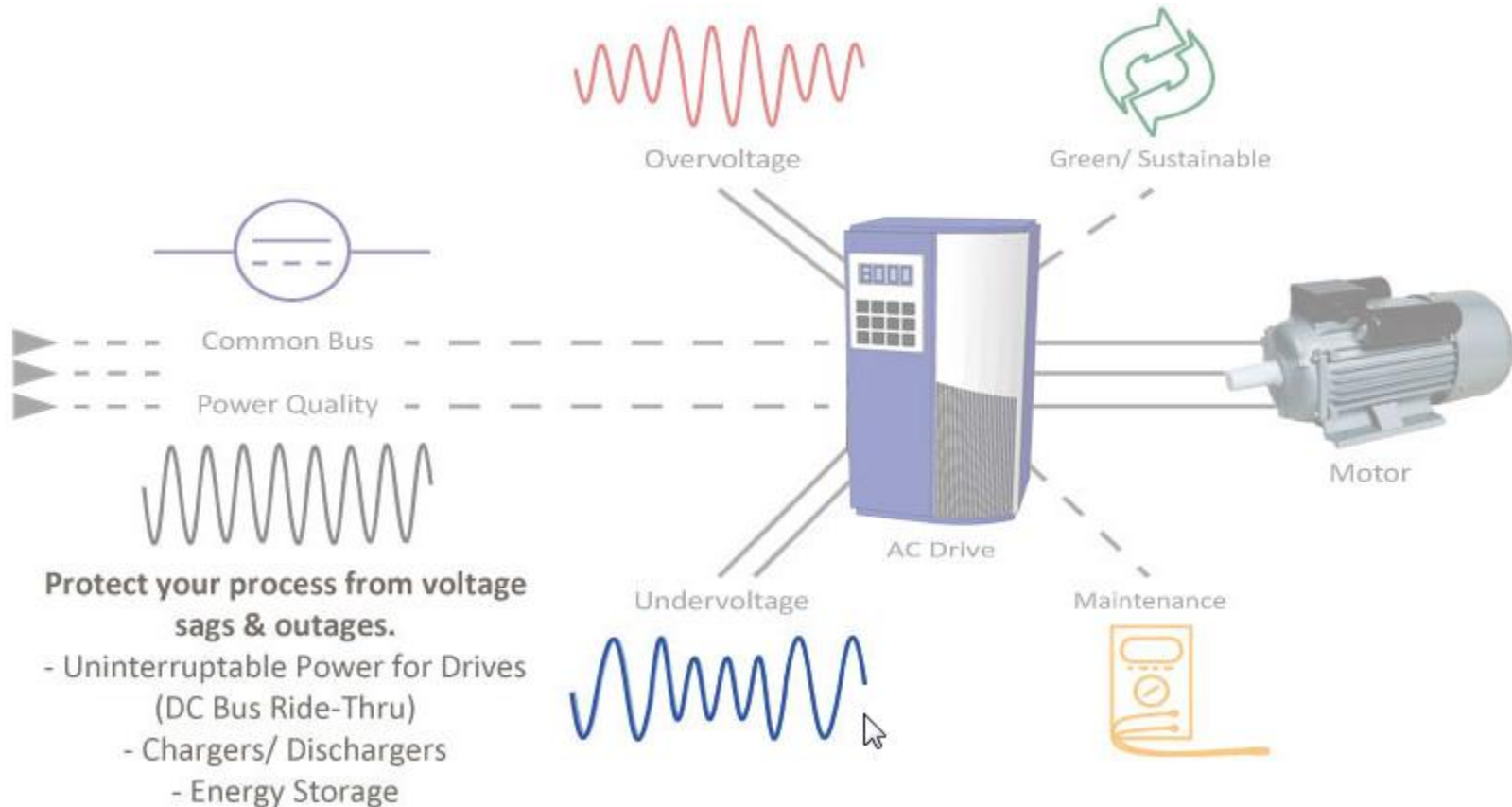
M3775R

- Up to 1600+ Amps
- 10, 50, and 100% Duty
- Convection or Fan Cooled

Custom Available

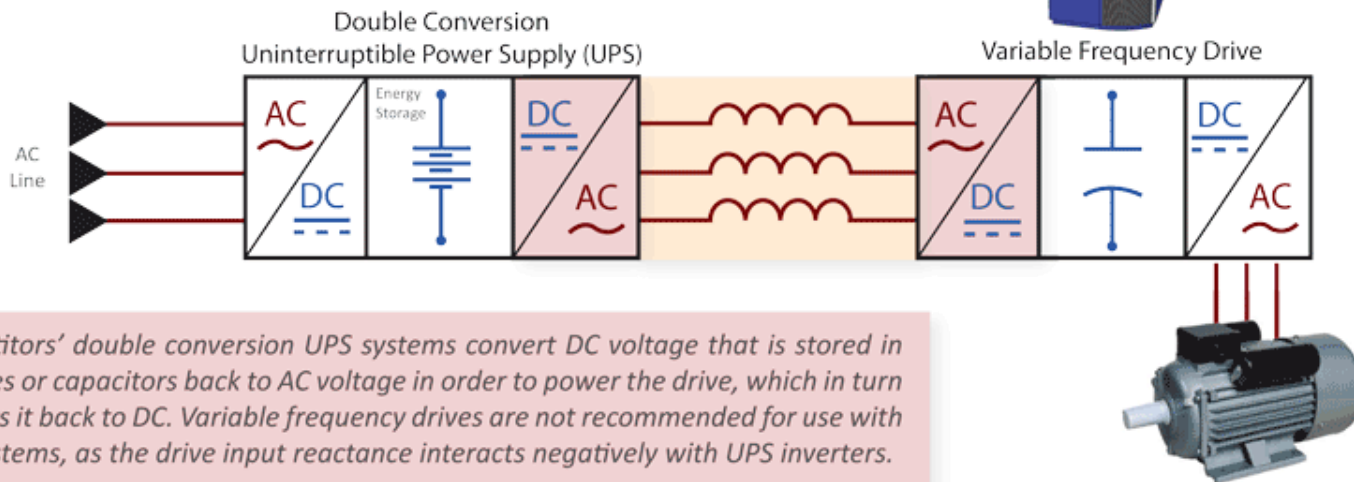


Undervoltage Solutions



In-line UPS Disadvantages

- Series Connection
 - Decreased reliability
- Decreased efficiency
 - Unnecessary conversions
 - Converts energy storage back to AC

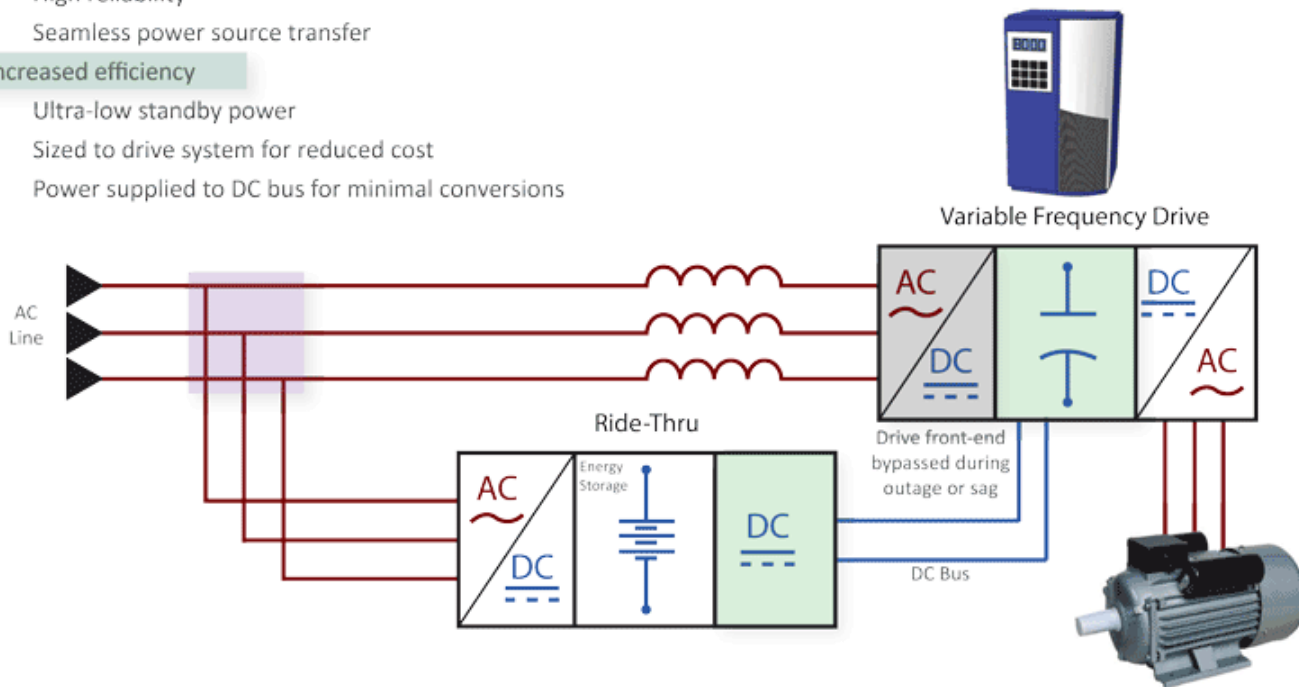


Undervoltage Solutions

Bonitron UPD Advantages

- **Parallel Connection**
 - High reliability
 - Seamless power source transfer
- **Increased efficiency**
 - Ultra-low standby power
 - Sized to drive system for reduced cost
 - Power supplied to DC bus for minimal conversions

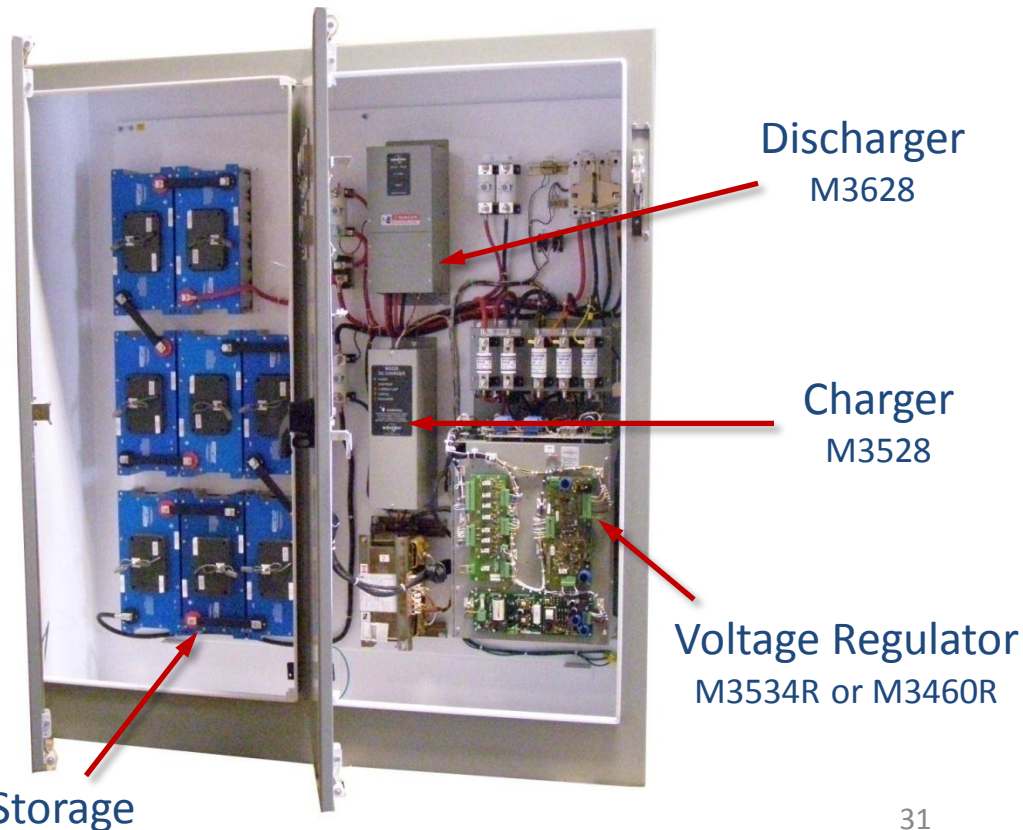
Bonitron UPD Systems power the DC bus of the drive via DC bus connection terminals on the drive. This eliminates an unnecessary and energy wasting DC to AC conversion.



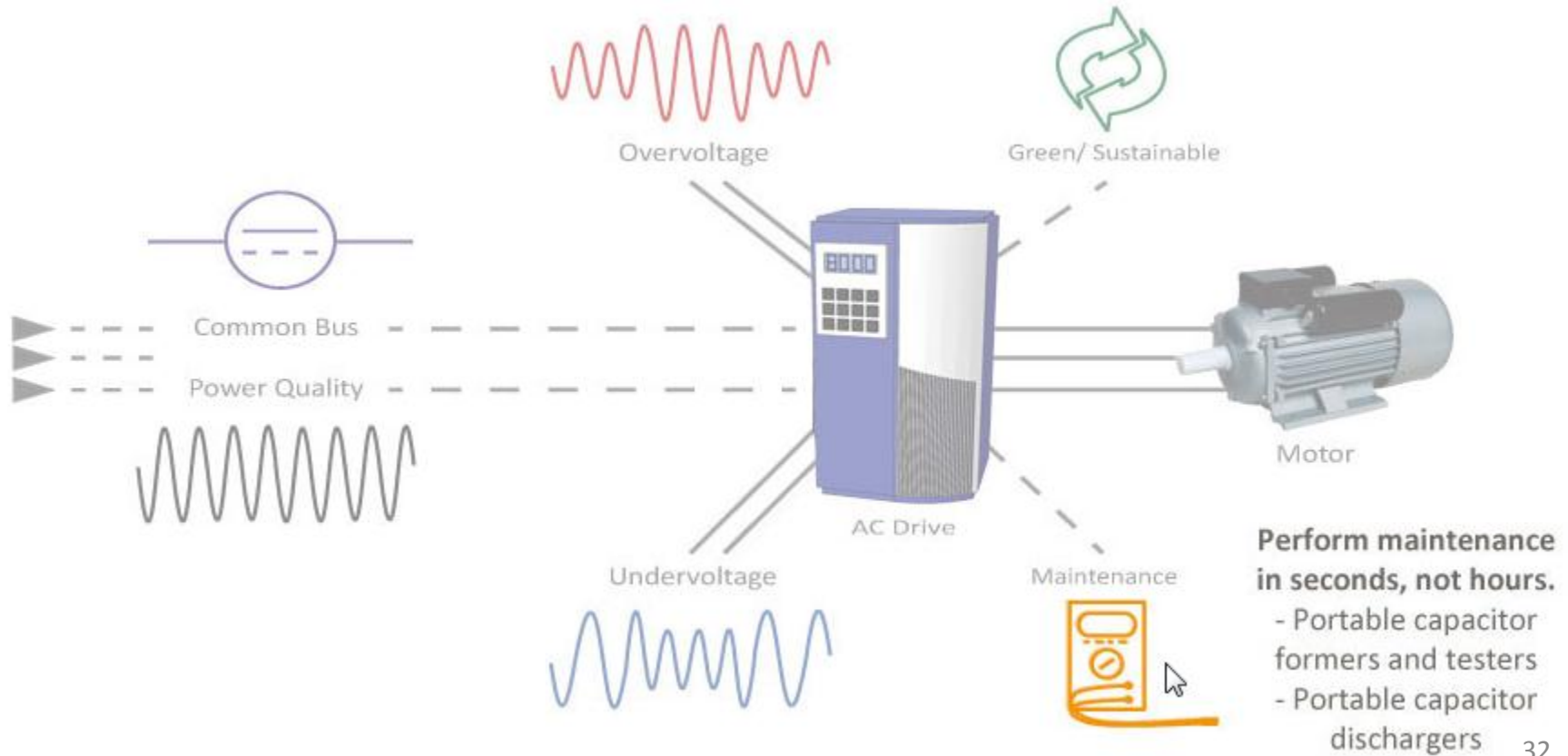
Undervoltage Solutions

UPD

- Connects to drive's DC terminals
- Protection from sags to complete outages
- Energy storage provided by Bonitron or third party
- Integrated safety discharging
- One UPD can support multiple VFDs



Maintenance Solutions



Maintenance Solutions



Battery Testers

- Rapidly tests M3528B Battery Modules

Capacitor Dischargers

- Depletes energy stored in ultracapacitors

Capacitor Formers

- Form capacitors
- Benchtop power supply

Capacitor Testers

- Measure capacitance and ESR to determine when end of life is reached

Question and Answer



Questions?

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

Introduction

1336 Solutions

Common DC Bus

Braking Solutions

Drive Accessories

Question and Answer



WWW.BONITRON.COM

-

615-244-2825



BONITRON

Dedicated to Designing
and Manufacturing
Quality Industrial Electronics