



# SERIES

## TSE550-48 & TSE1000-48

### APPLICATIONS

- Forklifts
- Aerial platforms
- Personnel carriers
- Industrial Tractors
- Mining equipment
- Airport ramp equipment
- AGV's

### Description

SRE Controls DC Motor Controller combines the power of high efficiency MOSFET's with micro processor technology to provide smooth, flexible & reliable control.

The TSE series offers cold switching resulting in longer contactor life ultimately reducing maintenance costs. TSE products are highly programmable, allowing smooth stop & start, reductions in speed & adjustable top speeds with the ability to set reverse speeds separate from forward.

### Features

- High efficiency MOSFETs provide improvements to low end torque, range and battery life.
- Power-up diagnostics and safe sequencing prevents controller operation if the key switch is turned on while the throttle is applied.
- Environmental protection is ensured with a factory sealed, factory serviceable anodized aluminum housing
- Thermal protection provides over temperature protection and ensures no sudden loss of power under any thermal condition.
- Static return to off (deadman switch) prevents controller operation if the key switch is turned on while in forward or reverse mode.
- Current limiting provides throttle position control over braking to improve drivability.
- Adjustable plugging allows smooth start, stop and speed reduction functions which improves overall performance.
- Adjustable top speed for both forward and reverse.
- BDI (battery discharge interlock) intelligence protects battery by slow run speed.
- Cold switching allows longer contactor life and ultimately reduces replacement and maintenance costs.



## ■ Power Rating

| Model #1   | Voltage | Continuous Current | Peak Current | Continuous Power | Continuous HP |
|------------|---------|--------------------|--------------|------------------|---------------|
| TSE550-24  | 24      | 175A               | 550A         | 13.2kw           | 17 HP         |
| TSE550-36  | 36      | 175A               | 550A         | 19.8kw           | 26 HP         |
| TSE550*48  | 48      | 175A               | 550A         | 26.4kw           | 35 HP         |
| TSE1000-24 | 24      | 325A               | 1000A        | 24.0kw           | 32 HP         |
| TSE1000-36 | 36      | 325A               | 1000A        | 36.0kw           | 48 HP         |
| TSE100-48  | 48      | 325A               | 1000A        | 48.0kw           | 64 HP         |

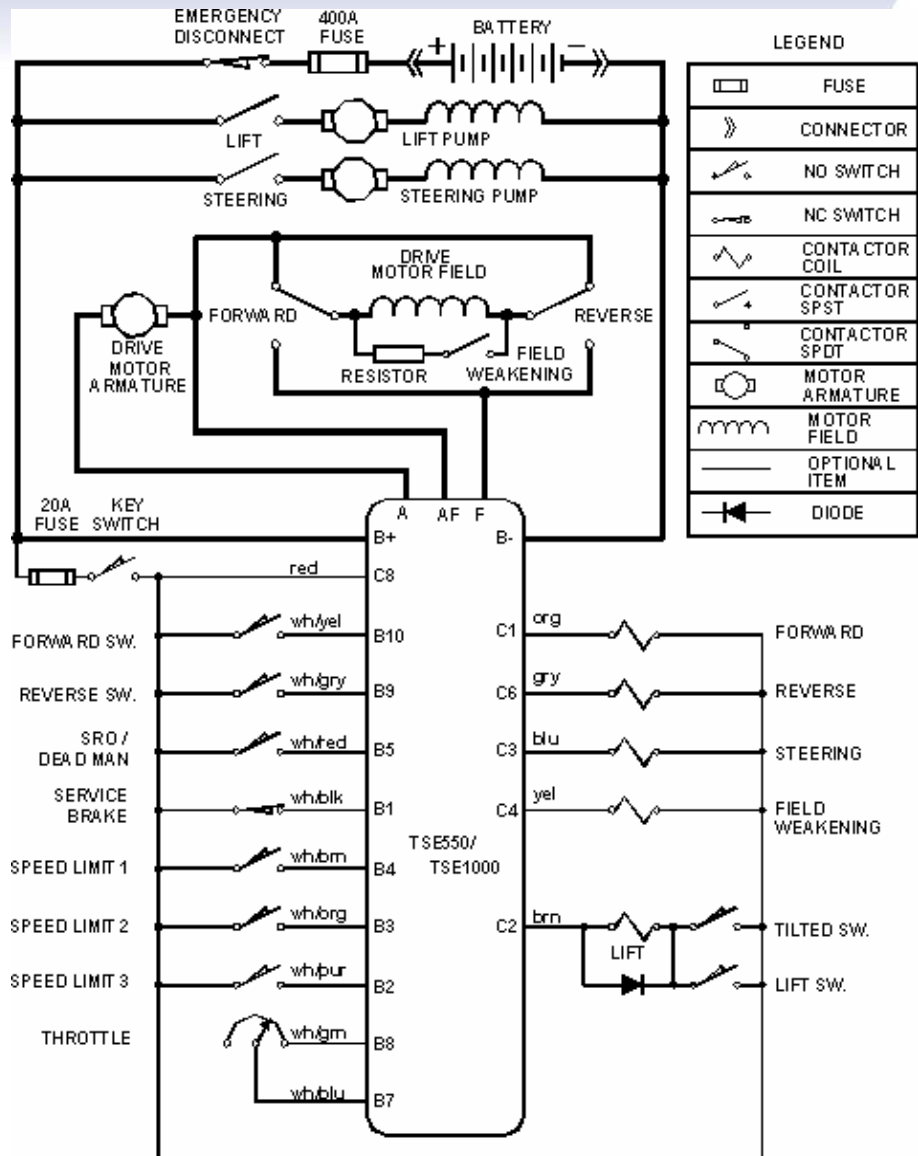
## ■ Environmental Specifications

| Common Specifications | Minimum       | Maximum               |
|-----------------------|---------------|-----------------------|
| Heat Sink Temperature | -40 degrees C | 85 degrees C          |
| Relative Humidity     | ---           | 95 RH, non condensing |
| Vibration             | 0             | 25G                   |

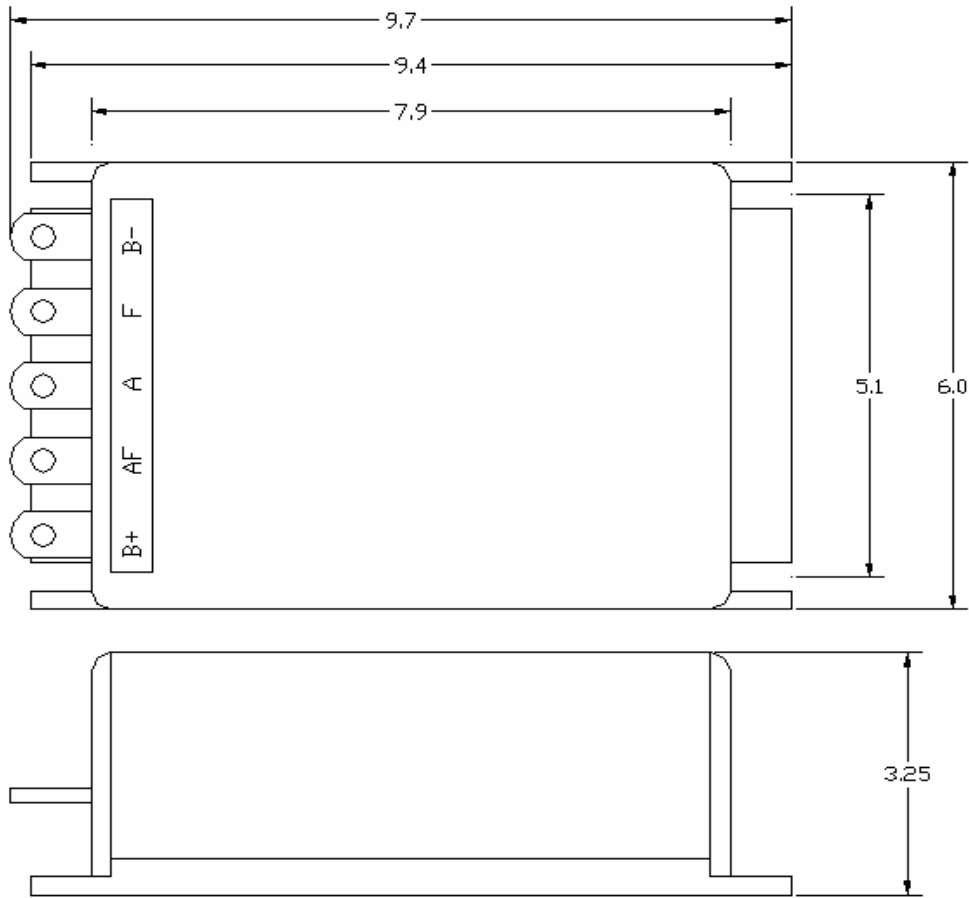
## ■ Inputs/Outputs

| I / O Type           | Number                | Notes   |
|----------------------|-----------------------|---|
| Analog               | 1                     | Designed for a 5K 2 wire pot hookup. Can be driven with a 0-5V signal provided whatever supplies the signal can sink 1-1.5mA                          |
| Switch               | 7                     | Switch inputs – switch to B+, B+ on input used to indicate a closed switch  |
| Coil Driver          | 5                     | Coil outputs – pwmed to B-, pull in and hold voltages are programmable  |
| FUNCTION             | Type                  | DESCRIPTION   |
| Throttle & Direction | 1 Analog + 2 switches | Supports 0-5 and 5-0 on the analog input. Throttle may be bi-directional (direction is indicated by throttle position) or may use direction switches. |
| Limit Switches       | Switch                | Up to 3 limit switches. May be programmed to provide rabbit type functionality.   |
| Belly Button         | Switch                | Optional emergency reversing  |
| SRO                  | Switch                | Static return to off, deadman, seat switch  |
| Brake                | Switch                | Used to reduce controller output to zero to avoid over riding brakes  |
| Inching              | Switch                | Forward & reverse – optional  |
| External Plug Detect | Switch                | Optional support (for dual motor trucks)  |
| Forward              | Coil Driver           | Used to pull in contactor for forward drive   |
| Reverse              | Coil Driver           | Used to pull in contactor for reverse drive   |
| Lift                 | Coil Driver           | Optional, Always on unless in BDI cutout  |
| Steering             | Coil Driver           | Provides support for an optional contactor to run a power steering pump   |
| Field Weakening      | Coil Driver           | Provides support for an optional field weakening contactor  |
| "D"                  | Coil Driver           | Provides optional support for parallel dual motor truck.  |

## System Schematic



## Mechanical Drawing



SRE Controls is in the business of designing, manufacturing and marketing digital drive and hydraulic control systems for electric vehicles. SRE's control systems are used in battery powered industrial and commercial vehicles ranging from 96 volt locomotives to 12 volt walkies. SRE's product advantages lie in it's efficiency, flexible programmability and reliability. SRE also offers application assistance to help design the best overall solution for your vehicle.



440 Phillip Street Waterloo, ON  
N2L 5R9 Canada  
phone: 1-800-461-9338  
fax: 1-519-725-1645  
[www.srecontrols.com](http://www.srecontrols.com)