

MICROSENS GLOW9C

Glow driver for 1 – 9 cylinders

Warnings

Read carefully this manual first before you put the electronics into operation.
Observe all warnings and hints of the engine and battery manual too.

General

This electronics is intended for heating of model engines glow plugs. It works with all standard RC receivers. The glow battery should be a 2S LIPO.

All plugs are controlled separately and each plug has an own monitoring red LED.

The brightness of the LED shows the glow current of this LED.

If one plug is broken, this LED will be off and all others will work normally.

Like the former GLOW9LP it works in two modes : Starting mode to start the engine and after that the running mode.

Starting mode : Full glow strength, the glow plugs light orange.

Running mode : Half glow strength in idle position or less up to half speed.

Above half speed no glowing.

At idle the glow plugs are still dark, though they are heated.

Detecting of wet plugs : A common problem of radial engines is that the lower plugs are getting wet after a long idle run and turn off the glowing. The GLOW9C detects a wet plug and increases the current of this plug as long as it is wet.

Connectors

The glow plug leads

are connected by terminal strips. The leads shall have an isolated crimped bootlace on the end. The recommended copper diameter of cable is 0,7mm².

The glow plug lead should be connected with a screw on the glow plug and not with a spring, this contact is too poor and the detection of a wet plug won't work properly.

Best choice is to use MICROSENS ZUBI3.

One connection is for one glow plug only and avoid a short circuit between two glow plugs. The outputs are short circuit protected against ground. If a short circuit happens, this output will be switched off until the next power on.

The ground connector

is the golden ring on the print beneath the XT-60 glow battery connector. It is possible to connect this point with a 3mm screw to an aluminium plate which is already connected with the housing of the engine, or to connect it with an eyebolt cable to the engine housing. The copper diameter for this cable should be 1,5mm².

Glow battery connector :

Use a 2S-LIPO (=7,4V nominal voltage) battery with more than 10C. A typical capacity value for 9 glow plugs is 3500mAh and for 5 plugs 2000mAh.

This is usually enough for 2-3 flights.

Attention : Check the correct polarity of the battery before you connect it at the first time.

A wrong polarity will destroy the electronics and all connected glow plugs!

There is no warranty in this case.

The servo connector

is a JR type, suitable for all standard receivers. The appropriate receiver battery voltage is 4,8V – 8,4V. Do'nt use it with a higher or lower voltage.
It takes a current of about 20mA.

Status LED cable :

When there is no glowing it monitors the glow battery status :

Solid green : Full or nearly full

Flashing green : More than half

Flashing green / red : Less than half

Flashing red : Will be soon empty

Below 6V the glow battery is switched off to protect the battery of too low voltage.

With glowing

In starting mode : Fast red flashing

In running mode : Solid red

Mounting

The electronics is usually mounted with 2 M3-screws on a stable plate or wall. The distance between the two holes is 60mm. There should'nt be strong vibrations, dust, water, fuel or hot air. Avoid more than 50°C ambient temperature.

The adjustment procedure

- Connect all glow plugs to the glow driver
- Take one plug out of the cylinder and connect the plug housing to the engine
- If you have less than 9 glow plugs, then you can also take an additional plug without to remove one plug of the engine
- Take care that all plugs are dry, because this is the reference for a dry plug.

A wet plug draws a much higher current and with this wrong reference value a glow plug could be destroyed in worst case when it is dry again.

- Put the lever stick in the idle position, connect the glow battery and the servo cable
- Switch on the transmitter
- Press the SET button (use the added special tool) during you switch on the receiver
- The status LED flashes once green
- Put the lever stick in the position wher the glowing shall stop (typically half throttle or 1/3 to 2/3 throttle)
- Press the SET button, status LED flashes green once shortly.
- Put the stick slowly down to idle. Observe the removed glow plug. The glow plug LEDs should be on
- If the outside glow plug is lighting orange, then stop the lever stick.
- Press the SET button
- The glow plug LEDs are turned off, the procedure is finished

Now you can activate the start mode and start the engine.

If you switch on the receiver next time, all values are stored. There will be no glowing until you activate it

The adjustment procedure should also be done if a glow plug is replaced, because each plug is a bit different.

The actual voltage of the glow battery doesn't affect the power of heating.

Throttle cut and switching off the glowing :

If you go with trimming or better with the switch THROTTLE CUT more than 20% below

the idle position, the glowing is off. The gas servo should'nt get blocked.
The function THROTTLE CUT is also used to activate the glowing.

The power on of the receiver should be with the lever stick in idle position.
The glow driver monitors the voltage of the glow battery, there is no glowing.
Put shortly the switch THROTTLE CUT on and off and then the lever stick from idle to full power and back to idle, then you are in the run mode. An external glow plug will not glow because there is a reduced heating only.

Activating the start mode:

When you switch in run mode shortly from THROTTLE CUT off to on and back to off. The glow plugs and the control LEDs are shining brightly and the status LED flashes red.

Transport and storage of the airplane :

Never leave the connected glow battery in the airplane, though there is nearly no leakage current. It is for safety reasons.

Dimensions without connectors [mm] : 70 x 50 x 10

Weight : 45g

The optional accessories consist of :

- Tool for opening the glow plug connectors
- Tool for pressing the SET button
- LED cable for red / green ultra bright status lightening
- Ground cable 1,5mm², 40cm, with 2 3mm eyelet
- 2x Mounting screws M3x20mm, tooth disc and nut, all in stainless steel

