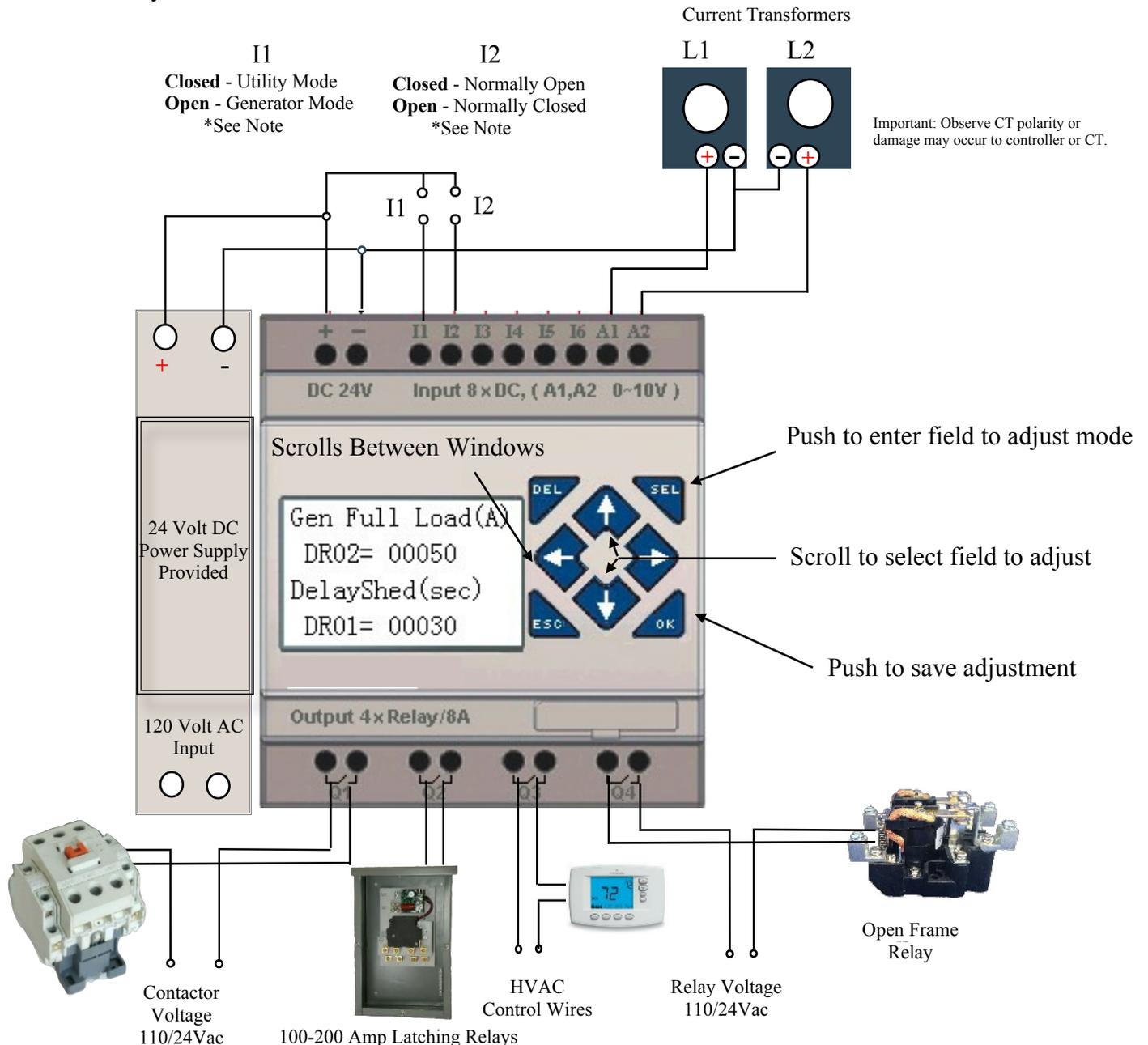# Load Shedding Control
Model LSC-04

4 Circuit Load Management Controller Wiring Diagram and Programming Instructions

Note: All control voltage inputs are DC voltage and correct polarity must be observed or damage to the controller may occur.

Current Transformers

I1
Closed - Utility Mode
Open - Generator Mode
*See Note

I2
Closed - Normally Open
Open - Normally Closed
*See Note

L1   **L2**

Important: Observe CT polarity or damage may occur to controller or CT.

I1   I2

+   -

I1 I2 I3 I4 I5 I6 A1 A2

DC 24V   Input 8 × DC, (A1,A2   0~10V)

24 Volt DC Power Supply Provided

Scrolls Between Windows

Push to enter field to adjust mode

```
Gen Full Load(A)
 DR02= 00050
DelayShed(sec)
 DR01= 00030
```

DEL   SEL

ESC   OK

Scroll to select field to adjust

Push to save adjustment

120 Volt AC Input

Output 4 × Relay/8A

Q1   Q2   Q3   Q4

Open Frame Relay

Contactor Voltage 110/24Vac

100-200 Amp Latching Relays

HVAC Control Wires

Relay Voltage 110/24Vac

* When CT's are attached to generator out puts L1 & L2 directly input I1 is not required. When CT's are connected to main panel or transfer switch out put I1 input is required to bypass load shedding in utility mode. Contacts not supplied with LSC-04

Load Shedding Control
Model LSC-04

The LSC-04-S is a standalone load shedding controller designed to work with any single phase generator and a broad range of connected load types controlled by DRY CONTACTS. The controller can be set for 2 different configurations as follows. **Normally open Mode** is selected when **I2 = 0** this mode is designed to work with loads that use a normally open state for control purposes like normally closed relays. The **Normally Closed Mode** is selected when **I2 = 24 V DC**. This mode is designed to work with normally closed control circuits like low voltage HVAC control wires and normally open contactors.

Theory Of Operation

Operation: The internal program starts to run on power up. At startup all relays will revert to their active state, **NO Configuration** will close and **NC Configuration** will open. All relays will remain in their active state for the duration of the **Delay Shed** period set by **DR01**. After **DR01** times out the program will look at the value of **Gen Full Load DR02** to determine the maximum amps available. A comparator circuit will look at the assigned amperage rating of **DR03 Relay1** and the **Gen Actual Cur reading**, (this will always be determined by the higher of the 2 CT inputs). When capacity is available **Relay1** will revert to the NORMAL STATE and turn the load on. After the load is restored the program will pause for the number of seconds set by input setting **DR0A Stabilize Time.** After the delay period the program will compare the **Gen Actual Cur reading,** with **Gen Full Load DR02** and the amps assigned to **RELAY2 DR04,** if the comparator program determined capacity is available **RELAY2** will revert to its normal state turning on load 2. This sequence is repeated for **RELAY3 DR05** and **RELAY4 DRO6**. Any time the **Gen Actual Cur reading** exceeds 90% of **Gen Full Load DR02** All relays will revert to their active state removing all four of the loads from the circuit. The program will then repeat the process restoring one load at a time until additional capacity is no longer available.
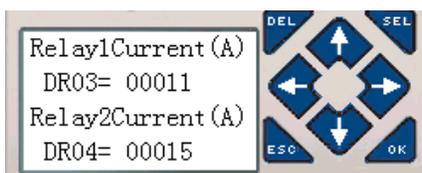
Programming Screens

Screens 1 to 5 are used to adjust the Amperage and time delays in the load shedding program. Note that screen 4 "**Gen Actual Cur**" is not adjustable and is reading the amperage interpreted by the CT input. Also note that screen 6 displays the real time state of the output relays on the controller. Screen 7 indicated the NO or NC Mode of operation.
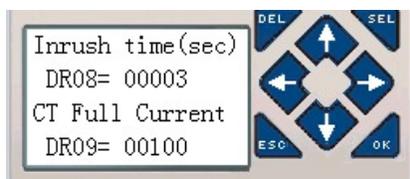
Screen 1
```
Gen Full Load(A)
  DR02= 00050
DelayShed(sec)
  DR01= 00030
```

Screen 2
```
Relay1Current(A)
  DR03= 00011
Relay2Current(A)
  DR04= 00015
```

Screen 3
```
Relay3Current(A)
  DR05= 00005
Relay4Current(A)
  DR06= 00040
```

Screen 4
```
Gen Actual cur
   00000 A
Stablize Time
  DR0A= 00005
```

Screen 5
```
Inrush time(sec)
  DR08= 00003
CT Full Current
  DR09= 00100
```

Screen 6
```
R1: OFF
R2: OFF
R3: OFF
R4: OFF
```

Screen 7
```
ToggleOpenCLoseK
  M22=OFF
OpenContact ON
ClosContact OFF
```
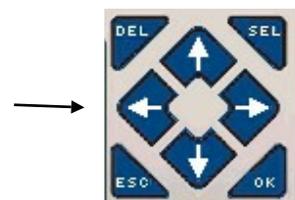
Left Arrow Key- The left arrow key is used to scroll thru screens 1 to 6. The screen sequence will be repeated after screen 6. Note: The right arrow key does not scroll in reverse.

Programming Instructions

Left Arrow Key- The left arrow key is used to scroll thru screens 1 to 7. The screen sequence will be repeated after screen 7. Note: The right arrow key does not scroll in reverse.

```
Gen Full Load(A)
 DR02= █0100
DelayShed(sec)
 DR01= 00017
```
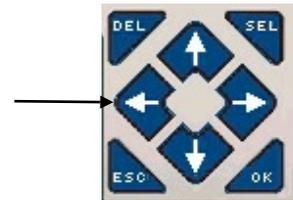
Entering The Programming Mode- The select key is used to enter the programming mode on any screen. After pressing the **SEL** key a flashing block cursor will appear.

```
Gen Full Load(A)
 DR02= 00█00
DelayShed(sec)
 DR01= 00017
```

Move Cursor to the desired adjustment - Use the up, down, left and right keys to position the cursor on the digit to be adjusted.

```
Gen Full Load(A)
 DR02= 00100
DelayShed(sec)
 DR01= 00017
```

Push The Select Key Again- Press the select key again to enter the adjustment mode. The flashing block cursor will change to a flashing under-score

```
Gen Full Load(A)
 DR02= 00700
DelayShed(sec)
 DR01= 00017
```

Adjust Value with UP-Down Keys- Use the up, down keys to adjust the value of the setting. You can scroll left and right to adjust multiple digits in the same adjustment field.

```
Gen Full Load(A)
 DR02= 00█00
DelayShed(sec)
 DR01= 00017
```

Press The OK Key To Save- Use the OK Key to save the adjustments made.

```
Gen Full Load(A)
 DR02= 00█00
DelayShed(sec)
 DR01= 00017
```

Press The ESC Key To Exit Programming Mode- Use ESC Key to exit the programming mode to enable scrolling between adjustment windows.

Programmable Field Descriptions

```
Gen Full Load(A)
 DR02= 00050
DelayShed(sec)
 DR01= 00030
```

Generator Full Load DR02- Adjust to generators maximum amperage output in whole amps.

DelayShed DR01 - Delay period in seconds from the generator start up until the 1st load will be restored.

```
Relay1Current(A)
 DR03= 00011
Relay2Current(A)
 DR04= 00015
```
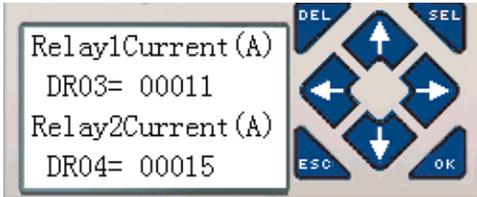
Relay #1 Current DR03- Adjust to the estimated maximum amperage draw in whole amps for load # 1

Relay #2 Current DR04 - Adjust to the estimated maximum amperage draw in whole amps for load #2

```
Relay3Current(A)
 DR05= 00005
Relay4Current(A)
 DR06= 00040
```
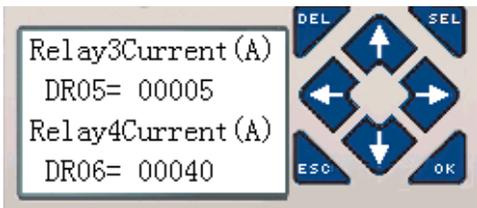
Relay #3 Current DR05-Adjust to the estimated maximum amperage draw in whole amps for load # 3

Relay #4 Current DR06 - Adjust to the estimated maximum amperage draw in whole amps for load # 4

```
Gen Actual cur
  00000 A
Stablize Time
 DR0A= 00005
```

Actual Real-Time Amps- Generator amp load as measured by the controllers highest reading on either CT

Stabilize Time: Adjust the time delay time in seconds between the individual turn on of Relays 1-4

```
Inrush time(sec)
 DR08= 00003
CT Full Current
 DR09= 00100
```

Generator Inrush Delay DR08- Adjust allowable In Rush delay time before load shedding will occur
DelayShed DR09 - Adjustment to compensate for CT Voltage variations and generator-CT match. Adjust for accurate **GEN Actual cur** reading

```
R1: OFF
R2: OFF
R3: OFF
R4: OFF
```

Real Time State of relays 1-4 (Fixed reading, not adjustable)

```
ToggleOpenCLoseK
 M22=OFF
OpenContact ON
ClosContact OFF
```

Real Time State of I2 Input (Fixed reading, not adjustable)

Technical Support Call 800-648-68021