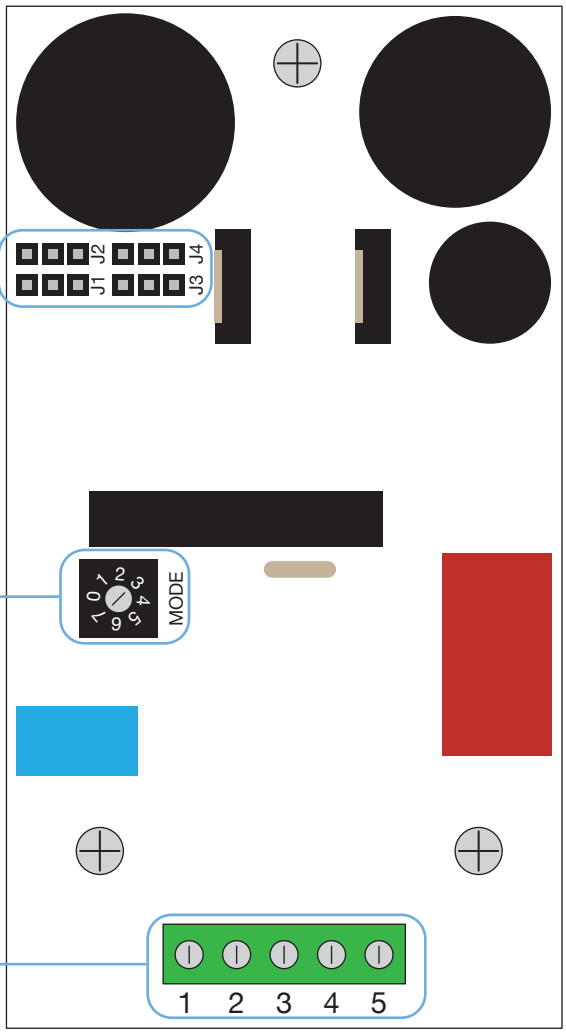
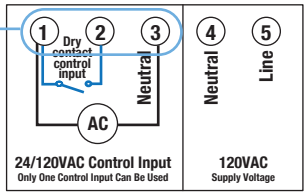
The 2279 series control board in the BX Series is a compilation of multiple programs and configurations combined into a single board allowing it to adapt to most control applications. Input configurations include both normally open, normally closed, dry contact inputs as well as 24–120VAC. The magnetic relay can emulate normally closed relays and normally open contractors.

CAUTION: This board is designed to meet a broad range of applications. With diversity comes a greater possibility of incorrectly wiring the board. Please take the time to make sure you fully understand your particular application and double check all wiring. Should you have any doubt concerning hook up, or need technical assistance please call us at 800-648-6802

Circuit Board Components



The program can be selected with the on-board rotary switch. Note that the board needs to be power cycled each time the program is changed



Dial Setting 0 = Normally OPEN Contactor Emulator

(Figure A) Input control voltage: (pins 1 & 3) can be either 24 or 120VAC. When voltage is applied, relay is toggled on. When voltage is removed relay is toggled off.

(Figure B) Dry contact control: When dry contact (pins 1 & 2) are open, relay is toggled off. When dry contacts (pins 1 & 2) are closed, relay is toggled on. Relay opens when control board voltage (pins 4 & 5) is lost regardless of input state.

Dial Setting 1 = Normally Open Contactor Emulator With 5 Minute Lockout.

Functions are identical to dial setting 0 with added 5-minute delay upon power restore.

(Figure C) Supplied jumper (pins 1 & 2) after the board is powered down (loss of power to pins 4 & 5) and powered back up, there will be a 5-minute delay before the relay can be toggled to the on position.

Dial Setting 2 = Normally Closed Relay Emulator

(Figure A) Input control voltage: (pins 1 & 3) can be either 24 or 120VAC. When voltage is applied, relay is toggled off. When voltage is removed relay is toggled on.

(Figure B) Dry contact control: when dry contact (pins 1 & 2) open relay is toggled on. When dry contacts pins (1 & 2) are closed relay is toggled off. Relay opens when control board voltage (pins 4 & 5) is lost regardless of input state.

Dial Settings 3–7 = Not Used

IMPORTANT: Dry contact and voltage input control CANNOT be used at the same time in any mode or damage will occur.

Control Input Configurations

24–120VAC Control Input

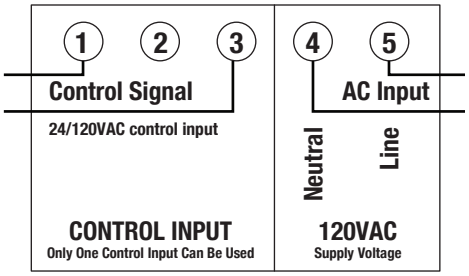


Figure A

When using AC voltage control input (24 or 120VAC) Make sure the AC voltage input to pins 1 & 5 are connected to the **same** phase (L1 or L2) coming from the electrical panel. Pins 1 & 3 are used when applying a 24 or 120VAC input control signal. The neutral must be connected to pin 3 and the line to pin 1. Reversing these connections will destroy the board.

Dry Contact Input

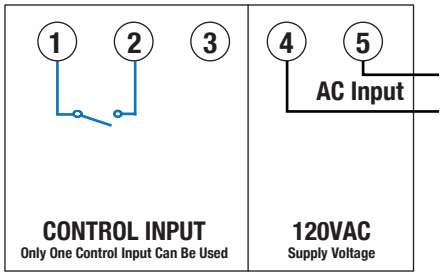


Figure B

Pins 1 & 2 are used with an external dry contact. An external voltage must never be applied to these pins. The circuit board will output 24VDC from pin 2 and apply this voltage to pin 1 when the dry contacts across pins 1 and 2 are closed.

120VAC Control Input

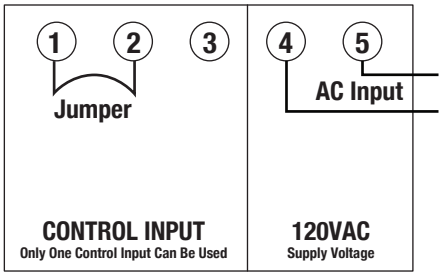
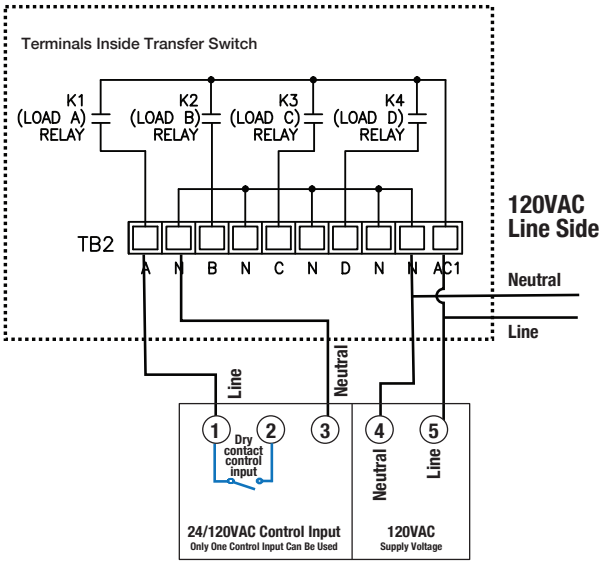


Figure C

The board can also be configured to work without an external control signal by jumpering or opening pins 1 & 2. The relay will toggle on or off based on the state of pins 1 & 2 each time the board is powered up and powered down with a 15 second delay before turning on.

2279 Series Control Board Wiring Diagram Examples: LOAD REGULATING

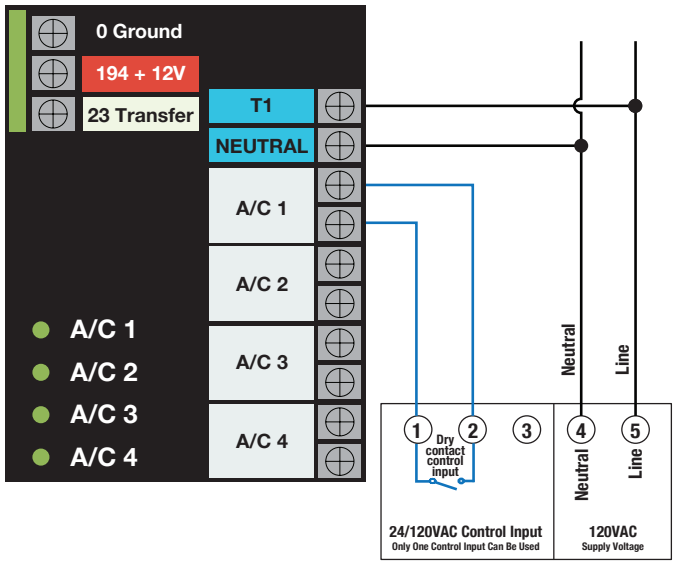
120VAC Input Normally Closed Relay Emulator (Kohler®)



Dial Setting 2 = Normally Closed Relay Emulator

Relay will be controlled by a 24–120VAC voltage input to pins 1-line & 3-neutral. When 0 voltage is present at pins 1 & 3 the relay will toggle on. When voltage is present at pins 1 & 3 the relay will toggle off. The relay will toggle off whenever voltage is lost at pins 4 & 5.

Dry Contact Input Normally Open Contactor Emulator (Generac®)

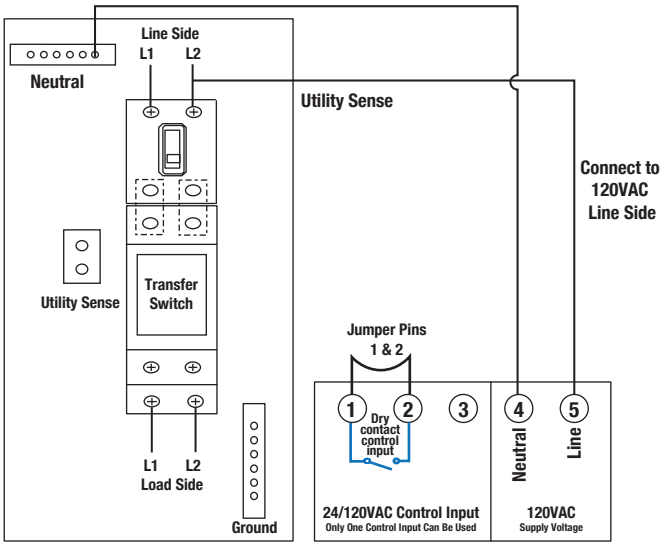


Dial Setting 0 = Normally Open Contactor Emulator

Relay will be controlled with a dry contact input to pins 1 & 2. When pins 1 & 2 are open the relay will toggle open. When pins 1 & 2 are closed the relay will toggle closed. The relay will also toggle off whenever voltage is lost at pins 4 & 5.

2279 Series Control Board Wiring Diagram Examples: LOAD DROPPING

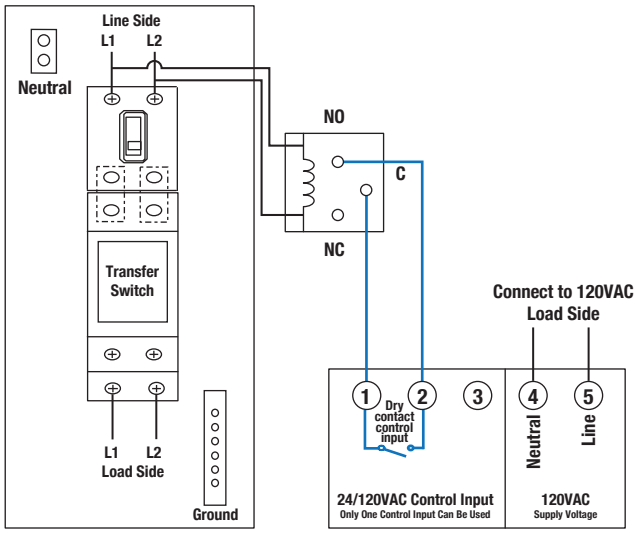
Dry Contact Input Normally Open Contactor Emulator With 5 Minute Delay*



Dial Setting 1 = Normally Open Contactor Emulator With 5 Minute Lockout*

On power up the relay will remain open for a lock out period of 5 minutes. After the lock out delay the relay will toggle closed. The relay will toggle off whenever voltage is lost at pins 4 & 5.

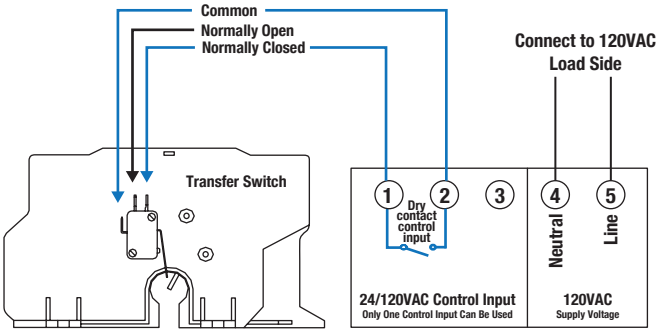
Dry Contact Input Normally Open Contactor Emulator*



Dial Setting 0 = Normally Open Relay Emulator

Relay will be toggled on and off with a dry contact input to pins 1 & 2. When pins 1 & 2 are open the relay will toggle off. When pins 1 & 2 are closed relay will toggle on. The relay will toggle off whenever voltage is lost at pins 4 & 5.

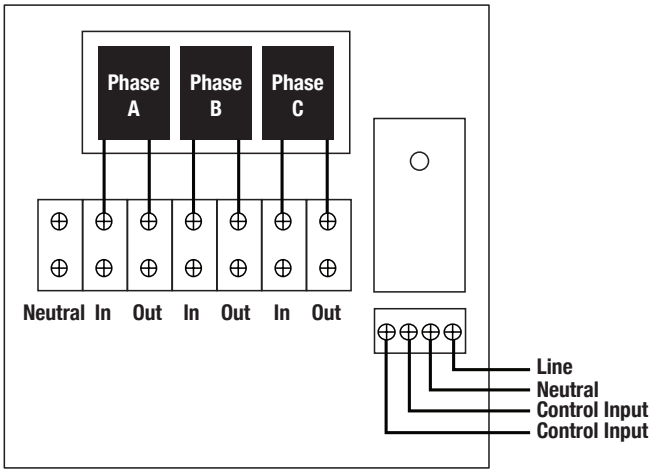
Dry Contact Input Normally Closed Contactor Emulator*



Dial Setting 2 = Normally Closed Relay Emulator

Relay will be toggled on and off with a dry contact input to pins 1 & 2. When pins 1 & 2 are open the relay will toggle on. When pins 1 & 2 are closed relay will toggle off. The relay will toggle off whenever voltage is lost at pins 4 & 5.

Dry Contact Control of Three-Phase Relay



Control Input Open = Relay Off; Control Input Closed = Relay On

When power is initially connected to the 120VAC input terminals, the diagnostic LED will blink for 20 seconds and the relay will change state based on the condition of the dry contact input. The relay will remain in position until the state of the dry contacts changes. At loss of 120VAC, the relay will open. Torque to 225-250 LB-IN.

IMPORTANT: Magnetic relays require power to change state.

***Maximum rating per relay: 100A@480VAC. For supply connection, use only copper wire rated at least 75ºC, torque to 50 LB-IN.**

***Maximum rating per relay: 200A@480VAC. For supply connection, use only copper wire rated at least 75ºC, torque to 50 LB-IN**