

3.04 Open Frame Contactors

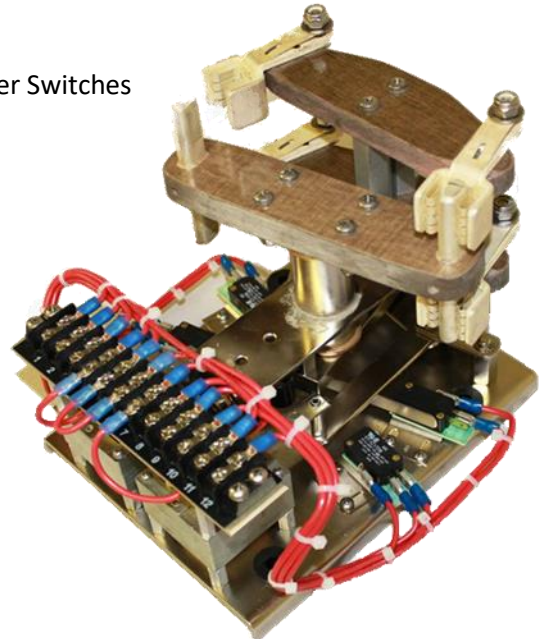
Contactor Product Overview

Applications

- Main/Standby AM/Medium Wave Transmitter or Antenna Transfer Switches
- AM/Medium Wave Directional Antenna Pattern Switches
- AM/Medium Wave Transmitter Combiner Switches
- AC Transformer Tap Switches
- LF/VLF Transmitter or Antenna Transfer Switches

Features and Ratings

- Frequency Range: 0-5MHz
- Operating Linkage Solenoid or Motor Driven
- In-Line Micro-Switches for Solenoid Protection
- Dual Position Status Micro-Switches
- Mechanically Latching
- Optional Auxiliary Control Boards for Lower Voltage Operating
- Replacement/Spare Parts In Stock



OPEN FRAME CONTACTOR SELECTION CHART

Part Number	Contacts ¹	Main Contact Rating		Operator Voltage ³		Dimensions L x W x H
		Current (Max Amps)	Voltage ² (Peak kV)	Solenoid ^{4,5} (Volts AC)	Motor ⁶ (Volts AC)	
RFC-40-20-1-110-R1	SPDT	40	20	110	-	8" x 6.5" x 6.5" (20.30cm x 16.5cm x 16.5cm)
RFC-40-20-1-220-R1	SPDT	40	20	220	-	
RFC-40-20-2-110-R1	DPDT	40	20	110	-	
RFC-40-20-2-220-R1	DPDT	40	20	220	-	
RFC-80-30-1-110	SPDT	80	30	110	-	13" x 9" x 7" (33cm x 22.9cm x 17.8cm)
RFC-80-30-1-220	SPDT	80	30	220	-	
RFC-80-30-2-110	DPDT	80	30	110	-	
RFC-80-30-2-220	DPDT	80	30	220	-	
RFC-100-35-1-110	SPDT	100	35	110	-	14.5" x 10.5" x 10.5" (36.8cm x 26.7cm x 26.7cm)
RFC-100-35-1-220	SPDT	100	35	220	-	
RFC-100-35-2-110	DPDT	100	35	110	-	
RFC-100-35-2-220	DPDT	100	35	220	-	
RFC-150-55-1S-L	SPST	150	55	-	110-220	20" x 14.75" x 10" (50.8cm x 37.5cm x 25.4cm)
RFC-150-55-1-L	SPDT	150	55	-	110-220	
RFC-200-30-1-L	SPDT	200	30	-	110-220	14.25" x 12.75" x 12" (36.2cm x 32.4cm x 30.5cm)
RFC-200-30-2-L	DPDT	200	30	-	110-220	
RFC-200-80-1S	SPST	200	80	-	110-220	25" x 24" x 17.5" (63.5cm x 61.0cm x 44.5cm)
RFC-200-80-1-L	SPDT	200	80	-	110-220	

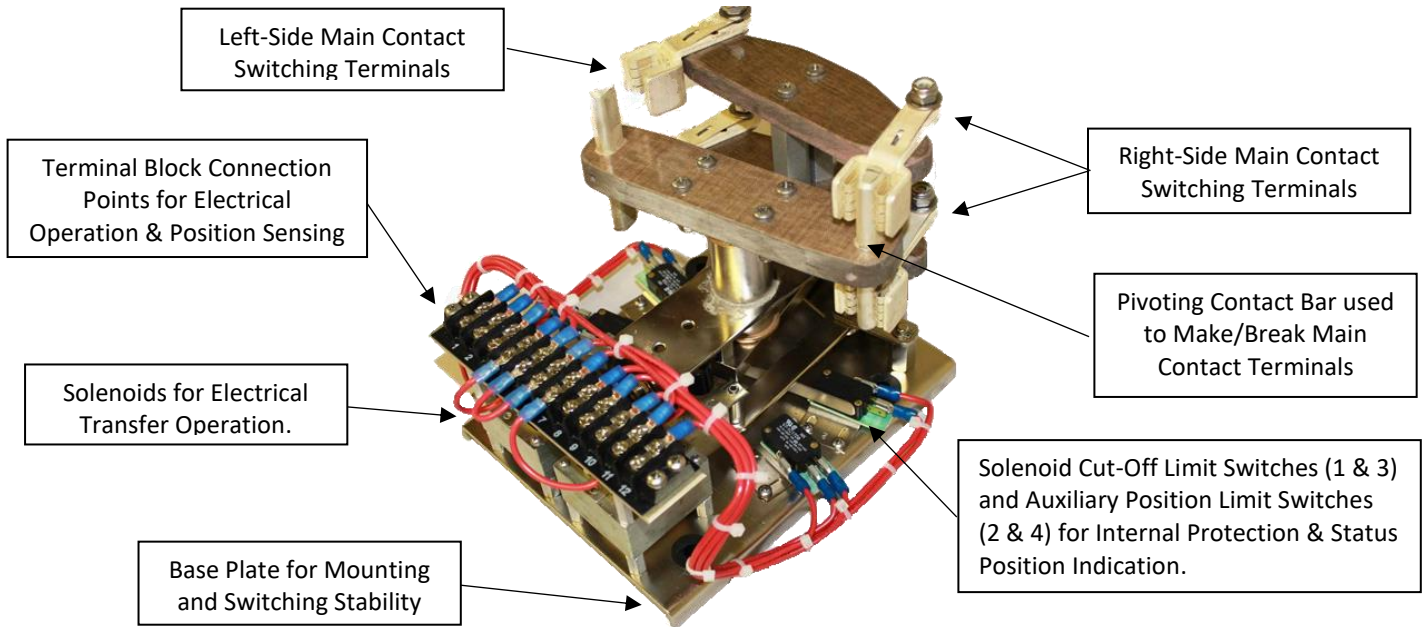
1. Terms used for contacts SPST: Single Pole Single Throw, SPDT: Single Pole Double Throw, DPDT: Double Pole Double Throw
2. Peak Voltage rating for application \leq 1000 Meters above sea level. For higher altitude needs, consult factory.
3. All AC voltages are rated for 50/60 Hz operation.
4. Solenoid Coil Inrush Current approximately 8 Amps for 120VAC and 4 Amps for 220VAC.
5. Solenoid Driven Contactors can be operated direct with AC voltage or indirectly with optional 24VDC interface board.
6. AC drive boards are included with motor driven contactors.

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Construction – Solenoid Driven Contactors

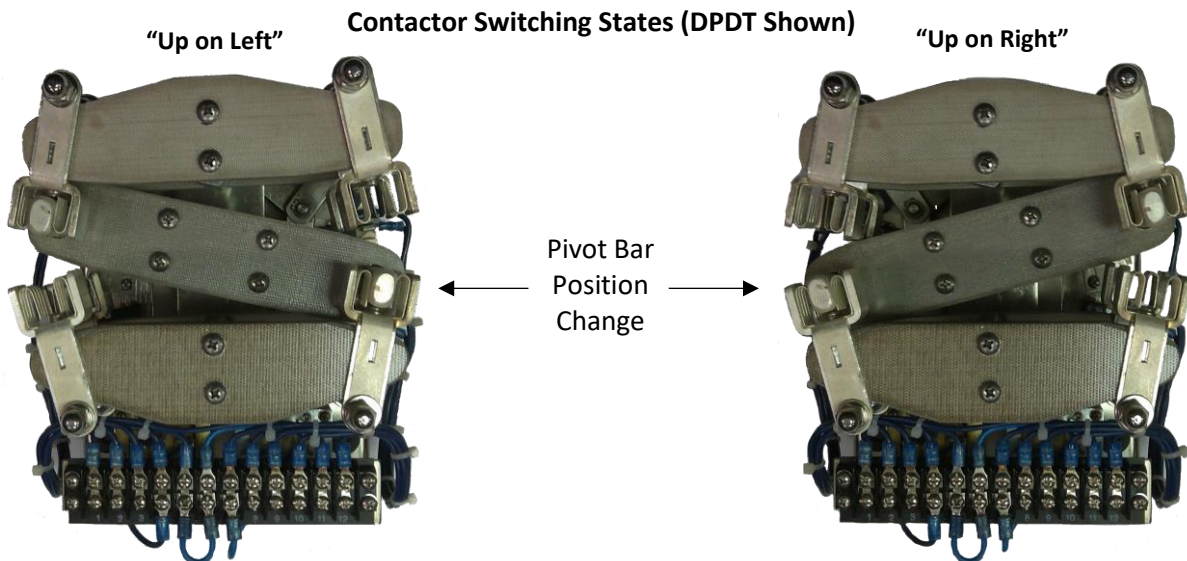
Solenoid driven contactors make use of very few moving parts with robust contacts to ensure long life and minimal maintenance. Switching operation is achieved by providing electrical pulse to either solenoid. Position is maintained through latching mechanism and does not require constant solenoid energization. The electrical signal for Up on Right or Up on Left position selection requires a momentary pulse of approximately 500ms duration. Position limit switches are in place for proper operation, but a timed cut-off signal is recommended as a secondary layer of protection.

Solenoid Driven Contactor Construction (SPDT Shown)



Method of Operation – Solenoid Driven Contactors

Solenoid driven contactors are often referred to as “Up on Left” or Up on Right” in relation to the center pivot bar. As shown below, the pivot bar makes electrical connection between the upper and lower main contact terminals. For example, as shown in the diagram listed below as “Up on Left”, the two contact terminals located in the upper left section are connected by the contact bar. The lower right terminals are connected by the second contact bar on the adjacent end of the insulated pivot bar. Please note, the pivot bar is an insulator and does not allow current flow.



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Method of Operation – Motor Driven Contactors

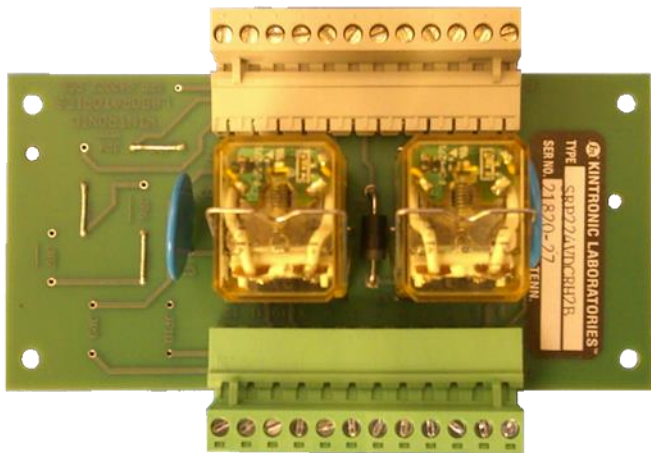
Motor driven contactors contain a linear actuator that extends and retracts when given a Close Push or Close Pull command. The linear actuator either extends or retracts operating the insulated pivot bar to change the position of the main contact terminals. The electrical signal for Close Push or Close Pull command requires a momentary pulse of approximately 2 seconds. Position limit switches are in place for proper operation, but a timed cut-off signal is recommended as a secondary layer of protection.

Contactor Interface Control Boards

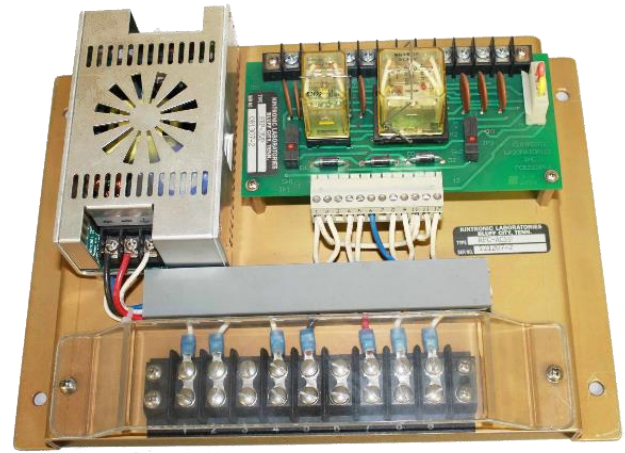
To signal a solenoid driven contactor with a separate 24VDC control signal (AC still required at contactor for solenoid operation) use an optional Kintronic Interface Relay Panel. Kintronic offers solutions for both positive and negative voltage switching schemes to work with pre-existing installations as needed.

Motor driven contactors require their own interface board which are included with the purchase of the motor driven contactor. For further details on motor driven products, please refer to the parts section of the catalog for additional part number and ordering details.

Solenoid Operated Contactor
Interface Board Example (See Chart Below)



Motor Operated Contactor
Interface Board Example (See Parts & Accessories)



INTERFACE CONTROL BOARDS

Drive Type (Solenoid/Motor)	Description	Wiring Diagram	Part Number
Direct Connection (No Interface Board Used)	No Motor interface board used with solenoid driven contactor. Connection of AC voltage directly to contactor terminal block.	1	N/A
Solenoid (24VDC Switching)	Optional 24VDC Interface Board – 24VDC Pulse ¹	2	SRP2-24VDC-RH2B
Solenoid (Ground Pulse ¹ Switching)	Optional 24VDC Interface Board – Ground Pulse ¹	3	SRP2-GND-RH2B
Motor (Not Optional, but Required) (Ground Pulse ¹ Switching Only)	Refer to Parts and Accessories section of catalog for proper interface board. Interface board part numbers may vary depending on motor driven contactor used.	4	Reference Specific Contactor in Parts & Accessories Section

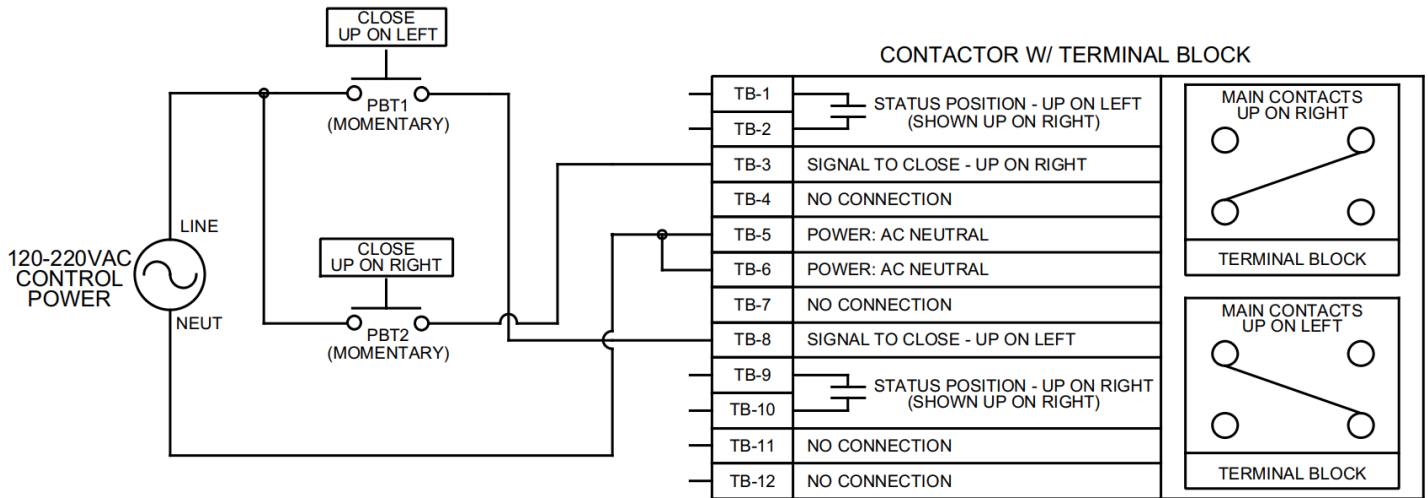
1. 24VDC Pulse requires switching the (+) leg of the DC signal. Ground Pulse requires switching the (-) leg of the DC signal.

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Contactor Wiring Diagrams

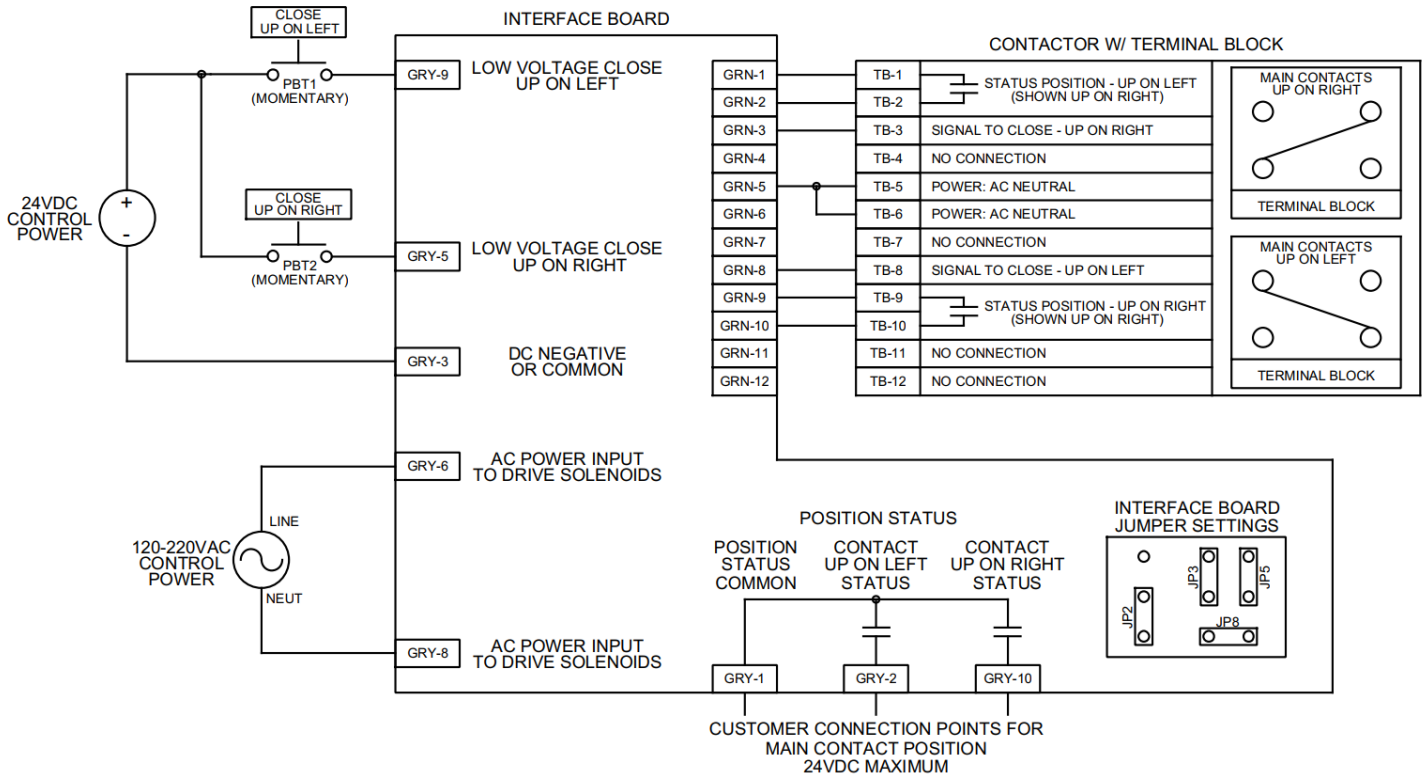
Wiring Diagram 1: No Interface Panel, Direct Connection to Solenoid Contactor

- AC is directly applied to Solenoid Contactor, No interface board required
- Customer to provide AC source, Push Buttons, and Status Signal wiring.



Wiring Diagram 2: Solenoid Contactor Interface Panel, 24VDC Pulse

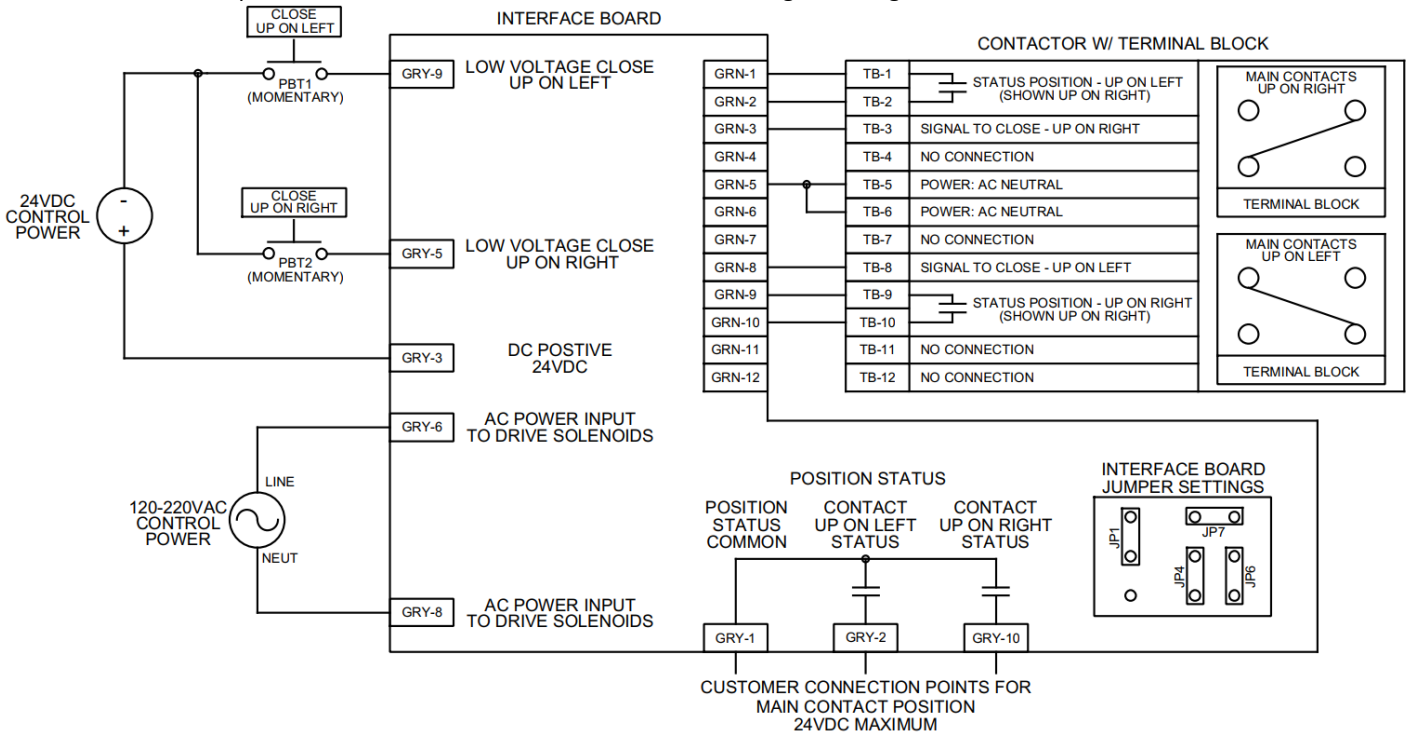
- Customer to provide AC/DC source, Push Buttons, and Status Signal wiring. Position Status Contacts 24VDC Max.



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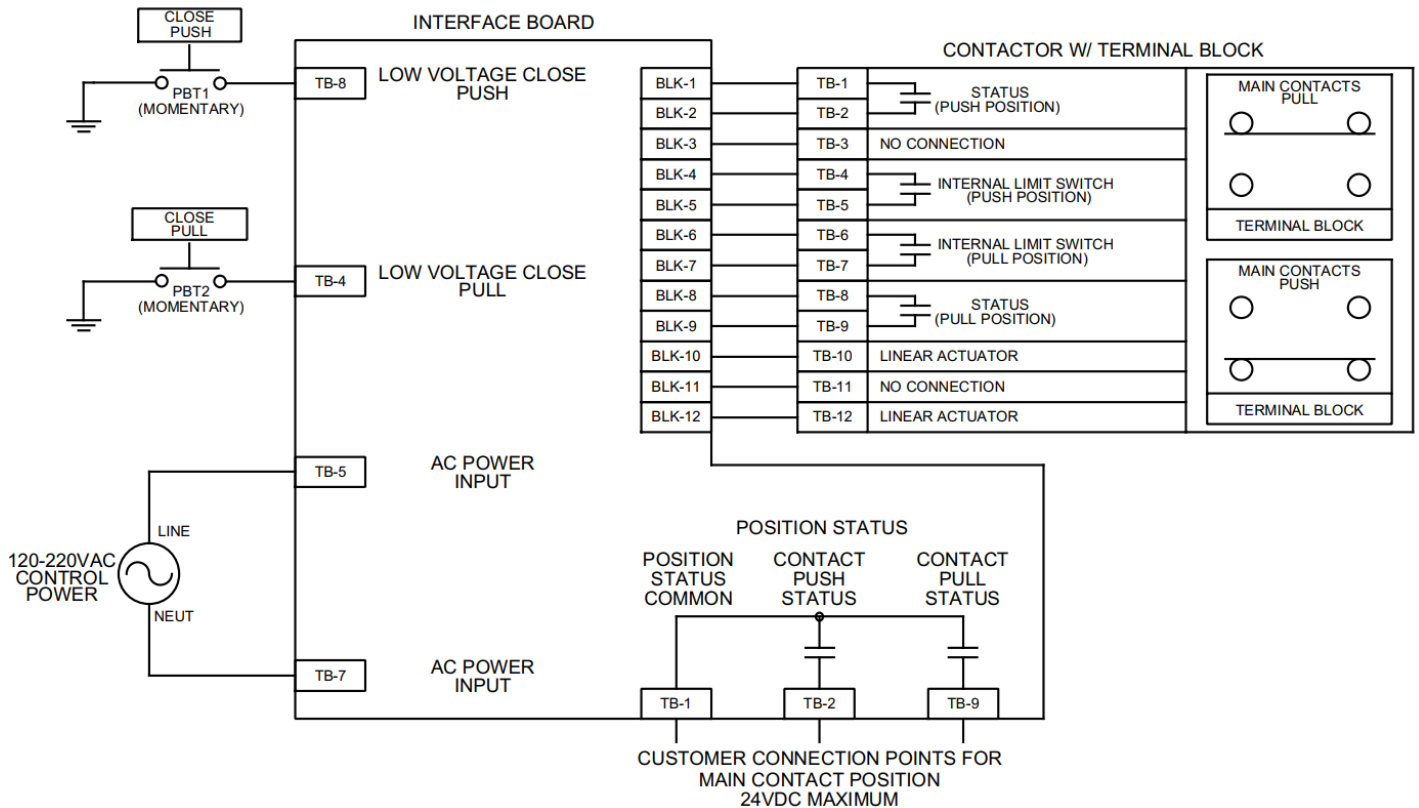
Wiring Diagram 3: Solenoid Contactor Interface Panel, Ground Pulse

- Customer to provide AC/DC source, Push Buttons, and Status Signal wiring. Position Status Contacts 24VDC Max.



Wiring Diagram 4: Motor Driven Contactor Interface Panel

- Customer to provide AC/DC source, Push Buttons, and Status Signal wiring. Position Status Contacts 24VDC Max.



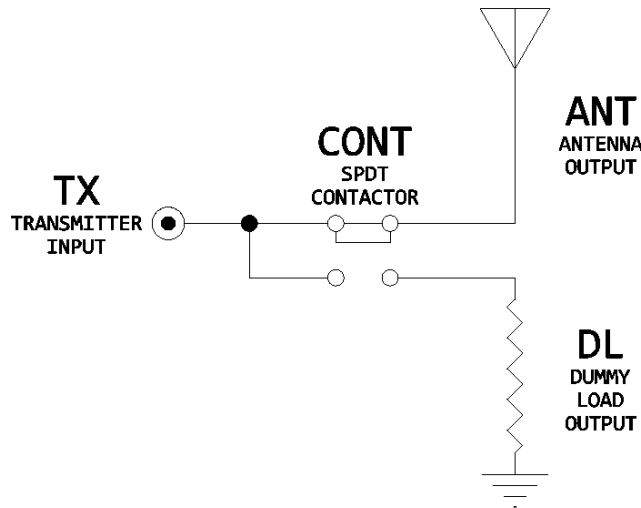
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Typical Applications

Below is a variety of switching schemes for reference. This list is meant to demonstrate common switching methods and is not to be considered as all inclusive.

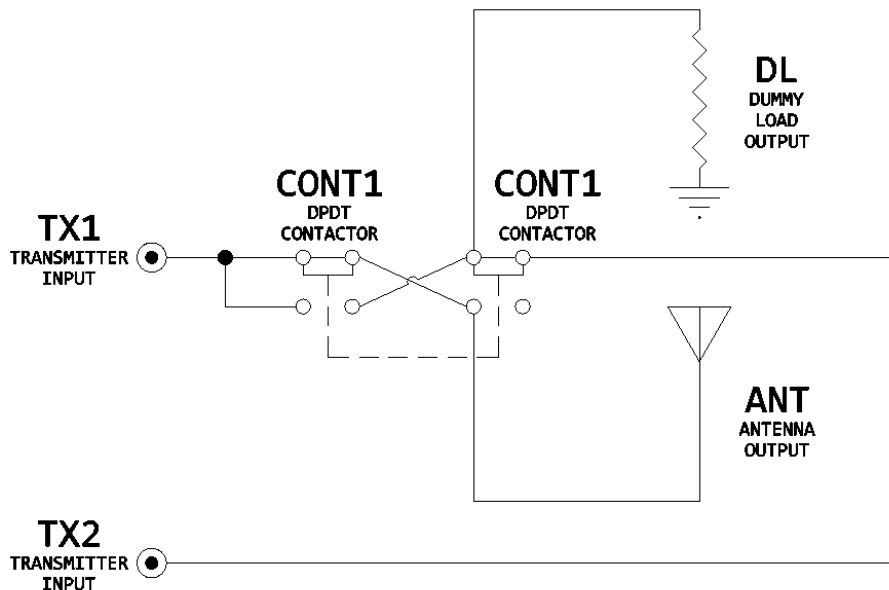
Example #1: Single Source Transfer Switch Using a SPDT (Single Pole – Double Throw)

This example demonstrates using a SPST contactor (CONT) to switch the transmitter output (TX) from antenna (ANT) to a dummy load (DL) for testing purposes.



Example #2: Dual Source Transfer Switch Using a DPDT (Double Pole – Double Throw)

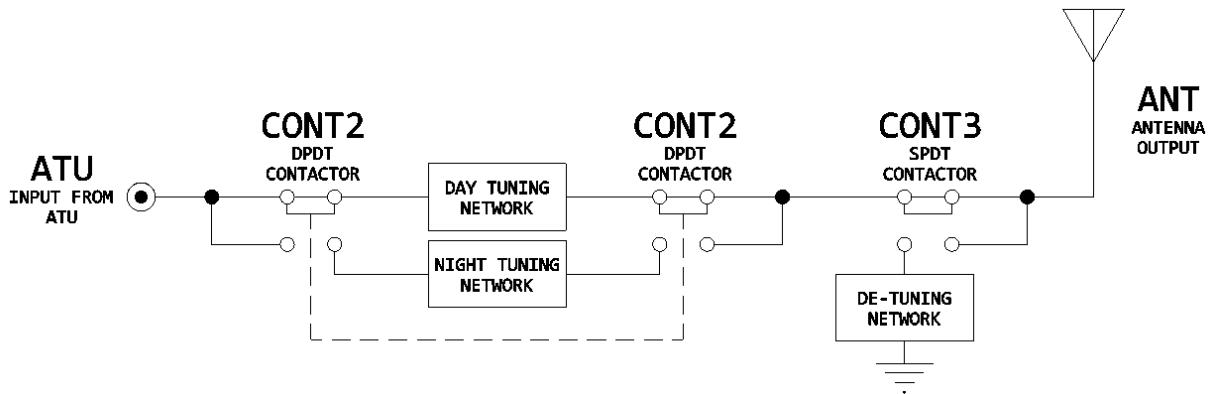
This example demonstrates using a DPDT contactor (CONT1) to swap transmitter outputs TX1 and TX2 between the Antenna (ANT) and Dummy Load (DL). The drawing shows transmitter TX1 feeding the Antenna while transmitter TX2 is feeding the Dummy Load (DL). Changing the state of contactor CONT1 will cause transmitter TX1 to feed the Dummy Load (DL) and transmitter TX2 to feed the Antenna.



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Example #3: Dual Network Switch Using a DPDT (Double Pole – Double Throw) with Optional SPST (Single Pole - Double Throw) Switch to Detune Tower.

This example demonstrates a signal coming from a transmitter fed through an antenna tuning unit (ATU). The output of the antenna tuning unit (ATU) is switched between the Day and Night networks using contactor CONT2. An optional contactor for detuning the antenna (taking the antenna out of service) is shown using contactor CONT3.



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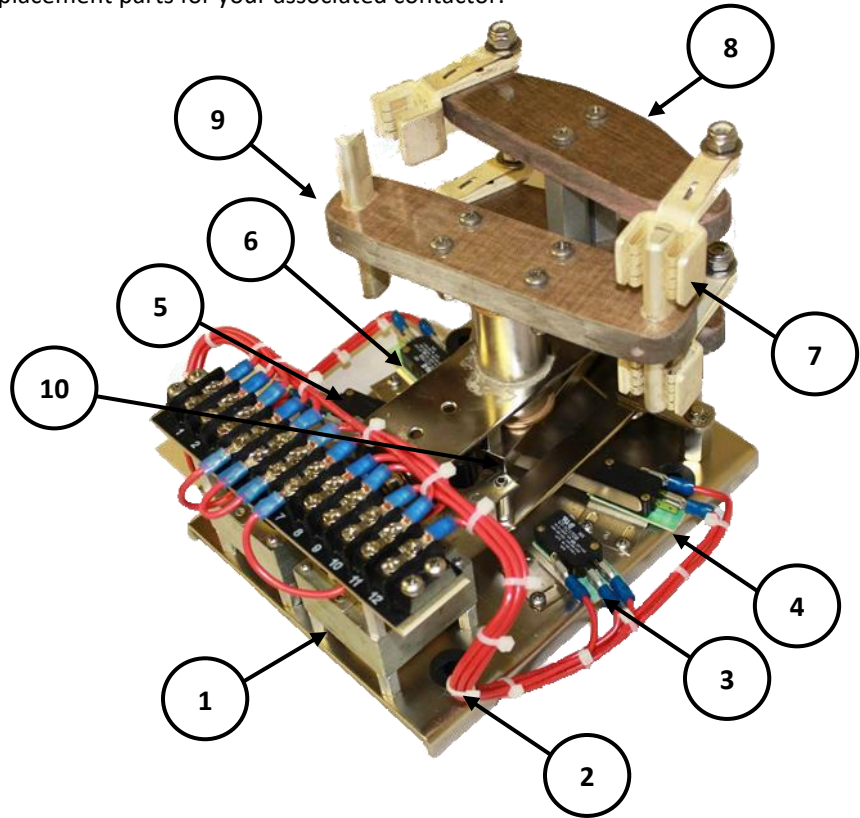
Parts and Accessories

Choose from the list below for the spare or replacement parts for your associated contactor.

RFC-40 Series Contactor (SPDT Shown)

**Factory Refurbish
Services Available**
(See Below for Details)

**Have a SPDT and
need a DPDT?**
(See Below for Details)



Item	Description	Additional Details	Part Number
1	Solenoid Kit	The solenoid for this contactor was obsoleted in November 2018 and required conversion. A replacement kit for contactors prior to November 2018 contains 2 Solenoids with necessary mounting hardware for conversion. If contactor is manufactured after November 2018, solenoids are sold individually for direct replacement.	Prior to November 2018 110 VAC: RFC-25-40-120RFK 220 VAC: RFC-25-40-240RFK After November 2018 120 VAC: 2786-F-34 240 VAC: 2787-F-34
2	Grommet	Rubber Grommet for baseplate mounting, sold individually	91116
3	Micro-Switch Kits	Switch #1: Pre-mounted microswitch w/ mounting plate	RFC-37
4		Switch #2: Pre-mounted microswitch w/ mounting plate	RFC-38
5		Switch #3: Pre-mounted microswitch w/ mounting plate	RFC-39
6		Switch #4: Pre-mounted microswitch w/ mounting plate	RFC-40
7	Contact Kit	Includes 1 assembled contact holder with spring fingers	RFC-02A
8	Stationary Bar	Includes stationary insulating bar. Sold individually. SPDT uses 2pcs and DPDT uses 4pcs.	RFC-19
9	Pivot Bar Kit	Includes insulating bar, mounting hardware, and installed Contact Bars.	RFC-20A
10	Spring	Open/Close Operating Spring (2 per contactor)	RFC-04
N/A	Conversion Kit	Convert SPDT into a DPDT contactor.	RFC-40-20-CK

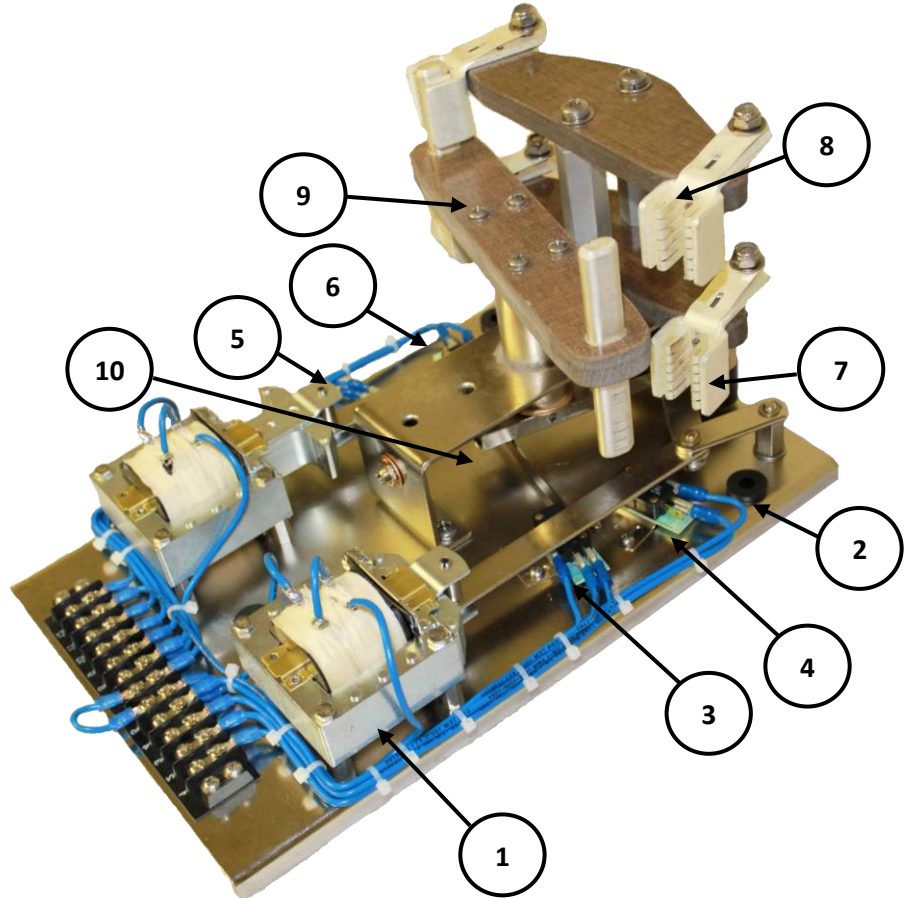
Factory refurbish or conversion services are available. Following a thorough evaluation, a quotation will be provided for repair and adjustment to meet factory acceptance criteria. Please note that an evaluation fee is required if quotation is not accepted.

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RFC-80 Series Contactor (SPDT Shown)

**Factory Refurbish
Services Available**
(See Below for Details)

**Have a SPDT and
need a DPDT?**
(See Below for Details)



Item	Description	Additional Details	Part Number
1	Solenoid Kit	The solenoid for this contactor was obsoleted in November 2018 and required conversion. A replacement kit for contactors prior to November 2018 contains 2 Solenoids with necessary mounting hardware for conversion. If contactor is manufactured after November 2018, solenoids are sold individually for direct replacement.	Prior to November 2018 110 VAC: RFC-25-80-120-RFK 220 VAC: RFC-25-80-240-RFK After November 2018 120 VAC: 3500-M-1 240 VAC: 3501-M-1
2	Grommet	Rubber Grommet for baseplate mounting, sold individually	91116
3	Micro-Switch Kits	Switch #1: Pre-mounted microswitch w/ mounting plate	RFC-37
4		Switch #2: Pre-mounted microswitch w/ mounting plate	RFC-38
5		Switch #3: Pre-mounted microswitch w/ mounting plate	RFC-39
6		Switch #4: Pre-mounted microswitch w/ mounting plate	RFC-40
7	Contact Kit	Includes 1 assembled contact holder with spring fingers	RFC-02LPA
8	Stationary Bar	Includes stationary insulating bar. Sold individually. SPDT uses 2pcs and DPDT uses 4pcs.	RFC-19L
9	Pivot Bar Kit	Includes insulating bar, mounting hardware, and installed T-Bar contacts.	RFC-20LA
10	Spring	Open/Close Operating Spring (2 Per Contactor)	RFC-04L
N/A	Conversion Kit	Convert SPDT into a DPDT contactor.	RFC-80-30-CK

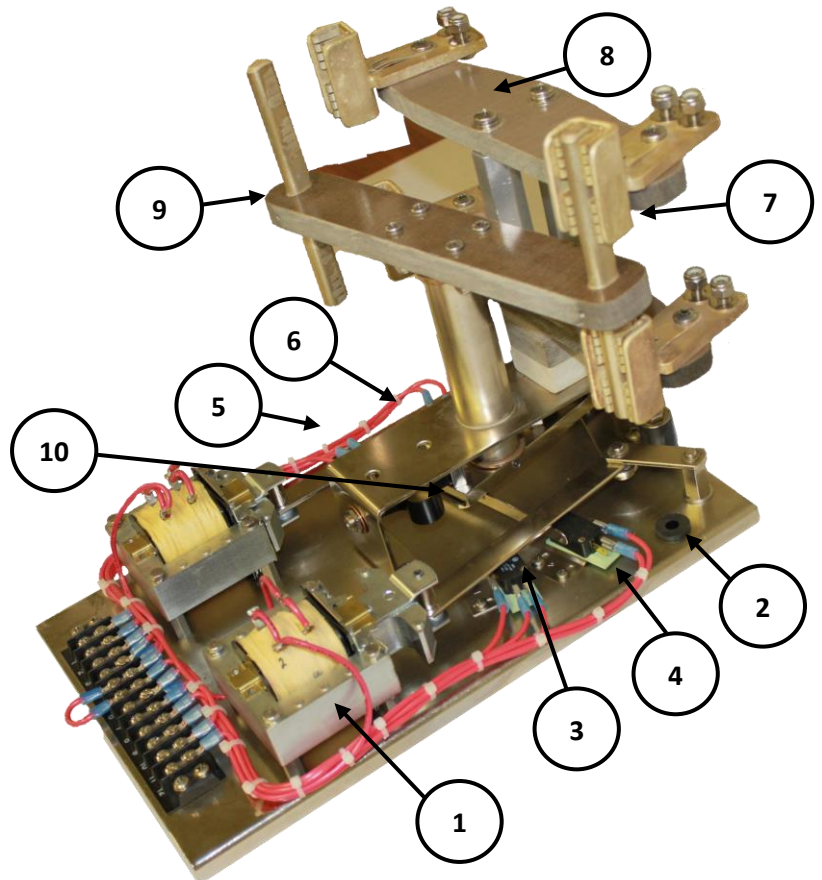
Factory refurbish or conversion services are available. Following a thorough evaluation, a quotation will be provided for repair and adjustment to meet factory acceptance criteria. Please note that an evaluation fee is required if quotation is not accepted.

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RFC-100 Series Contactor (SPDT Shown)

**Factory Refurbish
Services Available**
(See Below for Details)

**Have a SPDT and
need a DPDT?**
(See Below for Details)



Item	Description	Additional Details	Part Number
1	Solenoid Kit	The solenoid for this contactor was obsoleted in November 2018 and required conversion. A replacement kit for contactors prior to November 2018 contains 2 Solenoids with necessary mounting hardware for conversion. If contactor is manufactured after November 2018, solenoids are sold individually for direct replacement.	Prior to November 2018 110 VAC: RFC-25-80-120-RFK 220 VAC: RFC-25-80-240-RFK After November 2018 120 VAC: 3500-M-1 240 VAC: 3501-M-1
2	Grommet	Rubber Grommet for baseplate mounting, sold individually	91116
3	Micro-Switch Kits	Switch #1: Pre-mounted microswitch w/ mounting plate	RFC-37
4		Switch #2: Pre-mounted microswitch w/ mounting plate	RFC-38
5		Switch #3: Pre-mounted microswitch w/ mounting plate	RFC-39
6		Switch #4: Pre-mounted microswitch w/ mounting plate	RFC-40
7	Contact Kit	Includes 1 assembled contact holder with spring fingers	RFC-50A
8	Stationary Bar	Includes stationary insulating bar. Sold individually. SPDT uses 2pcs and DPDT uses 4pcs.	RFC-52
9	Pivot Bar Kit	Includes insulating bar, mounting hardware, and installed T-Bar contacts.	RFC-53A
10	Spring	Open/Close Operating Spring (2 Per Contactor)	RFC-04L
N/A	Conversion Kit	Convert SPDT into a DPDT contactor.	RFC-100-35-CK

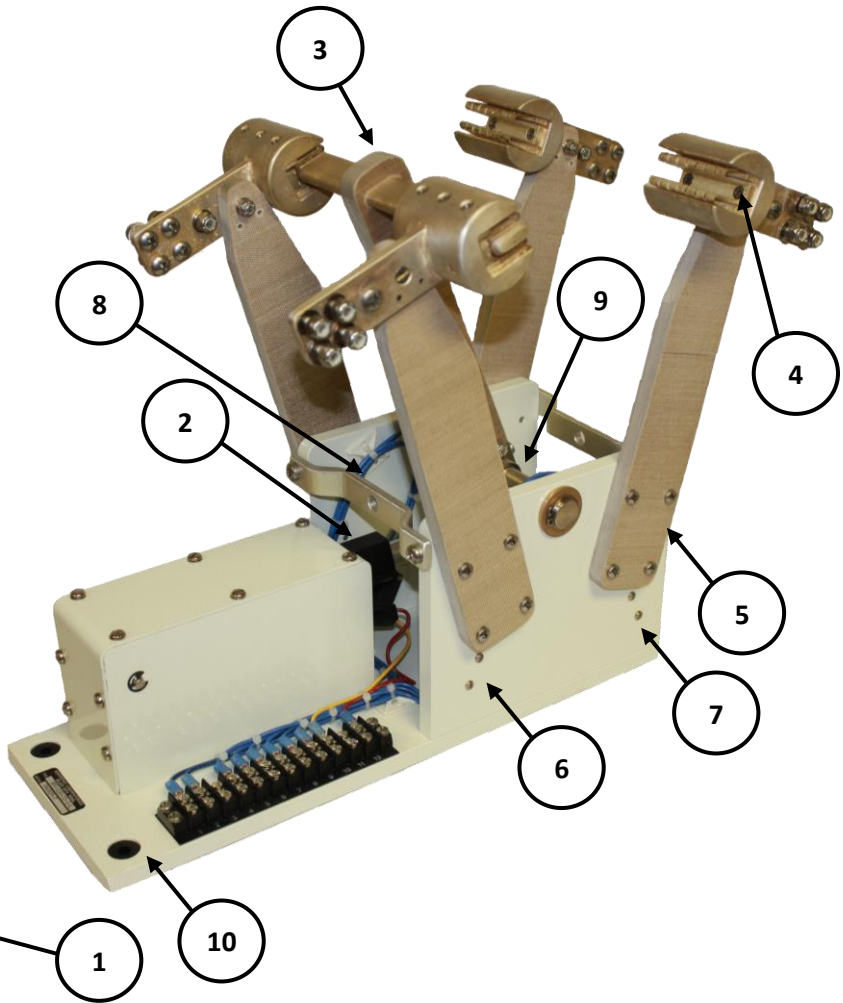
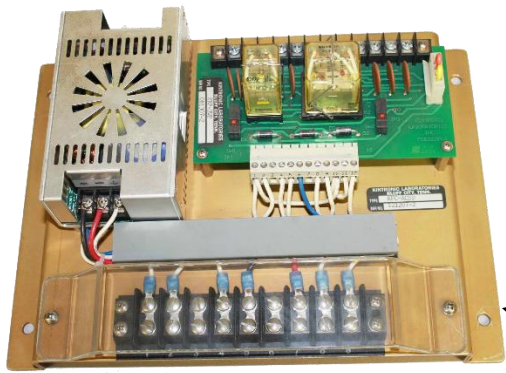
Factory refurbish or conversion services are available. Following a thorough evaluation, a quotation will be provided for repair and adjustment to meet factory acceptance criteria. Please note that an evaluation fee is required if quotation is not accepted.

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RFC-150 Series Contactor (SPDT Shown)

**Factory Refurbish
Services Available**
(See Below for Details)

**Have a SPST and
need a SPDT?**
(See Below for Details)



Item	Description	Additional Details	Part Number
1	Control Board	Control Board including Power Supply and Relay Board Power Supply: MK75S-24, Relay Board: SRP-3WP	RFC-ACSP
2	Linear Actuator	Linear Actuator, 24VDC	S24-09A4-04
3	Pivot Bar Kit	Pivot Insulator with Assembled Contact bar	RFC-68A
4	Contact Kit	Spring Finger Holder (Sold Individually)	RFC-61A
		Internal spring finger, backing plate, and side plate components with hardware (Sold Individually)	RFC-75PA
5	Insulator Bar	Insulated Contact Support Bar	RFC-66
6	Limit Switch Kit	Pull Cut-Off: Pre-mounted microswitch w/ mounting plate	RFC-37
7		Push Cut-Off: Pre-mounted microswitch w/ mounting plate	RFC-39
8		Pull Status: Pre-mounted microswitch w/ mounting plate	RFC-39
9		Push Status: Pre-mounted microswitch w/ mounting plate	RFC-37
10	Grommet	Mounting Grommet. Sold Individually.	91116
N/A	Conversion Kit	Convert SPST into a SPDT contactor.	RFC-150-55-CK

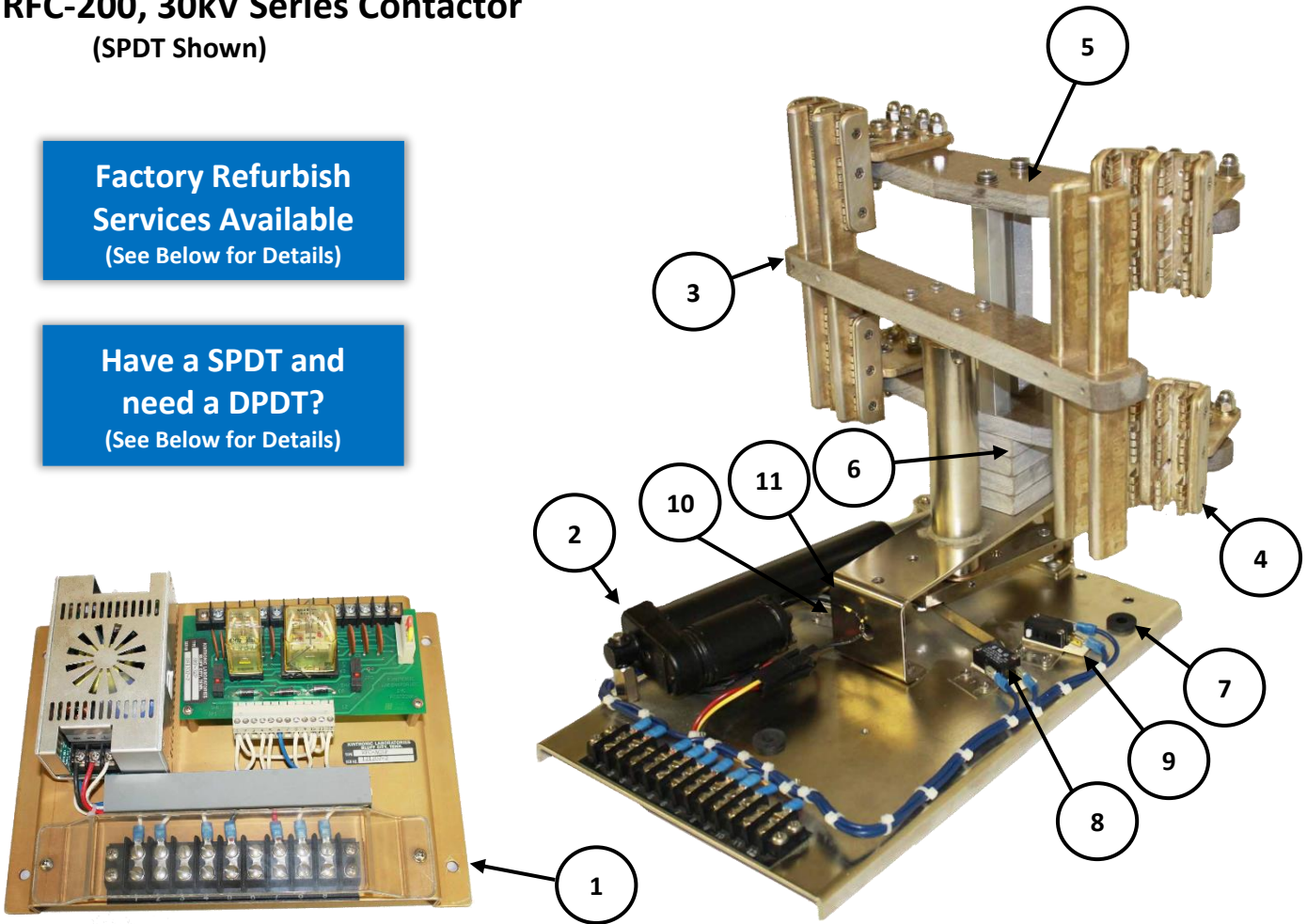
Factory refurbish or conversion services are available. Following a thorough evaluation, a quotation will be provided for repair and adjustment to meet factory acceptance criteria. Please note that an evaluation fee is required if quotation is not accepted.

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RFC-200, 30kV Series Contactor (SPDT Shown)

**Factory Refurbish
Services Available**
(See Below for Details)

**Have a SPDT and
need a DPDT?**
(See Below for Details)



Item	Description	Additional Details	Part Number
1	Control Board	Control Board including Power Supply and Relay Board Power Supply: MK75S-24, Relay Board: SRP-3WP	RFC-ACSP
2	Linear Actuator	Linear Actuator, 24VDC	S24-09A4-04
3	Pivot Bar Kit	Assembled Insulated Pivot Bar With Contact Bar	RFC-83
4	Contact Kit	Assembled Spring Contacts with Holder and Hardware	RFC-80
5	Stationary Bar	Includes stationary insulating bar. Sold individually. SPDT uses 2pcs and DPDT uses 4pcs.	RFC-82
6	Standoff Spacers	Insulated Standoff Spacers, 4 Per Contactor. Sold Individually	RFC-84
7	Grommet	Mounting Grommet. Sold Individually.	91116
8	Limit Switch Kits	Switch #1: Pre-mounted microswitch w/ mounting plate	RFC-37
9		Switch #2: Pre-mounted microswitch w/ mounting plate	RFC-38
10		Switch #3: Pre-mounted microswitch w/ mounting plate	RFC-39
11		Switch #4: Pre-mounted microswitch w/ mounting plate	RFC-40
N/A	Conversion Kit	Convert SPDT into a DPDT contactor	RFC-200-30-CK RFC-200-30-CK-HDWR

Factory refurbish or conversion services are available. Following a thorough evaluation, a quotation will be provided for repair and adjustment to meet factory acceptance criteria. Please note that an evaluation fee is required if quotation is not accepted.

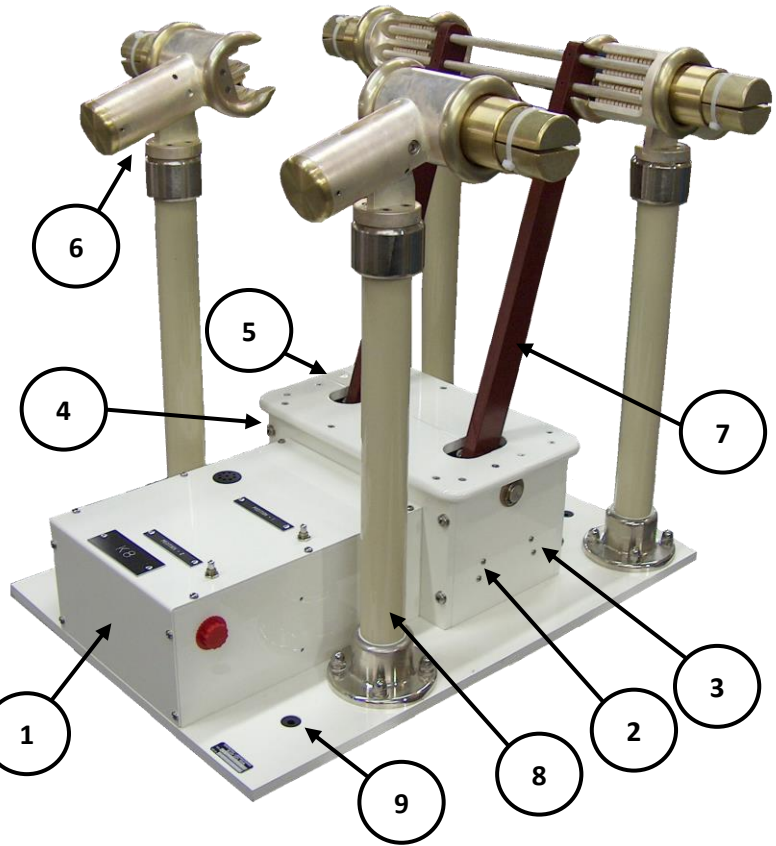
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RFC-200, 80kV Series Contactor (SPDT Shown)

**Factory Refurbish
Services Available**
(See Below for Details)

**Have a SPST and
need a SPDT?**
(See Below for Details)

Interface Control Board components are mounted inside metal housing. Critical Components are listed in chart below as Item #1.



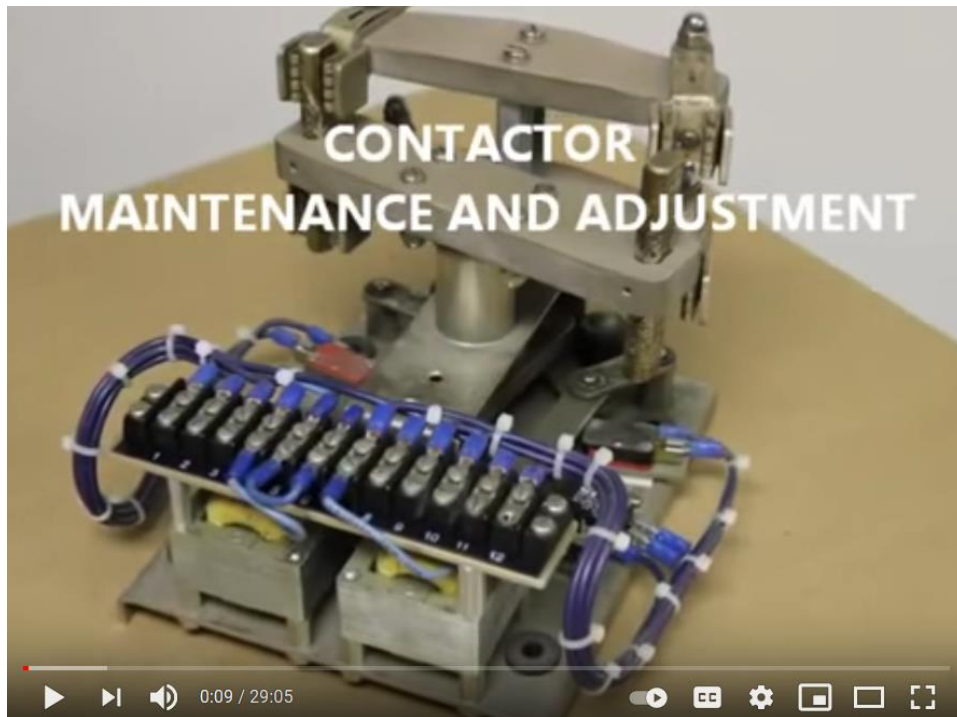
Item	Description	Additional Details	Part Number
1	Internal Control Board Items	DC Power Supply	MK7S-24
		Relay Board	SRP-3WP
		Push Button for Local Operation (Sold Individually)	35-462-BU
		Linear Actuator, 24VDC	S24-09A4-04
2	Limit Switch Kits	Pull Cut-Off: Pre-mounted microswitch w/ mounting plate	RFC-37
3		Push Cut-Off: Pre-mounted microswitch w/ mounting plate	RFC-39
4		Pull Status: Pre-mounted microswitch w/ mounting plate	RFC-39
5		Push Status: Pre-mounted microswitch w/ mounting plate	RFC-37
6	Fixed Contact	Finger Stock includes internal contact fingers and hardware.	RFC-03P
		Finger Stock Holder includes housing and corona ring.	RFC-206
7	Pivot Bar Assembly	Includes insulated pivot bar and moving contact assembly	RFC-200-80-CB-ASSEM
8	Insulator	Includes insulator with base and connection provision for fixed contact assembly.	8927
9	Grommet	Rubber Grommet for baseplate mounting, sold individually	91116
N/A	Conversion Kit	Convert SPST into a SPDT contactor	RFC-200-80-CK

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Maintenance and Adjustment

Please visit our website (www.kintronic.com) to find maintenance and adjustment instruction videos to ensure your contactor operates reliably for years to come. If you need replacement parts, please refer to the **Parts and Accessories** section of this document for further details.



End of Section