

# Cole Facts

## IMPORTANT PRODUCT INFORMATION

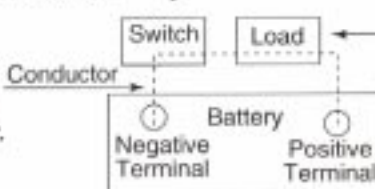
### Toggle and Rocker Switches

#### Operation

Toggle and rocker switches turn things On and Off, by allowing electricity to flow. They do this by opening and closing circuits and even diverting electricity from one place to another within a circuit. The circuit can be considered a path along which electrical current moves or flows.



A circuit is a combination of:  
(1.) a source of electricity, such as a battery.  
(2.) a conductor, usually a wire. The power travels through the conductor.  
(3.) a load.

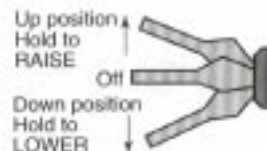


The device using power: motor, lights, winch, etc.



Toggle and rocker switches have functions other than ON and OFF. An OFF-ON-ON switch could be used to run a two speed heater or windshield wiper system. An ON-ON switch might be used to control fuel selector valves.

**Momentary** toggle and rocker switches turn a circuit ON or OFF temporarily, such as a day signalling marker light. When actuating a momentary switch by pressing and holding the actuator, it turns the light ON. When you release the actuator, it **spring returns** to its OFF position. This would be an OFF - MOMENTARY ON switch. The momentary position is also used to change direction, such as raising or lowering a tail gate. It would be a MOMENTARY ON - OFF - MOMENTARY ON switch.



**Contacts:** Switches contain moveable and stationary contacts. When a moveable contact connects with a stationary contact, a circuit is completed.

Moveable single pole contact



#### Poles and Throws

The letters **SPST**, **SPDT**, **DPST**, or **DPDT** describe what the switch is capable of doing.

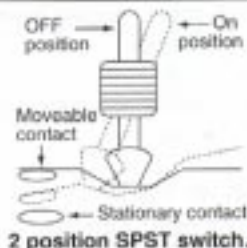
#### SP Single Pole

A switch device that opens, closes or changes connection in a single conductor of an electrical circuit.

#### DP Double Pole

A switch device that opens, closes or changes connection in two conductors of an electrical circuit.

An **SPST** (single pole, single throw) switch has one closed contact position (ON) and turns on one circuit - the basic OFF-ON switch.



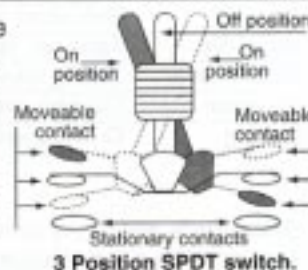
#### ST Single Throw

A switch that opens, closes or completes a circuit at only one of the extreme positions of its actuator.

#### DT Double Throw

A switch that opens, closes or completes a circuit at both extreme positions of its actuator.

An **SPDT** (single pole, double throw) switch has one closed contact position at one time. Because it is double throw, it can turn on two different circuits from one source, but not at the same time. It could be an ON-OFF-ON switch or an ON-ON switch.



A **DPST** (double pole, single throw) switch has two closed contact positions energizing two circuits at the same time. The circuits must be from separate sources. Because it is single throw, it has one ON position, an OFF-ON switch.

A **DPDT** (double pole, double throw) switch has two closed contact positions energizing two separate circuits at the same time. Because it is double throw it has two ON positions, an ON-OFF-ON or ON-ON switch.

Illustrations are for information purposes only and are not intended to be actual product representations.



Cole Hersee Co.

20 Old Colony Avenue, Boston MA 02127-2467 • Telephone (617) 268-2100 • Fax: (617) 268-9490  
<http://www.colehersee.com>

CF-105

Beyond the Ratings

Cole Hersee toggle and rocker switches are used in 6, 12, 24 and 36 VDC systems and are conservatively rated at up to 35 amps inductive load and 25 amps lamp load at 12 VDC. They are used in many different applications, such as signalling and marker lamps, windshield wiper systems, fuel selector valves, heater and headlight systems, etc.

Amperage requirements differ from application to application. Clearance and marker lamps on a truck with a 12 volt system can require from less than one to more than two amps to operate. Other lamps might need anywhere from five amps to eight amps.

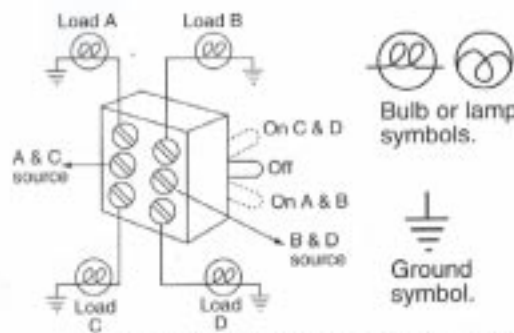
Since these applications require much less than the 25 or 35 amp rating to operate, it might seem that there is "too much switch" for some applications. But the switch has to be able to handle more than the operating load.

When switches are turned ON or OFF, they must handle more current or voltage than is required to operate in a steady state, and are built to handle these requirements.

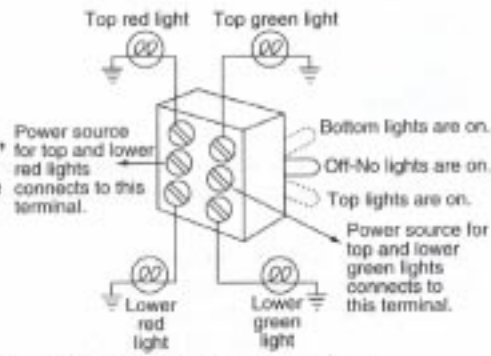
Schematics

Often filled with bewildering symbols and lines, schematics can be more easily understood if you look at them in terms of real applications, and know what the symbols mean.

DPDT switch schematics



Shows operation of four pilot lights, two on at a time, from two separate power sources.



Illustrations are for information purposes only and are not intended to be actual product representations.

Making the choice.

Since toggle and rocker switches perform the same functions and are about the same size, the choice between them is usually determined by appearance, mounting requirements, imprinting and illumination requirements.

**Appearance:** When adding switches to an existing panel, most customers prefer to keep a uniform appearance, installing toggles with toggles and rockers with rockers.

**Mounting:** Mounting requirements also can determine the choice. Toggle switches are easy to install as they only require only a round hole for mounting. Rocker switches are somewhat more difficult to install as they require a rectangular hole to accommodate the housing.

**Illumination/Imprinting:** Some applications require an illuminated or imprinted switch. Both toggle and rocker switches can be supplied with illuminated actuators. Rocker switches can contain pilot lights in the actuator and can also have imprinted actuators. Cole Hersee offers a full range of word and symbol imprint options.

Toggle and Rocker Switch Construction Options

	Toggle	Rocker
Actuators	Ball, short or log handle, paddle, illuminated	Curved rocker, angled three face, smooth, grooved
Mounting	Face nut, face & hex nut, bracket	Snap-in, bracket
Terminations	Screw, blade, wire leads, bullet	Screw, blade
Housings	Die cast, plastic, metal/plastic	Plastic, plastic with metal bezel or mounting bracket
Sealing	O ring, plasticized housing	Gasket seals

Getting the right switch for the job.

Since there are many varying application requirements and many different types of vehicles and equipment, it can appear to be a formidable task to determine what switch will work best where. Perhaps the most important point to remember is this: Cole Hersee has a switch that can handle just about any vehicle or equipment application that utilizes a toggle or rocker switch.

For special applications, especially for multiple circuit requirements, please be sure to contact our engineering department.

FOR MORE INFORMATION ON COLE HERSEE'S FULL LINE OF TOGGLE AND ROCKER SWITCHES, PLEASE CONSULT OUR MASTER CATALOG D-272, SECTION B, OR OUR MARINE AND HEAVY DUTY CATALOGS UNDER TOGGLE AND ROCKER SWITCHES.

