

General Accessories for AC Drives

Drives Accessories – Line/Load Reactors

LR(2) Series Line Reactors

Input line reactors protect the AC drive from transient overvoltage conditions typically caused by utility capacitor switching. They also reduce the harmonics associated with AC drives and are recommended for all installations.

Output line (load) reactors protect the motor insulation against AC drive short circuits and IGBT reflective wave damage, and also allow the motor to run cooler by “smoothing” the motor current waveform. They are recommended for operating “non-inverter-duty” motors, and for any motors where the length of wiring between the AC drive and motor is less than 100 feet. For AC Drive-to-Motor wiring distances over 100 feet, use of the VTF series output filter is recommended.

Features:

- Universal mounting feet with multiple mounting slots; can replace most reactors using existing mounting holes
- Short-term overload rating: 200% of rated current for 3 minutes maximum
- Overload inductance:
95% @ 110% load; 80% @ 150% load
- Impedance: ~3%
- 10-year warranty

Agency Approvals:

- cUL_{US} listed (E197592)
- CE marked
- RoHS



LR2-10P2-1PH

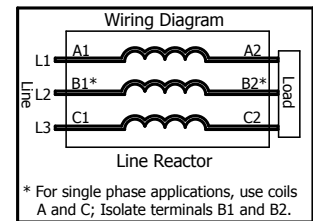


LR-2100



LR2-40P2

Typical Line Reactors



Wiring

LR(2) Series Line/Load Reactors – Compatibility with AutomationDirect AC Drives

- For Reactor compatibility with CFW100 AC Drives, please refer to WEG CFW100 AC Drives - Accessories: [PDF](#).
- For Reactor compatibility with CFW300 AC Drives, please refer to WEG CFW300 AC Drives - Accessories: [PDF](#).
- For Reactor compatibility with CFW500 AC Drives, please refer to WEG CFW300 AC Drives - Accessories: [PDF](#).
- For Reactor compatibility with GS4 AC Drives, please refer to GS4 DURApulse Drives Accessories - Line/Load Reactors: [PDF](#).
- For Reactor compatibility with GS20(X) AC Drives, please refer to GS20(X) Optional Accessories - Line Reactors/VTF Filters: [PDF](#).
- For Reactor compatibility with GS30 AC Drives, please refer to GS20 Optional Accessories - Line Reactors/VTF Filters: [PDF](#).
- For Reactor compatibility with AS3 AC Drives, please refer to AS3 Optional Accessories - Line Reactors/VTF Filters: [PDF](#).

Drives Accessories – Line/Load Reactors

Line/Load Reactors for AC Drives – LR(2) Series

Part Number ¹	Price	Max Rated Amps	Induc- tance [mH]	Watt Loss	System Voltage	Weight (lb)	Wire Range	Terminal Torque (lb-in)	Operating Temperature	Storage Temperature	Environment	Drawing Links							
LR2-10P2-1PH-A³⁴		10A	1.37	27	110 VAC	1.4	18–12 AWG	10	180 °C / 356 °F	-40 to +104 °F [-40 to +40 °C]	Humidity: 95% Non-condensing	PDF							
LR2-10P5-1PH-A³⁴		12A	0.971	42		4.3	18–12 AWG	20	104 °F [40 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF							
LR-22P0-1PH³			1.53	24.3					8			18–4 AWG	-40 to +104 °F [-40 to +40 °C]	PDF					
LR2-11P0-1PH²³			16.7A	1.03											53	12	PDF		
LR2-11P5-1PH³		34A	0.342	64								PDF							
LR2-20P2⁴		3A	7.4	26.4	230 VAC	1.4						PDF							
LR2-20P2-1PH³⁴		3.4A	6.4	23.5								PDF							
LR2-20P5⁴		4.8A	4.6	30.6								PDF							
LR2-20P5-1PH³⁴		6.2A	3.56	39		3	22–12 AWG	9	122 °F [50 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF							
LR2-20P7⁴		7.6A	2.9	49								PDF							
LR2-21P0⁴		11A	2	64		3.2						PDF							
LR2-21P5⁴												PDF							
LR2-22P0⁴												PDF							
LR2-21P0-1PH-A³⁴		11.6A	0.2				18–12 AWG	10	180 °C / 356 °F	-40 to +104 °F [-40 to +40 °C]	Humidity: 95% Non-condensing	PDF							
LR2-21P5-1PH-A³⁴												PDF							
LR2-23P0⁴		12A	0.971	42		1.4	18–4 AWG	20	104 °F [40 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF							
LR2-22P0-1PH²³⁴		16.7A	1.03	53		8						PDF							
LR-25P0				48								PDF							
LR2-23P0-1PH³⁴		19A	0.626	38		8					-40 to +104 °F [-40 to +40 °C]	Humidity: 95% Non-condensing	PDF						
LR-27P5		24.2A	0.434	65		12	18–4 AWG	20	180 °C / 356 °F	-40 to +104 °F [-40 to +40 °C]			PDF						
LR-2010		30.8A	0.342	96									12						PDF
LR-2015		46.2A	0.22	64															PDF
LR-2020		59.4A	0.172	85															PDF
LR-2025		74.8A	0.138	94		15	18–16 AWG: 25 14–6 AWG: 30 4 AWG: 35	120	104 °F [40 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF							
LR-2030		88A	0.116	135		33						PDF							
LR-2040		114A	0.0886	149		36	6 AWG–250 (AL or CU)	275					PDF						
LR-2050		143A	0.0699	154									PDF						
LR-2060		169A	0.0624	209		46	6 AWG–250 MCM	500					PDF						
LR-2075		211A	0.0487	294		52	4 AWG–600 MCM						PDF						
LR-2100		273A	0.0364	276									PDF						

1. Impedance = 3% for all reactors, except as otherwise noted.

2. Impedance = 5% for reactors marked with this note, but they function as 3% reactors in the ADC drive application.

3. Single-phase line reactors are for use only with single-phase drive inputs. Single-phase line reactors should NOT be installed on the output side of AC drives.

4. Optional mounting accessories are available for these models. See "Line/Load Reactors – Mounting Accessories" section for details.

5. LR-4250 & LR-4300 have dual-connector lugs, and will require multiple conductors per phase of the appropriate size to fit the lugs.

Drives Accessories – Line/Load Reactors

Line/Load Reactors for AC Drives – LR(2) Series

Part Number ¹	Price	Max Rated Amps	Induc- tance [mH]	Watt Loss	System Voltage	Weight (lb)	Wire Range	Terminal Torque (lb-in)	Operating Temperature	Storage Temperature	Environment	Drawing Links			
LR2-40P2⁴		0.7A	31.5	5	460 VAC	1.3	22–12 AWG	9	122 °F [50 °C] max	-40 to +49 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF			
LR2-40P3⁴		0.8A	27.6	6.2								PDF			
LR2-40P5⁴		1.1A	20	9.7								PDF			
LR2-40P7⁴		1.6A	13.8	12.1								PDF			
LR2-41P0⁴		2.1A	10.5	25.2		1.2						PDF			
LR2-41P5⁴		3A	7.4	26.4		1.4						PDF			
LR2-42P0⁴		3.4A	6.5	23.5								PDF			
LR2-43P0⁴		4.8A	4.6	30.6								PDF			
LR2-44P0⁴		6.2A	3.56	39		3						PDF			
LR2-45P0⁴		7.6A	2.9	49								PDF			
LR2-47P5⁴		11A	2	64		3.2						PDF			
LR2-4010⁴		14A	1.58	77.7		3.3	18-12 AWG	10	180 °C / 356 °F	-40 to +104 °F [-40 to +40 °C]	Humidity: 95% Non-condensing	PDF			
LR-4015		21A	0.912	65		8	18–4 AWG	20	104 °F [40 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF			
LR-4020		27A	0.694	79								PDF			
LR-4025		34A	0.569	96								PDF			
LR-4030		40A	0.469	105		10						PDF			
LR-4040		52A	0.387	114		15						PDF			
LR-4050		65A	0.295			25	#22–4 AWG	22–16 AWG: 25 14–6 AWG: 30 4 AWG: 35				PDF			
LR-4060		77A	0.227	169								PDF			
LR-4075		96A	0.196	193		33	2/0 – 6 AWG (AL or CU)	120				PDF			
LR-4100		124A	0.152	225		46	250 kcmil – 6 AWG (AL or CU)	275				PDF			
LR-4125		156A	0.117	254								PDF			
LR-4150		180A	0.103	299								PDF			
LR-4200		240A	0.0839	280		74	(1) 4 AWG – 600kcmil (2) 1/0 – 250 kcmil	500				PDF			
LR-4250⁵		302A	0.0654	337				275				PDF			
LR-4300⁵		361A	0.0565	381			PDF								
LR2-51P0⁴		1.7A	16.2	16.2	600 VAC	1.3	22–12 AWG	9	122 °F [50 °C] max	-40 to +49 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF			
LR2-51P5⁴		2.4A	11.5	17.2		1.4						PDF			
LR2-52P0⁴		2.7A	10.2	20.5		1.5						PDF			
LR2-53P0⁴		3.9A	7.07	30		3.5						PDF			
LR2-54P0⁴		4.9A	5.63			2.9						PDF			
LR2-55P0⁴		6.1A	4.52			44						3	PDF		
LR2-57P5⁴		9A	3.1	57		3.2						PDF			
LR2-5010⁴		11A	2.454	52.6			18-12 AWG	10	180 °C / 356 °F	-40 to +104 °F [-40 to +40 °C]	Humidity: 95% Non-condensing	PDF			

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3. Single-phase line reactors are for use only with single-phase drive inputs. Single-phase line reactors should NOT be installed on the output side of AC drives.

4. Optional mounting accessories are available for these models. See "Line/Load Reactors – Mounting Accessories" section for details.

5. LR-4250 & LR-4300 have dual-connector lugs, and will require multiple conductors per phase of the appropriate size to fit the lugs.

Drives Accessories – Line/Load Reactor Mounting Accessories

LR(2) Series Line/Load Reactors – Mounting Accessories

LR(2) series reactors have different mounting options depending on the model. The models listed below have an integral two-bolt mounting method, and also offer optional mounting adapters that allow other mounting methods.

Adapter Plate Kits LR2-AP1 and LR2-AP2 allow for universal panel mounting with these models.

DIN Rail Mounting Kits LR2-DR1 and LR2-DR2 allow DIN rail mounting with these models.

LR2 Series Line Reactor Mounting Adapters			
Part Number	Price	Description	Drawing Links
LR2-AP1		Adapter Plate Kit; includes 2 flange nuts (10-32); Dimensions 4.45" x 2.63"	PDF
LR2-AP2		Adapter Plate Kit; includes 2 flange nuts (10-32); Dimensions 4.45" x 3.51"	PDF
LR2-DR1		DIN Rail Mounting Clips and Hardware Kit; includes 2 screws (M5-0.8 x 8mm), 2 washers, 2 clips	PDF
LR2-DR2		DIN Rail Mounting Plate and Hardware Kit; includes 4 bolts (0.25-20 x 0.50) and 4 flange nuts	PDF



[LR2-AP1](#)



[LR2-AP2](#)



[LR2-DR1](#)



[LR2-DR2](#)

LR2 Line Reactor Mounting Adapter Selection Table				
ADC Line Reactor Part #	Adapter Plate Kits Part #		DIN Rail Mount Kits Part #	
	LR2-AP1	LR2-AP2	LR2-DR1	LR2-DR2
LR2-10P2-1PH-A	•	•	•	
LR2-10P5-1PH-A				•
LR2-20P2	•	•	•	
LR2-20P2-1PH	•	•	•	
LR2-20P5	•	•	•	
LR2-20P5-1PH				•
LR2-20P7				•
LR2-21P0				•
LR2-21P5				•
LR2-22P0				•
LR2-21P0-1PH-A				•
LR2-21P5-1PH-A				•
LR2-23P0				•
LR2-4010				•
LR2-40P2	•	•	•	
LR2-40P3	•	•	•	
LR2-40P5	•	•	•	
LR2-40P7	•	•	•	
LR2-41P0	•	•	•	
LR2-41P5	•	•	•	
LR2-42P0	•	•	•	
LR2-43P0	•	•	•	
LR2-44P0				•
LR2-45P0				•
LR2-47P5				•
LR2-51P0	•	•	•	
LR2-51P5	•	•	•	
LR2-52P0	•	•	•	
LR2-53P0				•
LR2-54P0				•
LR2-55P0				•
LR2-57P5				•
LR2-5010				•

Drives Accessories – Line/Load Reactors One Line

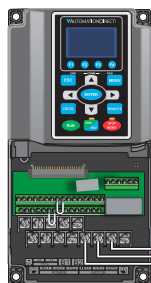
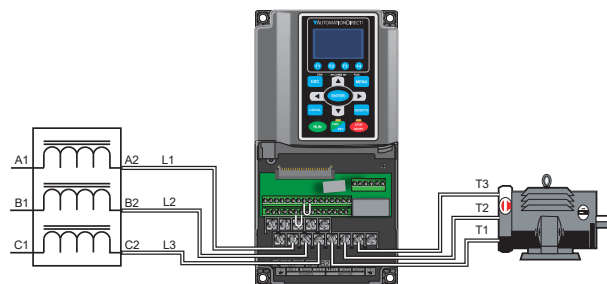
Line/Load Reactors for AC Drives – Generic One-Line Wiring Examples



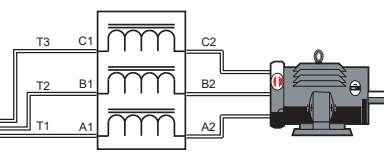
WARNING: CONSULT THE APPLICABLE DRIVE USER MANUAL BEFORE ACTUALLY WIRING THE DRIVE!

Input side of the drive

When installed on the input side of the AC drive, line reactors will reduce line notching, as well as limit current and voltage spikes and surges from the incoming line. The line reactor will also reduce harmonic distortion from the drive onto the line. Units are installed in front of the AC drive as shown.



Note: Single-phase line reactors should NOT be installed on the output of the AC drive. Use only three-phase reactors on drive outputs, and only for three-phase motors.



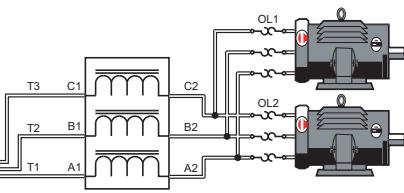
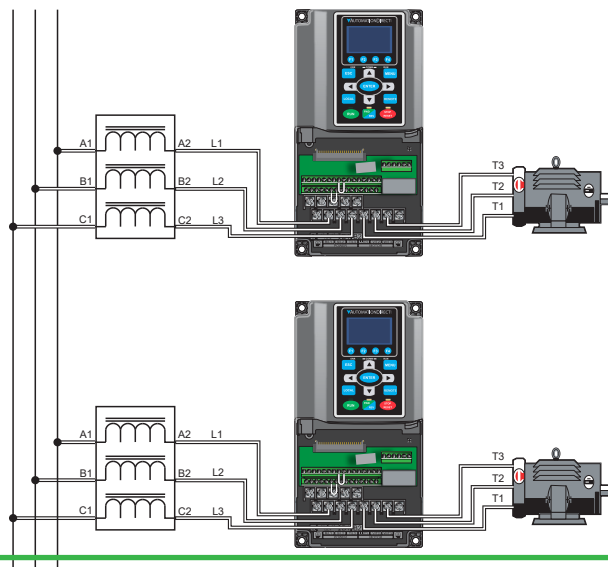
Output side of the drive

When installed on the output side of the drive, line reactors protect the drive from short circuits at the load. Voltage and current waveforms from the drive are enhanced, reducing motor overheating and noise emissions.

Note: If installing a line reactor on the output side of the drive, especially with motor lead lengths in excess of 75 feet, lower the drive PWM output carrier frequency to 4kHz in order to protect the line reactor from excess heating and possible damage.

Multiple drives

Individual line reactors are recommended when installing multiple drives on the same power line. Individual line reactors eliminate crosstalk between multiple drives and provide isolated protection for each drive for its own specific load.



Multiple motors

A single reactor can be used for multiple motors on the same drive, if the motors operate simultaneously. Size the reactor based upon the total horsepower of all the motors. Select a reactor with a current rating greater than the sum of the motor full-load currents. Separate thermal overloads for each motor are recommended for use in multi-motor applications.

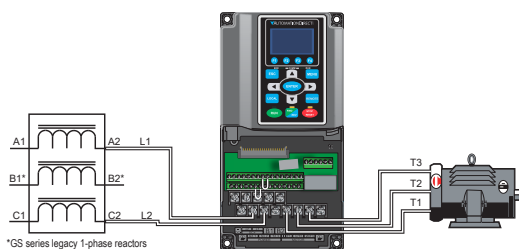
Note: A single reactor should be used with multiple motors only when the motors will always operate simultaneously.

Single-phase applications

Some of the line reactors are listed for use with single-phase input power. Make sure that terminals B1 and B2, if present, are properly insulated before any connections are made.



WARNING: ENSURE THAT TERMINALS B1 AND B2 ARE PROPERLY INSULATED BEFORE MAKING ANY CONNECTIONS TO SINGLE-PHASE POWER.



*GS series legacy 1-phase reactors include a B-phase winding.
*LR series 1-phase reactors do not include a B-phase winding.

GS/DURAPULSE Drives Accessories – Line/Load Reactors

Line/Load Reactors for GS/DURAPULSE AC Drives – Additional Specifications

Line Reactors – LR Series – Additional Specifications							
Part Number	Price	Product Weight	Wire Range	Terminal Torque	Temperature Range		Environment
					Operating	Storage	
LR-20P5		4.0 lb [1.8 kg]	#12–#18 AWG	10 lb·in	-40 to +104 °F [-40 to +40 °C]	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases
LR-21P0-1PH		2.8 lb [1.3 kg]	#12–#18 AWG	10 lb·in			
LR-22P0-1PH		4.3 lb [2.0 kg]	#12–#18 AWG	20 lb·in			
LR-23P0-1PH		4.3 lb [2.0 kg]	#12–#18 AWG	20 lb·in			
LR-23P0		4.0 lb [1.8 kg]	#12–#18 AWG	10 lb·in			
LR-25P0		8.0 lb [3.6 kg]	#18–#4 AWG	20 lb·in			
LR-27P5		8.0 lb [3.6 kg]	#18–#4 AWG	20 lb·in			
LR-2010		12 lb [5.4 kg]	#18–#4 AWG	20 lb·in			
LR-2015		12 lb [5.4 kg]	#18–#4 AWG	20 lb·in			
LR-2020		12 lb [5.4 kg]	#18–#4 AWG	20 lb·in			
LR-2025		15 lb [6.8 kg]	#18–#4 AWG	#18–#16 AWG: 25 lb·in #14–#6 AWG: 30 lb·in #4 AWG: 35 lb·in			
LR-2030		33 lb [15 kg]	2/0 – #6 AWG (AL or CU)	120			
LR-2040		33 lb [15 kg]	2/0 – #6 AWG (AL or CU)	120			
LR-2050		36 lb [16 kg]	250kcmil – #6 AWG (AL or CU)	275			
LR-4010		4.0 lb [1.8 kg]	#12–#18 AWG	10 lb·in			
LR-4015		8.0 lb [3.6 kg]	#18–#4 AWG	20 lb·in			
LR-4020		8.0 lb [3.6 kg]	#18–#4 AWG	20 lb·in			
LR-4025		10 lb [4.5 kg]	#18–#4 AWG	20 lb·in			
LR-4030		10 lb [4.5 kg]	#18–#4 AWG	20 lb·in			
LR-4040		15 lb [6.8 kg]	#18–#4 AWG	20 lb·in			
LR-4050		25 lb [11 kg]	#22–#4 AWG	#22–#16 AWG: 25 lb·in #14–#6 AWG: 30 lb·in #4 AWG: 35 lb·in			
LR-4060							
LR-4075		33 lb [15 kg]	2/0 – #6 AWG (AL or CU)	120 lb·in			
LR-4100		46 lb [21 kg]	250 kcmil – #6 AWG (AL or CU)	275 lb·in			
LR-4125		46 lb [21 kg]	250 kcmil – #6AWG (AL or CU)	275 lb·in			
LR-4150		46 lb [21 kg]	250 kcmil – #6AWG (AL or CU)	275 lb·in			
LR-4200		74 lb [34 kg]	(1) 600 kcmil – #4 AWG (2) 250 kcmil – 1/0	500 lb·in			
LR-4250		74 lb [34 kg]	(2)* 350 kcmil – #4 AWG (AL or CU)	275 lb·in			
LR-4300		74 lb [34 kg]	(2)* 350 kcmil – #4 AWG (AL or CU)	275 lb·in			
LR-5010		4.0 lb [1.8 kg]	#12–#18 AWG	10 lb·in			
* LR-4250 & LR-4300 have dual-connector lugs, and will require multiple conductors per phase of the appropriate size to fit the lugs.							

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