

Shunt Regulators

The SRST Series shunt regulator assemblies are designed to work with **ADVANCED Motion Controls**' four quadrant regenerative servo drives. During braking most of the stored mechanical energy is fed back into the power supply, which charges the output capacitor to a higher voltage. If the charge reaches the drive's over-voltage shutdown point, motor control and braking will cease. To ensure smooth braking of large inertial loads the use of a shunt-regulator is recommended. Verify the need for a shunt regulator by operating the drive under the worst case braking condition. If the drive shuts off due to over-voltage (blinking red LED) a shunt regulator is necessary (typically during downward move or deceleration).

Model Number	Rated Dissipation Capability	Clamping Voltage
SRST50	95 W	50 VDC
SRST70	95 W	70 VDC
SRST80	95 W	80 VDC
SRST90	95 W	90 VDC
SRST175	95 W	175 VDC
SRST185	95 W	185 VDC
SRST380	190 W	380 VDC
SRST400	190 W	400 VDC



SRST50, 70, 80, 90, 175, 185



SRST380, 400

Operation

When the DC Bus reaches the shunt voltage of the shunt regulator assembly, the voltage comparator unit turns on the electronic switch, which connects the R1 power resistor across the DC Bus. This power resistor dissipates the energy from the DC Bus. After the bus voltage is reduced to less than the shunt voltage setting the resistor is disconnected from the bus. A small hysteresis loop allows time between switching. The SRST assemblies are available with standard shunt voltages of 50, 70, 80, 90, 175, 185, 380, and 400 volts.

Models SRST50, 70, 80, 90, 175, 185 are designed for use with servo drives up to 200 volts. These models have a 200 VDC, 1200 μ F filter capacitor in them.

Models SRST380 and SRST400 are designed for use with servo drives up to 400 volts. These models have a 450 VDC, 330 μ F filter capacitor in them.

Contact factory for custom trip voltages.

Features

- ▲ Dissipates Excess Kinetic or Potential Energy to Prevent Drive Over-Voltage Shut Down
- ▲ Small Size, Low Cost, Ease of Use

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 EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 for Emissions, Class A and EN 61000-6-2:2005 for Immunity, Performance Criteria A). LVD requirements of Directive 2006/95/EC (specifically, EN 60204-1:2004, a Low Voltage Directive to protect users from electrical shock).



The RoHS II Directive 2011/65/EU restricts the use of certain substances including lead, mercury, cadmium, hexavalent chromium and halogenated flame retardants PBB and PBDE in electronic equipment.

SPECIFICATIONS

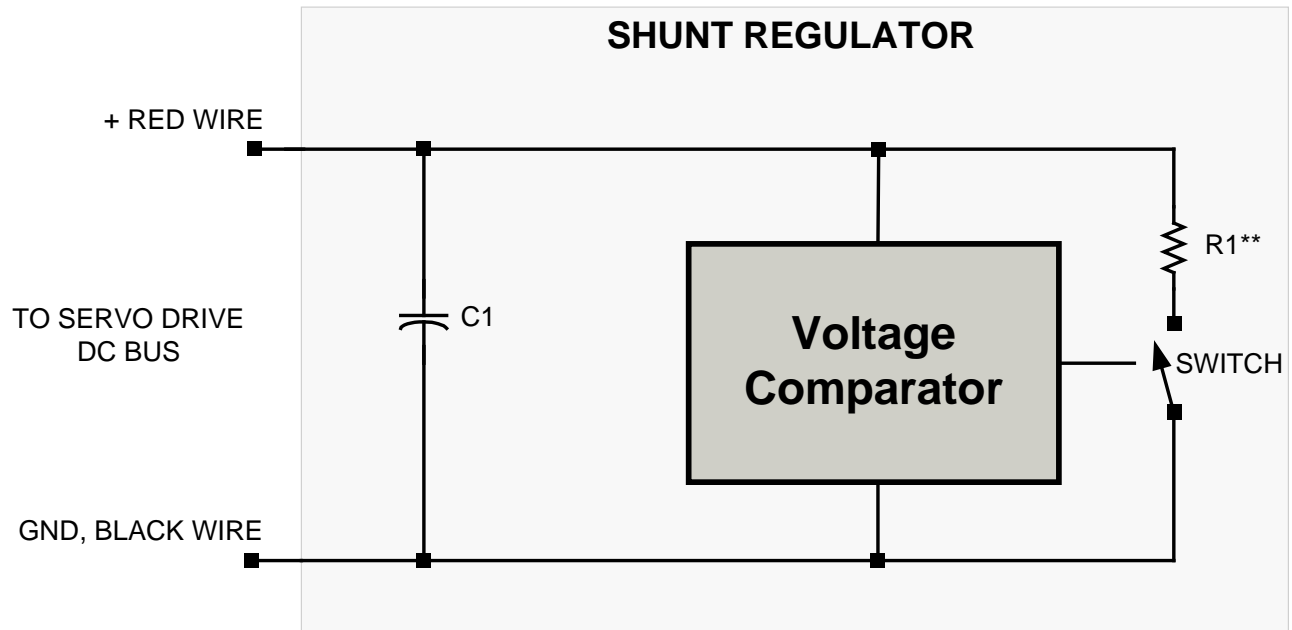
Power Specifications			
Description	Units	For Shunt Voltages Under 200 V	For Shunt Voltages Over 200 V
Fuse	-	3 A Motor Delay rated @ 250 VAC	
Filter Capacitance (C1) ¹	μF	1200	330
Dissipation Capabilities	W	95	190
Resistance (R1)	Ω	5	20

Mechanical Specifications			
Description	Units	For Shunt Voltages Under 200 V	For Shunt Voltages Over 200 V
Size (H x W x D) ²	mm (in)	203.2 x 108.0 x 66.70 (8.00 x 4.25 x 2.63)	203.2 x 108.0 x 54.0 (8.00 x 4.25 x 2.13)
Weight	g (lbs)	385.55 (0.85)	453.59 (1.00)

Notes

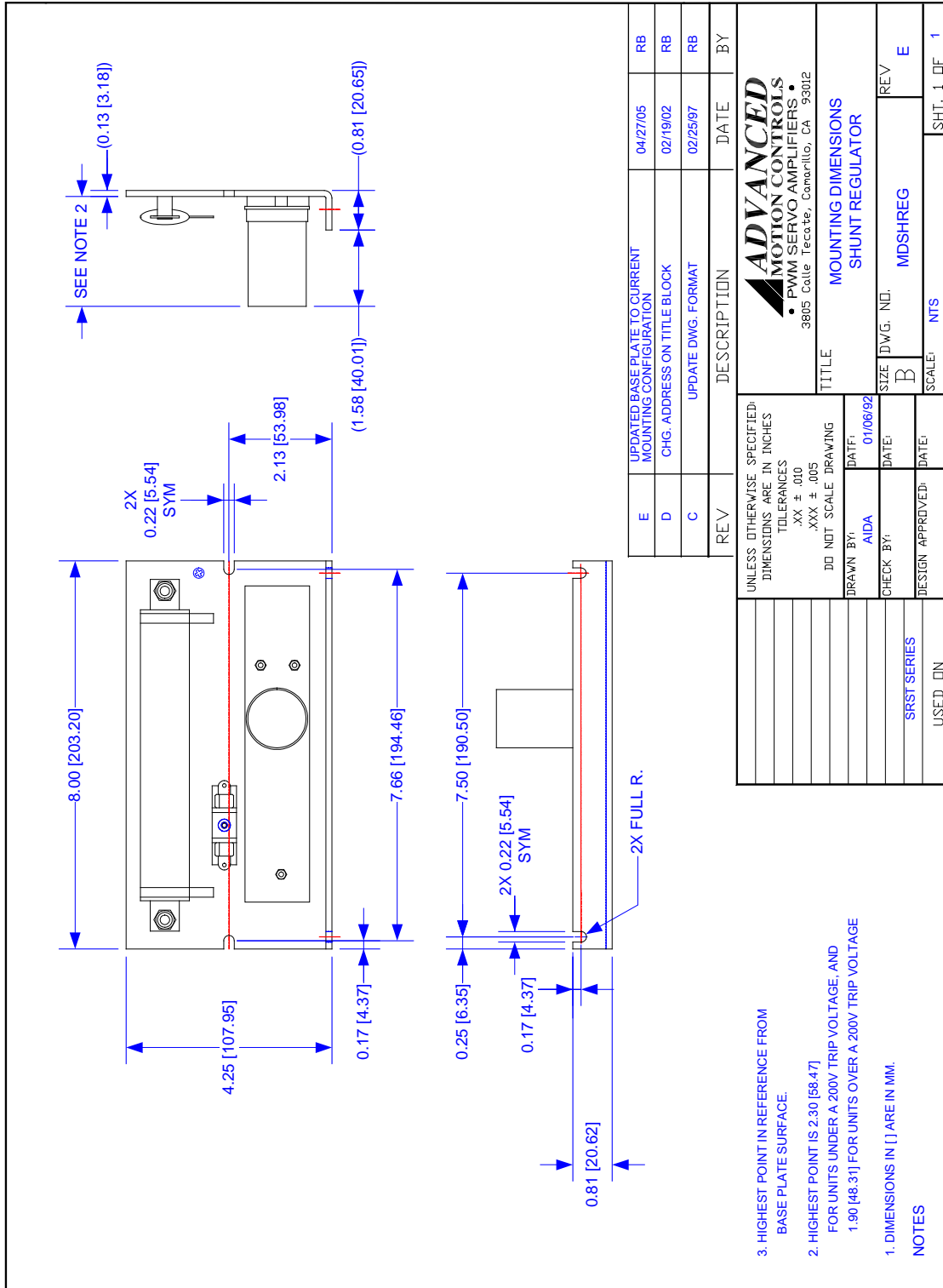
1. Filter capacitance will add to existing DC Bus capacitance. Increased inrush current may occur as a result.
2. Worst-case depth dimension. See mounting dimensions for additional details.

BLOCK DIAGRAM



**Resistor Value Depends on Model

MOUNTING DIMENSIONS



E	UPDATED BASE PLATE TO CURRENT MOUNTING CONFIGURATION	04/27/05	RB
D	CHG. ADDRESS ON TITLE BLOCK	02/19/02	RB
C	UPDATE DWG. FORMAT	02/25/97	RB
REV	DESCRIPTION	DATE	BY

<p>ADVANCED MOTION CONTROLS • PWM SERVO AMPLIFIERS • 3805 Calle Tecate, Camarillo, CA 93012</p>	
TITLE	
MOUNTING DIMENSIONS SHUNT REGULATOR	
SIZE	DWG. NO.
B	MDSHREG
SCALE	NTS
REV	E
SHT. 1	DF 1

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
.XX ± .010
.XXX ± .005
DO NOT SCALE DRAWING

DRAWN BY: AIDA DATE: 01/06/92

CHECK BY: DATE:

DESIGN APPROVED: DATE:

SRST SERIES USED ON

3. HIGHEST POINT IN REFERENCE FROM BASE PLATE SURFACE.

2. HIGHEST POINT IS 2.30 [58.47] FOR UNITS UNDER A 200V TRIP VOLTAGE, AND 1.90 [48.31] FOR UNITS OVER A 200V TRIP VOLTAGE

1. DIMENSIONS IN [] ARE IN MM.

NOTES

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



All specifications in this document are subject to change without written notice. Actual product may differ from pictures provided in this document.