



RCR-FORCE® 12
12 Switches, 17 Outputs
Programmable Switch Panel Power System
Read before installing!

Failure to follow installation instructions may affect warranty coverage

1. **High In-rush accessories like fans and motors and starter solenoids MAY ONLY be wired to the four 35A and one 30A circuits (circuits 1-4 and 9);** Connecting them to any other circuit will cause irreparable damage to your power module, which will not be covered by warranty!
2. When connecting Air Compressors always switch the compressors supplied relay. Main power for the air compressor should be connected to the battery. For example, the ARB Twin Air will max out at 60A under full load. That is too much current even for the 35A circuit. Any 15A, 30A or 35A circuit can be used to switch the relay since small relays like the Bosch type draw less than 1 Amp.
3. You **MUST** connect the Lt. Blue Ignition sense wire to an ignition or accessory source for the switches to operate. The default setting for all switches is “Ignition” controlled. If the switches are programmed to “Battery,” switches will operate regardless of the Ignition sense wire voltage.
4. **Connect the black ground wire directly to the Negative terminal of the battery. DO NOT connect to frame ground studs or ground distribution studs.**
5. Do not connect any other power feeds to the power module’s power stud.
6. Do not modify the switch panel communications cable.
7. Recommended installation of Power Module is the VERTICAL position, so that water runs off and does not collect on the top of the connector, or face of the module. Improper mounting will allow water to collect on the connector and allow for possible water intrusion and/or corrosion.
8. The use of a Terminal Block **IS NOT RECOMMENDED**, as wires are left exposed and susceptible to water and corrosion. We recommend soldering and heat shrinking all connections.
9. Do not use the RCR-FORCE® 12 to control a winch. Use the winch manufacturer’s supplied device.
10. The system has a Low Voltage Disconnect, LVD. All outputs will turn off if the battery voltage drops below 11.0V for longer than 1 minute. The LVD cutoff voltage can be adjusted in the settings menu under configure switches.
Installation should be performed by a qualified technician, to avoid damage to the system or output accessories.

Overview

The RCR-FORCE® 12 Switch Panel Power system is a solid state switching system that is fully programmable and features Apple and Android Bluetooth accessibility, and RGB backlighting.

The switch panel has 12 switches and one programming switch. Up to 4 outputs can be programmed for each switch.

Any Output (Outputs 1-17) can be linked to any switch.

A red LED indicates when the switch panel is in programming mode and a blue LED indicates when a Bluetooth connection is present.

The switch panel has 6 LED indicators to display the status of the Ignition, Lights, Triggers 1-3 and an Alert LED that will flash when there is a low voltage condition with voltage less than 11.0V.

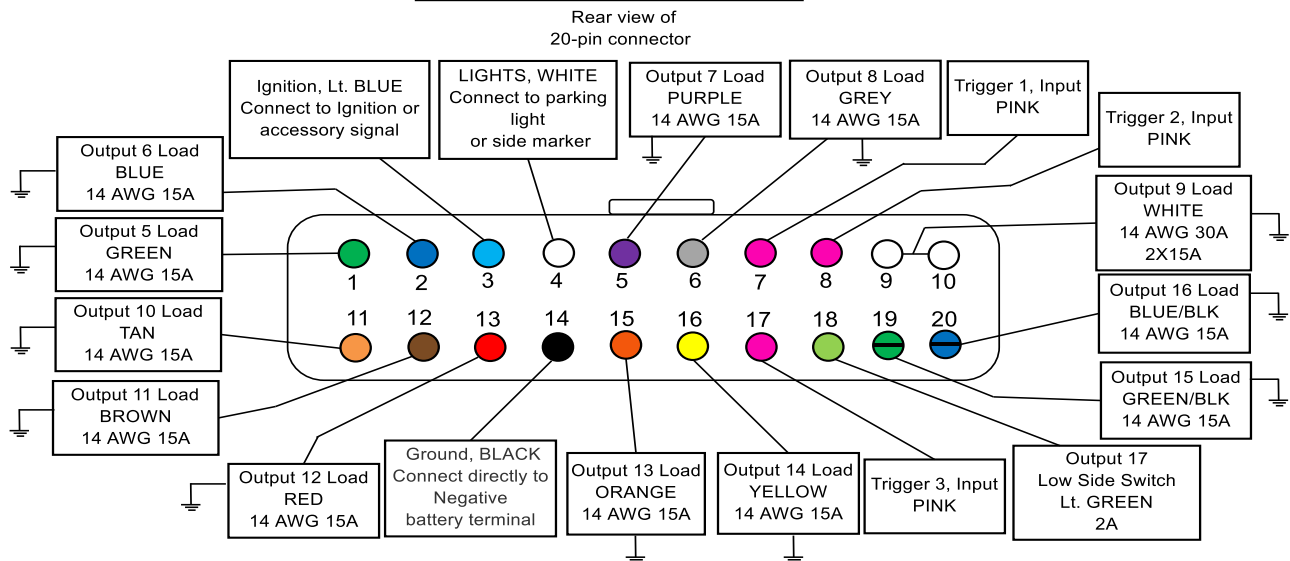
The power module has 17 outputs, Outputs 1 – 4 are rated at 35A, Output 9 is rated at 30A, and Outputs 5 – 8 and Outputs 10 – 16 are rated at 15A. **Outputs 1 – 4 and Output 9 are rated for high inrush current, so fans and motors can be connected directly. They can also drive resistive loads like LED light bars.** Output 17 is a Low Side Switch. It can switch a load to ground, up to 2A.LED. The power module has 5 inputs, one Ignition sense, one Lights sense and 3 external trigger inputs. The 3 Trigger inputs can be configured to sense active high or active low inputs. Both trigger inputs can switch on up to 4 outputs.

The switch panel has an idle mode and a sleep mode. The **idle mode will start after 1 minute of inactivity** with a current draw of 5.5mA. The **sleep mode will start after 8 hours** (default) of inactivity (which is adjustable in the App (with a current draw of 3.0mA. *If switch panel backlighting is on, the system WILL NOT enter sleep or idle mode.*

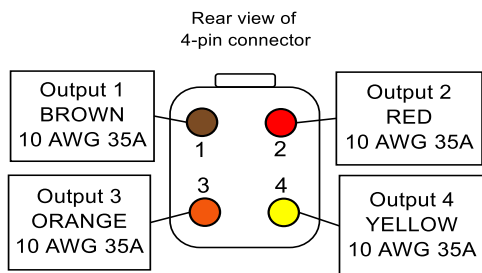
The idle mode will activate when all switches are off, and there is no Bluetooth connection, no Ignition, light, or trigger inputs. In idle mode, the system will still respond to all inputs including switches and Bluetooth. The sleep mode will activate when all switches are off, no Bluetooth connection, no Ignition, light, or trigger input is sensed. In sleep mode Bluetooth is disabled, but all other inputs (except lights input), including switches, will wake up the system.

RCR-FORCE 12 Wiring Diagram

20-Pin Harness Connector Pin-out

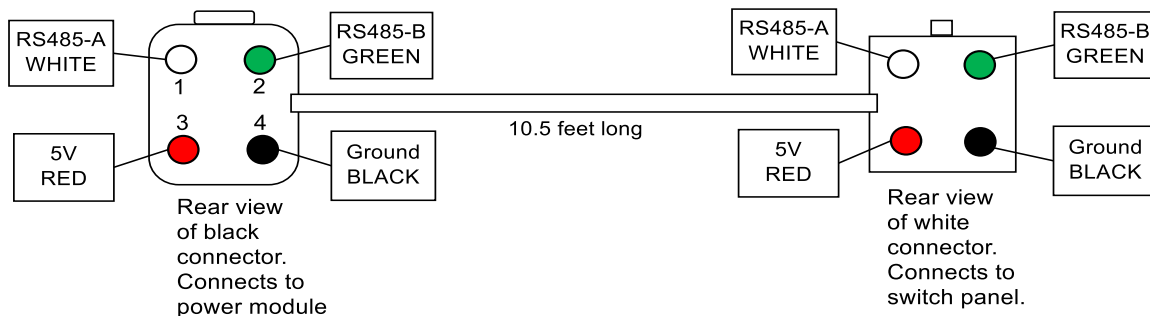


4-Pin Harness Connector Pin-out

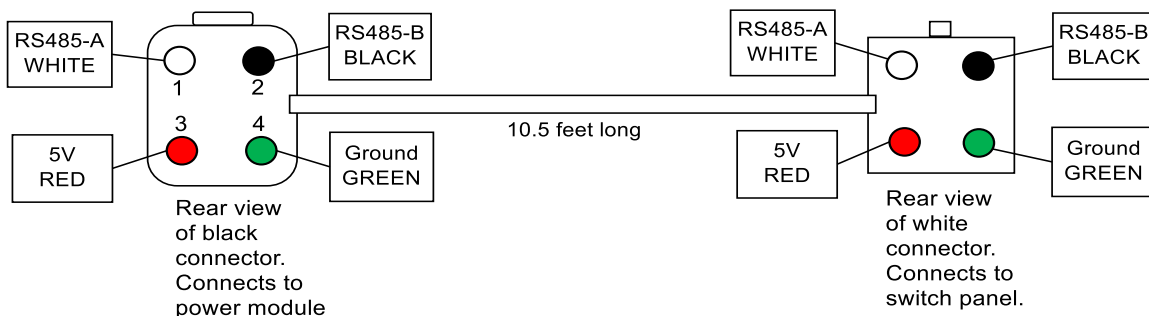


- Connect the switch load wires directly to the positive terminal of the load.
- Ground the negative terminal of the load to either a ground stud on the frame or to the negative terminal of the battery.
- Outputs 1 - 4 are limited to 35A, Output 9 to 30A. Outputs 5 - 8 and Outputs 10 - 16 are limited to 15A. Current limits for each switch can be adjusted in the App.
- Output 17 is a low side switch rated at 2A
- Connect the Lt. Blue ignition wire to an ignition or accessory 12V source.
- Connect the White light input wire to a parking light 12V signal. (used for switch panel backlighting dimming)
- Connect the Pink Trigger 1 input wire to a trigger input, if using the trigger function.
- Connect the Black ground wire directly to the negative terminal of the battery.

Com Cable Connector Pin-out, (no label on cable)

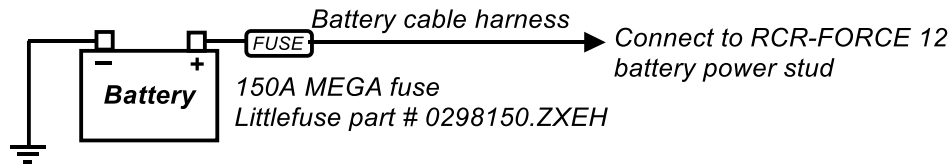


Comm Cable Rev 2 Pin-out. (Rev 2 label on cable)



- Depending on the Comm Cable Rev number, the wire colors on the Comm Cable connectors may not match the switch panel harness.
- **When un-pinning always note the original color pin-out prior to removing the connector.**

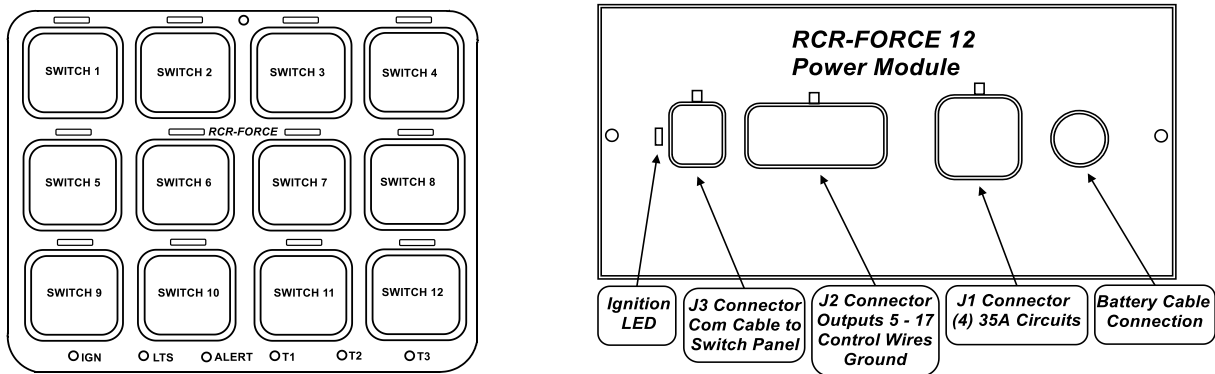
Battery Cable Connection



- Connect the Battery cable directly to the positive terminal of the battery.
- Connect the BLACK ground wire directly to the negative terminal of the battery.
- Only the battery cable lug should be connected to the power module's power stud,
- Do not connect any other power feeds to the power modules power stud!

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RCR-FORCE® 12 Power Module and Switch Panel layout:



1. Control Wires

There are 5 control wires for external control of the system

- **IGNITION Input, Lt. Blue wire.** Enables ignition programmed switches and turns on backlighting to 70%. Connect this wire to an ignition or accessory 12V source. Use a T-tap to make the connection or solder and seal. When the Lt. Blue Ignition wire senses 12V, switches that are programmed to be “ignition controlled” are enabled. When the ignition signal turns off, all “ignition controlled” programmed switches, and their outputs, will turn off, as will the switch panel backlighting. Also, when the Lt. Blue ignition wire senses 12V, the red LED indicator marked Ignition on the power module will illuminate. To operate select switches without an ignition signal, program those individual switches to be “battery controlled”. When “battery controlled,” the switches will operate at all times, regardless of ignition signal. Note: A Bluetooth connection overrides the Ignition input. All Ignition programmed switches will operate if the Ignition is Off, but a Bluetooth connection is present. This is so you aren’t required to leave keys in the ignition while remotely controlling your accessories.
- **LIGHTS Input, White wire.** Turns on switch panel backlighting to user set level. Connect this wire to a parking light signal or a side marker light signal. Use a T-tap to make the connection or solder and seal. This wire is used to dim the switch panel backlighting for night time lighting. The backlighting and switch indicator LED brightness intensity is set by pressing the programming switch (located behind the RCR-FORCE® logo)

on the switch panel 3 times. Switches 1 and 5 adjust the LED switch indicator brightness and switches 4 and 8 adjust the backlighting intensity. Once the intensities are set, press the program switch again to exit. *On Side by Side UTV vehicles, like RZR's and Can-Am's, that do not have parking lights, connect the White "Lights" wire to the Lt. Blue "Ignition" wire. Then connect both to a 12V ignition or accessory source.*

- **Trigger 1-3 inputs, Pink wires.** External trigger inputs to turn on up to a total of 4 switches or outputs. Connect the Pink wire to an external trigger, it can be a high beam signal, reverse light signal, or a dome light signal to give a few examples. Use a T-tap to make the connection or solder and seal. For example, if connected to the high beam signal, when turning on the high beams on the vehicle, up to 4 outputs of the switch panel can be triggered on.
The function must be enabled in the App. The function can be turned on and off through the switch panel, to switch between off-road and street driving, by holding down the programming switch and pressing switch 7. Trigger inputs can be programmed to trigger on an active high (>4.5V) or active low (<.5V) signal in the App.

2. Output Wires

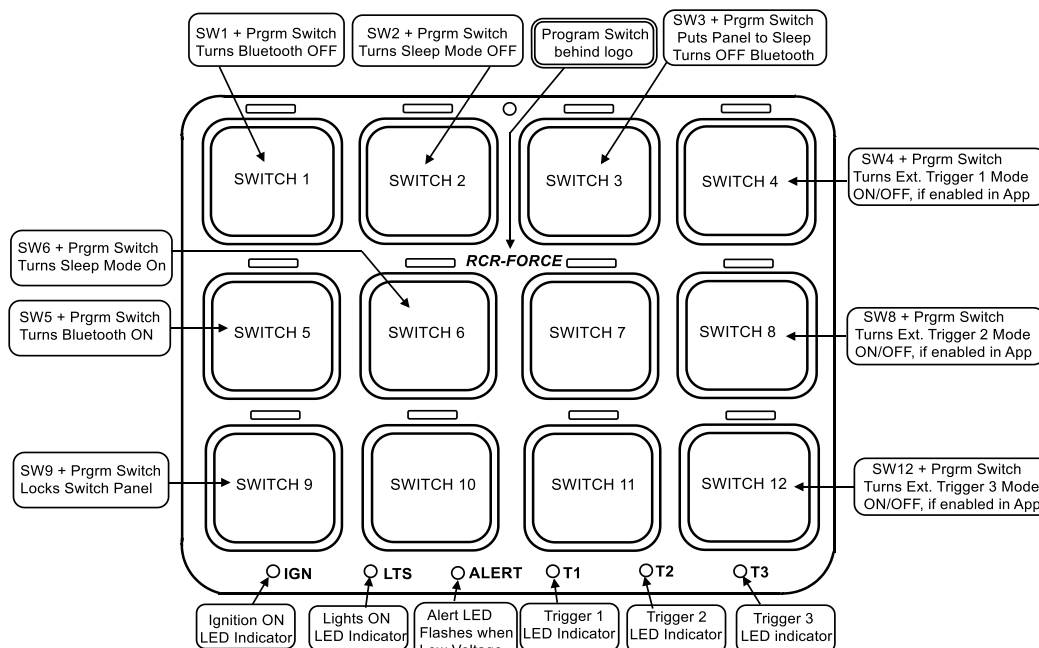
There are 17 Output wires to power accessories. Same current ratings outputs can be tied together for increased current. Do NOT connect a 15A circuit to a 35A or 30A circuit!

- **Outputs 1-4.** J1, large 4-pin connector with 10 AWG wire, 35A max per output. 12V output.
- **Output 9.** J2, 20-pin connector with 2, 14 AWG wires. 30A max, two wires must be tied together. 12V output.
- **Outputs 5-8, 10-16.** J2, 20-pin connector with 14 AWG wire, 15A max per output. 12V output.
- **Output 17.** J2, 20-pin connector, 16 AWG wire, 2A max. Low side switch. This circuit will switch a ground.

3. Ground Wire

The black ground wire provides a ground for the system. It is imperative to connect the ground wire directly to the negative terminal of the battery. Do not connect to the frame, body, or a terminal block that shares other grounds.

RCR-FORCE® 12 Switch Panel
Switch layout and special functions



Special Switch Functions Control

Bluetooth connection, Sleep mode, and External Trigger functions can be controlled through the switch panel by pressing and holding the programming switch and then pressing and releasing the desired function switch.

- **Bluetooth Control:**
Bluetooth control can be disabled by pressing and holding the programming switch and pressing

switch 1. The programming LED will flash 3 times for indication. Bluetooth connection must be off when disabling Bluetooth. Bluetooth control can be enabled by pressing and holding the programming switch and pressing switch 5. The programming LED will flash 3 times for indication.

- **Sleep Mode Control:**

Sleep Mode control can be disabled by pressing and holding the programming switch and pressing switch 2. The programming LED will flash 3 times for indication. Sleep Mode control can be enabled by pressing and holding the programming switch and pressing switch 4. The programming LED will flash 3 times for indication.

- The system can be put into sleep mode instantly (no delay) through the switch panel by pressing and holding the programming switch and pressing switch 3. The programming LED will flash 3 times for indication. For the system to enter sleep mode, Ignition, light, and trigger inputs must be off, all outputs must be off, and no Bluetooth connection can be present.

- **Trigger Input Control:**

The Trigger controls must first be setup in the App, then they can be turned on and off through the switch panel as follows:

Trigger 1 control can be disabled by pressing and holding the programming switch and pressing switch 4. The programming LED will flash once for indication. Trigger 1 control can be enabled by pressing and holding the programming switch and pressing switch 4. The programming LED will flash 3 times for indication.

Trigger 2 control can be disabled by pressing and holding the programming switch and pressing switch 8. The programming LED will flash once for indication. Trigger 2 control can be enabled by pressing and holding the programming switch and pressing switch 8. The programming LED will flash 3 times for indication.

Trigger 3 control can be disabled by pressing and holding the programming switch and pressing switch 12. The programming LED will flash once for indication. Trigger 2 control can be enabled by pressing and holding the programming switch and pressing switch 12. The programming LED will flash 3 times for indication.

RCR-FORCE® 12 Functions

In the App, scroll down to the left bottom of the screen and press the “Settings” button. The following programming bars will appear, tap the bar to enter the desired programming function.

1. Config Switches

- **ON/OFF or Momentary***, default is On/OFF

- **Ignition or Battery Control***, default is Ignition control.

The Lt. Blue Ignition wire must be connected to an ignition or accessory 12V source for switches to operate.

Note: A Bluetooth connection overrides the Ignition input. All Ignition programmed switches will operate if the Ignition is Off, but a Bluetooth connection is present.

- **Flash function***, ON/OFF/One Touch, WigWag, default is OFF.

When ON, the switch must be double-pressed for the flash function. One Touch only requires one switch press for a Flash. WigWag requires one touch, Outputs 1 and 2 will WigWag and Outputs 3 and 4 will WigWag. Outputs must be set in the “Set Switch Outputs” menu.

- **Strobe function***, ON/OFF/One Touch, Burst or Continuous, default is OFF.

When ON, the switch must be double-pressed for the flash function. One Touch only requires one switch press for a Strobe.

- **Low Voltage Disconnect***, default is ON.

- The LVD will turn off outputs when the battery voltage drops below 11.0, 11.5, or 12.0 volts (selectable thresholds) for 1 minute. 11.0V is the default. Up to eight selectable outputs can remain on. This function’s purpose is to keep the battery from draining, in the event that one or more outputs are left on.

- **Memory function***, default is OFF.

The memory function remembers the last switch status before the Ignition was turned off. If a switch was on when ignition was shut off, that switch will turn back on when the ignition is turned back on.

- **Master Switch function**, Master ON or Master ON and OFF, default is Master function OFF.

Any switch can be programmed to be a master switch to turn ON any other switches. Master ON will turn the selected switches ON and must be turned OFF individually. Master ON and OFF will turn the selected group of switches ON and OFF.

- **Set Switch Outputs**, Up to 4 outputs can be programmed for each switch. Default is SW1 = Output 1, SW2 = Output 2, etc. For example, SW1 can be programmed to turn on O3, O4, O9, O16.

- Items marked * can be directly programmed through the switch panel and do not require connecting through the App. See page 5.

2. **LED Backlighting**

- Use the slide bar to adjust switch indicator LED brightness and backlighting brightness and color, when the “LIGHTS” input WHITE wire senses 12V, (parking lights ON). Select switch panel backlighting color from either the RED, GREEN, BLUE or WHITE preset buttons, or touch the color picker bar to select any color on the spectrum.

3. **Set Switch Names**

- Enter switch names to appear in the App’s switch buttons. A space between characters will create a new line.

4. **Set Password**

- Enter a password for the App, write the selected password down in a safe place. It is highly recommended to set a password, otherwise anybody with the App can access your switch panel.

5. **Enable Output Dimming**

- Enables dimming of outputs/lights. Options are: Off, Enabled, Preset, Adjustable preset.
“Enabled”: The switch will still function normal when pressing on and off. The dimming is actuated when pressing and holding the switch on for 1.5 seconds. The switch LED indicator will start to flash fast for 1 second, indicating a 50% output. Then after 1 second the dimming will decrease to 10%. The switch LED indicator flash rate will also decrease, indicating the level of dimming. When the desired dimming level is achieved, releasing the switch will lock in the dimming level. The level is not stored, and resets to 100% each time the switch is powered off.
“Enabled with Preset”: The switch output will dim to the last set level when the switch is turned on. The switch indicator LED will strobe for 1 second, indicating the output is dimmed. There is no need to hold the switch down. The level can be changed by holding down the switch, same as above.
“Adjustable Preset”: The preset level can be adjusted from 5% to 95%. When the switch is turned on the output will dim to the preset level. The switch indicator LED will strobe for 1 second, indicating the output is dimmed. If the switch is pressed and held down, the output will go to 100%.

6. **Calibrate Readings**

- In the event that the Battery Voltage or Temperature readout in the App is off, they can be calibrated by pressing the Increase or Decrease buttons. This readout does not affect the low voltage disconnect. It is almost never necessary to adjust these readings, as this may affect our ability to troubleshoot an issue.

7. **Set Radio Name**

- The name of the Bluetooth radio can be changed, limited to 8 characters. This is the device name of the RCR-Force® 12 switch panel that will appear after pressing “scan for devices”. It can be changed in the App settings menu under “Radio Name”. The default name is “SWCHPRO.” This is useful when there are multiple panels within Bluetooth range.

8. **Auto Sleep Setting**

- The switch panel system will enter sleep mode after the preset time (8 hours default), drawing a minimal amount of current (3mA).

(The normal current draw of the system is around 35mA. After 5 minutes of inactivity, the system will go idle and the current draw will drop to 6mA (with all switches off and no Ignition, Lights and Trigger inputs). In idle mode the switch panel can still be accessed via Bluetooth).

In sleep mode, Bluetooth and switch control is disabled. Default setting is “enabled” after 8 hours of inactivity. The system will “wake up” with an input to the Ignition, Trigger inputs, or if any switch on the switch panel is pressed. Control and time (adjustable 0 to 65500 minutes) for the automatic sleep mode can be found the App under settings/sleep mode.

The system can also be put into sleep mode instantly (no delay) through the switch panel by pressing and holding the programming switch and pressing switch 5. The programming LED will flash 3 times for indication.

For the system to enter sleep mode the system must be completely idle, Ignition, light and trigger inputs must be off, all outputs must be off, and no Bluetooth connection can be present.

The automatic sleep mode function with the programmed delay can also be turned on through the switch panel by pressing and holding the programming switch and pressing switch 4. The programming LED will flash 3 times for indication.

The automatic sleep mode function can also be disabled by pressing and holding the programming switch and pressing switch 3. The programming LED will flash 3 times indicating that you have deactivated the function.

9. **External Trigger**

- This function uses the PINK Trigger wires labeled Trigger1, Trigger2 and Trigger3, to turn on up to 4 outputs or 4 switches each. Options for trigger outputs are SW1-SW12 and Outputs 1-17.
- Each trigger input can be programmed to trigger on an active high (12V signal >5V) or an active low (ground signal <.5V).

The Trigger function must be enabled in the App. Then select active high(12V) or active low (ground). Then choose outputs or switches to turn on.

Connect the selected trigger wire to an external trigger, it can be a high beam signal, reverse light signal, or a dome light signal (to give a few examples). For example, if connected to the high beam signal, when turning on the high beams on the vehicle, up to 4 outputs or switches of the switch panel can also be turned on. The function can be turned on and off, with the switch panel to switch between off-road and street driving, by holding down the programming switch and pressing SW4 – Trigger1, SW8 – Trigger2, SW12 – Trigger3.

The programming LED will flash 3 times, indicating the function is on. To turn the function off, press and hold the programming switch and desired Trigger SW. The programming LED will flash once, indicating the function has been turned off.

10. **Temperature Units**

- Select between degrees Celsius and Fahrenheit, displayed in the App, for the power module temperature.

11. **Setup Connected Units**

- This function is used to setup daisy chained switch panels. Up to 2 switch panels can be connected to a single power module. The Master switch panel will always have an address of “0”, additional daisy chained switch panels will be “Slaves” with unique addresses. An additional 12-switch or a 8-switch panel can be added. See the Daisy Chaining document for details.

12. **Power-up switch status**

- Options are “Disabled”, “On/Off”, “On Locked”.

Selecting “On/Off” programs any switch to turn ON whenever power is connected to the power module or the Lt. Blue Ignition wire senses 12V (Ignition turns ON), regardless of the previous switch status. The switch can still be turned off on the switch panel. Can be used for day time running lights or dust lights.

Selecting “On/Locked” turns on the switch output after the ignition input senses 12V and then locks it. The switch cannot be turned off. The switch will turn off when the ignition is turned off. This setting is useful when race rules require a rear facing light that cannot be turned off.

13. **Off Delay Switch Settings**

- This function programs an off-delay time function, in seconds, into any switch that is triggered by the Lt. Blue Ignition signal wire. The timer will start after the Ignition is turned off. Max off-delay time is 18000 seconds (5 hours). The off-delay function will NOT activate with switches turned on by an external trigger, or a switch turned on via Bluetooth connection.

If an off-delay of 10 seconds was programmed for a switch, and if the switch was turned on and the Ignition was turned off, the switch will remain on for 10 seconds. Used for fans, oil coolers or lighting to stay on for a set period of time after the ignition is turned off.

14. **Switch Overcurrent Values**

- This function sets up the overcurrent values, in Amps, of each output. Outputs 1-4 are limited to 35 amps, and Outputs 5- 8 and Outputs 10-16 are limited to 15 amps. Output 9 is limited to 30A. Each overcurrent value (the current limit that is allowed for each switch) can be adjusted from the max, down to 5A, in 5A increments. Any value over the limit for longer than 0.5 seconds will trip the circuit. The switch indicator LED will flash 3 times indicating there is a fault. Only the affected switch output will turn off and reset. Output 17 is a low side switch with a current limit of 2A, it cannot be adjusted

15. **SPDT and SP3T Switch Configuration**

- This function allows the user to program a SPDT and SP3T function into selected switches. Only one of the selected switches can be on at one time. When pressing another switch, the previously pressed switch will turn off. For a SPDT function, select Output 1 and Output 2. For a SP3T function, select all 3 outputs.

This function, for example, can be used for fan setting controls or suspension setting controls.

16. **Restore to Default Values**

- This function will restore all settings to their default values.

17. ***Safety Lockout***

- This function can be used to lock out certain switches. The selected lockout switch must be on before other selected switches can turn on.

18. ***ON/ON/OFF***

- This function allows the user to program up to 4 outputs to come on with the first press of the switch, and 8 outputs to turn on with the second press of the switch. The 3rd press will turn off all selected outputs.

For example, to control a low/high beam light with one switch, program first press of SW1 to Output 1 and the second press to Output 13. Connect the low beam wire to Output 1 and the high beam wire to Output 13.

If you want both low and high beams on, on the second press: Program first press to Output 1 and the second press to Output 1 and Output 13. With the second press, the switch indicator LED will strobe for one second, indicating the second press.

This function can be used for seat heaters with a low/high setting, fans with two settings, and multi function lighting, as well as many other applications.

19. ***Panel Lockout***

- The panel lockout function allows the user to lock the switch panel buttons, with the option to still allow “Battery” programmed switches to function. A 4 digit PIN can be entered to unlock the panel. The 4 digit PIN is set in the App, in the Panel Lockout menu. The switch panel can be locked 3 different ways:

1. Through the switch panel. Pressing and holding the programming switch and pressing SW9, will lock the panel if the ignition is OFF.
2. With a time delay set in the App. If set to 10 seconds, the panel will lock 10 seconds after the ignition is turned off.
3. Through the App, in the Panel Lockout menu. Press the “Panel Lock” button.

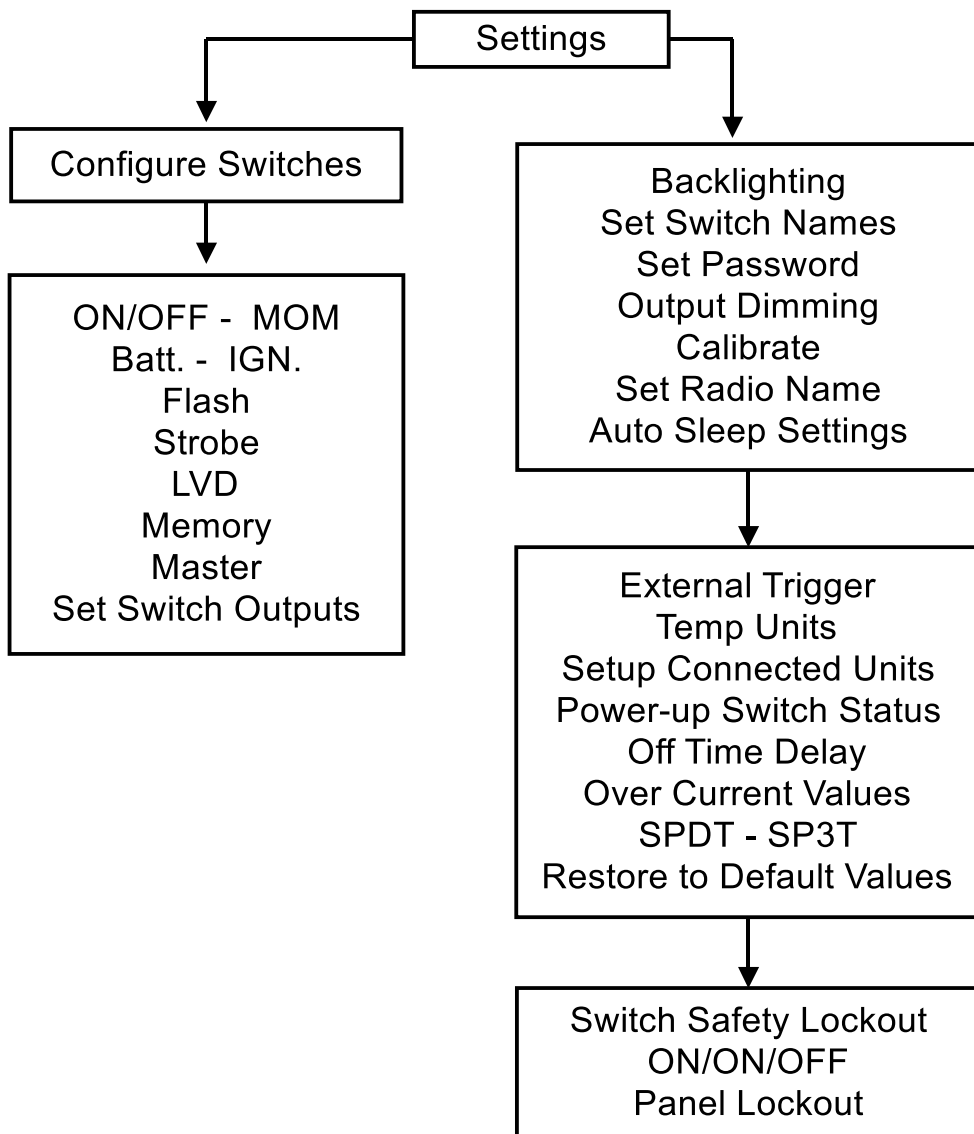
The panel can be unlocked 2 different ways:

1. Enter the 4 digit PIN on the panel.
2. Connect with the App and press the “Unlock Panel” button in the main screen. The switch panel will remain unlocked until Bluetooth is disconnected. As always, we recommend putting a password on your App to keep others from accessing your system.

Note: The user can also allow “Battery” programmed switches to still operate when the panel is locked.

If “Battery” programmed switches are allowed, up to 4 “Battery” programmed switches can be excluded from operating if the panel is locked. For example, on a vehicle that uses the RCR-FORCE® 12 for Ignition and Start, and there is a “Battery” controlled Ignition switch and a “Battery” controlled Rock Light switch, the Ignition switch can be locked out and the Rock Light will still function, if the panel is locked.

RCR-FORCE 12 App Navigation



Installation

Disconnect the negative battery lead from the vehicle's battery before proceeding with installation, and to avoid damage to the electrical system!

4. Installing the Switch Panel

Determine your desired switch position for the accessory. Remember, any output can be linked to any switch, (up to 4 outputs per switch). Once your outputs are determined, select the appropriate legends from the Switch Legends sheet, and affix them to the panel. Center each legend inside the grey border of each switch. Should you need to remove a legend, we suggest you use a straight pin and lift at a corner until you can grasp it with your fingers. DO NOT dig at the graphic overlay, as the mem-brane could be damaged or punctured.

The switch panel can be mounted to a flat surface by drilling holes for the 6-32 mounting studs, and a hole for the harness feedthrough, then screwing the threaded studs into the switch panel and securing the switch panel with the supplied 6-32 nuts. For a bezel style mount, cut a rectangular opening measuring 3.875" x 2.875" with a corner radius of 0.237". See template on last page.

Then screw the four 6-32 threaded studs into the backside of the switch panel and tighten. Place the switch panel into the opening and slide the two mounting brackets over the studs. Then secure the mounting brackets with the 6-32 nuts. Do not over tighten the nuts.

Connect the switch panel harness to the switch panel, then plug the black sealed connector into the power module connector. If the harness needs to be routed through a tight space in the firewall, the black 4-pin connector's pins can be removed, see directions below:



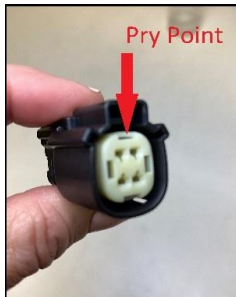
Comm cable harness connector removal

When installing the switch panel communications harness, it might be necessary to remove the black MOLEX 4-pin connector **in order to feed the harness through tight spaces**. Follow the procedure below to remove the terminals. Check the 4-pin Harness Connector pin-out drawing above for proper wiring.

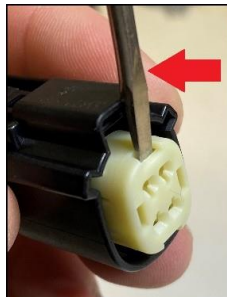
- Depending on the Comm Cable Rev number, the wire colors on the Comm Cable connectors may not match or line up with the switch panel harness connector.
- **When un-pinning always note the original color pin-out prior to removing the connector.**

Step 1: Insert a small screwdriver (max. width of 3.00mm (.118")) into the pry point of the TPA.

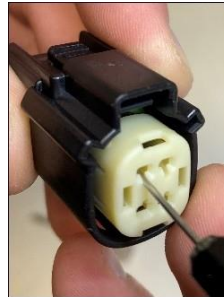
Step 2: Using the housing as a pivot point, gently pry out the TPA until it reaches pre-lock position. The TPA should never be fully removed from the connector housing. Excessive force can damage it.



Step 1



Step 2



Step 3



Correct Terminal Orientation

Step 3: Using the 1.50mm (.059") service tool #63813-1500, or a paper clip, insert the tip into the terminal service hole adjacent to the terminal to be serviced. Push straight down gently and apply pressure to release-locking finger. This motion will release the locking finger, "picking" is not required. A click can be felt once fully engaged. Do not insert the service tool at an angle, this may cause damage to the terminal.

Gently pull the wire to be released. If the terminal resists, the service tool may not be fully engaged.

Step 4: When re-installing the terminal make sure the TPA is in the released position, and the orientation of the terminal is correct, see pic above, Once the terminal is seated, push down on the TPA applying even force.

5. Installing the Power Module

The power module should be mounted close to the vehicle's battery using the supplied 30" long battery cable. The power module is manufactured with automotive rated electronic parts, with a temp rating of -40 C to 125 C. Care must be taken not to mount the power module in a location near the engine exhaust where temperatures will exceed the rating. Usually on the firewall near the fenders, or along the fenders is a good location. **Do Not mount the power module above the engine on the fire wall.** The App will display the temperature of the power module so it can be monitored. **Mount the power module in a vertical position, so that water can't accumulate on the connector seals. Failure to do so may result in limited or no warranty coverage.** The power module can be mounted to the supplied mounting plate using 2 M4 nuts and bolts (supplied).

6. Connecting Accessories

Determine your desired switch position for the accessory. Remember, any output can be linked to any switch, (up to 4 outputs per switch). Go to Setting/ Configure Switches/ Set Switch Outputs.

There are 17 Output wires to power accessories. Same current ratings outputs can be tied together for increased current. Do NOT connect a 15A circuit to a 35A or 30A circuit! Go to Setting/ Configure Switches/ Set Switch Outputs.

- **Outputs 1-4.** J1, large 4-pin connector with 10 AWG wire, 35A max per output. 12V output.
- **Output 9.** J2, 20-pin connector with 2, 14 AWG wires. 30A max, two wires must be tied together. 12V output.
- **Outputs 5-8, 10-16.** J2, 20-pin connector with 14 AWG wire, 15A max per output. 12V output.
- **Output 17.** J2, 20-pin connector, 16 AWG wire, 2A max. Low side switch. This circuit will switch a ground.

Identify which accessories you will be powering with your Switch Panel Power System. NOTE: When wiring high inrush accessories, use only circuits 1-4 and 9.

To figure out the current draw of a load rated in watts, simply divide power rating of the accessory by the operating voltage. For example, a 300 Watt light bar running at 12V, that would be: $300W/12V = 25\text{ A}$.

Keep in mind that for a lower voltage the current draw will be higher. If the vehicle's voltage drops down to 10V, the current will increase to 30 A. In this case it would be wise to set the over current limit to 35 A (using App).

Connect the accessory directly to the output wires of the power module. The RCR-FORCE® 12 has 16 outputs that switches 12V, and one output that will switch a ground.

The 20-pin power harness J2 uses 14 AWG wires to power accessories. For the 15A circuits, a run no longer than 12 feet is possible. For longer runs at max current it is recommended to use a larger size wire like 12 or 10 gauge.

For output 9 with the 30A amperage capacity both output wires MUST be connected together and spliced into a larger size wire such as 12 or 10 gauge.

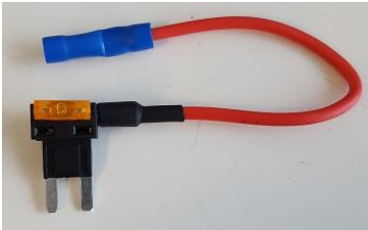
For outputs 1 – 4, the 35A circuits using 10 AWG wire, a 13 foot run is possible.

Connect the power module output wire to the positive wire of the accessory. Connect the ground wire of the accessory directly to ground, either a ground stud on the vehicle's frame or to the negative terminal of the battery.

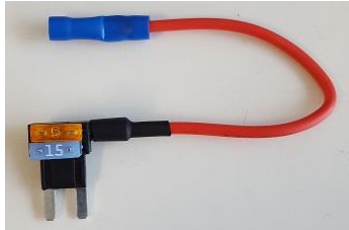
Current limits can be adjusted in the App in 5A increments. We recommend setting the overcurrent protection 20% higher than the maximum rated current of the accessory.

The control wire connections can be connected using the supplied Fuse-Tap or Tapa-Circuits:

When using the Fuse-Tap, it will come with a pre-installed fuse for the tap. Remove the fuse from the fuse box that needs to be tapped into, and insert it into the empty slot of the Fuse-Tap. Then insert the Fuse-Tap into the fuse slot. Crimp the desired input wire to the blue butt splice. **There must be two fuses inserted into the Fuse-Tap.**



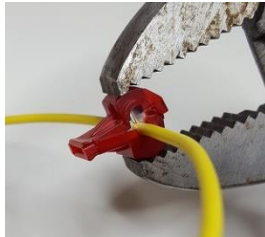
Fuse-Tap



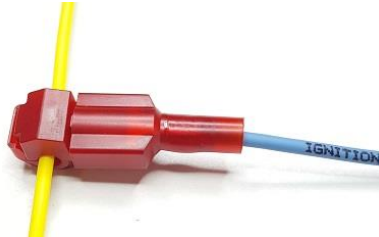
Fuse-Tap with fuse inserted.



1. Place wire in t-tap



2. Crimp



3. Plug in blade connector

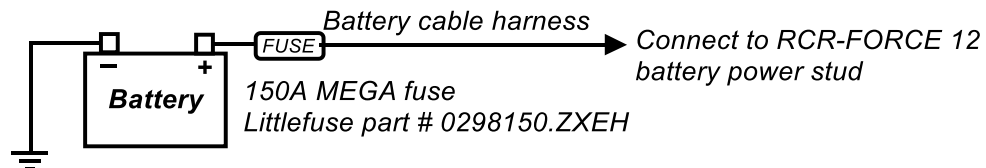
7. Installing the Battery Cable

*****Make sure the 20-pin connector is plugged into the power module with the Black ground wire connected to the negative terminal of the battery before connecting the battery cable.*****

Install the battery cable once the power module is secured, the switch panel communications harness is plugged in and connected to the switch panel, and the 20-pin power module harness Black ground wire is connected directly to the negative terminal of the battery, and the Ignition and Lights wires are connected.

Connect the battery cable to the power module first, then connect the fuse holder side directly to the positive terminal of the battery.

Battery Cable Connection



- Connect the Battery cable directly to the positive terminal of the battery.
- Connect the BLACK ground wire directly to the negative terminal of the battery.
- Only the battery cable lug should be connected to the power module's power stud,
- Do not connect any other power feeds to the power modules power stud!

Programming Your RCR-Force® 12 Via Using the Bluetooth Function

The Switch-Pro App will interface with Apple devices and Android devices running BLE and newer

1. Download the Switch-Pro App from the Apple App or Google Play Store.
2. Open the app and press Scan For Local Devices. A window will pop up. Press Scan For Devices in that window. Select the listing that reads SWCHPRO. The app will load and establish connection to the Switch Panel. NOTE: On the primary screen, make sure that “Auto Connect” and “Reset BT adapter on connect” are **unchecked**. Once a connection has been established, “Auto Connect” can be checked. With “Auto Connect” checked, the App will open automatically when the App Icon is pressed.
3. Once the App is open, the Switch Panel is displayed with Voltage and Temperature display, and the blue light will illuminate on the switch panel.
4. Scroll down to the left bottom of the screen and press the “Settings” button. From there you will see the different programming options.
5. In the Settings menu you will be able to set a password for the Bluetooth connection, under the “Set Password” tab. You will also be able to name the Bluetooth device with a personalized name that will show up on your phone when you press scan for local devices, under the “Radio Name” tab.

NOTE: If there is a BT connection established, the Switch Panel in the vehicle will also be functional, **regardless of Battery/Ignition Switch programming**. This means that if you remove the keys from the vehicle, AND your Bluetooth device is still connected, ALL switches on the switch panel will function, even if they are programmed as Ignition input. The backlighting of the touch panel WILL NOT be illuminated if the ignition is off. If the Bluetooth device is disconnected, then the switches on the switch panel that are programmed for Ignition input will only function with the ignition on. If Bluetooth connection is lost, or app is closed while outputs are on, outputs will remain ON.

NOTE: When entering the Settings/Program mode, all switch outputs will turn off.

Programming your RCR-FORCE® 12 through the switch panel

Basic switch functions like ON/OFF-Momentary, Ignition-Battery, Flash, Strobe, Low Voltage Disconnect, and the Memory function can be programmed directly through the panel and do not require a Bluetooth connection.

Switch panel backlighting and switch indicator LED brightness can also be programmed directly through the switch panel. Follow the directions below:

1. Press and hold the programming switch on the switch panel located behind the *RCR-FORCE* logo for 6 seconds to activate programming mode. The 1st flash indicates you are ready to select which switches should have a Momentary function. (Default for all switches is On/Off). Press Switch-Pro logo again to continue programming process.
2. The 2nd flash indicates you are ready to select which switches should be Battery input. Any switch selected during this step will REMAIN ON, even when vehicle ignition is turned off. (Default for all switches is Ignition input, unless selected during this step). Press Switch-Pro logo again to continue programming process. Select ALL switches that you wish this to apply to.
3. The 3rd flash indicates you are ready to select which switches will have a Flash function. This will be used for lighting outputs. Any switch selected during this step will have a secondary Flash function when the switch is double tapped from the Off position. (Default for all switches is Off, or no flash function). Press Switch-Pro logo again to continue programming process.
4. The 4th flash indicates you are ready to select which switches will have a Strobe function. This will be used for lighting outputs. Any switch selected during this step will have a secondary Strobe function when the switch is double tapped from the Off position. (Default for all switches is Off, or no Strobe function). Press Switch-Pro logo again to continue programming process.
5. The 5th flash indicates you may override the Low Voltage Disconnect function, if desired. If left active, the system will monitor battery voltage and, if it senses voltage at 11.5 volts or lower for 60 seconds, it will shut down. If, after shut down, it sees the voltage rise to 12 volts for 60 seconds, the system is able to be powered on again. However, it will not turn back on automatically. To DISABLE this function, press Switch 7, located at the upper right corner of the panel. (Default for system is On). Press Switch-Pro logo again to continue programming process.

6. The 6th flash indicates you are ready to select which switches will have a Memory function. Each switch selected during this step will “remember” to come back on each time the ignition input is sensed, if the switch was On prior to ignition being shut off (Default is Off).

Press the RCR-FORCE logo again to exit the programming process.

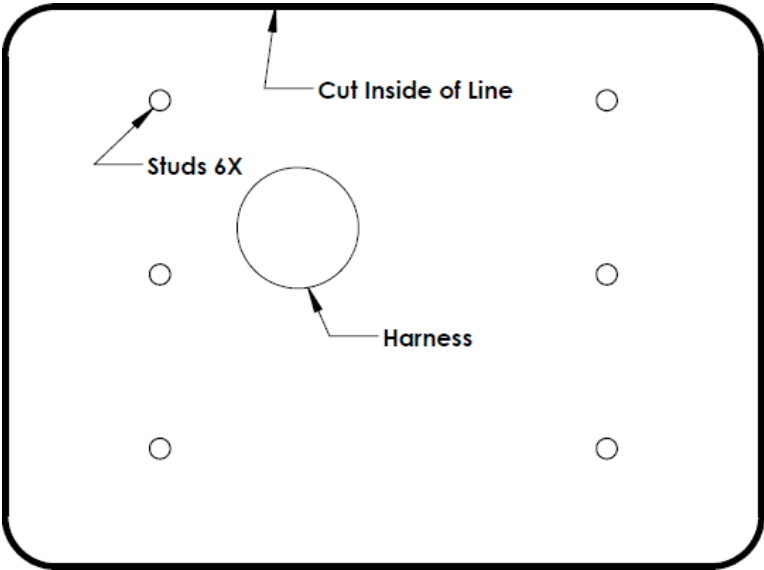
To adjust Night-time backlighting and LED indicator brightness:

- 1. Press the Switch-Pro logo 3 times quickly.
 - 2. Switches 1 and 5 (upper and lower left corners) adjust the LED indicator brightness. Press Switch 1 (upper left) to increase brightness. Press Switch 5 (lower left) to decrease brightness.
 - 3. Switches 4 and 8 (upper and lower right corners) adjust the backlighting brightness. Press Switch 4 to increase brightness. Press Switch 8 to decrease brightness.
- Press Switch-Pro logo to exit the programming process.
- NOTE: Backlighting and LED brightness is adjustable only for nighttime driving (when the White “Lights” wire senses 12V), and is set at a standard level, 70% (non-adjustable) when the Ignition is sensed on.

Specifications

<p><u>Power Module:</u> Size: Width 3.5”, Length 7.1”, Height 0.625”, Height with connectors 1.60”, Height with connectors plugged in and wires 3.2” Material: Anodized Aluminum Temperature rating: Automotive -40C to 125C Water and Dust proof rating: IP67 Amp rating: 150A max Outputs 1 - 4: 35A max (OK for High in-rush items) Output 9: 30A max (OK for High in-rush items) Outputs 5 – 8, 10 – 16: 15A max Current draw: 35mA Current draw: At idle, after 1 min no activity, 5.5mA Current draw: In sleep mode, 3mA Inputs voltage thresholds active HIGH: >4.5V Inputs voltage thresholds active LOW: <0.5V</p>	<p><u>Switch Panel:</u> Size: Width 3.0”, Length 4.0”, Height 0.375” Housing material: Anodized Aluminum Switch Membrane and Legends material: Polycarbonate Temperature rating: -30C to 85C Water and Dust proof rating: IP67 Backlighting color: RGB Switch LED indicator color: Amber Bluetooth: BLE 4.1 Apple and Android</p>
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Switch Panel Mounting Template: For a bezel mount, cut out the white inside of the template, do not cut the black line. For mounting onto a flat surface, mark holes for the mounting studs and the harness hole. Make sure the inside measurements of the template are 2.875” x 3.875” (0.237” corner radius) since they can vary due to printing parameters.



FAQs

Do I have to connect the Ignition (light blue) wire?

Yes – The system must see 12 volts on the Ignition wire to power up, UNLESS the operator is operating the system via a Bluetooth® connected device, or if all switches will be programmed for Battery Input.

How can I confirm that I have chosen an appropriate circuit to connect my Ignition wire to?

Look for the Ign LED (on the power module) to be illuminated when the key is turned to ACC or Ignition position. If it is not, then you must choose another circuit so that you have 12 volts when the key is in either of those positions.

Should the backlighting stay on after I have turned the keyed Ignition off?

No – this indicates that you have connected your Ignition wire to a circuit that provides 12 volts, even when the key is off. Installing in this manner can result in draining your battery.

What is the best source for grounding the system?

ALWAYS the negative terminal on the battery. No other option will provide sufficient protection and filtering for our system.

Can I mount my power module on its back?

No – this will allow water to collect on the connector, and may cause water intrusion over a long period of time. This will NOT be covered under warranty.

Should I use a Fuse Block for my output wires?

No – connecting our output wires to a fuse block subjects the wires to water and corrosion, and essentially takes our Solid State, watertight system, and makes it subject to potential water damage and unreliable connections. It also adds unnecessary expense. We suggest using the heat-shrinkable butt splices (included in the installation hardware kit) OR soldering (and covering with heat shrink tubing) the power leads together.

Do I need to add Relays and/or Fuses?

No – for installation of basic lights and electronics, you may connect the power leads directly to one another by soldering or using heat-shrinkable butt splices.

Exceptions: A relay might be necessary if you are connecting loads that will exceed 85% of the circuit's load capacity, or if you are switching inductive loads like fans and motors or starter relays that have very high inrush currents using the 15A circuits.

Do I have to connect the Trigger wires

No – the trigger wires are solely for setting up an external trigger source for one or more of the outputs that are powered by the Switch-Pros system.

The LED above a switch flashed three times, and then the output shut off. Why?

Either the circuit is overloaded or there is a short in your wiring. The flashing LED is a warning that your circuit is shutting down due to a short or overcurrent condition. All other circuits will remain active. You must correct the wiring issue, or the LED will flash each time you press the switch, and the output will remain off.

Can you make custom legends for my build?

No – the minimum production run is 2,000 sheets of the same artwork. Therefore, we do not do one-offs and custom legends.

Does the system come with legends for my switch panel?

Yes – Each system has 100 polycarbonate legends in the box.

Do you offer sponsorships?

If you have a project you believe we would have an interest in partnering with you on, please send a proposal, with complete build spec, a calendar of events, and an estimated dollar value for exposure, and submit it to support@switch-pros.com. No phone calls, please.