

D3 SOLENOID RELAYS

	Continuous Duty	Intermittent Duty
36V Insulated	24080 24081-01 UL 24135 coated 24636 composite	
24V insulated	24063 24063-08 coated UL 24107 24144 200A 24624-10 sealed composite	24008 24104
24V grounded	24124	
12V insulated	24059 24059-08 UL 24115 24117 coated 24117-01 coated UL 24143 200A 24420 Normally Closed 24512-10 composite 24612 composite 24612-10 composite 24812 225A composite 24812-01 225A composite	2430 phenolic 24021 RSC phenolic 24023 phenolic 24046 24047 24060 24076 coated 24077 coated 24612-03 composite 24612-13 composite M-200 M-200-01 UL
12V grounded	24082 curved 24106 24612-G10 composite	24021 phenolic RSC 24022 phenolic 24037 24038 curved 24071 coated 24103 RSC 24712-GS7 sealed composite M-202
6V grounded		24041 24039 curved
6V insulated	24097	

Key

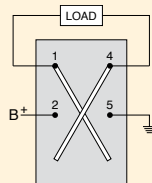
- Composite – Body is made of glass-filled nylon.
- Phenolic – Body is made of phenolic resin.
- UL – Item is UL and CE rated.
- Coated – Item is coated in PVC plastic for added environmental protection.
- RSC – Contains resistor shorting circuit.
- Curved – Bracket is curved for mounting on curved surface.
- Sealed – Item has an internal seal.

Reversing Polarity Switches

For changing the direction of permanent magnet motors.

Sealed Rocker Switches (Page 12)

- 58027-18 Mom On - Off - Mom On
- 58311-18 Mom On - Off - Mom On



Toggle Switches (Page 18)

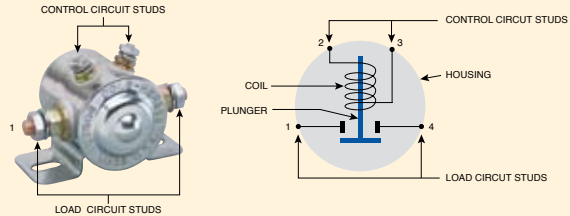
- 55046-06 Mom On - Off - Mom On



How Solenoid Relays Work

Solenoid relays can generally remotely switch a heavier current than is used in regular relays or microrelays. By using a solenoid, the amount of heavy wiring needed to power the load is reduced, since the control circuit mounted on the panel typically utilizes a smaller wire gauge.

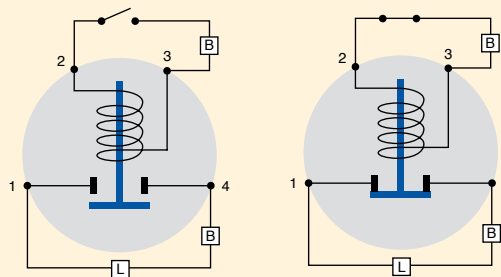
Solenoids are commonly used to control starter and winch motors, and they have many other uses on vehicles of all kinds.



A typical 4-stud solenoid

4-stud solenoid diagram

The diagram shows a magnetic coil surrounding a contact plunger. Before energization, the plunger is not electrically connected to the control circuit. When the control circuit is energized, the electromagnetic force induced in the coil attracts the plunger, which moves to close the load circuit. When the control circuit is de-energized, the spring-loaded plunger returns to its normal state and the load circuit is broken. In continuous duty applications, energization of the coil causes heating, therefore the solenoid housing will become warm even in normal operation.



Energized solenoid

Control circuit and load circuit closed

Solenoid in its normal state

Control circuit and load circuit open

For more information on solenoid relays, visit the interactive training section of the Cole Hersee website:

www.colehersee.com

Product Interchange

Locate the equivalent Cole Hersee parts – check Section J.

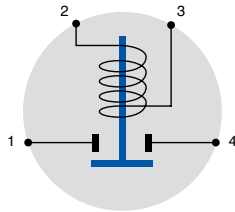
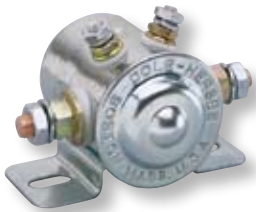


Continuous Duty Solenoid Relays

Plated steel case, or with an added coat of plastic for extra protection. 85A except where noted. Normally Open Contacts, SPST, One circuit: Off - On Housings: Contacts: Copper 5/16" -24 thread, hexnuts and lockwashers included. 200A solenoids have silver contacts. Coil, ignition and ground terminals: Steel 10-32 thread, hexnuts and lockwashers included. Bracket mounting holes 5/16" x 19/32" (7.9 x 15.1) on 2 13/64" centers (56.0mm).

36V insulated

24080



24135

Same as 24080, but with plastic coating.

24080-01 UL-Listed

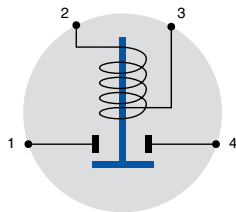
Same as 24080, but UL and CE rated. Continuous Rating: 65A at 36V DC. Intermittent rating: 120A make, 65A break. 10 sec On, 30 min Off.



Ignition Protected

24V insulated

24063 ★



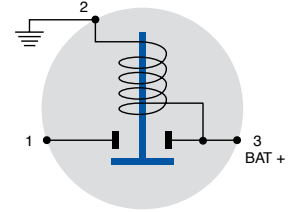
24063-08

Same as 24063, but with plastic coating and UL Listed.



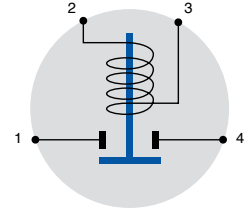
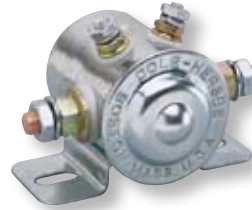
Ignition Protected

24107



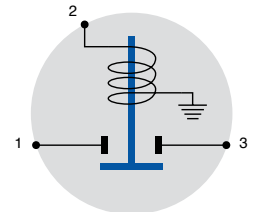
24144 200A ★

Electrical Rating: 200A carry only. Not to break 200A at 24V DC. Silver contacts.



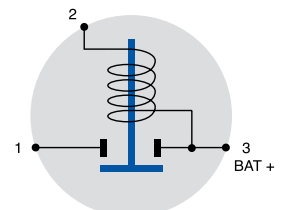
24V grounded

24124 ★

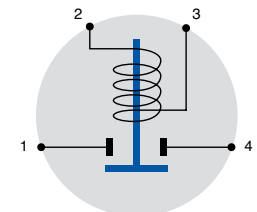


12V insulated

24115



24059 BP ★



24117

Same as 24059, but with plastic coating.

★ Rapid ship item. BP Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

24059-08 UL Listed BP ★

Same as 24059, but UL and CE rated.
 Continuous rating: 65A at 12V DC.
 Intermittent rating: 75 0A make, 100A break.
 10 sec On, 30 min Off.



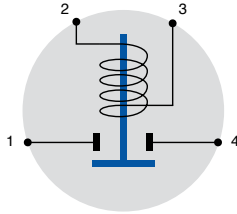
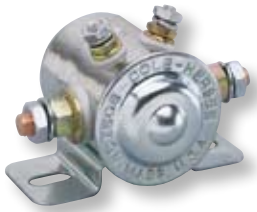
**Ignition
Protected**

24117-01

Same as 24059-08, with UL/CE listing but with plastic coating.

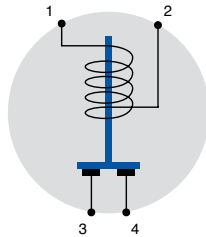
24143 200A ★

Electrical Rating: 200A. Silver contacts.



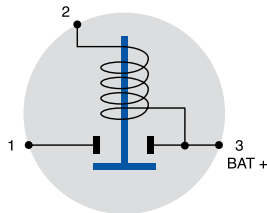
24420 Normally On

Continuous Duty 35A.

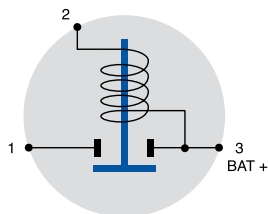


12V grounded

24106 BP ★

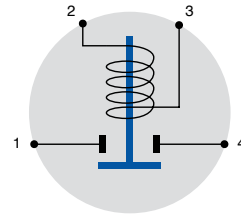


24082 Curved Bracket ★



6V insulated

24097



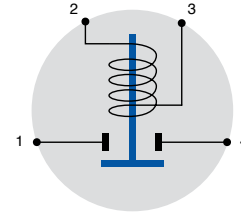
Intermittent Duty Solenoid Relays

Plated steel case (some with an added coat of plastic) or phenolic plastic case. Normally Off, SPST, One circuit: Off - On 750A make, 100A break, 10sec On, 20min Off, except where noted. Contacts: Copper. Terminals: Copper. Small ignition and ground terminals are 10-32 thread. Large contact terminals are 5/16" -24 thread. Hexnuts and lockwashers are included. Bracket mounting holes 5/16 x 19/32," 2 13/64" on centers (7.9 x 15.1, 56.0mm).

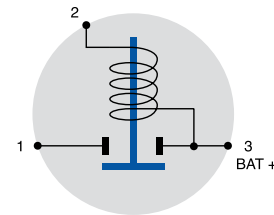
24V insulated

120A make, 65A break. 10 sec On, 30 min Off.

24008 ★



24104



New Master Disconnect

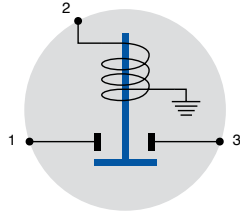


75920 Sealed Master Disconnect - See page 42.

★ Rapid ship item. BP Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

12V grounded

24037 ★



24071

Same as 24037, but with plastic coating.

M-202 Marine

Marine construction. Clear protective finish, brass hexnuts and lockwashers.



24022 Phenolic Housing ★

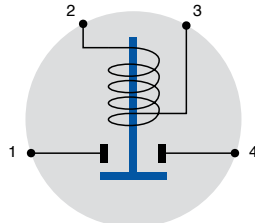
Bracket mounting holes 9/32" x 25/64," 2 7/64" on centers (7.1 x 9.9, 53.6mm).



12V insulated

24047 ★

PVC coated model: 24076.



M-200 Marine BP

Same as 24047, but marine construction. Clear protective finish, brass hexnuts and lockwashers.

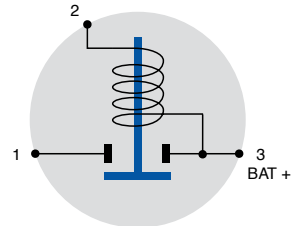
M-200-01 Marine, UL Listed

Same as M-200, but with UL & CE listing. Intermittent rating: 750A make, 100A break. 10 sec On, 30 min Off.

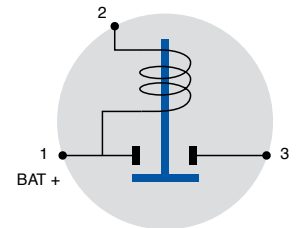


Ignition Protected

24060



24046

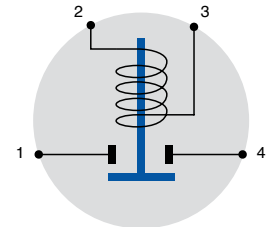


24077

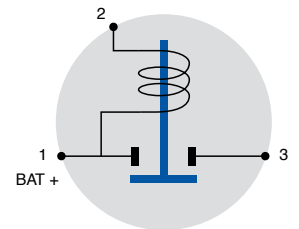
Same as 24046, but with plastic coating.

24023 Phenolic Housing

Bracket mounting holes 5/16" x 9/32," 2 9/16" on centers (8.1 x 7.2, 65.1mm).



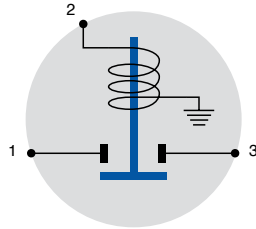
2430 Phenolic Housing



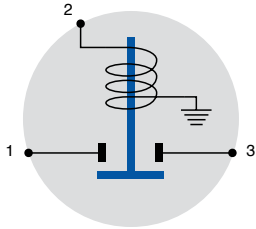
★ Rapid ship item. BP Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

6V grounded

24041



24039 Curved Bracket



Plastic Body Solenoid Relays

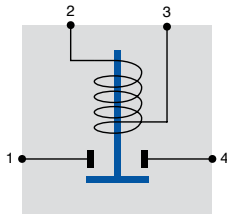
Rugged glass-filled nylon construction. Available in close-fitting L bracket or F bracket that gives a standoff.

Continuous Duty, 100A

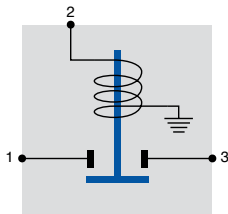
For starting small engines. SPST normally open contacts. 100A make and break, 400A inrush. Silver contacts. Large studs: 5/16"-24. 12V type: maximum operating voltage 14V DC. 24V type: maximum operating voltage 27V DC. 36V type: maximum operating voltage 36V DC. Cycle life: 50,000 minimum. Bracket mounting holes 5/16" x 19/32" (7.9 x 15.1) on 2 13/64" centers (56.0mm).



Insulated.
Shown: F
bracket, stud
terminals.



Grounded.
Shown: F
bracket, stud
terminal.



24636 36V Insulated

L bracket, two 10-32 stud coil terminals.

24624-10 24V Insulated

F bracket, two 10-32 stud coil terminals.

24512-10 12V Insulated BP

F bracket, two blade coil terminals.

24612 12V Insulated

L bracket, two 10-32 stud coil terminals.

24612-10 12V Insulated

F bracket, two 10-32 stud coil terminals.

24612-G10 12V Grounded BP

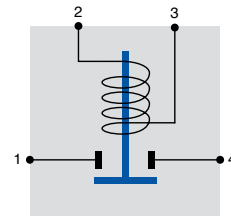
F bracket, one 10-32 stud coil terminal.

Intermittent Duty, 200A

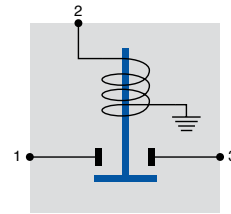
For starting small engines. 12V DC. SPST normally open contacts. 200A make and break, 5 secs On, 5 secs Off, 300A inrush. (Sealed solenoids 200A make and break, 5 secs On, 5 secs Off. 500A inrush, maximum On time 20 secs.) Allow at least 40 secs cooling after maximum On time. Copper contacts. Maximum operating voltage 14V DC. Cycle life: 10,000 minimum. Sealed solenoids are protected against ingress of contaminants such as oil or gasoline, dirt and moisture. Bracket mounting holes 5/16" x 19/32" (7.9 x 15.1) on 2 13/64" centers (56.0mm).



Insulated.
Shown: L
bracket, blade
terminals.



Grounded.
Shown: L
bracket, blade
terminal.



24612-03 12V Insulated, L Bracket BP

5/16" -24 large studs, two 10-32 stud coil terminals.

24612-13 12V Insulated, F Bracket

5/16" -24 large studs, two 10-32 stud coil terminals.

24712-GS7 12V Grounded, Sealed BP

1/4" -20 large studs, one 8-32 stud coil terminal.

★ Rapid ship item. BP Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

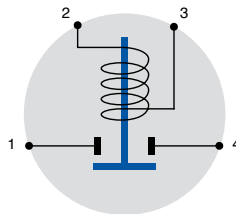


Special Purpose Solenoid Relays

Heavy Service, 225A, Continuous Duty

SPST normally open contacts. Insulated. 12-48V DC. Suitable for use with winches, small thrusters, etc. 225 make and break, 600A inrush.

Large studs: 5/16"-24, two 10-32 stud coil terminals. 12V silver contact, 50k cycles. Copper contact 25k cycles. Maximum operating voltage 14V DC, cycle life 25,000 minimum. 36V type: maximum operating voltage 36V DC, cycle life 50,000 minimum. 48V type: maximum operating voltage 48V DC. Cycle life: 50,000 minimum. Bracket mounting holes 5/16" x 19/32" (7.9 x 15.1) on 2 13/64" centers (56.0mm). Other types available by special order.



24824-01 24V

Silver contacts.

24812 12V

Copper contacts.

24812-01 12V

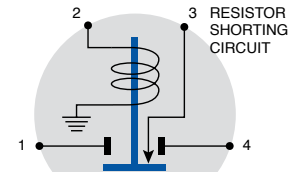
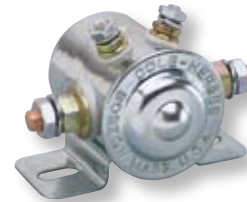
Silver contacts.

Special Types of Solenoid Relays	
36V Two Circuits Insulated	24400
24V Two Circuits Insulated	24402
12V Two Circuits Insulated	24401 & 24401-04 coated
12V Two Circuits Grounded	24401-01
12V Latching	24200
24V Motor Reversing Solenoid	24450-02
12V Motor Reversing Solenoid	24450
24V Heavy Service 225A	24824-01
12V Heavy Service 225A	24812 & 24812-01
12V Resistor Shorting Circuit	24103 & 24021

Resistor Shorting Circuit

In this application, 3 is Normally Open. It becomes common with 1 and 4 when the solenoid is energized. Commonly used in engine starting applications. Intermittent duty.

24103 12V Grounded



24021 Phenolic Housing, 12V Grounded ★

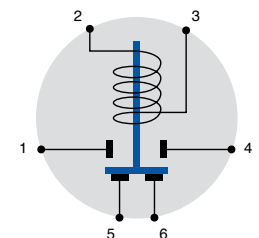
Bracket mounting holes 9/32 x 1/2," 2 13/64" on centers (7.2 x 12.7, 56.0mm). Contact terminal 5/16" -24 thread.



Two Circuits

Normally Off and Normally On. Special application: for forward and reverse systems. Housing: Steel. Continuous Duty, Normally Closed contacts 35A, Normally Open contacts 85A. Two circuits, DPST.

24400 36V Insulated



24402 24V Insulated

Same as 24400 only 24V.

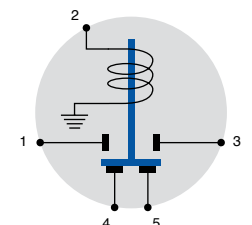
24401 12V Insulated ★

Same as 24400 only 12V.

24401-04

Same as 24401, but with plastic coating.

24401-01 12V Grounded ★



★ Rapid ship item. BP Available in retail clamshell pack. ★ Minimum order quantity may apply. Part numbers needed in BOX require a -BX suffix on the purchase order.

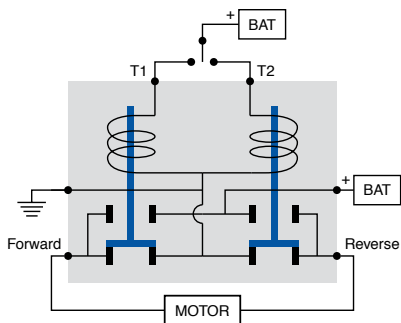
Motor Reversing Solenoid 12V

Suitable for use with motors for deck hatches, trim tabs etc. DPDT intermittent duty. 12V DC. Common ground coil. Two blade coil terminals, 5/16" -24 large studs. Copper contacts. 75A make and break, maximum On time 5 mins. 125A make and break, maximum On time 30 secs. 150A make and break, maximum On time 0.5 secs. Allow 5 mins Off after max On time. Maximum operating voltage 14.5V DC. Cycle life 10,000 cycles at 5 secs On, 25 secs Off. Shipped with mounting hardware. Use to control reversing motors such as those in winches and windlasses. Two solenoids in one for cost and space savings. Two integral solenoids provide dynamic breaking for permanent magnet motors when neither coil is energized.

Use in conjunction with one of many types of Cole Hersee SPDT momentary switches: rocker (such as 58027-04), or ignition-type keyed switch (such as 75705-01).

Also available as 24V: 24450-02 with same rating as 24450. Contact Cole Hersee.

24450 BP



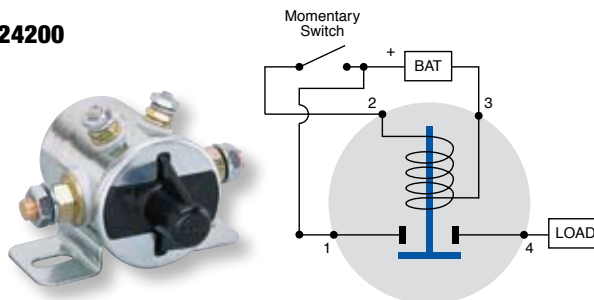
200A Latching Relay

Solid-state relay switches heavy motors and protects them from damage due to overcurrent and overheating. Reduces downtime due to replacement of conventional solenoids. Ignition protected. See page 29.

Latching Solenoid Relay

12V Continuous Duty, 110A (carry only). Insulated. Plated steel housing. Requires only a momentary application of coil power to operate. Very little heat is generated, because the coil is de-energized when the solenoid is On. This special solenoid toggles On and Off and requires no current to maintain the continuity of the power circuit. Actuation of the external momentary switch causes current to flow in the solenoid coil, locking the contact in place, and maintaining the load circuit in an On position. A second actuation of the momentary switch releases the plunger, turning the load circuit Off.

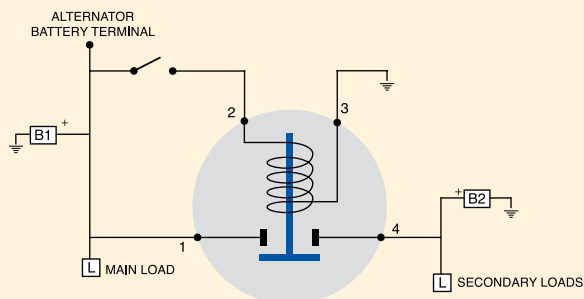
24200



Latching Solenoid Relay Applications

1. A Remote Battery Isolator

In a two-battery system, use the Latching Solenoid to isolate the batteries from each other, and prevent battery drain from the higher into the lower. It has an advantage over electronic Battery Isolators (see page 47), in that it will not produce a voltage drop during operation.



2. A Remote Battery Disconnect

Use it as a remote Battery Disconnect Switch. This eliminates the need for heavy gauge wiring between the control panel and the battery.

