User Manual „StarGlow II“

General Data

- The receiver's supply voltage can have 4.8V (4x NiXX) … 6.6V (2x LiFe)
- Used for radial engines (up to 9 cylinders)
- Programmable heating range
- Control stick-proportional annealing: full annealing at idle speed and continuously decreasing annealing with increasing throttle stick movement
- **Direct LED-display of the glow plug's functioning**
- When turning off the receiver, the controller turns the glow plugs off automatically. The external LED flashes pulsed.
- When the glow plug's battery voltage sinks under 6V, the annealing turns itself off and the external LED flashes symmetrically.
- **When one glow plug fails, the other glow plugs are not influenced**
- Trial outlet: for continuous operation without remote control
- **Low electricity intake because of clocked system and soft reduction of annealing.**

Mounting into the Modell

Please install very carefully. It is essential to check for the right polarity. The cables between controller and glow plugs must be kept as short as possible (minimal loss!). Cable lengths up to 70 cm (=27,5 inches) can be used (still: no longer than needed). Do not lay it parallel to the receiver antenna or its power supply and do not screw it to the engine bulkhead. Protect it from oil and gas!

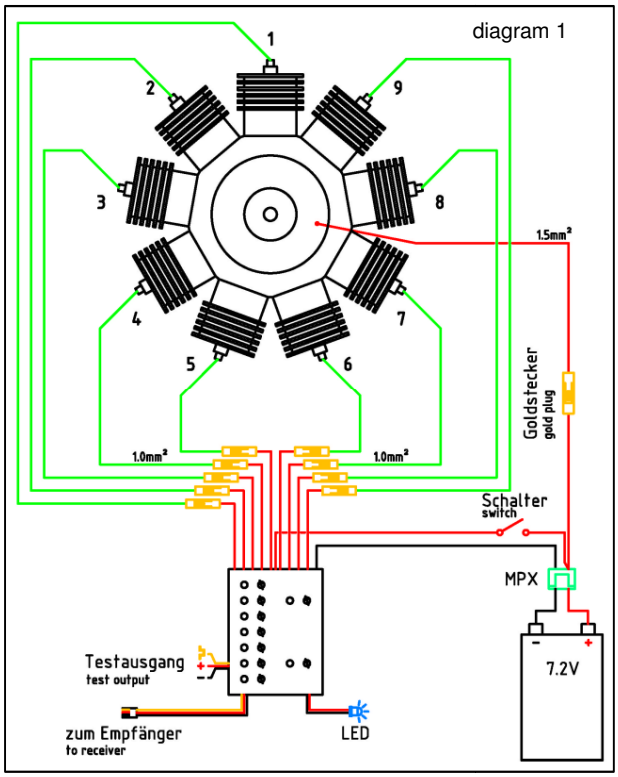
Mounting the Cable (see diagram 1)

- Lay the positive cable on the engine case. Shorten it to the length required, solder the golden contact plug on and connect it with a battery adapter cable.
- For the glow plug cables use at least 1 mm² highly flexible silicone cable.
  Caution! Do not use luster terminals or similar to connect, there is a high contact resistance. Please only use golden contact plugs.
  See www.heilemann-sternmotoren.de/zubehoer-gluehregler for suitable HS glow plug cables with plug

  Solder the golden contact plug to the StarGlow II's cable and the golden contact jack to the glow plug cable. Current flow: battery – glow plug – StarGlow II

The connection to the receiver runs either via a Y-cable parallel to the motor choke servo mechanism or directly to the receiver (free channel with Mixer (100%)).

1) Radial Engine Connection Diagram on the example of 9-cylinder



Settings

Glow Current

Information: The LEDs only display glow plug's functioning and cannot be used to adjust the glow current!

- After installing the StarGlow II completely, also wiring the glow plugs, connect the StarGlow II to the glow plug battery (fully loaded)
- Stick the servo connectors into the controller's test outlet
- Turn on the StarGlow II using the external on/off switch (see diagram 1)
- The external LED signals by flashing quickly.
  After a short break the external LED flashes twice, then once and then shines steadily.
- The StarGlow II is now in constant glowing mode.
  Please note! Now there is electricity running through the glow plugs!
- Now you can adjust the brightness of each glow plug as desired. For that unscrew the glow plugs (one after another) out of the cylinder head, mount it to the glow plug connector and hold it to mass (cylinder head). Adjust the glow current by turning the glow plug's potentiometer (under the LEDs) lightly.
  Caution! Don't overwind – the potentiometer has a restriction on the left and the right. Light glow plug glowing is enough.
- To turn the potentiometer you must use a suitable cross recess screw driver: 2 mm Ø
  Of course you can also do these settings with your remote control during stationary throttle.

Programming Glow Current

- After completely installing StarGlow II and adjusting the glow current, turn on transmitter and receiver.
- Set the throttle stick on position (recommended value: 30% gas) Now you have full annealing from stationary throttle to the set position (30 %).
- Now turn on StarGlow II using the external on/off switch.
- Set value will be used.
- After a quick flashing sequence of the external LED, there is a short break, then the external LED flashes twice.
- Now move the throttle stick quickly, within 3 seconds, up to the gas position (recommended value about 70%) during which the annealing should go out. See also diagram 2 "glow curve"
- After that the external LED flashes once to confirm. Now the glow current is programmed.
- Move the throttle stick to stationary throttle and you have 100% of the preinstalled glow current.
- Do a functional test during which you should watch the external LED.

- **This setting (programming the glow current) must be done every time after turning the StarGlow II on/off. This increases security, as you adjust and therefore check the annealing after every power up!**

Start Procedure Engine

- Turn on transmitter and receiver
- Suck in fuel as usual
- See programming glow current

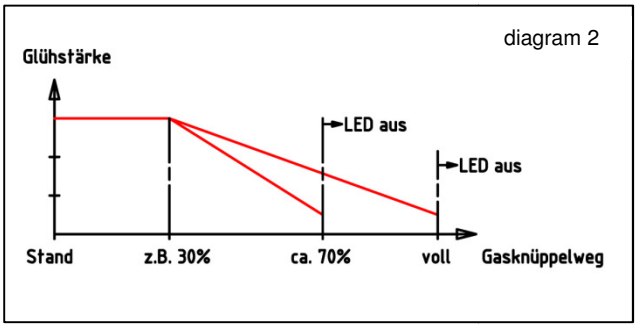
Example: Constant Annealing during Flight Operation

- Set the throttle stick to 100% = full throttle
- Now turn on the StarGlow II using the external on/off switch.
- Set Value will be used.
- Wait for complete programming routine StarGlow II until the external LED flashes once to confirm. Then the annealing area is programmed to 100% over the whole throttle pass
- Start the engine (with slightly increased idle throttle)

Status External LED

Sequenz	Beschreibung
LED flashes pulsed	Receiver is turned off
LED flashes symmetrically	Low voltage glow plug battery! less than 6V – annealing is turned off

2) Diagram Glow Curve



Key: ca. = approx.; Gasknüppelweg = gas trottle path; Glühstärke = glow current; LED aus = LED off, Stand = state; z.B.= e.g.;

Turning off the Engine

Turn your engine off as usual:

- Also turn off the StarGlow II (otherwise it will continue glowing)

Glow Battery

The glow battery should have a voltage of 7.2V (6x NiXX cells or 2x LiPo cells). The capacity should be chosen according to the number of glow plugs.
For 30 minutes of constant glowing the following applies approximately:

Glow batteries
3 glow plugs → 1200 mAh
5 glow plugs → 1800 mAh
7 glow plugs → 2400 mAh
9 glow plugs → 3000 mAh

Intended Purpose

The StarGlow II is only designed as annealing for model airplane 3-, 5-, 7- and 9-cylinder radial engines fueled by methane.

Safety Instructions

Please read the information listed in the operating instructions thoroughly before initial commissioning of the StarGlow II. It contains important instructions for the installation, the intended use of the StarGlow II.
Please remember that the StarGlow II heats the glow plug. This means that moving the propeller by active annealing can result in the engine starting up or backfiring involuntarily.

- Please DON‘T EVER reach into the propeller’s turning circle
- Keep children away
- Always turn the StarGlow II off, when not using the model.

After installation and successful functional test of the glow system, we recommend doing a range check before the first flight (range: 80 to 120 m = 262 – 394 ft).

Test Report

- ☑ Pulse purity of the clocked system
- ☑ Battery lock (turning off the Starglow-II at 6V)
- ☑ Starglow-II turns off when channel pulse of receiver is missing
- ☑ Test connector - feature
- ☑ Complete function test incl. thermical behaviour during long term operation
- ☑ Compatibility with remote control

Scope of delivery StarGlow II

- Glow plug regulator
- Multiplex battery adapter cable
- On/off switch
- Positive cable to engine incl. Screws and discs
- Four fastening screws
- Screwdriver PH00

For more accessories see www.heilemann-sternmotoren.de

Guarantee

The manufacturer does not bear liability, when the following instructions are not observed:
When using electrical components under increased safety requirements the corresponding provisions are to be followed.

Improper installation will invalidate the guarantee.
The StarGlow II is designed for the use in model airplanes.
If you have any problem contact Heilemann Sternmotoren.

If a defect in the delivered product exists for which Heilemann Sternmotoren is responsible, Heilemann Sternmotoren has the right to either remedy the defect or to replace it.
Replaced items are then property of Heilemann Sternmotoren.
If the defect remedy or replacement fails, the legal provisions apply.

The guarantee period begins on the day of the purchase. Please keep your receipt as proof.

No guarantee is granted especially for damage resulting from the following reasons:
Unsuitable, improper storage or use, incorrect assembly (e.g. on the firewall/engine carrier) or commissioning by the customer or a third party, natural wear, change or interventions, incorrect or negligent treatment, especially excessive use, chemical, electrochemical, electric influences or moisture, unless these can be attributed to Heilemann Sternmotoren.

Should operational, climatic or other influences lead to a significant change of the conditions or the state of the material, the guarantee for the StarGlow II’s perfect overall function ceases to apply

As far as Heilemann Sternmotoren gives guarantee in individual case means no defects on the delivered object during the guarantee period.

Dear customer,

thank you for choosing a high quality product from Heilemann Sternmotoren, the StarGlow II.

For 20 years now the Hölzl glow plug regulator Star Glow has been used successfully by model pilots.
The first test report appeared in in the magazine “Modell 7/2000”.

We also use the glow plug regulator to ensure our engines run securely in all idle speed ranges.
Heilemann Sternmotoren went through several development stages in the past years, so it was time to include StarGlow into this development work.

We are happy about the result: The StarGlow II !

We used our experience with the collaboration of Herbert Hölzl to carry out extensive improvements in the glow plug’s hard- and software.

With kind regards
Heilemann Sternmotoren
Andreas & Elke Heilemann

CE

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