MOTOR PROTECTION (LC) FILTERS
5 KHZ Sine-Wave Filters
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MOTOR PROTECTION (LC) FILTERS
Selection & Application Guide
5 KHZ Sine-Wave Filters
480 Volts

MTE **5 kHz** sine wave filters are designed to convert a PWM inverter output wave form to a sinusoidal wave form. As a result these filters eliminate the issues of motor heating, switching noise, terminal over voltage and damaging dv/dt associated with long cable lengths between the motor and inverter.

Select filters based on the horsepower rating of the motor for both variable torque and constant torque applications. These filters have been designed to meet motor current requirements based on NEC motor current ratings. For application using motors that exceed NEC current ratings use the next larger filter.

Note: ***5 kHz sine wave filters can only be used where the inverter switching frequency is set at 5 kHz or greater. For switching frequencies less than 5 kHz use MTE 2 – 8 KHz sine wave filters.***

For non critical motor applications were the cable length between motor and inverter is less than 850 feet and/or the motor is tolerant of PWM inverter wave forms, use MTE AC Load / Line reactors. For voltages other than 480 VAC and THVD less than 5%, use ***MTE 2 – 8 KHz sine wave filters***.

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MOTOR PROTECTION (LC) FILTERS
Selection & Wattage – 5 KHZ Sine-Wave Filters
480 Volts

Motor HP	NEC Motor Current AMPS	Catalog Number		Typical Power Dissipation Watts
		Open	Enclosed	
1	2.1	RL-00303C	RL-00313C	25
1.5	3			
2	3.4	RL-00508C	RL-00518C	52
3	4.8			
5	7.6	RL-00803C	RL-00813C	55
7.5	11	RL-01203C	RL-01213C	86
10	14	RL-01803C	RL-01813C	110
15	21	RL-02503C	RL-02513C	135
20	27	RL-03503C	RL-03513C	140
25	34			
30	40	RL-04503C	RL-04513C	150
40	52	RL-05503C	RL-05513C	166
50	65	RL-08003C	RL-08013C	268
60	77			
75	96	SX5P096D	RL-10013C	458
100	124	SX5P124D	RL-13013C	537
125	156	SX5P156D	RL-16013C	670
150	180	SX5P180D	SX5GD180D	789
200	240	SX5P240D	SX5GD240D	867
250	302	SX5P302D	SX5GD302D	894
300	361	SX5P361D	SX5GD361D	1372
400	477	SX5P477D	SX5GD477D	1466

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PRODUCT SPECIFICATION
5 KHZ Sine-Wave Filters

Performance:	THVD: 10% Typical
Fundamental Frequency:	60 Hz maximum *Without De-rating*
Voltage Ratings:	480 Volts AC
Approvals:	UL recognized: Open units through 55 Amps UL508A Industrial control panel listing is available by special order on all ratings.
Switching Frequency:	**5 KHz Minimum, 20 KHz** Maximum
Selection Basis:	Motor HP
Impedance:	5% Typical
Loading, Minimum	Filter must not be operated no load
Ambient Temperature:	40 C maximum
Temperature Rise:	120 C (average)
Insulation System:	UL Class H (200 C)
Altitude:	1000 Meters maximum without de-rating

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Mechanical Data
5 KHZ Sine-Wave Filters
480 Volts

Cat. No.	Enclosure	Fig.	A *W* in	B *H* in	C *D* in	Terminal Wiring AWG	Terminal Torques In-Lbs	Unit weights Lbs
RL-00303C	Open	1	4	6	6	22-14	4.5	5
RL-00313C	Nema 1	11	8	8	6	22-14	4.5	12
RL-00508C	Open	2	4	6	6	22-14	4.5	7
RL-00518C	Nema 1	11	8	8	6	22-14	4.5	14
RL-00803C	Open	3	6	7	5	22-14	4.5	12
RL-00813C	Nema 1	11	8	8	6	22-14	4.5	19
RL-01203C	Open	4	6	7	5	22-5	16	17
RL-01213C	Nema 1	11	8	8	6	22-5	16	24
RL-01803C	Open	5	8	8.5	5	22-5	16	19
RL-01813C	Nema 1	12	13	13	13	22-5	16	47
RL-02503C	Open	6	12	8	13	22-5	16	27
RL-02513C	Nema 1	12	13	13	13	22-5	16	55
RL-03503C	Open	7	12	8	13	18-4	20	37
RL-03513C	Nema 1	12	13	13	13	18-4	20	65
RL-04503C	Open	8	12	8	13	18-4	20	46
RL-04513C	Nema 1	12	13	13	13	18-4	20	74
RL-05503C	Open	9	12	8	13	6-4 & 2-0	45 & 50	48
RL-05513C	Nema 1	13	17	24	18	6-4 & 2-0	45 & 50	93
RL-08003C	Open	10	13	17	9	6-4 & 2-0	45 & 50	75
RL-08013C	Nema 1	13	17	24	18	6-4 & 2-0	45 & 50	135
SX5P096D	Open	A1&B	KIT Page -9			Flat Term.	NA	147
RL-10013C	Nema 1	13	17	24	18	Flat Term.	NA	207
SX5P124D	Open	A2&B	KIT Page -9			Flat Term.	NA	154
RL-13013C	Nema 1	13	17	24	18	Flat Term.	NA	214
SX5P156D	Open	A3&B	KIT Page -9			Flat Term.	NA	205
RL-16013C	Nema 1	13	17	24	18	Flat Term.	NA	265
SX5P180D	Open	A4&B	KIT Page -9			Flat Term.	NA	217
SX5GD180D	Nema 1	13	17	24	NA	Flat Term.	NA	277
SX5P240D	Open	A5&B	KIT Page -9			Flat Term.	NA	247
SX5DG240D	Nema 1	14	30	47	25	Flat Term.	NA	307
SX5P302D	Open	A6&B	KIT Page -9			Flat Term.	NA	292
SX5GD302D	Nema 1	14	30	47	25	Flat Term.	NA	352
SX5P361D	Open	A7&B	KIT Page -9			Flat Term.	NA	375
SX5GD361D	Nema 1	14	30	47	25	Flat Term.	NA	435
SX5P477D	Open	A8&C	KIT Page -9			Flat Term.	NA	459
SX5GD477D	Nema 1	14	30	47	25	Flat Term.	NA	519

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-00303C

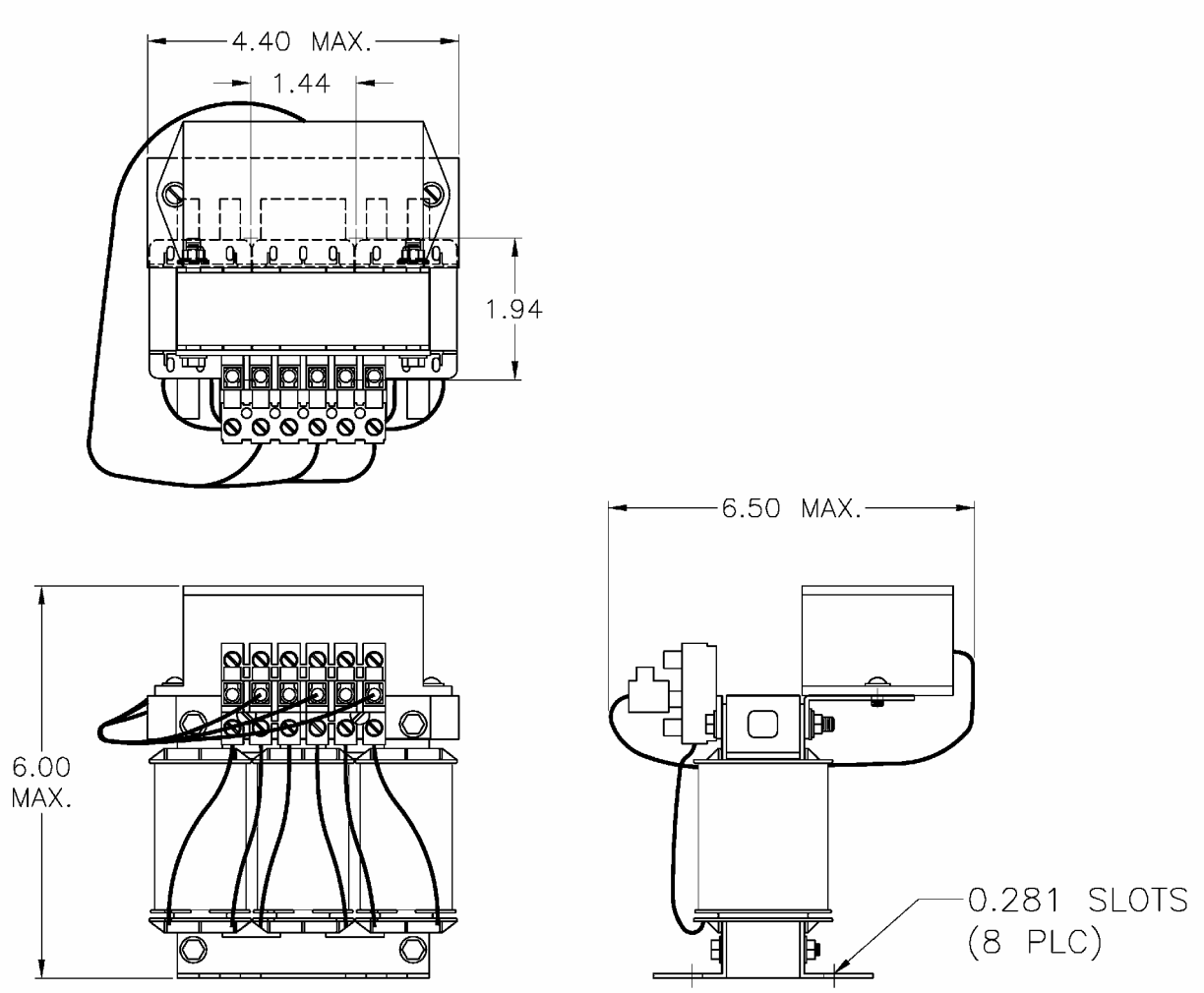

Fig 1.

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-00508C

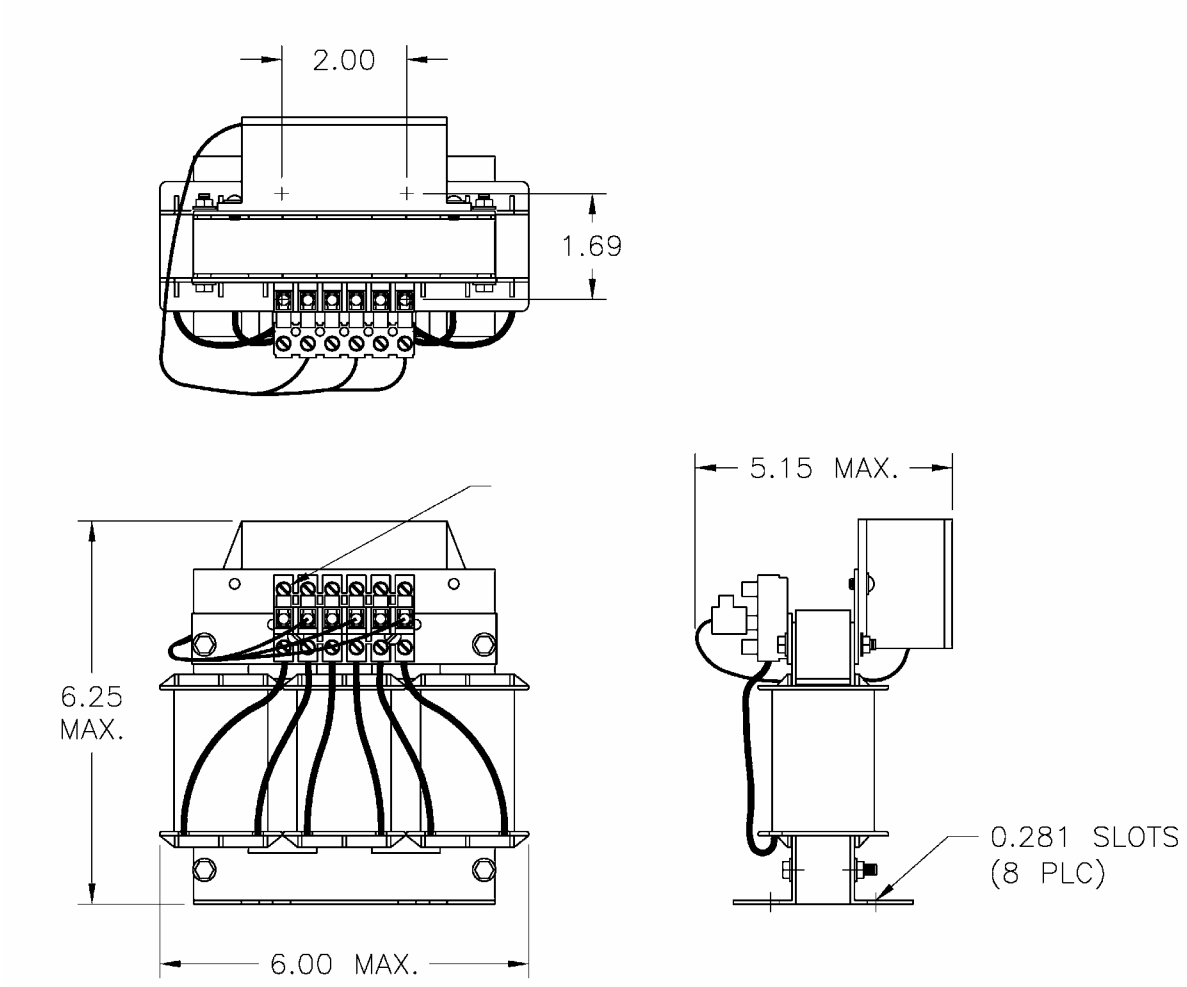

Fig. 2.

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-00803C

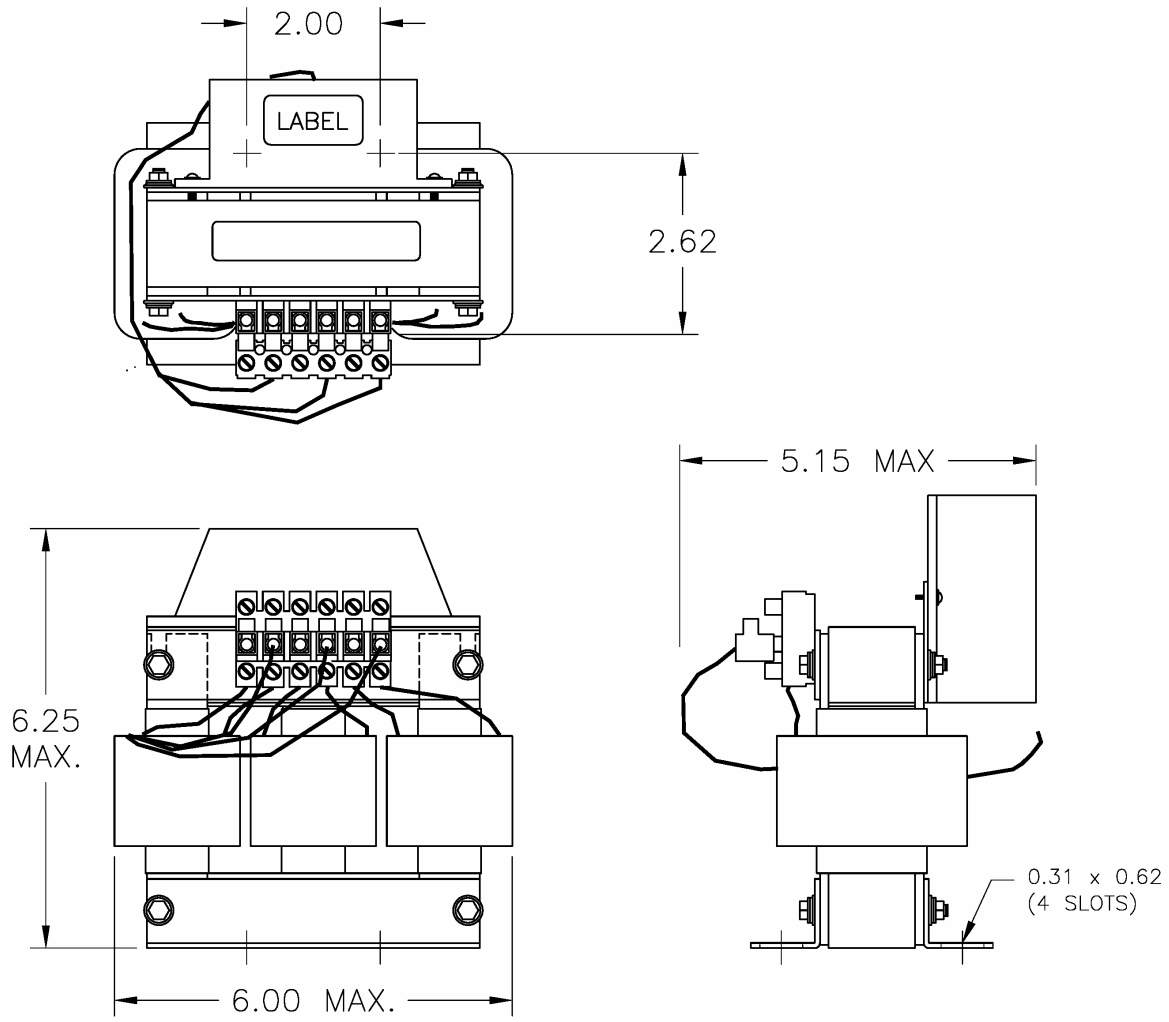

Fig. 3

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-01203C

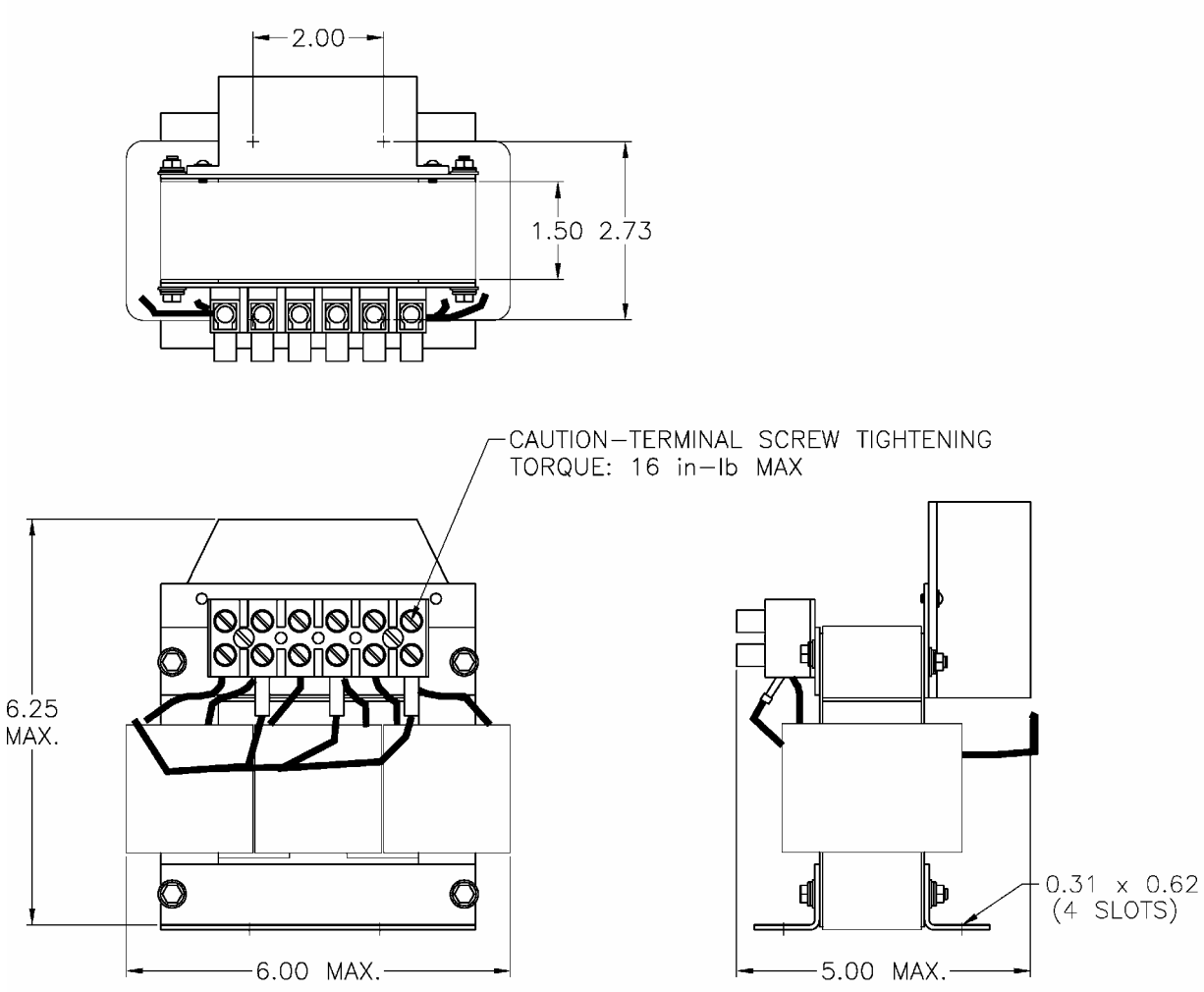

Fig. 4

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-01803C

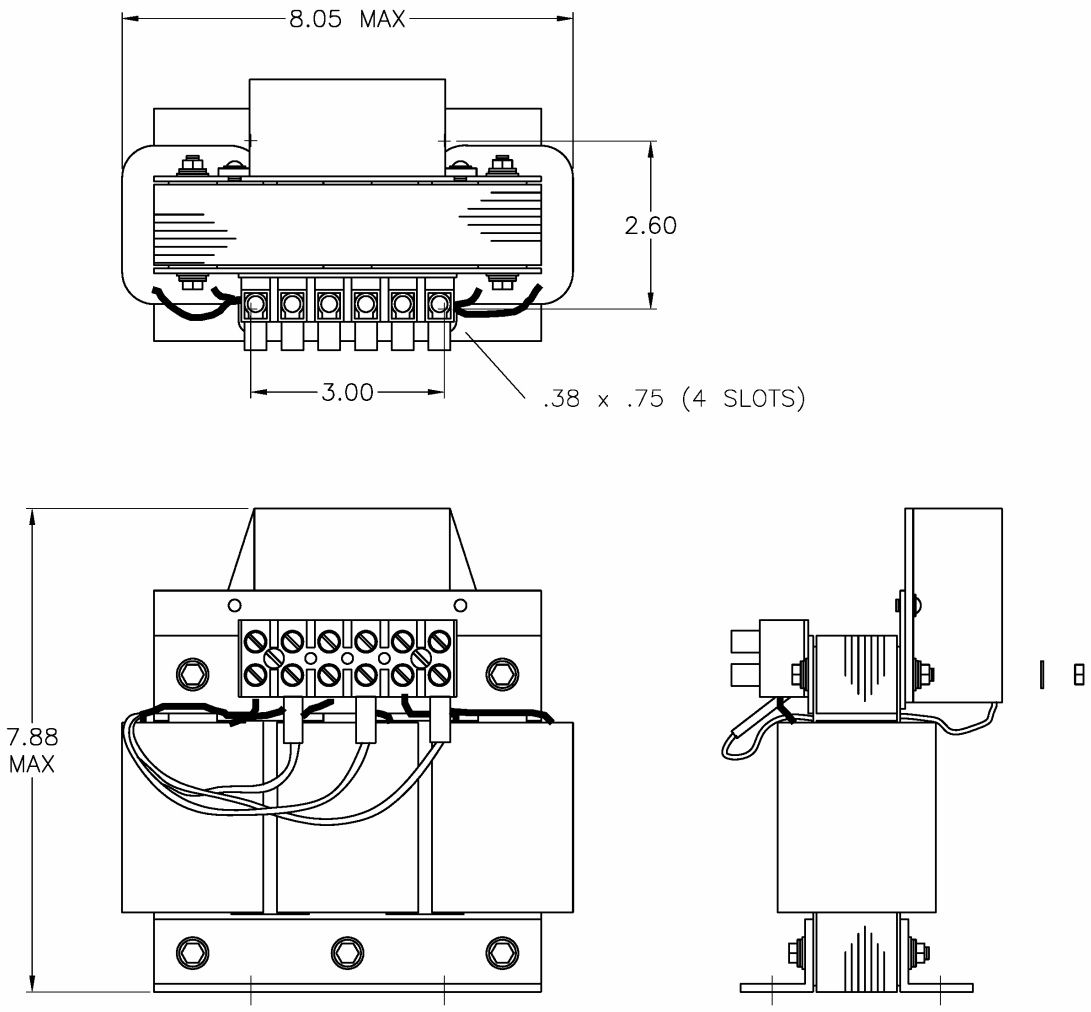

Fig. 5

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-02503C

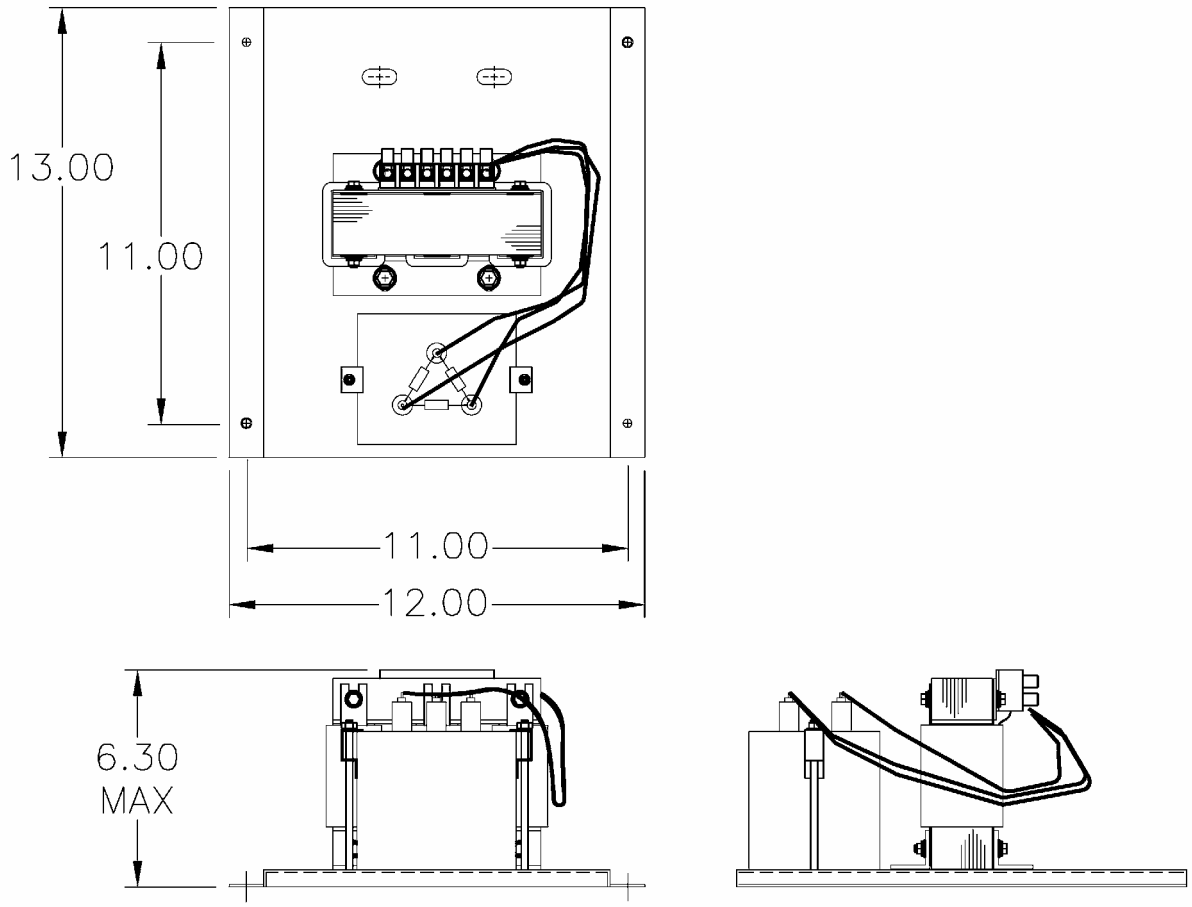

Fig. 6

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-03503C

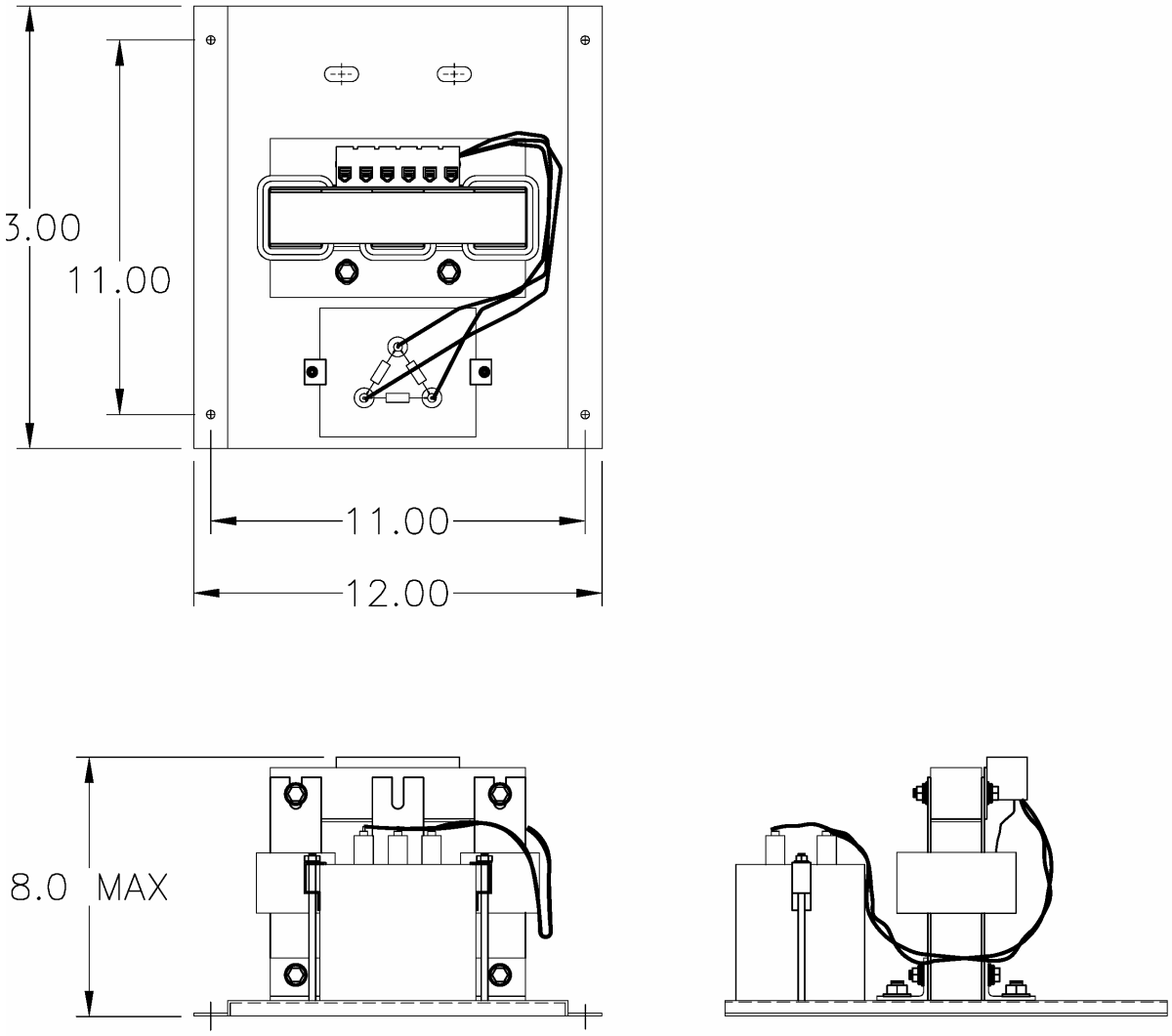

Fig. 7

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-04503C

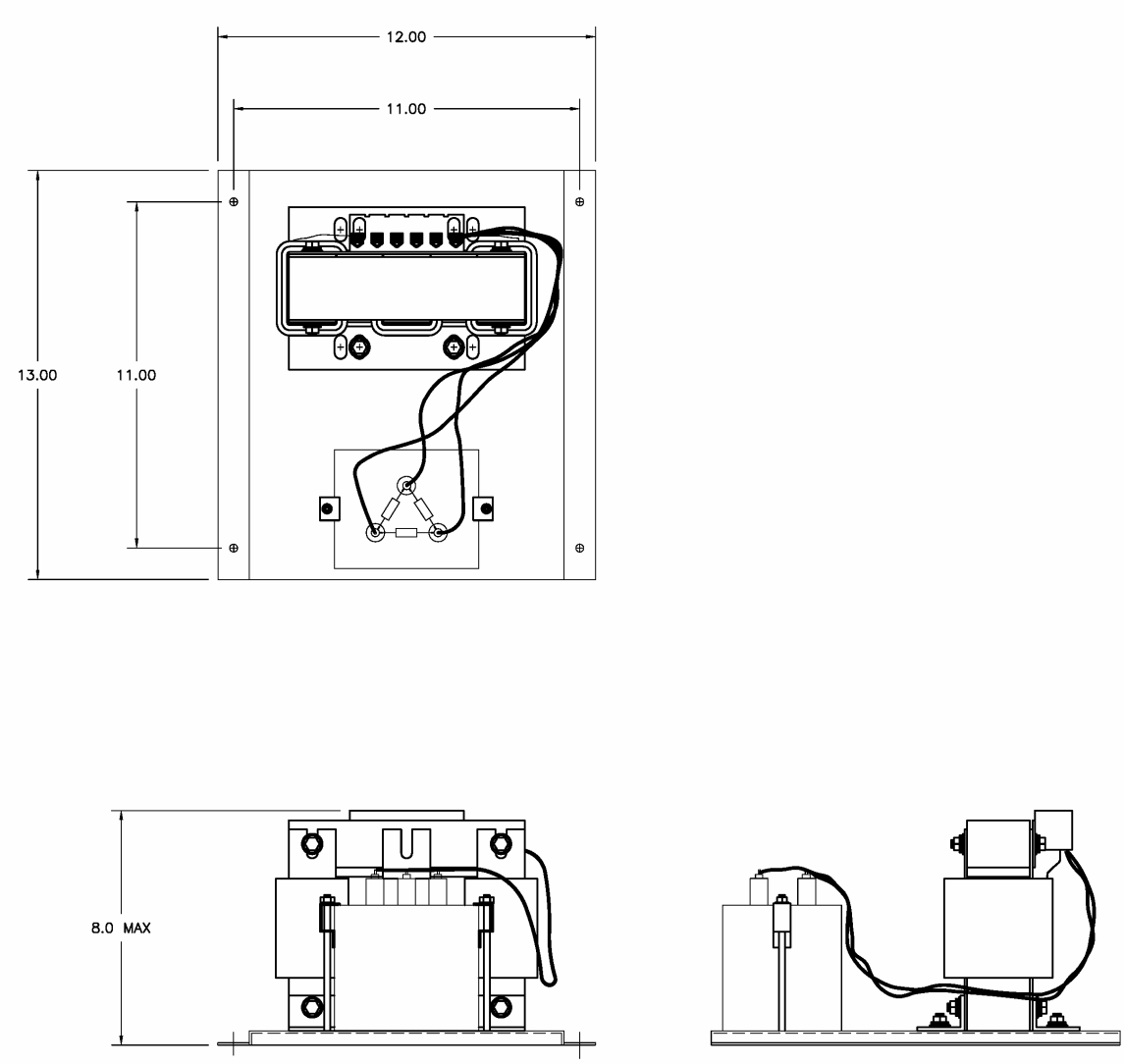

Fig. 8

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-05503C

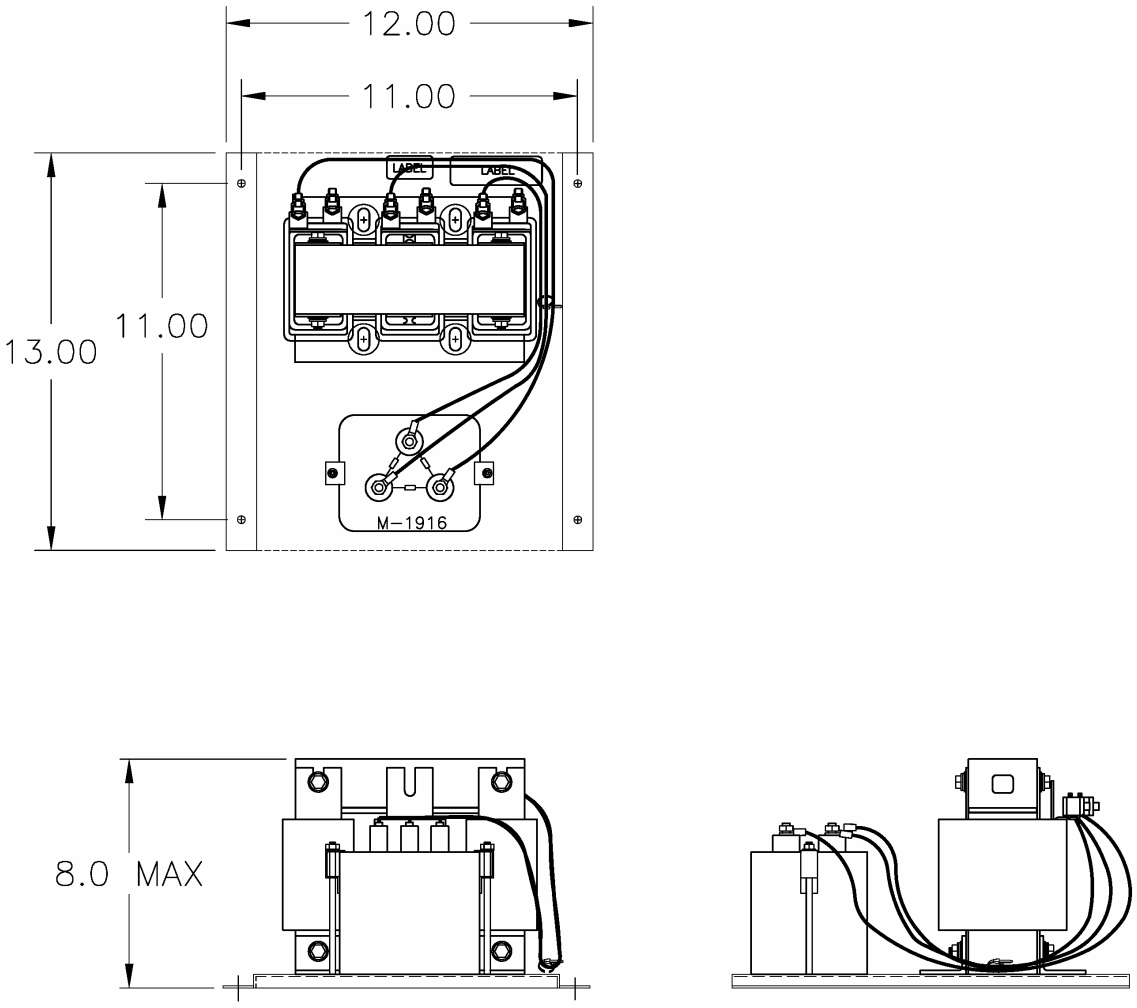

Fig. 9

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Open Outline Drawings
5 KHZ Sine-Wave Filters

RL-08003C

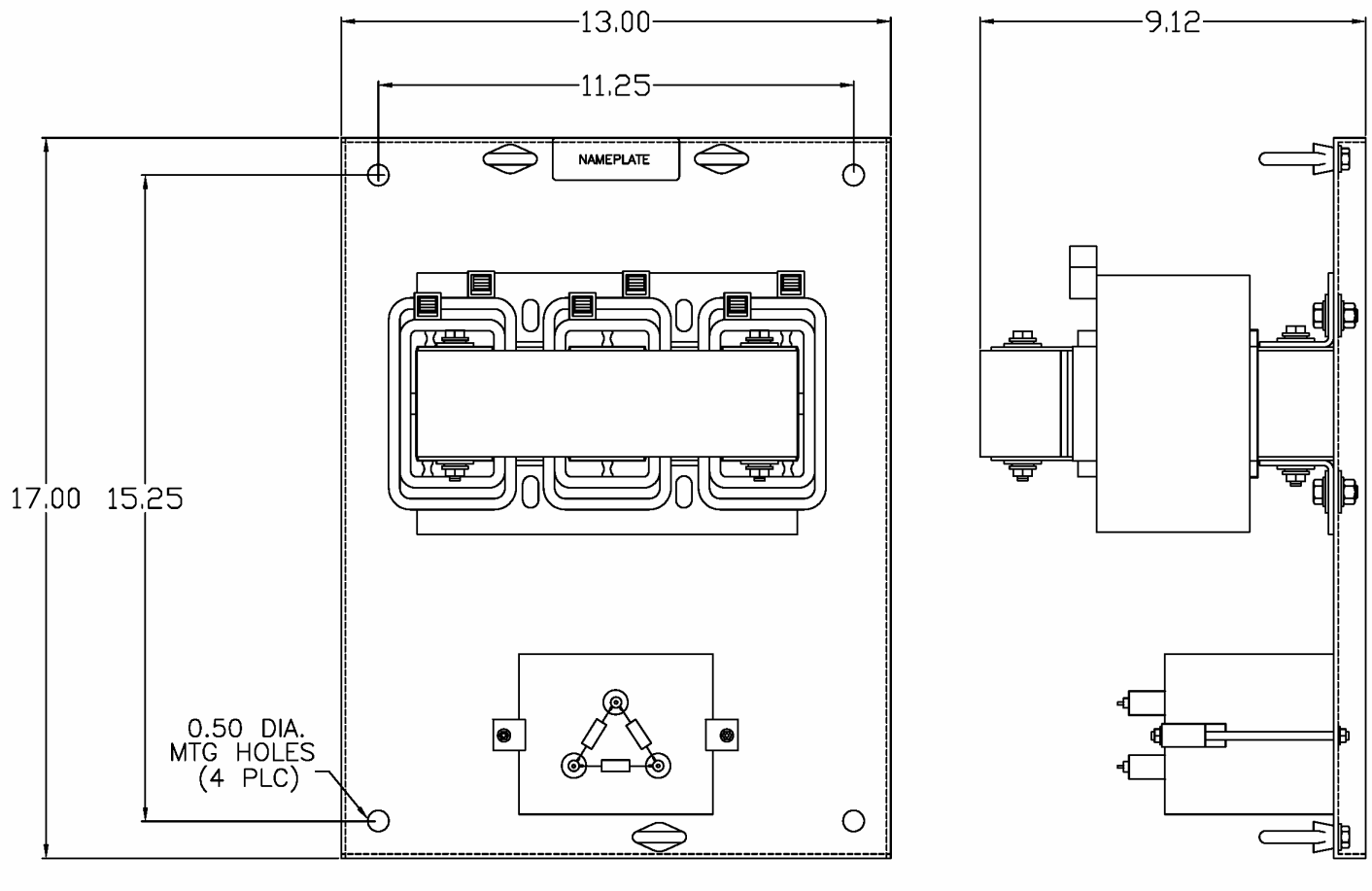

Fig. 10

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Open Kit Drawings
5 KHZ Sine-Wave Filters

Figure	DIMENSIONS Inches				
	A	B	C	D	E
A1	10.8	8.9	11.0	6.9	3.6
A2	15	11.5	8.8	5.6	4.6
A3	15	11.5	10.3	7.1	4.6
A4	15	11.5	10.3	7.1	4.6
A5	15	11.5	11.3	7.8	4.6
A6	15	11.5	13.3	8.8	4.6
A7	22	17.5	15.0	8.6	7.2
A8	22	17.5	16.0	9.6	7.2

Figure A: REACTOR

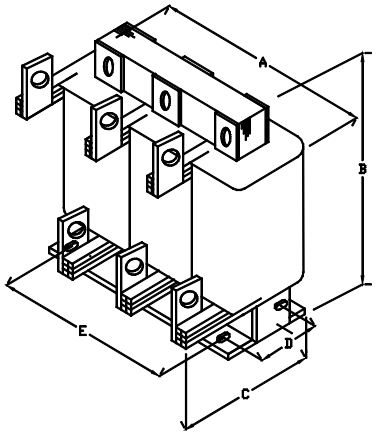


Figure B: 6 or 9 CAP MODULE

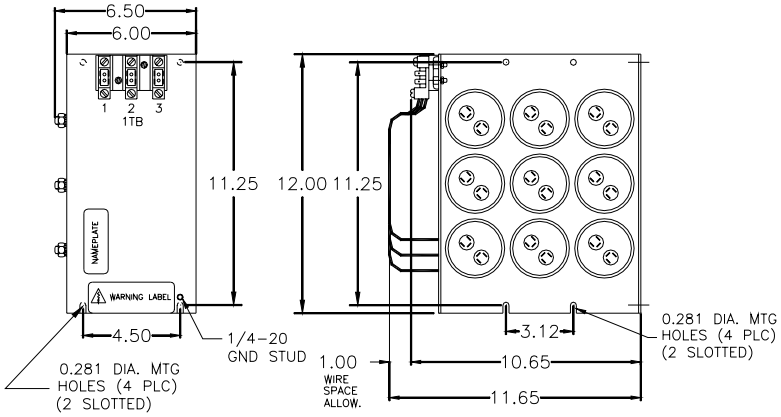
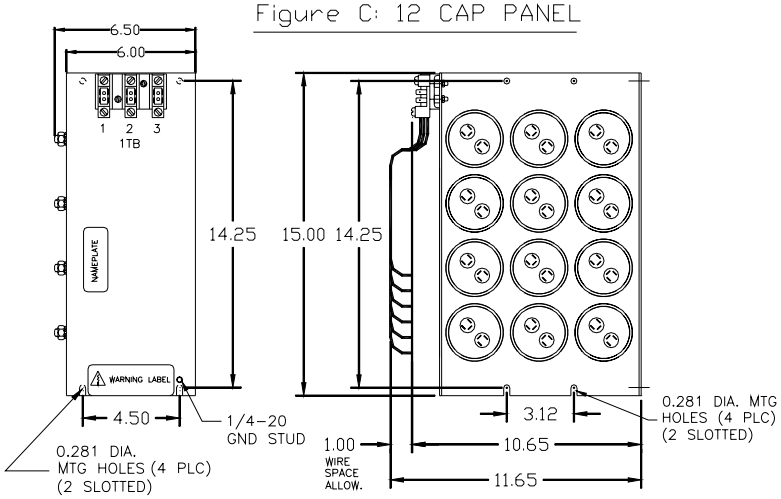


Figure C: 12 CAP PANEL



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Enclosed Outline Drawings
5 KHZ Sine-Wave Filters

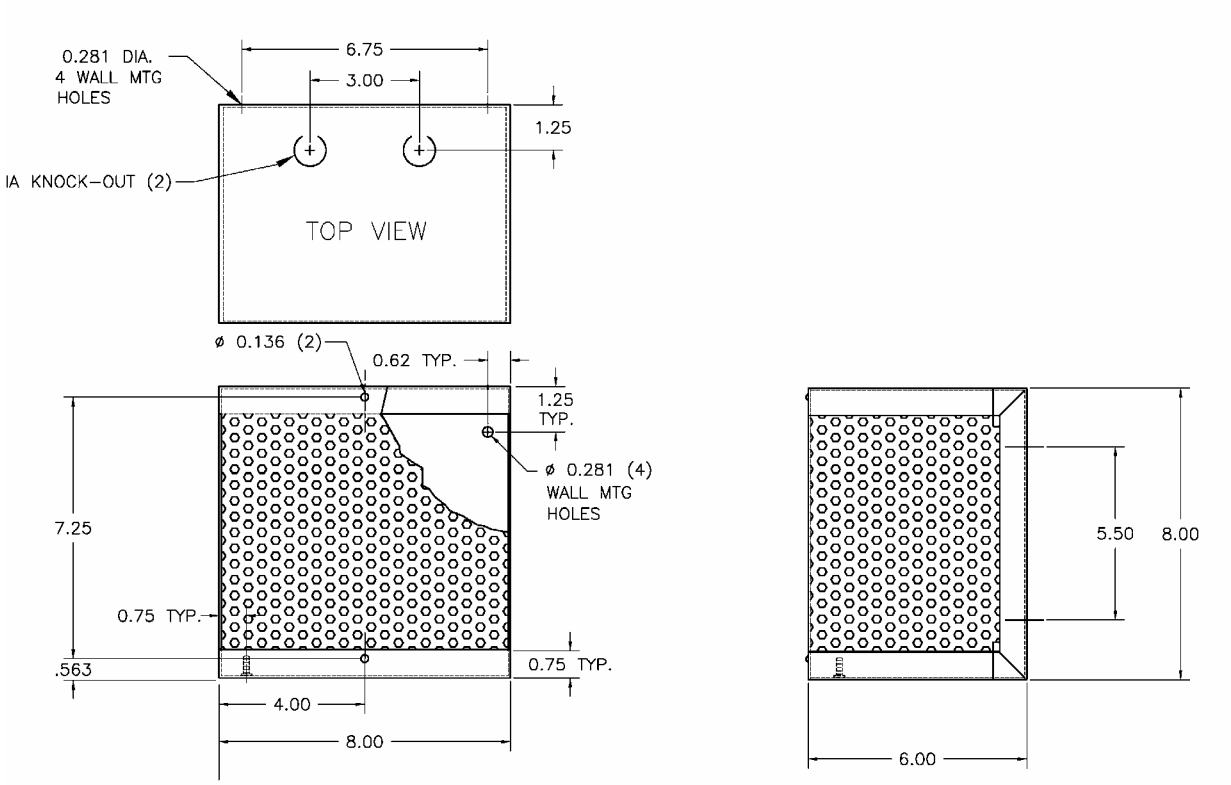

Fig. 11 Cab 8

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Enclosed Outline Drawings
5 KHZ Sine-Wave Filters

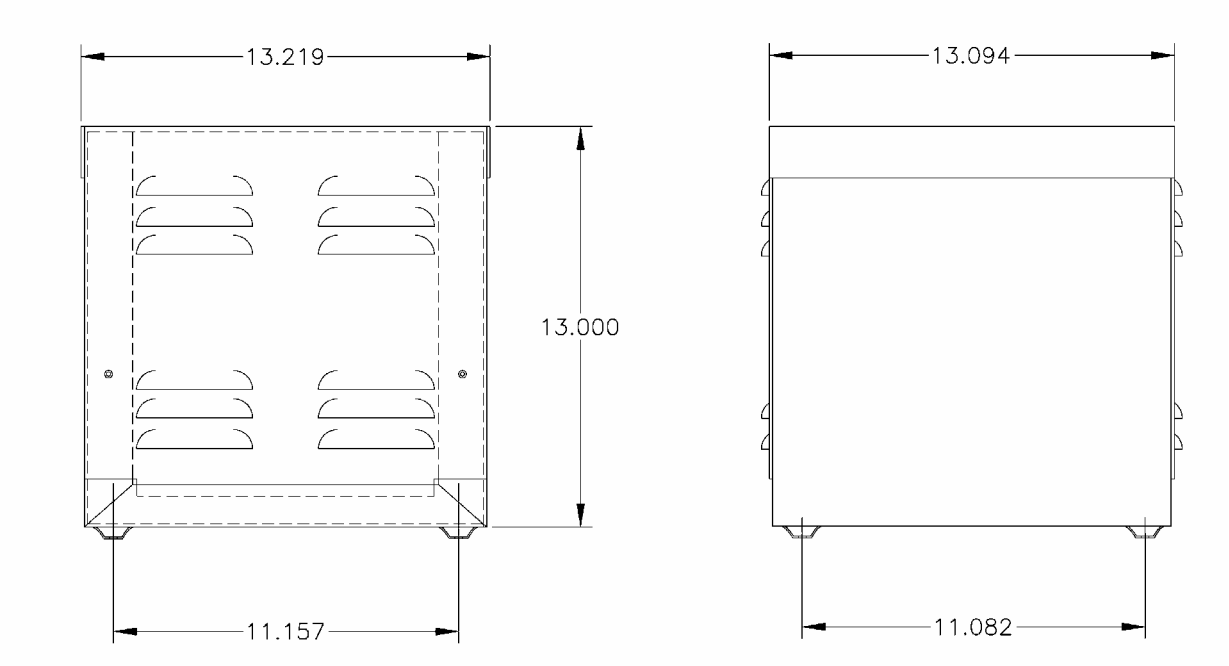

Fig. 12 Cab 13

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Enclosed Outline Drawings
5 KHZ Sine-Wave Filters

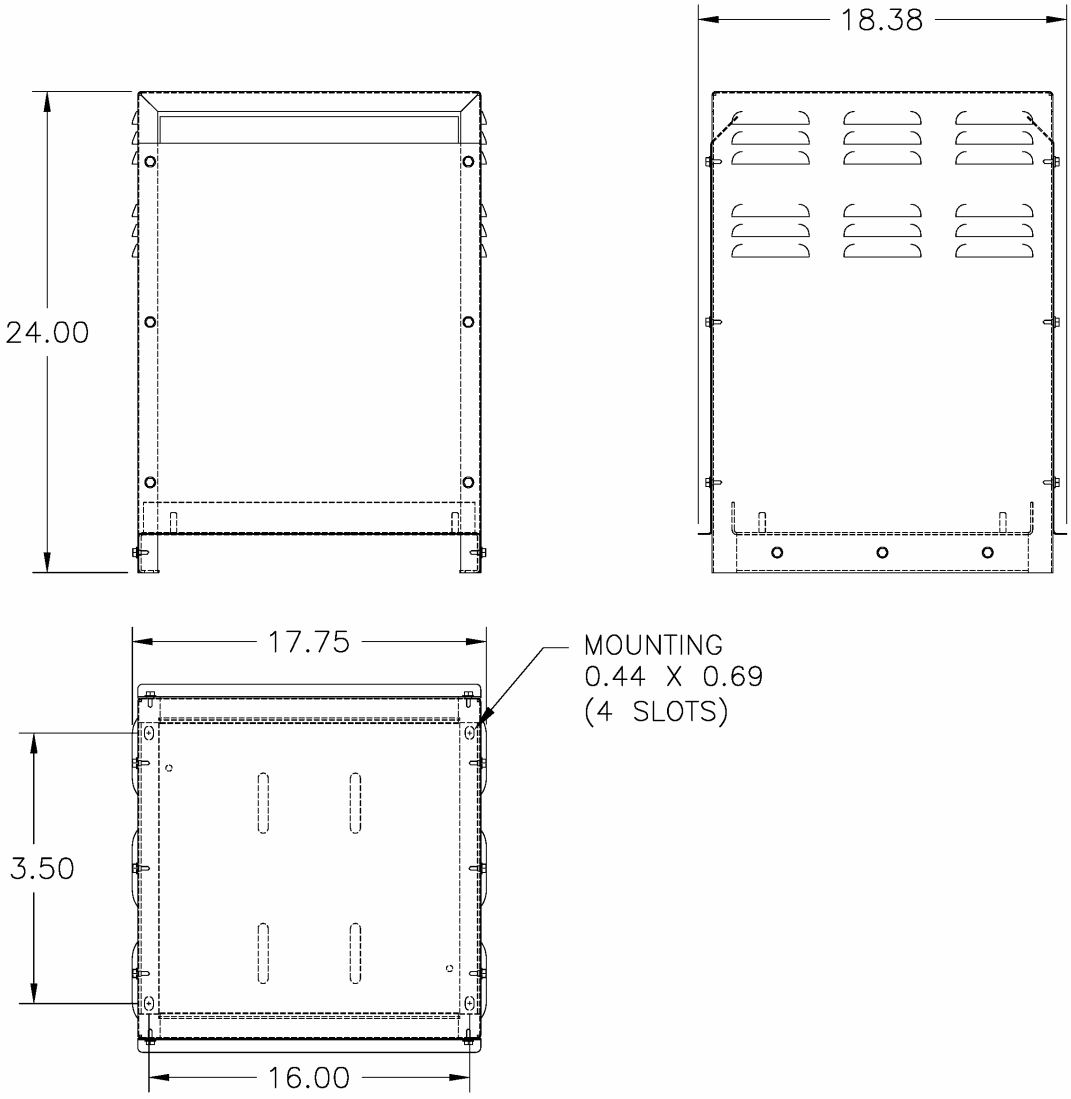

Fig. 13 Cab 17

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Enclosed Outline Drawings
5 KHZ Sine-Wave Filters

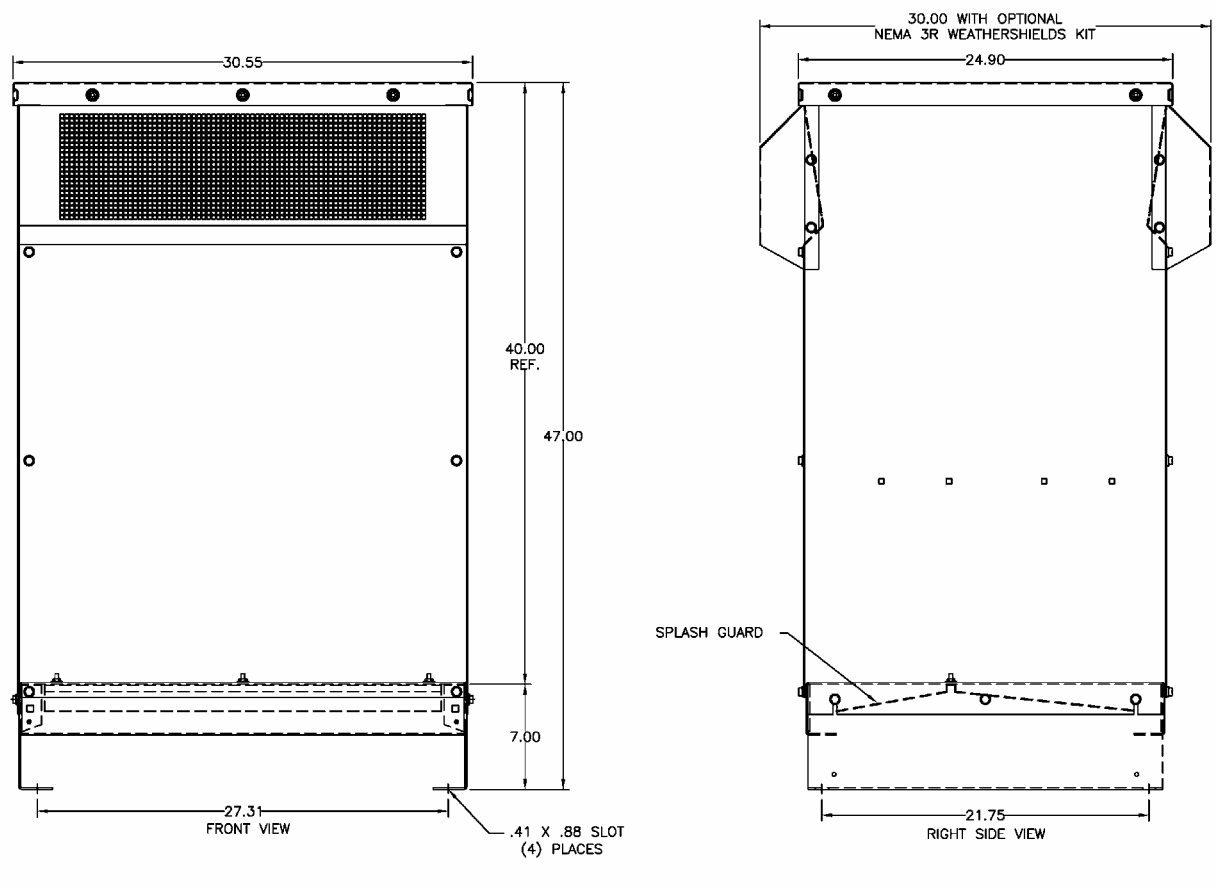

Fig. 14 Cab 30B

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ISO 7.2.3	Motor Protection (LC) Filters, 5KHz Sine-Wave Filters	TR-1702
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Revision	Date	Revision History (recorded by date on document)
---	12/28/04	New document by Wayne Walcott