

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. Input line reactors 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:

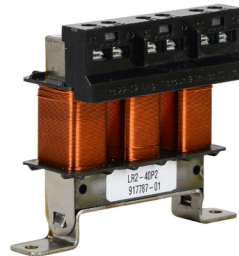
- cULus listed (E197592)
- CE marked
- RoHS



LR2-10P2-1PH

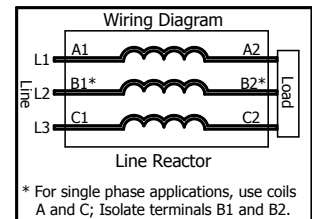


LR-2100



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 on page tCFW-15](#).
- For Reactor compatibility with CFW300 AC Drives, please refer to [WEG CFW300 AC Drives - Accessories on page tCFW-8](#).
- For Reactor compatibility with GS1 AC Drives, please refer to [GS1 Series Specifications on page tGSX-2](#).
- For Reactor compatibility with GS2 AC Drives, please refer to [GS2 Series Specifications on page tGSX-52](#).
- For Reactor compatibility with GS3 AC Drives, please refer to [LR Series Line Reactors on page tGSX-111](#).
- For Reactor compatibility with GS4 AC Drives, please refer to [GS4 DURApulse Drives Accessories - Line/Load Reactors on page tGSX-113](#).
- For Reactor compatibility with GS20(X) AC Drives, please refer to [GS20\(X\) Optional Accessories - Line Reactors/VTF Filters on page tGSX-44](#).

Drives Accessories – Line/Load Reactors

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

Line/Load Reactors for AC Drives – LR(2) Series												
Part Number (0)	Price	Dimension Drawing	Max Rated Amps	Inductance [mH]	Watt Loss	System Voltage	Weight (lb [kg])	Wire Range	Terminal Torque (lb-in)	Operating Temperature	Storage Temperature	Environment
LR2-10P2-1PH (2)	\$131.00	13	10	1.35	21		4	18–12 AWG	10	-40 – 104 °F [-40 – 40 °C]	-40 – 149 °F [-40 – 65 °C]	NEMA: open IP00 no corrosive gases
LR2-10P5-1PH (2)	Retired	13	12	0.971	29		4	18–12 AWG	10			
LR2-11P0-1PH (1)(2)	\$207.00	14	17	1.03	53		8	18–4 AWG	20			
LR2-11P5-1PH (2)	\$221.00	15	34	0.342	64		12	18–4 AWG	20			
LR2-20P2-1PH (2)(3)	\$84.00	16	4.2	6.4	23.5	240	1.4	22–12 AWG	9	122°F [50°C] max	-40 – 149 °F [-40 – 65 °C]	NEMA: open IP00 no corrosive gases
LR2-20P2 (3)	\$83.00	16	3.4	7.4	26.4	240	1.4	22–12 AWG	9	122°F [50°C] max		
LR2-20P5-1PH (2)	\$100.00	17	7.6	3.56	39	240	3	22–12 AWG	9	122°F [50°C] max		
LR2-20P5 (3)	\$100.00	16	5	4.6	30.6	240	1.4	22–12 AWG	9	122°F [50°C] max		
LR2-20P7 (3)	\$102.00	17	8.2	2.9	49	240	3	22–12 AWG	9	122°F [50°C] max		
LR-21P0-1PH (2)	\$78.00	1	8	2.29	15.9	115	2.8 [1.3]	18–12 AWG	10	104°F [40°C] max		
LR2-21P0-1PH (1)(2)(3)	Retired	13	10	2.31	31	240	4	18–12 AWG	10	104°F [40°C] max		
LR2-21P0 (3)	\$114.00	17	11.6	2.0	64	240	3.2	22–12 AWG	9	122°F [50°C] max		
LR2-21P5-1PH (2)(3)	Retired	13	14	1.68	40	240	4	18–12 AWG	10	104°F [40°C] max		
LR2-21P5 (3)	\$114.00	17	11.6	2.0	64	240	3.2	22–12 AWG	9	122°F [50°C] max		
LR-22P0-1PH (2)	\$86.00	2	12	1.53	24.3	115	4.3 [2.0]	18–12 AWG	20	104°F [40°C] max		
LR2-22P0-1PH (1)(2)(3)	\$202.00	14	17	1.03	53	240	8	18–4 AWG	20	104°F [40°C] max		
LR2-22P0 (3)	\$115.00	17	11.6	2.0	64	240	3.2	22–12 AWG	9	122°F [50°C] max		
LR-23P0-1PH (2)	\$187.00	2	17	1.08	27.3	115	4.3 [2.0]	18–12 AWG	20	104°F [40°C] max		
LR-23P0	\$148.00	3	10.6	0.97	38	208/240	4.0 [1.8]	18–12 AWG	10	104°F [40°C] max		
LR-25P0	\$194.00	4	16.7	0.626	48	208/240	8.0 [3.6]	18–4 AWG	20	104°F [40°C] max		
LR-27P5	\$206.00	4	24.2	0.434	65	208/240	8.0 [3.6]	18–4 AWG	20	104°F [40°C] max		
LR-2010	\$242.00	5	30.8	0.342	96	208/240	12 [5.4]	18–4 AWG	20	104°F [40°C] max		
LR-2015	\$285.00	5	46.2	0.22	64	208/240	12 [5.4]	18–4 AWG	20	104°F [40°C] max		
LR-2020	\$312.00	5	59.4	0.172	85	208/240	12 [5.4]	18–4 AWG	20	104°F [40°C] max		
LR-2025	\$460.00	6	74.8	0.138	94	208/240	15 [6.8]	18–4 AWG	18–16 AWG: 25 14–6 AWG: 30 4 AWG: 35	104°F [40°C] max		
LR-2030	\$490.00	7	88	0.116	135	208/240	33 [15]	6AWG–2/0 (AL or CU)	120	104°F [40°C] max		
LR-2040	\$574.00	7	114	0.0886	149	208/240	33 [15]	6AWG–2/0 (AL or CU)	120	104°F [40°C] max		
LR-2050	\$670.00	8	143	0.0699	154	208/240	36 [16]	6AWG–250kcmil (AL or CU)	275	104°F [40°C] max		
LR-2060	\$745.00	18	180	0.0624	209	208/240	46	6AWG–250MCM	275	104°F [40°C] max		
LR-2075	\$766.00	19	211	0.0487	294	208/240	52	4AWG–600MCM	500	104°F [40°C] max		
LR-2100	\$843.00	19	280	0.0364	276	208/240	52	4AWG–600MCM	500	104°F [40°C] max		

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

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

2) 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.

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

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

(table continued next page)

Drives Accessories – Line/Load Reactors

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

Line/Load Reactors for AC Drives – LR(2) Series (continued from previous page)												
Part Number (1)	Price	Dimension Drawing	Max Rated Amps	Inductance [mH]	Watt Loss	System Voltage	Weight (lb [kg])	Wire Range	Terminal Torque [lb-in]	Operating Temperature	Storage Temperature	Environment
LR2-40P2 (3)	\$60.00	16	1.4	31.5	5	480	1.3	22–12 AWG	9	122°F [50°C] max	-40 – 149 °F [-40 – 65 °C]	NEMA: open IP00 no corrosive gases
LR2-40P3 (3)	\$66.00	16	1.7	27.6	6.2		1.3	22–12 AWG	9	122°F [50°C] max		
LR2-40P5 (3)	\$67.00	16	1.6	20	9.7		1.3	22–12 AWG	9	122°F [50°C] max		
LR2-40P7 (3)	\$67.00	16	2.3	13.8	12.1		1.3	22–12 AWG	9	122°F [50°C] max		
LR2-41P0 (3)	\$68.00	16	2.3	10.5	25.2		1.2	22–12 AWG	9	122°F [50°C] max		
LR2-41P5 (3)	\$82.00	16	3.4	7.4	26.4		1.4	22–12 AWG	9	122°F [50°C] max		
LR2-42P0 (3)	\$83.00	16	4.2	6.5	23.5		1.4	22–12 AWG	9	122°F [50°C] max		
LR2-43P0 (3)	\$99.00	16	5	4.6	30.6		1.4	22–12 AWG	9	122°F [50°C] max		
LR2-44P0 (3)	\$101.00	17	7.6	3.56	39		3	22–12 AWG	9	122°F [50°C] max		
LR2-45P0 (3)	\$101.00	17	8.2	2.9	49		3	22–12 AWG	9	122°F [50°C] max		
LR2-47P5 (3)	\$115.00	17	11.6	2	64		3.2	22–12 AWG	9	122°F [50°C] max		
LR-4010	\$196.00	3	14	1.29	64		4.0 [1.8]	18–12 AWG	10	104°F [40°C] max		
LR-4015	\$237.00	4	21	0.912	65		8.0 [3.6]	18–4 AWG	20	104°F [40°C] max		
LR-4020	\$276.00	4	27	0.694	79		8.0 [3.6]	18–4 AWG	20	104°F [40°C] max		
LR-4025	\$290.00	5	34	0.569	96		10 [4.5]	18–4 AWG	20	104°F [40°C] max		
LR-4030	\$347.00	5	40	0.469	105		10 [4.5]	18–4 AWG	20	104°F [40°C] max		
LR-4040	\$382.00	6	52	0.387	114		15 [6.8]	18–4 AWG	20	104°F [40°C] max		
LR-4050	\$448.00	9	65	0.295	114				22–16 AWG: 25 14–6 AWG: 30 4 AWG: 35	104°F [40°C] max		
LR-4060	\$462.00	9	77	0.227	169		25 [11]	#22–4 AWG		104°F [40°C] max		
LR-4075	\$700.00	7	96	0.196	193		33 [15]	2/0 – 6AWG (AL or CU)	120	104°F [40°C] max		
LR-4100	\$840.00	10	124	0.152	225		46 [21]	250kcmil – 6AWG (AL or CU)	275	104°F [40°C] max		
LR-4125	\$962.00	10	156	0.117	254					104°F [40°C] max		
LR-4150	\$1,114.00	10	180	0.103	299					104°F [40°C] max		
LR-4200	\$1,238.00	11	240	0.0839	280		74 [34]	(1) 4 AWG – 600kcmil (2) 1/0 – 250kcmil	500	104°F [40°C] max		
LR-4250 (4)	\$1,403.00	12	302	0.0654	337		74 [34]	(2)** 4 AWG – 350kcmil (AL or CU)	275	104°F [40°C] max		
LR-4300 (4)	\$1,546.00	12	361	0.0565	381					104°F [40°C] max		
LR2-51P0 (3)	\$80.00	16	2.1	16.2	16.2		1.3	22–12 AWG	9	122°F [50°C] max		
LR2-51P5 (3)	\$96.00	16	3.4	11.5	17.2		1.4	22–12 AWG	9	122°F [50°C] max		
LR2-52P0 (3)	\$97.00	16	3.2	10.2	20.5		1.5	22–12 AWG	9	122°F [50°C] max		
LR2-53P0 (3)	\$99.00	17	4.8	7.07	30		3.5	22–12 AWG	9	122°F [50°C] max		
LR2-54P0 (3)	\$105.00	17	7.6	5.63	30		2.9	22–12 AWG	9	122°F [50°C] max		
LR2-55P0 (3)	\$113.00	17	7.6	4.52	44		3	22–12 AWG	9	122°F [50°C] max		
LR2-57P5 (3)	\$113.00	17	9.6	3.1	57		3.2	22–12 AWG	9	122°F [50°C] max		
LR-5010	\$202.00	3	11	2.47	43.8		4.0 [1.8]	18–12 AWG	10	104°F [40°C] max		

1) Impedance = 3% for all reactors.
2) 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.
3) Optional mounting accessories are available for these models. See “Line/Load Reactors – Mounting Accessories” section for details.
4) 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

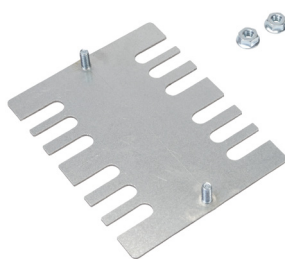
LR(2) series reactors have differing mounting options depending on the model. The models listed below have an integral two-bolt mounting method, and also offer optional mounting adapters that allow other mounting methods.

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-AP1



LR2-AP2



LR2-DR1



LR2-DR2

LR2 Series Line Reactor Mounting Adapters

Part Number	Price	Description	Dimension Drawing
LR2-AP1	\$25.00	Adapter Plate Kit; includes 2 flange nuts (10-32); Dimensions 4.45" x 2.63"	16a
LR2-AP2	\$25.00	Adapter Plate Kit; includes 2 flange nuts (10-32); Dimensions 4.45" x 3.51"	16b
LR2-DR1	\$25.00	DIN Rail Mounting Clips and Hardware Kit; includes 2 screws (M5-0.8 x 8mm), 2 washers, 2 clips	16c
LR2-DR2	\$38.00	DIN Rail Mounting Plate and Hardware Kit; includes 4 bolts (0.25-20 x 0.50) and 4 flange nuts	17a

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
LR2-20P2-1PH	√	√	√	–
LR2-20P2	√	√	√	–
LR2-20P5-1PH	–	–	–	√
LR2-20P5	√	√	√	–
LR2-20P7	–	–	–	√
LR2-21P0	–	–	–	√
LR2-21P5	–	–	–	√
LR2-22P0	–	–	–	√
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	–	–	–	√

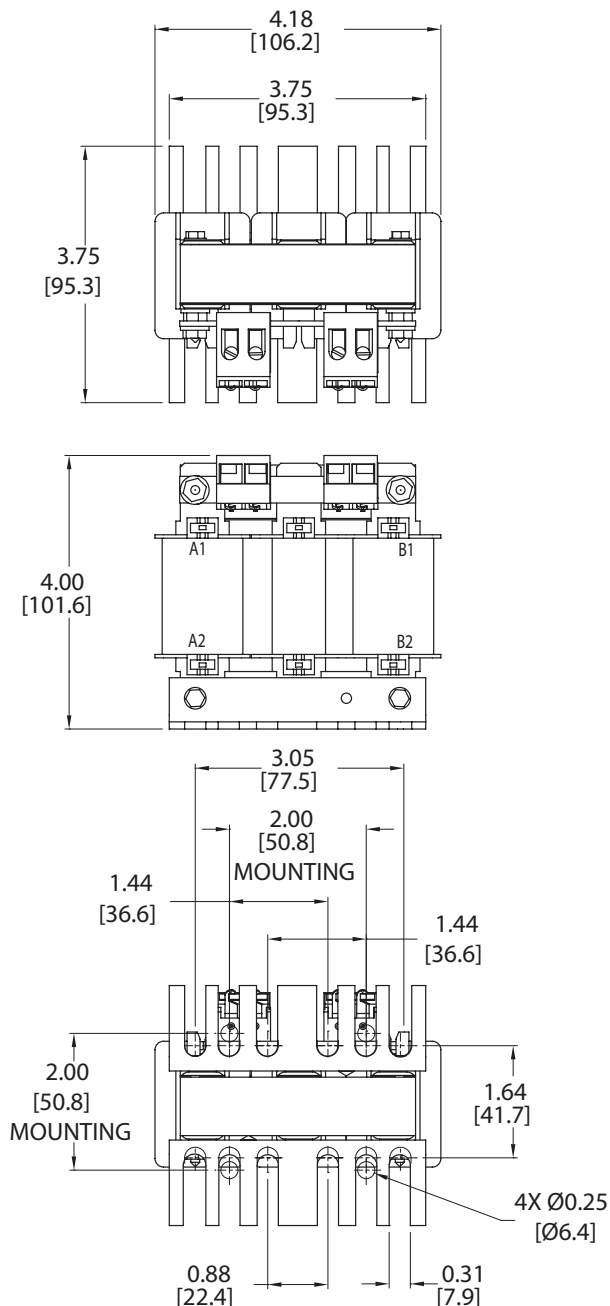
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

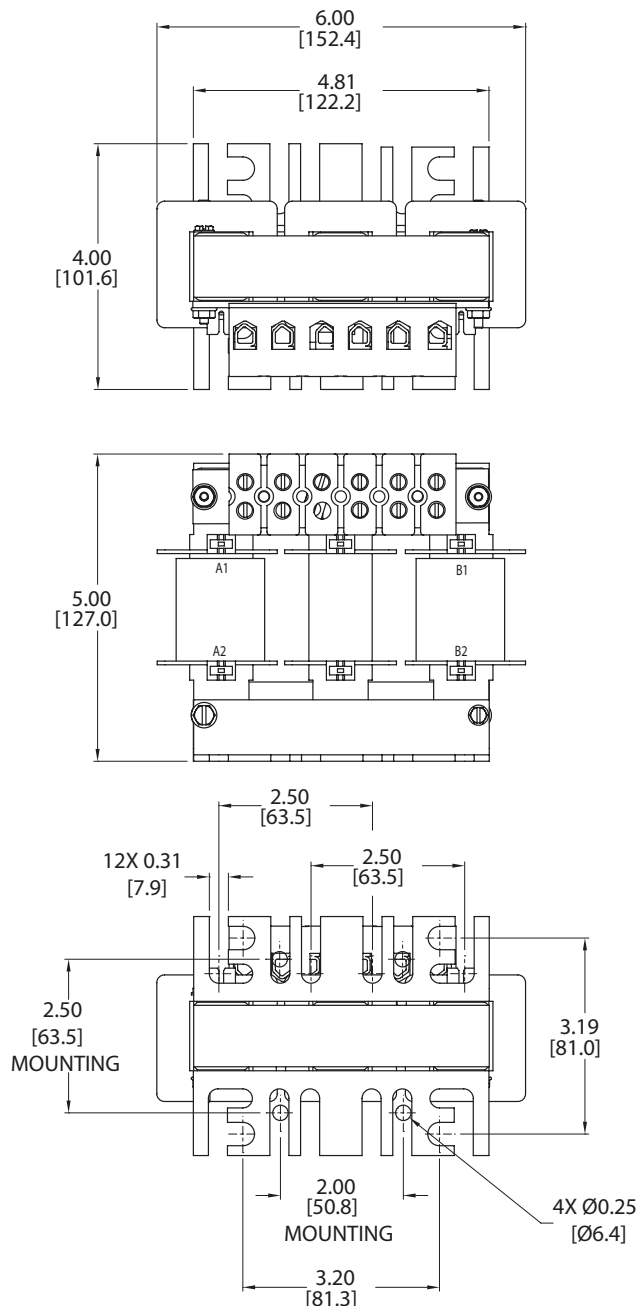
(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

1) LR(2) Line Reactors Dimension Drawing #1
LR-21P0-1PH



2) LR(2) Line Reactors Dimension Drawing #2
LR-22P0-1PH, LR-23P0-1PH



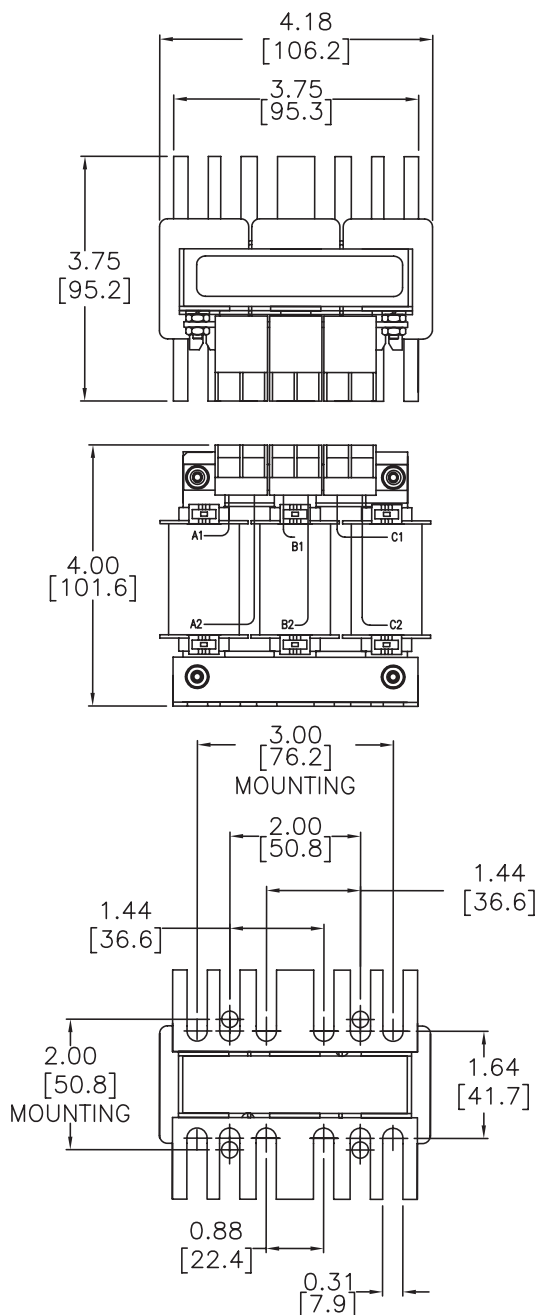
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

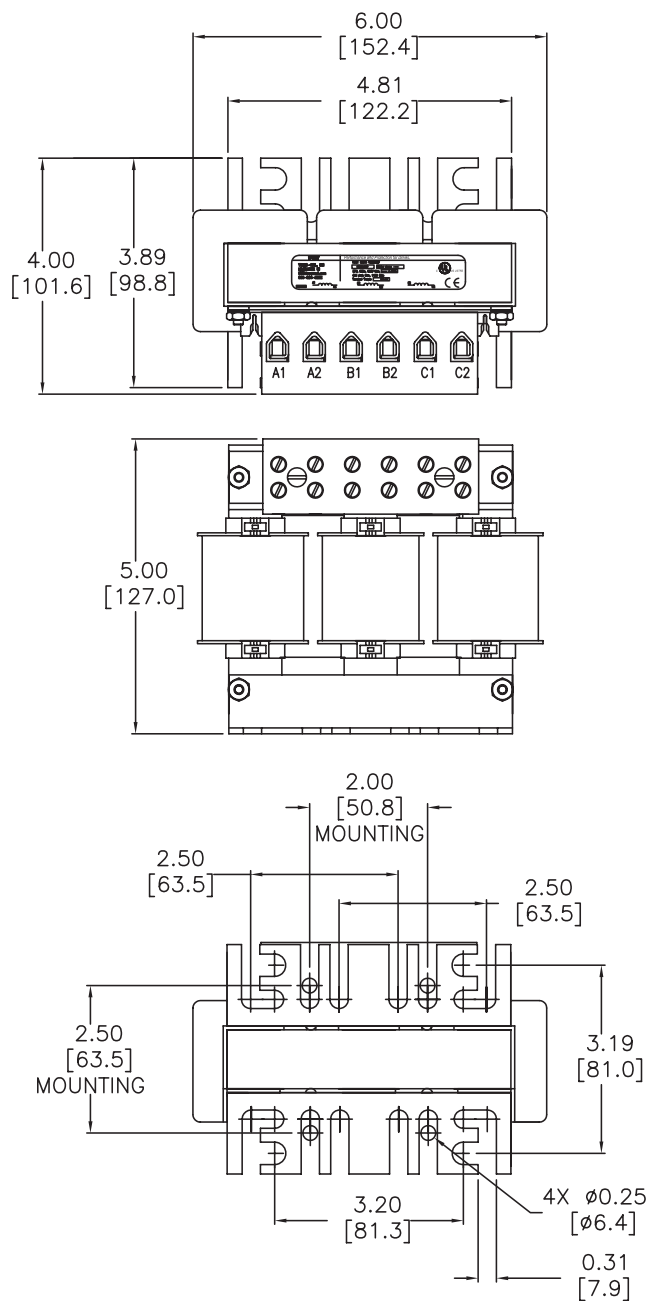
(Units = in [mm])

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3) LR(2) Line Reactors Dimension Drawing #3 LR-23P0, LR-4010, LR-5010



4) LR(2) Line Reactors Dimension Drawing #4 LR-25P0, LR-27P5, LR-4015, LR-4020



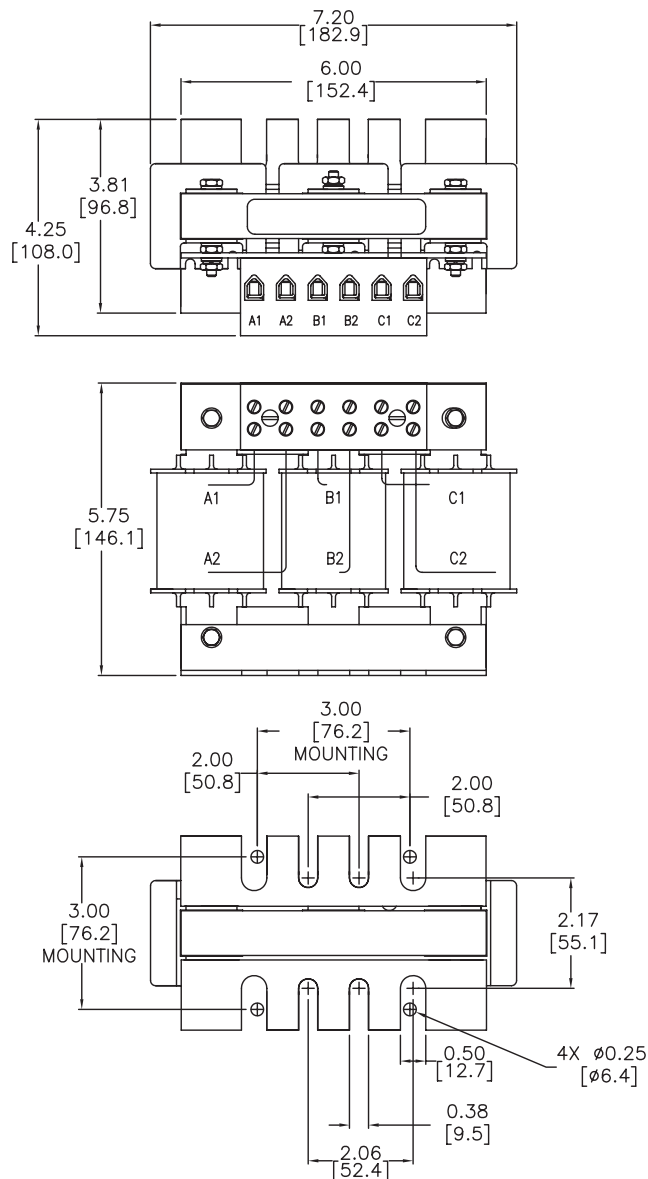
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

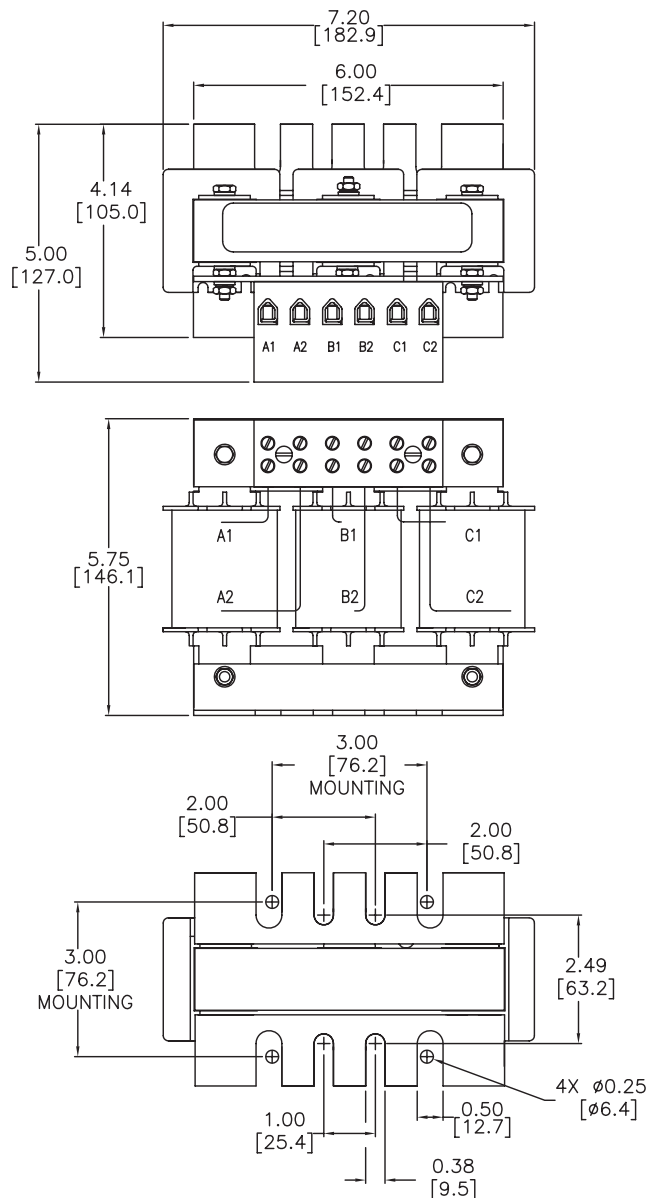
(Units = in [mm])

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5) LR(2) Line Reactors Dimension Drawing #5
LR-2010, LR-2015, LR-2020, LR-4025, LR-4030



6) LR(2) Line Reactors Dimension Drawing #6
LR-2025, LR-4040



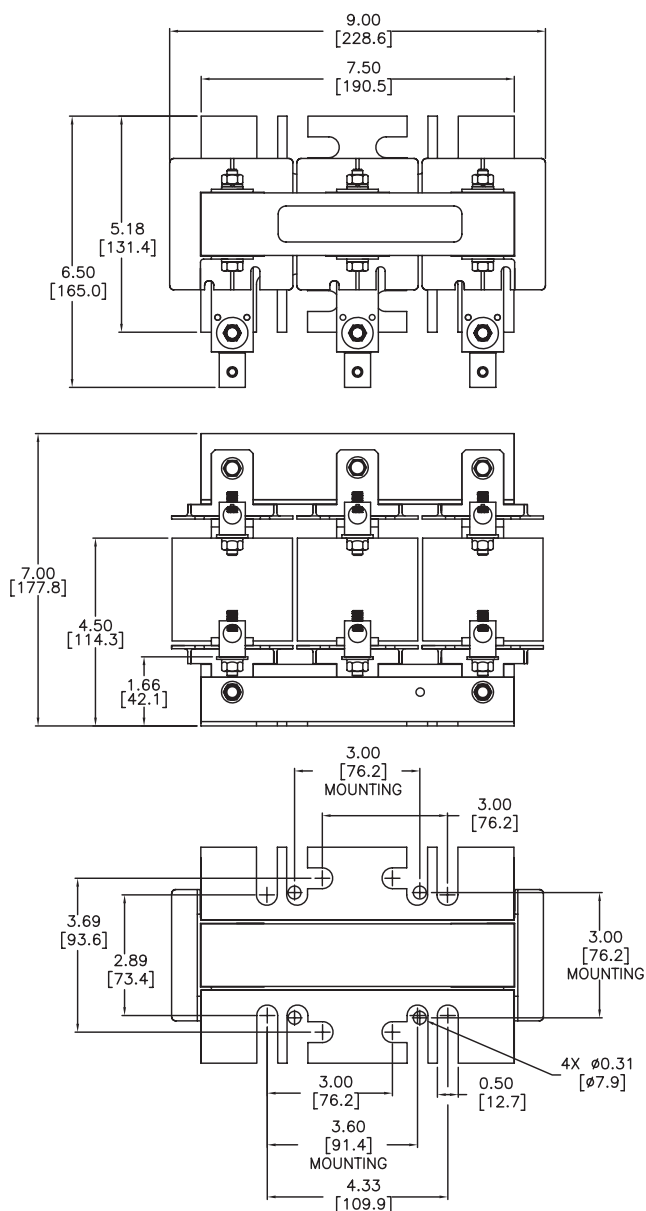
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

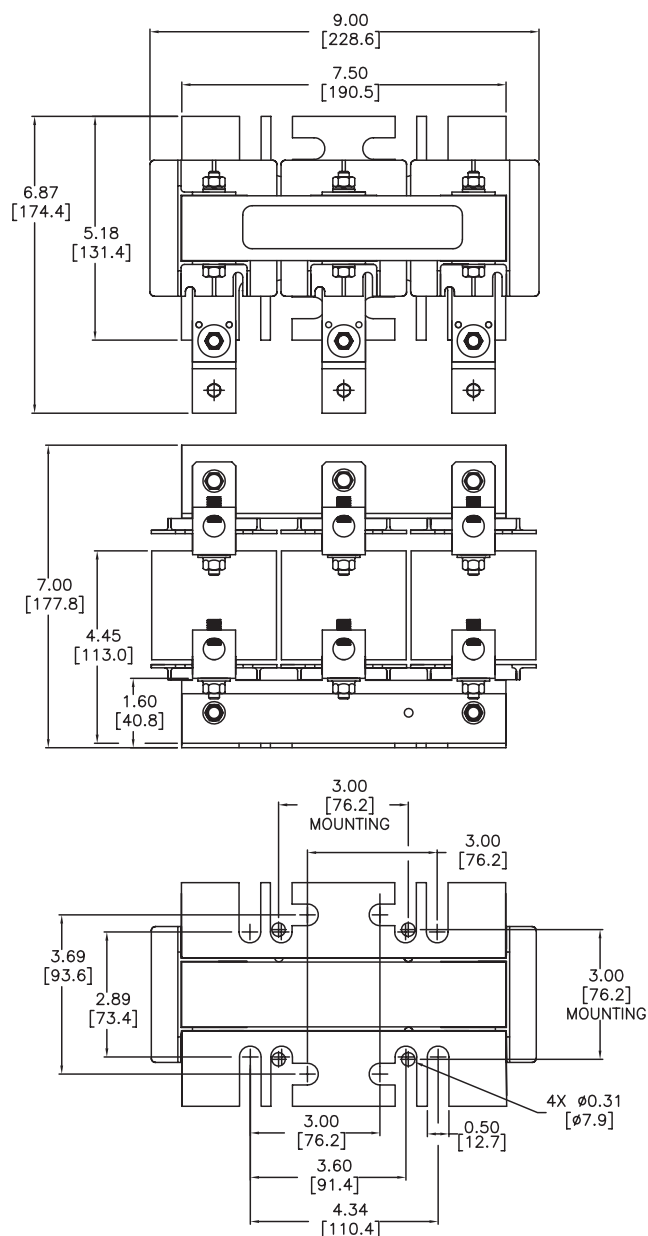
(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

7) LR(2) Line Reactors Dimension Drawing #7
LR-2030, LR-2040, LR-4075



8) LR(2) Line Reactors Dimension Drawing #8
LR-2050



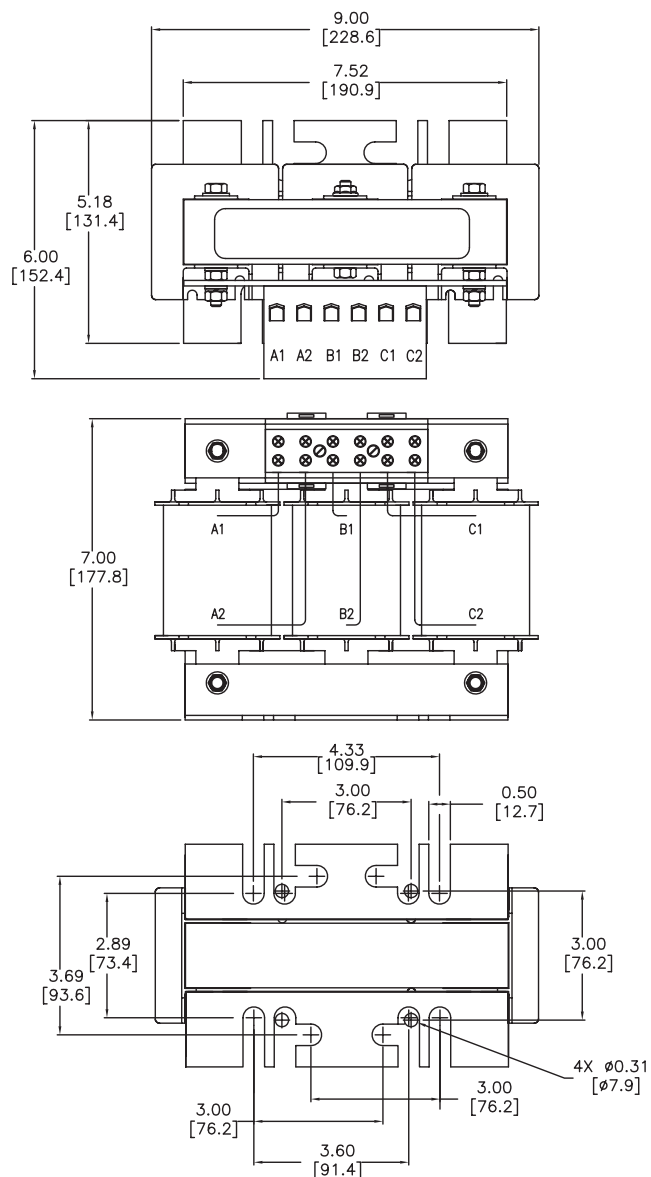
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

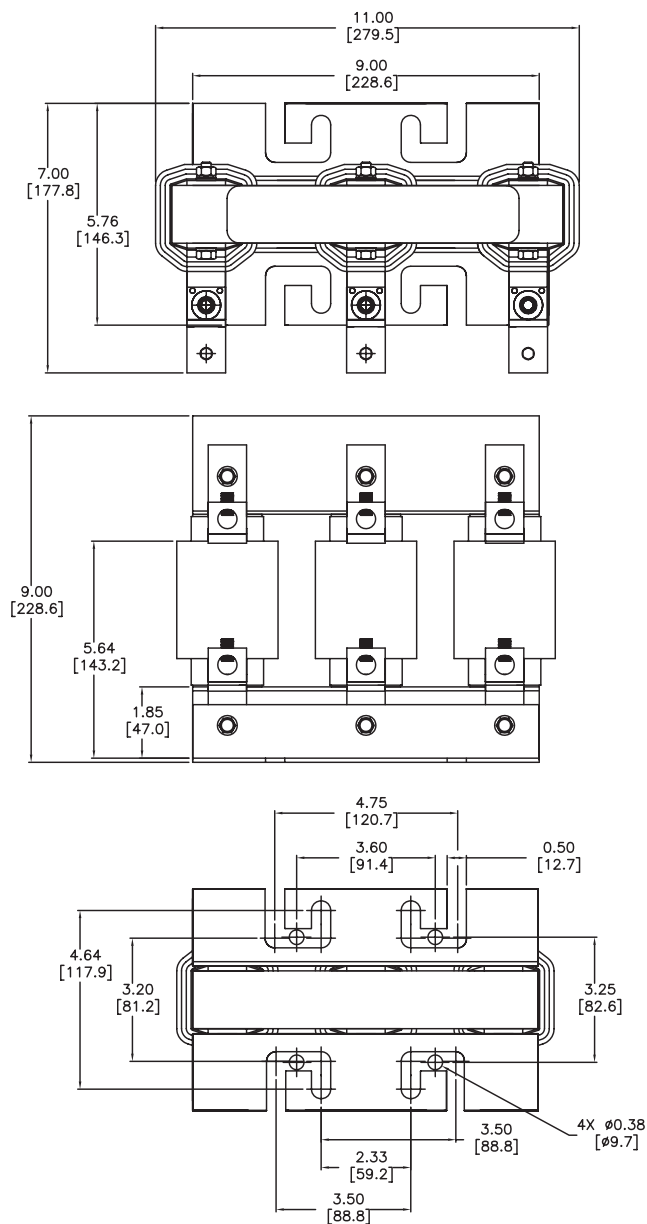
(Units = in [mm])

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9) LR(2) Line Reactors Dimension Drawing #9
LR-4050, LR-4060



10) LR(2) Line Reactors Dimension Drawing #10
LR-4100, LR-4125, LR-4150



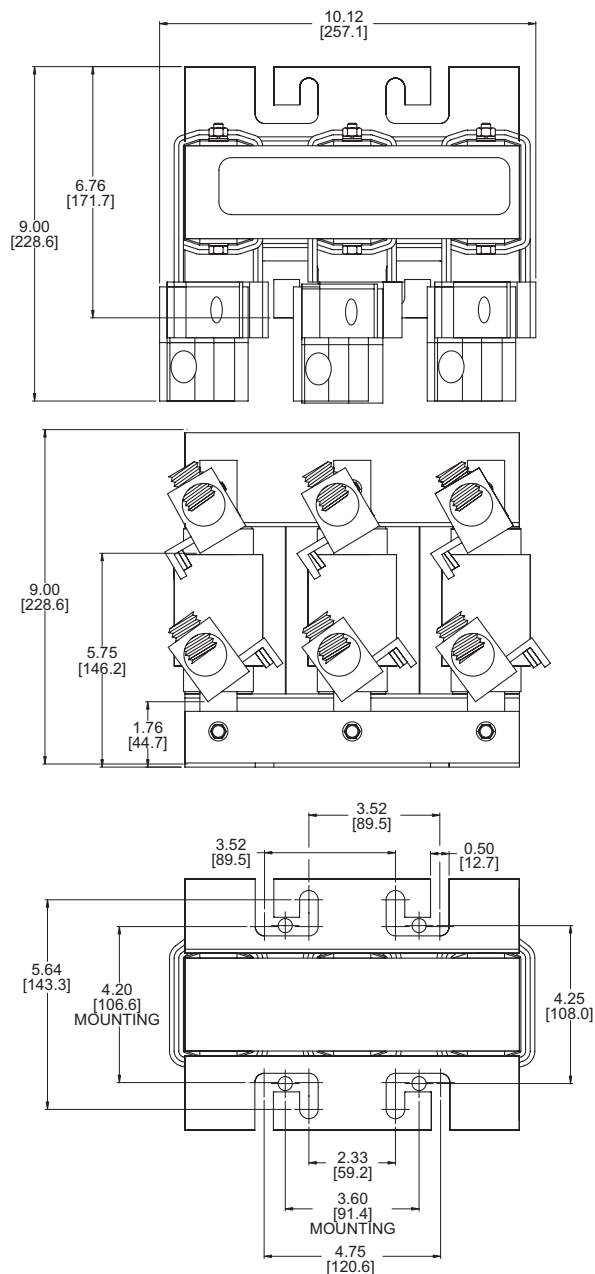
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

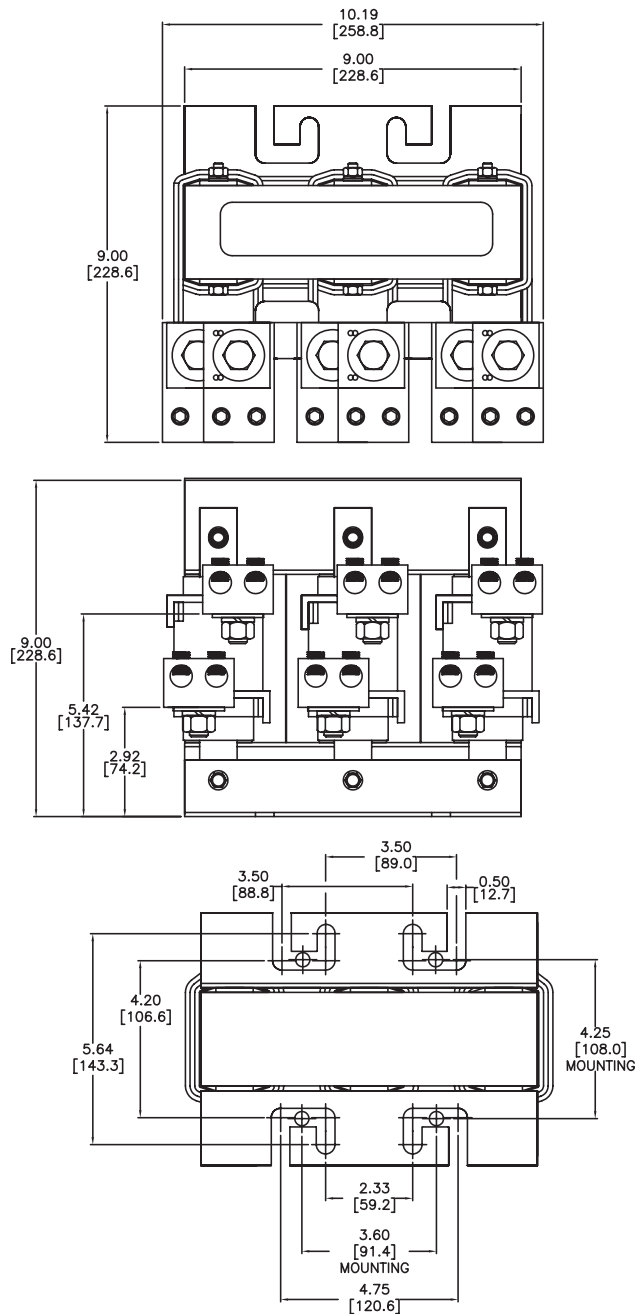
(Units = in [mm])

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11) LR(2) Line Reactors Dimension Drawing #11
LR-4200



12) LR(2) Line Reactors Dimension Drawing #12
LR-4250, LR-4300



Drives Accessories – Line/Load Reactors

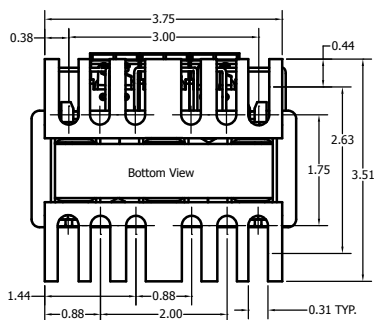
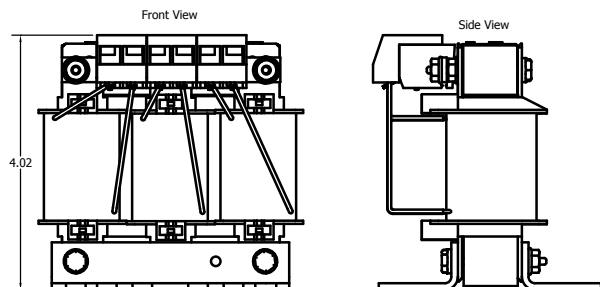
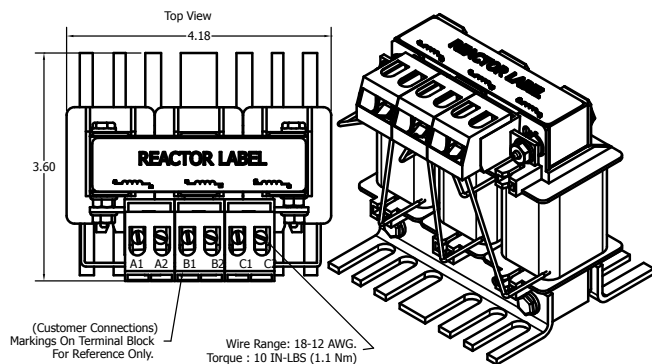
LR(2) Series Line/Load Reactors – Dimensions

(Units = in [mm])

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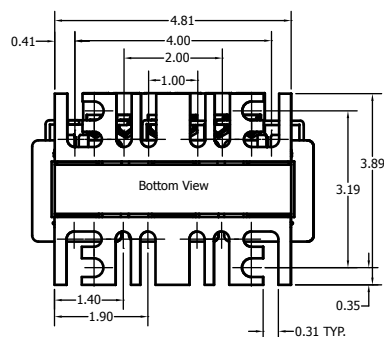
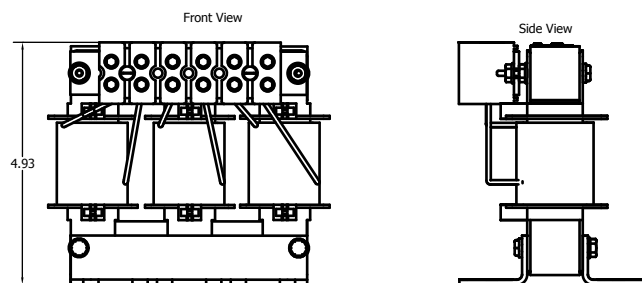
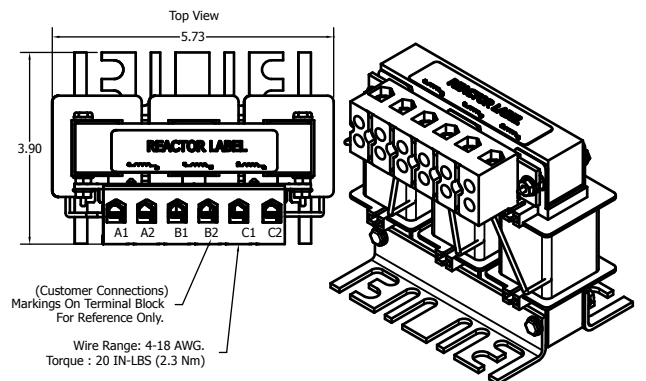
13) LR(2) Line Reactors Dimension Drawing #13

LR2-10P2-1PH, LR2-10P5-1PH, LR2-21P0-1PH, LR2-21P5-1PH



14) LR(2) Line Reactors Dimension Drawing #14

LR2-11P0-1PH, LR2-22P0-1PH



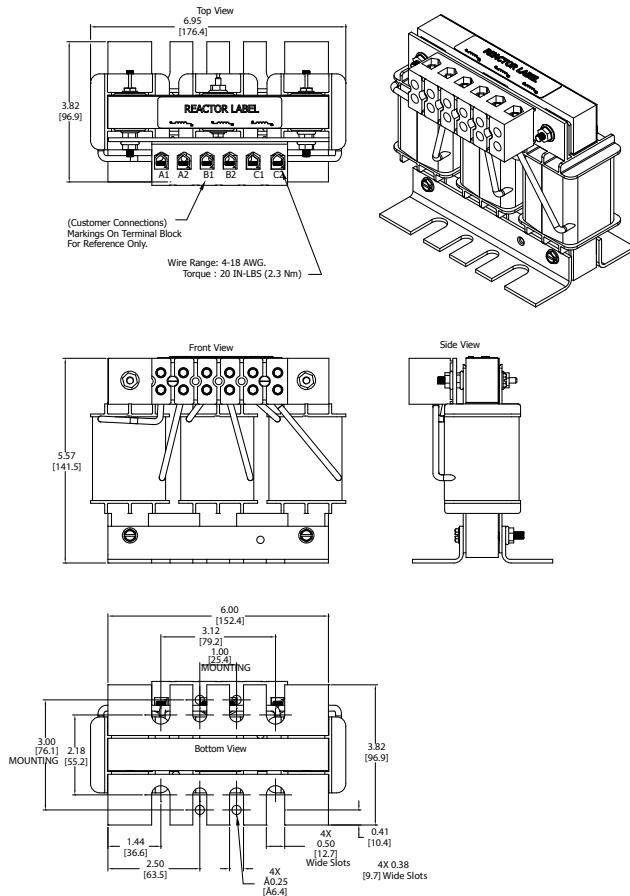
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

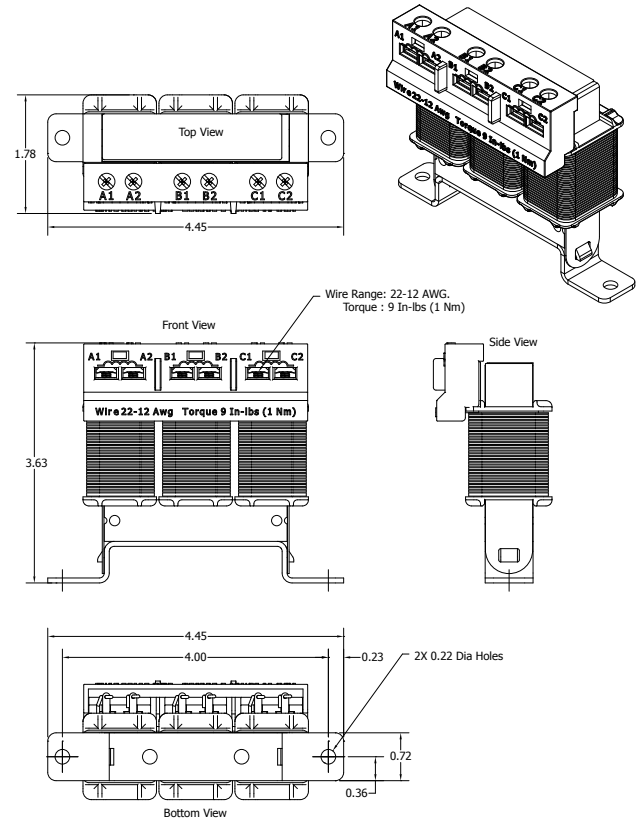
(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

15) LR(2) Line Reactors Dimension Drawing #15 LR2-11P5-1PH



16) LR(2) Line Reactors Dimension Drawing #16 LR2-20P2-1PH, LR2-20P2, LR2-20P5, LR2-40P2, LR2-40P3, LR2-40P5, LR2-40P7, LR2-41P0, LR2-41P5, LR2-42P0, LR2-43P0, LR2-51P0, LR2-51P5, LR2-52P0



Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

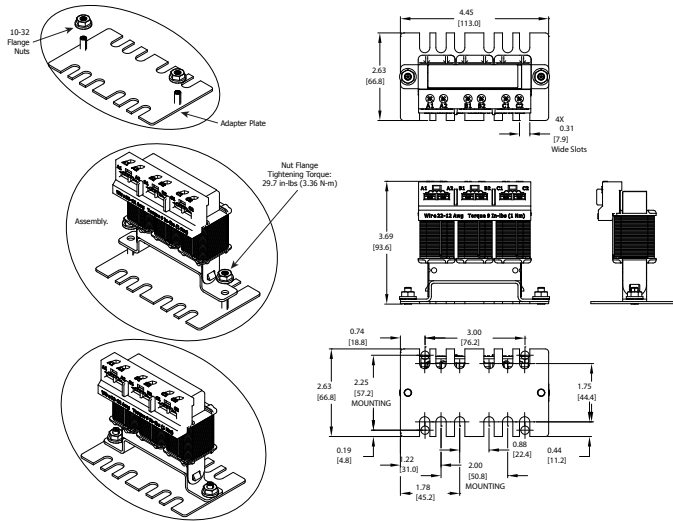
(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

16a) LR(2) Line Reactors Dimension Drawing #16a

LR2-AP1 Adapter Plate for Universal Mounting for:

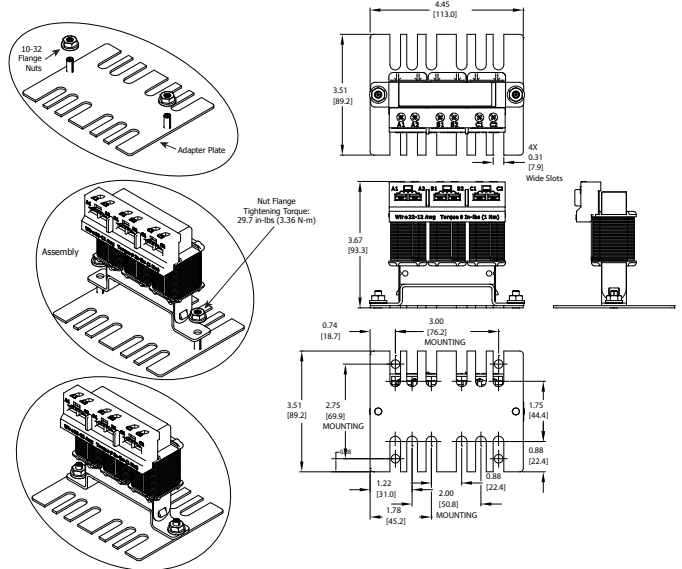
LR2-20P2-1PH, LR2-20P2, LR2-20P5, LR2-40P2, LR2-40P3, LR2-40P5,
LR2-40P7, LR2-41P0, LR2-41P5, LR2-42P0, LR2-43P0, LR2-51P0, LR2-51P5,
LR2-52P0



16b) LR(2) Line Reactors Dimension Drawing # 16b

LR2-AP2 Adapter Plate for Universal Mounting for:

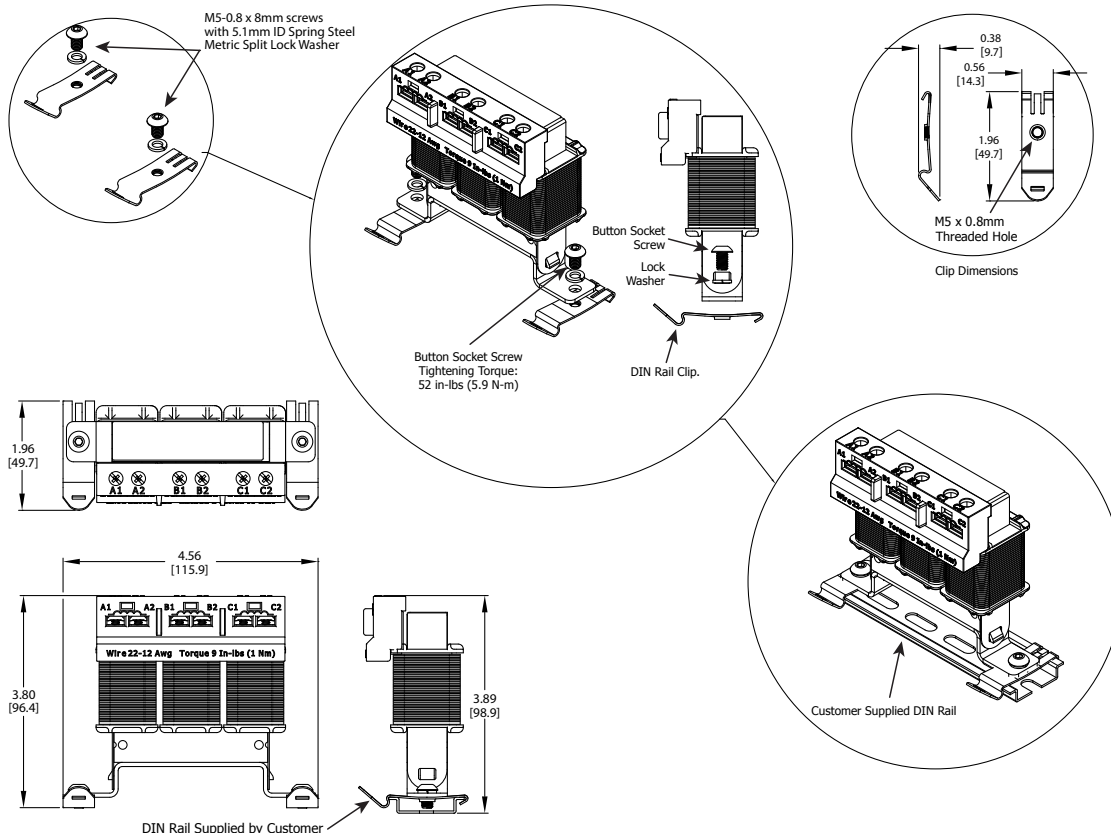
LR2-20P2-1PH, LR2-20P2, LR2-20P5, LR2-40P2, LR2-40P3, LR2-40P5,
LR2-40P7, LR2-41P0, LR2-41P5, LR2-42P0, LR2-43P0, LR2-51P0, LR2-51P5,
LR2-52P0



16c) LR(2) Line Reactors Dimension Drawing #16c

LR2-DR1 Hardware Kit for DIN Rail Mounting for:

LR2-20P2-1PH, LR2-20P2, LR2-20P5, LR2-40P2, LR2-40P3, LR2-40P5, LR2-40P7, LR2-41P0, LR2-41P5, LR2-42P0, LR2-43P0, LR2-51P0, LR2-51P5, LR2-52P0



Drives Accessories – Line/Load Reactors

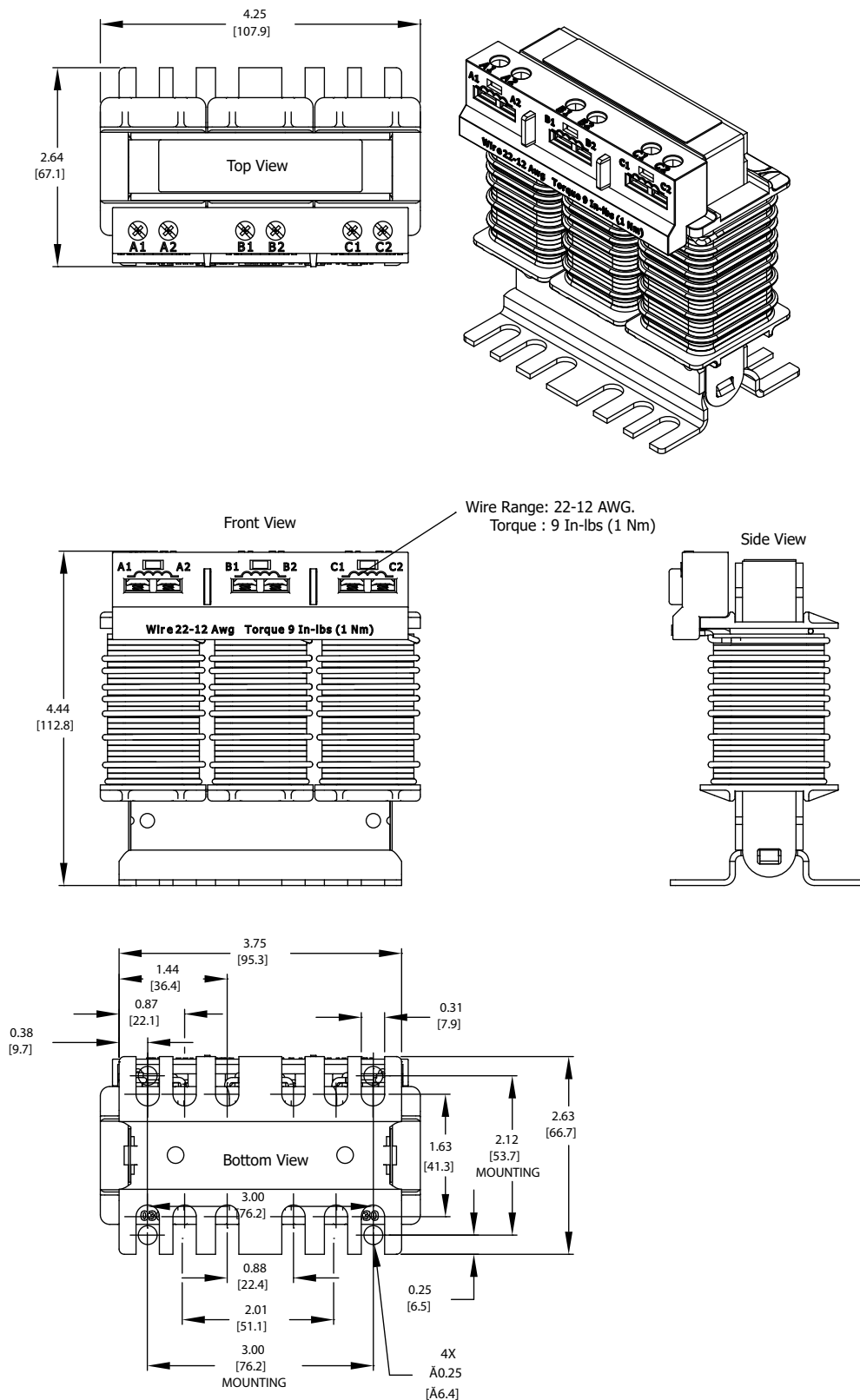
LR(2) Series Line/Load Reactors – Dimensions

(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

17) LR(2) Line Reactors Dimension Drawing #17

LR2-20P5-1PH, LR2-20P7, LR2-21P0, LR2-21P5, LR2-22P0, LR2-44P0, LR2-45P0, LR2-47P5, LR2-53P0, LR2-54P0, LR2-55P0, LR2-57P5



Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

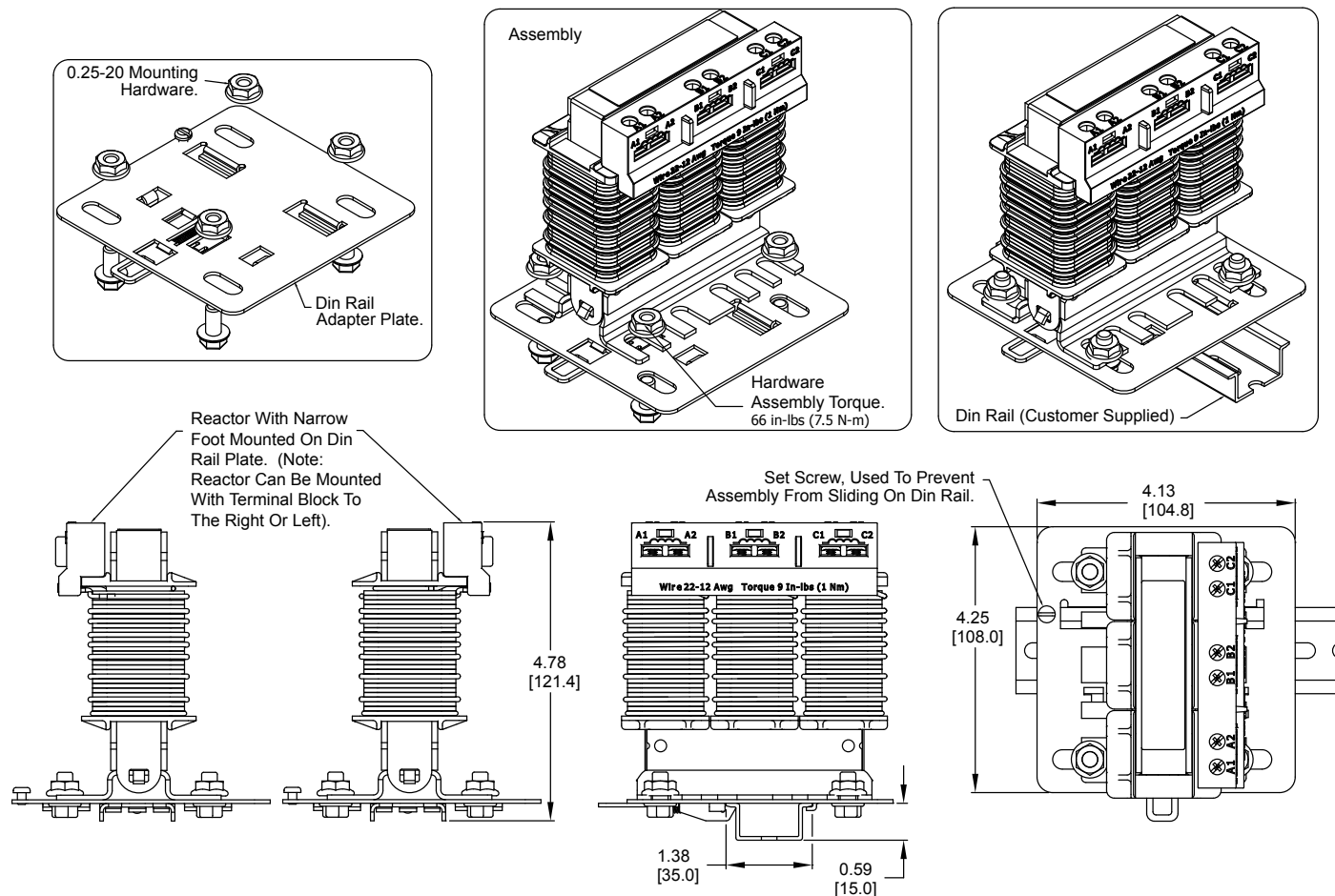
(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

17a) LR(2) Line Reactors Dimension Drawing #17a

LR2-DR2 Hardware Kit for DIN Rail Mounting for:

LR2-20P5-1PH, LR2-20P7, LR2-21P0, LR2-21P5, LR2-22P0, LR2-44P0, LR2-45P0, LR2-47P5, LR2-53P0, LR2-54P0, LR2-55P0, LR2-57P5



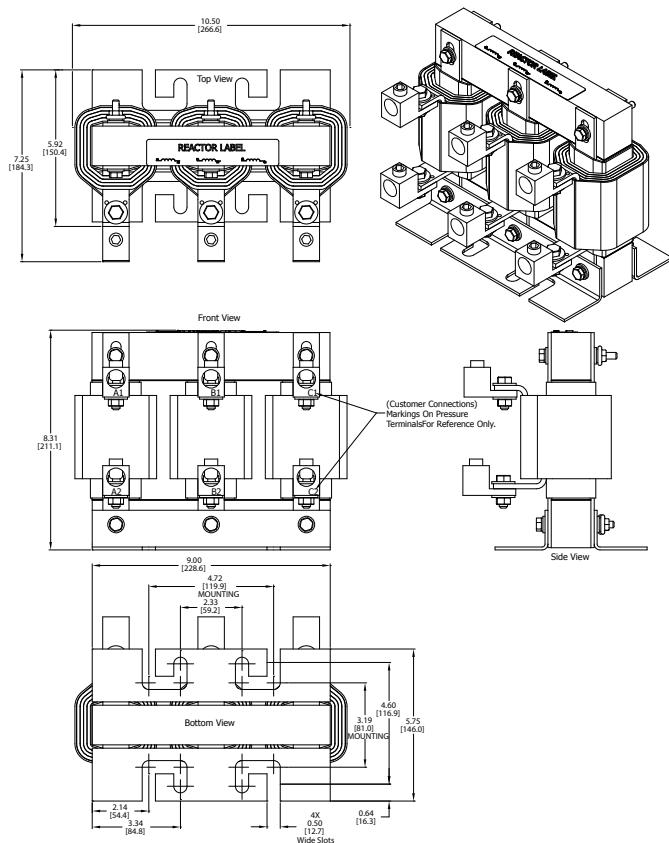
Drives Accessories – Line/Load Reactors

LR(2) Series Line/Load Reactors – Dimensions

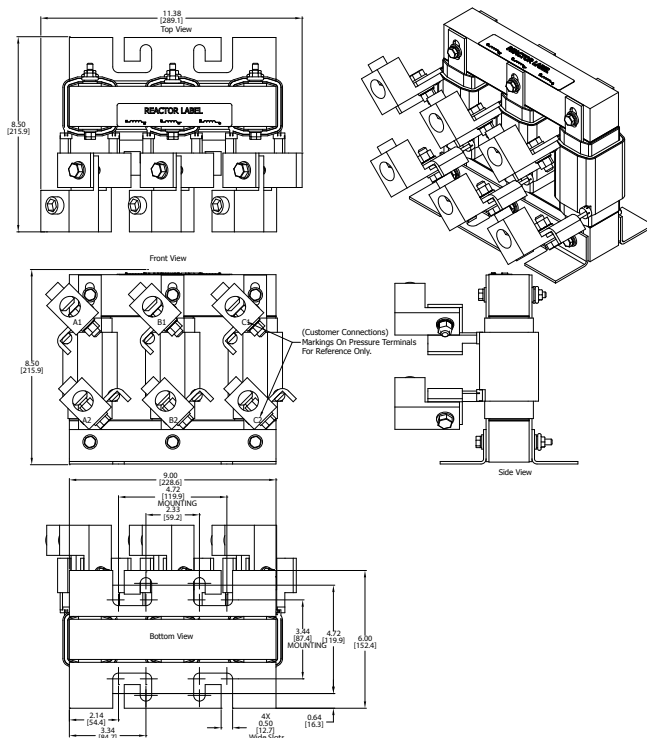
(Units = in [mm])

See our website: www.AutomationDirect.com for complete engineering drawings.

18) LR(2) Line Reactors Dimension Drawing #18
LR-2060



19) LR(2) Line Reactors Dimension Drawing #19
LR2075, LR2100



GS/DURAPULSE Drives Accessories – Line/Load Reactors

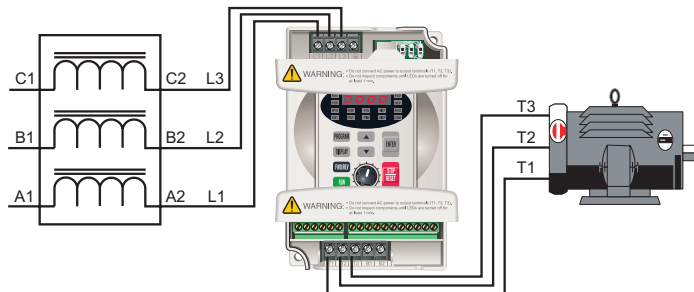
Line/Load Reactors for GS/DURAPULSE AC Drives – Generic One-Line



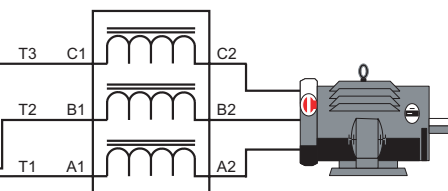
WARNING: CONSULT THE APPLICABLE GS DRIVE USER MANUAL BEFORE ACTUALLY WIRING THE DRIVE!

Input side of the drive

When installed on the input side of the AC drive, line reactors will reduce line notching, and 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.



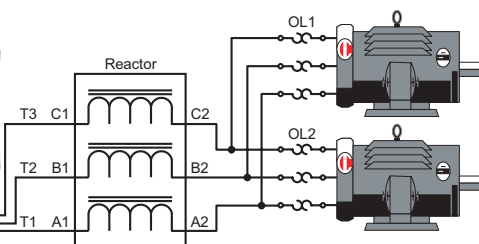
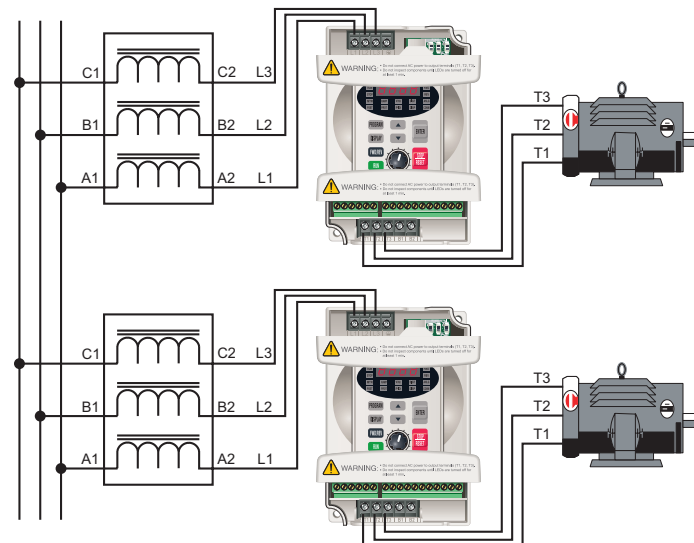
Output side of the drive

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. **Overload relays are recommended** for use in multi-motor applications.

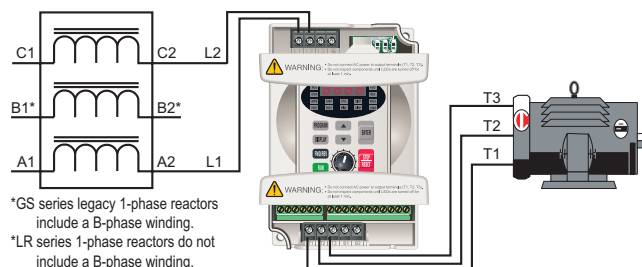
Note: A single reactor should be used with multiple motors only when the motors will always operate simultaneously.

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.

Drives Accessories – Output Filters for Multiple AC Drives

VTF Series Drive Output Filters

Extend the life of your motors and cables by reducing the harmful effects of voltage spikes due to voltage wave reflection. Voltage wave reflection is a function of the voltage rise time (dv/dt) and the length of the motor cables.

AutomationDirect VTF series drive output filters protect motors and cables by combining a patented dampening circuit with a low pass filter to increase the voltage rise time (dt out of dv/dt), thereby preventing voltage spikes from exceeding 1,000V.

The impedance on either end of the cable run does not match, causing voltage pulses to be reflected back in the direction from which it arrived. As these reflected waves encounter other waves, their values add, causing higher peak voltage.

As wire length or carrier frequency increases, the overshoot peak voltage also increases.

- For CFW100 drive compatibility, please refer to [WEG CFW100 AC Drives - Accessories on page tCFW-15](#).
- For CFW300 drive compatibility, please refer to [WEG CFW300 AC Drives - Accessories on page tCFW-8](#).
- For CSW500 drive compatibility, please refer to [WEG CFW500 AC Drives - Accessories on page tCFW-53](#).
- For GS4 drive compatibility, please refer to [GS4 Drives Accessories-Line/Load Reactors on page tGSX-113](#).
- For GS10 drive compatibility, please refer to [GS10 Drives Accessories-Line Reactors on page tGSX-59](#).
- For GS20(X) drive compatibility, please refer to [GS20\(X\) Accessories-Line Reactors/VTF Filters on page tGSX-44](#).

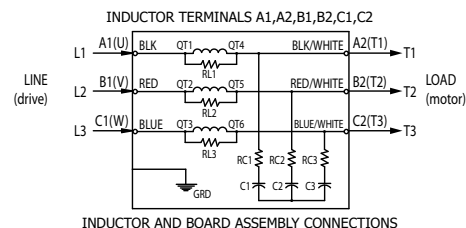
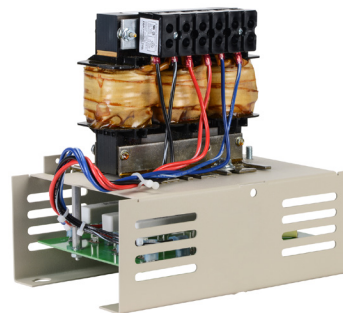
Peak voltages on a 480V system can reach 1,600V, and 2,100V on a 600V system. These high peak voltages can cause a rapid breakdown of motor insulation, leading to motor failure.

Features:

- Protect cable runs and reduce motor heating, noise, and vibration.
- Prevent motor failure with protection against motor insulation breakdown.
- Reduce Common Mode Noise by a minimum of 30%.
- Improve system productivity and increase bearing life and up-time.
- Protect long motor lead lengths up to 1,000 feet.
- Carrier Frequency: 2–4 kHz
- Efficiency ≥ 98%
- Operation up to 60Hz output drive frequency.
- Warranty: One (1) year of useful service, not to exceed 18 months from the date of shipment.

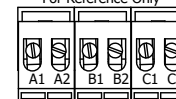
Agency Approvals:

- cULus listed (E197592)



INDUCTOR AND BOARD ASSEMBLY CONNECTIONS

(Customer Connections)
Markings On Terminal Block
For Reference Only



Output Filters are impregnated with 100% solid epoxy resin. All insulation varnish systems are rated H (180°C) or class R (220°C), 600V. (Class H up to 110A VTF-246-RUV; Class R from 130A Up VTF-246-SVW)

Drive Output Filters – VTF Series – for Multiple AC Drives

Part Number	Price	Filter Specs		Applicable Motor Sizes*				Phases	Watt Loss	Wire Size [AWG]	Terminal Torque [lb-in]	Fasteners	Weight [lb]	Drawing Links
		Rated Voltage	Max Rated Amps	208V Rated HP	230V Rated HP	460V Rated HP	575V Rated HP							
VTF-46-DE	\$368.00	208–600 VAC	2	-	-	0.75	1	3	75	12-14	10	6/40 x 5/16 flathead	8	PDF
VTF-246-CFG	\$374.00		3	0.5	0.5	1.5	2		75	12-14	10	6/40 x 5/16 flathead	8	PDF
VTF-246-DGH	\$378.00		4	0.75	0.75	2	3		75	12-14	10	6/40 x 5/16 flathead	8	PDF
VTF-24-FH	\$387.00		6	1	1.5	3	-		80	12-14	10	6/40 x 5/16 flathead	8	PDF
VTF-246-GJJ	\$394.00		8	2	2	5	5		90	12-14	10	6/40 x 5/16 flathead	8	PDF
VTF-246-HKL	\$408.00		12	3	3	7.5	10		95	12-14	10	6/40 x 5/16 flathead	8	PDF
VTF-24-JL	\$394.00		16	-	5	10	-		95	4-12	20	1/4-28 x 3/8	12	PDF
VTF-46-LM	\$492.00		18	5	-	10	15		110	4-10	20	1/4-28 x 3/8	12	PDF
VTF-4-M	\$501.00		21	-	-	15	-		110	4-10	20	1/4-28 x 3/8	12	PDF
VTF-246-KMN	\$525.00		25	7.5	7.5	15	20		110	4-8	20	1/4-28 x 3/8	12	PDF
VTF-46-NP	\$536.00		27	-	-	20	25		110	4-8	20	1/4-28 x 3/8	14	PDF
VTF-246-LPQ	\$569.00		35	10	10	25	30		130	6-8	20	n/a (captive)	17	PDF
VTF-246-MQR	\$591.00		45	-	15	30	40		135	6	20	n/a (captive)	17	PDF
VTF-246-NRS	\$611.00		55	15	20	40	50		145	1-4	20	n/a (captive)	17	PDF
VTF-246-PSU	\$834.00		80	20	30	60	75		255	1-3	35	n/a (captive)	23	PDF
VTF-246-RUV	\$1,012.00		110	30	40	75	100		245	2/0 - 1/0	50	7/16-20 x 9/16	40	PDF
VTF-246-SVW	\$1,181.00		130	40	50	100	125		270	2/0	50	7/16-20 x 9/16	55	PDF

* - Motor HP ratings by voltage are based on NEC currents. For voltages with no HP listed, pick the VTF with max rated amps slightly higher than the application motor amp rating.

Properly sized and applied, The manufacturer guarantees that the VTF will limit motor terminal peak input voltage to 150% of the bus voltage with a wire lead length of 1,000 feet and a carrier frequency of 4 kHz. Maximum lead length and carrier frequency can vary depending on wire lead type. If a properly selected, installed, and loaded VTF filter fails to meet the guaranteed performance levels, The manufacturer will provide the necessary components or replacement filter at no additional charge. The manufacturer does not take responsibility for additional installation or removal costs, to include, but not limited to, replacement of third party equipment.

Minimum System Requirements for Guarantee – In order to achieve the performance levels as stated in this guarantee, the electrical system must adhere to the following: The VTF must be sized at no more than 110% of the drive output current rating. If the load has a potential for overhauling, the drive must be equipped with braking resistors or other features limiting bus voltage to no more than the level of the peak line voltage. The VTF must be wired no more than 10 feet from the drive.

GS4 DURAPULSE Accessories – EMI Filters

Selection Selection (GS4)

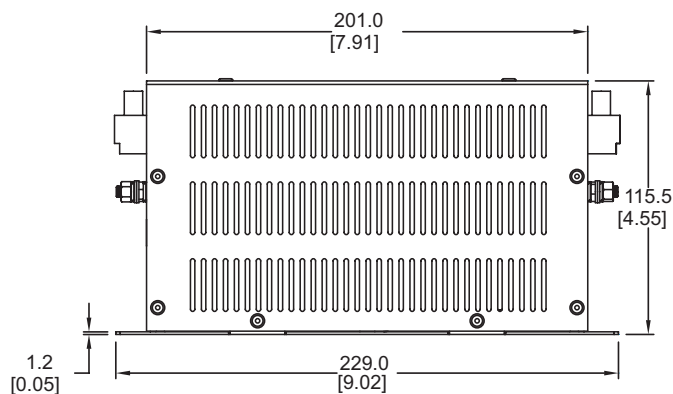
The optional EMI Filters listed here are available for use with the GS4 drive. Selection of these accessories is application-specific and may improve drive performance. Additional information regarding filter installation and operation is available in the AutomationDirect white paper, "Applied EMI/RFI Techniques," downloadable from AutomationDirect.com.

EMI Filters Selection for GS4 AC Drives					
Model*	Description	EMI Filter **	Max Power kW [max/ph]	Max Torque kg-cm [lb-in]	SCCR Rating (kA)
GS4-21P0	230V 1ph/3ph 1.0 hp	KMF325A	20.8 [6]	17.7 [2]	5
GS4-22P0	230V 1ph/3ph 2.0 hp				
GS4-23P0	230V 1ph/3ph 3.0 hp				
GS4-25P0	230V 1ph/3ph 5.0 hp				
GS4-27P5	230V 1ph/3ph 7.5 hp	KMF370A	58.1 [16.8]	44.2 [5]	5
GS4-2010	230V 1ph/3ph 10hp				
GS4-2015	230V 1ph/3ph 15hp				
GS4-4025	460V 3ph 25hp				
GS4-4030	460V 3ph 30hp				
GS4-4040	460V 3ph 40hp	KMF3100A	83 [24]	44.2 [5]	10
GS4-2020	230V 3ph 20hp				
GS4-2025	230V 3ph 25hp				
GS4-2030	230V 3ph 30hp	KMF318A	14.9 [4.3]	17.7 [2]	5
GS4-41P0	460V 3ph 1.0 hp				
GS4-42P0	460V 3ph 2.0 hp				
GS4-43P0	460V 3ph 3.0 hp				
GS4-45P0	460V 3ph 5.0 hp				
GS4-47P5	460V 3ph 7.5 hp				
GS4-4010	460V 3ph 10hp	KMF350A	41.5 [12]	44.2 [5]	10
GS4-4015	460V 3ph 15hp				
GS4-4020	460V 3ph 20hp				
GS4-4050	460V 3ph 50hp	MIF375	62.3 [18]	53.1 [6]	10
GS4-2040	230V 3ph 40hp	MIF3150	124.6 [36]	177 [20]	10
GS4-2050	230V 3ph 50hp				
GS4-4060	460V 3ph 60hp				
GS4-4075	460V 3ph 75hp				
GS4-4100	460V 3ph 100hp				
GS4-2060	230V 3ph 60hp	MIF3400B	332.2 [96]	265.5 [30]	30
GS4-2075	230V 3ph 75hp				
GS4-2100	230V 3ph 100hp				
GS4-4125	460V 3ph 125hp				
GS4-4150	460V 3ph 150hp				
GS4-4175	460V 3ph 175hp				
GS4-4200	460V 3ph 200hp				
GS4-4250	460V 3ph 250hp	MIF3800 & Qty. 3 TOR254	664.3 [192]	265.5 [30]	30
GS4-4300	460V 3ph 300hp				

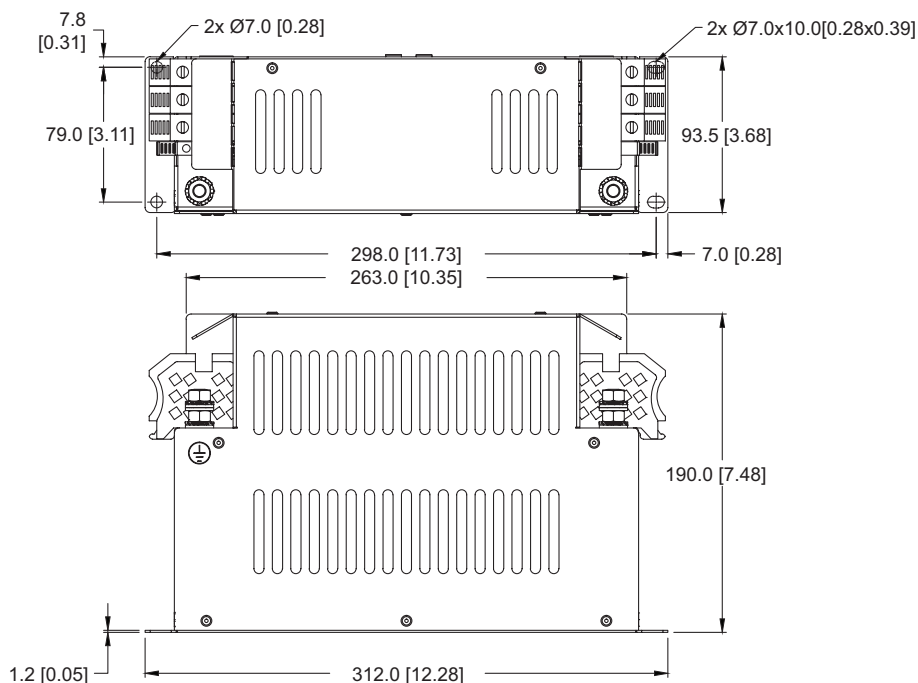
* EMI filter selections for GS4-2xxx models are the same whether that particular model is supplied 1-Phase or 3-Phase 230VAC.
 ** Part numbers are Roxburgh EMI Filters available from AutomationDirect at the web link embedded with each part number listed above.

(Units = mm [in])

See our website: www.AutomationDirect.com for complete engineering drawings.



KMF318A KMF325A

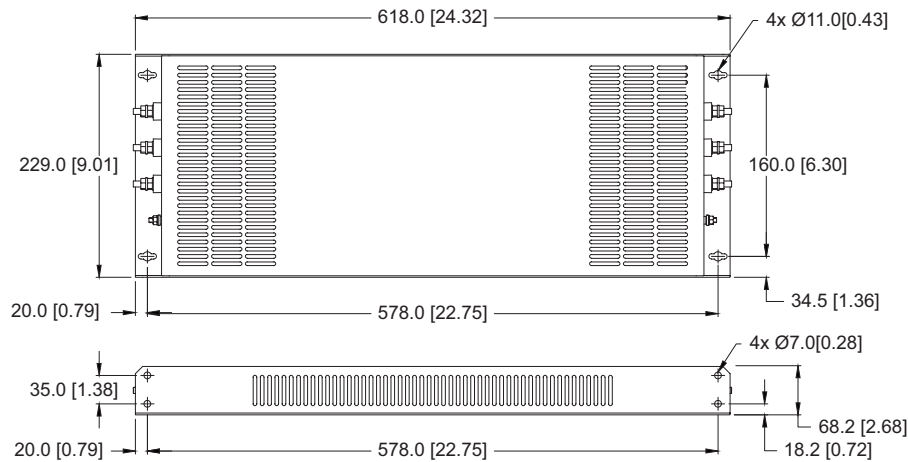
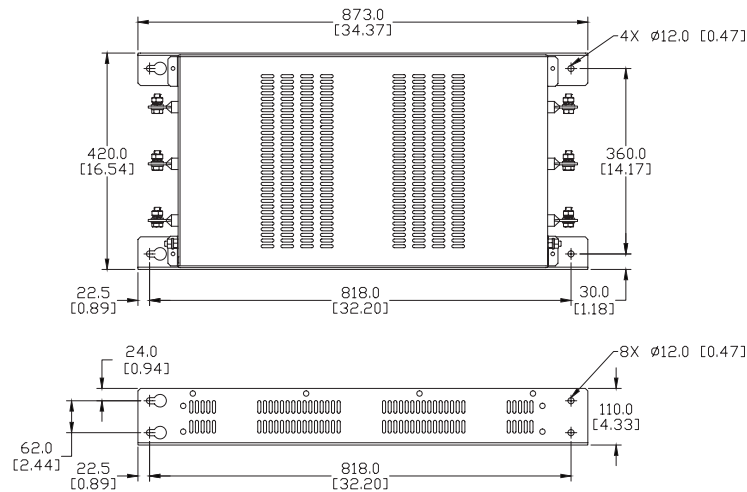
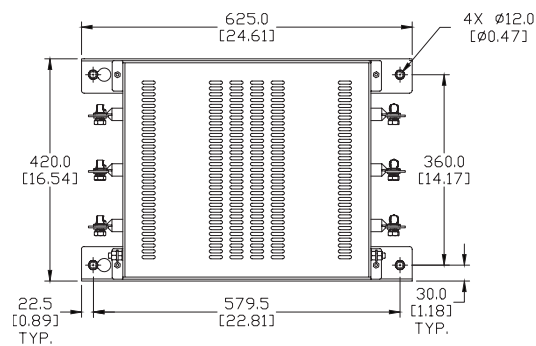
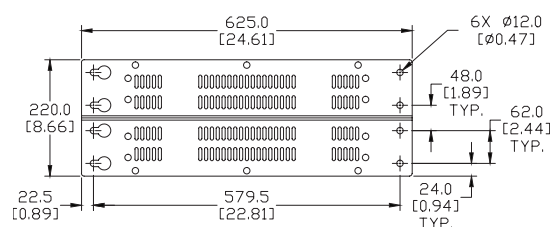


KMF350A KMF370A KMF3100A

GS4 DURAPULSE Accessories – EMI Filters

Dimensions

(Units = mm [in])

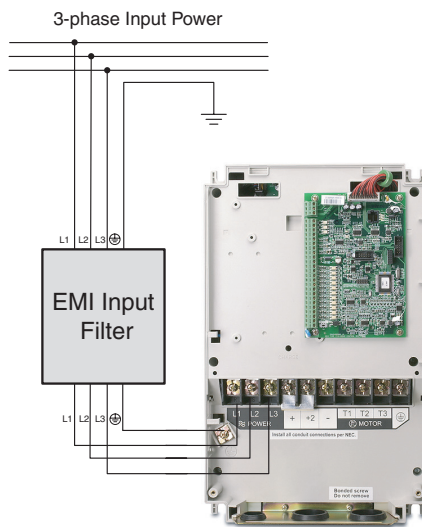
See our website: www.AutomationDirect.com for complete engineering drawings.**MIF3150****MIF3400B****MIF3800**

GS2 & GS3 *DURAPULSE* Accessories – EMI Filters

Overview

The CE Declaration of Conformity for the GS2 and *DURAPULSE* GS3 AC drives was completed in conjunction with the EMI filters listed. Use the following table to specify the corresponding EMI filter for each AC drive model.

CE compliance requires the use of EMI filters for GS2 and *DURAPULSE* GS3 AC drives. GS1 AC drives have internal EMI filtering, and do not require separate filters.



GS3-4030 shown

EMI Input Filter Specifications						
GS AC Drive 115V / 230V	GS AC Drive 460V / 575V	AC Servo Drive	EMI Filter	Price	Input Power	Dimen- sions
GS2-1xxx	–	SVA-2040 (1-ph) *	20DRT1W3S	\$73.00	1-phase, 20A	Figure 1
GS2-20P5 (1-ph)		SVA-2100 (1-ph) *				
GS2-21P0 (1-ph)		–				
GS2-22P0 (1-ph)						
GS3-21P0 (1-ph)						
GS3-22P0 (1-ph)						
GS2-23P0 (1-ph)	–	–	32DRT1W3C	\$109.00	1-phase, 32A	Figure 2
GS3-23P0 (1-ph)						
GS2-25P0	–	–	40TDS4W4B	Retired	3-phase, 40A	Figure 3
GS2-27P5						
–	GS2-41P0	–	11TDT1W4S	Retired	3-phase, 11A	Figure 4
	GS2-42P0					
	GS2-43P0					
–	GS2-45P0	–	17TDT1W44	Retired	3-phase, 17A	Figure 5
	GS2-47P5					
–	GS2-4010	–	26TDT1W4B4	Retired	3-phase, 26A	Figure 6
GS2-20P5 (3-ph)	GS2-5xxx	–	not available	n/a		
GS2-21P0 (3-ph) *	–	SVA-2040 (3-ph) *	10TDT1W4C	\$85.00	3-phase, 10A	Figure 7
GS2-22P0 (3-ph) *		SVA-2100 (3-ph) *				
GS3-21P0		–				
GS3-22P0						
GS2-23P0 (3-ph) *	–	SVA-2300 (3-ph) *	26TDT1W4C	\$114.00	3-phase, 26A	Figure 8
GS3-23P0		–				
GS3-25P0						
GS3-27P5		GS3-4020				
GS3-2010	GS3-4025					
GS3-2015	GS3-4030	–	100TDS84C	\$364.00	3-phase, 100A	Figure 10
GS3-2020	GS3-4040					
–	GS3-4050					
GS3-2025	GS3-4060	–	150TDS84C	\$384.00	3-phase, 150A	Figure 11
GS3-2030	–					
GS3-2040						
GS3-2050	–	–	180TDS84C	\$394.00	3-phase, 180A	Figure 12
–	GS3-41P0	–	RF022B43AA	\$100.00	3-phase, 5.9A	Figure 13
	GS3-42P0					
	GS3-43P0					
–	GS3-45P0	–	RF037B43BA	\$129.00	3-phase, 11.2A	Figure 14
–	GS3-47P5	–	RF110B43CA	\$158.00	3-phase, 25A	Figure 15
	GS3-4010					
	GS3-4015					
–	GS3-4075	–	200TDDS84C	\$991.00	3-phase, 200A	Figure 16
	GS3-4100					

* EMI filters 10TDT1W4C and 26TDT1W4C mount underneath DURApulse drives, but do NOT mount underneath GS2 drives. They also do NOT mount underneath SureServo AC Servo drives.

* EMI filters 10TDT1W4C and 26TDT1W4C mount underneath *DURAPULSE* drives, but do NOT mount underneath GS2 drives. They also do NOT mount underneath SureServo AC Servo drives.

GS2 & GS3 *DURAPULSE* Accessories – EMI Filters

Dimensions

Figure 1 [units = mm]

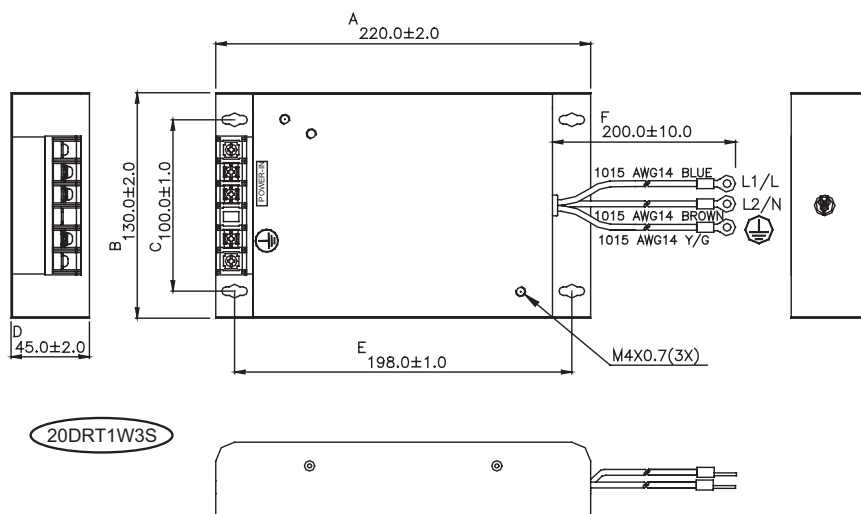


Figure 2 [units = mm]

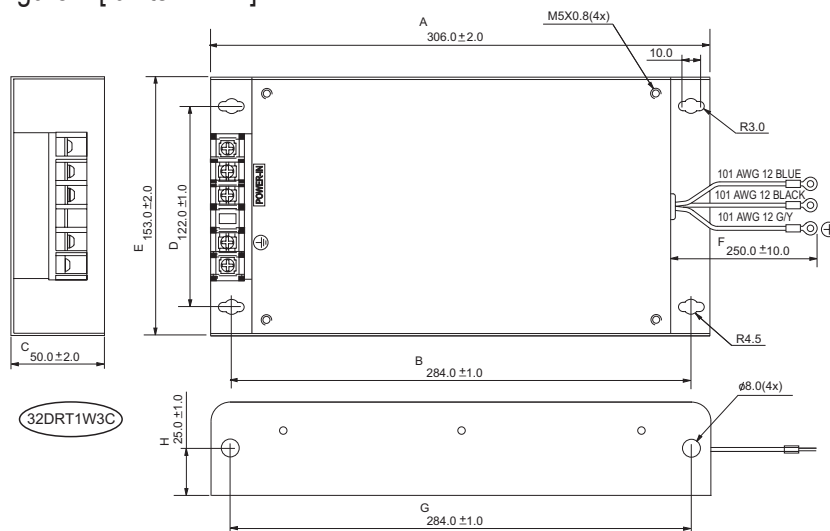
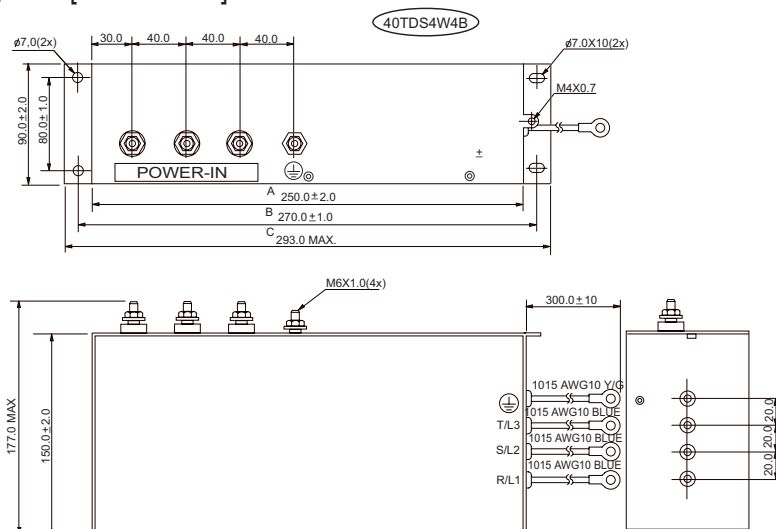


Figure 3 [units = mm]



GS2 & GS3 *DURAPULSE* Accessories – EMI Filters

Figure 4 [units = mm]

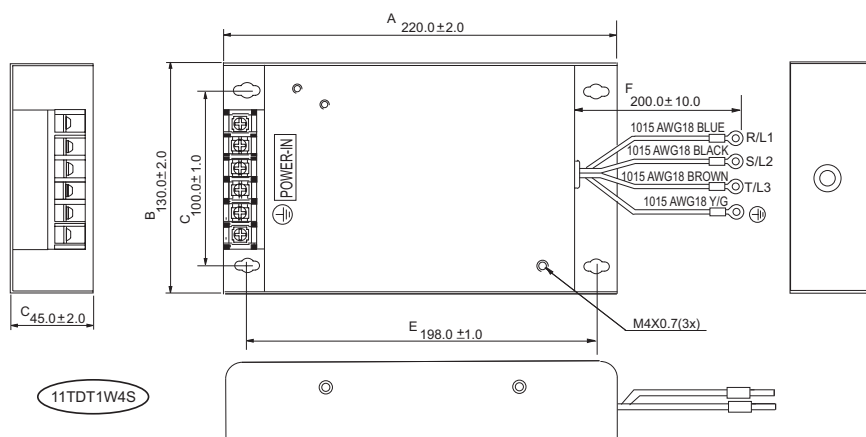


Figure 5 [units = mm]

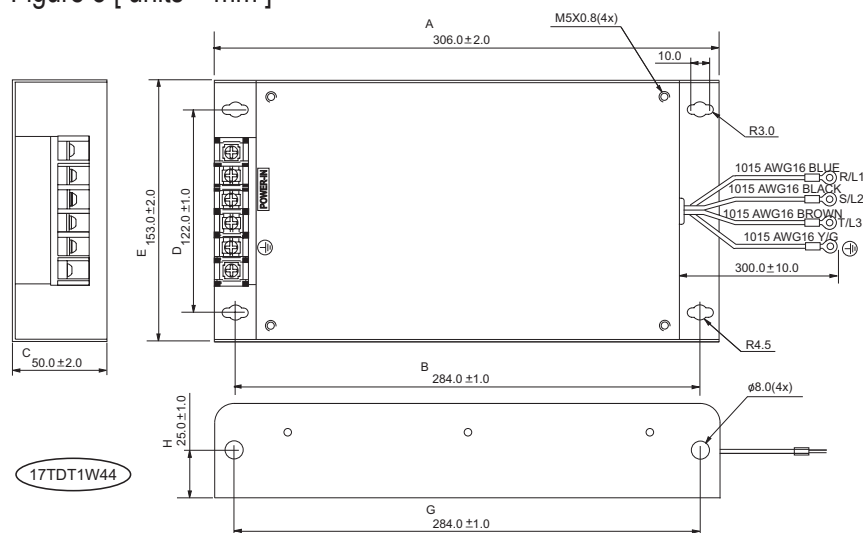
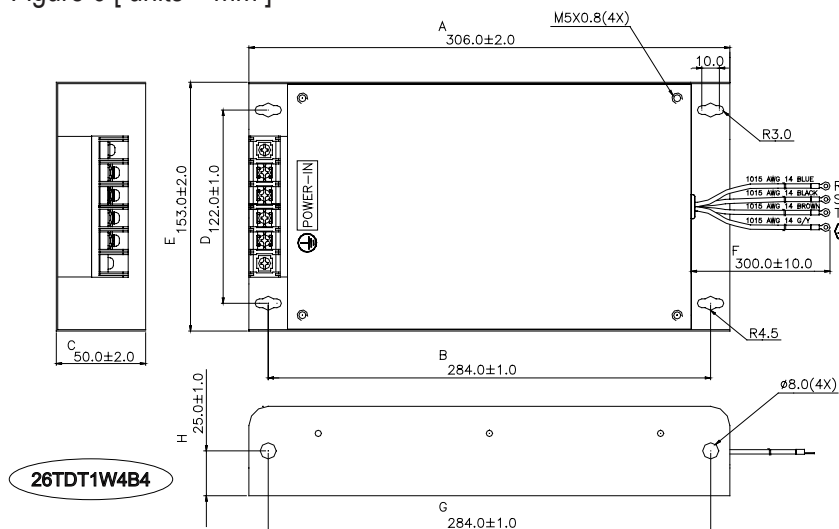


Figure 6 [units = mm]



GS2 & GS3 *DURAPULSE* Accessories – EMI Filters

Figure 7 [units = mm (in)]

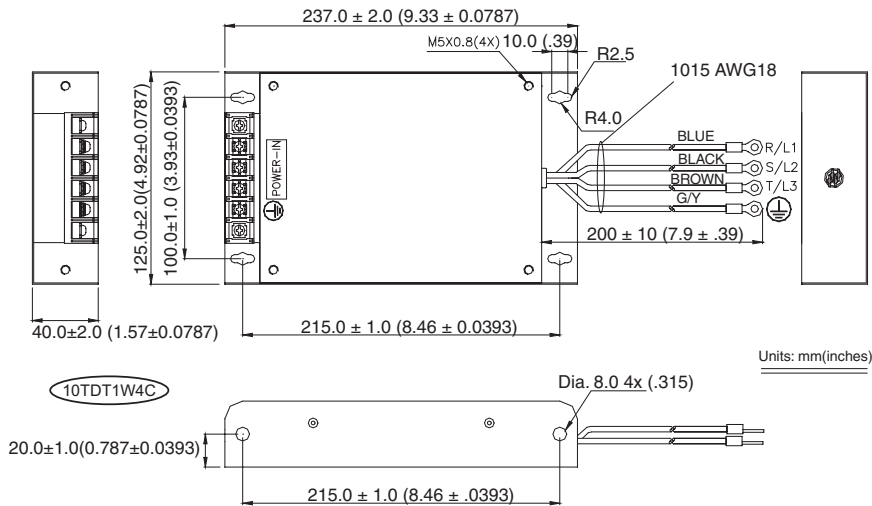


Figure 8 [units = mm (in)]

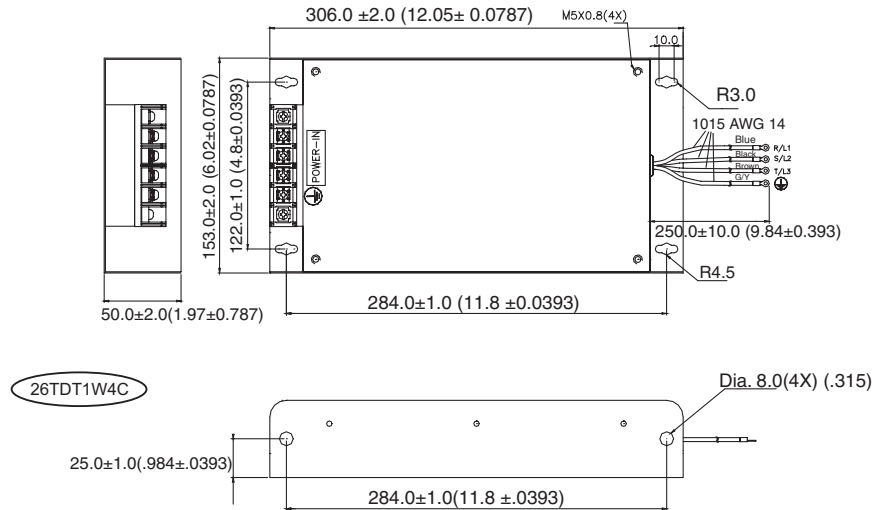
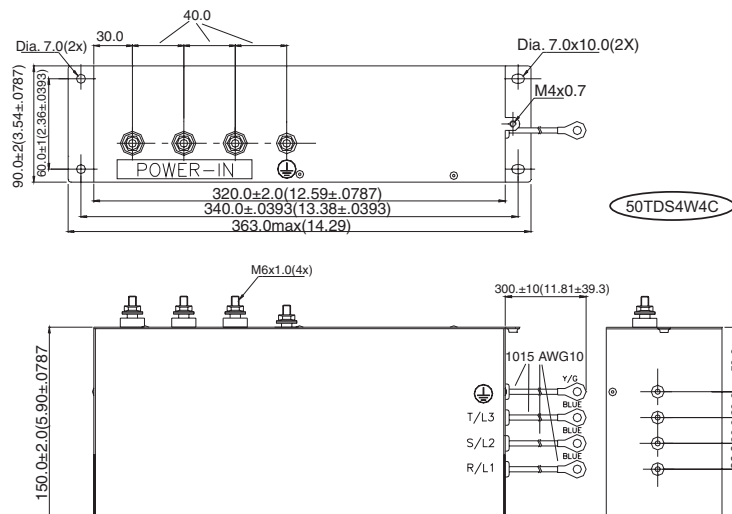


Figure 9 [units = mm (in)]



GS2 & GS3 *DURAPULSE* Accessories – EMI Filters

Figure 10 [units = mm (in)]

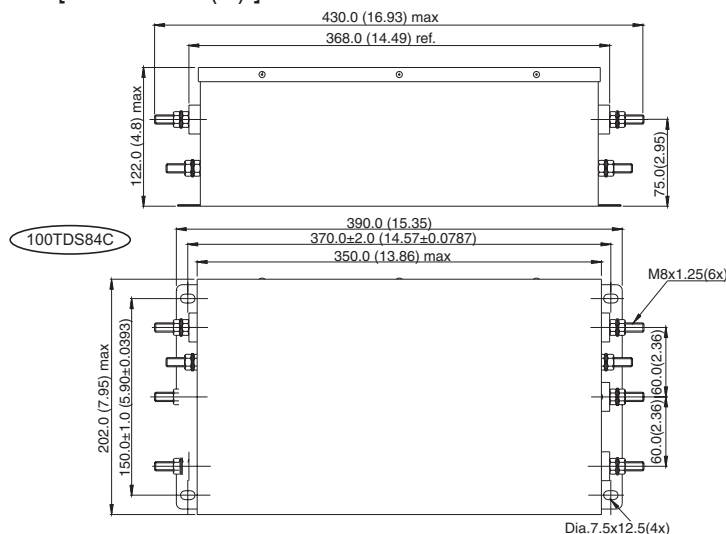


Figure 11 [units = mm (in)]

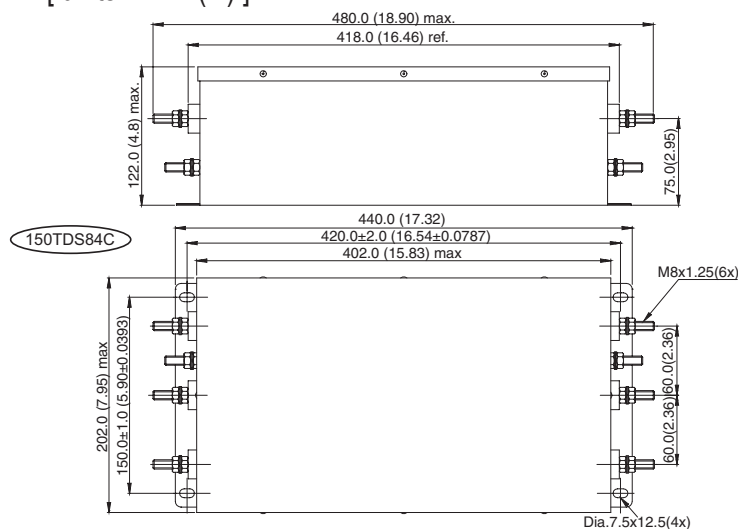
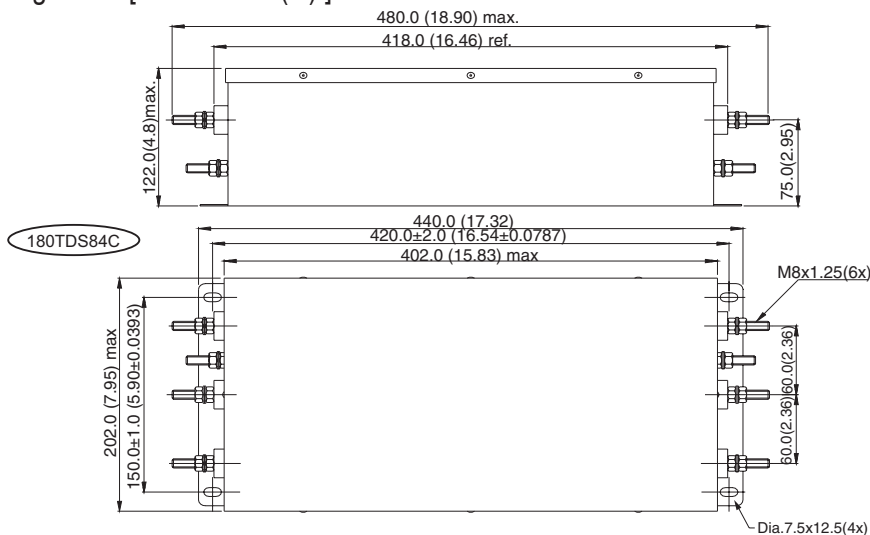


Figure 12 [units = mm (in)]



GS2 & GS3 *DURAPULSE* Accessories – EMI Filters

Figure 13 [units = mm (in)]

RF022B43AA

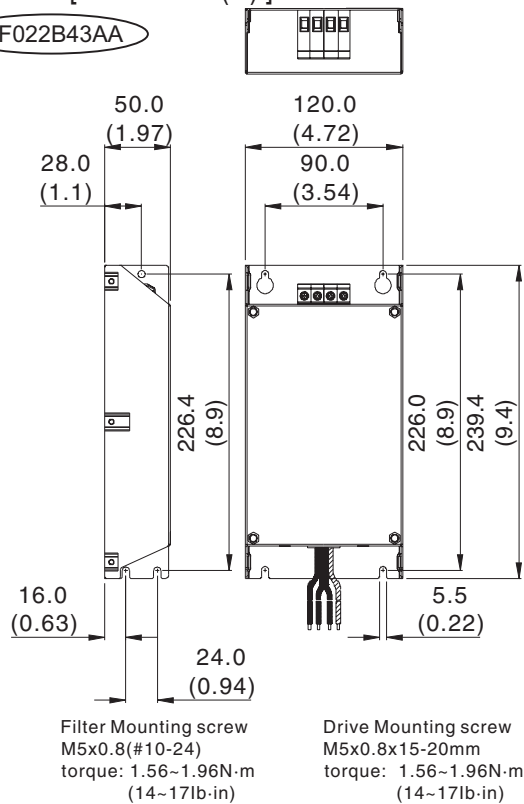


Figure 14 [units = mm (in)]

RF037B43BA

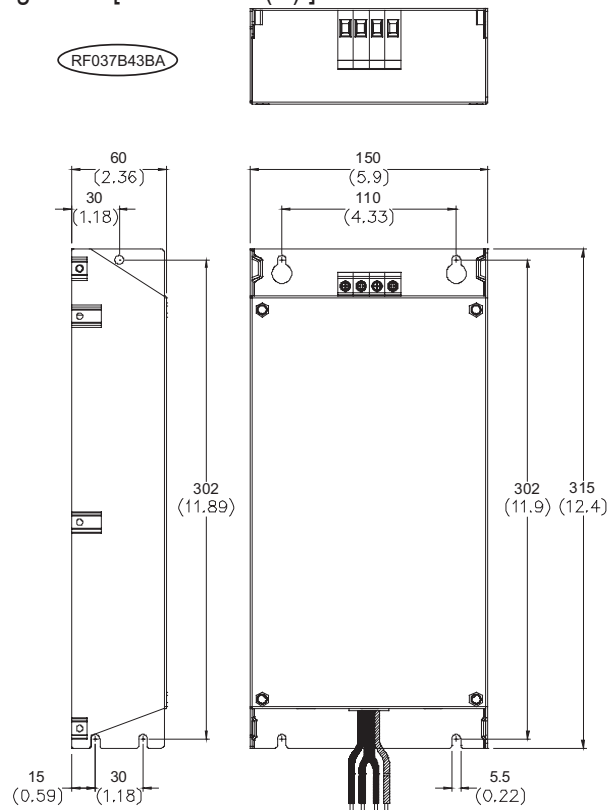


Figure 15 [units = mm (in)]

RF110B43CA

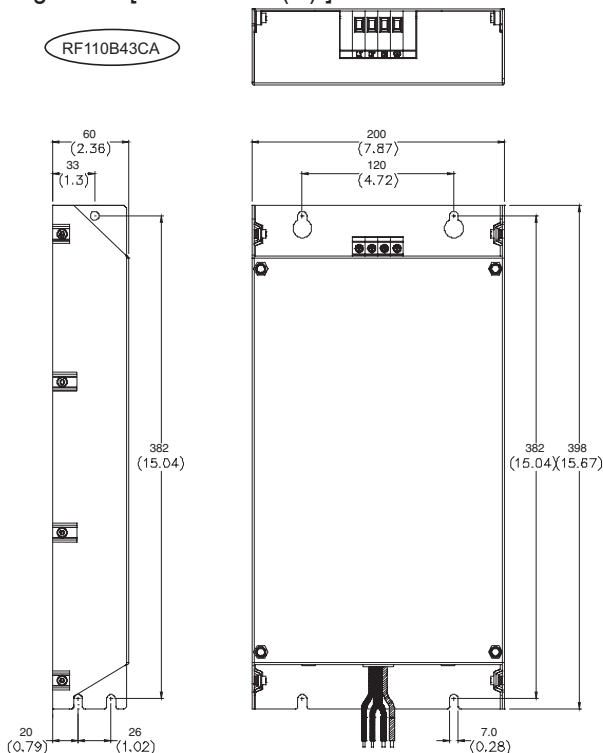
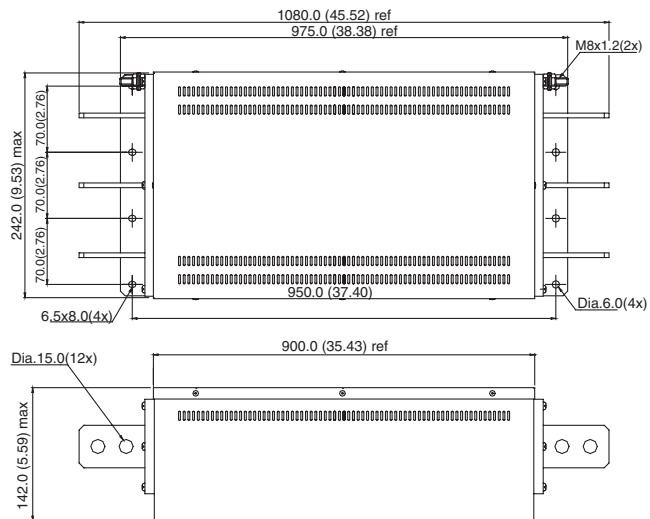


Figure 16 [units = mm (in)]

200TDDS84C



GS/DURAPULSE Accessories – RF Filter

RF Filter for GS1,GS2, GS3/DURAPULSE AC Drives		
Part Number	Price	Drive Model
RF220X00A	\$26.50	GS1-xxxx GS2-xxxx GS3-xxxx

Description

Zero phase reactors, (aka RF noise filters) help reduce radiated noise from the inverter wiring. The wiring must go through the opening to reduce the RF component of the electrical noise. Loop the wires three times (four turns) to attain the full RF filtering effect. For larger wire sizes, place multiple zero-phase reactors (up to four) side by side for a greater filtering effect. These are effective for noise reduction on both the input and output sides of the inverter. Attenuation quality is good in a wide range from AM band to 10 Mhz.

Wiring Method

Wind each wire four times around the core, as shown in diagram A to the right. The reactor must be put at inverter side as closely as possible.

If you are unable to wire as above due to wire size or another aspect of your application, put all wires through four cores in series without winding, as in diagram B to the right.

