



ADVANCE SIGMA¹⁰

Getting started

Welcome to ADVANCE

Our sincere thanks that you have decided on ADVANCE. As a worldwide leading paraglider manufacturer based in Switzerland we have been following our own ideas and concepts since 1988 – in both development and the production of paragliders, harnesses and accessories.

This guide gives a brief look at using the SIGMA 10, but it does not replace the manual. The latest version can be found on:

www.advance.ch/sigma

We wish you many happy hours in the air with your SIGMA 10, and the satisfaction of some epic cross country flying.



You, the Pilot

The SIGMA 10 continues the story of the legendary SIGMA series. This ADVANCE Sportster finds its place in the centre of the EN/LTF C classification and combines outstanding performance with sporty dynamic and distinguished colours.

If you are an accomplished thermal pilot, have cross country experience, understand active flying and can prevent canopy upsets at their outset you and the SIGMA 10 are made for each other.

You will then be able to fully reap the benefit of this wing's excellent performance potential and make the most of its high pitch and directional stability – especially in choppy air. Here you will immediately feel at home with the SIGMA 10 and revel in the results of increased performance. The best state of affairs for epic cross countries ...

Delivery and Basic Settings

Every ADVANCE paraglider has to be flown by the dealer to check for correct initial setup. Any personal alteration of the paraglider results in the loss of its certification. Brake line length should not be changed. It is set at the factory so that the training edge remains unbraked when fully accelerated with brake lines fully released.

The SIGMA 10 package contains:

- COMFORTPACK
- Inner Bag
- Compression Strap
- Repair-Kit
- Mini-Windsock
- Getting started Booklet

Risers

- 1 Quicklinks and Clips
- 2 Speed system pulleys
- 3 Speed Performance Indicator (SPI)
- 4 Red cursor for the SPI
- 5 Brummel hooks
- 6 C-Handle
- 7 Magnet clip
- 8 Swivel
- 9 Easy-running brake pulleys
- 10 Easy Connect System



2-Phase Speed System with SPI

The Speed Performance Indicator (SPI) helps you choose your speedbar position. In accelerated flight it indicates your relationship to the accelerated part of the wing's polar curve, and confirms symmetrical application.

Spend some time setting up your speedbar lines correctly:

- 1 Set their lengths so that the first speedbar step gives you the 40 % position on the SPI, and the second step reaches

80 % SPI. With this configuration you should be able to reach 100% (pulley to pulley) with toes at full stretch on the second step.

- 2 By moving the knots **1** and therefore the ball position **2** on the risers you can adjust the ratio change position to suit your leg and body length. **3** + **4**
Pic 1 shows low gear – 3:1, and Pic 2 shows high gear – 2:1 **4**

- 3 If you move the knots **1** down the change from 3:1 to 2:1 happens earlier, and at this point foot load goes up, speed increase is more direct and total speedbar travel is reduced. If you move the knots up the opposite occurs; a later change to high gear, and longer overall speedbar travel for long legs.

Make absolutely sure that the harness speed lines are not set too short: the wing must not be accelerated prematurely i.e. permanently accelerated in flight!



Pic. 1:
3:1 ratio

Pic. 2:
2:1 ratio

Easy Connect

The SIGMA 10 has an 'Easy Connect System', compatible for ADVANCE harnesses and paragliders. It helps to ensure that you connect the wing to the harness correctly. The backs of the C-risers have coloured markings: red on the left, blue on the right in the direction of flight. When these markings appear correct from the pilot's point of view, and run correctly upward, this indicates that the risers are clipped in correctly.



Active Flying

You should always use an active flying technique. Under normal conditions this should prevent collapses almost completely. Disturbances in angle of attack should be minimised or countered by brake: or with speedbar or C-handles in accelerated flight. These techniques will optimise your glide performance. Oppose pitch forward by easing the speedbar or applying brake, as appropriate.

If the wing pitches back push the speed bar briefly but strongly – or release the brakes. If flying in strong turbulence do not use the speedbar.

Fast Descents

The SIGMA 10 has split A-risers. **To apply big ears** use the outer A-risers to pull both outer A lines down briskly. Sink speed can be increased by use of speedbar. To reopen release both A lines at the same time.

Opening can be speeded up by a light pull (pump) on the brake. Open the ears one at a time.

Enter a spiral progressively. When in the spiral keep your weight neutral in the harness. Exit the spiral carefully by progressively releasing inside brake and leaning body weight lightly towards the outside of the turn. The SIGMA 10 will recover itself from the spiral if neutral weight disposition is maintained and brakes are released completely. However, ADVANCE recommend an active exit.



Caution: If you deliberately shift your weight to the inside of a spiral strong acceleration will result. This can lead to stable rotation and even more acceleration. In this case – with vertical speed of more than 14 m/s – you must use active outside brake and outside weightshift to recover.

Collapse

Precise SIGMA 10 canopy feedback can usually enable you to recognise an impending collapse and react accordingly. If a collapse should occur, however, keep direction control with careful opposing brake and open the collapsed side by pumping, if necessary. To avoid stalling, steering by brake on the open side should be done with care. A cravat can be opened using the orange marked Stabilo line.

Following a front collapse the canopy pitches back gently. Wait without applying brake until the canopy is back overhead and then be prepared to control a possible shooting in front.

In fully accelerated flight the wing reacts impulsively to front and side collapses. In particular, the fully accelerated side collapse can cause the SIGMA 10 to turn quite dynamically, but this remains well controllable.

If you want to simulate an accelerated collapse in safety training try these first with un- or partially accelerated collapses first. More manoeuvres are described in detail in the manual on www.advance.ch/sigma.

Wet Paraglider

If you fly a wet paraglider the risk of parachutal stall is heightened. Parachutal stall is often the result of a combination of factors. Water increases the weight of a wet canopy. More weight results in an increased angle of attack, which brings the glider closer to the parachutal stall boundary. In addition, water drops on the fabric have a bad effect on the laminar flow over the leading edge, and this significantly reduces the maximum achievable lift coefficient.

To minimise the risk of parachutal stall a wet glider should be braked as little as possible, and big ears never used. But, if the wing still goes into parachutal stall, recovery should be achieved by accelerating using the speed system only.

Packing and Care

To pack, lay nose wire on nose wire, so that the rigid profiles lie flat on each other and at the same height. This will also arrange that all C-Wires are at the same level. Fold the wing to the width of its inner bag and continue as follows: first fold the trailing edge end to include all the C-Wire lengths, then fold the leading edge over at a line below the Rigid Foils. Finally fold the trailing half over the leading edge side. Take note that incorrect care will shorten the life of your SIGMA 10. Do not leave the wing in the sun

unnecessarily and never subject it to large temperature changes. Always store your SIGMA 10 in a dry place.

Technical Data

SIGMA 10		21	23	25	27	29
Flat surface	m ²	21	22.9	24.5	26.4	28.4
Projected surface	m ²	18	19.6	21	22.6	24.3
Aspect ratio		6.16				
Ideal weight range*	kg	65 – 75	75 – 85	85 – 97	97 – 110	110 – 125
Certified take off weight**	kg	60 – 77	70 – 88	80 – 100	92 – 114	105 – 128
Glider weight	kg	4.5	4.75	4.85	5.15	5.45
Certification		EN/LTF C				

* takeoff weight range in which the SIGMA 10 shows the best relationship between flying speed and climb.

** pilot, wing, equipment

Service and Warranty

After purchase register your wing online at www.advance.ch/warranty, so that you can benefit from the ADVANCE extended warranty. This is valid for three years to cover problems attributable to manufacturing deficiencies.

The SIGMA 10 has to have a check every 24 months, or 150 flights or 150 flying hours, to be carried out by a certified ADVANCE check facility. The date starts at the glider's first record of ownership.

You can find the up-to-date version of the detailed official manual, further information about safety and current notices, and answers to frequently asked questions on www.advance.ch

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