

1. PRODUCT OVERVIEW

3-to-2 Signal Conversion + Programmable Flash Patterns

The APP-4 Rev. 5 is a heavy-duty 3-to-2 electronic-converter built for professional vehicle upfitters, designed to allow a domestic body to be used with a foreign chassis when the chassis and body use different brake/turn signal configurations.

It takes three separate chassis signals—brake, left turn, and right turn—and converts them into two combined left turn/brake and right turn/brake outputs for body and auxiliary lighting systems.

The APP-4 also provides electrical isolation between the vehicle chassis and installed body equipment, helping protect the vehicle's electrical system while providing dependable converted outputs.

Building on everything that made the APP-4 a proven workhorse, Rev. 5 adds 20 programmable flash patterns, bringing a whole new level of lighting capability to an already dependable platform.

For applications requiring something different, Power Up Products can also provide custom in-house flash pattern programming.

Designed for service bodies, tow equipment, utility bodies, emergency equipment, trailers, and other auxiliary lighting applications, the APP-4 Rev. 5 delivers dependable 3-to-2 signal conversion, electrical isolation, and programmable lighting control in one serviceable package.



Built on Proven Performance: The APP-4 Rev. 5 continues the proven reliability of previous Power Up Products signal converters while introducing more robust electronics, intelligent control, improved serviceability, enhanced diagnostics, and expanded functionality for today's commercial vehicle applications.

2. Key Feature

Heavy-Duty Design: Built for commercial work vehicles and demanding operating environments.

Built-In Flash Patterns: The APP-4 Rev. 5 comes with 20 preset flash patterns that can be activated through FLASH ENABLE and changed in the field if needed.

LED Diagnostics: Status LEDs provide at-a-glance confirmation of power and output activity for easier installation and troubleshooting.

Replaceable Relays: High-quality relays are easily replaceable for simplified service and long-term reliability.

Electrical Isolation: Helps protect the vehicle electrical system while providing dependable converted outputs.

Taillight Signal Conversion: Allows a domestic body to be used with a foreign chassis when the chassis and body use different brake/turn signal configurations.

Replaceable Circuit Breakers: Individual circuit protection with replaceable breakers for outputs.

Sealed Enclosure: When properly installed, the APP-4 enclosure is designed to help protect internal electronics from moisture, dirt, and the demanding conditions of the road.

3. INSTALLATION

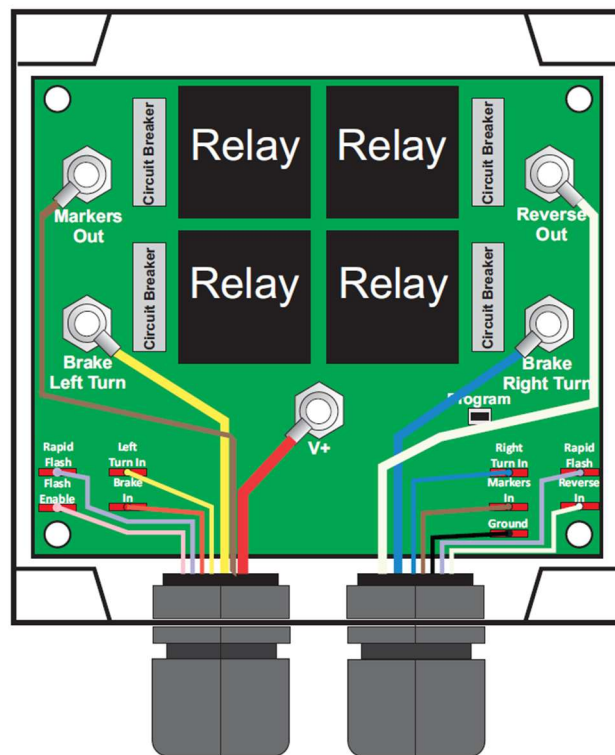
Disconnect battery power before making electrical connections. Mount the APP-4 securely in a protected location. Route wiring away from moving parts, heat sources, and sharp edges. Connect the APP-4 main battery power through a circuit breaker installed as close to the battery as possible. Power Up Products offers **P/N 2502050** (50 Amp WP Breaker) and **P/N 2502080** (80 Amp WP Breaker) for applicable installations. Always follow safe wiring practices.

The APP-4 Rev. 5 is powered continuously so that required lighting functions can operate when the truck is off.

4. WIRING CONNECTIONS

Manufacturer's suggested wiring for this product.

Function	Terminal	Wire Color	Suggested Wire Size / Type
V+ Input (Battery)	J14	Red	10 AWG GXL
Ground	J15	Black	18 AWG GXL
Left Turn In	J1	Yellow	18 AWG GXL
Brake In	J5	Red	18 AWG GXL
Flash Enable	J13	Pink	18 AWG GXL
Marker In	J9	Tan	18 AWG GXL
Reverse In	J11	White	18 AWG GXL
Right Turn In	J7	Blue	18 AWG GXL
Rapid Flash Kit	J3 / J8	Violet	18 AWG GXL
Left Turn / Brake Out	J4	Yellow	12 AWG GXL
Right Turn / Brake Out	J6	Blue	12 AWG GXL
Marker Out	J10	Tan	12 AWG GXL
Reverse Out	J12	White	12 AWG GXL



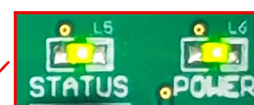
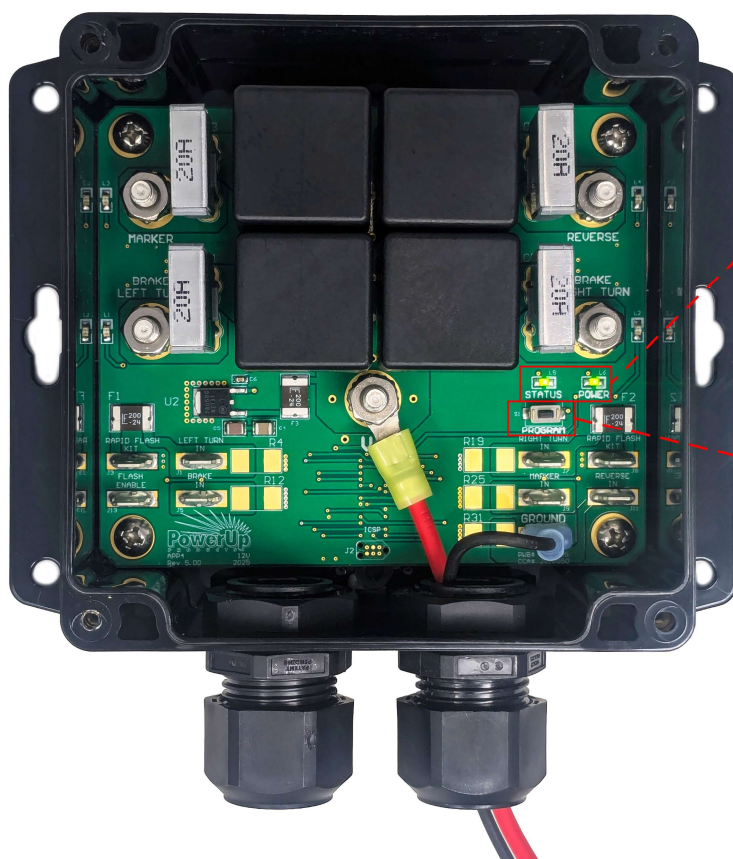
Flash Enable J13 note: J13 is only used if flash patterns are used. If flash patterns are not being used, J13 does not need to be connected.

Optional Rapid Flash Resistor Kit — P/N 300110

Some vehicles may experience rapid turn signal flashing after installation. If this occurs, a resistor kit can be installed using the RAPID FLASH inputs J3 and J8. J3 and J8 are only needed when using Rapid Flash Resistor Kit P/N 300110. The kit contains two identical resistors; the resistors themselves are not left- or right-specific.

5. SELECT A FLASH PATTERN

1. Apply 12V to the FLASH ENABLE input (J13). This activates the currently selected flash pattern.
2. While the flash pattern is active, press and hold the PROGRAM button (S1) until the STATUS LED (L5) starts flashing. This enters flash-pattern selection mode. The currently selected pattern will continue.
3. Press the PROGRAM button while in flash-pattern selection mode to advance through the patterns. Cycle through the available options until the desired pattern is displayed.
4. Once the desired pattern is selected, press and hold PROGRAM until the STATUS light begins to flash rapidly.
5. When STATUS is flashing rapidly, release PROGRAM. The STATUS light will return solid, and the pattern selection is saved. Remove 12V from FLASH ENABLE.
6. The selected pattern will now activate whenever FLASH ENABLE is turned on.



When powered on, the "STATUS" (L5) and "POWER" (L6) lights should be lit up solid Green.



Program Button (S1)



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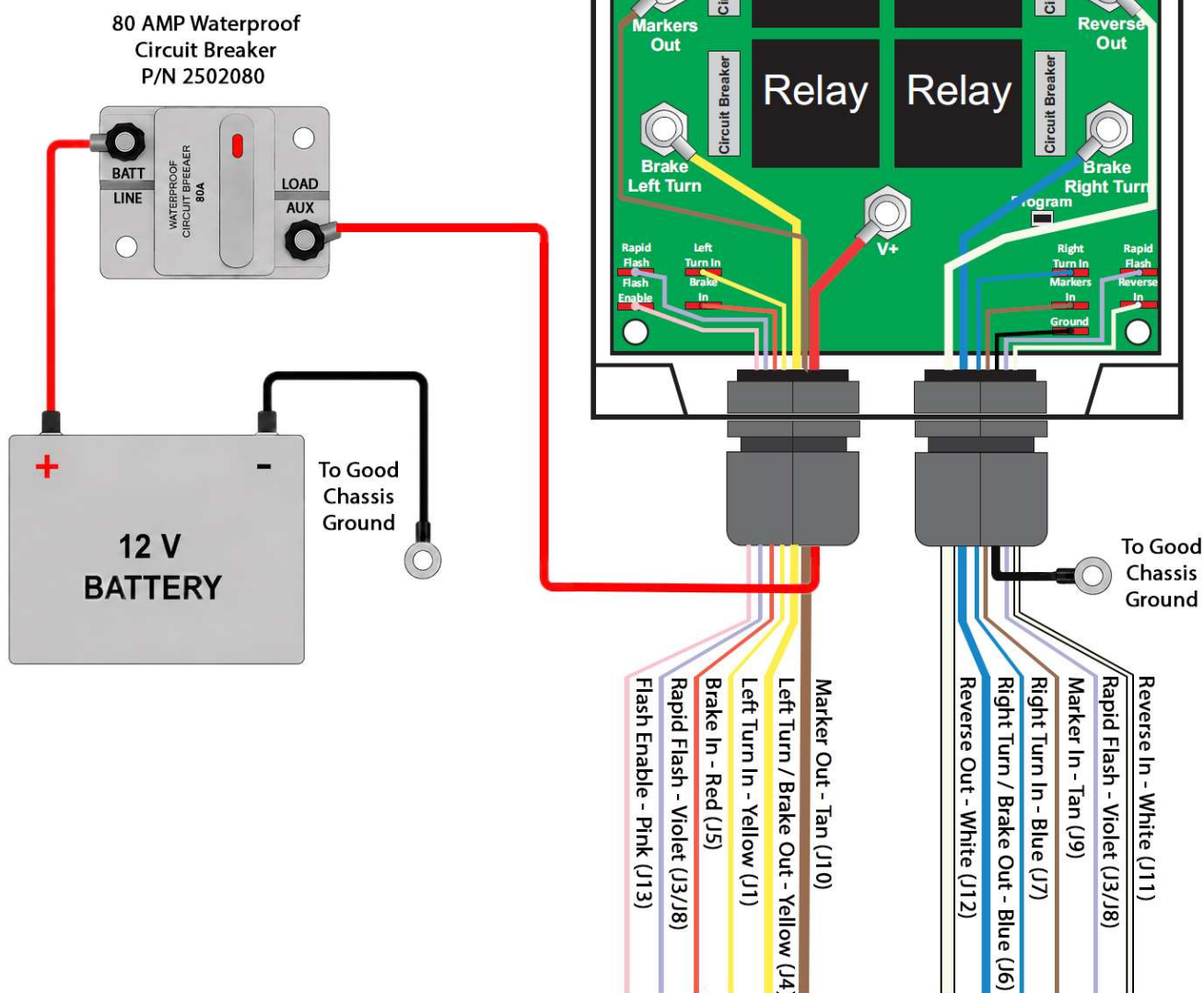
6. THE 20 FLASH PATTERNS

Pattern	Description
1 - Steady Pulse	Slow synchronized flash pattern
2 - Standard Pulse	Medium speed synchronized flash pattern
3 - Rapid Pulse	Fast synchronized flash pattern
4 - Triple Strike	Three rapid flashes followed by a pause
5 - Five Shot Wig-Wag	Five Left Turn flashes followed by five Right Turn flashes
6 - Marker Wig-Wag	Left and Right Turn alternating bursts combined with Marker
7 - Crossfire	Left Turn and Reverse alternate against Right Turn and Marker
8 - Double Tap	Sharp double pulse alternating sequence
9 - Triple Tap	Three rapid pulses per side before alternating
10 - Quad Burst	Four tight flashes followed by opposing output burst
11 - Rapid Wig-Wag	High speed Left Turn and Right Turn alternating pattern
12 - Power Sweep	Progressive movement across available lighting outputs
13 - Cross Sweep	Crossing Left/Right and Marker/Reverse sequence
14 - Interceptor	Aggressive alternating multi-burst emergency pattern
15 - Hyper Burst	Very fast clustered flashes with short recovery periods
16 - Crossfire Pro	Advanced opposing-channel cross pattern with rapid bursts
17 - Pursuit	Fast directional sequence producing strong visual movement
18 - Chaos Strike	Irregular alternating bursts with changing flash cadence
19 - Rapid Response	High energy combination of bursts, alternating flashes, and synchronized output hits
20 - Code Red	Maximum intensity multi-stage pattern combining rapid bursts, crossfire sequences, and synchronized output hits

7. INSTALLATION VERIFICATION

After installation, verify operation of Power, Left Turn, Right Turn, Brake, Marker, Reverse, and Flash Enable functions. Confirm all vehicle and body lighting operates correctly before returning the vehicle to service.

P/N 502025 Auxiliary Power Protector 4 Rev. 5





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8. TROUBLESHOOTING

Symptom	Action / Diagnosis
No STATUS or POWER Light	There is no power to the APP-4. Check power and ground connections. Verify 12V is present at the V+ post and verify the main power-line circuit breaker is functioning and closed.
No Output Power and No Indicator Light	There is no signal on the input for that function. Verify that the input wire has 12V when the function is turned on.
No Output Power and a Flashing Indicator Light	A flashing output indicator usually indicates a fault. Turn the function off and back on. If the problem persists, disconnect the output wire, turn the function on, and check the output post with a voltmeter. If the indicator stops flashing and 12V is present at the output, inspect the downstream wire/load for a short or other fault.
Rapid Flashing	Some vehicles may experience rapid turn-signal flashing after installation. See Optional Rapid Flash Resistor Kit on Page 2.
Intermittent Operation	Inspect grounds, connectors, and harness routing. Ensure connections are secure and properly grounded.

9. LIMITED WARRANTY

Power Up Products warrants the APP-4 Rev. 5 against defects in materials and workmanship for one (1) year from the original installation date.

To request warranty evaluation, provide:

- Valid invoice or purchase order number
- Installation date
- Photos of the product and installation
- Description of the concern

Prior to warranty approval, customers must participate in telephone diagnostics and allow reasonable troubleshooting opportunities. Warranty claims require approval by Power Up Products and apply only to verified manufacturing defects under normal intended use.

This warranty does not cover improper installation, incorrect wiring, misuse, unauthorized modification, accidental damage, or external electrical faults.

10. SUPPORT

Power Up Products - 82 Hardy Drive, Sparks, NV 89431 - Phone: (800) 769-3749

Email: techsupport@powerup.com - Website: www.powerup.com