

# Revolution™

## Warning Series LED Lighthead

### Installation and Programming Instructions

#### WIRES

##### INTERNAL FLASHER (SMART MODE)

RED Connect to Battery +12Vdc thru +24Vdc to activate  
 BLACK Connect to Battery GROUND  
 YELLOW Sync Line  
 BLUE Alternate Flash Pattern

##### DIRECT CONTROL

RED Connect to Battery +12Vdc thru +24Vdc to activate (Active Low Inputs Only)  
 BLACK Connect to Battery GROUND (Active High Inputs Only)  
 YELLOW Side A or Color 1  
 BLUE Side B or Color 2

#### ELECTRICAL

Input Voltage: +12Vdc thru +24Vdc

| Input Current:         | Steady Burn Normal Mode |       | Steady Burn Dim Mode |       | Default Flash Normal Mode |       | Default Flash Dim Mode |       |
|------------------------|-------------------------|-------|----------------------|-------|---------------------------|-------|------------------------|-------|
|                        | 12Vdc                   | 24Vdc | 12Vdc                | 24Vdc | 12Vdc                     | 24Vdc | 12Vdc                  | 24Vdc |
| R37/R46 Warning Lights | 1.53A                   | 0.86A | 0.41A                | 0.24A | 0.39A                     | 0.27A | 0.11A                  | 0.05A |
| R79 Warning Lights     | 3.06A                   | 1.70A | 0.85A                | 0.47A | 0.95A                     | 0.53A | 0.26A                  | 0.14A |

Note: Complete installation with wire rated for 125% of amperage draw

#### SYNCHRONIZE WARNING LAMPS – Internal Flasher (Smart) Modes Only

To synchronize, first program each lamp to the same flash pattern. Unpredictable results will occur if synchronized lamps have different flash patterns selected. Connect the YELLOW wires of up to 10 synchronized iLED lamps together. Do not connect the yellow wires to power or ground. Do not exceed 100 feet of wire between the furthest synchronized units.

## OPERATING CONFIGURATIONS

The Revolution series can be set to one of two Operating Modes, and the Inputs can be set to one of two Active States. This gives four distinct configurations:

Internal Flasher, Active High Inputs  
Internal Flasher, Active Low Inputs  
Direct Control, Active High Inputs  
Direct Control, Active Low Inputs

**Internal Flasher** – This is the Default Mode. All flash patterns are controlled by the on-board flasher.

**Direct Control** – Select the direct control mode if you are using an external flasher to control the light head.

**Active high inputs** – This is the Default Mode. All lamp functions are activated by applying +12Vdc through +24Vdc.

**Active low inputs** – When set to active low all lamp functions are activated by applying ground.

## PROGRAMMING FLASH PATTERNS AND RATES

### **ENTERING PROGRAM MODE**

**For Internal Flasher, Active High Inputs Configuration (Default Smart Mode):**

#### **To Program the Primary Flash Pattern**

Connect the Sync (YELLOW) wire and the RED power wire to +12Vdc; connect the BLACK wire to ground.

Continue to apply +12vdc to the Sync (YELLOW) wire for at least 2 seconds.

All LEDs will flash **3** times to indicate you have entered Primary Flash Pattern selection mode.

While maintaining power, remove the Sync (YELLOW) wire from +12vdc and the unit will operate in the currently selected flash pattern.

Tap the Sync (YELLOW) wire to +12vdc to select the Flash Type & Rate.

Tap the Alternate (BLUE) wire to +12vdc to select the Flash Pattern.

Tap both the Sync (YELLOW) and Alternate (BLUE) wires to +12vdc to select the Quadrants.

See the “SELECTING FLASH PATTERNS” section and Pattern Tables below for more details.

#### **To Program the Alternate Flash Pattern**

Connect the Alternate (BLUE) and Sync (YELLOW) wires and the RED power wire to +12vdc; connect the BLACK wire to ground.

Continue to apply +12vdc to the Alternate (BLUE) and Sync (YELLOW) wires for at least 2 seconds.

All LEDs will flash **4** times to indicate you have entered Alternate Flash Pattern selection mode.

While maintaining power, remove the Alternate (BLUE) and Sync (YELLOW) wires from +12vdc and the unit will operate in the currently selected alternate flash pattern.

Use the Sync (YELLOW) wire tapped to +12vdc to select the Flash Type & Rate.  
Use the Alternate (BLUE) wire tapped to +12vdc to select the Flash Pattern.  
Use both the Sync (YELLOW) and Alternate (BLUE) wires tapped to +12vdc to select the Quadrants.  
See the “SELECTING FLASH PATTERNS” section and Pattern Tables below for more details.

#### **For Internal Flasher, Active Low Inputs Configuration:**

##### **To Program the Primary Flash Pattern**

Connect the Sync (YELLOW) wire and the BLACK wire to Ground; connect the RED wire to +12Vdc. Continue to apply Ground to the Sync (YELLOW) wire for at least 2 seconds. All LEDs will flash **3** times to indicate you have entered Primary Flash Pattern selection mode. While maintaining power, remove the Sync (YELLOW) wire from Ground and the unit will operate in the currently selected flash pattern.

Use the Sync (YELLOW) wire tapped to Ground to select the Flash Type & Rate.  
Use the Alternate (BLUE) wire tapped to Ground to select the Flash Pattern.  
Use both the Sync (YELLOW) and Alternate (BLUE) wires tapped to Ground to select the Quadrants.  
See the “SELECTING FLASH PATTERNS” section and Pattern Tables below for more details.

##### **To Program the Alternate Flash Pattern**

Connect the Alternate (BLUE) and the Sync (YELLOW) wires and the BLACK wire to Ground; connect the RED wire to +12vdc. Continue to apply Ground to the Alternate (BLUE) and Sync (YELLOW) wires for at least 2 seconds. All LEDs will flash **4** times to indicate you have entered Alternate Flash Pattern selection mode. While maintaining power, remove the Alternate (BLUE) and Sync (YELLOW) wires from Ground and the unit will operate in the currently selected flash pattern.

Use the Sync (YELLOW) wire tapped to Ground to select the Flash Type & Rate.  
Use the Alternate (BLUE) wire tapped to Ground to select the Flash Pattern.  
Use both the Sync (YELLOW) and Alternate (BLUE) wires tapped to Ground to select the Quadrants.  
See the “SELECTING FLASH PATTERNS” section and Pattern Tables below for more details.

#### **For Direct Control, Active High Inputs Configuration:**

##### **To Program the Primary Flash Pattern**

Connect the RED power wire to +12vdc; connect the BLACK wire to Ground. Wait for at least 2 seconds. All LEDs will flash **3** times to indicate you have entered Primary Flash Pattern selection mode. The LEDs will remain **off**, indicating that the Direct Control mode is currently selected.

Tap the Sync (YELLOW) wire to +12vdc to select the Flash Type & Rate.  
Tap the Alternate (BLUE) wire to +12vdc to select the Flash Pattern.  
Tap both the Sync (YELLOW) and Alternate (BLUE) wires to +12vdc to select the Quadrants.  
See the “SELECTING FLASH PATTERNS” section and Pattern Tables below for more details.

#### **For Direct Control, Active Low Inputs Configuration:**

##### **To Program the Primary Flash Pattern**

Connect the RED power wire to +12vdc; connect the BLACK wire to Ground. Wait for at least 2 seconds. All LEDs will flash **3** times to indicate you have entered Primary Flash Pattern selection mode.

The LEDs will remain **off**, indicating that the Direct Control mode is currently selected.

Use the Sync (YELLOW) wire tapped to Ground to select the Flash Type & Rate.

Use the Alternate (BLUE) wire tapped to Ground to select the Flash Pattern.

Use both the Sync (YELLOW) and Alternate (BLUE) wires tapped to Ground to select the Quadrants.

See the “SELECTING FLASH PATTERNS” section and Pattern Tables below for more details.

### **SELECTING FLASH PATTERNS:**

Use the Sync wire (YELLOW) to step through the Flash Type & Rate table.

Single Tap - Step Forward

Double Tap - Step Backward

Touch and Hold - Reset to Defaults and Toggles the Dim Setting (Bright or Dim)

Use the Alternate wire (BLUE) to step through the Pattern table.

Single Tap - Step Forward

Double Tap - Step Backward

Touch and Hold - Step through the Color settings: Color 1, Color 2, Color 1 then 2, Color 2 then 1, Color 1:2, Color 2:1

Use the Sync and Alternate wires (YELLOW & BLUE) to step through the Quadrant table.

Single Tap - Step Forward

Double Tap - Step Backward

Touch and Hold - Toggles the Inputs Active State setting (High or Low).

For Active High Inputs:

Tap or Touch and Hold<sup>5</sup> inputs to +12vdc.

For Active Low Inputs:

Tap or Touch and Hold<sup>5</sup> inputs to Ground.

### SELECTABLE FLASH TYPE & RATE

1. **Neobe flash 150 FPM** Prim. DEFAULT all models
2. Neobe flash 120 FPM
3. **Neobe flash 75 FPM** Alt. DEFAULT all models
4. Double flash 250 FPM
5. Double flash 125 FPM
6. Double flash 75 FPM
7. Single flash 375 FPM
8. Single flash 150 FPM
9. Single flash 120 FPM
10. Single flash 75 FPM

Use the Sync wire (YELLOW) to step through the Flash Type & Rate table.

Single Tap - Step Forward  
Double Tap - Step Backward  
Touch and Hold <sup>5</sup> - Reset to Defaults and Toggles the Dim Setting (**Bright** or Dim)

Bright is Prim. and Alt. DEFAULT for all models

### SELECTABLE PATTERN

1. **Alternating** Prim. DEFAULT RxxLL, LV, LX, LLD, LVD, LXD models
2. **Simultaneous [Phase 0]** <sup>7</sup> Prim. DEFAULT RxxL, LD models  
Alt. DEFAULT RxxL, LL, LV, LX models
3. Combo (2 cycles alt + 2 cycles sim) <sup>7</sup>
4. California steady (half flashing, half steady) <sup>7</sup>
5. Simultaneous [Phase 1] <sup>7</sup>
6. Flicker
7. Clockwise <sup>8</sup>
8. Counter Clockwise <sup>8</sup>
9. **Steady Burn** <sup>7</sup> Alt. DEFAULT RxxLD, LLD, LVD, LXD models
10. Multi flash 1 <sup>6</sup>
11. Multi flash 2 <sup>6</sup>
12. Multi flash 3 <sup>6</sup>
13. Direct Control <sup>1</sup>

Use the Alternate wire (BLUE) to step through the Pattern table.

Single Tap - Step Forward  
Double Tap - Step Backward  
Touch and Hold <sup>5</sup> - Step through the Color settings<sup>2</sup>:

**Color 1** Prim. DEFAULT all models  
Alt. DEFAULT RxxL, LL, LV, LX models

**Color 2** Alt. DEFAULT RxxLD, LLD, LVD, LXD models

Color 1/2 (1 then 2)  
Color 2/1 (2 then 1)  
Color 1:2  
Color 2:1

### SELECTABLE QUADRANTS <sup>3</sup>

1. **Left/Right** DEFAULT RxxL, LD, LL, LLD models
2. **Top/Bottom** DEFAULT RxxLV, LVD models
3. **Diagonal D/U** DEFAULT RxxLX, LXD models
4. Right/Left
5. Bottom/Top
6. Diagonal U/D

Use the Sync and Alternate wires (YELLOW & BLUE) to step through the Quadrant table.

Single Tap - Step Forward  
Double Tap - Step Backward  
Touch and Hold <sup>5</sup> - Toggles the Inputs Active State<sup>4</sup> setting (**High** or Low).

Active High is Prim. and Alt. DEFAULT for all models

**CONFIGURATION SELECTION NOTES:**

- 1) Direct Control is only selectable from the Primary Pattern selection.
- 2) The Color Settings are only available on the Dual Color models.
  - Color 1 Flash Patterns only use Color 1.
  - Color 2 Flash Patterns only use Color 2.
  - Color 1/2 Flash Patterns switch colors every time through a pattern. The first time through the pattern, Color 1 is used, the second time through the pattern Color 2 is used.
  - Color 2/1 Flash Patterns switch colors every time through a pattern. The first time through the pattern, Color 2 is used, the second time through the pattern Color 1 is used.
  - Color 1:2 Flash Patterns use Color 1 for Side A and Color 2 for Side B.
  - Color 2:1 Flash Patterns use Color 2 for Side A and Color 1 for Side B.
- 3) The Quadrants are Upper Left (UL), Upper Right (UR), Lower Left (LL) and Lower Right (LR).
  - Left Quadrants are UL and LL.
  - Right Quadrants are UR and LR.
  - Top Quadrants are UL and UR.
  - Bottom Quadrants are LL and LR.
  - Diagonal D(own) Quadrants are UL and LR.
  - Diagonal U(p) Quadrants are LL and UR.
- 4) Input Active State settings are High and Low. High means the input wire must be connected to +Vdc to activate the function. Low means the input wire must be connected to Ground to activate the function.
- 5) The hold time for the Touch and Hold action is 3 seconds.

6) Patterns in the Multi Pattern Combinations.

- Multi 1:   A) NEOBE FLASH 150 ALTERNATE.  
              B) DOUBLE FLASH 250 SIMULTANEOUS PHASE 0.  
              C) SINGLE FLASH 375 ALTERNATE.  
              D) NEOBE 150 SIMULTANEOUS PHASE 0.

- Multi 2:   A) NEOBE FLASH 75 ALTERNATE.  
              B) DOUBLE FLASH 125 SIMULTANEOUS PHASE 0.  
              C) SINGLE FLASH 150 ALTERNATE.  
              D) SINGLE FLASH 75 SIMULTANEOUS PHASE 0.

- Multi 3:   A) DOUBLE FLASH 125 ALTERNATE.  
              B) SINGLE FLASH 150 ALTERNATE.  
              C) DOUBLE FLASH 250 SIMULTANEOUS PHASE 0.  
              D) SINGLE FLASH 150 SIMULTANEOUS PHASE 0.

7) For Two Color Lamps, when both halves of the lamp are flashed together, these Flash Patterns only use one color.

For Color selection 1:2 (and 1/2 for Steady Burn) - only Color 1 is used.

For Color selection 2:1 (and 2/1 for Steady Burn) - only Color 2 is used.

8) For Two Color Lamps, the colors used for CW and CCW Flash Patterns are:

For Color selection 1:2 - UL and LR are Color 1, UR and LL are Color 2.

For Color selection 2:1 - UL and LR are Color 2, UR and LL are Color 1.

## Addendum A

### Example: Configuring R79LD-W-RW for NFPA compatible Flash Patterns

For an R79LD-W-RW, the default Flash Patterns are:

Primary Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash 150 FPM,  
Left/Right Quadrant Split, Color 1 (Red), Full Brightness.

Alternate Flash Pattern: Steady Burn pattern, Neobe flash 75 FPM,  
Left/Right Quadrant Split, Color 2 (White), Full Brightness.

NFPA compatible Flash Patterns:

Set the Primary flash pattern to Color Red/White, Alternating Left/Right.

Set the Alternate flash pattern to Color Red, Alternating Left/Right, Neobe flash 150 FPM.

- 1) Enter Program Mode for Primary Flash Pattern.
- 2) Step Table 2 backwards to Alternating pattern.
- 3) Step Color selection four times to Color 1:2 (Red/White).
- 4) Exit Program Mode (i.e. remove power).
- 5) Enter Program Mode for Alternate Flash Pattern.
- 6) Step Table 1 backwards to Neobe flash 150 FPM.
- 7) Step Table 2 (forward or backward) to Alternating pattern.
- 8) Step Color selection five time to Color 1 (Red).
- 9) Exit Program Mode (i.e. remove power).



## Addendum B

### Default Settings

#### **For an RnnL-W-x or RnnL-E-x, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash, 150 FPM,  
Left/Right Quadrant Split, Color 1 (color x), Full Brightness.

Alternate Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash, 75 FPM,  
Left/Right Quadrant Split, Color 1 (color x), Full Brightness.

#### **For an RnnLL-W-xy or RnnLL-E-xy, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Alternating pattern, Neobe flash, 150 FPM,  
Left/Right Quadrant Split, Color 1 (color x:y), Full Brightness.

Alternate Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash, 75 FPM,  
Left/Right Quadrant Split, Color 1 (color x:y), Full Brightness.

#### **For an RnnLV-W-xy or RnnLV-E-xy, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Alternating pattern, Neobe flash, 150 FPM,  
Top/Bottom Quadrant Split, Color 1 (color x:y), Full Brightness.

Alternate Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash, 75 FPM,  
Top/Bottom Quadrant Split, Color 1 (color x:y), Full Brightness.

#### **For an RnnLX-W-xy or RnnLX-E-xy, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Alternating pattern, Neobe flash, 150 FPM,  
Diagonal A/Diagonal B Quadrant Split, Color 1 (color x:y), Full Brightness.

Alternate Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash, 75 FPM,  
Diagonal A/Diagonal B Quadrant Split, Color 1 (color x:y), Full Brightness.

**For an RnnLD-W-xy or RnnLD-E-xy, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Simultaneous Phase 0 pattern, Neobe flash, 150 FPM,  
Left/Right Quadrant Split, Color 1 (color x), Full Brightness.

Alternate Flash Pattern: Steady Burn pattern, Neobe flash, 75 FPM,  
Left/Right Quadrant Split, Color 2 (color y), Full Brightness.

**For an RnnLLD-W-xyz or RnnLLD-E-xyz, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Alternating patter, Neobe flash, 150 FPM,  
Left/Right Quadrant Split, Color 1 (colors x:y), Full Brightness.

Alternate Flash Pattern: Steady Burn pattern, Neobe flash 75 FPM,  
Left/Right Quadrant Split, Color 2 (color z), Full Brightness.

**For an RnnLVD-W-xyz or RnnLVD-E-xyz, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Alternating patter, Neobe flash, 150 FPM,  
Top/Bottom Quadrant Split, Color 1 (colors x:y), Full Brightness.

Alternate Flash Pattern: Steady Burn pattern, Neobe flash 75 FPM,  
Top/Bottom Quadrant Split, Color 2 (color z), Full Brightness.

**For an RnnLXD-W-xyz or RnnLXD-E-xyz, the default Flash Patterns are:**

Smart Control Mode, Inputs are Active High.

Primary Flash Pattern: Alternating patter, Neobe flash, 150 FPM,  
Diagonal A/Diagonal B Quadrant Split, Color 1 (colors x:y),  
Full Brightness.

Alternate Flash Pattern: Steady Burn pattern, Neobe flash 75 FPM,  
Diagonal A/Diagonal B Quadrant Split, Color 2 (color z), Full Brightness.