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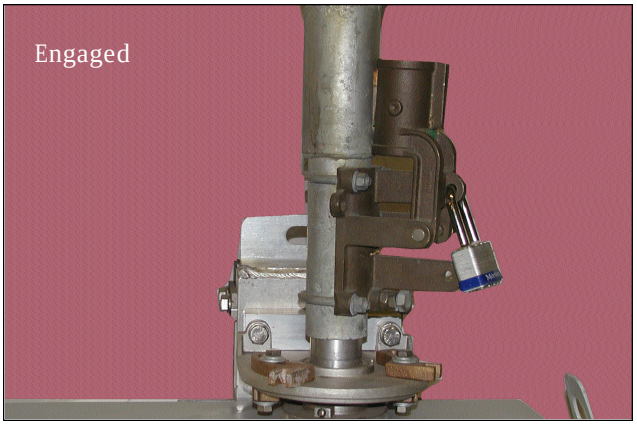
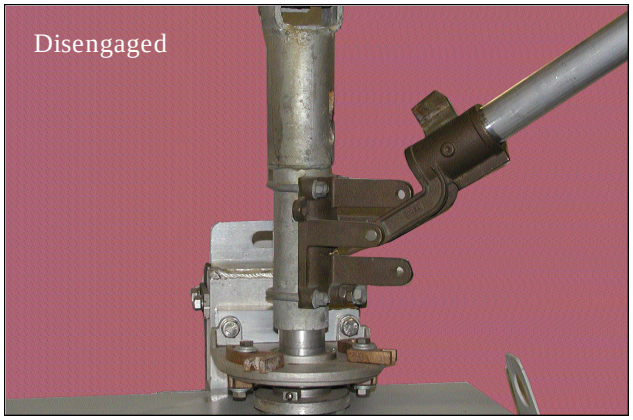
# Teco High Speed, High Torque Motor Operator SF300


## Features & Benefits

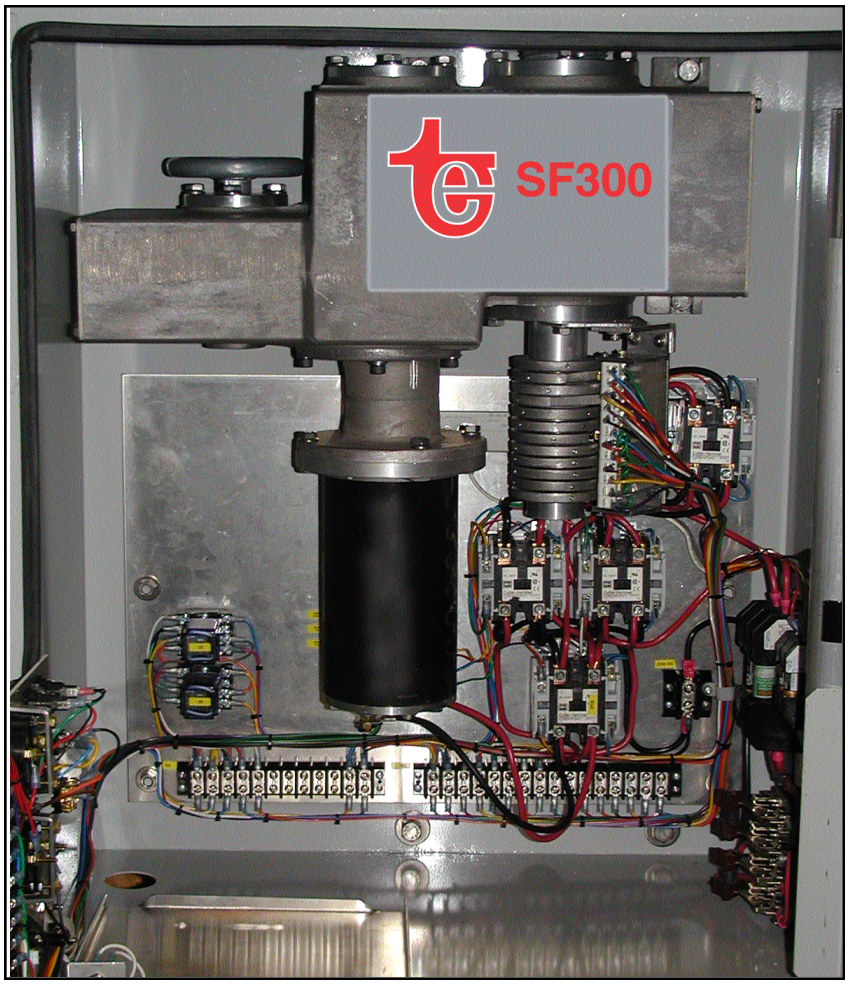
- High Speed Closing . . . . . .Preserve Blade Life
- High Speed Opening . . . .Increase Interruption Capability
- Field Changeable Speed . . . . . .Application Flexibility
- Modular Construction . . . . . .Easy to Maintain
- Sealed gearbox . . . . . .No Maintenance
- Component Redundancy . . . .Limited Spare Parts Stock
- Environmentally Tested . . . .Qualified -40’F to +1 60’F.
- Universal Joint . . . . . .Bind-free Installation
- Many Options . . . . . .Wide Range of Installations

TURNER ELECTRIC LLC DELTA-STAR

9510 St. Clair Avenue, Fairview Heights, IL 62208 ● 618-397-1865

# Design and Operation

The Turner SF300 motor drive is a high-speed, high-torque switch operator. The unique feature of field-changeable speed and torque output qualify the unit to be the most flexible operator available.




## SF300 Application

The SF300 is a completely self-contained electro-mechanicl-drive switch operator utilized to automatically and/or remotely control transmission or substation switches.

Because the output speed and torque are easily changed in the field, the unit is capable of satisfactorily operating several styles and types of transmission or substation switches.

The SF300 is the only operator available with two (2) closing rates – standard and high-speed – as well as high-speed opening. The slow-to-high-speed rotational transition allows the switch to be closed just as it would if operated manually.

Closing is initiated at a slower (standard) speed to protect switch mechanisms from damage.

Some operators start switch closing in the high-speed mode, generating potentially damaging stresses on switch components.

### Specifications

Operating Voltage . . . . .12/24 VDC

Operating Amps . . . . . .40A

Temperature Range-40$^{O}$ F to +160$^{O}$ F

Torque (variable)6000 – 17,000 in/lb

Rotation . . . . . .90$^{O}$ to 270$^{O}$

Auxiliary Switch . . . . . .Quantity 12
(Customer use 7) . . . . . .A or B

Pipe Coupling . .1-1/2 or 2 inch IPS

### Standard Equipment

- Extra Large cabinet suitable for mounting radio/rtu
- Dynamic and Mechanical Brake
- Position Indicating Lights
- Local/Off/Remote Switch
- Switch Handle Operator/ Padlockable
- Cabinet Heaters – 100 Watts
- 9” swing panel
- Rotation – Clockwise to open (Standard)

### Optional Equipment

- 24V, 5 Amp Battery Charger
- Battery Cabinet (24VDC Only) and conduit
- Customer Communications
- Full height swing panel for mounting customer rtu/radio
- PT Conduit and Disconnect
- Special Terminal Block
- Second 100 watt heater and heater thermostat
- Auxiliary Relays
- Close/Open Counter
- AC/DC Disconnect
- Select Batteries
- Low DC Voltage Alarm
- Loss of AC alarm

Conversely, high-speed action is desired when opening a switch, moving the switch blade rapidly through the high voltage arcing area to minimize switch damage and system disturbance.

Further, the high-speed movement causes the switch blade to move through the high voltage arcing area rapidly, minimizing switch damage and system disturbance.

**Closing Operation**

The SF300 utilizes a 12/24 volt dual voltage system to provide two (2) speed closing with an optional on-demand, high-speed closing.

When the electrical closing circuit is energized, a contactor starts a DC motor at 12 volts, which drives the geared output shaft connected to the switch vertical operating pipe.

As the switch travels through approximately one-half of its total closing rotation, a cam actuates a field-adjustable limit switch.

A “close-fast’” contactor changes the motor operating voltage to 24 volts. The motor accelerates, moving the switch at a high rate of speed into the fully closed position.

The “close-fast” speed is also field changeable, allowing for precise control of the high-speed action, depending on the type of switch it is operating. At the end of the operator/switch travel, a field-adjustable, cam-operated limit switch stops the rotation.

**Opening operation**

When the electrical opening circuit is energized, the contactor starts a DC motor at 12 volts, which drives a geared output shaft connected to the switch vertical operating pipe and opening the switch.

**Components**

Only the highest quality components are used in the SF300 operator, chosen on the basis of field-proven long life and ruggedness.

Component redundancy has been applied where possible to limit customer spare parts stocking. The design has been factory tested to over 1000 operations.

The 1.25 horsepower motor will provide years of trouble-free service.

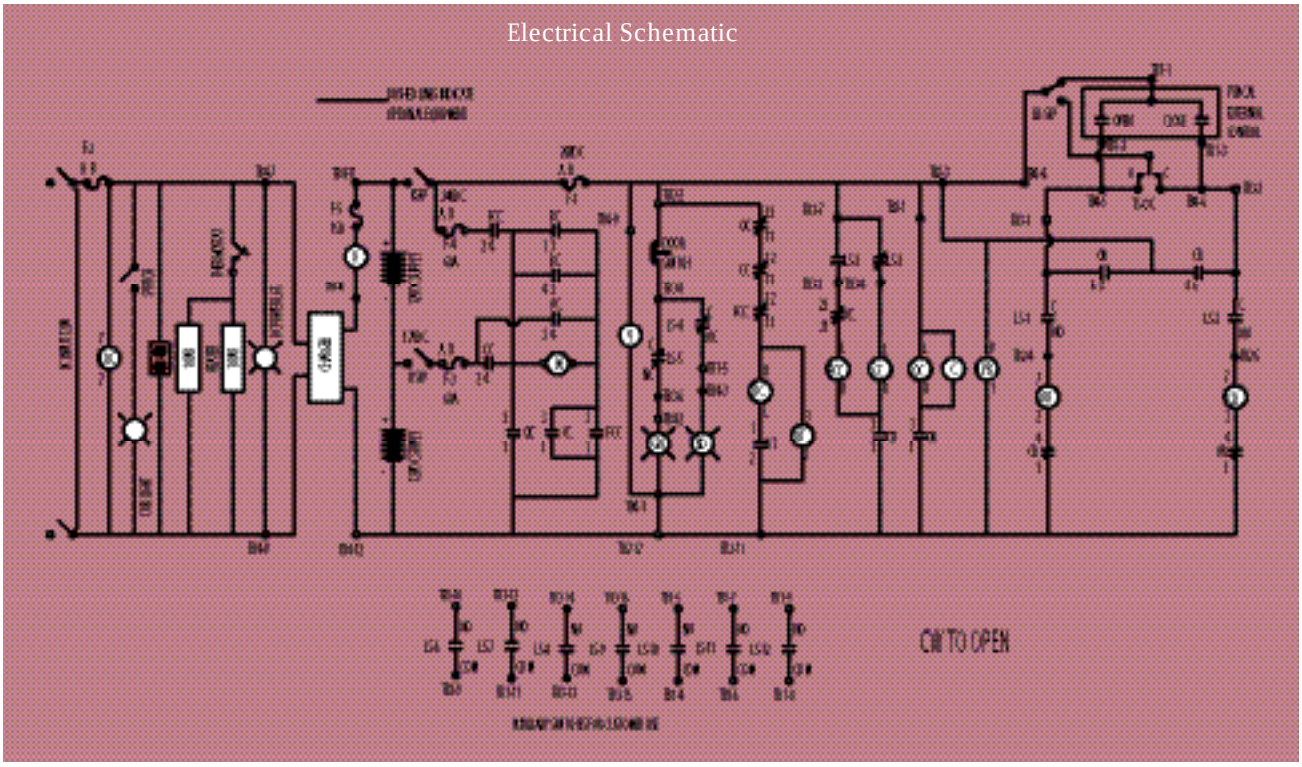
**Environmentally Qualified**

The SF300 electro-mechanical motor operator is suitable for application between -40° F and + 160° F.

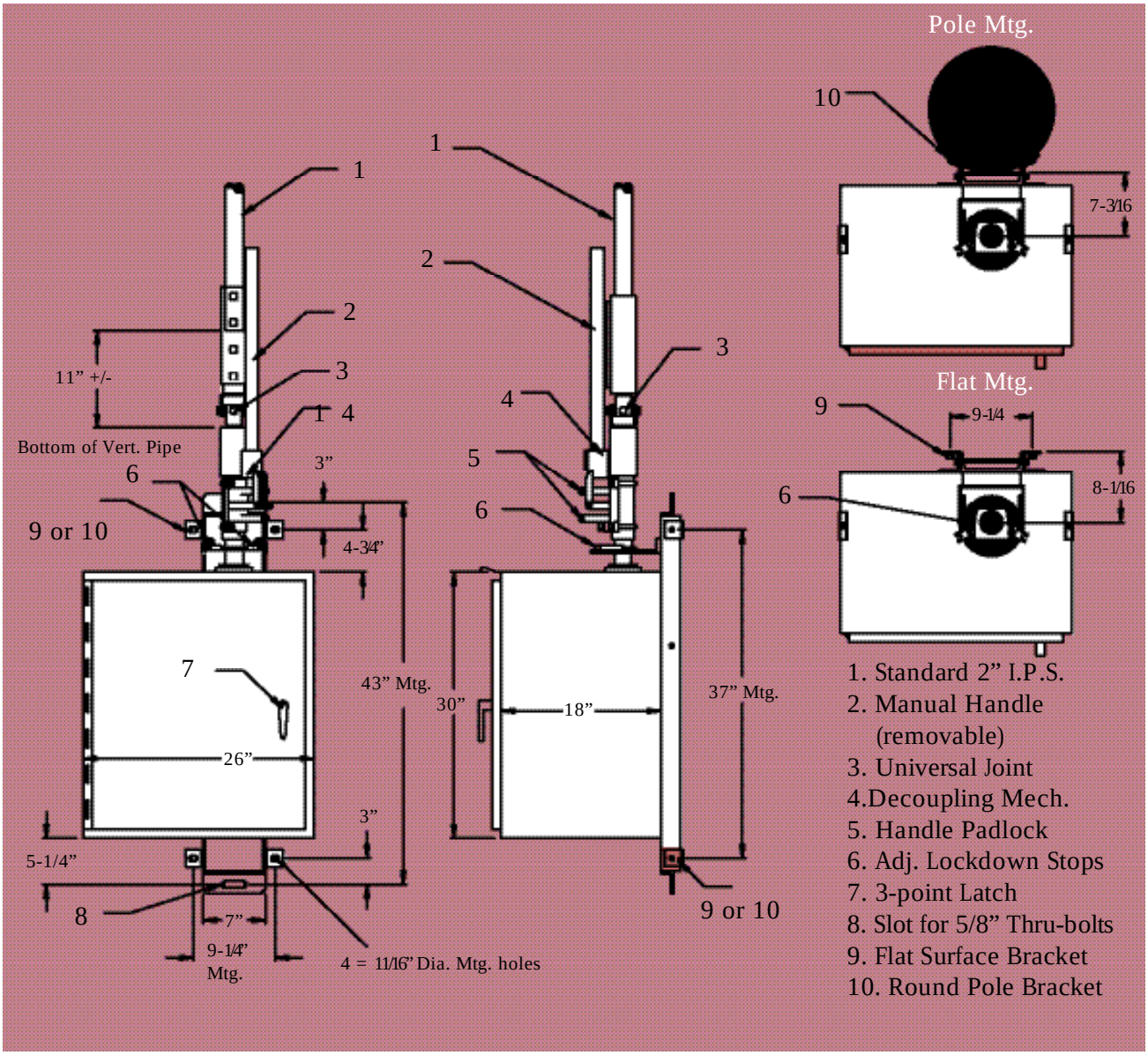
**Installation**

Standard installation mounting arrangements are available for wood, steel, or concrete poles. Standard substation arrangements are available for steel. Custom-engineered mounts are also available. Universal joints and thermal expansion allowances are provided as standard, allowing perfect vertical operating pipe alignment.

Electrical Schematic



# Dimensions and Nomenclature




## Distribution Operators and Substation Operators

Turner offers switch operators designed to work in a variety of arrangements.

The substation operator SF100/200 is rated for either 10,000 or 20,000 inch pounds of torque and available at 48 or 125vdc or 120 vac. Refer to B105.

In addition to new distribution switch installations, our HS3/HS4 Operators retrofit to any air break switches currently installed.

They can also be supplied with RTU technology for application on SCADA.

Refer to Turner Catalog G-103 for detailed information on these fast, reliable and powerful switch operators.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www.turnerswitch.com