

Filter Cards

Filter Cards for Single Phase Loads:
Brushed Motors, Voice Coils, and other Single Phase Loads

Filter Cards for Three Phase Loads:
Brushless Motors, Linear Motors, and other Three Phase Loads

Model Number	Inductance Line to Line	Continuous Current	Voltage Rating
FC1010	20 μ H	10A	200V
FC10010	200 μ H	10A	250V
FC15030	300 μ H	30A	400V
BFC1010	20 μ H	10A	200V
BFC10010	200 μ H	10A	250V
BFC15030	300 μ H	30A	400V
BFC15030800	300 μ H	30A	800V


FC1010

FC10010

FC15030

BFC1010

BFC10010

BFC15030

BFC15030800
Description

The FC and BFC series of filter cards have been designed to complement **ADVANCED Motion Controls'** servo drives. These filters contain two inductors for single phase loads and three inductors for three phase loads.

Inductive filter cards have two typical applications:

1. **To increase the inductance to meet the minimum load inductance requirement of *ADVANCED Motion Controls* servo drives.**

Some motors have inductances that are less than the minimum load inductance requirement for the servo drive. For example, "basket-wound" and "pancake" motors do not have a conventional iron core rotor so the winding inductance is usually less than 25 μ H. For this type of application the filter card should be sized so the total inductance of the motor plus filter card meets or exceeds the inductance requirements of the servo drive. The filter card must also be rated to the required current.

2. **To reduce the DV/DT of the motor outputs.**

The main source of emitted drive noise is the high DV/DT (typically about 1V/nanosecond) of the drive's output power stage. Unfiltered motor outputs can introduce noise in digital encoder signals. For applications with noise sensitive devices (e.g. video cameras, magnetic/capacitive sensors) the use of an external inductive filter card may reduce emitted noise.

Features

- ▲ Increases Load Inductance
- ▲ Small Size, Low Cost, Ease of Use
- ▲ Provides Dramatic Noise Reduction

Agency Approvals


US and Canadian safety compliance with UL 508c, the industrial standard for power conversion electronics. UL registered under file number E140173. Note that machine components compliant with UL are considered UL registered as opposed to UL listed, as would be the case for commercial products.



Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.

RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

Note: Most applications do not require external filters.

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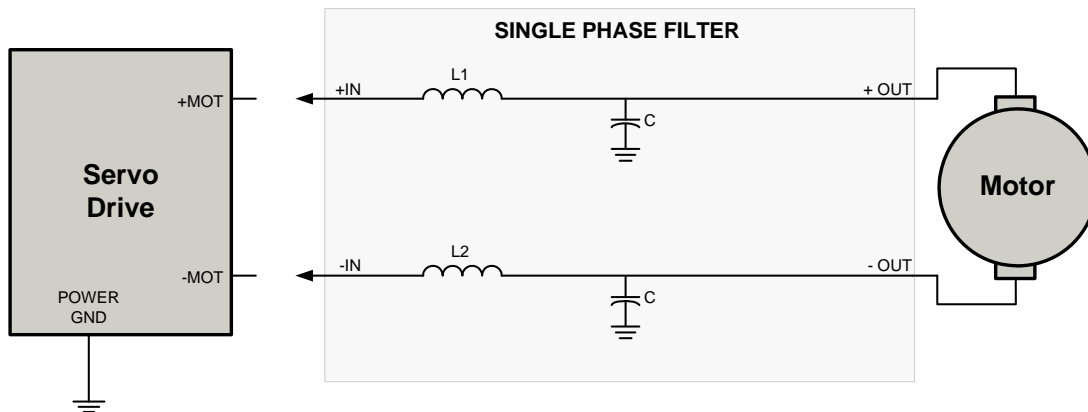
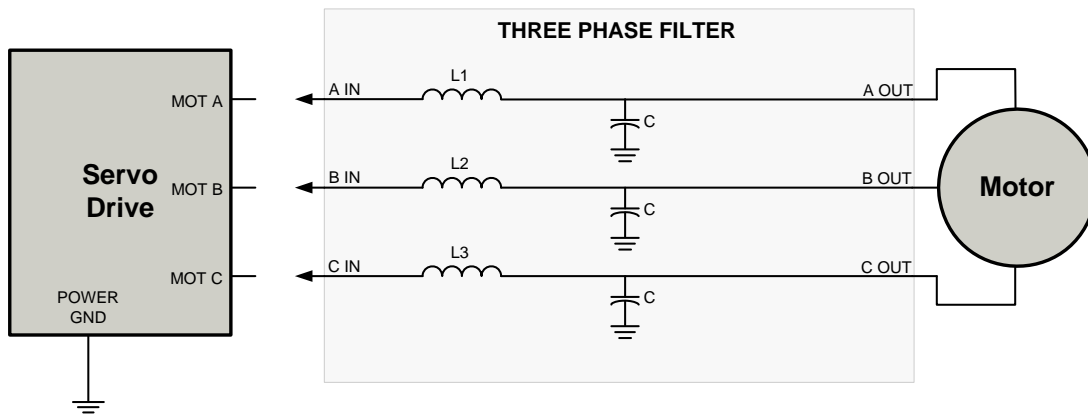
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SPECIFICATIONS

Power Specifications								
Description	Units	FC1010	FC10010	FC15030	BFC1010	BFC10010	BFC15030	BFC15030800
Inductance (Line to Line)	μH	20	200	300	20	200	300	300
Continuous Current	A	10	10	30	10	10	30	30
Voltage Rating	VDC	200	250	400	200	250	400	800
Capacitance (C)	μF	-	.01	.068	-	.01	-	-

Mechanical Specifications								
Description	Units	FC1010	FC10010	FC15030	BFC1010	BFC10010	BFC15030	BFC15030800
Connector	-	Screw Terminals						
Size (HxWxD)	mm (in)	56.5x28.0x15.8 (2.23x1.10x0.62)	65.3x51.3x25.7 (2.57x2.02x1.01)	101.6x88.9x44.5 (4.00x3.5x1.75)	56.5x28.6x15.8 (2.23x1.13x0.62)	65.3x64.8x25.7 (2.57x2.55x1.01)	134.6x113.7x43.5 (5.30x4.48x1.71)	173.7x113.7x52.4 (6.84x4.48x2.06)
Weight	kg (lbs)	0.027 (0.06)	0.14 (0.32)	0.95 (2.1)	0.037 (0.08)	0.21 (0.46)	1.43 (3.16)	1.63 (3.60)
Operating Temperature Range	°C (°F)	-40 - 75 (-40 - 167)						

BLOCK DIAGRAM



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NOTE: Capacitor is not used on all models. See Specifications above for applicable capacitance values

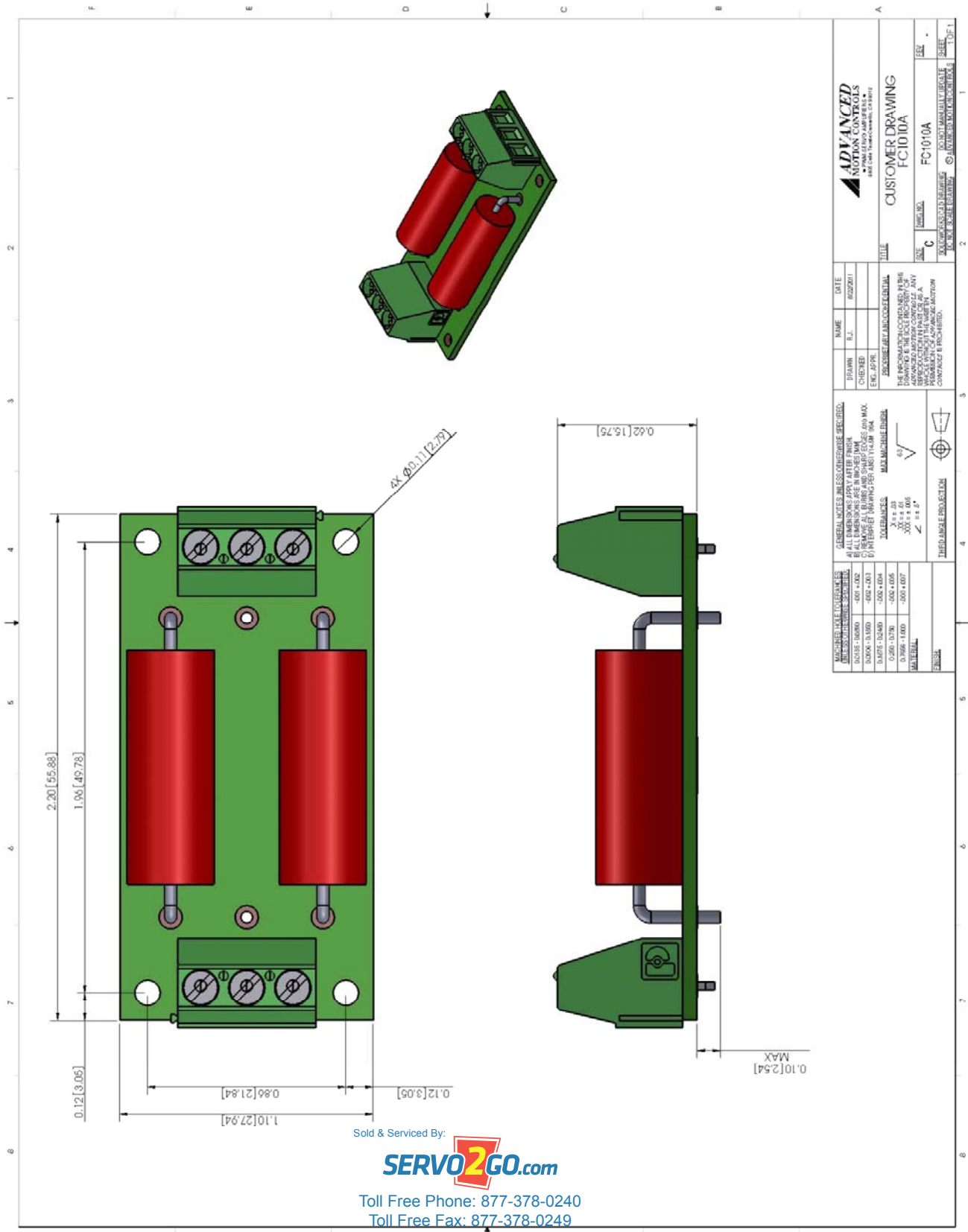
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MOUNTING DIMENSIONS



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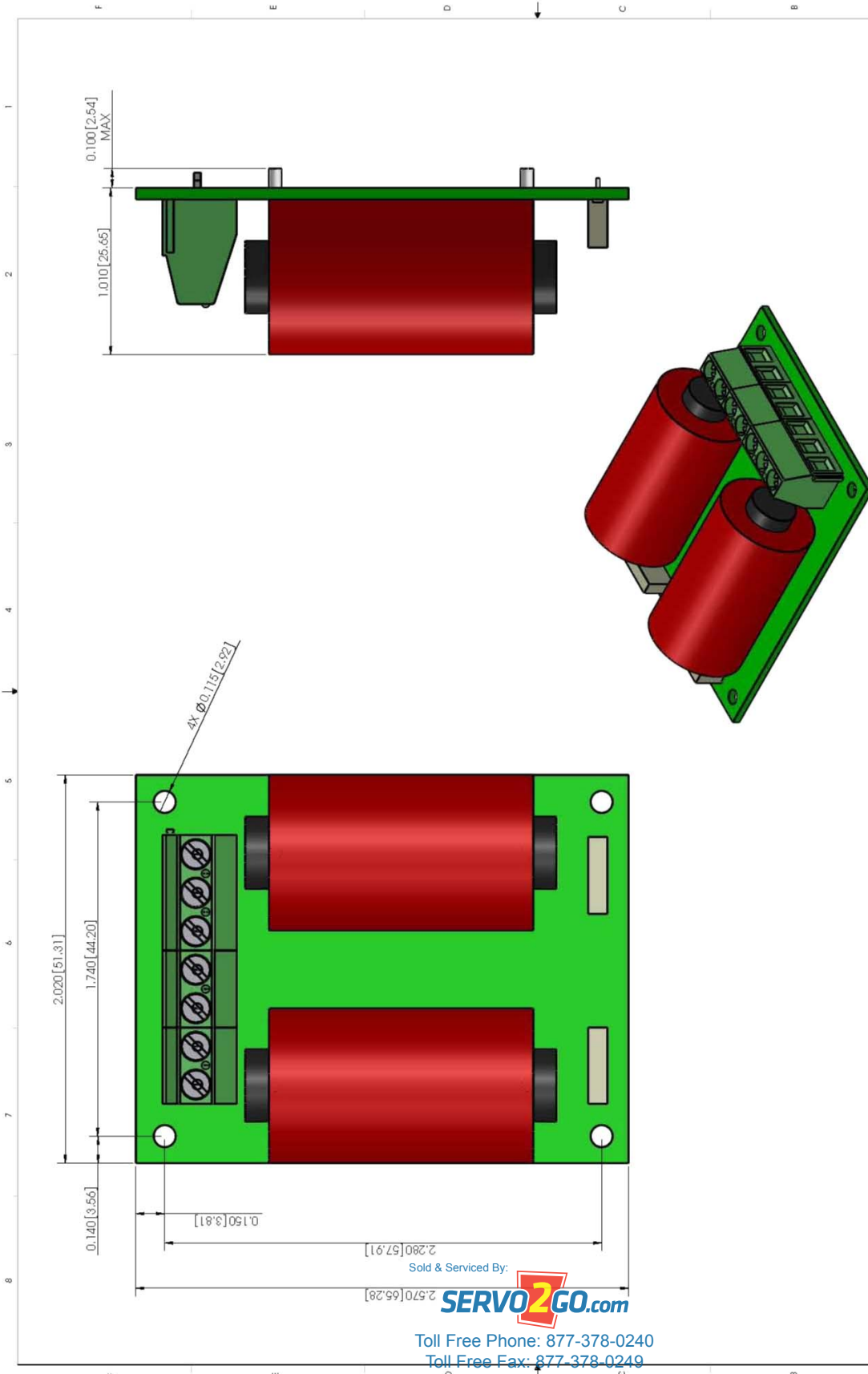


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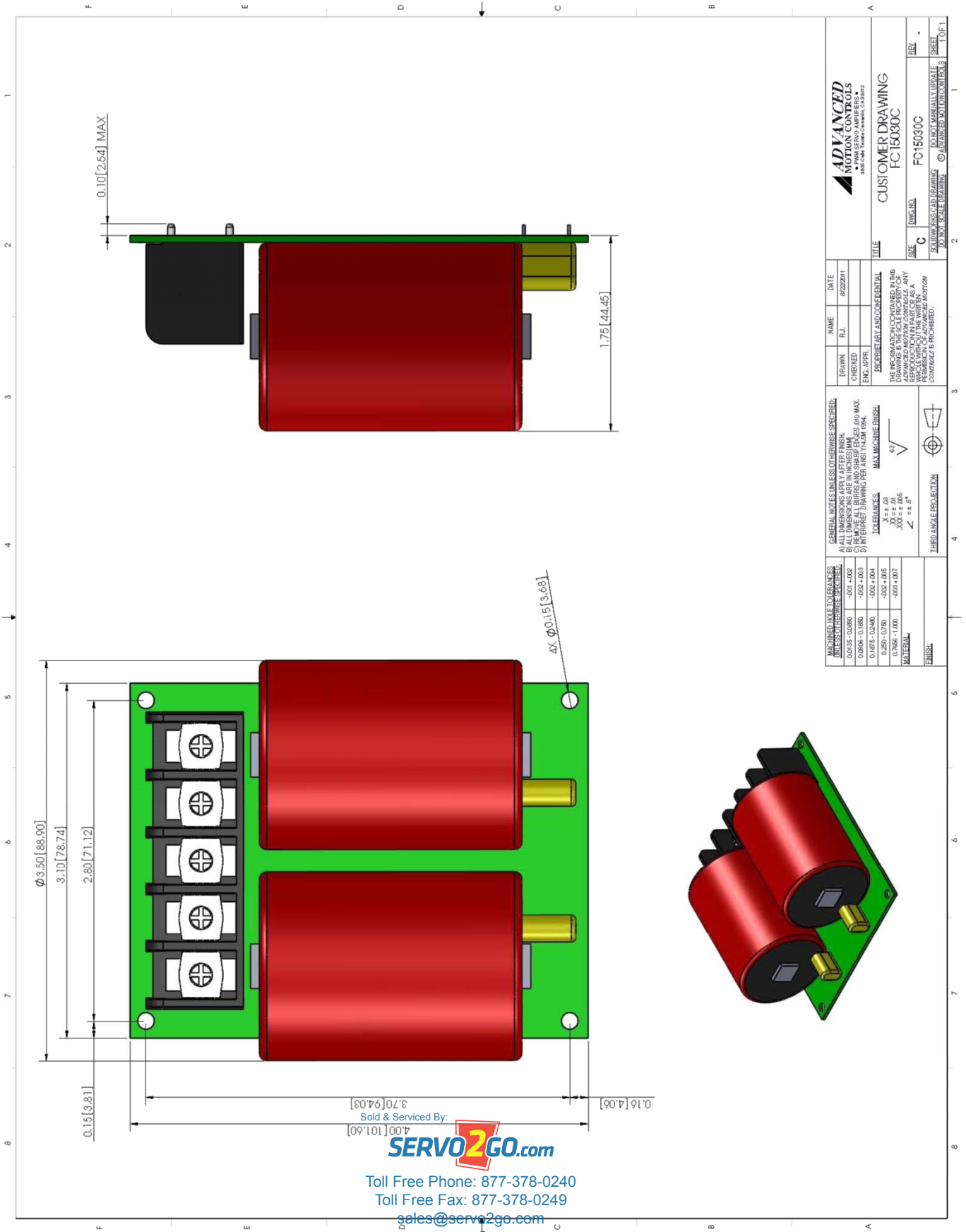
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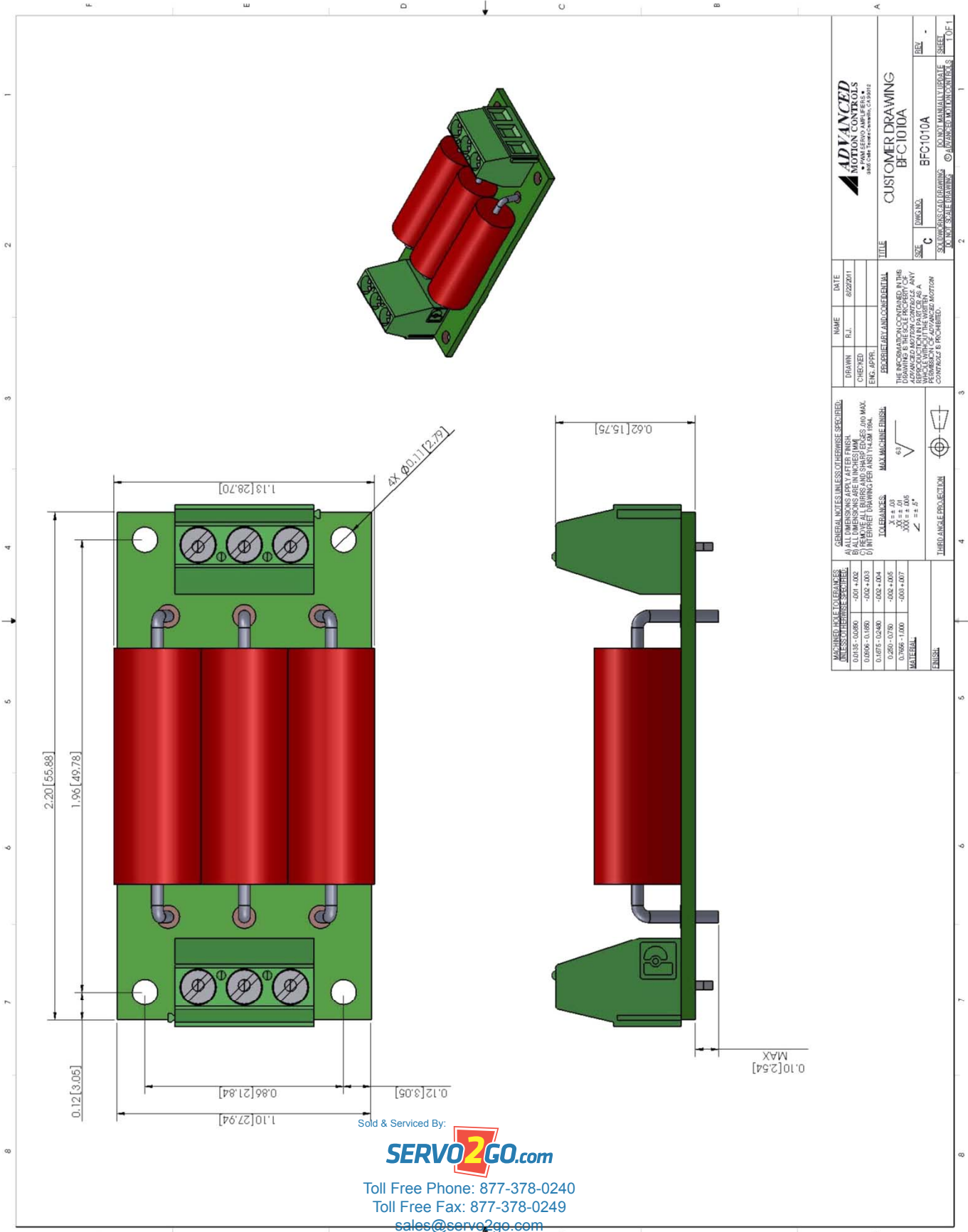
ADVANCED MOTION CONTROLS P.O. BOX 1000 1000 INDUSTRIAL DRIVE SANTA ANA, CA 92701		NAME: _____ DATE: 02/27/01
DRAWN: _____ CHECKED: _____ ENG. APPR: _____	TITLE: CUSTOMER DRAWING FC:10010	SIZE: C SHEET: 1 OF 1
GENERAL NOTES UNLESS OTHERWISE SPECIFIED: A) DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. B) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. C) REMOVE ALL BURRS AND SHARP EDGES, 0.00 MAX. D) FINISHES: DIMENSIONS PER ASHRAE 110.04.		
TOLERANCES: FRACTIONAL DECIMALS: ±0.005 DECIMALS: ±0.005 ANGLES: ±0.5° HOLE POSITION: ±0.010 HOLE DIAMETER: ±0.005 HOLE LOCATION: ±0.010		
MATERIAL: PCB: FR-4 INDUCTORS: ALUMINUM		
FINISH: UNLESS OTHERWISE SPECIFIED		
THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF ADVANCED MOTION CONTROLS. IT IS TO BE USED FOR THE MANUFACTURE OF THE PRODUCT SPECIFIED IN THIS DRAWING ONLY. ANY REUSE OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF ADVANCED MOTION CONTROLS IS PROHIBITED.		

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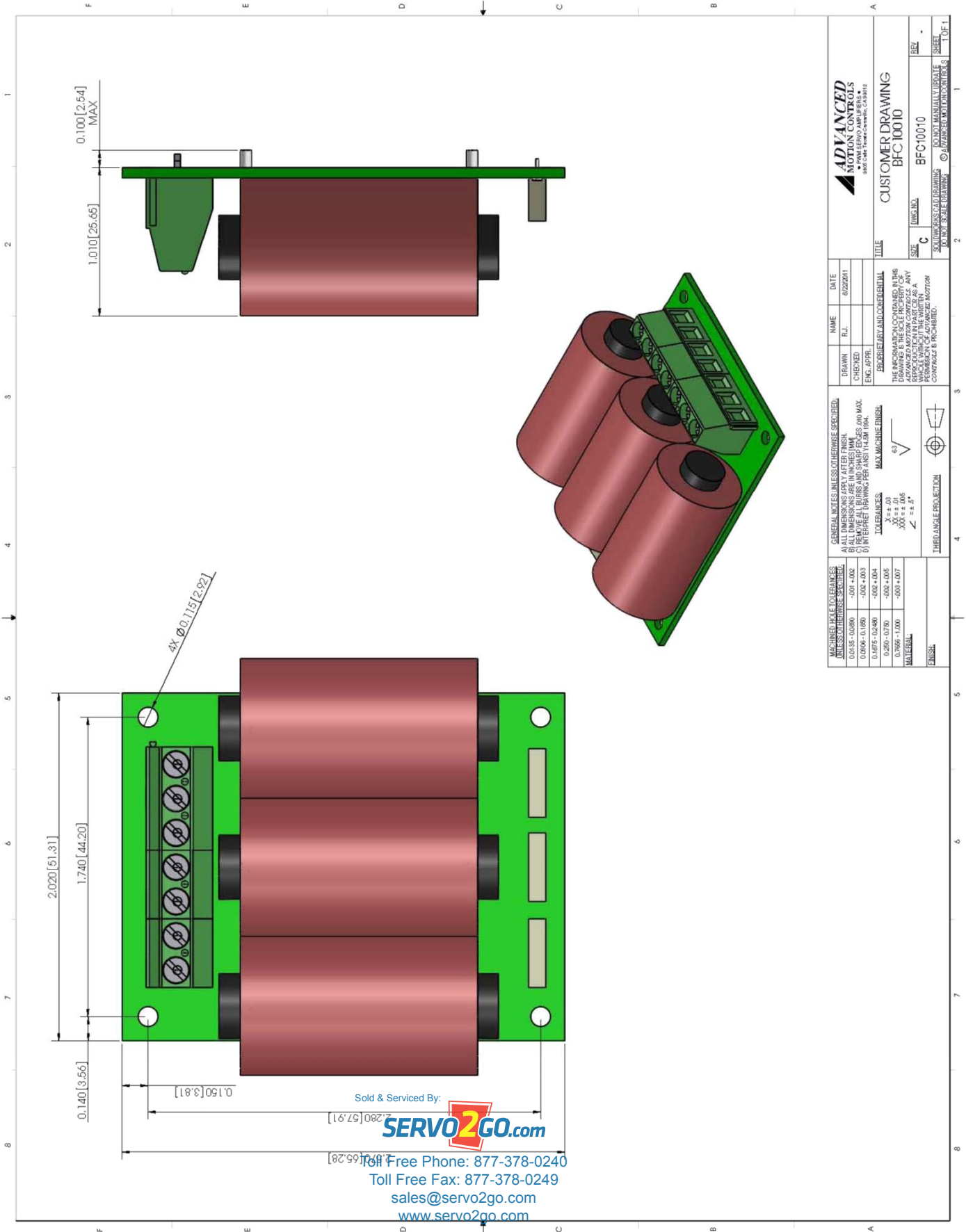
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ADVANCED MOTION CONTROLS 3000 S. 170th Street, Torrance, CA 90503	NAME: _____ DATE: 02/20/11
CUSTOMER DRAWING BFC1010A	R.L.: _____
SIZE: C	DESIGNED BY: _____
DWG. NO.: BFC1010A	CHECKED: _____
SCALE: _____	ENG. APPRO: _____
REV: _____	FOR REGULAR AND CONFIDENTIAL
SHEET: _____	OF: _____
DATE: _____	

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0.100 [2.54] MAX

1.010 [25.65]

2.020 [51.31]

1.740 [44.20]

0.140 [3.56]

4x $\phi 0.115 [2.92]$

0.150 [3.81]

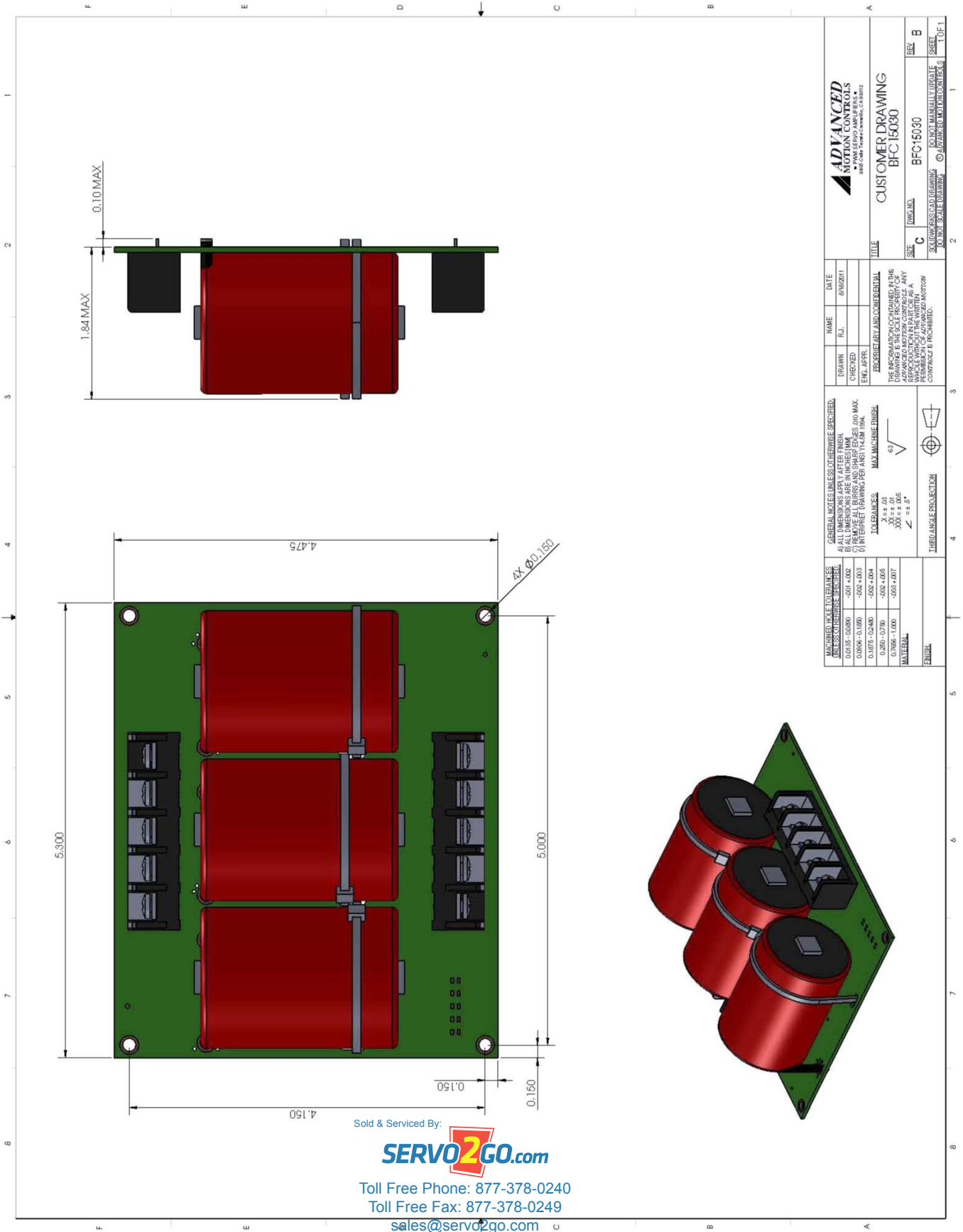
2.280 [57.91]

1.66 [42.18]

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ADVANCED MOTION CONTROLS 3800 Cedar Street • Denver, CO 80231		NAME: _____ DATE: 8/22/2011
DRAWN: _____ CHECKED: _____ ENG. APPR: _____	PROJECT: BFC10010 PROJECT: BFC10010	TITLE: CUSTOMER DRAWING BFC10010
GENERAL NOTES UNLESS OTHERWISE SPECIFIED: (A) ALL DIMENSIONS APPLY AFTER FINISH (B) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED (C) INTERPRET DRAWINGS PER ANSI Y14.5M 1994.		THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF ADVANCED MOTION CONTROLS. ANY REUSE OR REPRODUCTION OF THIS DRAWING WITHOUT THE WRITTEN CONSENT OF ADVANCED MOTION CONTROLS IS PROHIBITED.
MACHINABLE TOLERANCES UNLESS OTHERWISE SPECIFIED: 0.0135 - 0.0080 -0.01 +0.02 0.006 - 0.0060 -0.02 +0.03 0.0475 - 0.0480 -0.02 +0.04 0.250 - 0.750 -0.02 +0.05 0.7506 - 1.000 -0.03 +0.07	TOLERANCES: MAX MACHINE FINISH X ± 0.03 Y ± 0.05 Z ± 0.07 6.3	SIZE: C UNITS: IN. SCALE: AS SHOWN SHEET: 1 OF 1
FINISH: _____		THIRD ANGLE PROJECTION



Sold & Serviced By:



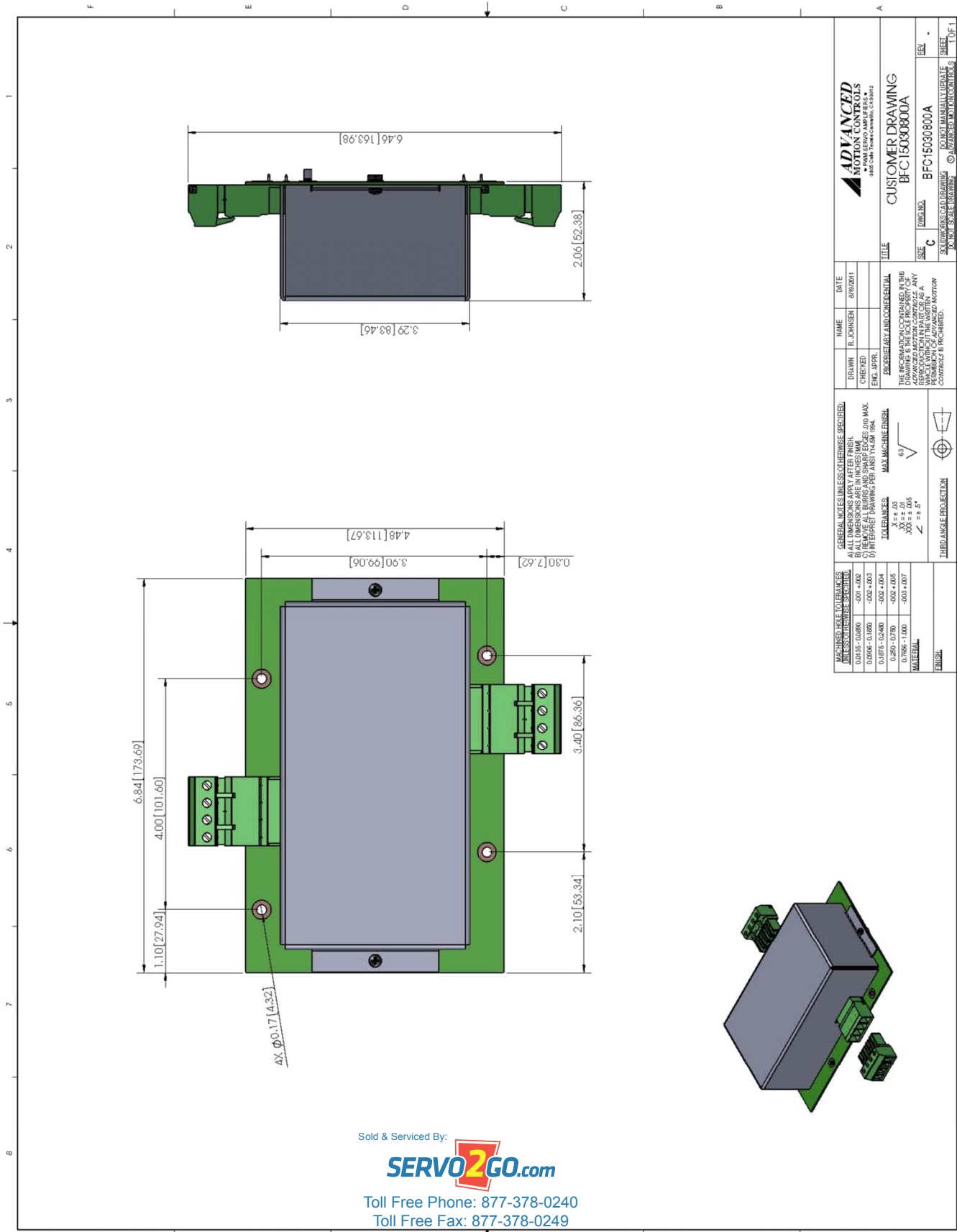
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		NAME: _____ DATE: 8/10/2011
DRAWN: _____ CHECKED: _____ ENG. APPR: _____	R.J. _____	TITLE: CUSTOMER DRAWING BFC-15030
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.		SIZE: C UNITS: IN
TOLERANCES: X = ± .03 Y = ± .05 Z = ± .06 A = ± .08 B = ± .12		REV: B SHEET: 1 OF 1



MACHINED HOLE TOLERANCES UNLESS OTHERWISE SPECIFIED:		GENERAL NOTES UNLESS OTHERWISE SPECIFIED:	
0.0135 - 0.0800	-0.01 +0.02	A) ALL DIMENSIONS APPLY AFTER FINISH.	1) THIS DRAWING IS THE PROPERTY OF ADVANCED MOTION CONTROLS. IT IS TO BE USED ONLY FOR THE PARTS MANUFACTURE AND REPRODUCTION IN THE SAME QUANTITY AS ORDERED.
0.0806 - 0.1600	-0.02 +0.03	B) UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS SHALL BE TO 0.005 MAX.	2) INTERPRET DRAWING PER ANSI Y14.5M 1984.
0.1675 - 0.2400	-0.02 +0.04	C) REFERENCE ALL DIMENSIONS TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.	3) THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ADVANCED MOTION CONTROLS. ANY REPRODUCTION IN ANY MANNER WITHOUT PERMISSION IS PROHIBITED.
0.250 - 0.750	-0.02 +0.05	D) TOLERANCES:	4) ADVANCED MOTION CONTROLS ASSUMES NO LIABILITY FOR DAMAGE TO PROPERTY OR PERSONS IN CONNECTION WITH THE USE OF THIS DRAWING. CONTRACTS & CONDITIONS PREVAIL.
0.7506 - 1.000	-0.03 +0.07	MAX. MACHINE FINISH	
		AS ± 0.03	
		3X ± 0.05	
		FINISH: $\sqrt{\quad}$	
		THIRD ANGLE PROJECTION	

 ADVANCED MOTION CONTROLS 880 CHESTER DRIVE TAYLOR, MISSOURI, USA 64686		TITLE CUSTOMER DRAWING BFC 16030800A
DRAWN: R. JOHNSON DATE: 8/18/2011 CHECKED: [blank] ENG. APPROV: [blank]	NAME: [blank] TITLE: [blank]	SIZE: C DWG. NO.: BFC-16030800A
DON'T SCALE DRAWING		DON'T MANUALLY SCALE SHEET 1 OF 1

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CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- ▲ Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- ▲ No Outer Case
- ▲ Increased Current Resolution
- ▲ Increased Temperature Range
- ▲ Custom Control Interface
- ▲ Integrated System I/O
- ▲ Tailored Project File
- ▲ Silkscreen Branding
- ▲ Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- ▲ Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



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