

Glow Plug Driver for General use

——Upgraded from Two Cylinder Engine R/C Glow Plug Driver

Features:

- 4.5V ~16V self detective
- Constant voltage output: 1.4V, max current output: 6A
- There are 10 kinds of operation mode such as manual, remote control and constant trigger
- Short circuit and overheat protection
- Glow plug broken circuit detective
- Auto current output adjustment according to load current
- For multi-cylinder engine, any cascade operation of several groups recommended
- Power transfer efficiency for switch mode is more than 96%
- Very light, it can be installed on aircraft models directly.
- LED trigger button, working state is absolutely clear.

Range of Use

- All the fixed wing airplane models with glow plug engine
- All the helicopter with glow plug engine
- All the car models with glow plug engine
- Starting up the turbojet engine for model use
- Any other occasions of using glow plug engine

Description:

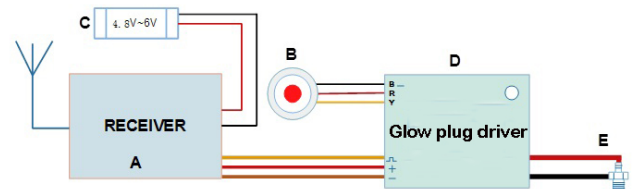
GENERAL USE GLOW PLUG DRIVER is the most functional glow plug driver, it can supply power through an outside trigger button or remote control to trigger the glow plug, it is absolutely a substitute for traditional handhold glow plug, especially useful for starting up those aircraft models with multi-cylinder engine, it supports cascade working mode, powered by receiver or through independent power, it supports any multi-cylinder engine under cascade working mode. It can be controlled through an idle designated two gear or three gear switch. Relevant LED light on the driver will remind user when it detects the glow plug is short-circuit or broken circuit.

The device applied micro controller to realize its control logic, by using synchronous rectifier chip and super low resistance component, its efficiency reaches as high as 95%, as a result, functions such as manual control, auto control and remote control, half power driving, full power driving etc. are achieved.

The device is of constant 1.4V output, it can adjust its output current automatically according to the working status of the glow plug, to make sure the working temperature is on the best temperature and still keep normal temperature even the glow plug is down in the fuel.

Worry-free for burnt damage from short circuit of glow plug, as it gets short circuit and overheat protection, it will enter protection state if the working temperature is too high because of long time and continuous working, as soon as the temperature returns to normal, it will continue working.

Typical application



A: Receiver

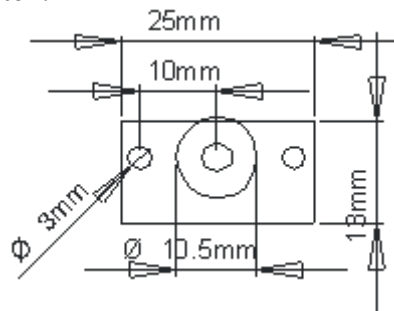
B: Manual trigger button

C: 4.8V~6V battery pack

D: GENERAL USE GLOW PLUG DRIVER control board

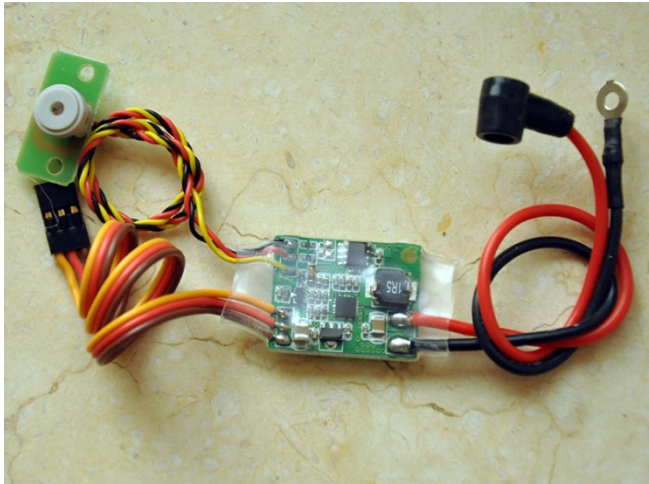
E: Glow plug, black cable connects the bell of engine, red cable connects glow plug

Dimension drawing for installation of the trigger button:



How to install it: drill three holes in place according to size in the above drawing, two 3mm holes, one 10.5mm hole, and fix the button onto the cabin by screws.

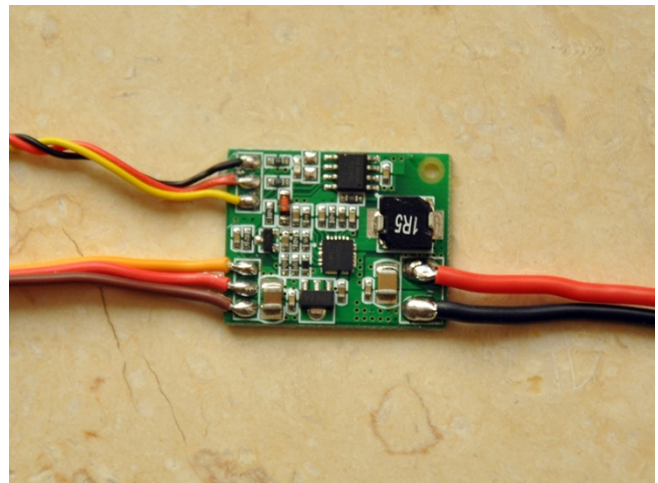
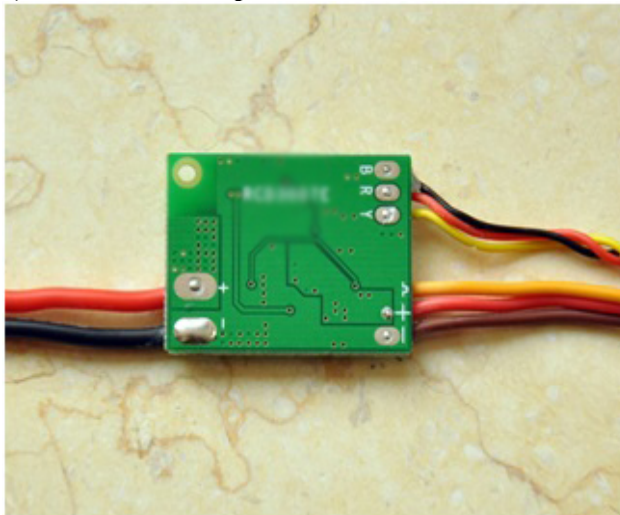
For more functions, please download: manual for 10 kinds of operation mode



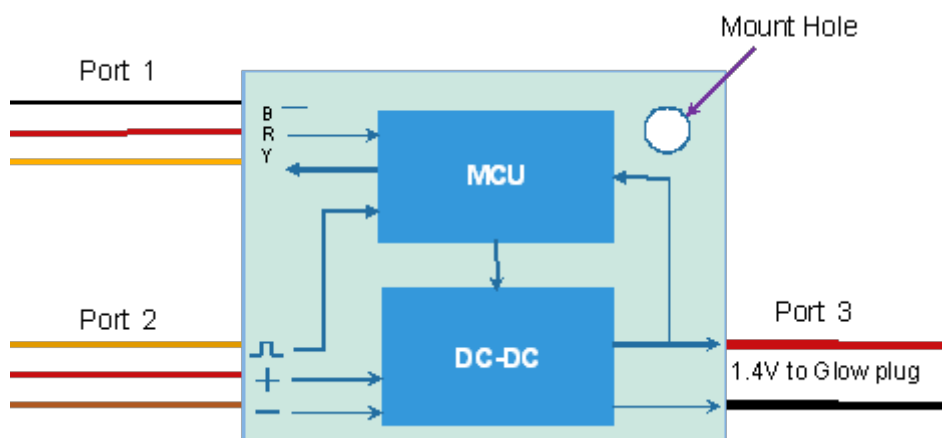
Appearance of GENERAL USE GLOW PLUG DRIVER

There are 2 LED lights on GENERAL USE GLOW PLUG DRIVER in total, one LED light is on PCB, and the other is on its button.

1) Introduction for ports



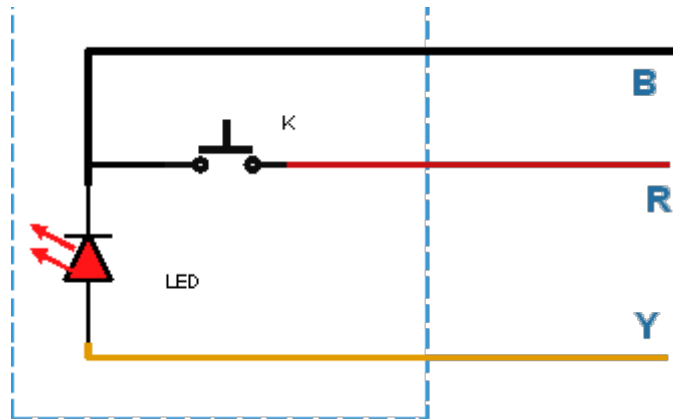
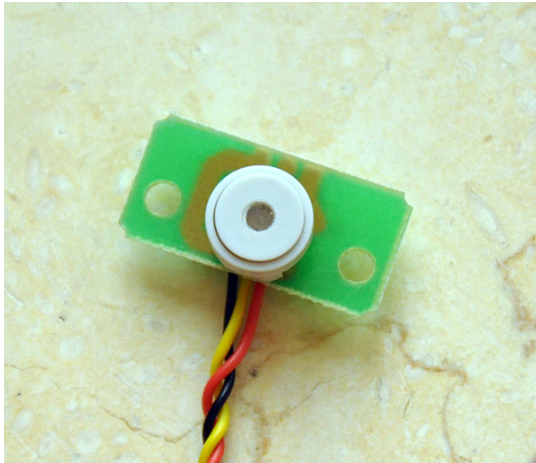
There are three ports in total on the PCB of GENERAL USE GLOW PLUG DRIVER. Port 1 is for control button; Port 2 is for power supply and remote control; Port 3 is for glow plug driver.



It gets a DC-DC system of high efficiency internal controlled by MCU, it can figure out the remote control signal from the receiver, checking and feeding back the working status of glow plug timely.

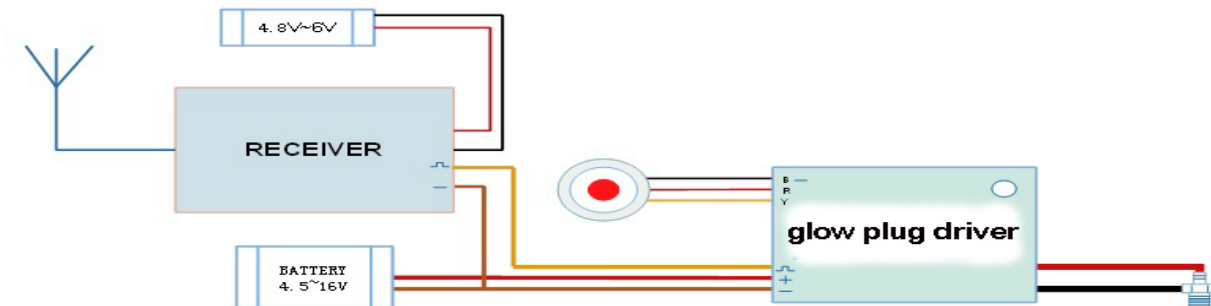
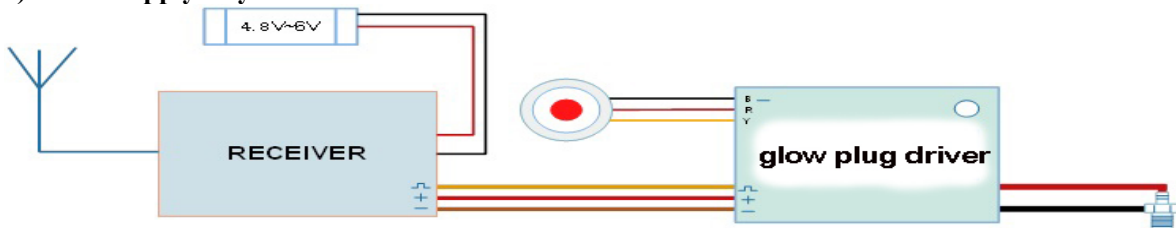
There is a screw hole for mounting on the top right corner, through which customer can mount GENERAL USE GLOW PLUG DRIVER on the aircraft model.

2) Trigger button



Inside the trigger button, there are a button switch and a red LED from which 3 cables come, black cable B is signal wire, red cable R is a switch signal wire for the trigger button, Yellow cable is signal wire for LED light. There are two operation ways for the button: short press and long press (more than 2 seconds) which will trigger different working mode respectively.

3) Power supply way



GENERAL USE GLOW PLUG DRIVER has two ways for power supply:

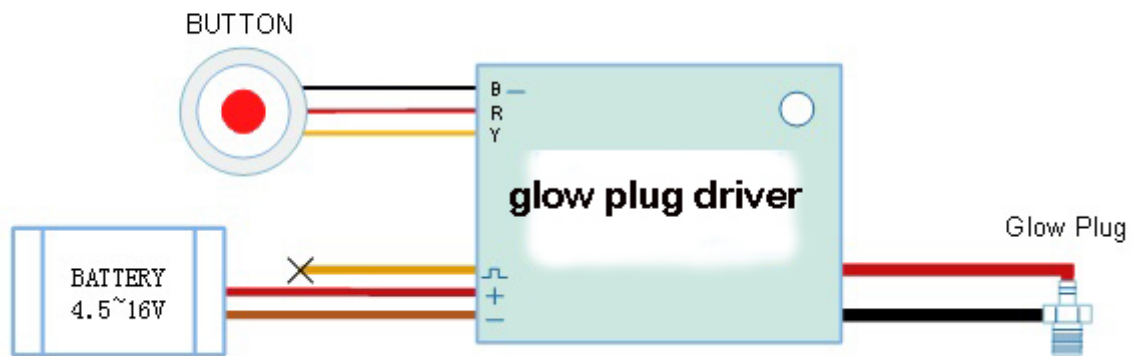
(1) Sharing power with receiver, it is good for single cylinder engine, but only 4.8~6V battery pack can be used because of limited voltage from receiver.

(2) Independent power supply, that is to say, GENERAL USE GLOW PLUG DRIVER powered by an independent battery pack from which it can get relatively wider voltage and safer working. Under this power supply mode, only earthed wire GND and signal wire are connected to the receiver, the power wire in the middle need to be disconnected.

4) 10 kinds of working mode

Mode 1, manual trigger:

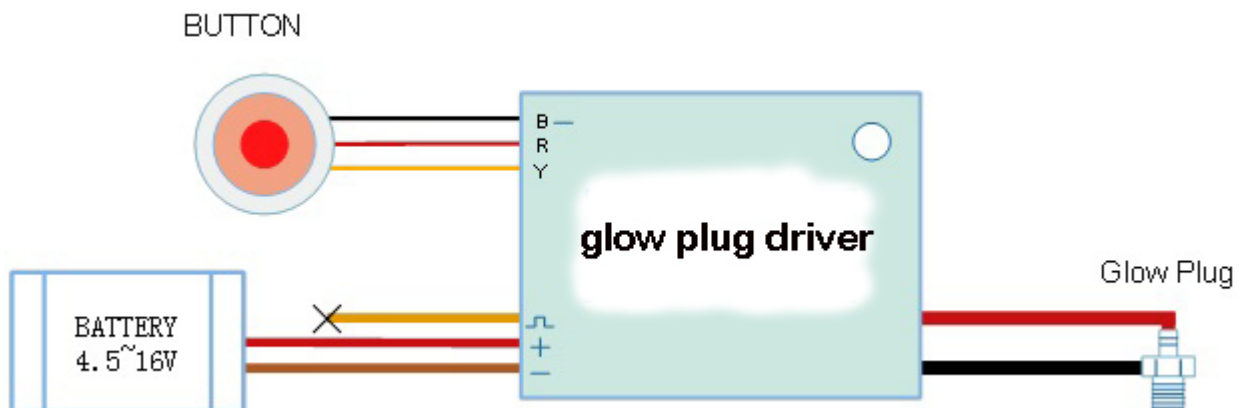
Connection diagram as the following, short press the trigger button, indicator light flashes slowly (on 0.5 second, off 0.5 second), after 5 seconds' time lag, output 30 seconds in full power, glow plug turned red hot state which is suitable for starting up engine, then power is turned off automatically and enters standby.



MODE 1

Mode 2, Manual long press:

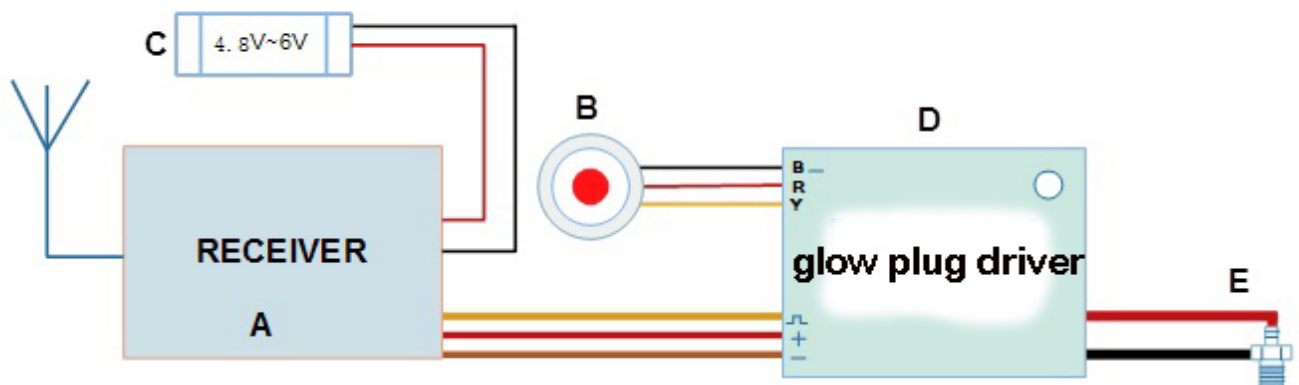
Connection diagram as the following: This mode is very similar with the first working mode but stable working mode was added, long press the trigger button, indicator light will be constant on (on 1 second, off 0.5 second), after 5 seconds' time lag, output in full power for 30 seconds, under this state, the glow plug is hot red which is very suitable for starting the engine up. After the 30 seconds' full power output, it will enter half power state automatically which we called stable working mode, and the power will be turned off after 15 minutes' stable working mode, it enters standby state. The glow plug is only driven to slight hot red under the state of stable working mode, so it can keep the temperature inside the engine constant, and the engine RPM is stabilized, power consumption is very low too, it can also increase the life of glow plug.



Mode 2

Mode 3: manual trigger or remote control trigger

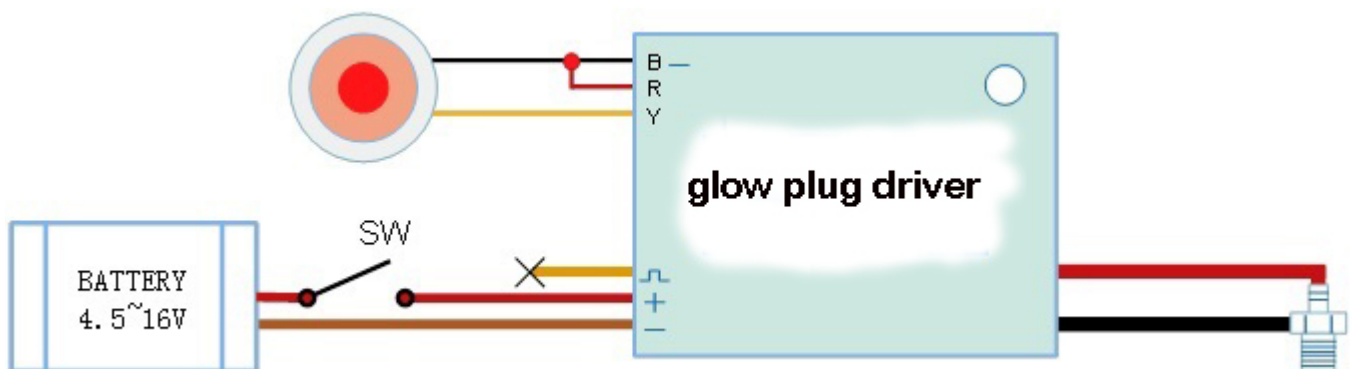
This is a typical operation mode of GENERAL USE GLOW PLUG DRIVER, it is controlled through receiver or manual. Under manual trigger control mode, it is compatible with trigger operation of mode 1 and mode 2; Under remote control mode, it will be half power output (stable working mode) when the three-gear switch turns to middle gear, the up gear is full power output (starting up mode), as soon as the three-gear switch is turned to the up gear for more than 30 seconds, system will enter stable working state automatically, even if the switch is still at its up gear; it will turn off the driving power output automatically after 5 minutes of stable working mode, so it won't use up the power. If button pressing and remote control is operated at the same time, button pressing will get priority for working.



Mode 3

Mode 4: Simple and constant output mode

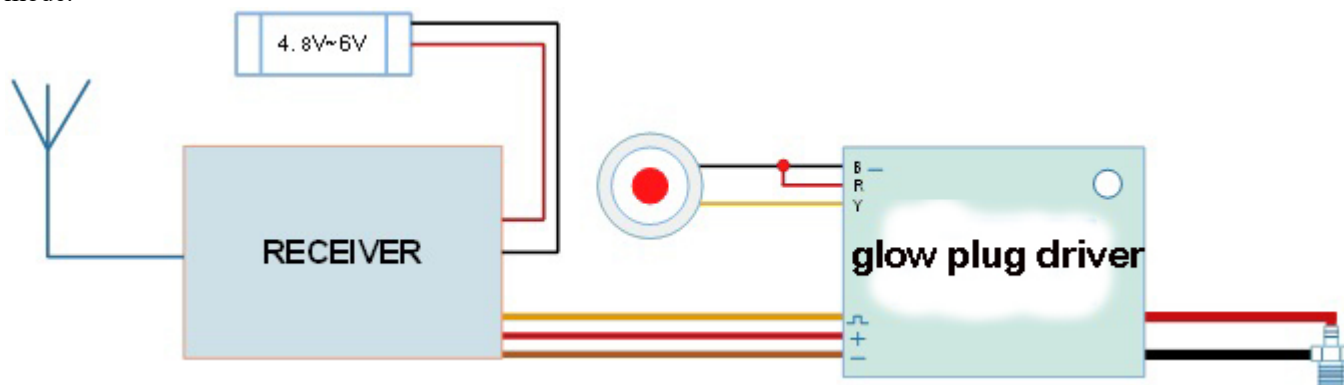
Please check the following picture: this is the simplest operation way for GENERAL USE GLOW PLUG DRIVER. Under this mode, short press button will trigger the signal cable B and R before it is powered, so as soon as it is powered, GENERAL USE GLOW PLUG DRIVER will on full power output, no time limitation, it won't stop working till the power is turned off or system is overheat. Under this mode, the trigger button only works as indicator light.



Mode 4

Mode 5: Remote control constant working mode

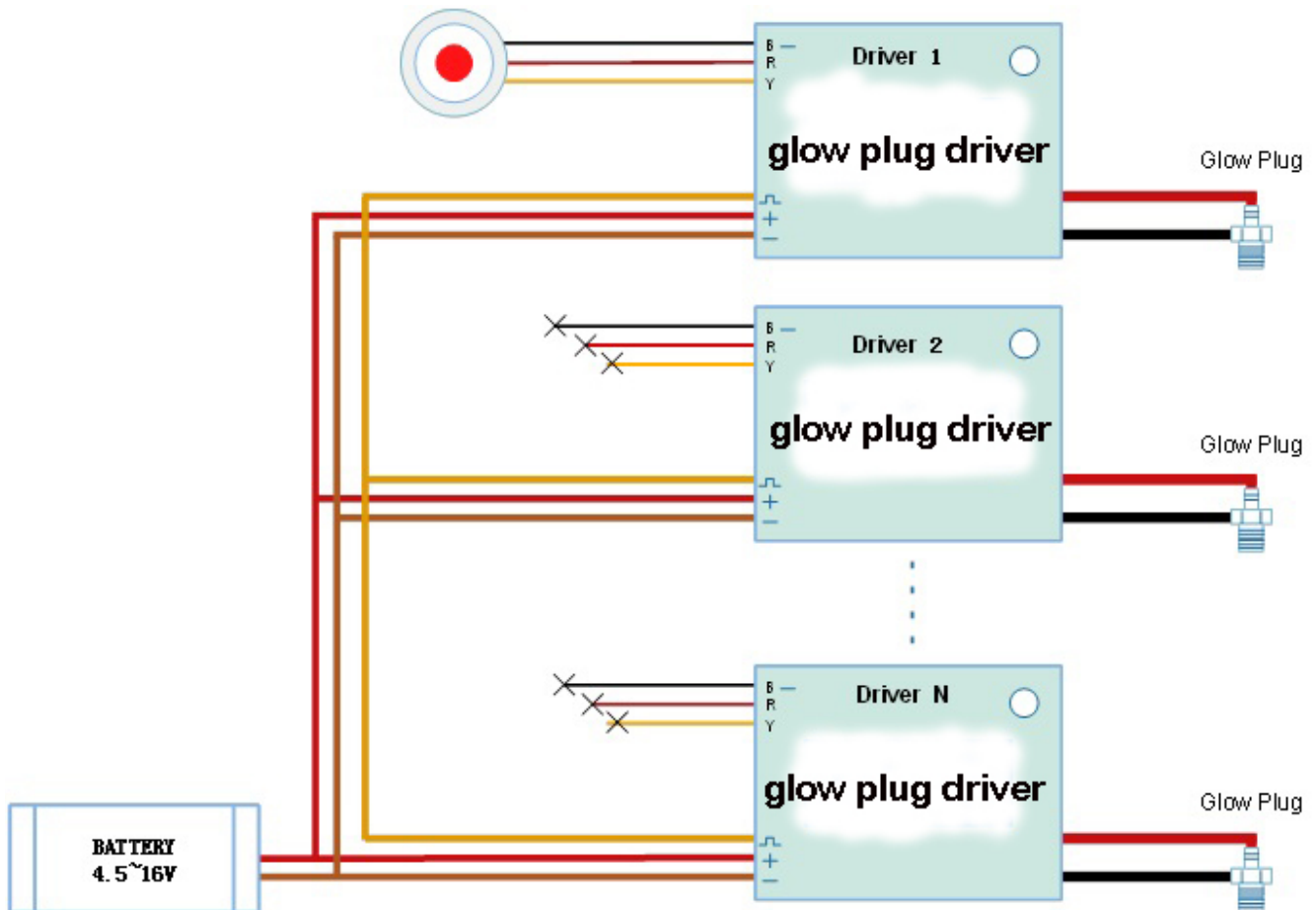
Under this mode, you need to short connect signal wire B and R to the trigger button, when you pull the three-gear switch (corresponds to the channel on transmitter) to mid gear, GENERAL USE GLOW PLUG DRIVER will be on half power output, pull the switch to up gear, GENERAL USE GLOW PLUG DRIVER will be on full power output which will be no limitation from 30 seconds or 5 minutes protection, user should pay attention to the risk of running down the battery, especially when it is sharing a battery with receiver. The trigger button is only used as a indicator light under the mode.



MODE 5

MODE 6: Button trigger cascade working mode

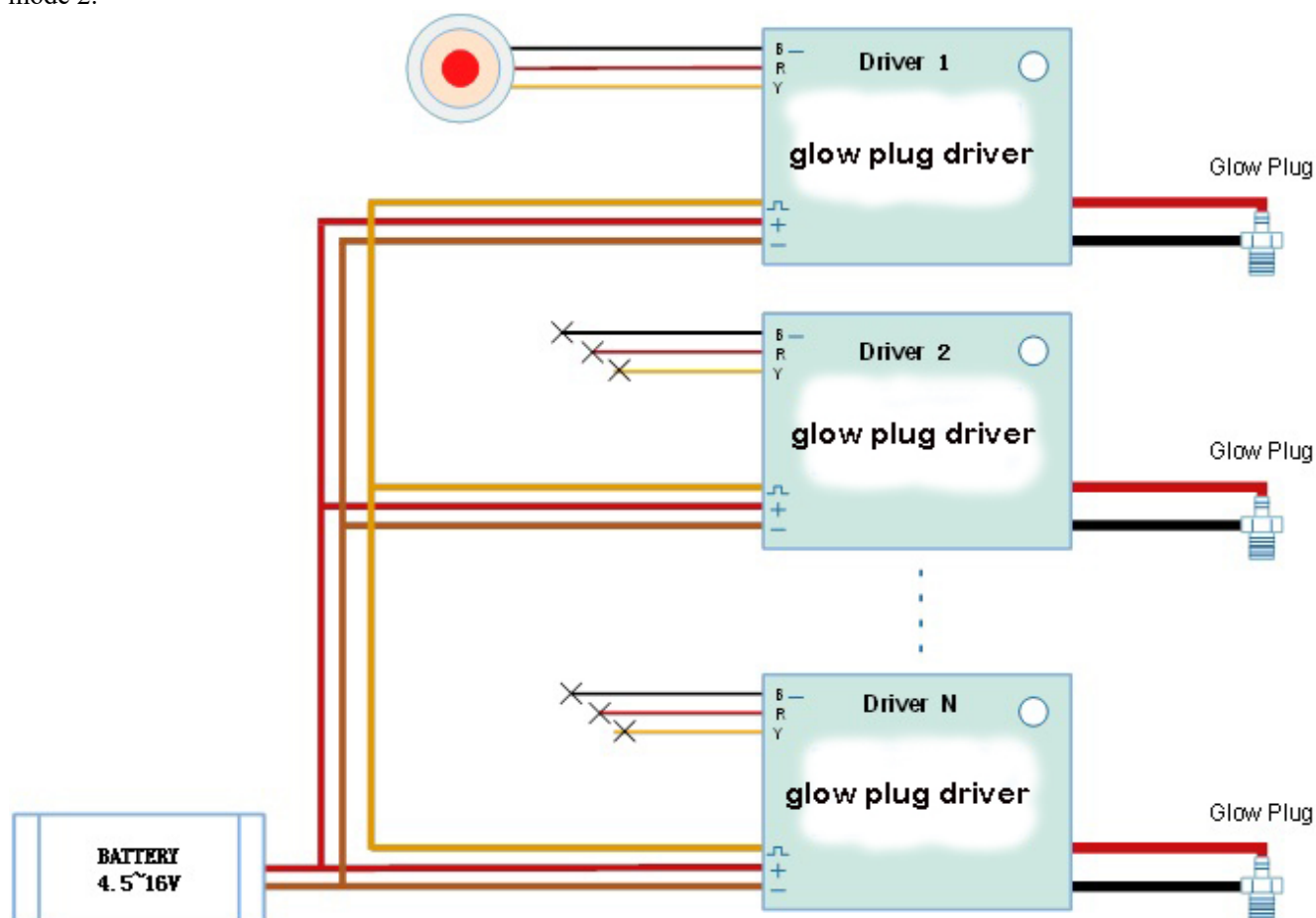
Connection diagram as the following, this is a creative trigger way of GENERAL USE GLOW PLUG DRIVER, through which 1 to N pieces of GENERAL USE GLOW PLUG DRIVER can work at the same time. Under this working mode, only module 1 needs to connect the trigger button, all the other modules don't need a trigger button but parallel connected all the remote control cables. Short press button one time, the indicator LED light flashes, after 5 seconds' time lag, all the modules will be on full power output for 30 seconds and this working mode is similar with working mode 1.



MODE 6

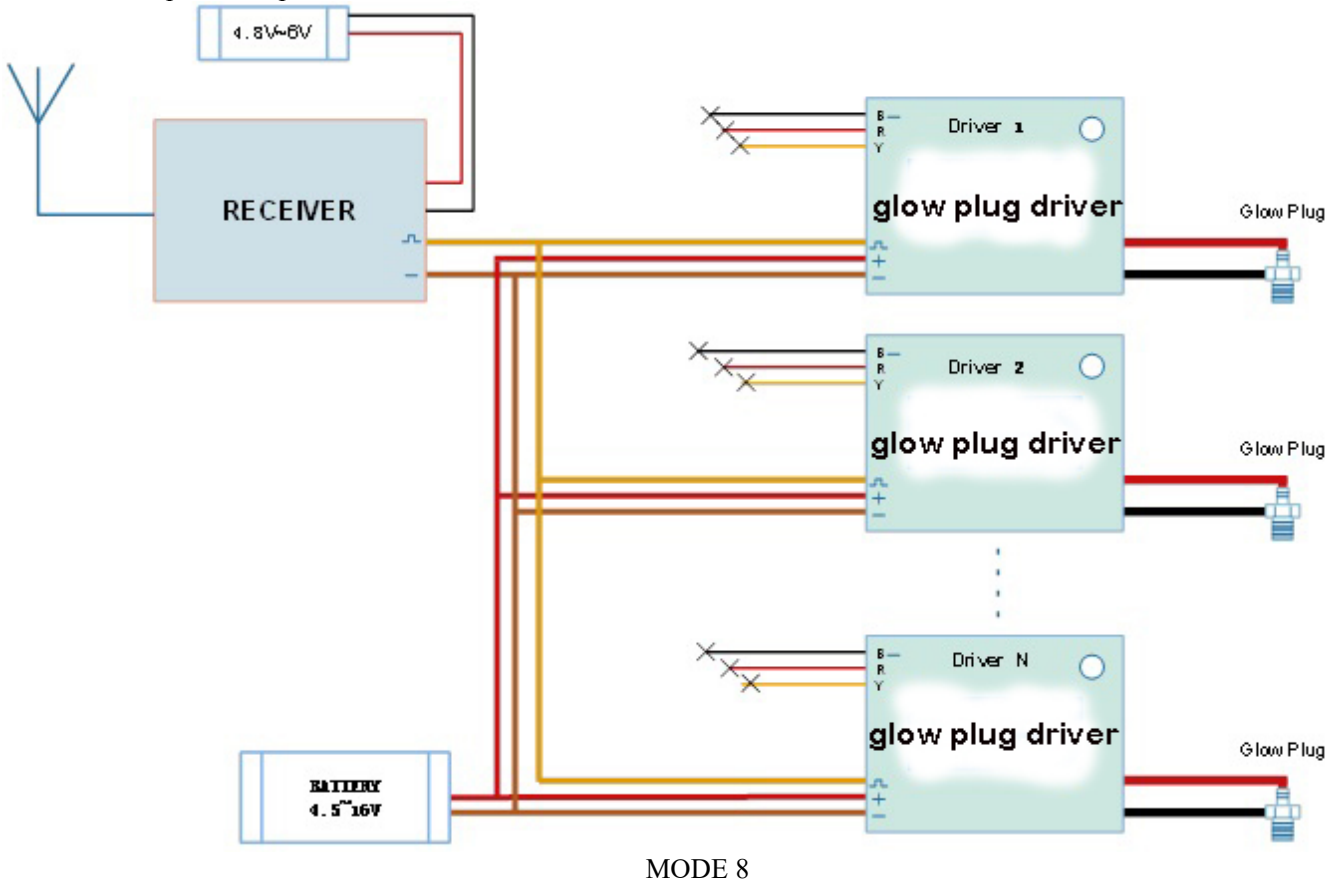
MODE 7: long press trigger button cascade working mode

Connection diagram is as the following, only through one trigger button, 1 to N pieces of GENERAL USE GLOW PLUG DRIVER module can work together at the same time. Under this working mode, only module 1 needs to connect the trigger button, all the other modules don't need a trigger button but parallel connected all the remote control cables. The working mode is very similar with working mode 6, the only difference is the long press (more than 2 seconds), the indicator LED flashes, after 5 seconds' time lag, all the modules will be on full power output for 30 seconds, then enters half power output automatically for 15 minutes, after that, it enters standby automatically which is similar with working mode 2.



MODE 7

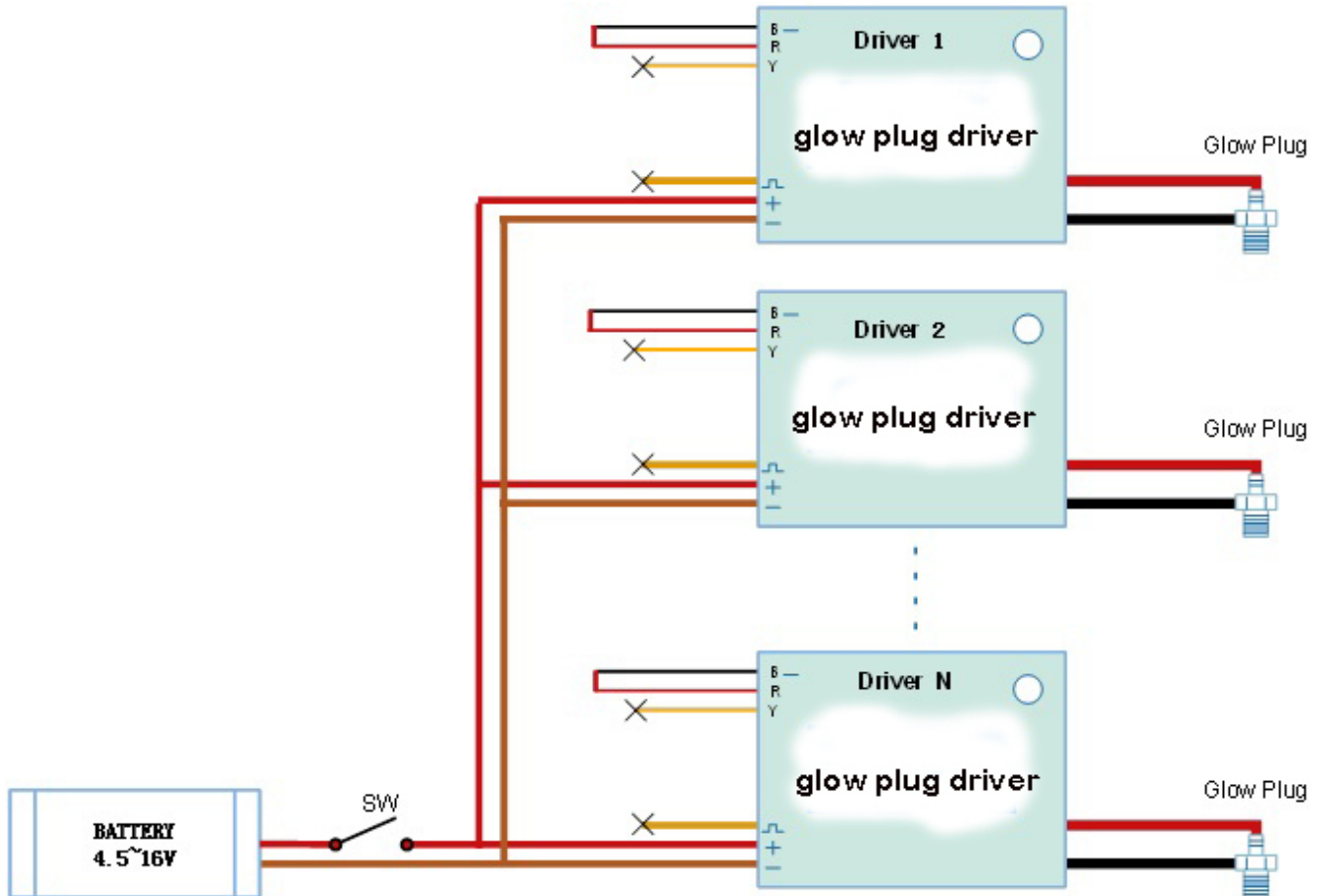
Under this working mode, we strongly recommend an independent battery for modules of GENERAL USE GLOW PLUG DRIVER, not sharing a battery with receiver. The connection diagram is the following: all the remote control cables of GENERAL USE GLOW PLUG DRIVER modules are connected in parallel, only **earthed cable and signal cable** are connected with receiver, **you don't need trigger button** under this working mode, (the trigger button only can be used as indicator light, it would lead to function disorder if the trigger button were pressed). The driver group is controlled by a corresponded three-gear switch on the transmitter, when the three-gear switch is pulled to mid gear, all of the drivers will be on half power output (stable output), when the three-gear switch is pulled to up gear, all the drivers in the group will be on full power output.



Mode 9: Constant output cascade working mode

The connection diagram is as the following. Before it is powered, the signal cable B and R on the trigger button of each module need to be short connected, all the cables for remote control need to be connected in parallel, one control switch SW needs to be added.

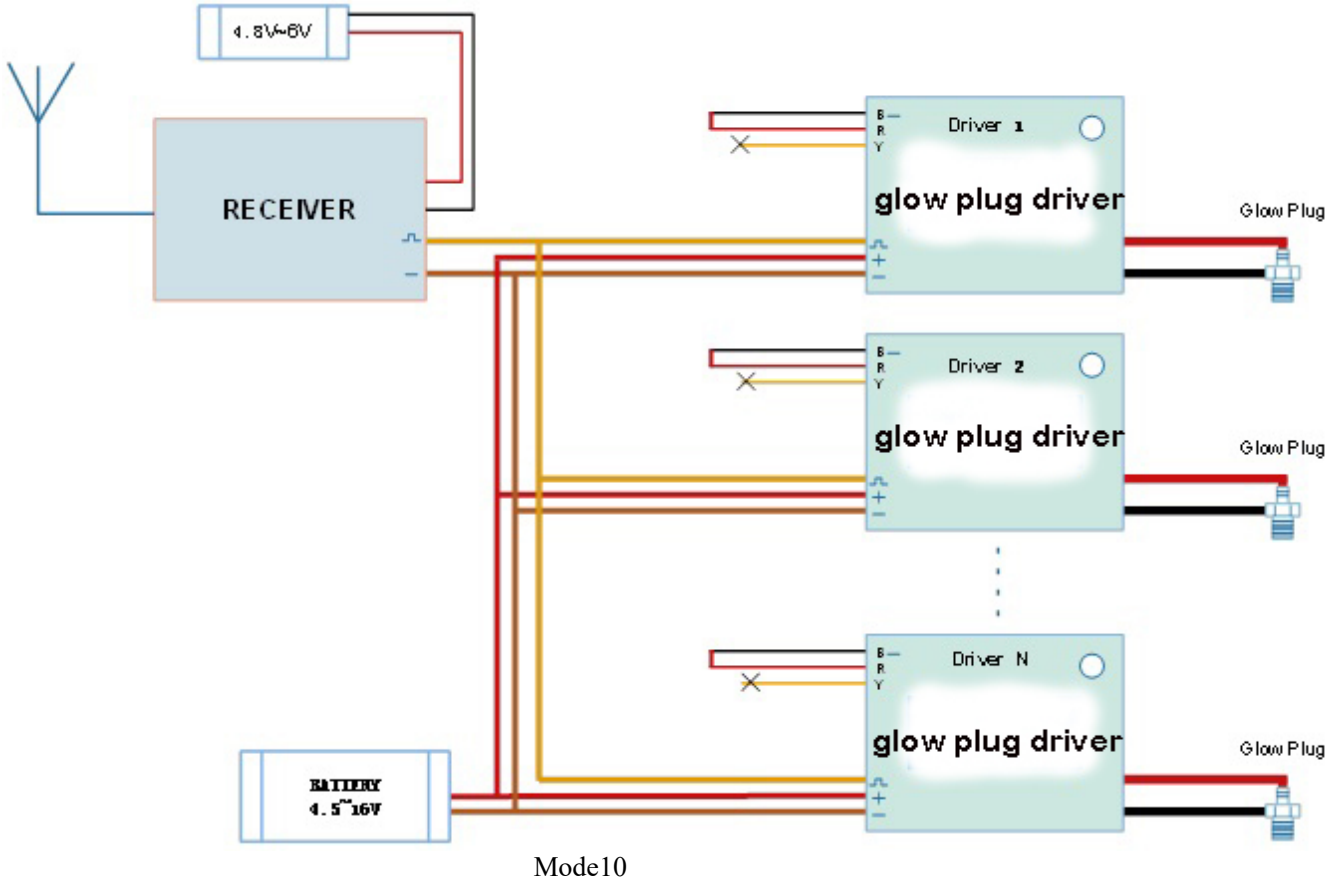
Under this working mode, no limitation for time lag and auto turn off, as soon as SW is turned on, all the drivers will be on full power output constantly till it comes overheat protection or the battery is run down, this working mode is similar with mode 4.



Mode 9

Mode 10: remote control constant cascade working mode

Connection diagram is as the following: before it is powered, short connect all the B and R on all the trigger button, and all the cables for remote control are connected in parallel, only signal cable and earthed cable are connected with receiver, driver module group and receiver gets its own battery pack for power supply. When the corresponded channel on transmitter is pulled to mid gear, all the modules will be on half power output, when it is pulled to up gear, all the modules will be on full power output, no limitation for 30 seconds' or 5 minutes' protection, in this case, user should pay attention to the risk of running down the battery because of long time working, the working mode is similar to mode 5.



5) Indicator light

GENERAL USE GLOW PLUG DRIVER gets two indicator lights in total, one is on the button, the other is on PCB, the display meaning of the two indicator lights is same, the working states are the following:

- 1, Constant on: full power trigger
- 2, Flash slowly, on for 0.75 second, off for 0.25 second: stable working mode trigger.
- 3, Standby, on for 0.2 second, off for 2 seconds, standby mode, means not working under any working modes.
- 4, Glow plug is short connected, flash two times constantly, stop for 1 second, circulated one after another, it reminds user to check or change glow plug, and the module doesn't work anymore.
- 5, Glow plug is disconnected, flashes three times constantly, stop for 1 second, circulated one after another, it reminds user to check or change glow plug, and the module doesn't work anymore.
- 6, Short press trigger time lag, on for 0.5 second, off for 0.5 second.
- 7, Long press trigger time lag, on for 1 second, off for 0.5 second.