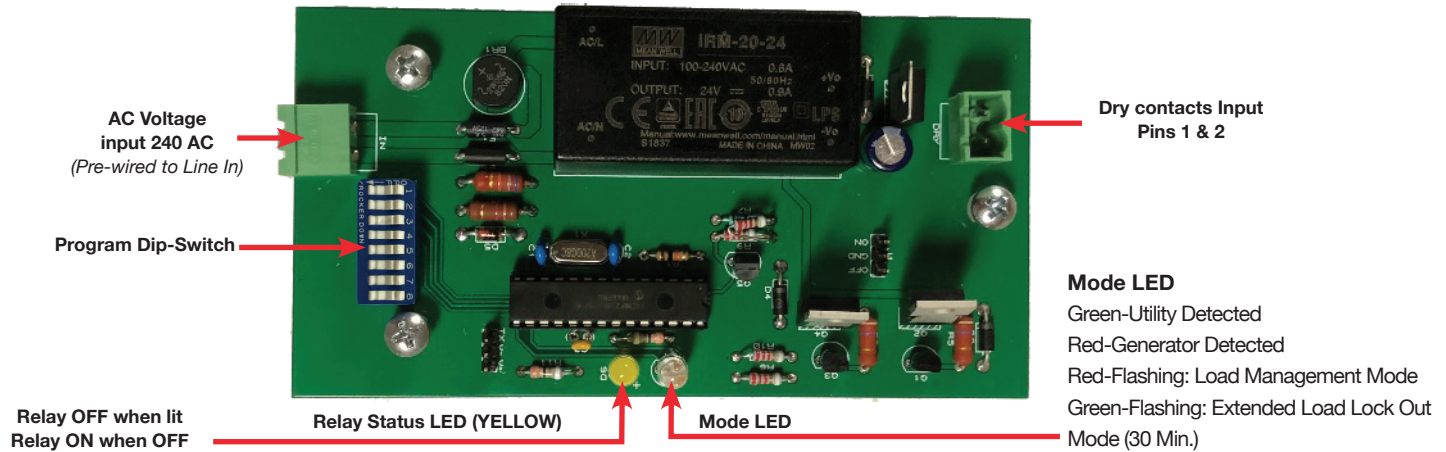


**Series Control Board Installation Guide**

The W2 series latching relays are a combination of load shedding functions combined into a single device. The W2 series is available with 100 or 200 amp latching relays. The relays can be controlled by DRY-Contact input capable of emulating NO or NC relays and contactors. The W2 series also includes WIRELESS LOAD LOCK-OUT & WIRELESS UNDER-FREQUENCY LOAD MANAGEMENT for use with any air cooled and many liquid cooled generators.

**W2 Series Latching Control Board**



**Dry Contact Control of relay Mode 1-3**

**Mode 1 Normally OPEN Contactor Emulator:** When dry contact (Pins 1 & 2) OPEN relay is turned OFF. When dry contacts (Pins 1 & 2) are CLOSED relay is turned ON.

**Mode 2 Normally Open Contactor Emulator with 5 minute lockout.** Functions same as Mode 1 EXCEPT there is a 5 minute delay after dry contacts (Pins 1 & 2) are closed before the relay will be toggled to the ON position.

**Mode 3 Normally Closed Relay Emulator:** When dry contact (Pins 1 & 2) OPEN relay is turned ON. When dry contacts (Pins 1 & 2) are CLOSED relay is turned OFF.

**Generator LOAD-LOCKOUT Mode 4**

On power up after a power outage, the module will disconnect the load and begin analyzing the AC sine wave for about 90 seconds. When utility power is detected, MODE LED will illuminate green and the load will be restored after a 2-3 minute delay. Relay-LED will turn off indicating the load is restored. When generator power is detected, LED 2 will light red, and the load will remain disconnected. The Module will continue to analyze the AC power source until utility voltage is detected. After detecting utility voltage, Mode-LED will turn green. After a 3-5 minute delay, the load will be restored and Relay-LED will go off indicating the relay has turned on. The Module will now enter sleep mode and will remain INACTIVE until the next power outage.

**Generator LOAD-MANAGEMENT Mode with under frequency detection Mode 5**

There are two settings designed to accommodate most Air-Cooled generators. Mode "A" is designed to give more tolerance and longer delay (Reactive Loads) times where Mode "B" is set for a lower threshold for generators that maintain a tighter frequency range and resistive loads.

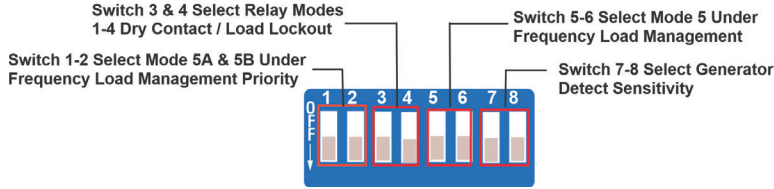
At power up after outage, the module will disconnect the load and begin analyzing the AC sine wave for about 90 seconds. If utility power is detected, MODE LED will light up GREEN and the load will be restored after a 3-6 minute delay based on the priority setting. Relay-LED will extinguish indicating the load is restored. If generator power is detected, MODE-LED will light up RED and the load will be restored after a 3-6 minutes delay dependent on the priority selected. The relay LED will extinguish. The load will then be restored and the Mode-LED will flash red indicating "Load Shedding Mode." In the event of an overload condition, the load will be disconnected (Relay-LED ON) and the load will remain disconnected for 3-6 minutes depending on the priority selected. After the load-shed delay, if frequency is stable, the load will be restored (Relay-LED Off) and the cycle continues until utility voltage is detected. In the event an overload condition is detected within 2 seconds of restoring a load, that load will be turned off and locked out for an extended period of 30 minutes indicated by a flashing green MODE-LED.

After detecting utility voltage, Mode-LED will turn GREEN, after a 3-6 minute delay, the load will be restored and Relay-LED will extinguish indicating the load is connected. The Module will now enter sleep mode and will remain INACTIVE until the next power outage.

*The W2 comes preset to work with most generator and utility systems. However, because there are always circumstances outside of normal, additional settings are available to accommodate most conditions. Please contact technical support for additional information.*

# DIP-SWITCH Programming Instructions

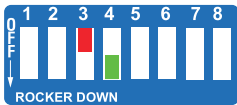
**Important note: Dip switch controls do not illuminate or change color when state is changed. The switches are displayed in RED for ON and GREEN for OFF state For illustration purposes**



Program Dip-Switch

Use Switches 3 & 4 for modes 1-4

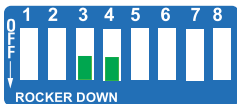
## Dry Contact Relay Control Modes 1-3 & Load Lock-Out On Generator Mode 4



**MODE 1 - Normally OPEN Contactor Emulator:** DIP When dry contact (Pins 1 & 2) OPEN relay is turned OFF. When dry contacts pins (1 & 2) are CLOSED relay is turned ON.



**MODE 2 - Normally Open Contactor Emulator with 5 minute lockout.** Functions are identical to MODE one with the following exception. There is a 5 minute delay before relay turns ON after pins 1 & 2 are closed



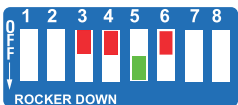
**MODE 3 - Normally Closed Relay Emulator:** When dry contact (Pins 1 & 2) OPEN relay is turned ON. When dry contacts pins (1 & 2) are CLOSED relay is turned OFF.



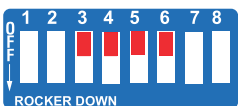
**MODE 4 - Load Lock-Out when generator source is detected.** Locks the load out on power-up until utility power is restored. Load will be restored in 3-5 minutes after transfer back to utility voltage. (3=ON 4=ON)

Use Switches 3, 4, 5, 6 for modes 1-4

## Under-Frequency Load Management On Generator Power Mode 5A & 5B



**MODE 5A - Under Frequency Load Management Mode A.** Restores load on generator after power-up priority delay selected. Removes load during under frequency event, restores load based on priority selected. (3=ON 4=ON 5=OFF 6=ON)

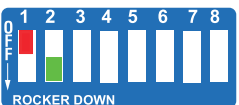


**MODE 5B - Under Frequency Load Management Mode B.** Restores load on generator after power-up priority delay selected. Removes load during under frequency event, restores load based on priority selected. (3=ON 4=ON 5=ON 6=ON)

## Priority Setting for Modes 5A & 5B



**MODE 5 Load Priority ONE - (Mode A or B)** Restores load under generator power after approximately 3 minute delay. Restores load after under-frequency event after 3 minutes (1=ON 2=ON)



**MODE 5- Load Priority TWO -(Mode A or B)** Restores load under generator power after approximately 4 minute delay. Restores load after under-frequency event after 4 minutes (1=ON 2=OFF)



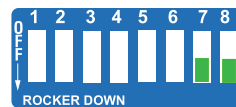
**MODE 5 Load Priority THREE - (Mode A or B)** Restores load under generator power after approximately 5 minute delay. Restores load after under-frequency event after 5 minutes (1=OFF 2=ON)



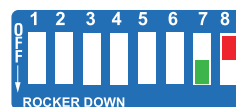
**MODE 5 Load Priority FOUR (Mode A or B)** Restores load under generator power after approximately 6 minute delay. Restores load after under-frequency event after 6 minutes (1=OFF 2=OFF)

## Service Adjustments

Contact technical support for additional information



**Utility/Generator Sensitivity Settings - Modes 4 & 5 only**  
**Normal Default Settings** (7=OFF 8=OFF)



**Utility/Generator Sensitivity Settings - Modes 4 & 5 only**  
**HIGH Setting** (7=OFF 8=ON)



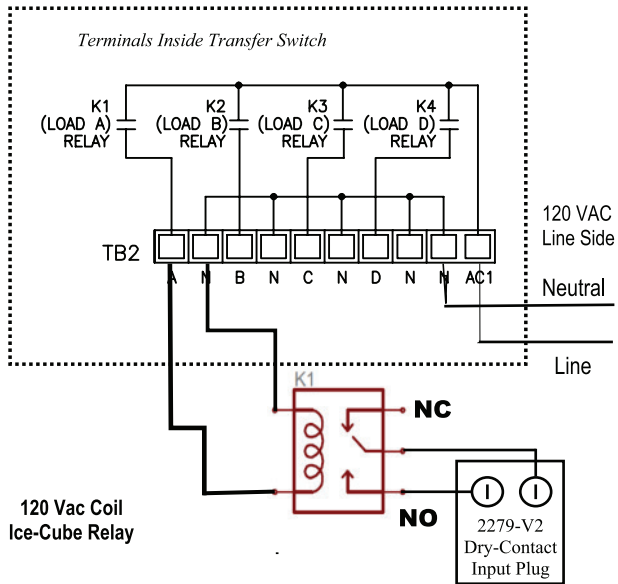
**Utility/Generator Sensitivity Settings - Modes 4 & 5 only**  
**MEDIUM Setting** (7=ON 8=OFF)



**Utility/Generator Detect Settings - Modes 4 & 5 only**  
**LOW Setting** (7=ON 8=ON)

# W2 Series Control Board Wiring Diagram

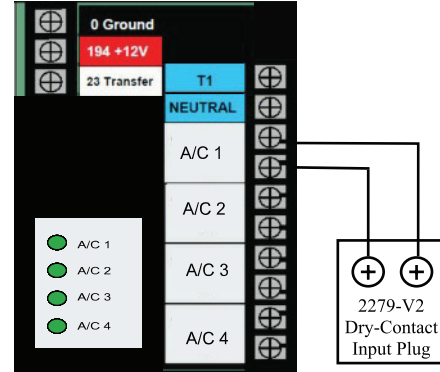
## 120 Volt AC input Normally Closed Relay Emulator



### KOHLER® Load Shedding Controller

**MODE 3 = Normally Closed Relay Emulator.** Relay will be controlled by a 120 volt ac coil voltage ice-cube relay. 0 volts AC from A & N will turn load on. 120 Volts AC from A & N will turn load ON

## Dry Contact input Normally Open Contactor Emulator

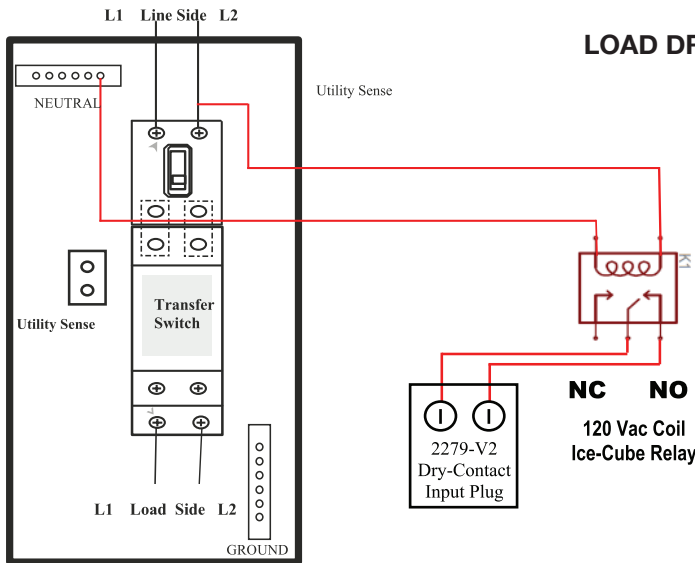


120 Vac Coil Ice-Cube Relay

### Generac® Load Shedding Controller

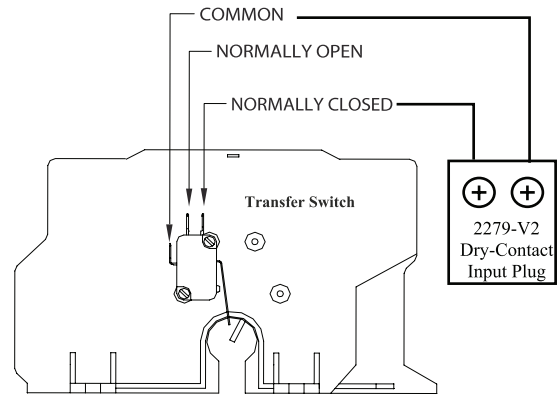
**MODE 1 = Normally OPEN Contactor Emulator.** Relay will be controlled with a dry contact input from A/C 1. When A/C 1 pins are closed load will turn ON. When AC pins are open load will turn OFF.

## Dry Contact input Normally Open Contactor Emulator with 5 Minute Delay



**MODE 2 ON = Normally Open Contactor Emulator with 5 minute lockout.** On power up the relay will OPEN and remain open until dry contacts are closed for a 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 1 & 2 and will require contacts to be closed for 5 minutes before load is restored.

## Dry Contact input Normally Closed Emulator



**MODE 1 = 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

Technical Support Call 800-648-6802

# 2279-V2 Series Control Board Programming Flow Chart

Important note: Dip switch controls do not illuminate or change color when state is changed. The switches are displayed in RED for ON and GREEN for OFF state For illustration purposes only

