



Safety instructions



! Read the operating instructions before commissioning

! Do not make any technical changes

! Area of application:

For use in modelling and suitable industrial applications within the scope of the technical specifications.

! Regular checks:

Check servos regularly for play, changes in running noise, actuating force and actuating speed.

! Only use original spare parts.

Replacement gear sets and housings are available from specialised dealers or directly from a MULTIPLEX service centre.

For safety reasons, any necessary repairs to the electronics and motor may only be carried out by an authorised service centre.

! Do not overload the servo

! Protect against vibrations: e.g. combustion engine; use the enclosed damping grommets.

Commissioning

Connecting the servos:

Minus pole (-)	black (brown)
Plus pole (+)	red
Impulse (⌋⌋)	yellow (orange)



Power supply:

Unless otherwise specified in the technical data, the operating voltage range of the servos is: 4.8 - 8.4 V (4S-6S NiMH; 2S LiPo)

Programmable functions

The following functions can be programmed for the digital servos using the DPC-11 (or HFP30) PC programming device: Soft start function, direction of rotation, servo ID number, speed (slower), servo centre position, left and right end point (maximum 180°), dead zone, overload protection, FAIL SAFE ON/OFF

Accessories

The programmable functions of the HITEC digital servos can be set with the DPC-11 PC programmer or with the help of the HFP-30 servo programmer. You can download the free software for the DPC-11 from our website:
www.multiplex-rc.de



<https://www.multiplex-rc.de/en/support/downloads>



Energy-efficient brushless motor control

Energy-efficient systems are of interest to all model builders. That is why our HSB-9XXX series uses the latest technology with a regenerative braking circuit to feed the energy generated when the servo brakes (slowing down and changing direction) back into the battery.

Depending on the number of servos used in your model, you must use a suitable battery with sufficient capacity. As a guideline, servos of the HSB-94XX series have a blocking current of approx. 1.3 amps and servos of the HS-93XX series approx. 2.1 amps.

While this new technology is compatible with most remote control components, problems can arise if the components used cannot absorb the regenerated energy. These components are usually: voltage regulators, receivers with built-in battery switches and various BEC systems (either as a separate device or integrated into a motor controller).

We recommend powering your HSB-9XXX brushless servos directly from a battery via the receiver!

The use of battery switches or voltage regulators can cause difficulties due to the regenerative braking circuit. If you still need to use a system that cannot process the regenerated energy, it is essential to use the enclosed PAD (Power Absorbing Device).

Failure to do so will result in the servos losing the ability to execute fast control commands cleanly, not stopping exactly at the desired position and possibly oscillating slightly. Damage to the receiver and power supply cannot be ruled out!

Therefore, consult the manufacturer of the components you are using to determine whether the returned energy can be utilised. If the component you are using cannot process this energy, it is essential to use a PAD (Power Absorbing Device). This is included with each servo and can also be purchased separately. For further information, please refer to the following instructions.

Application example

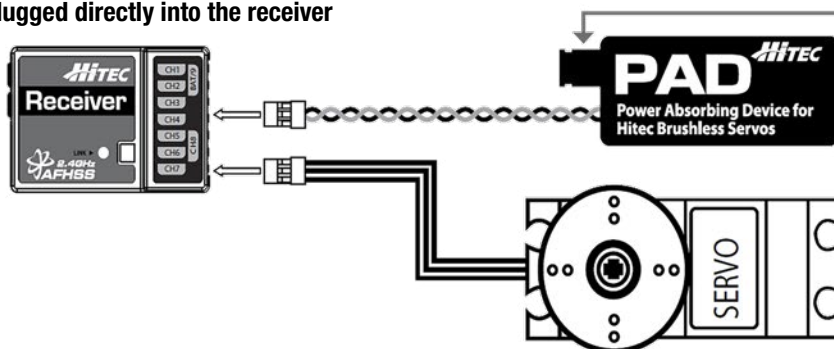
PAD use:

The purpose of the PAD (Power Absorbing Device) is to absorb the current that is fed back from the servos but cannot be processed by the connected components, such as controllers, battery switches and the like.

The following two examples show the two common connection options.

Each PAD can absorb the return current from up to 4 servos. For hard 3D flying, it is recommended to use 1 PAD for 2 servos.

PAD plugged directly into the receiver



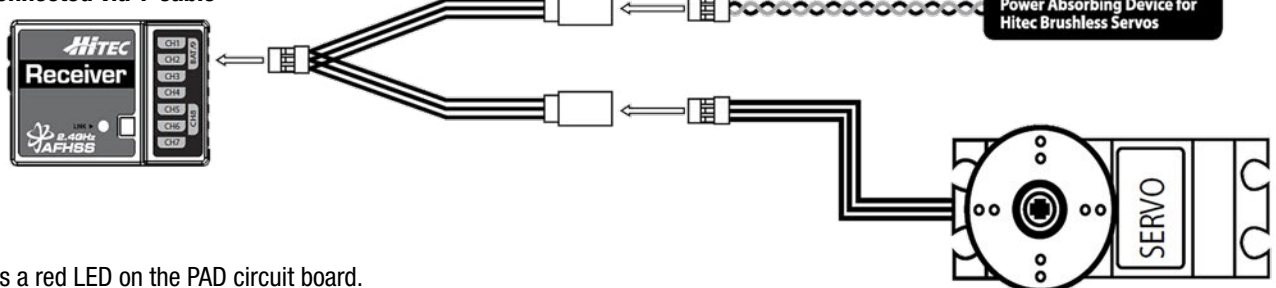
Jumper on / connected:

With an operating voltage of 8.4 volts for the servos. This means that overvoltages above 8.4 volts are absorbed by the PAD.

Jumper off / removed:

At an operating voltage of 7.4 volts and lower, the jumper must be removed.

PAD connected via Y-cable



LED:

There is a red LED on the PAD circuit board. This lights up when the PAD is operating and receiving feedback from the servo.

<https://www.multiplex-rc.de/en/support/downloads>

Guarantee

We provide a warranty for our products in accordance with the currently applicable statutory provisions. Please contact the specialist dealer from whom you purchased the appliance with any warranty claims.

The warranty does not cover malfunctions caused by

- Improper operation (e.g. overheating, incorrect connections, polarity reversal)
- Use of non-original MULTIPLEX / HiTEC accessories
- Accidental or intentional damage
- Defects due to normal wear and tear
- Operation outside the technical specifications
- Technical modifications to the product

Disposal instructions

Electrical appliances must not be disposed of with household or residual waste. You can dispose of your old appliance at the retailer or at public collection points in your municipality or town (e.g., recycling centers).



Guidelines

This product complies with the directives
2011/65/EU - RoHS • 2014/30/EU – EMV

