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# Operators Manual SR



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# WARNINGS

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## **Safety Notes:**

When working on electric vehicles, sudden unexpected events can occur, it's recommended to:

- Place the drive axle on jack stands—wheels off the floor.
- When working on wiring or batteries, always remove rings and watches.
- Use the proper safety equipment, eye protection, and insulated tools.
- Never connect a computer while the vehicle is being charged.
- Disconnect batteries before installing or working on the controller.
- Wear safety glasses.
- Because hydrogen can build up due to gassing from the batteries, work in a well ventilated area.
- Make sure the battery pack is fused.
- Do not clean the controller with a high PSI pressure washer.
- When cleaning batteries, take precautions to keep the battery acid from splashing on the controller.

Note:

It is the installer's responsibility to ensure the correct equipment (ie. wire, motor, solenoid, fuse etc) is installed in the car.

## **READ AND SAVE THESE INSTRUCTIONS**

# USABILITY STATEMENT

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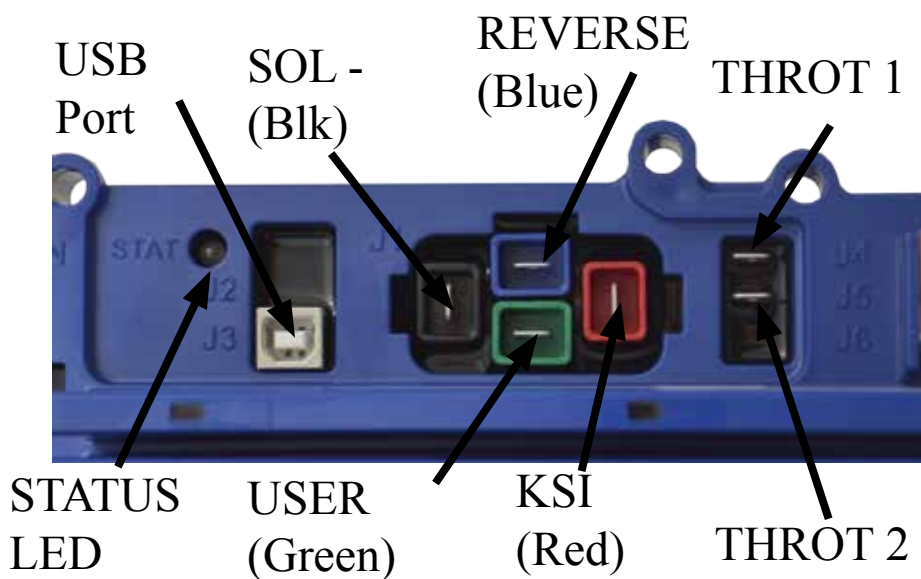
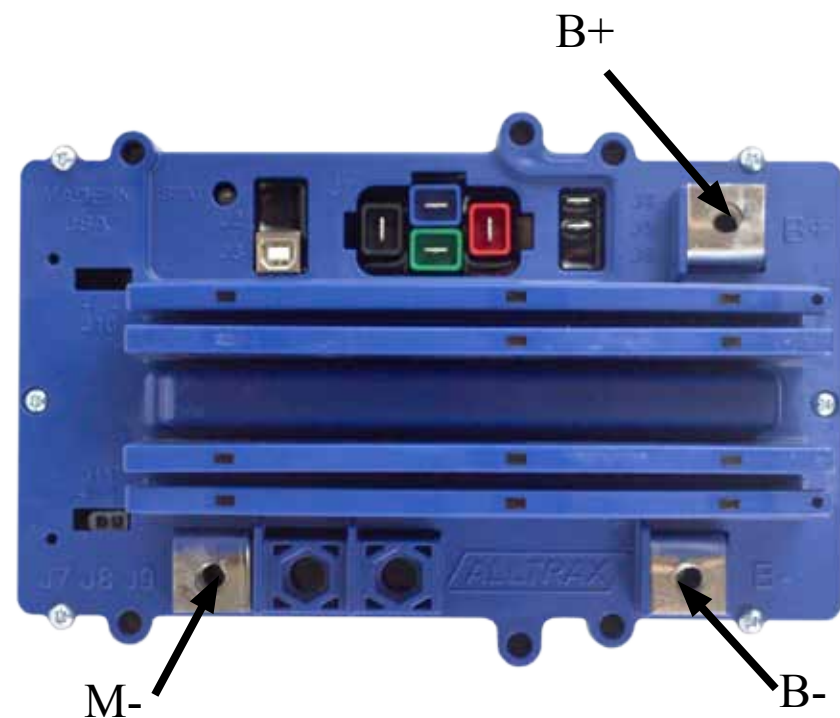
Alltrax Inc's lines of Series and Shunt Motor Controllers are intended for use with motors only. Any application or usage that does not meet these criteria WILL NOT be covered by warranty. Also, any requests for design assistance or technical support outside the scope of the product intended use may be denied. Alltrax assumes no liability for any damage or injury as a result of use of the motor controllers in a non-traction or process motor application.

**WARNING:** Use of this product for other than these specified uses may be highly dangerous and lead to serious injuries or death.

**WARNING:** The use of this product for the production of Plasma Assisted Hydrogen, Brown's Gas, HHO (H<sub>2</sub>O Hydrogen Electrolysis) or any other type of gas is prohibited. Generation and storage of these gasses is extremely dangerous and poses a significant risk of explosion, fire, property damage and serious injury or death.

# SR LAYOUT

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# SR SPECIFICATIONS

Model	Peak (Amps)	2 Min (Amps)	5 Min (Amps)	Continuous (Amps)
SR48300	300/350 <sup>1</sup>	300 (1.5min)	230	125
SR48400	400/460 <sup>1</sup>	400	300	140
SR48500	500/575 <sup>1</sup>	500	350	175
SR48600	600/690 <sup>1</sup>	600	425	210
SR72300	300/350 <sup>1</sup>	300	275	130
SR72400	400/460 <sup>1</sup>	400 (1.5min)	300	150
SR72500	500/575 <sup>1</sup>	500	400	210

Note<sup>1</sup>: The larger number represents the value when the “Peak Amp Mode” is enabled in the Alltrax Toolkit program.

All ratings are at 25°C with nominal rated voltages at 50% PWM. Actual currents are ±5% listed rating

**Type:** Series Motor Controller

**Operating Frequency:** 18kHz

**Controller Voltage, KSI & Reverse:**

SR48XXX 12-48V nom, 62V max

SR72XXX 12-72V nom, 90V max

**Controller Operating Temp:** -20°C to 75°C, shutdown @ 85°C

**Environmental Operating Temp:** -20°C to 50°C

**Stand by Power (Power up):** <1W nom, <8W Fan on

**Stand by Current:** <20mA

**Relay Drive Current:** 5A peak, 1A Cont.

**KSI Peak In Rush:** 60V = 9A, 30V = 4A, 9.5V = 2A

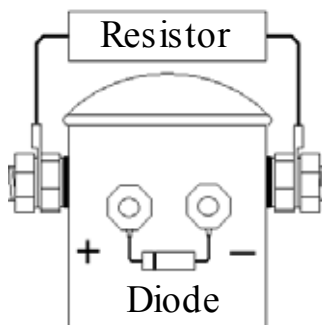
**Throttles Supported:** 0-5k, 5k-0, E-Z-GO ITS, Club Cart 5k-0 3 Wire (MCOR), 0-5v, Taylor Dunn 6v-10.5v, USB Throttle, Absolute Mode

**Terminal Torque:** Torque to 60-80 in.lb (5-7 ft/lb, 6.77-9.4Nm)

**Mounting Bolt Torque:** Torque bolts to 15-20 in.lb (1.25-1.75 ft.lb, 1.7-2.25nm)

# INSTALLATION

## Resistor & Diode Mounting



The diode across the coil terminals safely dissipates the energy when the coil is turned off. Installation Dependant, refer to applicable drawing.



Contactor Size	Diode	Diode Current
70A-200A Solenoid	1N4004	1A
400A-550A Solenoid	1N5408	3A
600A or larger Solenoid	MR754	6A

The resistor typically seen across the contactors big terminals pre-charges the filter capacitors in the controller. This minimizes arcing across the contactor terminals when closing.

Battery Voltage	Resistor
12-36V	220-250 Ohm 10W
48V	470 Ohm 10W
72V	1000 Ohm 10W





## ***F/R Switch***

The forward/reverse switch is an often overlooked part of the upgrade process. In a series motor, all of the motor current will pass through the F/R switch. An undersized F/R Switch is as bad as an undersized solenoid or small wire gauge.

For higher amperage controllers (>600A), it is suggested that a change-over contactor set up be used. These are large enough to handle the higher currents without over heating the contacts and they provide the user the ability to change direction by flipping a switch.

<b>Controller Amperage</b>	<b>F/R Size</b>
400A or less	Stock/HD
450A to 650A	Heavy Duty/Change-Over Contactor
650A or more	Change-Over Contactor



Change-over contactors are multiple contactors bound together that allow the user to change the polarity of the voltage going to the motor thus reversing direction. It works exactly the same as the manual F/R switch, except that it uses coil drive contactors. See the installation drawings for how to wire a change-over contactor.

## ***Contactors (Solenoids)***

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The solenoid is the primary disconnect of the battery pack in the case of the an emergency. In order to be effective, the solenoid needs to be properly rated for the current that will be drawn from the batteries. It is VERY important that the solenoid be rated correctly. It is the only way to disconnect the batteries from the motor/controller loop in case of a failure. Too small of a solenoid increases the likelihood that the contacts will weld together and not be able open.

### **UNACCEPTABLE**



#### **Stock 70 AMP**

Used with older ClubCars  
vehicles

**DO NOT Use with  
Alltrax Controller**

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### **STANDARD DUTY**

Flat lands with moderate speed and torque performance expectations.



#### **Stock 100 AMP**

Use with 300A controllers.

## HEAVY DUTY

High performance, high speed, maximum torque, pulling loads, hilly terrain or Hunting Buggies.



**Performance 200 AMP**  
(600amp Inrush) Use with 300  
and 400 AMP Controllers



**Heavy Duty 200 AMP**  
(800A surge) Use with 300 to  
500 AMP Controllers



**Heavy Duty 400 AMP**  
(1000A surge) Use with 500 and  
600 AMP Controllers  
Suggested types:  
SW200  
MZJ400 (Shown)

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## EXTREME DUTY



**Extreme Duty 600A+ AMP**  
(1000A + surge) Use with 600  
AMP or bigger Controllers.

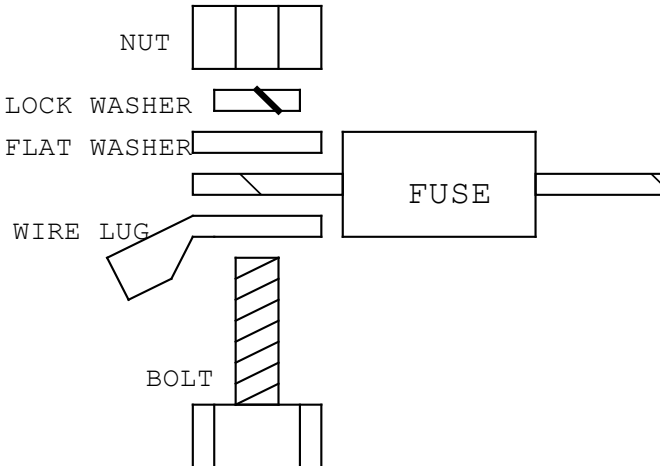
## Fuse

Any application where there is a battery pack, a fuse must be installed. A fuse will open the battery circuit and prevent any serious damage from occurring.

The fuse should be installed on or between the battery terminals. The main B+, B- or in-between 2 batteries is an acceptable location. The fuse must be rated for pack voltage and fault current.



Controller Amperage	Fuse Rating
400A or less	250A
450A to 650A	400A
650A or more	600A



**Diagram: Fuse terminal hardware**

## **Wiring**

Wiring and battery health in an electric vehicle are very important and overlooked during performance upgrades. Wiring size is important for safety and proper operation of the vehicle. Undersized wires will affect the performance of controllers and can overheat. Wires should be crimped with proper sized terminals and tools to provide a clean low resistance connection.

Controller	Min. Wire AWG Standard Duty	Min. Wire AWG Heavy Duty
300A	OEM -6 AWG	4 AWG
400A	4 AWG	4 AWG
500A	2 AWG	1/0 AWG
600A	1/0 AWG	2/0 AWG

### **Power Wiring**

When running wiring for the vehicle care must be taken for proper wire routing. Power wiring should be of proper sizing and ran as low in the framework of the vehicle as practical. Lengths of power wire runs need to be kept short and pairs of wires from common circuits should be grouped together to reduce EMC emissions. Secure all power wiring to the vehicle framework.

### **Signal Wiring**

Signal wires should be keep as short as practical. Care should be taken to protect the wires sharp edges and rubbing. Consider the use of split loom or braided wire sheathing. Fasten bundles securely to framework. Do not route the signal wires together in the same bundle with power wires. All safety interlocks (KSI, Footswitch, etc) need to be mechanical switches or electromechanical relay.

# **INSTALLATION DRAWINGS**

See our Website more drawings:

Full Sized & Updated

Other OEM Drawings

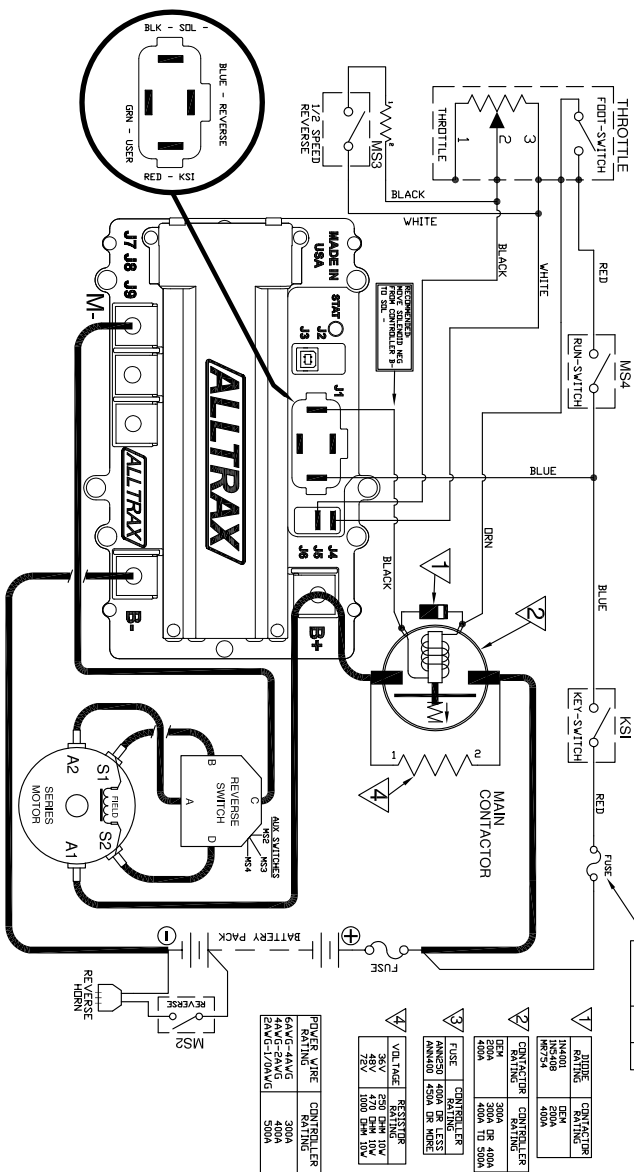
More Generic Wire Diagrams

Non Standard Throttle Wiring

## PRE-1994 EZGO

SR to E-Z-GO TXT

YEAR: PRE- 1994.5 -- 1204 REPLACEMENT



### NOTES:

- FUSES REQUIRED FOR ALL INSTALLATIONS
- DIMMER REQUIRED ACROSS DIMLS / RELAYS
- KSI IS REQUIRED TO BE A SWITCHED INPUT, NOT RESISTIVE
- ASSUMES EDI SWITCH IS OPEN WHEN THROTTLE OFF
- ALL TAXI RESERVES THE RIGHT TO CHANGE DOCUMENTATION WITHOUT NOTICE
- ALL TAXI MAKES NO WARRANTY AS TO THE ACCURACY, SUFFICIENCY, OR SUITABILITY OF ANY TECHNICAL, OR OTHER INFORMATION PROVIDED
- SEE OPERATORS MANUAL FOR MORE INFORMATION

REVISIONS	DWG SCALE: NTS

REV.	ECO.	DATE	APVD
			DRAWN R CSUK 03/31/16
			ENGR D.Crockett 03/31/16

PROPRIETARY		
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DO NOT SCALE DRAWING

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**TITLE**  
**SR to EZGO Pre-1994 Medalist**  
**Writing Diagram**

SIZE	DOCUMENT NO.	REV.
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A	5	DOC110-040	B
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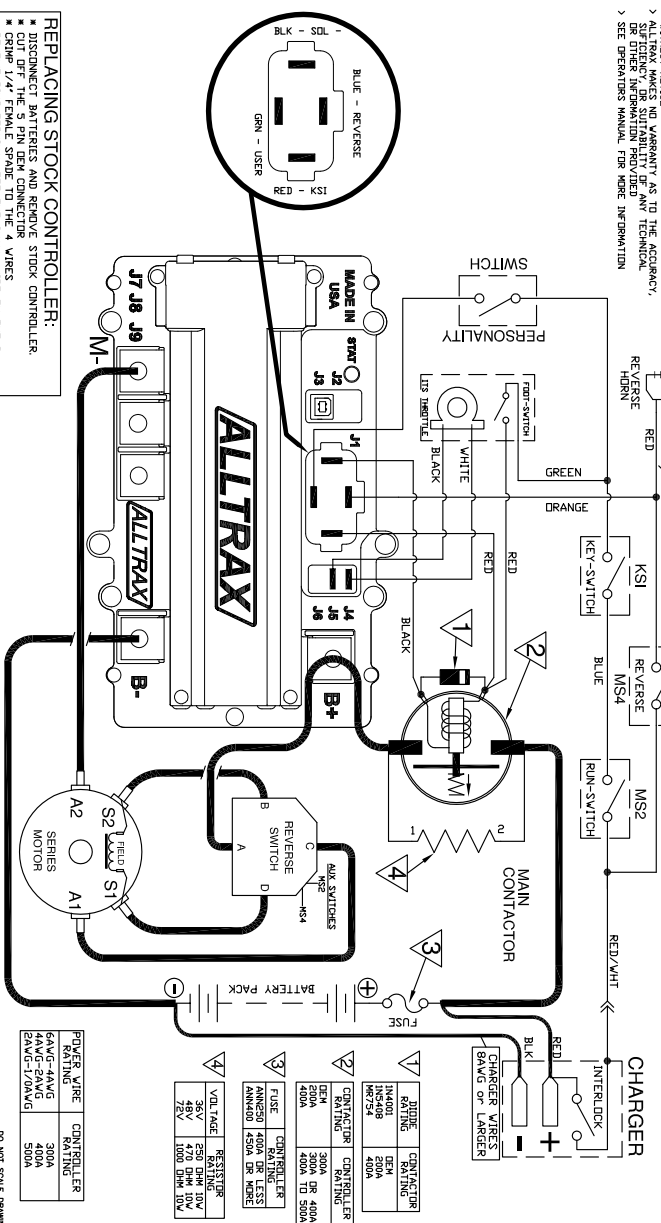
# 1994 AND NEWER EZGO

## NOTES:

- WIRING REQUIRED FOR ALL INSTALLATIONS
- WIRING REQUIRED ACROSS COILS / RELAYS
- WIRING REQUIRED TO BE A SWITCHED INPUT NOT RESISTIVE
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## SR to E-Z-GO TXT

### YEAR: 1994.5 TO PRESENT -- 1206 REPLACEMENT



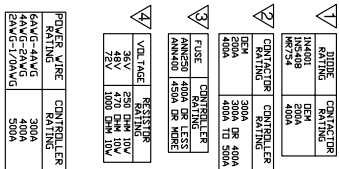
See Stock-Officer-A

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PART NO. DDC110-036



SR to CLUB CAR DS  
YEAR: 1995 TO PRESENT

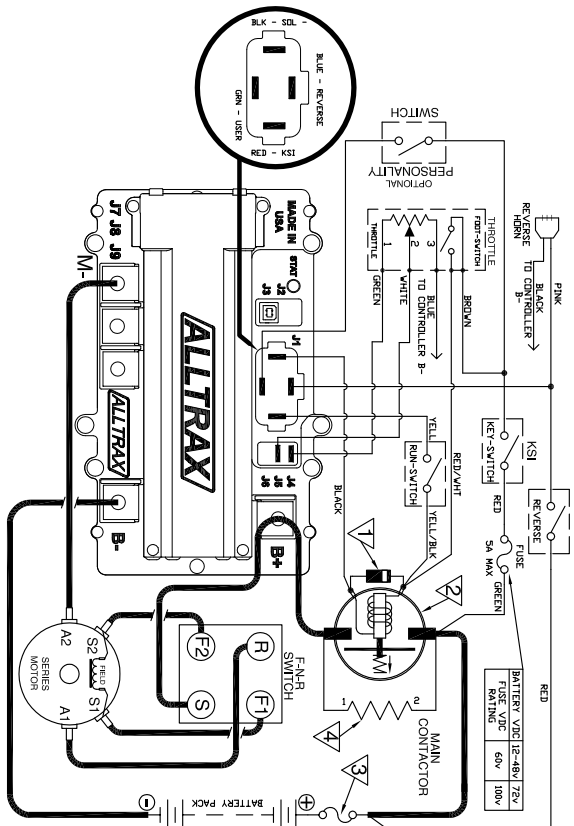


- FUSES REQUIRED FOR ALL INSTALLATIONS
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# YAMAHA - G8, G9, G14, G16

## SR to YAMAHA G8/G9/G14/G16



### NOTES:

- FUSES REQUIRED FOR ALL INSTALLATIONS
- BIDDIE REQUIRED ACROSS COILS / RELAYS
- ASSUMES FIDDISWITCH IS OPEN WHEN THROTTLE OFF
- ALTRAX RESERVES THE RIGHT TO CHANGE DOCUMENTATION
- ALTRAX MAKES NO WARRANTY AS TO THE ACCURACY, DURABILITY, OR SUSTAINABILITY OF ANY TECHNICAL INFORMATION
- SEE OPERATORS MANUAL FOR MORE INFORMATION

### REPLACING STOCK CONTROLLER:

- REMOVE BATTERIES AND CONTROLLER. CUT OFF WIRES FLUSH WITH FACETPATE OF OLD CONTROLLER
- GRIND OFF THE END OF THE TEL/BLK WIRE. CONNECT TO STAINLESS WITH RED/WHITE WIRE.
- GRIND 1/2" RING TERM ON GREEN WIRE. CONNECT TO B-
- GRIND 1/2" RING TERM ON THE END OF THE GREEN WIRE. CONNECT TO B-
- REMOVE RING TERMINAL FROM BLACK WIRE FROM STAINLESS AND GRIND 1/4" FEMALE SPARE AND CONNECT AS SHOWN
- DRILL NEW MOUNTING HOLES IF NECESSARY
- CONNECT LUGS WIRES TO CONTROLLER AS FOLLOWS:
  - > RECONNECT THROTTLE SENSOR PLUG AND PINK WIRE
  - > ADD RESISTOR ACROSS STAINLESS (NOT INCLUDED)
  - > ADD BIDDIE ACROSS STAINLESS COIL (NOT INCLUDED)

### REPLACING AXC CONTROLLER

- GRIND 1/4" FEMALE SPARE TO GREEN WIRE. CONNECT TO J5 (GND EXTENSION IF NECESSARY)
- REPLACE SPARE ON BLUE WIRE WITH 1/2" RING TERM AND MOVE TO B-

DIODE	CONTACTOR
IN4001	SEM
MB754	400A
CONTACTOR	CONTACTOR
RATING	RATING
300A OR 400A	300A OR 400A
400A TO 500A	400A TO 500A
FUSE	CONTACTOR
RATING	RATING
400A OR LESS	400A OR LESS
450A OR MORE	450A OR MORE
VOLTAGE	RESISTOR
36V	250 OHM 10W
75V	1000 OHM 10W
100V	1000 OHM 10W
POWER WIRE	CONTROLLER
6AWG-4AWG	300A
4AWG-2AWG	400A
2AWG-1/0AWG	500A

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B	032217	032217	RC				

REV	ECO	DATE	APPD	DRWN	R	CSLK	INTS
A	033016	033015	RC	031118			
B	032217	032217	RC				

REV	ECO	DATE	APPD	DRWN	R	CSLK	INTS
A	033016	033015	RC	031118			
B	032217	032217	RC				

REV	ECO	DATE	APPD	DRWN	R	CSLK	INTS
A	033016	033015	RC	031118			
B	032217	032217	RC				

REV	ECO	DATE	APPD	DRWN	R	CSLK	INTS
A	033016	033015	RC	031118			
B	032217	032217	RC				

REV	ECO	DATE	APPD	DRWN	R	CSLK	INTS
A	033016	033015	RC	031118			
B	032217	032217	RC				

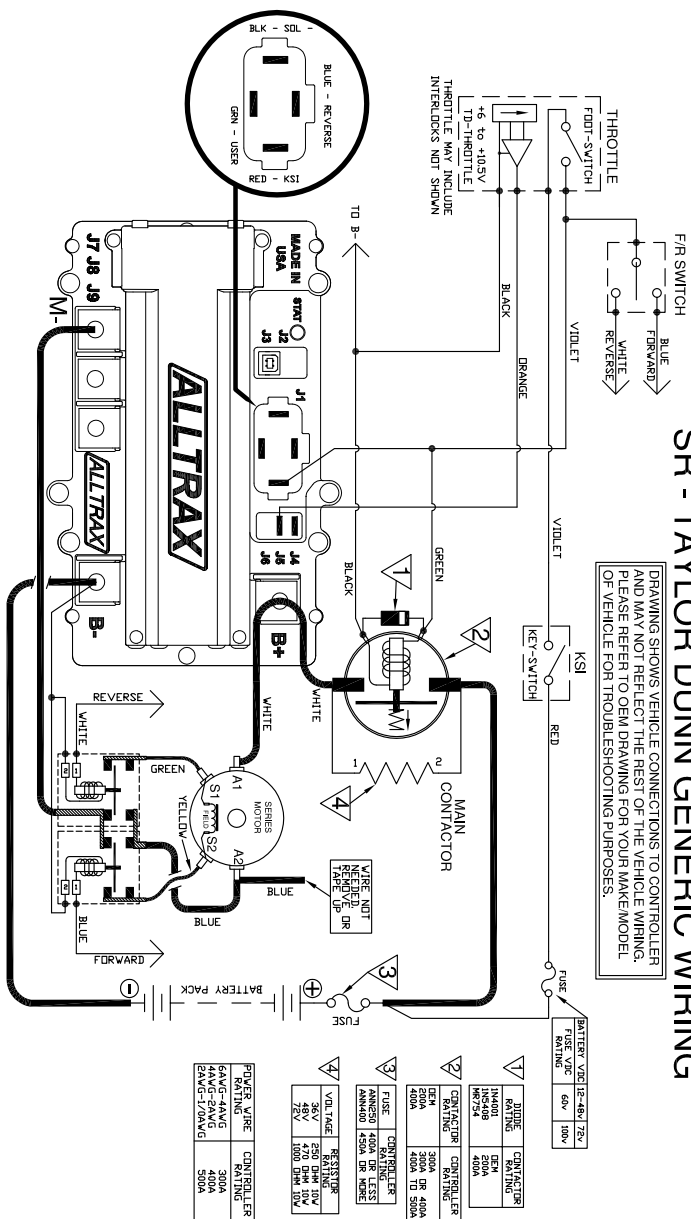
  

REV	ECO	DATE	APPD	DRWN	R	CSLK	INTS
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B	032217	032217	RC				

# TAYLOR DUNN GENERIC WIRING

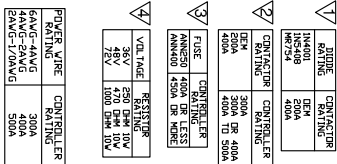
## SR - TAYLOR DUNN GENERIC WIRING

DRAWING SHOWS VEHICLE CONNECTIONS TO CONTROLLER  
AND MAY NOT REFLECT THE BEST OF THE VEHICLE WIRING.  
PLEASE REFER TO OEM DRAWING FOR YOUR MAKE/MODEL  
OR VEHICLE FOR TROUBLESHOOTING PURPOSES.



# SR - GENERIC WIRING

BATTERY VDC	12-48v	72v
FUSE VDC RATING	60v	100v

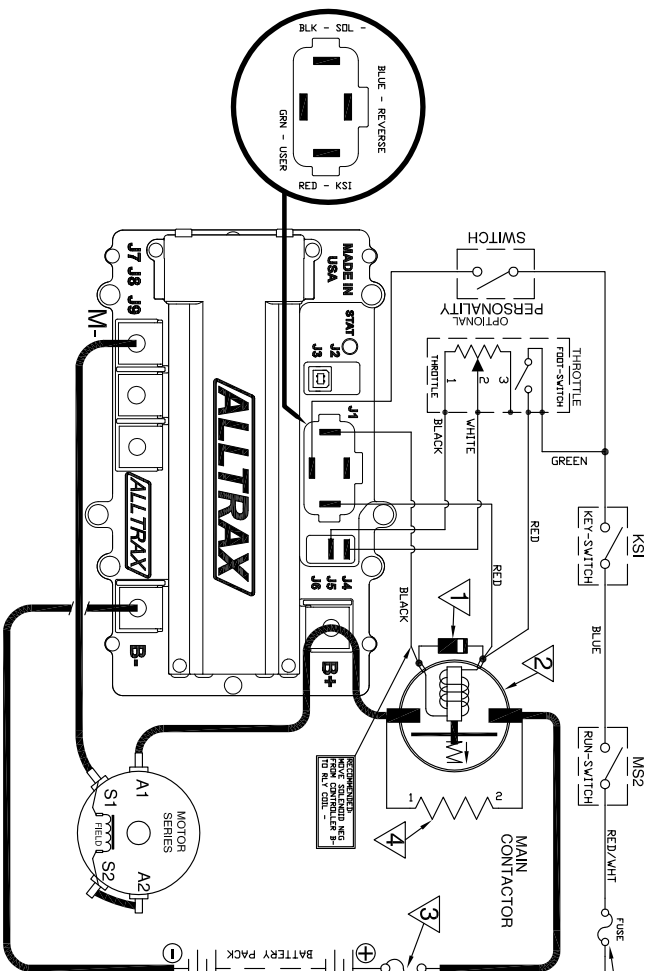


- DO NOT SCALE DRAWING

REV.		ECO.	DATE	APPRO.	DESCRIPTION
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A	030327		03/27/07	RC	
<p>THIS DOCUMENT IS THE PROPERTY OF THE U.S. GOVERNMENT AND IS TO BE RETURNED TO THE NATIONAL ARCHIVES AND RECORDS ADMINISTRATION, COLLEGE PARK, MARYLAND 20740-6001</p>					
<p>11111 CHANE CREEK ROAD DREHLE PARK, OR 97522 PH (503) 456-4545</p>					
<p>SR to Generic Series Reverse Winding Diagram</p>					
<p>SIZE DOCUMENT NO. 1 S DOC110-039</p>					
FILE NAME: SR-GEN-039-REV-A-WIND-CA					SHEET 1 OF 1

## GENERIC, SERIES W/O REVERSE

SR - GENERIC WIRING  
NO REVERSE



BATTERY VDC	12-48v	72v
FUSE VDC RATING	60v	100v

DIODE RATING	CONTACTOR RATING
IN4001	DEM
IN5408	200A
MR754	400A

CONTACTOR RATING	300A
DEM 200A 400A	300A DR 400A TO 500A

FUSE	CONTROLLED RATING
ANN250 400A 450A	DR LESS DR MORE

VOLTAGE	RESISTOR RATING
36V	250 OHM 10W
48V	470 OHM 10W
72V	1000 OHM 10W

POWER WIRE RATING	CONTROLLER RATING
6AWG-4AWG	300A
4AWG-2AWG	400A
2AWG-1/0AWG	500A

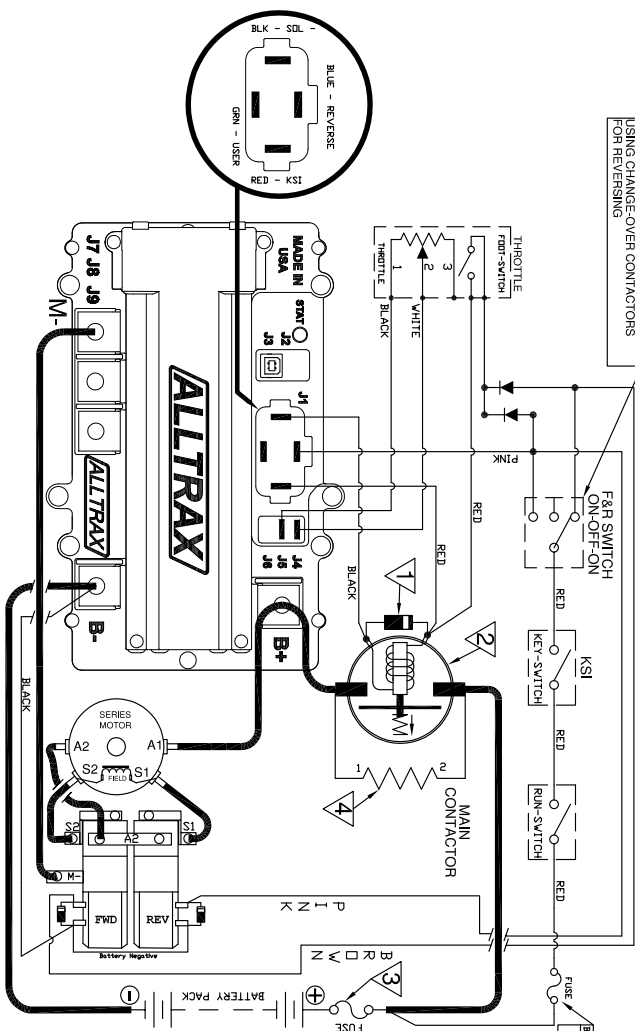
- ▶ FUSES REQUIRED FOR ALL INSTALLATIONS
- ▶ DIODE REQUIRED ACROSS COILS / RELAYS
- ▶ KSI IS REQUIRED TO BE A SWITCHED INPUT, NOT RESISTIVE
- ▶ ASSUMES FDS/VS/VS IS OPEN WHEN THROTTLE OFF
- ▶ ALLTAXA RESERVES THE RIGHT TO CHANGE DOCUMENTATION WITHOUT NOTICE
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- ▶ SEE OPERATORS MANUAL FOR MORE INFORMATION

REV.		ECO.	DATE	AMOUNT	DESCRIPTION	DATE	AMOUNT
A		030306	030306		030306		
B		030327	030327	RC			
<p>1. <b>REVISIONS</b></p> <p>2. <b>DATE</b></p> <p>3. <b>DESCRIPTION</b></p> <p>4. <b>AMOUNT</b></p> <p>5. <b>DATE</b></p> <p>6. <b>AMOUNT</b></p> <p>7. <b>DESCRIPTION</b></p> <p>8. <b>DATE</b></p> <p>9. <b>AMOUNT</b></p> <p>10. <b>DESCRIPTION</b></p> <p>11. <b>DATE</b></p> <p>12. <b>AMOUNT</b></p> <p>13. <b>DESCRIPTION</b></p> <p>14. <b>DATE</b></p> <p>15. <b>AMOUNT</b></p> <p>16. <b>DESCRIPTION</b></p> <p>17. <b>DATE</b></p> <p>18. <b>AMOUNT</b></p> <p>19. <b>DESCRIPTION</b></p> <p>20. <b>DATE</b></p> <p>21. <b>AMOUNT</b></p> <p>22. <b>DESCRIPTION</b></p> <p>23. <b>DATE</b></p> <p>24. <b>AMOUNT</b></p> <p>25. <b>DESCRIPTION</b></p> <p>26. <b>DATE</b></p> <p>27. <b>AMOUNT</b></p> <p>28. <b>DESCRIPTION</b></p> <p>29. <b>DATE</b></p> <p>30. <b>AMOUNT</b></p> <p>31. <b>DESCRIPTION</b></p> <p>32. <b>DATE</b></p> <p>33. <b>AMOUNT</b></p> <p>34. <b>DESCRIPTION</b></p> <p>35. <b>DATE</b></p> <p>36. <b>AMOUNT</b></p> <p>37. <b>DESCRIPTION</b></p> <p>38. <b>DATE</b></p> <p>39. <b>AMOUNT</b></p> <p>40. <b>DESCRIPTION</b></p> <p>41. <b>DATE</b></p> <p>42. <b>AMOUNT</b></p> <p>43. <b>DESCRIPTION</b></p> <p>44. <b>DATE</b></p> <p>45. <b>AMOUNT</b></p> <p>46. <b>DESCRIPTION</b></p> <p>47. <b>DATE</b></p> <p>48. <b>AMOUNT</b></p> <p>49. <b>DESCRIPTION</b></p> <p>50. <b>DATE</b></p> <p>51. <b>AMOUNT</b></p> <p>52. <b>DESCRIPTION</b></p> <p>53. <b>DATE</b></p> <p>54. <b>AMOUNT</b></p> <p>55. <b>DESCRIPTION</b></p> <p>56. <b>DATE</b></p> <p>57. <b>AMOUNT</b></p> <p>58. <b>DESCRIPTION</b></p> <p>59. <b>DATE</b></p> <p>60. <b>AMOUNT</b></p> <p>61. <b>DESCRIPTION</b></p> <p>62. <b>DATE</b></p> <p>63. <b>AMOUNT</b></p> <p>64. <b>DESCRIPTION</b></p> <p>65. <b>DATE</b></p> <p>66. <b>AMOUNT</b></p> <p>67. <b>DESCRIPTION</b></p> <p>68. <b>DATE</b></p> <p>69. <b>AMOUNT</b></p> <p>70. <b>DESCRIPTION</b></p> <p>71. <b>DATE</b></p> <p>72. <b>AMOUNT</b></p> <p>73. <b>DESCRIPTION</b></p> <p>74. <b>DATE</b></p> <p>75. <b>AMOUNT</b></p> <p>76. <b>DESCRIPTION</b></p> <p>77. <b>DATE</b></p> <p>78. <b>AMOUNT</b></p> <p>79. <b>DESCRIPTION</b></p> <p>80. <b>DATE</b></p> <p>81. <b>AMOUNT</b></p> <p>82. <b>DESCRIPTION</b></p> <p>83. <b>DATE</b></p> <p>84. <b>AMOUNT</b></p> <p>85. <b>DESCRIPTION</b></p> <p>86. <b>DATE</b></p> <p>87. <b>AMOUNT</b></p> <p>88. <b>DESCRIPTION</b></p> <p>89. <b>DATE</b></p> <p>90. <b>AMOUNT</b></p> <p>91. <b>DESCRIPTION</b></p> <p>92. <b>DATE</b></p> <p>93. <b>AMOUNT</b></p> <p>94. <b>DESCRIPTION</b></p> <p>95. <b>DATE</b></p> <p>96. <b>AMOUNT</b></p> <p>97. <b>DESCRIPTION</b></p> <p>98. <b>DATE</b></p> <p>99. <b>AMOUNT</b></p> <p>100. <b>DESCRIPTION</b></p>							
<p>1. <b>REVISIONS</b></p> <p>2. <b>DATE</b></p> <p>3. <b>DESCRIPTION</b></p> <p>4. <b>AMOUNT</b></p> <p>5. <b>DATE</b></p> <p>6. <b>AMOUNT</b></p> <p>7. <b>DESCRIPTION</b></p> <p>8. <b>DATE</b></p> <p>9. <b>AMOUNT</b></p> <p>10. <b>DESCRIPTION</b></p> <p>11. <b>DATE</b></p> <p>12. <b>AMOUNT</b></p> <p>13. <b>DESCRIPTION</b></p> <p>14. <b>DATE</b></p> <p>15. <b>AMOUNT</b></p> <p>16. <b>DESCRIPTION</b></p> <p>17. <b>DATE</b></p> <p>18. <b>AMOUNT</b></p> <p>19. <b>DESCRIPTION</b></p> <p>20. <b>DATE</b></p> <p>21. <b>AMOUNT</b></p> <p>22. <b>DESCRIPTION</b></p> <p>23. <b>DATE</b></p> <p>24. <b>AMOUNT</b></p> <p>25. <b>DESCRIPTION</b></p> <p>26. <b>DATE</b></p> <p>27. <b>AMOUNT</b></p> <p>28. <b>DESCRIPTION</b></p> <p>29. <b>DATE</b></p> <p>30. <b>AMOUNT</b></p> <p>31. <b>DESCRIPTION</b></p> <p>32. <b>DATE</b></p> <p>33. <b>AMOUNT</b></p> <p>34. <b>DESCRIPTION</b></p> <p>35. <b>DATE</b></p> <p>36. <b>AMOUNT</b></p> <p>37. <b>DESCRIPTION</b></p> <p>38. <b>DATE</b></p> <p>39. <b>AMOUNT</b></p> <p>40. <b>DESCRIPTION</b></p> <p>41. <b>DATE</b></p> <p>42. <b>AMOUNT</b></p> <p>43. <b>DESCRIPTION</b></p> <p>44. <b>DATE</b></p> <p>45. <b>AMOUNT</b></p> <p>46. <b>DESCRIPTION</b></p> <p>47. <b>DATE</b></p> <p>48. <b>AMOUNT</b></p> <p>49. <b>DESCRIPTION</b></p> <p>50. <b>DATE</b></p> <p>51. <b>AMOUNT</b></p> <p>52. <b>DESCRIPTION</b></p> <p>53. <b>DATE</b></p> <p>54. <b>AMOUNT</b></p> <p>55. <b>DESCRIPTION</b></p> <p>56. <b>DATE</b></p> <p>57. <b>AMOUNT</b></p> <p>58. <b>DESCRIPTION</b></p> <p>59. <b>DATE</b></p> <p>60. <b>AMOUNT</b></p> <p>61. <b>DESCRIPTION</b></p> <p>62. <b>DATE</b></p> <p>63. <b>AMOUNT</b></p> <p>64. <b>DESCRIPTION</b></p> <p>65. <b>DATE</b></p> <p>66. <b>AMOUNT</b></p> <p>67. <b>DESCRIPTION</b></p> <p>68. <b>DATE</b></p> <p>69. <b>AMOUNT</b></p> <p>70. <b>DESCRIPTION</b></p> <p>71. <b>DATE</b></p> <p>72. <b>AMOUNT</b></p> <p>73. <b>DESCRIPTION</b></p> <p>74. <b>DATE</b></p> <p>75. <b>AMOUNT</b></p> <p>76. <b>DESCRIPTION</b></p> <p>77. <b>DATE</b></p> <p>78. <b>AMOUNT</b></p> <p>79. <b>DESCRIPTION</b></p> <p>80. <b>DATE</b></p> <p>81. <b>AMOUNT</b></p> <p>82. <b>DESCRIPTION</b></p> <p>83. <b>DATE</b></p> <p>84. <b>AMOUNT</b></p> <p>85. <b>DESCRIPTION</b></p> <p>86. <b>DATE</b></p> <p>87. <b>AMOUNT</b></p> <p>88. <b>DESCRIPTION</b></p> <p>89. <b>DATE</b></p> <p>90. <b>AMOUNT</b></p> <p>91. <b>DESCRIPTION</b></p> <p>92. <b>DATE</b></p> <p>93. <b>AMOUNT</b></p> <p>94. <b>DESCRIPTION</b></p> <p>95. <b>DATE</b></p> <p>96. <b>AMOUNT</b></p> <p>97. <b>DESCRIPTION</b></p> <p>98. <b>DATE</b></p> <p>99. <b>AMOUNT</b></p> <p>100. <b>DESCRIPTION</b></p>							
<p>1. <b>REVISIONS</b></p> <p>2. <b>DATE</b></p> <p>3. <b>DESCRIPTION</b></p> <p>4. <b>AMOUNT</b></p> <p>5. <b>DATE</b></p> <p>6. <b>AMOUNT</b></p> <p>7. <b>DESCRIPTION</b></p> <p>8. <b>DATE</b></p> <p>9. <b>AMOUNT</b></p> <p>10. <b>DESCRIPTION</b></p> <p>11. <b>DATE</b></p> <p>12. <b>AMOUNT</b></p> <p>13. <b>DESCRIPTION</b></p> <p>14. <b>DATE</b></p> <p>15. <b>AMOUNT</b></p> <p>16. <b>DESCRIPTION</b></p> <p>17. <b>DATE</b></p> <p>18. <b>AMOUNT</b></p> <p>19. <b>DESCRIPTION</b></p> <p>20. <b>DATE</b></p> <p>21. <b>AMOUNT</b></p> <p>22. <b>DESCRIPTION</b></p> <p>23. <b>DATE</b></p> <p>24. <b>AMOUNT</b></p> <p>25. <b>DESCRIPTION</b></p> <p>26. <b>DATE</b></p> <p>27. <b>AMOUNT</b></p> <p>28. <b>DESCRIPTION</b></p> <p>29. <b>DATE</b></p> <p>30. <b>AMOUNT</b></p> <p>31. <b>DESCRIPTION</b></p> <p>32. <b>DATE</b></p> <p>33. <b>AMOUNT</b></p> <p>34. <b>DESCRIPTION</b></p> <p>35. <b>DATE</b></p> <p>36. <b>AMOUNT</b></p> <p>37. <b>DESCRIPTION</b></p> <p>38. <b>DATE</b></p> <p>39. <b>AMOUNT</b></p> <p>40. <b>DESCRIPTION</b></p> <p>41. <b>DATE</b></p> <p>42. <b>AMOUNT</b></p> <p>43. <b>DESCRIPTION</b></p> <p>44. <b>DATE</b></p> <p>45. <b>AMOUNT</b></p> <p>46. <b>DESCRIPTION</b></p> <p>47. <b>DATE</b></p> <p>48. <b>AMOUNT</b></p> <p>49. <b>DESCRIPTION</b></p> <p>50. <b>DATE</b></p> <p>51. <b>AMOUNT</b></p> <p>52. <b>DESCRIPTION</b></p> <p>53. <b>DATE</b></p>							

## Generic Series /w SW202 Reverse

**SR - GENERIC SERIES WIRING**  
WITH SW202 REVERSE  
ON SWITCH  
PLATE

FAILURE TO USE AN ON-OFF-ON SWITCH  
COULD DAMAGE THE CONTROLLER,  
CONTACTOR AND/OR MOTOR WHEN  
USING CHANGE-OVER CONTACTORS  
FOR REVERSING



BATTERY VDC	12-48v	72v
FUSE VDC RATING	60v	100v

DIODE RATING	CONTACTOR RATING
1N4001	DEM
1N5408	200A
MR754	400A

CONTRACTOR RATING	CONTROLLER RATING
DEM 200A 400A	300A 300A DR 400A 400A TD 500A

FUSE	CONTROLLER RATING
ANN250	400A DR LESS
ANN400	450A DR MORE

VOLTAGE	RESISTOR RATING
36V	250 OHM 10W
48V	470 OHM 10W
72V	1000 OHM 10W

POWER WIRE RATING	CONTROLLER RATING
6AWG-4AWG	300A
4AWG-2AWG	400A
2AWG-1/0AWG	500A

- NOTES:**
- FLUSES REQUIRED FOR ALL INSTALLATIONS
  - DIMMER REQUIRED ACROSS COILS / RELAYS
  - KSI IS REQUIRED TO BE A SWITCHED INPUT, NOT RESISTIVE
  - ASSUMES FDS/VS/CH IS OPEN WHEN THROTTLE OFF
  - ALL TRAXX RELAYS IS THE RIGHT TO CHANGE DOCUMENTATION
  - AUTOMATIC NOTED IN WARRANTY AS TO THE ACCURACY,
  - SUFFICIENCY, OR SUITABILITY OF ANY TECHNICAL
  - SEE OPERATORS MANUAL FOR MORE INFORMATION

REVISIONS			DWG SCALE: NTS	
REV.	ECO.	DATE	APVD	
A	101117	122017	WH	

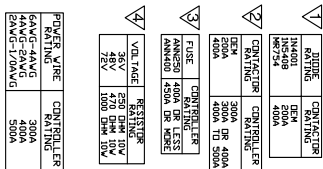
DRAWN W Hopper 122017  
 ENGR D.Crockett 040116  
 PROPRIETARY

**ALLTRAX**  
1111 Cheney Creek Rd  
Grants Pass, OR 97522  
PHONE: (541) 476-3565

DO NOT SCALE DRAWING

PART NO.	DOC110-048
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## SR - GENERIC PERMENANT MAGNET WIRING WITH REVERSE

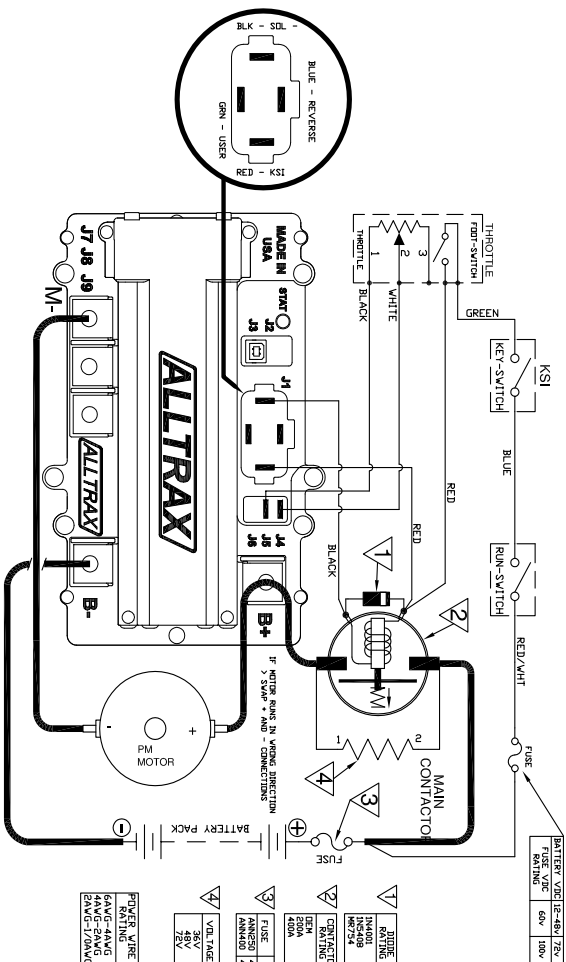


- | REVIEWS |        |      | DWG SCALE: NTS |         |
|---------|--------|------|----------------|---------|
| CO.     | DATE   | APVD | DRWN           | R. CSJK |
| 030016  | 033016 | RC   | ENGR           | 033116  |
| 032017  | 032017 | RC   | ENGR           | 033116  |
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**ALLTRAX**  
Granting Opportunity Over 40 Years  
Grants Pass, OR 97522  
PHONE: (541) 476-3565

## Permanent Magnet no Reverse

**SR - GENERIC WIRING PERMENANT MAGNETT**  
WITH NO REVERSE



PART NO.	DOC110-044
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PART NO.	DOC10-044

## NOTES

- FUSES REQUIRED FOR ALL INSTALLATIONS
- WIRE REQUIRED ACROSS COILS / RELAYS
- K1 IS REQUIRED TO BE A SWITCHED INPUT, NOT RESISTIVE
- ASSUMES FIGHT/SWITCH IS OPEN WHEN THROTTLE OFF
- ALTLTRAX RESERVES THE RIGHT TO CHANGE DOCUMENTATION WITHOUT NOTICE
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- SEE OPERATORS MANUAL FOR MORE INFORMATION

[illegible]

<b>ALLTRAX</b>		1111 Cheney Creek Rd Gaines Pass, OR 97522 PHONE(503) 476-3566	
<b>TITLE</b> SR to Generic PM No Reverse Wiring Diagram			
<b>SIZE</b>		<b>DOCUMENT NO.</b>	<b>REV.</b>
A		S DOC110-044	B
TITLE: PMW-SR-GENERIC-PM-NO-REV-WIRING-DIA SHEET 1 of 1			

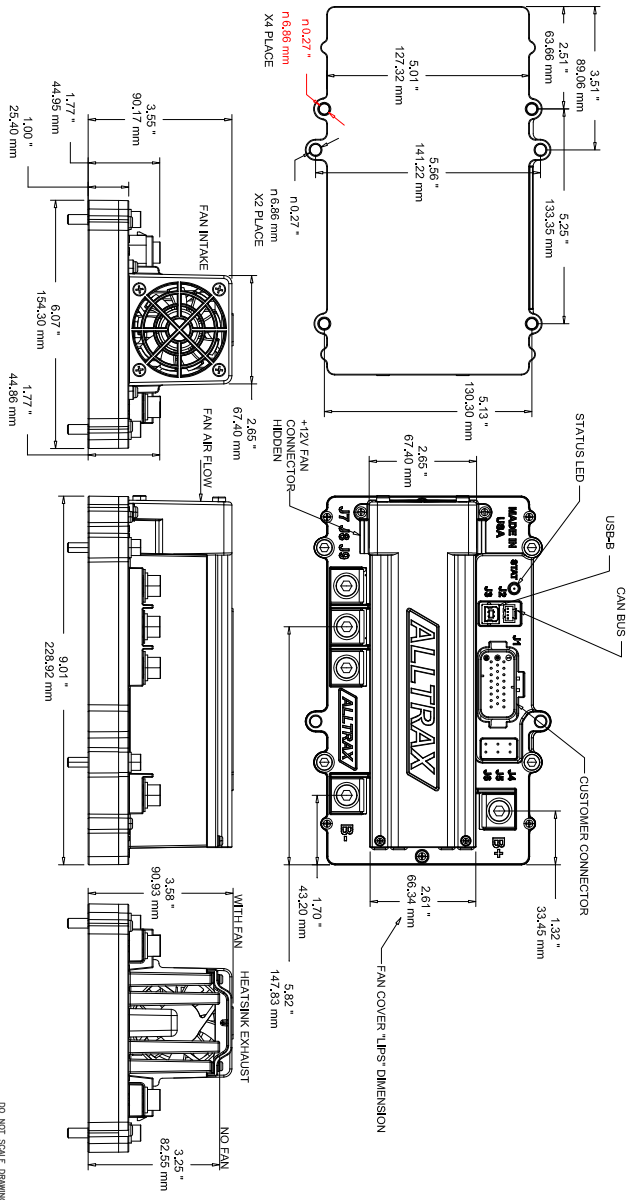
DO NOT SCALE DRAWING



# CONTROLLER DIMENSIONS

**Note: Customer and Power Connectors vary depending on controller model. For sizing and mounting reference only.**

## CONTROLLER DIMENSIONS



DIMENSIONS:  
US INCHES  
[METRIC]

REVISIONS				DWG SCALE: NTS			
REV.	ECO.	DATE	AP'D	DESIGN	REVISION	DATE	AP'D
A	120814	021615	RC				
				TITLED: 11111 Cheney Creek Rd. Phoenix AZ 85027			
				SIZE: DOCUMENT NO. 11111			
				XCT & SR CONTROLLER			
				DIMENSIONS			
				REV. A			

PART NO.	DOC110-035
DATE	4/17/2008

# FAN COVER (OPTIONAL)

The XCT family of controllers also includes an optional Fan Cover. This cover comes standard on the 500A & 600A controllers.

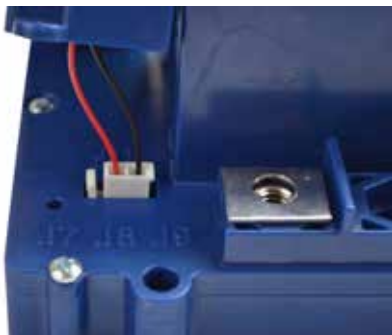


## Installation:

1) Plug Fan Cover into controller fan port. (See picture)

2) Fasten cover down with the four (4) supplied screws.

Note: Make sure wires are tucked out of the way and are not being pinched by the cover.



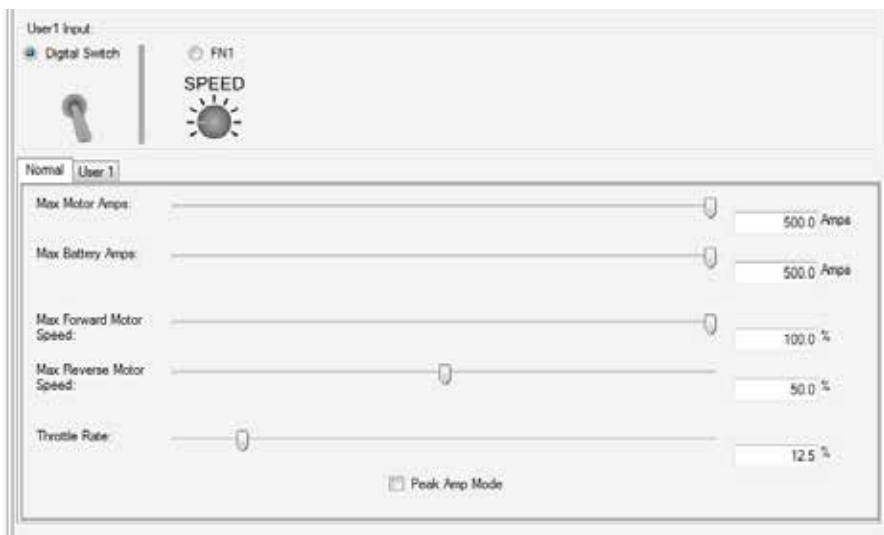
# USER (PERSONALITY) TAB

Alltrax SR controllers come equipped with a User Input tab to switch between 2 different personality profiles. The User Mode can be activated by a simple toggle switch (see drawings for wiring). User personality profiles are programmed via the Alltrax Toolkit software.

Adjustable settings include:

- Max Motor Amps
- Max Battery Amps
- Max Forward Motor Speed
- Max Reverse Motor Speed
- Throttle Rate
- Peak Amp Mode

Visit our website for more information on programming the controller including the Alltrax Toolkit Manual (DOC113-002) and instructional videos.



# PROGRAMMING THE CONTROLLER

Controllers ordered for stock configurations are pre-programmed from Alltrax and it is not necessary to re-program unless the customer has specific needs. If the controller does need to be programmed it can be done via a USB A to B cable and the Alltrax Toolkit program. Visit our website for more information on programming the controller including the Alltrax Toolkit Manual (DOC113-002) and instructional videos.

Settings Screen

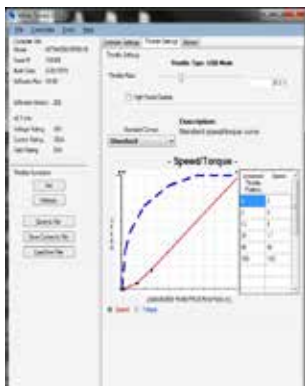


The cable needed is the USB-A to B. This is the most common USB printer style cable

Controller Info Tab



Throttle Screen



Monitor Screen



# BLINK CODES

---

The throttle code blinks on controller power up and alarm codes blink when the alarm happens. All alarms are self clearing so when the alarm event is over, the controller resumes normal operation, except for the Short Circuit alarm that needs a power off cycle to clear the alarm.

## Throttle codes:

1 Green LED Flash	=	0-5k throttle
2 Green LED Flash	=	5K-0 throttle
3 Green LED Flash	=	0-5V throttle
4 Green LED Flash	=	EZGO ITS throttle
5 Green LED Flash	=	0-1k Yamaha throttle
6 Green LED Flash	=	6 to 10.5 Taylor Dunn throttle
7 Green LED Flash	=	Club Car 5k-0 3 wire throttle
8 Green LED Flash	=	Reserved
9 Green LED Flash	=	Pump
10 Green LED Flash	=	USB Throttle
11 Green LED Flash	=	Absolute Throttle

## Normal Display Status:

Solid Green Light	=	Controller Ready to Run
Solid Red Light	=	Controller in programming mode
Solid Yellow Light	=	Throttle is wide open and the controller is <u>NOT</u> in Current Limit
Blinking Yellow Light	=	Throttle is wide open, but the controller is in Current Limit

## Error Codes:

SR error codes are different than the AXE/DCX alarm codes in that they will flash Green and Red, instead of just Red.

1 Green and 1 Red LED Flash	=	Short Circuit
1 Green and 2 Red LED Flash	=	Battery Under Voltage
1 Green and 3 Red LED Flash	=	Battery Over Voltage
1 Green and 4 Red LED Flash	=	M- Over temperature
1 Green and 5 Red LED Flash	=	Bus Bar Over temperature
1 Green and 6 Red LED Flash	=	Pre-charge Failure
2 Green and 1 Red LED Flash	=	Under Temp
2 Green and 2 Red LED Flash	=	Not Used
2 Green and 3 Red LED Flash	=	High Throttle Over range
2 Green and 4 Red LED Flash	=	High Throttle Under range
2 Green and 5 Red LED Flash	=	Low Throttle Over range
2 Green and 6 Red LED Flash	=	Low Throttle Under range
3 Green and 1 Red LED Flash	=	Uncalibrated throttle
3 Green and 2 Red LED Flash	=	Bad Variable Set Loaded

## **Error Code Definitions:**

- **Short Circuit/Output Fault:**  
Controller detected a short circuit or other fault on the output circuit. Check wiring.
- **Battery Under Voltage:**  
B+ Voltage lower than Low Voltage Battery Setting. Check pack voltage or program settings.
- **Battery Over Voltage:**  
B+ Voltage Higher than Over Voltage Battery Setting. Check pack voltage or program settings
- **Over temperature:**  
Busbar temperature exceeds 85°C. Let controller cool and/or add fan.
- **Motor Field Failure:**  
Controller detected a short in the field circuit. Check motor resistance and or replace field wires.
- **Pre-charge Failure:**  
B+ voltage and KSI voltage differ by more than 5v. Stuck solenoid.
- **Under Temp:**  
Busbar Temperature reads less than -20°C
- **High Throttle Over range & High Throttle Under range:**  
High Side of throttle signal is outside of acceptable window for that throttle type. Check and/or replace throttle. Change throttle type to correct throttle installed on car.
- **Low Throttle Over range & Low Throttle Under range:**  
Low Side of throttle signal is outside of acceptable window for that throttle type. Check and/or replace throttle. Change throttle type to correct throttle installed on car.
- **Uncalibrated throttle:**  
Throttle boundaries not found. In Toolkit program, select another throttle then re-select correct throttle type.
- **Bad Variable Set Loaded:**  
Alltrax loaded variable data is missing or corrupted. Contact Alltrax.

# WARRANTY STATEMENT

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