WHITE-RODGERS DC PRODUCTS

Type 70 and 71 contactors

FEATURES

- High current capacity control
- Isolated or grounded coils
- Enclosed in dust-resistant case
- Longer steel encasement permits lower heat rise and more sensitive operation on Type 71

ENGINEERING DATA

Contacts

- Pole form– SPNO, SPDT
- Material– SPNO-copper or silver
  SPDT-copper and silver or all silver
- Termination– $^{5}/_{16}$"-24 UNF-2A thread

RATINGS					
		NO		NC	
Type	Volts DC	Cont.	Inrush	Cont.	Inrush
70	6	80A	300 A	60A	100 A
	12	80 A	150 A	60 A	60 A
	24 & 36	50 A	50 A	30 A	30 A
71	6	80A	300 A	60A	100 A
	12	80 A	150 A	60 A	60 A
	24 & 36	50 A	50 A	30 A	30 A

Coils

- Voltage–6 VDC through 36 VDC
- Termination–#10-32 UNF-2A thread
- Power (approximate)
  Type 70 intermittent 23 watts
  Type 70 continuous 9 watts
  Type 71 intermittent 25 watts
  Type 71 continuous 10 watts
- Connections
  1. Two coil terminals isolated from case
  2. One coil terminal with ground wire, one coil terminal isolated from case
  3. One coil lead common to NO terminal marked "BAT" (one terminal)
- Operate (77°F/25°C)
  75% of nominal coil voltage; 110% max. safe of nominal coil voltage

GENERAL DATA

Dielectric Strength
- 500 Volts

Temperature Range
- -40°F/-40°C to 122°F/50°C

Mechanical Life (no load)
- 250,000 operations

Electrical Life (rated load)
- 100,000 operations

Mounting Position
- Recommended mounting with cap down

Vibration
- 5 g's vertical and horizontal planes

Weight (approximate)
- Type 70–14.0 oz.
- Type 71–17.0 oz.

Duty Cycle
- Continuous
- Intermittent–10 seconds "on" maximum and minimum 60 seconds "off". One minute "on" maximum and minimum 6 minutes "off".

Hardware Torque Specification
- Contact Terminal: 45-55 inch-lbs.
- Coil Terminal: 12-18 inch-lbs.
- Mounting Bracket: 100 inch-lbs. max (a backup wrench must be used to hold the bottom nut stationary during installation)

COIL DATA					
TYPE 70			TYPE 71		
	Resistance (Ohms)			Resistance (Ohms)	
Volts DC	Int.	Cont.	Volts DC	Int.	Cont.
6	1.5	4.0	6	1.4	3.5
12	6.2	16.0	12	4.9	13.5
18	16.0	37.4	18	13.46	36.0
24	23.9	60.4	24	20.1	57.1
36	60.4	114.0	36	57.1	131.0

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TYPE 70/71 PART NUMBERING SYSTEM

7x – x xx x x x - x

Basic Part Number Series
Type 71 case is approx. 0.29” longer than Type 70

Contact Form
1 – SPNO
3 – SPDT

Coil Voltage/Duty
08 – 6 Volt continuous
09 – 6 Volt intermittent
11 – 12 Volt continuous
12 – 12 Volt intermittent
14 – 18 Volt continuous
15 – 18 Volt intermittent
17 – 24 Volt continuous
18 – 24 Volt intermittent
20 – 36 Volt continuous
21 – 36 Volt intermittent

Coil Termination
(15 in-lb torque spec.)
221 – Isolated coil, all Ag contacts
222 – Coil terminal with ground wire, all Ag contacts
224 – Isolated coil, Cu NO and Ag NC contacts
225 – Coil terminal with ground wire, Cu NO and Ag NC contacts
226 – Coil common to NO (stud marked “BAT”), Cu NO and Ag NC contacts

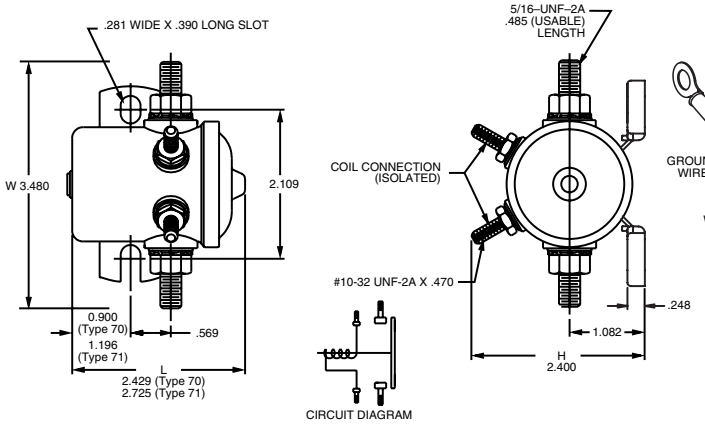
Factory Assigned Specials
(where undefined, contact factory)
2 – Hardware loosely assembled
2B – Customer requested markings
2C – Customer requested markings
3 – Customer requested markings
4 – Customer requested markings
5 – Hardware bulk packed
5C – Customer requested markings
5F – Customer requested markings
7 – No hardware included

Not all part number combinations are released. Please contact your Sales Representative for a list of active part numbers.

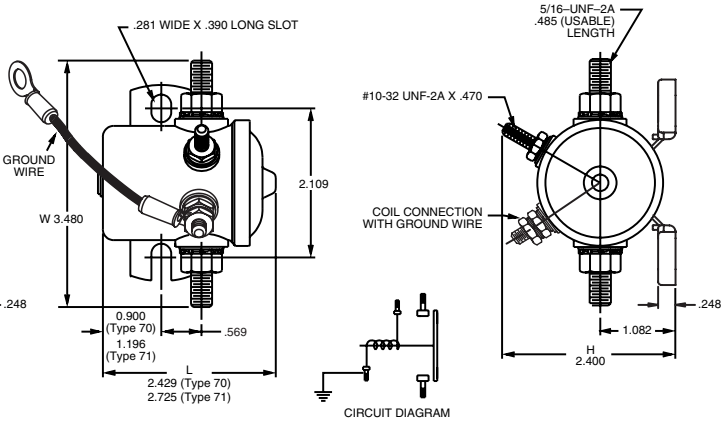
APPLICATION NOTES

- A back-up wrench MUST be used to hold the bottom nut stationary during installation.
- Solenoids applied in battery charging circuits should be protected from higher than rated voltage during charging. The service life may be affected by this condition and the solenoid may or may not operate the circuit as intended.
- Circuits should be designed to provide safe operation should the solenoid fail in either the open or closed position.
- Special construction options, including a curved bracket, may be available under other part numbers, including 111-xxxD (short can), 111-xxxE (long can), 5608-x and 878x-x.

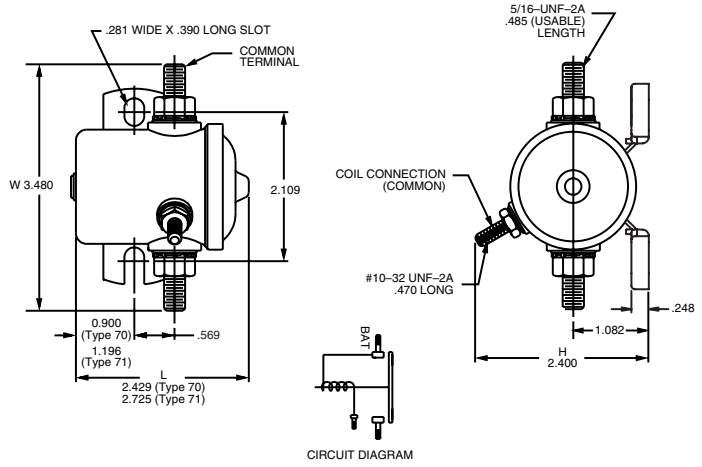
SPNO – Isolated Coil



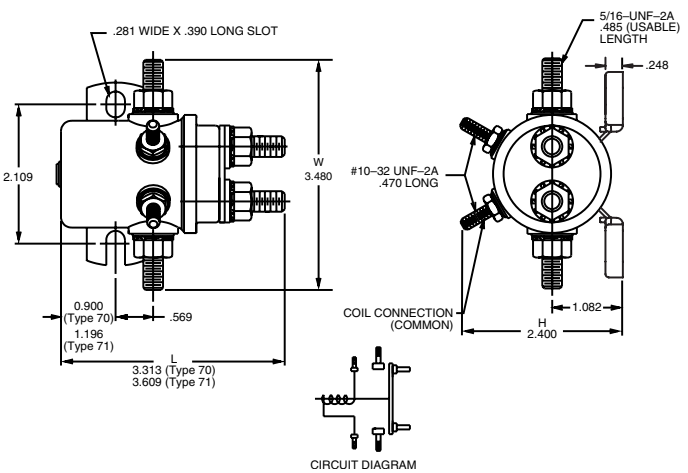
Coil Terminal to Ground



Coil Common to Load



SPDT – Isolated Coil



WHITE-RODGERS DC PRODUCTS

Type 120

solenoid

FEATURES

- Water resistant
- Capable of handling low and high current requirements
- Versatile mounting and termination

ENGINEERING DATA

Contacts

- Pole form–SPNO
- Material–silver alloy or copper
- Termination–$^{5}/_{16}$"-24 UNF-2A thread or $^{1}/_{4}$"-20 UNC-2A thread

RATINGS				
Volts DC	Cont.	Inrush	Elec. Life	Contact Material
12 VDC	80A	400 A	10,000	Copper
12 VDC	100 A	400 A	50,000	Silver Alloy
36 VDC	100 A	400 A	25,000	Silver Alloy

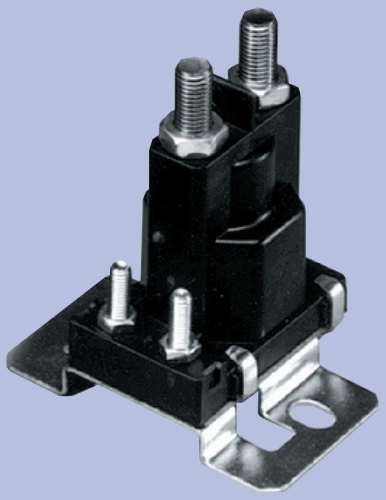
Consult factory for additional ratings.

Coils

- Voltage–6 VDC through 48 VDC
- Termination–#8-32 UNC-2A, #10-32 UNF-2A thread or $^{1}/_{4}$" quick-connect
- Power (approximate)
  Continuous 8.1 watts
  Intermittent 14.4 watts
- Connections
  1. Coil isolated (two terminals)
  2. One coil lead grounded to bracket (one terminal)
- Operate (77°F/25°C)
  67% of nominal (Int.)
  75% of nominal (Cont.)
  110% max. safe of nominal coil voltage

COIL DATA		
	Resistance in Ohms	
Volts DC	Intermittent	Continuous
6	*	4.0
12	6.0	16.0
14	*	26.0
15	9.4	23.0
24	24.0	64.0
36	54.0	160.0
48	*	256.0

*** SPECIAL COILS AVAILABLE UPON REQUEST**



GENERAL DATA

Dielectric Strength
- 500 Volts

Temperature Range
- -20°F to 150°F (-28.9°C to 65.6°C) (Intermittent)
- -20°F to 120°F (-28.9°C to 48.9°C) (Continuous)

Mechanical Life (no load)
- 100,000 cycles

Mounting Position
- Recommended mounting is coil terminals up or horizontal

Weight (approximate)
- SPNO–6.0 oz.

Duty Cycle
- Continuous
- Intermittent–30 seconds "on" maximum and minimum 6 minutes "off"

Hardware Torque Specification
- Contact Terminal: 45-55 inch-lbs.
- Coil Terminal: 12-18 inch-lbs.

TYPE 120 PART NUMBERING SYSTEM

120 – 1 xx x x x - x

Basic Part Number Series

SPNO

Coil Voltage/Duty

- 02 – 6 Volt continuous
- 05 – 12 Volt continuous
- 06 – 12 Volt intermittent
- 07 – 14 Volt continuous
- 08 – 15 Volt continuous
- 14 – 24 Volt continuous
- 17 – 36 Volt continuous (special, 100 ohm coil)
- 19 – 36 Volt continuous
- 20 – 48 Volt continuous

Coil Termination (15 in-lb torque spec.)

- 1 – Isolated w/ #10-32 terminal (0.220 min. length)
- 2 – Grounded w/ #10-32 terminal (0.220 min. length)
- 3 – Isolated w/ 1/4" Q.C. terminal
- 4 – Grounded w/ 1/4" Q.C. terminal
- 6 – Grounded w/ #8-32 tapered terminal
- 7 – Isolated w/ #10-32 terminal (0.451 min. length)
- 8 – Grounded w/ #10-32 terminal (0.451 min. length)

Contact Material and Termination (55 in-lb torque spec.)

- 1 – AgCdO w/ 5/16"-24 terminal (0.388 min. length)
- 3 – Cu w/ 5/16"-24 terminal (0.388 min. length)
- 4 – Cu w/ 1/4"-20 terminal
- 5 – AgCdO w/ 5/16"-24 terminal (0.495 min. length)

Mounting Bracket

- 1 – Standard bracket
- 2 – "L" shaped bracket

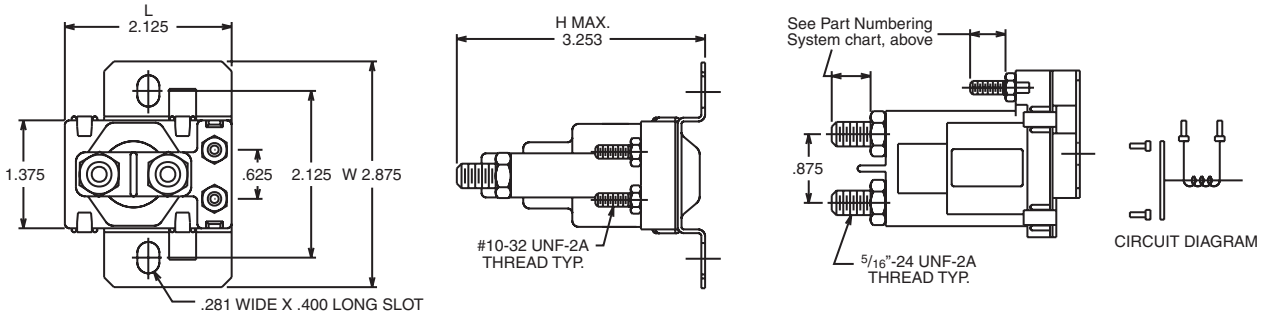
Factory Assigned Specials (where undefined, contact factory)

- No dash – Standard assembly, hardware sent bulk
- 1 – Without hardware
- 2 – Extra hardware loosely mounted to solenoid
- 4 – Customer requested markings
- 5 – Mounting bracket zinc-plated and dichromate dip
- 6 – Customer requested markings
- 7 – Customer requested markings
- 8 – No hardware, mounting bracket as -5 option
- 9 – Customer requested markings
- 11 – Customer requested markings

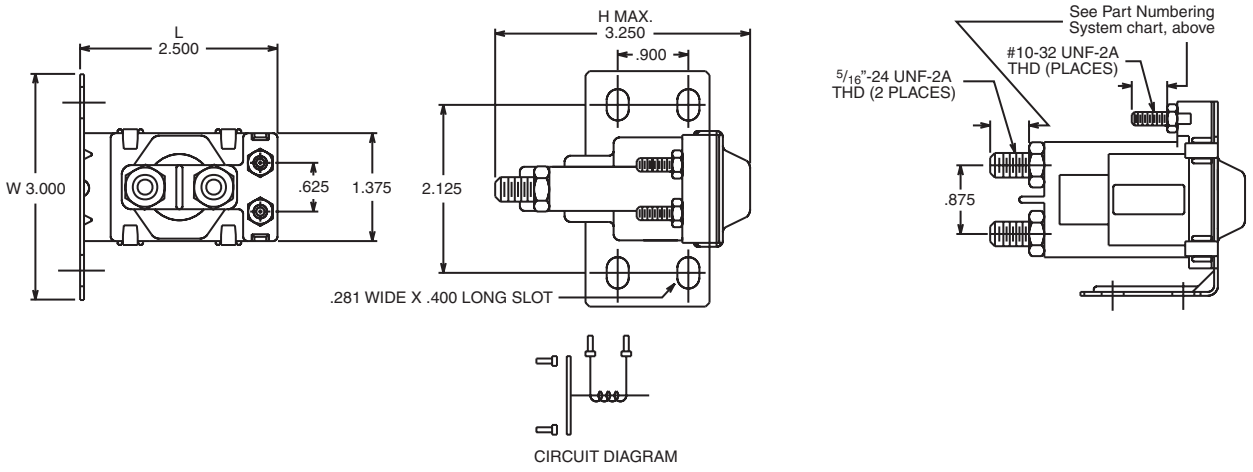
APPLICATION NOTES

- Not all part number combinations are available. Please contact your Sales Representative for available part numbers.
- Solenoids applied in battery charging circuits should be protected from higher than rated voltage during charging. The service life may be affected by this condition and the solenoid may or may not operate the circuit as intended.
- Circuits should be designed to provide safe operation should the solenoid fail in either the open or closed position.
- A back-up wrench must be used to hold the bottom nut stationary during installation.

Terminal Type 4 - Isolated Coil (STD Bracket)



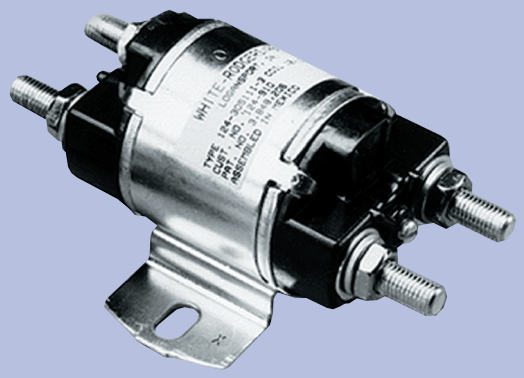
Terminal Type 4 - Isolated Coil (L Bracket)



WHITE-RODGERS DC PRODUCTS

Type 124

solenoid



FEATURES

- Double-make or double-break contacts
- Steel enclosure
- Offers high and low current capabilities
- Isolated or grounded coils

ENGINEERING DATA

Contacts

- Pole form–SPNO, SPNC and SPDT
- Material–silver alloy
- Termination–$^{5}/_{16}$"-24 UNF-2A thread

RATINGS				
	NO		NC	
Volts DC	Cont.	Inrush	Cont.	Inrush
6	150A	400 A	50A	200 A
12	150 A	400 A	50 A	200 A
24	150 A	400 A	50 A	100 A
36	100 A	400 A	50 A	100 A

Coils

- Voltage–6 VDC through 48 VDC
- Termination–#10-32 UNF-2A thread
- Power (approximate)
  Continuous 12 watts
  Intermittent 24 watts
- Connections
  1. Coil isolated (two terminals)
  2. One coil lead grounded to case (one terminal)
- Operate (77°F/25°C)
  75% of nominal coil voltage
  110% max. safe of nominal coil voltage

COIL DATA		
	Resistance in Ohms	
Volts DC	Intermittent	Continuous
6	1.7	3.3
12	6.6	13.2
15	10.2	21.0
24	26.0	53.0
36	59.0	120.0
48	105.0	213.0

GENERAL DATA

Dielectric Strength
- 500 Volts

Temperature Range
- -40°F/-40°C to 149°F/65°C

Mechanical Life (no load)
- 100,000 operations

Electrical Life (rated load)
- 50,000 operations

Mounting Position
- Recommended mounting is vertical plane with coil terminals up

Weight (approximate)
- SPNO–16.0 oz.
- SPDT–19.0 oz.

Duty Cycle
- Continuous
- Intermittent—10 seconds "on" maximum and minimum 60 seconds "off"
  One minute "on" maximum and minimum 6 minutes "off"

Hardware Torque Specification
- Contact Terminal: 60 inch-lbs. max.
- Coil Terminal: 12-18 inch-lbs.

TYPE 124 PART NUMBERING SYSTEM

124 – x xx x x x - x

Basic Part Number Series

Contact Form
1 – SPNO
2 – SPNC
3 – SPDT

Coil Voltage/Duty
02 – 6 Volt continuous
03 – 6 Volt intermittent
05 – 12 Volt continuous
06 – 12 Volt intermittent
08 – 15 Volt continuous
09 – 15 Volt intermittent
14 – 24 Volt continuous
15 – 24 Volt intermittent
17 – 36 Volt continuous
18 – 36 Volt intermittent
20 – 48 Volt continuous
21 – 48 Volt intermittent

Coil Termination
1 – Isolated
2 – Grounded

Contact Material
1 – AgCdO
4 – AgCdO (to be replaced by 1)
5 – Au plated NC/AgCdO NO

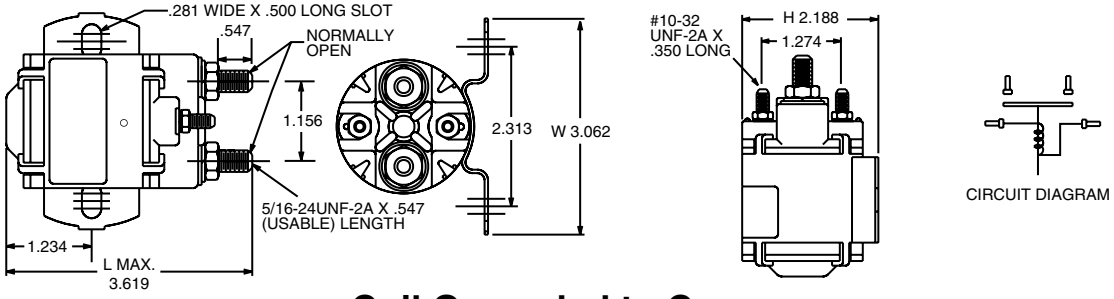
Mounting Bracket
1 – Standard bracket

Factory Assigned Specials
(where undefined, contact factory)
No dash – Standard assembly, hardware sent bulk
1 – Customer requested markings
2 – Customer requested markings
3 – Customer requested markings
4 – Customer requested markings
5 – Customer requested markings
6 – Customer requested markings

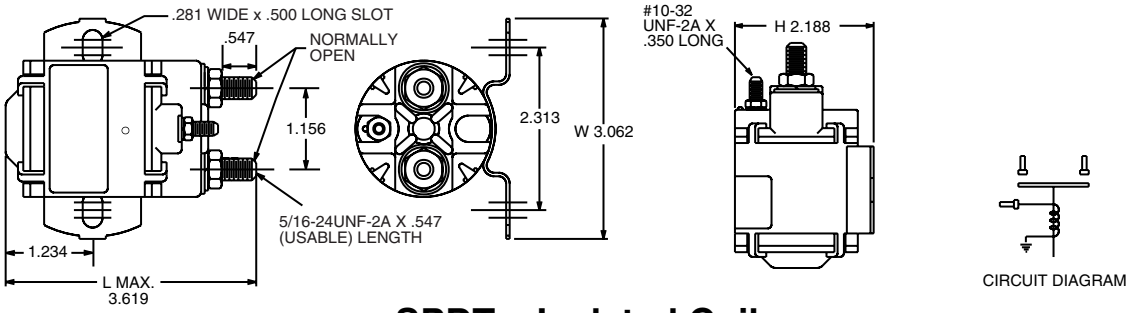
APPLICATION NOTES

- Not all part number combinations are available. Please contact your Sales Representative for available part numbers.
- Solenoids applied in battery charging circuits should be protected from higher than rated voltage during charging. The service life may be affected by this condition and the solenoid may or may not operate the circuit as intended.
- Circuits should be designed to provide safe operation should the solenoid fail in either the open or closed position.
- A back-up wrench must be used to hold the bottom nut stationary during installation.

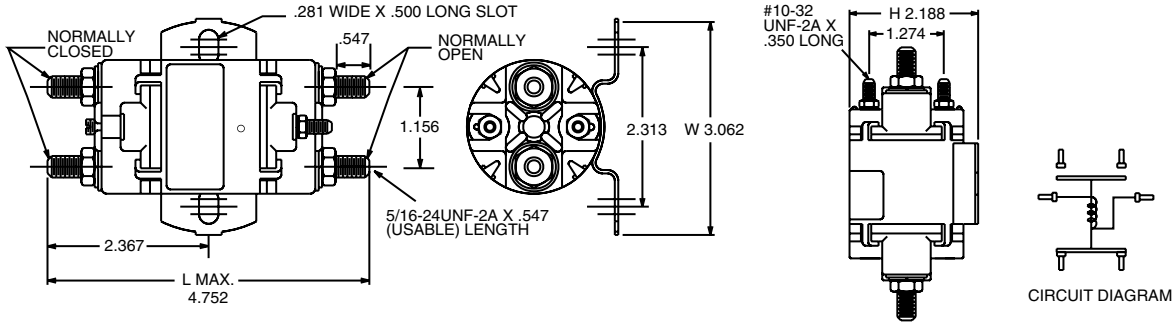
SPNO – Isolated Coil



Coil Grounded to Case



SPDT – Isolated Coil



WHITE-RODGERS DC PRODUCTS

Type 586

sealed solenoid

FEATURES

- Water resistant
- Double-make or double-break contacts
- Capable of handling high and low current requirements
- Black impact phenolic casing

ENGINEERING DATA

Contacts

- Pole form–SPNO and SPDT
- Material–silver alloy
- Termination–$^{5}/_{16}$"-24 UNF-2A thread

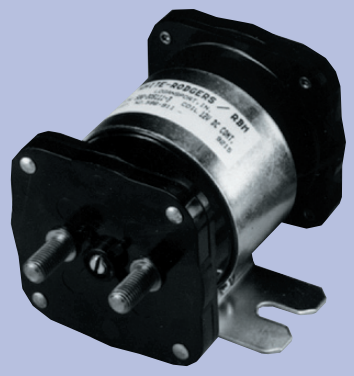
RATINGS				
	NO		NC	
Volts DC	Cont.	Inrush	Cont.	Inrush
6	200A	600 A	100A	300 A
12	200 A	600 A	100 A	300 A
24 & 36	200 A	600 A	100 A	200 A

Coils

- Voltage–6 VDC through 48 VDC
- Termination–#10-32 UNF-2A thread
- Power (approximate)
  Continuous 12 watts SPDT, 8 watts SPNO
- Connections
  Coil isolated (two terminals)
- Operate (77°F/25°C)
  67% of nominal coil voltage (intermittent)
  110% max. safe of nominal coil voltage

COIL DATA				
	Resistance in Ohms			
	Intermittent[§]		Continuous	
Volts DC	SPDT	SPNO	SPDT	SPNO
6	2.2	3.3	3.3	5.25
12	8.4	13.2	13.2	21.0
15	13.1	21.0	21.0	32.8
18	18.4	30.0	30.0	47.0
24	33.6	53.0	53.0	84.0
36	75.6	120.0	120.0	189.0
48	134.0	213.0	213.0	336.0

[§] Intermittent—special request only



GENERAL DATA

Dielectric Strength
- 500 Volts

Temperature Range
- -40°F/-40°C to 149°F/65°C

Mechanical Life (no load)
- 100,000 cycles

Electrical Life (rated load—making and breaking
200 amp on NO Contacts)
- 50,000 cycles

Mounting Position
- Recommended mounting is vertical plane with coil terminals up

Weight (approximate)
- SPNO–24.0 oz.
- SPDT–26.0 oz.

Duty Cycle
- Continuous
- Intermittent—10 seconds "on" maximum and minimum 60 seconds "off"
  One minute "on" maximum and minimum 6 minutes "off"

Hardware Torque Specification
- Contact Terminal: 60 inch-lbs. max.
- Coil Terminal: 12-18 inch-lbs. max.

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TYPE 586 PART NUMBERING SYSTEM

586 – x xx x x x - x

Basic Part Number Series

Contact Form
1 – SPNO 3 – SPDT

Coil Voltage/Duty
02 – 6 Volt continuous 05 – 12 Volt continuous 08 – 15 Volt continuous 14 – 24 Volt continuous 16 – 28 Volt continuous 17 – 36 Volt continuous 20 – 48 Volt continuous

Coil Termination
1 – Isolated

Contact Material
1 – AgCdO

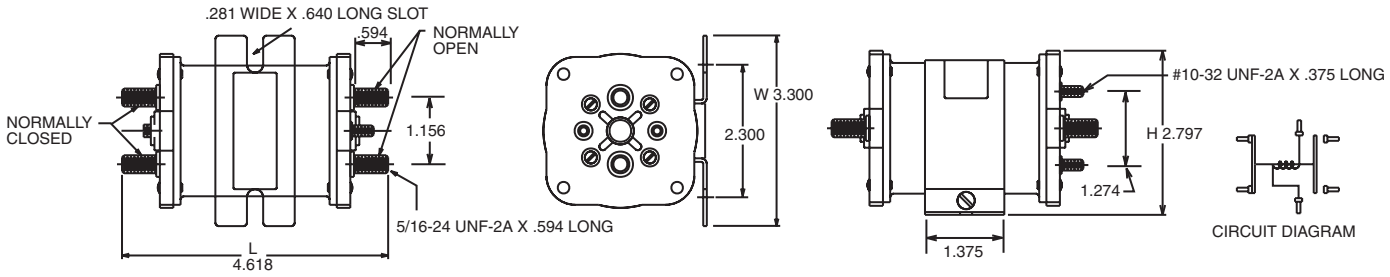
Mounting Bracket
1 – Standard bracket

Factory Assigned Specials (where undefined, contact factory)
No dash – Standard assembly, hardware sent bulk 2 – Customer requested markings 3 – Customer requested markings 3A – Customer requested markings 5 – Customer requested markings 6 – Customer requested markings 6A – Customer requested markings 7 – Customer requested markings

APPLICATION NOTES

- Not all part number combinations are available. Please contact your Sales Representative for available part numbers.
- Solenoids applied in battery charging circuits should be protected from higher than rated voltage during charging. The service life may be affected by this condition and the solenoid may or may not operate the circuit as intended.
- Circuits should be designed to provide safe operation should the solenoid fail in either the open or closed position.

SPDT – Isolated Coil



SPNO – Isolated Coil