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
- Impedence: ~3%
- 10-year warranty

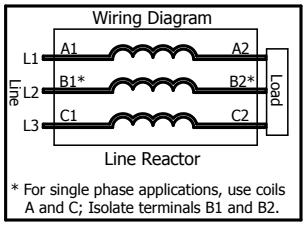
Agency Approvals:

- $_{C}UL_{US}$ listed (E197592)
- CE marked
- RoHS

LR2-10P2-1PH

LR-2100

LR2-40P2



Wiring

Typical Line Reactors

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-A[34]		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-A[34]		12A	0.971	42								PDF
LR-22P0-1PH[3]			1.53	24.3		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
LR2-11P0-1PH[23]		16.7A	1.03	53		8	18–4 AWG		-40 to +104 °F [-40 to +40 °C]			PDF
LR2-11P5-1PH[3]		34A	0.342	64		12						PDF
LR2-20P2[4]		3A	7.4	26.4	230 VAC	1.4	22–12 AWG	9	122 °F [50 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	PDF
LR2-20P2-1PH[34]		3.4A	6.4	23.5								PDF
LR2-20P5[4]		4.8A	4.6	30.6								PDF
LR2-20P5-1PH[34]		6.2A	3.56	39		3						PDF
LR2-20P7[4]		7.6A	2.9	49								PDF
LR2-21P0[4]		11A	2	64		3.2						PDF
LR2-21P5[4]												PDF
LR2-22P0[4]												PDF
LR2-21P0-1PH-A[34]		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-A[34]												PDF
LR2-23P0[4]		12A	0.971	42		1.4						PDF
LR2-22P0-1PH[234]		16.7A	1.03	53		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-25P0			0.626	48								PDF
LR2-23P0-1PH[34]		19A		38			18–4 AWG		180°C / 356 °F	-40 to +104 °F [-40 to +40 °C]	Humidity: 95% Non-condensing	PDF
LR-27P5		24.2A	0.434	65			18–4 AWG		104 °F [40 °C] max	-40 to +149 °F [-40 to +65 °C]	NEMA: open IP00 no corrosive gases	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				PDF
LR-2030		88A	0.116	135		33	6 AWG–2/0 (AL or CU)	120				PDF
LR-2040		114A	0.0886	149								PDF
LR-2050		143A	0.0699	154		36	6 AWG–250 kcmil (AL or CU)	275				PDF
LR-2060		169A	0.0624	209		46	6 AWG–250 MCM					PDF
LR-2075		211A	0.0487	294		52	4 AWG–600 MCM	500				PDF
LR-2100		273A	0.0364	276								PDF

1. *Impedence = 3% for all reactors, except as otherwise noted.*
2. *Impedence = 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
LR2-40P2[4]		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
LR2-40P3[4]		0.8A	27.6	6.2								PDF
LR2-40P5[4]		1.1A	20	9.7								PDF
LR2-40P7[4]		1.6A	13.8	12.1								PDF
LR2-41P0[4]		2.1A	10.5	25.2		1.2						PDF
LR2-41P5[4]		3A	7.4	26.4		1.4						PDF
LR2-42P0[4]		3.4A	6.5	23.5								PDF
LR2-43P0[4]		4.8A	4.6	30.6								PDF
LR2-44P0[4]		6.2A	3.56	39		3						PDF
LR2-45P0[4]		7.6A	2.9	49								PDF
LR2-47P5[4]		11A	2	64		3.2						PDF
LR2-4010[4]		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		10						PDF
LR-4030		40A	0.469	105								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-4250[5]		302A	0.0654	337			(2)** 4 AWG – 350 kcmil (AL or CU)	275				PDF
LR-4300[5]		361A	0.0565	381								PDF
LR2-51P0[4]		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
LR2-51P5[4]		2.4A	11.5	17.2		1.4						PDF
LR2-52P0[4]		2.7A	10.2	20.5		1.5						PDF
LR2-53P0[4]		3.9A	7.07	30		3.5						PDF
LR2-54P0[4]		4.9A	5.63			2.9						PDF
LR2-55P0[4]		6.1A	4.52	44		3						PDF
LR2-57P5[4]		9A	3.1	57		3.2						PDF
LR2-5010[4]		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

1. *Impedence = 3% for all reactors, except as otherwise noted.*
2. *Impedence = 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 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				•

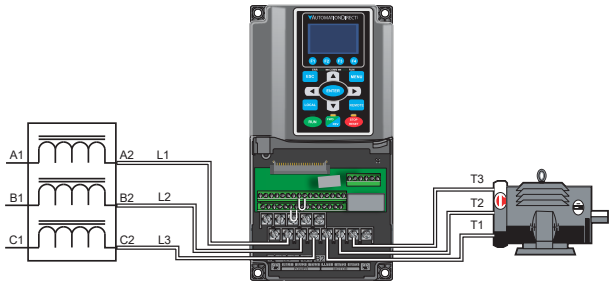
Drives Accessories – Line/Load Reactors One Line

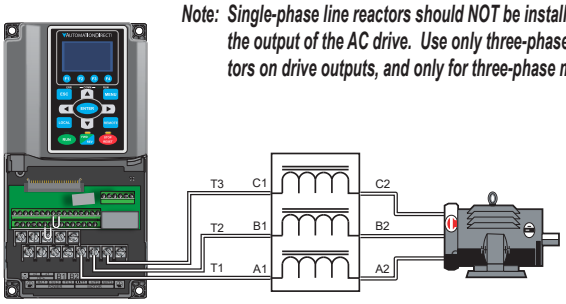
Line/Load Reactors for AC Drives – Generic One-Line Wiring Examples

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.

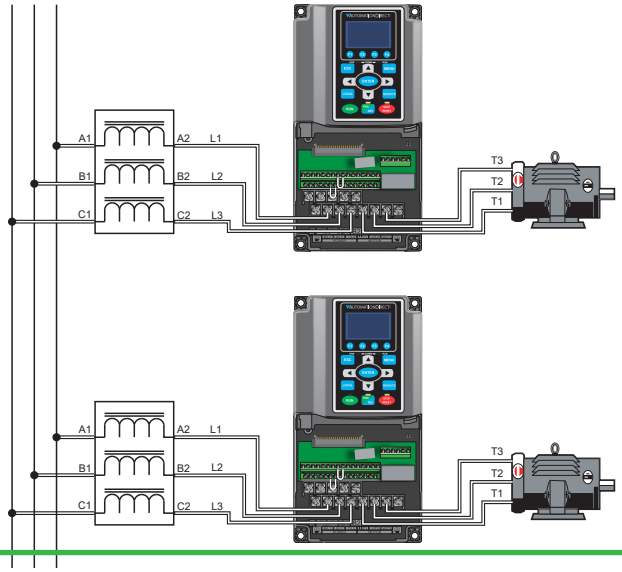
Output side of the drive

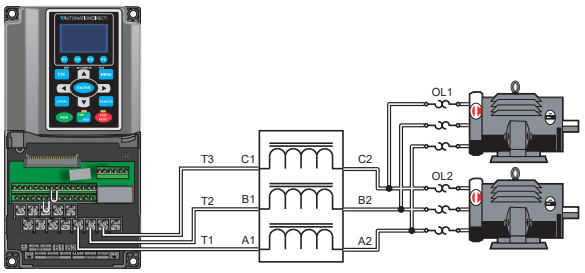
When installed on the output side of the drive, line reactors protect the drive from short circuits at the load. Voltage and current waveforms from the drive are enhanced, reducing motor overheating and noise emissions.

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

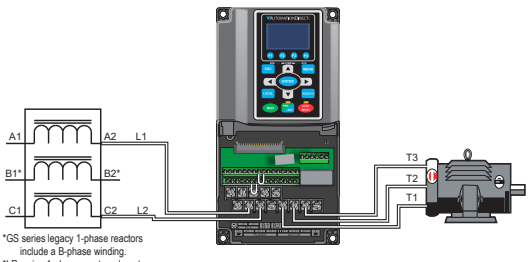
A single reactor can be used for multiple motors on the same drive, **if the motors operate simultaneously**. Size the reactor based upon the total horsepower of all the motors. Select a reactor with a current rating greater than the sum of the motor full-load currents. **Separate thermal overloads for 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/*DURA*PULSE Drives Accessories – Line/Load Reactors

Line/Load Reactors for GS/*DURA*PULSE 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.*