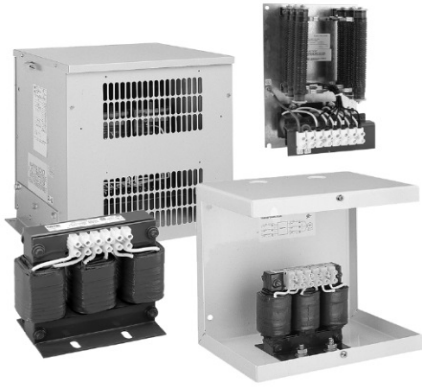
Product Details and Certifications

Cross Reference RA Part Number: 1321-3R160-C A

Product: 1321-3R160-C

Description: Three-Phase Line Reactor, Open Style (AC Drive Reactors), 160 Amps, 0.23 mh



Representative Photo Only (actual product may vary based on configuration sections)

REACTOR DATA

Bulletin Number	1321- Line Reactor
Fundamental Amps	160 Amps
Phases	3 PH
Inductance	0.23 mh
Impedance	3% or 5% Based on Fundamental Current Ratings
Enclosure Type	Open Type

CERTIFICATIONS AND APPROVALS

UL
CSA
CE

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001	Basic information needed to properly wire and ground PWM AC drives.
Safety Guidelines for the Application, Installation and Maintenance of Solid State Control, publication SGI-1.1	General guidelines for the application, installation, and maintenance of solid-state control.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

For Allen-Bradley Drives Technical Support:

Title	Online at…
Allen-Bradley Drives Technical Support	www.ab.com/support/abdrives or call (1) 262.512.8176

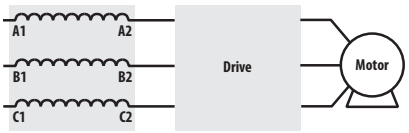
Product Overview

Allen-Bradley reactors help keep equipment running longer by absorbing many of the power line disturbances which can shut down your drive. Allen-Bradley isolation transformers can provide both voltage change and isolation for your variable speed drive. These designs are harmonic compensated and IGBT protected to assure optimum performance in the presence of harmonics.

1321-3R, 1321-3RA, and 1321-3RB Series Line Reactors

Applying Allen-Bradley Line Reactors

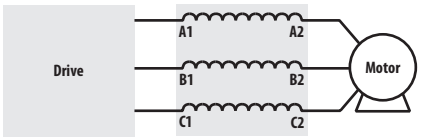
At the Input of the Drive



At the input of a drive, line reactors help protect against surges or spikes on the incoming power lines and help reduce harmonic distortion.

- Eliminate Nuisance Tripping
- Extend Semiconductor Life
- Reduce Harmonic Distortion
- Improve True Power Factor
- Reduce Voltage Notching
- Meet IEEE-519 or EN-61800

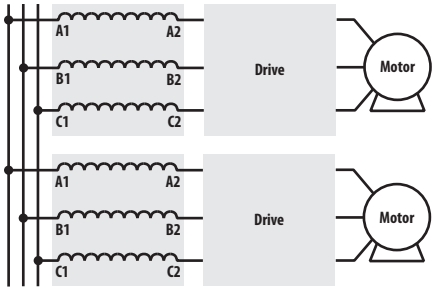
At the Output of the Drive



In long motor lead applications, Allen-Bradley load reactors located between the drive and motor help reduce dv/dt and motor terminal peak voltages. The use of a load reactor also helps protect the drive from surge currents caused by rapid changes in the load.

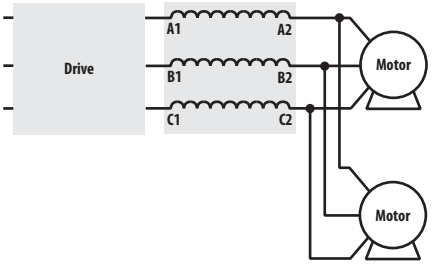
- Protect Motors from Long Lead Effects
- Reduce Output Voltage dv/dt
- Extend Semiconductor Life
- Reduce Surge Currents
- Reduce Motor Temperature
- Reduce Audible Motor Noise

With Multiple Drives



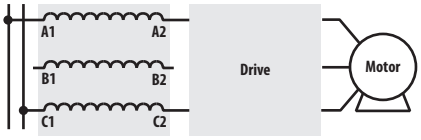
Multiple drives on a common power line should each have their own line reactor. Individual line reactors provide filtering between each drive to help reduce any crosstalk while providing optimum surge protection for each drive.

With Multiple Motors



When more than one motor is controlled by a single drive, a single line reactor can typically be used between the drive and all the motors. Size the line reactor based on the total motor/load horsepower.

With Single-Phase Input



A three-phase reactor can be used for single-phase applications by routing each of the two input power conductors to the outside two coils, and leaving the center coil disconnected. The sum of the inductance of the two coils is the total inductance applied to the circuit. Contact Rockwell Automation Technical Support for assistance in specifying the proper reactor.

Selecting the Correct Impedance Rating

Why is the Right Impedance Rating Important?

Selecting the correct impedance rating is critical for your job. An impedance value too low may not limit peak current. Too high of an impedance may reduce input voltage. Allen-Bradley line reactors offer two impedance ratings.

3% Impedance Rated Reactors to Reduce Nuisance Trips

Allen-Bradley line reactors rated at 3% are typically sufficient to absorb line spikes and motor current surges and will help prevent nuisance tripping of drive and circuit breakers in most applications.

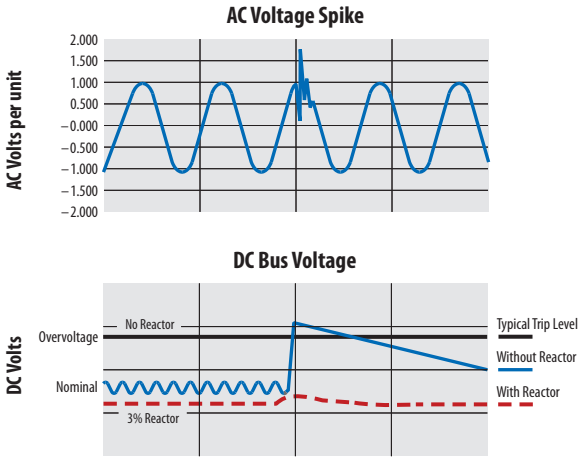
5% Impedance Rated Reactors to Reduce Harmonic Content

Allen-Bradley reactors rated at 5% are best for reducing harmonic current and frequencies. These line reactors help comply with IEEE-519 (not normally used as load reactors).

Voltage Spike Protection

Voltage spikes on AC power lines can cause elevation of the DC bus voltage which may cause the drive to trip on an overvoltage condition.

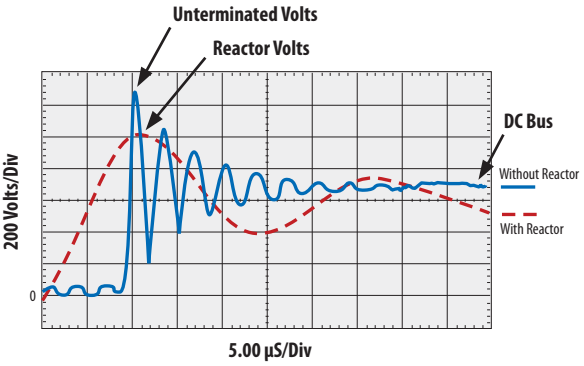
3% impedance reactors are very effective at protecting drives against voltage spikes and nuisance tripping. Allen-Bradley line reactors absorb these line spikes protecting the drive from nuisance tripping and damage.



Motor Protection

Allen-Bradley load reactors can help protect motors from high peak voltages.

For IGBT drive applications with long drive-to-motor lead lengths, Allen-Bradley load reactors can help protect against fast dv/dt rise times.



Catalog Number Explanation

Position Number

1-4		*6*	*7*	*8*		*10*
1321	–	3	R	160	–	C
a		*b*	*c*	*d*		*e*

a

Product	
Code	Type
1321	1321 Power Component

b

Phases	
Code	Description
3	Three-Phase

c

Device	
Code	Description
R	Reactor, Open
RA, RB	Reactor, NEMA 1
RAB	Reactor, NEMA 1, Cabinet Style 2 Only

d

Fundamental Amps	
Code	Amps
1	1
2	2
4	4
8	8
12	12
18	18
25	25
35	35
45	45
55	55
80	80
100	100
130	130
160	160
200	200
250	250
320	320
400	400
500	500
600	600
750	750
850	850
1000	1000

e

Inductance Rating	
Code	Description
A	Each reactor current rating has four inductance ratings also available. See the IP00 dimension table.
B	
C	
D	

Common Specifications

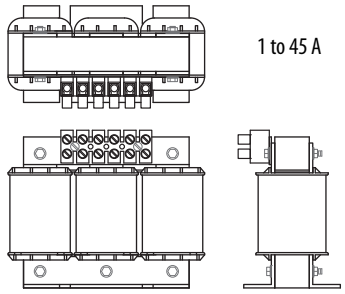
Specification		Rating
Material	Enclosures	IP11 (NEMA/UL Type 1) – Sheet steel in accordance with UL, NEMA requirements
		IP00 (Open) or IP20 (Open – with finger safe terminals)
	Terminations	1…45 Amp (fundamental) Ratings – Finger guard IP20 terminal block
		80…160 Amp (fundamental) Ratings – Solid copper box lugs
		200…400 Amp (fundamental) Ratings – Copper tab terminals (1)
		401 Amps and above – Copper tab terminals (1)
Harmonic Compensation	All line reactors are compensated for the additional currents and high frequencies caused by the presence of harmonics	
General Protection	Impedance	3% or 5% based on the fundamental current ratings
	Overload Rating	200% of fundamental current for 30 minutes 300% of fundamental current for 1 minute
	dv/dt Protection	Meets NEMA MG-1, part 31
Electrical	Max. Rated Voltage	600V AC (units with terminal blocks) 690V AC (units with box lugs or tab terminals)
	Max. Switching Freq.	20 kHz
	Fundamental Frequency	Line/Load - 50/60 Hz
	Temperature Rise	135 °C average
	Dielectric Strength	3000 Volts rms (4243 volts peak)
	Inductance Curve (Typical)	100% at 100% current 100% at 150% current 50% at 350% current (minimum)
	Inductance Tolerance	±10%
	Insulation System	Class N (200 °C)
	Impregnation	High bond strength solventless epoxy, 200 °C, UL94HB recognized
Environmental	Ambient Temperature	45 °C (maximum)
	Altitude	1000 meters (3280 feet)
Agency Approvals	UL-508	File E180243 Component Listed (1…2400 amps) File E180243 UL Listed NEMA Type 1 units (1…2400 amps) Note: Short Circuit rating not required under Exception No.1 of UL508A SB4.2.1 effective 4/25/06
	CSA C22.2, Class N, 200 °C	File LR29753-13 CSA Certified (1…2400 amps) File E66214, Type 200-18, UL Recognized Insulation System
	CE	TUV certified to EN61558-2-20:2000

(1) For applications with reactors rated 200 Amps or more, cable-style connections are recommended.

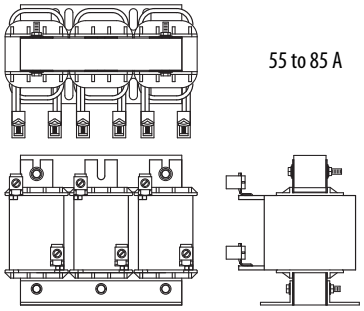
Termination

Allen-Bradley reactors rated 45 Amps (fundamental) and below are supplied with an integral-mounted terminal block. Reactors rated from 55 to 160 Amps (fundamental) are supplied with box lugs. Reactors rated 200 to 400 Amps (fundamental) are supplied with front facing copper tabs for cable connections. Above 400 Amps (fundamental), side facing copper tabs are used for cable connections. The '3R' and '3RA' designations for the 1321 line reactors indicate the following: 3R = Open Enclosure Line Reactor and 3RA = NEMA 1 Enclosure Line Reactor.

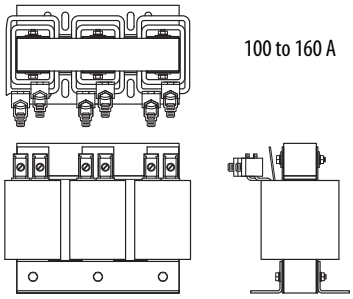
Typical Termination Types and Specifications



Terminal Blocks

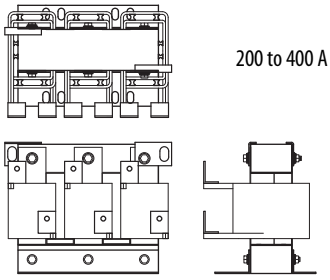


SLU-125
Box Lugs

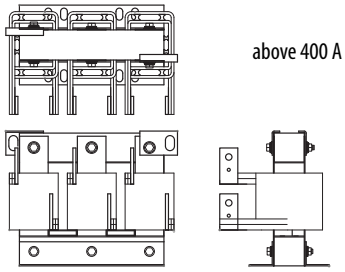


SLU-225
Box Lugs

Reactor Catalog Number		Termination	Max/Min Wire Size	Max Torque
IP00 (Open) or IP20	IP11 (NEMA/UL Type 1)	Type	mm^2 (AWG)	N•m (lb•in)
1321-3R1-A to 1321-3R8-D	1321-3RA1-A to 1321-3RA8-D	20 A Terminal Block	2.1/0.3 (14/22)	0.51 (4.5)
1321-3R12-A to 1321-3R35-B	1321-3RA12-A to 1321-3RA35-B	65 A Terminal Block	16.0/0.3 (5/22)	1.81 (16)
1321-3R35-C to 1321-3R45-C	1321-3RA35-C to 1321-3RA45-C	85 A Terminal Block	21.2/0.8 (4/18)	2.26 (20)
1321-3R55-A to 1321-3R80-C	1321-3RA55-A to 1321-3RA80-C	SLU-125 Box Lug	50.0/10.0 (0/6)	5.09 (45)
1321-3R100-A to 1321-3R160-C	1321-3RA100-A to 1321-3RA160-C	SLU-225 Box Lug	120.0-27.0 (0000/2)	16.95 (150)



Front Facing Copper Tabs



Side Facing Copper Tabs

Reactor Catalog Number		Termination	Contact Surface (H x W)	Hole Diameter	Thickness
IP00 (Open) or IP20	IP11 (NEMA/UL Type 1)	Type	mm (in.)	mm (in.)	mm (in.)
1321-3R200-A to 1321-3R200-C	1321-3RA200-A to 1321-3RA200-C	Front Facing Copper Tab	41.3 x 25.4 (1.63 x 1.0)	10.36 (0.408)	3.18 (0.125)
1321-3RB250-B to 1321-3RB250-C	1321-3RAB250-A to 1321-3RAB250-C		57.2 x 19.1 (2.25 x 0.75)	10.31 (0.406)	4.75 (0.187)
1321-3RB320-B to 1321-3R400-C	1321-3RAB320-A to 1321-3RA400-A		44.5 x 38.1 (1.75 x 1.5)	10.31 (0.406)	3.18 (0.125)
1321-3R500-A to 1321-3R500-C	1321-3RA500-A to 1321-3RA500-C	Side Facing Copper Tab	44.5 x 38.1 (1.75 x 1.5)	10.31 (0.406)	3.18 (0.125)
1321-3R600-A to 1321-3R600-C	1321-3RA600-A to 1321-3RA-600-C		76.2 x 38.1 (3.00 x 1.5)	13.49 and 6.35 (0.531 and 0.25)	6.35 (0.25)
1321-3R750-A to 1321-3R750-C	1321-3RA750-A to 1321-3RA850-C		44.5 x 38.1 (1.75 x 1.5)	10.31 (0.406)	3.18 (0.125)
1321-3R850-B to 1321-3R1000-C	1321-3RA850-B to 1321-3RA1000-C		44.5 x 38.1 (1.75 x 1.5)	10.31 (0.406)	3.18 (0.125)

Catalog Number	Fundamental Amps	Inductance - mH (Based on Fundamental Amps)	Watts Loss	Dimensions in mm (in.) and Weight in kg (lb)					
				A	B	C	D[1]	E	Weight
1321-3R45-A	45	0.3	54	229 (9.00)	188 (7.40)	119 (4.70)	80 (3.16)	76 (3.00)	10.0 (22)
1321-3R45-B		0.7	62	229 (9.00)	188 (7.40)	119 (4.70)	80 (3.16)	76 (3.00)	13.0 (28)
1321-3R45-C		1.2	65	229 (9.00)	185 (7.30)	135 (5.30)	93 (3.66)	76 (3.00)	18.0 (39)
1321-3R55-A	55	0.25	64	229 (9.00)	185 (7.30)	135 (5.30)	80 (3.16)	76 (3.00)	11.0 (24)
1321-3R55-B		0.5	67	229 (9.00)	178 (7.00)	135 (5.30)	80 (3.16)	76 (3.00)	12.0 (26)
1321-3R55-C		0.85	71	229 (9.00)	178 (7.00)	152 (6.00)	99 (3.91)	76 (3.00)	16.0 (35)
1321-3R80-A	80	0.2	82	229 (9.00)	183 (7.20)	160 (6.30)	88 (3.47)	92 (3.63)	11.3 (25)
1321-3R80-B		0.4	86	229 (9.00)	183 (7.20)	165 (6.50)	88 (3.47)	92 (3.63)	14.9 (33)
1321-3R80-C		0.7	96	274 (10.80)	216 (8.50)	173 (6.80)	106 (4.16)	92 (3.63)	28.0 (61)
1321-3R100-A	100	0.15	94	229 (9.00)	185 (7.30)	165 (6.50)	84 (3.30)	92 (3.63)	13.1 (29)
1321-3R100-B		0.3	84	229 (9.00)	185 (7.30)	173 (6.80)	93 (3.66)	92 (3.63)	16.8 (37)
1321-3R100-C		0.45	108	274 (10.80)	210 (8.30)	156 (6.20)	106 (4.16)	92 (3.63)	34.0 (74)
1321-3R130-A	130	0.1	108	229 (9.00)	178 (7.00)	118 (4.70)	80 (3.16)	76 (3.00)	13.1 (29)
1321-3R130-B		0.2	180	229 (9.00)	183 (7.20)	173 (6.80)	93 (3.66)	92 (3.63)	19.5 (43)
1321-3R130-C		0.3	128	279 (11.00)	216 (8.50)	156 (6.20)	106 (4.16)	92 (3.63)	29.0 (64)
1321-3R160-A	160	0.075	116	229 (9.00)	183 (7.20)	173 (6.80)	80 (3.16)	92 (3.63)	18.6 (41)
1321-3R160-B		0.15	149	274 (10.80)	211 (8.30)	152 (6.00)	88 (3.47)	92 (3.63)	23.0 (50)
1321-3R160-C		0.23	138	292 (11.50)	216 (8.50)	229 (9.00)	119 (4.69)	92 (3.63)	30.0 (67)
1321-3R200-A	200	0.055	124	229 (9.00)	191 (7.50)	185 (7.30)	106 (4.16)	76 (3.00)	17.2 (38)
1321-3R200-B[1]		0.110	168	229 (9.00)	191 (7.50)	211 (8.30)	112 (4.41)	76 (3.00)	24.5 (54)
1321-3R200-C[1]		0.185	146	274 (10.80)	211 (8.30)	254 (10.00)	150 (5.91)	92 (3.63)	45.4 (100)
1321-3RB250-B[1]	250	0.090	231	274 (10.80)	216 (8.50)	229 (9.00)	131 (5.16)	117 (4.60)	36.3 (80)
1321-3RB250-C[1]		0.150	219	366 (14.40)	284 (11.20)	262 (10.30)	148 (5.82)	117 (4.60)	57.0 (125)
1321-3RB320-A[1]	320	0.040	224	274 (10.80)	229 (9.00)	211 (8.30)	131 (5.16)	117 (4.60)	36.3 (80)
1321-3RB320-B[1]		0.075	264	274 (10.80)	229 (9.00)	254 (10.00)	149 (5.88)	117 (4.60)	46.3 (102)
1321-3RB320-C[1]		0.125	351	366 (14.40)	286 (11.30)	267 (10.50)	181 (7.13)	117 (4.60)	72.6 (160)
1321-3RB400-A[1]	400	0.030	231	274 (10.80)	254 (10.00)	254 (10.00)	131 (5.16)	117 (4.60)	38.1 (84)
1321-3RB400-B[1]		0.060	333	381 (15.00)	286 (11.30)	292 (11.50)	172 (6.76)	117 (4.60)	53.5 (118)
1321-3RB400-C[1]		0.105	293	366 (14.40)	286 (11.30)	318 (12.50)	184 (7.26)	117 (4.60)	67.6 (149)
1321-3R500-A[1]	500	0.025	266	274 (10.80)	229 (9.00)	267 (10.50)	140 (5.50)	117 (4.60)	42.2 (93)
1321-3R500-B[1]		0.050	340	366 (14.40)	292 (11.50)	292 (11.50)	172 (6.76)	117 (4.60)	53.5 (118)
1321-3R500-C[1]		0.085	422	366 (14.40)	292 (11.50)	338 (13.30)	248 (9.76)	117 (4.60)	95.3 (210)
1321-3R600-A[1]	600	0.020	307	366 (14.40)	292 (11.50)	254 (10.00)	134 (5.26)	117 (4.60)	54.4 (120)
1321-3R600-B[1]		0.040	414	366 (14.40)	286 (11.30)	305 (12.00)	203 (8.00)	117 (4.60)	79.4 (175)
1321-3R600-C[1]		0.065	406	366 (14.40)	286 (11.30)	381 (15.00)	235 (9.26)	117 (4.60)	122.5 (270)
1321-3R750-A[1]	750	0.015	427	366 (14.40)	292 (11.50)	279 (11.00)	168 (6.63)	183 (7.20)	63.5 (140)
1321-3R750-B[1]		0.029	630	366 (14.40)	292 (11.50)	318 (12.50)	204 (8.01)	183 (7.20)	86.2 (190)
1321-3R750-C[1]		0.048	552	366 (14.40)	368 (14.50)	356 (14.00)	235 (9.26)	183 (7.20)	120.2 (265)
1321-3R750-E[1]		0.060	810	366 (14.40)	368 (14.50)	381 (15.00)	276 (10.88)	183 (7.20)	147.4 (325)
1321-3R850-A[1]	850	0.015	799	451 (17.80)	394 (15.50)	368 (14.50)	191 (7.50)	183 (7.20)	88.0 (195)
1321-3R850-B[1]		0.027	756	451 (17.80)	394 (15.50)	394 (15.50)	208 (8.20)	183 (7.20)	98.0 (215)
1321-3R850-C[1]		0.042	758	451 (17.80)	400 (15.80)	445 (17.50)	208 (8.20)	183 (7.20)	143.0 (315)
1321-3R1000-B[1]	1000	0.022	964	514 (20.25)	425 (16.80)	330 (13.00)	216 (8.50)	183 (7.20)	185.0 (408)
1321-3R1000-C[1]		0.038	960	514 (20.25)	425 (16.80)	381 (15.00)	273 (10.76)	183 (7.20)	267.2 (589)

(1) Removable lifting rings are supplied with the unit.