

USER'S GUIDE

TECH-AIR[®]
RACE_AIRBAG SYSTEM



**IMPORTANT READ THIS MANUAL.
SAFETY CRITICAL INFORMATION INSIDE.**

**Please read the following important
WARNING and LIMITATION of use notice
carefully:**

Motorcycling is an inherently dangerous activity and an ultra-hazardous sport, which may result in serious personal injury, including death. Each individual motorcycle rider must be familiar with motorcycling, recognize the wide range of foreseeable hazards and decide whether to assume the risks inherent in such an activity with the knowledge of the dangers involved and accept any and all risks of injury-including death. While all motorcycle riders should utilize appropriate protective equipment, each rider should exercise extreme care for safety while riding and understand that no product can offer complete protection from injury including death or damage to individuals and property in case of fall, collision, impact, loss of control or otherwise. Riders should ensure that safety products are correctly used and fitted. DO NOT use any product that is worn out, modified or damaged.

Alpinestars makes no guarantees or representations, express or implied, regarding the fitness of its products for any particular purpose.

Alpinestars makes no guarantees or representations, express or implied, regarding the extent to which its products protect individuals or property from injury, death or damage.

ALPINESTARS DISCLAIMS ANY RESPONSIBILITY FOR INJURIES INCURRED WHILE WEARING ANY OF ITS PRODUCTS.

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1. Introduction

The Tech-Air® Race Airbag Vest is an active safety system optimized for use on the racetrack.

The Tech-Air® Race Airbag Vest system also permits the ability to change the software running on the electronic unit to make it suitable for use on public roads (See section 18).

In the event of an accident or other triggering event, the airbag system provides upper body protection to the user. In addition, provided that such accident did not damage the system, the Dual Charge concept, provides upper body protection in a second accident without requiring the airbag to be returned to Alpinestars for recharge.

In this manual the following three presentation styles are used to provide information:

 **Tip:** Provides useful advice regarding the system.

IMPORTANT! Provides important information regarding the limitations of the system.

WARNING! Provides critical information which, if not followed, may cause injury, death, system malfunction or non-function, and/or an exaggerated expectation of the system's abilities.

The Tech-Air® Race Airbag Vest is comprised of two components

1. The Alpinestars Tech-Air® Race airbag Vest ("airbag Vest") and
2. An Alpinestars suit/jacket ("Alpinestars' Compatible Suit/Jacket") compatible with and to be used with the airbag vest. The airbag vest and the Alpinestars' Compatible Suit/Jacket are sold separately.

WARNING! The airbag system, including its components (the airbag vest and the Alpinestars' Compatible Suit/Jacket), are technically advanced pieces of motorcycling safety equipment and should not be treated like a normal motorcycle garment. Similar to one's motorcycle, the system and its components must be cared for, serviced and maintained, so that they may function correctly.

WARNING! The airbag vest MUST be used with an Alpinestars' Compatible Suit/Jacket.

WARNING! Use of an Alpinestars' Compatible Suit/Jacket without the airbag vest will provide the user with NO airbag protection.

WARNING! It is essential to read this manual carefully, understand it completely and to follow the advice and warnings. If you have any questions regarding the equipment contact Tech Air™ Support (Section 21).

2. Principles of Operation

The Tech-Air® Race airbag Vest contains an airbag control unit (with built-in sensor) integrated into the back protector, and two external sensors positioned on the shoulders (Figure 1). These three sensors monitor the user's body for shocks or unexpected movements. In the event the user's body is subject to a high and/or sudden amount of energy, the airbag will inflate. This may occur when the rider loses control, falls from or (in the case of a high side) is launched from the motorcycle.

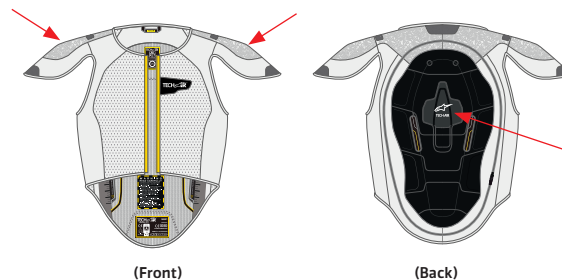


Figure 1 – Sensor Locations

3. Activation and non activation conditions

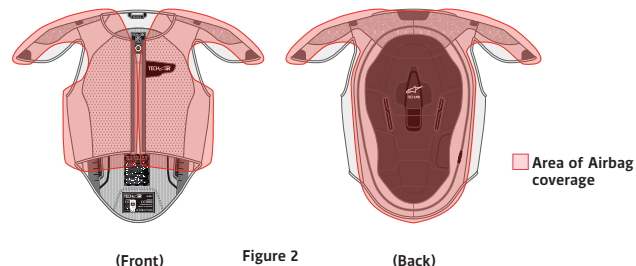
The Tech-Air® Race airbag system offers protection to riders in the event of an accident; notwithstanding, like any other product, there are limitations to the protection that it can provide. NO PRODUCT CAN PROVIDE COMPLETE PROTECTION FROM INJURY, DEATH, OR DAMAGE TO PERSONS OR PROPERTY IN THE EVENT OF A FALL, ACCIDENT, COLLISION, IMPACT, LOSS OR CONTROL OR OTHER EVENT.

In general, there are three basic factors that determine whether an airbag system will provide protection to a user:

- (a) Whether the forces experienced by the user during a crash occur within an area covered by the airbag; and
- (b) Whether the airbag deploys during the event, and if so, whether it is fully inflated before the user hits the ground or collides with an obstacle.
- (c) Whether the airbag deploys before the user collides with parts or accessories of their own motorcycle. For example, the windscreen.

The deployment time consists of the time for the sensors to detect the event together with the time it takes to fill the airbag fully with gas, which is about 45 milliseconds ("ms"). The time available to deploy the airbag is dependent on the accident.

The Tech-Air® Race airbag system provides impact protection for those areas of airbag coverage shown in Figure 2.



(Front)

Figure 2

(Back)

WARNING! The Tech-Air[®] Race airbag system provides only limited protection against forces experienced at the areas of airbag coverage depicted in Figure 2. No guarantee is given that the Tech-Air[®] Race airbag system will prevent injuries (including severe or fatal injuries) inside and/or outside the covered/protected areas.

WARNING! The protective performance of the airbag is only warranted in the FIRST crash of a new system or after an airbag recharge. Even if there is no damage visible on the Vest.

WARNING! The Tech-Air[®] Race airbag system cannot prevent accidents.

WARNING! No protective device, including the Tech-Air[®] Race airbag system, can provide protection against all possible sources of injury and therefore cannot provide complete protection against injures.

WARNING! Wearing the Tech-Air[®] Race airbag system is not a substitute for wearing other protective motorcycling clothing and gear. To provide full potential protection, the Tech-Air[®] Race airbag system must always be worn in conjunction with suitable motorcycling apparel, including a helmet, boots, gloves, and other appropriate protective equipment.

The Tech-Air[®] Race airbag system will activate (provided the system is armed, see section 12) within the following parameters:

- A Highside crash*
- A Lowside crash** with at least one the following characteristics:
 - Crash start speed over 80km/h
 - Where there is a collision or sudden deceleration during the slide (such as hitting the curb or another bike)
 - Where there is high energy in the body limbs (tumbling or not).
 - A crash against an obstacle over 30km/h (such as hitting another bike or a tire barrier)
 - Falling off the bike without sliding (such as in a gravel trap)

The Tech-Air[®]Race airbag system will NOT activate under the following parameters:

- The system is switched off, or not armed.
- In a Lowside crash with at least one of the following characteristics
 - The speed of the crash is under 30km/h
 - The rider slides without touching the ground with their back or shoulder
- Crashes against obstacles under 30km/h

* A Highside crash is where the rear tyre momentarily loses grip, compressing the rear suspension which can catapult the rider into the air.

** A Lowside crash is where the front tyre loses grip during cornering, causing the motorcycle to fall onto side.

WARNING! The user does not need to be involved in a crash for the system to deploy. For example, the system may deploy if the user falls while wearing the system, such as when dismounting from the motorcycle if the system is still armed. These types of "non-riding" deployments are not failures of the system because the user's body was at risk of injury.

Motorcycle Type

The Tech-Air[®] Race airbag system can be utilized on any type of motorcycle, including electric motorcycles.

4. Limitations of Use

WARNING! The Tech-Air[®] Race airbag system is to be used ONLY for motorcycling in a closed circuit race track within the conditions and limitations delineated above.

WARNING! Remember that when using your Tech-Air[®] Race airbag system on a race track, the firmware must be the Race firmware. If you have downloaded the Street firmware onto your Tech-Air[®] Race airbag system, you MUST CHANGE the firmware back to Race mode before using your Tech-Air[®] Race airbag system on a race track.

The system is NOT for use in:

- **Enduro, Motocross, or Supermoto events;**
- **Motorcycle stunts; or**
- **ANY non-motorcycling activities.**

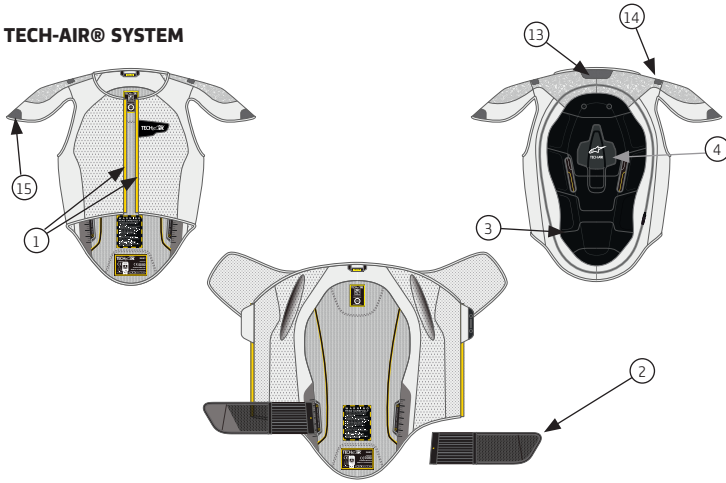
WARNING! Due to shocks, movement and/or other input detected and/or received by the system while in use, although unlikely the system may deploy even though there is no crash-event.

WARNING! Wearing the Tech-Air[®] Race airbag system is not a substitute for wearing other protective motorcycling clothing and gear. To offer full potential protection the system must always be worn in conjunction with suitable motorcycling apparel that covers the rider from head to toe, including a helmet, boots, gloves, and other appropriate protective equipment.

5. System Overview

The diagrams below illustrate the different parts of the Tech-Air® Race airbag system (airbag Vest and an Alpinestars' Compatible Suit/Jacket - Figure 3). The numbered parts are used to guide you through this user's guide.

TECH-AIR® SYSTEM



COMPATIBLE SUIT

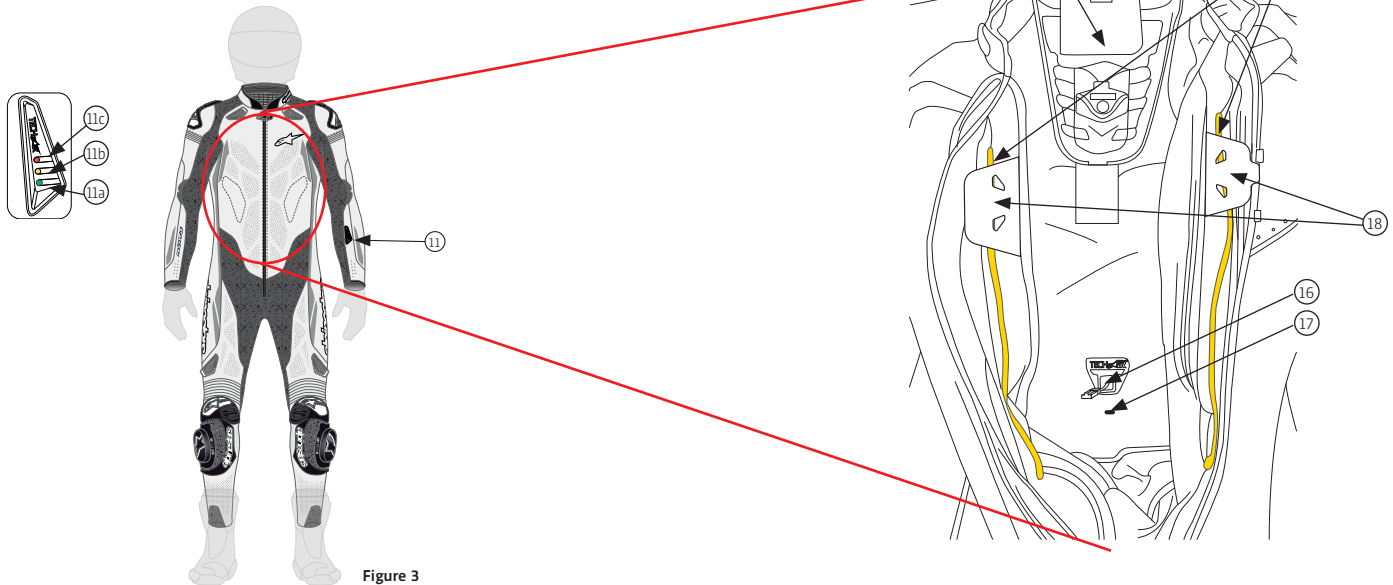


Figure 3

ELECTRONIC UNIT (4)

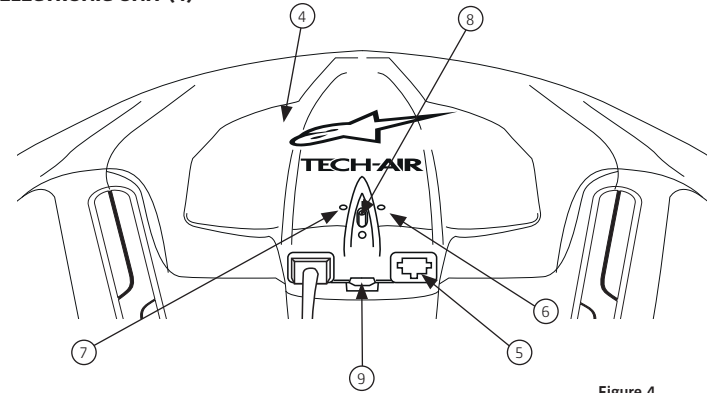


Figure 4

1. Vest attachment zips (Vest)

4. Control Unit
5. LED Display socket
6. On board power LED RACE

7. On board power LED STREET
8. Master Switch
9. Micro USB Port

10. Vest attachment zips (Suit)
11. LED Display
11a. Green Indicator

11b. Orange Indicator
11c. Red indicator
12. Collar Attachment hook and loop Flap

13. Collar Attachment hook and loop fastener
14. Upper Shoulder hook and loop fastener

15. Lower Shoulder hook and loop fastener
16. LED Display cable
17. LED Display plug storage pocket

18. Activation Flap

6. Sizing

The Tech-Air® Race airbag Vest is available in sizes from S to 2XL. The airbag inside is available in five sizes that correspond to the waist to shoulder length of the user (Figure 5). Table 1 below lists the sizes of vest and the airbag size which they contain. This chart contains suggested sizing.

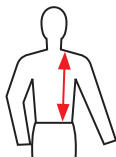


Figure 5

Table 1

Vest Size	Euro Size	US Size	User's Waist to Shoulder Range	Suggested Height Range	MTF
S	44,46	34,36	37 – 40cm (14.6" – 15.7")	1.41 – 1.52m (4'7" – 5'0")	<4.5 KN
M	48,50	38,40	40 – 43cm (15.7" – 17.0")	1.52 – 1.63m (5'0" – 5'4")	<4.5 KN
L	52,54	42,44	43 – 46cm (17.0" – 18.1")	1.63 – 1.75m (5'4" – 5'9")	<4.5 KN
XL	56,58	46,48	46 – 49cm (18.1" – 19.3")	1.75 – 1.86m (5'9" – 6'1")	<4.5 KN
2XL	60,62	50,52	49 – 51cm (19.3" – 20.1")	1.86 – 1.94m (6'1" – 6'4")	<4.5 KN

IMPORTANT! The airbag Vest must be installed inside an Alpinestars' Compatible Suit/Jacket first.

MTF = Mean Transmitted Force attained during testing.

7. Health and Age Restrictions

IMPORTANT! In Europe the pyrotechnic directive (2007/23) prohibits the sale of pyrotechnic articles to anyone under the age of 18.

WARNING! The Tech-Air® Race airbag system must not be handled by children at any time.

WARNING! In event of a crash, the inflation of the airbag will cause sudden pressure across the back and torso. This can cause discomfort and for users in poor health this may cause complications.

WARNING! The Tech-Air® Race airbag system must not be used by persons with a history of heart problems, or other diseases, conditions, afflictions or illnesses which may weaken the heart.

WARNING! The Tech-Air® Race airbag system must not be used by persons fitted with a pacemaker or other implanted electronic medical devices. Note also that magnets are contained inside the activation flap (18).

WARNING! The Tech-Air® Race airbag system must not be used by persons with neck or back problems.

WARNING! The Tech-Air® Race airbag system must not be used by women during pregnancy.

WARNING! The Tech-Air® Race airbag system must not be used by women with artificial breast implants.

WARNING! Any body piercings which coincide with the airbag coverage area should be removed before electing to use the Tech-Air® Race airbag system, as inflation of the airbag into and against the body piercings may cause discomfort and/or injury.

Allergy Advice

Persons with certain skin allergies to synthetic, rubber or plastic materials, should carefully monitor their skin each time the Tech-Air® Street airbag system is worn. If any irritation of the skin occurs, immediately stop wearing the system and seek medical advice and/or attention.

8. Vest Installation

WARNING! The Tech-Air® Race airbag Vest must ALWAYS be used with an Alpinestars' Compatible Suit/Jacket of corresponding and appropriate size. Use of the airbag vest with the incorrect size of Alpinestars' Compatible Suit/Jacket, or a non-compatible Alpinestars' Compatible Suit/Jacket, may result in injury, including severe injury and/or death.

To install an airbag vest into a Alpinestars' Compatible Suit/Jacket:

1. Remove the all the patches which are attached to the hook and loop fastener panels on the Vest (13,14,15)
2. Detach the suit lining at the hook and loop fastener on the collar.

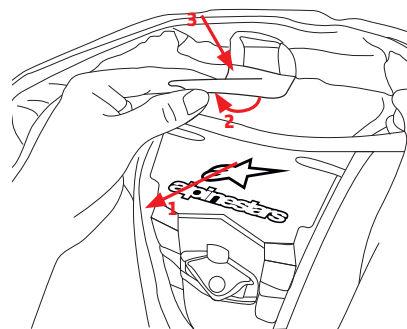


Figure 6

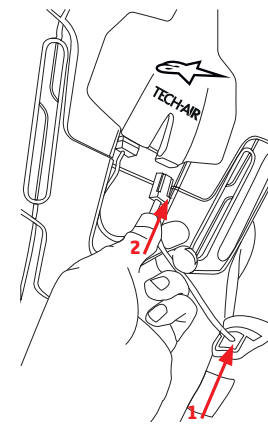


Figure 7

3. Fold out the second hook and loop flap (12) and attach the collar hook and loop fastener on the Vest (13) to this new flap, centering it correctly (Figure 6).
4. Proceed to attach the lower shoulder hook and loop fastener (15) and upper shoulder hook and loop fastener (14) to the corresponding patches inside the suit lining on both the left and right shoulders.
5. Remove the LED display plug from the storage pocket (17) and plug it into the grey socket (5) (Figure 7).
6. Turn on the Master switch(8). Note that the master switch should remain always on, except during shipping or storage.
7. Place the rest of the Vest inside the leather suit .
8. Use the yellow zips on the suit (10) and the vest (1) to zip the Vest into the suit.
9. The suit is now ready for use.

Tip: If quickly trying only the fit of the garment, steps 5 and 6 can be skipped.

List of Compatible Garments


315 5016	GP PRO 1PC LEATHER SUIT TECH AIR COMPATIBLE
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9. Fitting

Once the airbag Vest has been installed inside the Alpinestars' Compatible Suit/Jacket it may be worn and fastened like any other garment. For those users who prefer the airbag Vest to fit snugly, the internal belt (2) can be used, however this is a matter of personal preference and the airbag Vest may be worn with the belt unfastened or removed.

When fitting the Tech-Air® Race airbag system, users should check in particular that:

- The suit is not too tight across the chest
- The legs and arms are of acceptable length to work with the gloves and boots that will be worn.

 *Tip: It is recommended to try the Compatible Suit/Jacket seated on a sports motorcycle, to ensure that the suit is still comfortable when the arms and legs are bent. Note that leather stretches slightly over time and thus it is better to select the suit with a slightly tighter fit, rather than a slightly looser fit.*

WARNING! It is imperative that the Tech-Air® Race airbag system is fitted correctly in order to provide the maximum potential protection in an accident. Compatible Suit/Jacket which are too small will cause severe discomfort when the system is inflated, Compatible Suit/Jacket which are too large may not hold the airbag vest in place during a fall or accident. In case of doubts or questions regarding fit, seek advice from an Alpinestars dealer.


10. Transportation of Objects Inside the Compatible Airbag Garment

Where pockets are present on an Alpinestars' Compatible Suit/Jacket consideration needs to be given to the objects which may be placed inside the Compatible Suit/Jacket pockets. For example:

- Sharp or pointed objects placed in pockets may pierce the airbag and compromise inflation.
- Bulky objects will reduce the amount that the airbag can expand, reducing or potentially reducing the efficacy of the airbag and/or making the system feel much tighter when inflated, possibly increasing discomfort or causing distraction or injury.

IMPORTANT! Where a breast pocket exists on an Alpinestars' Compatible Suit/Jacket extra attention should be paid to the contents stored in such breast pocket. ONLY flat objects such as a wallet should be stored there.

WARNING! Under NO circumstances should a user attempt to transport objects of ANY size or shape, including sharp or pointed objects, stuffed inside the Alpinestars' Compatible Suit/Jacket, as they may cause injury to the user and/or damage to the airbag. Where pockets are provided, only blunt objects should be transported in the Alpinestars' Compatible Suit/Jacket provided that they fit completely inside the pockets.

 *Tip: Users should note that Tech-Air® airbag system has been tested to be safe when used in combination with backpacks loaded up to a maximum of 6kg (approximately 13 pounds) in weight.*


11. Battery Charging

Charge the unit fully before first use. To do this, connect the supplied charger to the Micro USB port (9) on the unit. The LED display (11) will display an animation. When the battery is fully charged all three LEDs will remain illuminated.

IMPORTANT! The battery will only recharge when the ambient temperature is between 0-45°C (32°F-113°F).

IMPORTANT! It is not possible to charge the Tech-Air® Race airbag Vest when in use.

WARNING! Do not leave the unit unattended while charging the battery. Charge only in a dry location with a temperature range of 0 to 45°C (32°F-113°F)

 *Tip: When the Tech-Air® Race airbag system is installed in a leather suit, the MicroUSB port can be accessed easier by unzipping one of the vest attachment zips (1) and partially lifting the vest outward. (See figure 8).*


Charging and Use Times

Approximately six hours are required to recharge a discharged battery with the supplied charger. A fully charged battery will provide approximately 25 hours of use. If time is limited, charging the battery for approximately one hour will provide approximately three to four hours of use.

Battery Life

If the system is not in regular use it is required to recharge the battery at least once every 12 months to prevent the battery dropping below a minimum charge after which the battery life would be notably reduced.

WARNING! The unit should be recharged as soon as possible when the red Battery Level LED light (11c) flashes, as this indicates low battery level.

 *Tip: The unit may be charged by connecting it to a computer, or to an alternative Micro USB charger, however if the current output is under 2 Amps then charging times will be longer than stated above.*

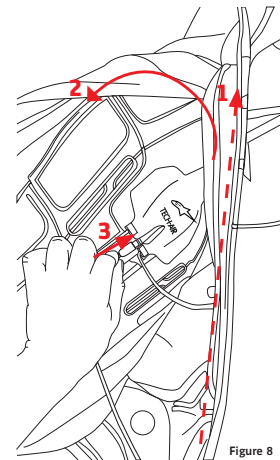




Figure 8

12. Race Mode Operation

Turning On

1. Check that the Master switch (8) has been switched to the 'I' position (See section 8).
2. Put on the Compatible Suit/Jacket, but do not zip it closed.
3. Close the activation flap(18). This is best done by covering the hook and loop tab with your thumb and letting the magnets snap together first, then engage the hook and loop fastener.
4. At this point the system will turn on – check that the LED Display (11) illuminates.
5. Close the outer zip of the Compatible Suit/Jacket.
6. Continue to follow the LED Display indications (Section 13 below) to check that the system starts correctly.

 *Tip: If the system does not power on (No LED Indications illuminate) check that there is nothing in between the two activation flaps and that the two flaps are correctly overlaid.*

 *Tip: The Activation Flap (18) functions using magnets. Magnetically sensitive items (such as credit cards) should be kept at least 1 cm away from the sensor area.*

WARNING! In order to activate the Tech-Air® Race airbag system, the Master Switch (8) must be turned on ("I" position) AND the activation flap (18) of the Alpinestars' Compatible Suit/Jacket must be closed.

System Arming

Once the system has started up, the LED Display (11) will provide a Green (11a) and Orange (11b) indication. At this point the system is not live and will not inflate in case of an accident. The system will become live automatically once the user starts riding, and this is confirmed when the orange indication (11b) is switched off. Note that the sharp accelerations and braking from racing assist the arming – without them a constant speed of around 100km/h must be maintained in order to maintain the system in the armed state. If the rider stops or the speed drops below 100km/h for an extended time then the system will disarm.

WARNING! If the rider chooses to ride a slow sighting (or celebratory) lap then the system may not be armed. This can be verified by checking for the steady Orange (11b) indication on the LED Display.

WARNING! The Tech-Air® Race airbag system will not provide protection if the rider is stopped.

WARNING! ALWAYS Ensure that you have the Orange (11b) and Green (11a) indication on the LED Display (11) before starting to ride. It is also recommended to check the display status occasionally during riding to confirm that the system is live (Steady Green indication- 11a) and that there are no errors (Red indication – 11c)

Turning Off

Unzip the Alpinestars' Compatible Suit/Jacket and separate the two activation flaps (18). The orange LED (11b) will flash and the system will shut down after 5 seconds. Confirm that the system is off and/or not receiving power by checking to see that there are no indicator lights illuminated in the LED Display (11).

If you want to continue wearing the Alpinestars' Compatible Suit/Jacket after shutting the system down, then zip the garment closed again keeping the two halves of the activation flap (18) apart.

To make power unavailable to the system, move the Master Switch (8) to the off position.

Turn the Master Switch (8) off if the Tech-Air® Race airbag vest is to be stored, transported or shipped.

Tip: It is easier to access the master switch (8) by first unzipping one of the Vest attachment zips (1) and partially lifting the Vest out of the suit (See Figure 8). Naturally after switching the master switch back on, the vest attachment zip requires to be reattached.

WARNING! ALWAYS turn the system off [by separating the activation flap] when you are not riding a motorcycle if you continue to wear the system. Keeping the system powered up and/or active increases the possibility of an unwanted deployment and drains the battery.

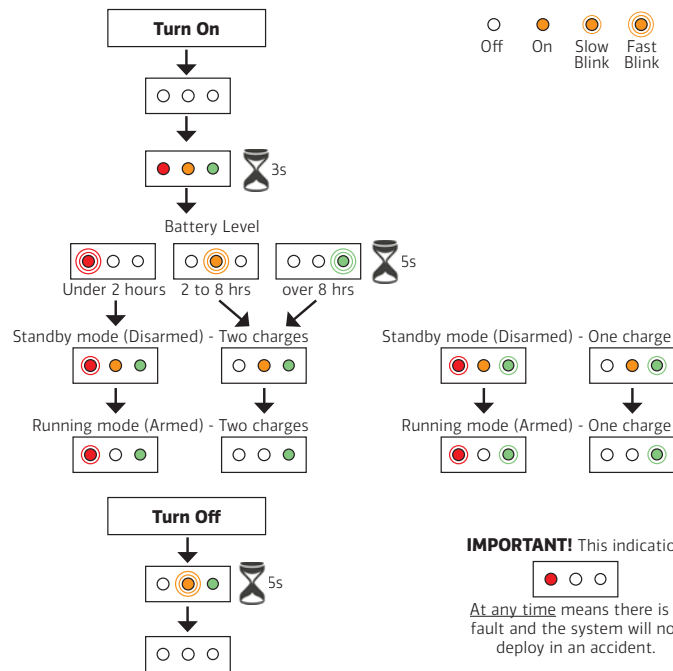
Note also that the system will power back up if the activation flap is closed again.

WARNING! When not in use and being stored, transported or shipped, the system must be shut down at the Master Switch. This makes power unavailable to the system, prevents battery drain and possible reduced battery life, as well as inadvertent supplying of power to and powering-up of the system.

13. Display Indications

The LED Display (11) has three coloured LEDs which are used to monitor indicate the status of the system.

Indications During Use



IMPORTANT! The single Green LED  indicates that the system is functioning and will deploy in a crash.

WARNING! A single RED LED  or Orange + Green LEDs indicate that the system will NOT Deploy in a crash.

Tip: With a single red indication, the red LED will blink a number of times to indicate the code of the system error for the problem that the system is experiencing. These codes and the corresponding errors are listed in Section 20, and the errors can also be viewed using the Tech-Air® Connect software (Section 17, available from the DATA PORTAL).

14. Cleaning, Storage and Transportation Airbag Vest Cleaning

Use only a cloth dampened with water to clean the airbag vest (fabric and plastic parts). Solvents or chemical cleaners must not be used, as they may compromise the integrity of the airbag.

WARNING! Under NO circumstances should the airbag Vest be washed in a washing machine, submerged in water, tumble dried or ironed. This may cause permanent damage to the airbag system and cause malfunction.

 **Tip:** Whenever the system is returned for airbag replacement or routine servicing, the airbag vest will be disassembled and washed.

Outer Alpinestars' Compatible Suit/Jacket Cleaning

Once separated from the airbag Vest, the outer Alpinestars' Compatible Suit/Jacket may be cleaned according to the instructions on the garment.

Storage

The Tech-Air® Race airbag system (i.e.: airbag Vest + and outer Alpinestars' Compatible Suit/Jacket) is best stored hung from a rail. It may also be stored flat, provided no heavy or sharp objects are placed on top of it. The Tech-Air® Race airbag system should be stored in a cool, dry place, out of direct sunlight and the Master Switch (8) should be turned off.

If storing the airbag Vest only, it is best stored in its original packaging. Likewise, it may be stored flat in a drawer provided that no heavy or sharp objects are placed on top of it. Also, it should be stored in a cool, dry place, out of direct sunlight, and the Master Switch (8) should also be turned off.

WARNING! Do NOT leave the airbag Vest in direct sunlight inside a closed car or otherwise exposed to high temperatures. High temperatures will damage the battery and possibly the other electronics of the unit.

WARNING! Do not use the activation flap on the Alpinestars' Compatible Suit/Jacket as a means to stop the garment falling off a clothes hanger. This will cause the system to activate. To prevent this, it is essential that the Master Switch (8) be turned off or that only the main zip of the suit is closed, without closing the activation flaps (18) Failure to do so will cause the unit to remain powered, which will cause the battery to drain. Confirm the system is off by checking that there are no indicator lights illuminated on the LED Display (11).

Transportation

Users should be aware that the airbag inflators are pyrotechnic devices, however the Tech-Air™ system has been classified as 'Not Dangerous' with reference to the UN shipping regulations. This means that the system can be safely transported – including by air provided that the airbag vest is checked into the aircraft's hold as checked luggage.

When transporting the vest by air, users are strongly recommended to download and print a copy of the Material Safety Data Sheet (MSDS) in the event they may be questioned by airport staff. This can be downloaded from the Tech-Air® Data Portal (Section 17) or obtained from your Alpinestars dealer.

Note: Not all countries worldwide permit the import of pyrotechnic devices. Prior to travelling, users should check with the appropriate authorities of countries through which and to which they are travelling to determine if the system will be permitted entry or not.

15. Maintenance, Servicing and Disposal

Garments with electronically activated airbags are critical safety systems which must be maintained in good working order to ensure their correct function. If not, they may not function properly or at all.

Maintenance

Prior to each use, the user should conduct a check of the Tech-Air® Race airbag system (Alpinestars' Compatible Suit/Jacket and the airbag vest), looking for any signs of wear (loose threads, holes, marks on the airbag surface) or damage. If found, the system should be inspected further by an authorized Alpinestars dealer.

Post Crash Inspection

After a crash the following must be checked:

- Compatible Suit/Jacket: That there are no holes anywhere in the leather suit (checking carefully the joining seams between leather and stretch areas) and that all three bulbs of the LED Display are undamaged.

- Tech-Air® Race airbag system: that there are no holes in the Vest, no frayed seams, no cracks to the back protector plastics or electronics casing, and no exposed areas of the airbag.


WARNING! If any of the above damage is found then the Compatible Suit/Jacket and/or the Tech-Air® Race airbag system MUST be returned for service, otherwise it may not provide any protection in a second crash event. If in doubt seek advice from your Alpinestars dealer.

IMPORTANT! For the dual charge feature, even if no damage is observed on either the Tech-Air® Race airbag system or Compatible Suit/Jacket, the performance of the airbag in the second deployment (reuse of the same airbag) cannot be warranted to be the same as the first.

Routine Service

A routine service by Alpinestars must be conducted at least every 2 years, in cases where the airbag vest has never previously been returned for recharge. Where the airbag vest has been recharged, then the 2 years start from the recharge date. The routine service permits the wear of the airbag and the unit's components to be inspected in detail. Service can be requested directly from an Alpinestars Tech-Air® dealer. The following work is undertaken as part of the routine service:

- All components are removed from the airbag vest and the airbag vest is washed.
- The diagnostics of the electronic unit are checked (and firmware upgraded, if applicable).
- The airbag is inspected for wear and/or damage.
- The system is reassembled into the airbag vest and function checked as per new production items.

 **Tip:** Two years is the maximum recommended period between inspections, however if the airbag vest is used extensively, then a recommended inspection and service interval of 6 months to 1 year is recommended.

WARNING! If no service or recharge operation has been conducted after two years of the purchase date or last service/recharge date, there is the possibility that the system will not always function in accordance with the activation and non activation conditions listed in section 3.

IMPORTANT! Even if serviced regularly, Alpinestars cannot guarantee that after 10 years the system will always function in accordance with the activation and non activation conditions listed in section 3.

WARNING! There are NO user serviceable parts inside the airbag vest. Under no circumstances should users attempt to open, service, disassemble or modify the airbag vest. Any and all work performed on the airbag vest must be done by Alpinestars or an authorized service provider. Severe injury or damage may result otherwise.


IMPORTANT! The access zipper to the airbag vest is sealed (3). Cutting this seal voids the warranty on the product.

Disposal – Alpinestars' Compatible Suit/Jacket

The outer Alpinestars' Compatible Suit/Jacket should be disposed of in accordance with local waste regulations. Note that under the European WEEE regulation, the LED Display cannot be disposed of in normal household waste. This must be removed from the airbag garment and disposed of at a suitable facility for the recycling of electronic parts.

Disposal – Fired Airbag Vest

A deployed airbag vest contains electronic components. Under the European WEEE regulation these must be removed and disposed of at a suitable recycling facility. The remaining airbag vest chassis and used airbag can be disposed of in accordance with local waste regulations.

 **Tip:** A deployed Vest can be confirmed by turning on the system and checking that the 'airbag fired' fault is indicated on the LED Display, which gives 25 blinks of the red LED (11c).

Disposal – Unfired Airbag Vest

WARNING! An undeployed airbag Vest still contains live pyrotechnic charges and thus must NOT be disposed of in household waste or incinerated.

Undeployed airbag Vests must be returned to an Alpinestars dealer for subsequent return to Alpinestars who will handle the disposal. This service is free of charge.

16. Actions in the Event of an Accident

Accident WITHOUT Deployment

In the case of minor accidents which fall inside the non activation conditions in section 3, it is likely that the airbag will not activate. Nonetheless, a thorough inspection of the Tech-Air® Race airbag system (i.e.: Alpinestars' Compatible Suit/Jacket and the airbag vest) must be made as per the post crash check outlined in Section 15.

Tip: If the outer Alpinestars' Compatible Suit/Jacket has sustained considerable damage, but the airbag Vest is completely undamaged, then it may be more economical and faster to purchase a replacement outer Alpinestars' Compatible Suit/Jacket instead of arranging for repair.

Accident WITHOUT Deployment, BUT Where The User Believes The System Should Have Deployed.

IMPORTANT! In these circumstances the system must be turned off IMMEDIATELY after the accident because the electronic unit only holds 2 minutes of data. After that, the crash data will be overwritten and the possibility to analyze the data will be lost.

The airbag Vest should be returned to an Alpinestars Tech-Air® dealer along with a detailed account of the event (including photos, if possible). Alpinestars will then analyze the information and respond.

Accident WITH Deployment.

Where the airbag has deployed a recharge service is available from Tech-Air® dealers to have the airbag and inflators replaced. During this service, a full inspection will be made of the airbag Vest and of its electronic equipment.

The outer Alpinestars' Compatible Suit/Jacket should also be inspected. For an extra fee, the user may have the Alpinestars' Compatible Suit/Jacket inspected for damage and repaired while the airbag vest is being recharged.

Accident or Other Situation WITH Deployment, BUT Where The User Believes The System Should Not Have.

The airbag Vest should be returned to an Alpinestars Tech-Air® dealer along with a detailed account of the event (including photos, if possible). Alpinestars will then analyze this the information and respond.

17. Tech-Air® Data Portal

The Tech-Air® Data Portal is an on line resource which records information on the manufacture and servicing of each individual airbag system. By using the Data Portal users can access the following information:

- The service history of Tech-Air® system(s) (Race and Street) owned.
- The status of any systems undergoing service.
- Manufacturing information on Tech-Air® system(s) owned.
- Ask to be sent a reminder when the next service is due.
- Download the Tech-Air® Connect software.

- Download the street version of the firmware and firmware upgrade instructions, which are important for Street Mode use.
- Download the Material Safety Data Sheet (See Section 14)
- Locate the nearest Alpinestars dealer who can handle Tech-Air® Systems.
- Be kept up to date on news relevant to your system.

Similar to a motorcycle, each airbag system has a serial number called the Chassis Number. This can be found under the QR code on the inside of the airbag vest near the collar. Scanning the QR code with a mobile phone will automatically connect to the Data Portal and provide manufacturing and service history for that system.

The Data Portal also records details on the ownership of the system (customer name and a contact e-mail address). Normally ownership is registered by the dealer during purchase of the system, however if this did not happen registration can be executed following the instructions below.

IMPORTANT! It is essential that each owner is correctly registered in the Data Portal. Alpinestars will not use owner information for marketing purposes or pass the information to third-parties.

IMPORTANT! Requests made for servicing, recharge, or warranty returns will only be carried out if the system ownership has been registered with Alpinestars.

New User Registration

In order to register ownership there are two steps, first to create a customer record, and then to transfer the ownership.

Click on the "New User registration" button and a dialogue as shown in Figure 9 below will appear: Complete the details requested and click "Register". A customer number will be assigned, which the customer should note for future reference. Note that at this point this customer does not "own" any systems.

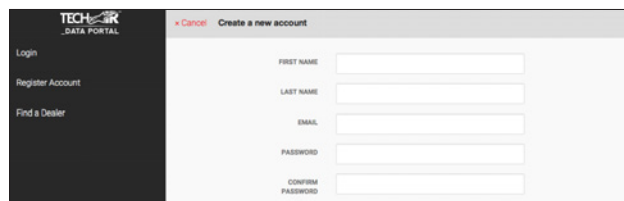


Figure 9 – User Registration Dialogue

Transfer of Ownership

Ownership of a system can only be assigned by a Tech-Air® dealer or by Alpinestars Tech-Air® support. Transfer of Ownership is applicable for first owners (brand new systems) as well as systems that have then been sold privately, second-hand.

- At a dealership:

The user shall present the airbag vest and provide the dealer their customer number. The dealer will then register ownership of the system.

- By Tech-Air® support:

The user shall advise the chassis number and (for brand new systems) provide proof of purchase. Alpinestars will then register ownership of the system.

Tip: System ownership can be transferred by any Tech-Air® dealer, it does not need to be the dealer where the system was purchased. A list of dealers which handle Tech-Air® systems can also be obtained from the Tech-Air® web page.

Customer Login

Once registered, customers can login from the Tech-Air® website. This presents a main screen (Figure 10) where the following information can be seen:

1. Account info - use to verify an update user details.
2. Change Login Password.
3. List of products owned.
4. Download area.
5. News Bulletins

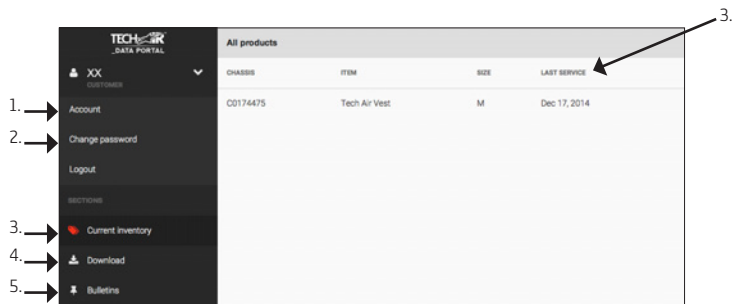


Figure 10

By clicking on one of the products owned, manufacturing information and the service history can be viewed. If the product has been submitted for servicing, the progress of the service can also be viewed here.

IMPORTANT! - Download Area

The download area is the most important resource of the data portal. From here you can download:

- The firmware upgrade instructions (for changing from race mode to street and vice versa)
- The Material Safety Data Sheet for the shipping or air transport of the system.
- The Tech-Air® Connect software.
- The latest firmware versions – for both street and race mode.

Note that the download area is customised depending on the products that you own – if the Street version of the system is additionally owned, further documentation will be available.

18. Street Mode Operation

WARNING! STREET MODE OPERATION DIFFERS FROM RACE MODE! IT IS CRITICAL THAT USERS, READ AND UNDERSTAND FULLY THE FOLLOWING INFORMATION WHICH APPLIES TO STREET MODE.

As supplied new the Tech-Air® Race vest has the racing firmware installed – which is optimized for detecting crashes on the racetrack. It is possible to install the street firmware on the unit to permit the use of the street algorithm for those users who will wear a Compatible Alpinestars Suit/Jacket on the road for street riding, instead of the race track. The alternative firmware version and the instructions on how to change it can be downloaded from the Data Portal.

IMPORTANT! Street mode can only be used if BOTH charges are NOT activated. If the first charge has been activated, then the software will give an error and no protection will be provided.

WARNING! The airbag system, including its components (the airbag Vest and the Alpinestars' Compatible Suit/Jacket), are technically advanced pieces of motorcycling safety equipment and should not be treated like a normal motorcycle garment. Similar to one's motorcycle, the system and its components must be cared for, serviced and maintained, so that they may function correctly.

WARNING! The airbag vest MUST be used with an Alpinestars' Compatible Suit/Jacket.

WARNING! Use of an Alpinestars' Compatible Suit/Jacket without the airbag vest will provide the user with NO airbag protection.

WARNING! It is essential to read this manual carefully, understand it completely and to follow the advice and warnings. If you have any questions regarding the equipment contact Tech Air Support.

18-1 Tech-Air® 'Envelope of Protection'

The Tech-Air® Race airbag system when used in street mode offers protection to both riders and passengers in the event of an accident or other triggering event; however, like any other product there are limitations to the protections that it can provide.

WARNING! NO PRODUCT CAN PROVIDE COMPLETE PROTECTION FROM INJURY/OR DEATH, OR DAMAGE TO PERSONS OR PROPERTY IN THE EVENT OF A FALL, ACCIDENT, COLLISION, IMPACT, LOSS OR CONTROL OR OTHER EVENT.

The "Envelope of Protection" is used to generally describe situations and/or circumstances where the Tech-Air® Race airbag system may provide protection ("inside the envelope"), and those where it will not ("outside the envelope").

In general, there are three basic factors that determine whether an airbag system will provide protection to a user:

- (a) Whether the forces experienced by the user during an event (such as an accident) occur within an area covered by the airbag; and
- (b) Whether the airbag deploys before the user collides with a vehicle, an obstacle or the ground.
- (c) Whether the airbag deploys before the user collides with parts or accessories of their own motorcycle. For example, mirrors, windscreens or tank bags.

The deployment time consists of the time for the sensors to detect the event plus the time it takes to fill the airbag fully with gas, which is about 45 milliseconds ("ms"). The time available to deploy the airbag is dependent upon factors such as the type of the accident, the type of motorcycle (e.g.: scooter, custom, sports) and the speed of involved vehicles.

The Tech-Air® airbag system provides impact protection for those areas of airbag coverage shown in Figure 2.

WARNING! The Tech-Air® airbag system provides only limited protection against forces experienced at the areas of airbag coverage depicted in Figure 2. No guarantee is given that the Tech-Air® Street airbag system will prevent injuries (including severe or fatal injuries) inside and/or outside the covered/protected areas.

WARNING! The Tech-Air® airbag system cannot prevent accidents.

WARNING! No protective device, including the Tech-Air® Street airbag system, can provide protection against all possible sources of injury and therefore cannot provide complete protection against injuries.

WARNING! Wearing the Tech-Air® airbag system is not a substitute for wearing other protective motorcycling clothing and gear. To provide full potential protection, the Tech-Air® airbag system must always be worn in conjunction with suitable motorcycling gear and apparel that covers the rider from head to toe, including a helmet, protectors, boots, gloves, and other appropriate protective equipment.

Envelope of Protection

Crashes Where a Vehicle Strikes a Stationary Motorcycle:

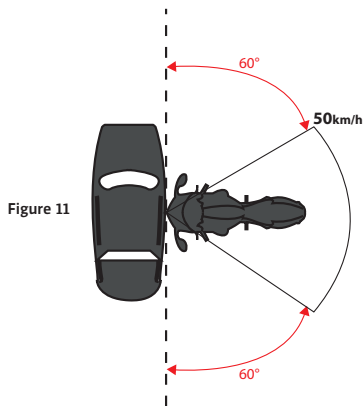
Arrival Speed	From 25km/h (15mph)
Impact Angle	ANY

- Valid for both rider and passenger

Crashes Where a Motorcycle Strikes a Vehicle or Obstacle (Figure 11):

Arrival Speed	From 25km/h (15mph) to 50km/h (31mph)
Impact Angle (Fig 11)	From 60° to 120°

- The above parameters are valid for both the rider and passenger.



IMPORTANT! If the speed of the vehicle is less than 25km/h, the system may not deploy at the time of the collision, but may deploy if the rider or passenger suddenly falls from the motorcycle after the impact.

IMPORTANT! Figure 11 outlines the envelope where the Tech-Air® Street airbag system is expected to inflate before the user's body contacts an obstacle. At speeds above 25km/h the system will deploy regardless of the impact angle, but outside the envelope the airbag may not be fully inflated before there is contact between the obstacle and the user.

Loss of Control Crashes

A Loss of Control Crash often results in the motorcycle falling over during riding. This commonly happens when tire grip on the roadway is lost during a turn or heavy braking. These are often similar to crashes in racing (known as "low-side" crashes).

WARNING! The user does not need to be involved in a crash for the system to deploy. For example, the system may deploy if the user falls while wearing the system, such as when dismounting from the motorcycle. These types of "non-riding" deployments are not failures of the system.

Motorcycle Type

The Tech-Air® airbag system can be utilized, by riders or passengers, on any type of motorcycle, including electric motorcycles.

Off-Road Riding

The Tech-Air™ airbag system in Street Mode may be used off road IN A LIMITED CAPACITY riding on gravel roads only.

For the purpose of using the Tech-Air™ airbag system off road, the definition of a gravel road is:

- An unpaved road surfaced with gravel.
- Has a minimum width of 4m (13ft).
- Has no gradients +/-30%.
- Has no ruts, steps or holes greater than 50cm (19.5") in depth.

IMPORTANT! The chances of falling are notably higher when riding off-road, particularly when a rider is inexperienced. Even when stopped, a fall may cause the Tech-Air® airbag system to deploy, leaving the user without protection until the system is returned for recharging (See Section 16).

18-2 Limitations of Use

WARNING! The Tech-Air® Race airbag system in Street Mode is to be used ONLY for motorcycling within the conditions and limitations delineated above. The system is NOT for use in:

- Any racing or competitive events;
- Enduro, Motocross, or Supermoto events;
- Motorcycle stunts; or
- ANY non-motorcycling activities.

WARNING! Due to shocks, movement and/or other input detected and/or received by the system while in use, although unlikely the system may deploy even though there is no crash-event.

WARNING! Depending on the motorcycle type, for example a scooter or trials bike, it cannot be guaranteed that the system will inflate before the user collides with parts or accessories of the motorcycle.

WARNING! Wearing the Tech-Air® Race airbag system in Street Mode is not a substitute for wearing other protective motorcycling clothing and gear. To offer full potential protection the system must always be worn in conjunction with suitable motorcycling apparel that covers the rider from head to toe, including a helmet, boots, gloves, and other appropriate protective equipment.

18-3 Health and Age Restrictions

IMPORTANT! In Europe the pyrotechnic directive (2007/23) prohibits the sale of pyrotechnic articles to anyone under the age of 18.

WARNING! The Tech-Air® Race airbag system in Street Mode must not be handled by children at any time.

WARNING! In event of a crash, the inflation of the airbag will cause sudden pressure across the back and torso. This can cause discomfort and for users in poor health this may cause complications.

WARNING! The Tech-Air® Race airbag system in Street Mode must not be used by persons with a history of heart problems, or other diseases, conditions, afflictions or illnesses which may weaken the heart.

WARNING! The Tech-Air® Race airbag system in Street Mode must not be used by persons fitted with a pacemaker or other implanted electronic medical devices. Note also that magnets are contained inside the activation flap (18).

WARNING! The Tech-Air® Race airbag system in Street Mode must not be used by persons with neck or back problems.

WARNING! The Tech-Air® Race airbag system in Street Mode must not be used by women during pregnancy.

WARNING! The Tech-Air® Race airbag system in Street Mode must not be used by women with artificial breast implants.

WARNING! Any body piercings which coincide with the airbag coverage area should be removed before electing to use the Tech-Air® Race airbag system in Street Mode, as inflation of the airbag into and against the body piercings may cause discomfort and/or injury.

Allergy Advice

Persons with certain skin allergies to synthetic, rubber or plastic materials, should monitor carefully their skin each time the Tech-Air® Race airbag system in Street Mode is worn. If any irritation of the skin occurs, immediately stop wearing the system and seek medical advice and/or attention.

18-4 Transportation of Objects inside the compatible airbag garment

See section 10.

18-5 Battery Charging

See section 11.

18-6 Operation

Turning On

The operation to turn on the garment is the same as outlined in section 12.

Stability Check (Only in Street Mode)

During the first 20-60 seconds after the system is activated, the system remains disarmed while it performs a stability check with a flashing green indication (11a). During this period the system is looking for the body to conduct one or all of the following activities:

- Walking (including up and down stairs)
- Mounting the motorcycle
- Riding the motorcycle

If the check is passed a solid green indication will be given (11a).

Note that the following activities are unlikely to pass the stability check:

- Closing the activation flaps without wearing the suit
 - Standing still
 - Running or other dynamic actions (such as sharp changes of direction or speed when walking)
 - Sitting down – INCLUDING on the motorcycle with the engine at idle
- If after 60 seconds the system cannot see stable use it will give an error indication by illuminating a single red indicator light (11c) in the LED Display (11). In this case the garment must be unzipped and closed again to restart the stability check.

WARNING! you MUST ALWAYS check the LED Display (11) after the Stability Check to confirm you have the solid green LED before starting to ride/using the Tech-Air® airbag system. The system will not deploy if needed while the 20-60 second Stability Check is proceeding and will not deploy if needed unless the Stability Check registers no errors in the system, as indicated by a solid green indicator light (11a).

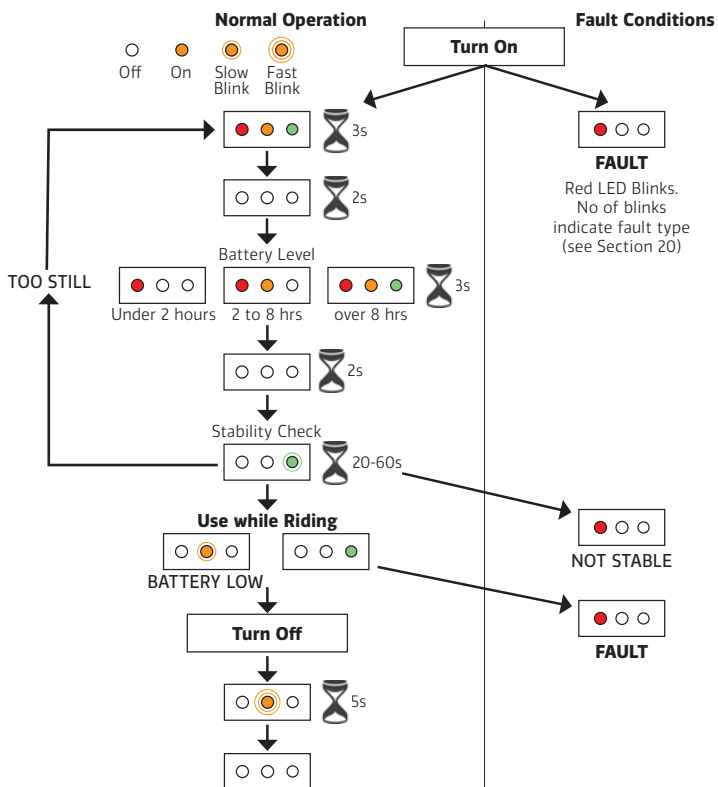
Turning Off

This is the same as in section 12.

WARNING! ALWAYS turn the system off [by separating the activation flap] when you are not riding a motorcycle, even if you continue to wear the system. Keeping the system powered up and/or active increases the possibility of an unwanted deployment and drains the battery.

Note also that the system will power back up if the activation flap is closed again.

Display indicates - street mode



IMPORTANT! The solid Green LED indicates that the system is functioning and will deploy in a crash.

WARNING! A single RED LED or a flashing green LED indicates that the system will NOT deploy in a crash.

Tip: With a single red indication, the red LED will blink a number of times to indicate the code of the system error for the problem that the system is experiencing. A list of these codes and corresponding errors are listed in Section 20.

18-7 Cleaning, Storage and Transportation

See section 14.

18-8 Maintenance, Servicing and Disposal

See section 15.

18-9 Actions in the Event of an Accident

See section 16.

19. Troubleshooting

Problem	Possible Cause	Possible Solutions
Vest does not startup when the activation flaps (18) are closed.	Master Switch not on	Turn on Master Switch (8)
	Battery fully discharged	Recharge battery (Section 11)
	Suit and vest not connected	Connect LED Display wires to unit (section 8)
	Activation flaps open	Close the activation flaps, checking that as they are closed the magnets attract one another.
Single Red Indication on LED Display	Activation Flaps obstructed or not aligned	Check that there is nothing in between the activation flaps and that the hook and loop closure is only used AFTER the magnets have attracted both parts together.
	Dependent on error	Consult list of error codes in Section 20 for recommended solution

20. Index of Error Codes

Where 'Red LED' is crossed marked with an "X", the error number will correspond directly to the number of blinks of the Red LED.

Code Number	Red LED	Error Description	Possible Solution
001	x	Firmware Error	Reflash Firmware / Return for Service
002	x	Power Supply Error	Recharge Battery / Return for Service
003	x	Battery Voltage Too Low	Recharge Battery
004	x	Reset Squib Error	Restart Unit, if error persists, Return for Service
005	x	Squib Configuration Error	Recharge Battery, Restart Unit, if error persists, Return Service
006	x	Squib Diagnosis Fail	Restart Unit, if error persists, Return for Service
007	x	Inflator 1 error	Restart Unit, if error persists, Return for Service
008	x	Left Sensor Error	Return for Service
009	x	Right Sensor Error	Return for Service
010	x	Central Sensor Error	Return for Service
011	x	Gyro Sensor Error	Return for Service
012	x	Squib Arming Error	Restart Unit, Recharge Battery, if error persists, Return Service
013	x	Synchronization Error	Reflash Firmware / Return for Service
015	x	Load Algorithm Error	Reflash Firmware
018	x	Inflator 2 Error	Restart Unit, if error persists, Return for Service
019	x	Left Sensor Power Supply	Return for Service
020	x	Right Sensor Power Supply	Return for Service
024	x	Algorithm Not Stable	Switch system off and on, sitting on motorcycle
025	x	Unit Locked	Indicates that both charges have been fired and that the airbag must be replaced.
128		First Charge Activated	No action.
136		Second Charge Activated	Return for service / Dispose of System.

21. Tech-Air® Support

In case of questions or if customers need further information, they may first contact the Tech-Air® dealer where the product was purchased.

Tip: Remember that a full list of Tech-Air® dealers in your country is available from the Tech-Air® Data Portal.

22. Certification Information

The Tech-Air® Race Vest is covered by a number of certifications.

Personal Protective Equipment

The Tech-Air® Race Vest is considered Category 2 Personal Protective Equipment under EU Directive 89/686/EEC. As such a CE Type examination has been conducted. As the motorcyclists' inflatable protectors standard (EN1621-4:2013) is for mechanically triggered systems, this has been used with reference to impact performance and ergonomics only. The examination was conducted by Notified Body #0120 SGS United Kingdom Limited, Park Way, Weston Super Mare, BS22 6WA, UK. The explanation of the product markings are as follows:



Name of the manufacturer

RAV1

Unique identification code



Garment Size (waist to shoulder)
Sizing table in Section 6



Indicates that an inflatable protector is installed



Indicates that the product is for motorcycle use, meets level 1 airbag requirements and provides protection to the full back of the user

Pyrotechnic Articles

The Tech-Air® Race Vest contains two pyrotechnically activated cold gas inflators, and as such, the whole item is considered as an "AIRBAG MODULE" category P1 under EU Directive 2007/23. As such a CE Type Examination (Module B) has been conducted on the design of the system, and a CE Type Examination and Audit (Module E) has been conducted on the assembly of the system.

The CE Type Examination and Audit have been conducted by Notified Body #0080, Ineris, Parc Technologique ALATA BP2, Verneuil-en-Halatte, 60550, France.

Electromagnetic Stability

The electronic unit of the Tech-Air® Race Vest has been homologated to ECE R10 04 which dictates minimum requirements for electromagnetic stability, electromagnetic interference, and electrostatic discharge for automotive electronic devices.

Homologation No: **E13 10R – 04 – 12891**

Important Information for Users WARNING!

The Tech-Air® System is an active safety protection system that is different from normal motorcycle clothing and as a result requires additional care and precautions. You must read and understand the instruction manual fully before use, as well as pay close attention to the following warnings:

- An airbag system can only provide a limited amount of protection in an accident or event. As such, there always remains a possibility that a serious or fatal injury could occur even when using the airbag system.
- The Tech-Air® system is designed and developed ONLY for:- Race use when in Race Mode; Street use when in Street Mode and in Street Mode in limited off-road use. This product has not been designed for hard off-road use, stunt use or any non-motorcycling applications. Alpinestars does not accept any claims for malfunctions of the system used outside the environments for which its use is intended.
- Certain types of movement could be interpreted as a crash by the Tech-Air® system and cause a deployment though no crash has occurred.
- The Tech-Air® system has been designed to deploy in crashes above a minimum energy threshold. This is to prevent wasteful use of the charges in situations where protection typically would not be needed. Thus, in low speed/low energy crashes it is likely and reasonable that the product will not deploy.
- The Tech-Air® system contains no parts which may be serviced by final customers, and must be serviced and recharged ONLY by approved Alpinestars Service Personnel, in order to ensure this equipment is sealed into the vest. Breaking this seal will void any claims against warranty or system malfunctions.
- Do not attempt to make any modifications or adjustments to the electronics, airbag vest or Alpinestars' Compatible Suit/Jacket of the Tech-Air® system.
- The Tech-Air® system must only be used for motorcycle Race riding when in Race Mode, or Street riding when in Street Mode or limited off- roading in Street Mode – it is not to be used for any other purpose, motorcycle-related or otherwise. This includes: Enduro, Motocross, Supermoto, performing stunts and any type of non-motorcycling activity. Wearing the product during any non-intended activity (with the unit switched on) may cause the system to deploy and cause injury or death to you or others and may cause damage to property.
- When not in use and being stored, transported, or shipped the Tech-Air® system must be powered off at the Master Switch.
- Prior to each use, the Tech-Air® system should be inspected for any signs of wear or damage. Additionally when powered on, the LED display must be checked. In the event that the system reports a fault (Red LED is illuminated), users should not use the product and must follow the instructions in this booklet.
- Whenever the LED Display gives a low battery indication the unit MUST be recharged as soon as possible.
- The Tech-Air® system must never be machine washed, submerged in water, tumble dried or ironed.
- After a deployment, the unit must be returned to the Tech-Air® Support Team which can arrange the unit to be recharged.
- Even if the Tech-Air® system has not been used, or the airbag never fired, it is important that the equipment be serviced at least once every two years, or if the system is used extensively, that it be serviced every 6 months to a year. This can be arranged through a Tech-Air® authorized dealer.

USER'S GUIDE

TECH  **SYSTEM**

**IMPORTANT READ THIS MANUAL.
CRITICAL SAFETY INFORMATION INSIDE.**

**Please read the following important
WARNING and LIMITATION of use notice
carefully:**

Motorcycling is an inherently dangerous activity and an ultra-hazardous sport, which may result in serious personal injury, including death. Each individual motorcycle rider must be familiar with motorcycling, recognize the wide range of foreseeable hazards and decide whether to assume the risks inherent in such an activity with the knowledge of the dangers involved and accept any and all risks of injury, including death. While all motorcycle riders should utilize appropriate protective equipment, each rider should exercise extreme care for safety while riding and understand that no product can offer complete protection from injury including death or damage to individuals and property in case of fall, collision, impact, loss of control or otherwise. Riders should ensure that safety products are correctly used and fitted. DO NOT use any product that is worn out, modified or damaged.

Alpinestars makes no guarantees or representations, express or implied, regarding the fitness of its products for any particular purpose.

Alpinestars makes no guarantees or representations, express or implied, regarding the extent to which its products protect individuals or property from injury, death or damage.

ALPINESTARS DISCLAIMS ANY RESPONSIBILITY FOR INJURIES INCURRED WHILE WEARING ANY OF ITS PRODUCTS.

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1. Introduction

The Tech-Air™ Street airbag system is an active safety system for mainstream/recreational motorcycling, which offers protection to both riders and passengers. In the event of an accident or other triggering event, the airbag system provides upper body protection to the user regardless of the type or age of motorcycle used. The system is designed to function in both on-and off-road riding situations (subject to the Off-Road limitations indicated in Section 3 below).

In this manual the following three presentation styles are used to provide information:



Tip: Provides useful advice regarding the system.

IMPORTANT! Provides important information regarding the limitations of the system.

WARNING! Provides critical information which, if not followed, may cause injury, death, system malfunction or non-function, and/or an exaggerated expectation of the system's abilities.

The Tech-Air™ Street airbag system is comprised of two components.

1. The Alpinestars Tech-Air™ Street airbag vest (“airbag vest”);
2. An Alpinestars garment/jacket (“Alpinestars’ Compatible Garment/Jacket”) compatible with and to be used with the airbag vest. The airbag vest and the Alpinestars’ Compatible Garment/Jacket are sold separately.

WARNING! The airbag system, including its components (the airbag vest and the Alpinestars’ Compatible Garment/Jacket), are technologically advanced pieces of motorcycling safety equipment and should not be treated like a normal motorcycle garment. Similar to one’s motorcycle, the system and its components must be cared for, serviced and maintained, so that they may function correctly.

WARNING! The airbag vest MUST be used with an Alpinestars’ Compatible Garment/Jacket.

WARNING! Use of an Alpinestars’ Compatible Garment/Jacket without the airbag vest will provide the user with NO airbag protection.

WARNING! It is essential to read this manual carefully, understand it completely and to follow the advice and warnings. If you have any questions regarding the equipment contact Tech-Air™ Support (Section 21).

2. Principles of Operation

The Tech-Air™ Street airbag vest contains an airbag control unit (with built-in sensor) integrated into the back protector, and two external sensors positioned on the shoulders (Figure 1). These three sensors monitor the user's body for shocks or unexpected movements. In the event the user's body is subject to a high and/or sudden amount of energy, the airbag will inflate. This may occur when the motorcycle collides with another vehicle or obstacle, when the rider loses control, falls from the motorcycle or has an accident.

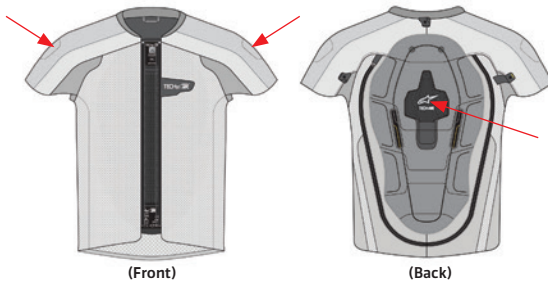


Figure 1 – Sensor Locations

3. Tech-Air™ “Envelope of Protection”

The Tech-Air™ Street airbag system offers protection to both riders and passengers in the event of an accident or other triggering event; however, like any other product there are limitations to the protections that it can provide.

WARNING! NO PRODUCT CAN PROVIDE COMPLETE PROTECTION FROM INJURY (OR DEATH), OR DAMAGE TO PERSONS OR PROPERTY IN THE EVENT OF A FALL, ACCIDENT, COLLISION, IMPACT, LOSS OF CONTROL OR OTHER EVENT.

The “Envelope of Protection” is used to generally describe situations and/or circumstances where the Tech-Air™ Street airbag system may provide protection (“inside the envelope”), and those where it will not (“outside the envelope”).

In general, there are three basic factors that determine whether an airbag system will provide protection to a user:

- (a) Whether the forces experienced by the user during an event (such as an accident) occur within an area covered by the airbag; and
- (b) Whether the airbag deploys before the user collides with a vehicle, an obstacle or the ground.
- (c) Whether the airbag deploys before the user collides with parts or accessories of their own motorcycle. For example, mirrors, windscreens or tank bags.

(The deployment time consists of the time for the sensors to detect the event plus the time it takes to fill the airbag fully with gas, which is about 25 milliseconds (ms). The time available to deploy the airbag is dependent upon factors such as the type of the accident, the type of motorcycle (e.g. scooter, custom, sports) and the speed of involved vehicles.

The Tech-Air™ Street airbag system provides impact protection for those areas of airbag coverage shown in Figure 2.

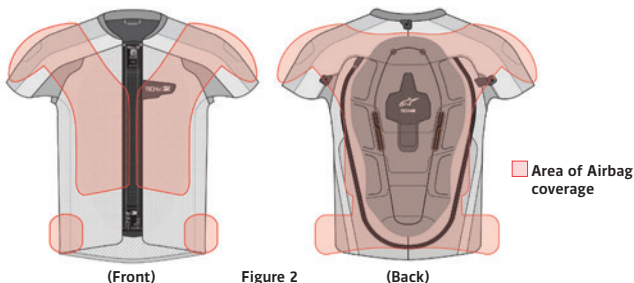


Figure 2

WARNING! The Tech-Air™ Street airbag system provides only limited protection against forces experienced at the areas of airbag coverage depicted in Figure 2. No guarantee is given that the Tech-Air™ Street airbag system will prevent injuries (including severe or fatal injuries) inside and/or outside the covered/protected areas.

WARNING! The Tech-Air™ Street airbag system cannot prevent accidents.

WARNING! No protective device, including the Tech-Air™ Street airbag system, can provide protection against all possible sources of injury and therefore cannot provide complete protection against injuries.

WARNING! Wearing the Tech-Air™ Street airbag system is not a substitute for wearing other protective motorcycling clothing and gear. To provide full potential protection, the Tech-Air™ Street airbag system must always be worn in conjunction with suitable motorcycling gear and apparel that covers the rider from head to toe, including a helmet, protectors, boots, gloves, and other appropriate protective equipment.

Crashes Where a Vehicle Strikes a Stationary Motorcycle:

Arrival Speed	From 25km/h (15mph)
Impact Angle	From 45° to 135°

- Valid for both rider and passenger

Crashes Where a Motorcycle Strikes a Vehicle or Obstacle (Figure 3):

Arrival Speed	From 25km/h (15mph) to 50km/h (31mph)
Impact Angle (Fig 3)	From 45° to 135°

The above parameters are valid for both the rider and passenger.

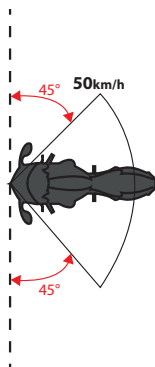


Figure 3

IMPORTANT! If the speed of the vehicle is less than 25km/h, the system may not deploy at the time of the collision, but may deploy if the rider or passenger suddenly falls from the motorcycle after the impact.

IMPORTANT! Figure 3 outlines the envelope where the Tech-Air™ Street airbag system is expected to inflate before the user's body contacts an obstacle. At speeds above 25km/h the system will deploy regardless of the impact angle, but outside the envelope the airbag may not be fully inflated before there is contact between the obstacle and the user.

Loss of Control Crashes

A Loss of Control Crash often results in the motorcycle falling over during riding. This commonly happens when tire grip on the roadway is lost during a turn or heavy braking. These are often similar to crashes in racing (known as "low-side" crashes).

WARNING! The user does not need to be involved in a crash for the system to deploy. For example, the system will deploy if the user falls while wearing the system, such as when dismounting from the motorcycle. These types of "non-riding" deployments are not failures of the system.

Motorcycle Type

The Tech-Air™ Street airbag system can be utilized by riders or passengers on any type of motorcycle, including electric motorcycles.

Off-Road Riding

The Tech-Air Street airbag system may be used off road IN A LIMITED CAPACITY riding on gravel roads only. For the purpose of using the Tech-Air Street airbag system off road, the definition of a gravel road is:

- An unpaved road surfaced with gravel.
- Has a minimum width of 4m (13ft).
- Has no gradients +/-30%.
- Has no ruts, steps or holes greater than 50cm (19.5") in depth.

IMPORTANT! The chances of falling are notably higher when riding off-road, particularly when a rider is inexperienced. Even when stopped, a fall may cause the Tech-Air™ Street airbag system to deploy, leaving the user without protection until the system is returned for recharging (see Section 16).

4. Limitations of Use

WARNING! The Tech-Air™ Street airbag system is to be used ONLY for motorcycling within the conditions and limitations delineated above. The system is NOT for use in:

- Any racing or competitive events;
- Enduro, Motocross, or Supermoto events;
- Motorcycle stunts; or
- ANY non-motorcycling activities.

WARNING! Due to shocks, movement and/or other input detected and/or received by the system while in use, although unlikely, the system may deploy even though there is no crash event.

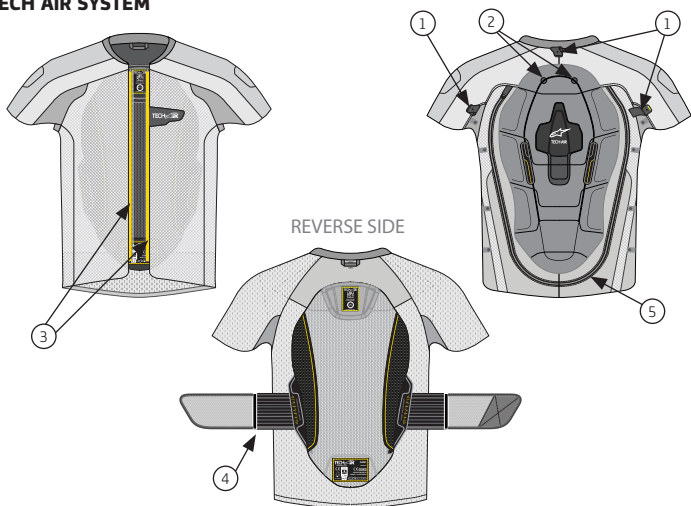
WARNING! Depending on the motorcycle type, for example a scooter or trials bike, it cannot be guaranteed that the system will inflate before the user collides with parts or accessories of the motorcycle .

WARNING! Wearing the Tech-Air™ Street airbag system is not a substitute for wearing other protective motorcycling clothing and gear. To offer full potential protection the system must always be worn in conjunction with suitable motorcycling gear and apparel that covers the rider from head to toe, including a helmet, protectors, boots, gloves, jacket, and other appropriate protective equipment.

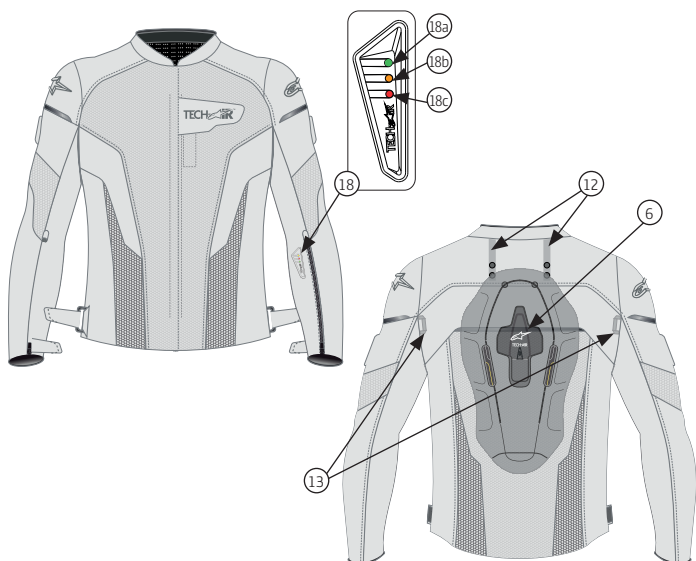
5. System Overview

The diagrams below illustrate the different parts of the Tech-Air™ Street airbag system (airbag vest and an Alpinestars' Compatible Garment/Jacket). The numbered parts are used to guide you through this user's guide.

TECH AIR SYSTEM



COMPATIBLE JACKET



- | | | |
|--------------------------------|-----------------------|-----------------------------------|
| 1. Attachment Snaps | 5. Sealed closure zip | 9. Micro USB Port |
| 2. Back Protector Studs | 6. Control Unit | 10. Zip Sensor Socket |
| 3. Vest attachment zips (Vest) | 7. LED Display socket | 11. Vest attachment zips (Jacket) |
| 4. Detachable belt | 8. Master Switch | 12. Back Protector attachments |

Compatible Garments

320 2815	VIPER FOR TECH AIR
320 4115	VALPARAISO FOR TECH AIR

ELECTRONIC UNIT (6)

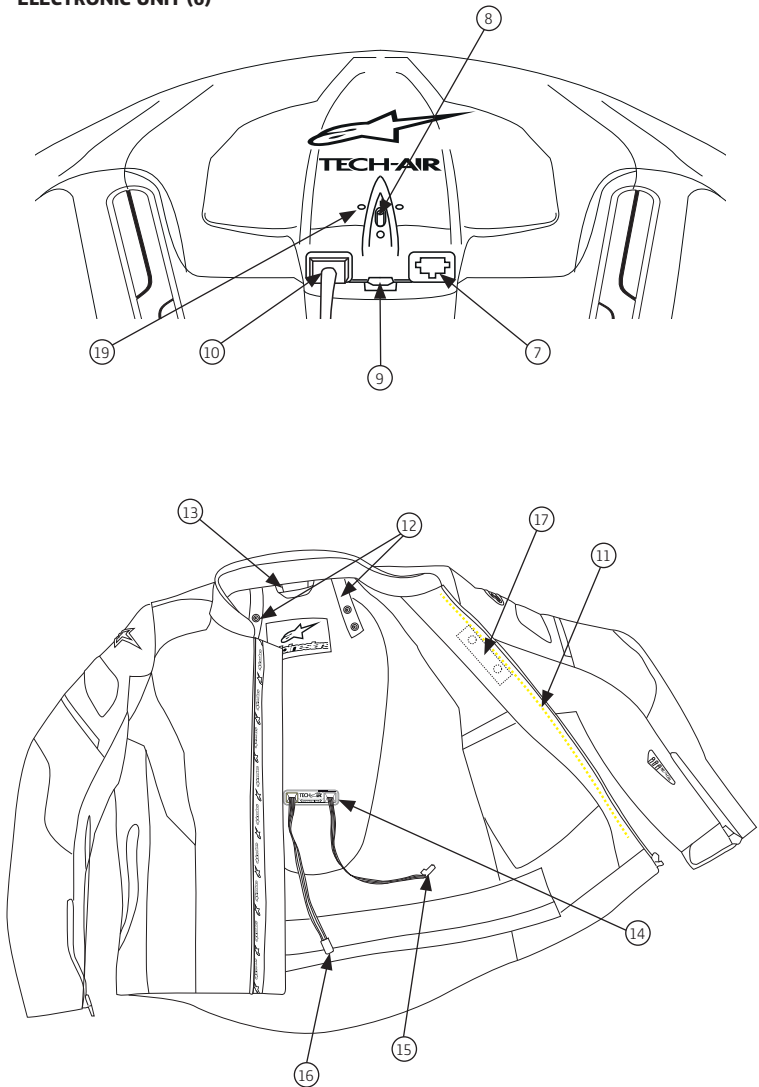


Figure 4

13. Vest Snap attachment loops
 14. Cable Passage
 15. LED Display cable
 16. Zip Sensor cable

17. Zip Sensor
 18. LED Display
 18a. Green Indicator
 18b. Orange Indicator

18c. Red Indicator
 19. On-board power LED

6. Sizing

The Tech-Air™ Street airbag vest is available in sizes from S to 2XL. The airbag inside is available in three sizes that correspond to the waist to shoulder length of the user (Figure 5). Table 1 below lists the sizes of vest and the airbag size which they contain. This chart contains suggested sizing.

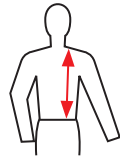


Figure 5

Table 1

Vest Size	Euro Size	US Size	User's Waist to Shoulder Range	Suggested Height Range	MTF
XS	46	36	37 – 40cm (14.6" – 15.7")	1.41 – 1.52m (4'7" – 5'0")	<4 KN
S	48	38	37 – 40cm (14.6" – 15.7")	1.41 – 1.52m (4'7" – 5'0")	<4 KN
M	50	40	40 – 45cm (15.7" – 17.7")	1.52 – 1.71m (5'0" – 5'7")	<4 KN
L	52	42	40 – 45cm (15.7" – 17.7")	1.52 – 1.71m (5'0" – 5'7")	<4 KN
XL	54	44	40 – 45cm (15.7" – 17.7")	1.52 – 1.71m (5'0" – 5'7")	<4 KN
2XL	56	46	45 – 50cm (17.7" – 19.7")	1.71 – 1.90m (5'7" – 6'3")	<4 KN
3XL	58	48	45 – 50cm (17.7" – 19.7")	1.71 – 1.90m (5'7" – 6'3")	<4 KN

IMPORTANT! The airbag vest must be installed inside an Alpinestars' Compatible Garment/Jacket first.

MTF = Mean Transmitted Force attained during testing.

7. Health and Age Restrictions

IMPORTANT! In Europe the pyrotechnic Directive (2007/23) prohibits the sale of pyrotechnic articles to anyone under the age of 18.

WARNING! The Tech-Air™ Street airbag system must not be handled by children at any time.

WARNING! In the event of a crash, inflation of the airbag will cause sudden pressure across the back and torso. This can cause discomfort and for users in poor health this may cause complications.

WARNING! The Tech-Air™ Street airbag system must not be used by persons with a history of heart problems, or other diseases, conditions, afflictions or illnesses which may weaken the heart.

WARNING! The Tech-Air™ Street airbag system must not be used by persons fitted with a pacemaker or other implanted electronic medical devices.

WARNING! The Tech-Air™ Street airbag system must not be used by persons with neck or back problems.

WARNING! The Tech-Air™ Street airbag system must not be used by women during pregnancy.

WARNING! The Tech-Air™ Street airbag system must not be used by women with artificial breast implants.

WARNING! Any body piercings which coincide with the airbag coverage area should be removed before electing to use the Tech-Air™ Street airbag system, as inflation of the airbag into and against the body piercings may cause discomfort and/or injury.

Allergy Advice

Persons with certain skin allergies to synthetic, rubber or plastic materials, should carefully monitor their skin each time the Tech-Air™ Street airbag system is worn. If any irritation of the skin occurs, immediately stop wearing the system and seek medical advice and/or attention.

8. Vest Installation

WARNING! The Tech-Air™ Street airbag vest must ALWAYS be used with an Alpinestars' Compatible Garment/Jacket of corresponding and appropriate size. Use of the airbag vest with the incorrect size of Alpinestars' Compatible Garment/Jacket, or a non-compatible Alpinestars' Compatible Garment/Jacket, may result in injury, including severe injury and/or death.

To install an airbag vest into a Alpinestars' Compatible Garment/Jacket airbag:

1. Clip the airbag vest onto the smaller central rear hook (1).
2. Attach the two studded connectors to the back protector of the airbag vest (2). In the first case mount the protector on the upper two studs (see Fig 6).

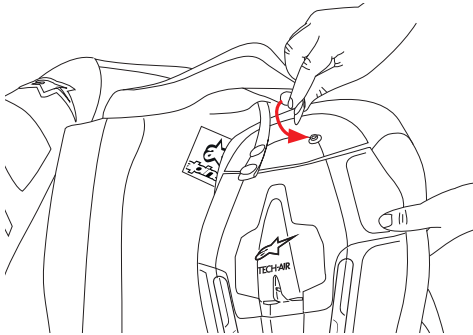


Figure 6

3. Clip the underarm snaps to the corresponding loops (1) on the Alpinestars' Compatible Garment/Jacket.
4. Zip the airbag vest into the Alpinestars' Compatible Garment/Jacket by connecting both zips (3) on both sides of the Alpinestars' Compatible Garment/Jacket.
5. Where applicable, remove the internal back padding of the Alpinestars' Compatible Garment/Jacket and pass the Zip Sensor (16) and LED Display (15) cables through the molded cable exit (14).
6. Connect the Zip Sensor cable (16) to the Zip Sensor socket (10).
7. Connect the LED Display cable (15) to the LED Display socket (7).

IMPORTANT! Do not cross the cables over inside the Alpinestars' Compatible Garment/Jacket They should flow cleanly from the Alpinestars' Compatible Garment/Jacket to the airbag vest (Figure 7).

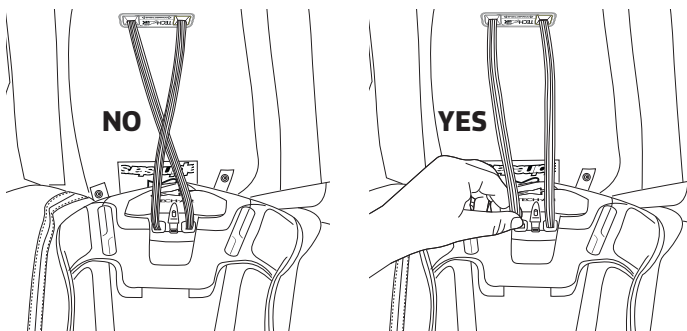


Figure 7

Tip: If quickly trying only the fit of the garment, the electrical connections (Steps 6 & 7) do not need to be made, but any internal back padding **MUST** be removed (Step 5).

9. Fitting

Once the airbag vest has been installed the Alpinestars' Compatible Garment/Jacket may be worn and fastened like any other riding jacket. For those users who prefer the airbag vest to fit snugly, the internal belt (4) can be used, however this is a matter of personal preference and the airbag vest may be worn with the belt unfastened or removed.

When fitting the Tech-Air™ Street airbag system, users should check in particular that:

- the sleeves are of the correct length;
- the sleeves can be adjusted to work with the gloves that will be worn;
- the compatible airbag garment is not too tight across the chest.

In the event that the garment fits well except that it is tight in the collar, two possible solutions are to:

- Zip the system (Alpinestars' Compatible Garment/Jacket and airbag vest) to the riding pants AND/OR
- Install the airbag vest on the lower two studs (Step 2 of the airbag vest installation – see Figure 6).

WARNING! It is imperative that the Tech-Air™ Street airbag system is fitted correctly in order to provide the maximum potential protection in an accident. Compatible garments/jackets which are too small will cause severe discomfort when the system is inflated, compatible garments/jackets which are too large may not hold the airbag vest in place during a fall or accident. In case of doubts or questions regarding fit, seek advice from an Alpinestars dealer.

10. Transportation of Objects Inside the Compatible Airbag Garment

When using an Alpinestars' Compatible Garment/Jacket consideration needs to be given to the objects which may be placed inside its pockets. For example:

- Sharp or pointed objects placed in pockets may pierce the airbag and compromise inflation.
- Bulky objects will reduce the amount that the airbag can expand, reducing or potentially reducing the efficacy of the airbag and/or making the system feel much tighter when inflated, possibly increasing discomfort or causing distraction or injury.

IMPORTANT! Extra attention should be paid to the contents of the internal Alpinestars' Compatible Garment/Jacket breast pocket. ONLY flat objects such as a wallet or mobile phone should be stored there.

WARNING! Under NO circumstances should a user attempt to transport objects of ANY size or shape, including sharp or pointed objects, stuffed inside the Alpinestars' Compatible Garment/Jacket, as they may cause injury to the user and/or damage to the airbag. Only blunt objects should be transported in the Alpinestars' Compatible Garment/Jacket provided that they fit completely inside the pockets.



Tip: Users should note that Tech-Air™ Street airbag system has been tested to be safe when used in combination with backpacks loaded up to a maximum of 6kg (approximately 13 pounds) in weight.

11. Battery Charging

Charge the unit fully before first use. To do this, connect the supplied charger to the Micro USB port (9) on the unit. The LED display will display green (18a) and orange (18b) lights when the battery is fully charged.

IMPORTANT! The battery will only recharge when the ambient temperature is between 0°C – 45°C (32°F – 113°F).

IMPORTANT! It is not possible to charge the Tech-Air™ Street airbag vest when in use.

IMPORTANT! If the battery is not charged periodically as indicated in section 14 as a minimum, it may require replacement. Read Section 14 for further information.

WARNING! Do not leave the unit unattended while charging the battery. Charge only in a dry location with a temperature range of 0°C to 45°C (32°F – 113°F).

Charging and Use Times

Approximately six hours is required to recharge a discharged battery with the supplied charger. A fully charged battery will provide approximately 25 hours of use. If time is limited, charging the battery for approximately one hour will provide approximately three to four hours of use.



Tip: The unit may be charged by connecting it to a computer, or to an alternative Micro USB charger, however if the current output is under 2 amps then charging times will be longer than stated above.

WARNING! The unit should be recharged as soon as possible when the red Battery Level LED light (18c) flashes, as this indicates low battery level.

12. Operation

Turning On

To make power available to the system, move the Master Switch (8) to the "I" position. The Master Switch should remain in the "I" position at all times when the system is in use.

With the Master Switch on, the Alpinestars' Compatible Garment/Jacket is donned as normal and zipped up past the Zip Sensor (i.e. closed). The Zip Sensor (17) will detect that the zip was zipped up and the system will turn on and activate. At this point, the user MUST check the LED Display (18) to verify that the system starts correctly. See Section 13, Display Indications below for the meanings of the LED indicator lights.



Tip: If the system does not power on (no LED Indications illuminate) check that there is nothing in between the sensor area (Figure 8, below) and that the flap with the sensor is not folded inside the Alpinestars' Compatible Garment/Jacket.

WARNING! In order to activate the Tech-Air™ Street airbag system, the Master Switch must be turned on ("I" position) AND the Alpinestars' Compatible Garment/Jacket must be zipped up past the Zip Sensor (17).

Stability Check

During the first 20-60 seconds after the system is activated, the system remains disarmed while it performs a stability check as indicated by a flashing green indicator light (18a). During this period the system is looking for the body to conduct one or all of the following activities:

- Walking (including up and down stairs)
- Mounting the motorcycle
- Riding the motorcycle.

If the check is passed a solid green indicator light will be illuminated (18a).

Note that the following activities are unlikely to pass the stability check:

- Zipping up the jacket without wearing it
- Standing still
- Running or other dynamic actions (such as sharp changes of direction or speed when walking)
- Sitting down – INCLUDING on the motorcycle with the engine at idle.

If after 60 seconds the system cannot determine stability it will give an error indication by illuminating a single red indicator light (18c) in the LED Display (18). In this case the garment must be unzipped and closed again to restart the stability check.

WARNING! You MUST ALWAYS check the LED Display (18) after the Stability Check to confirm you have the solid green LED before starting to ride/using the Tech-Air™ Street airbag system. The system will not deploy if needed while the 20-60 second Stability Check is proceeding and will not deploy if needed unless the Stability Check registers no errors in the system, as indicated by a solid green indicator light (18a).



Tip: The Zip Sensor (17) functions using magnets. Magnetically sensitive items (such as credit cards) should be kept at least 1cm away from the sensor area.

Turning Off

Turn the system off by unzipping the Alpinestars' Compatible Garment/Jacket. The orange LED (18b) will flash and the system will shut down after 5 seconds. Confirm that the system is off and/or not receiving power by checking to see that there are no indicator lights illuminated in the LED Display (18).

If you want to continue wearing the Alpinestars' Compatible Garment/Jacket after shutting the system down, then keep the Alpinestars' Compatible Garment/Jacket unzipped below the Zip Sensor (17) or tuck the internal flap inside the Alpinestars' Compatible Garment/Jacket (Figure 8) to prevent the Zip Sensor from making contact while wearing the Alpinestars' Compatible Garment/Jacket.

To make power unavailable to the system, move the Master Switch to the off position. Turn the Master Switch off if the Tech-Air™ Street airbag vest is to be stored, transported or shipped.

WARNING! ALWAYS turn the system off [by unzipping the Alpinestars Compatible Garment/Jacket past the Zip Sensor] when you are not riding a motorcycle, even if you continue to wear the system. Although the stability of the system has been evaluated for a number of non-riding activities, keeping the system powered up and/or active increases the possibility of an unwanted deployment and drains the battery. Note also that the system will power back up if the zip of the Alpinestars Compatible Garment/Jacket is closed past the Zip Sensor.

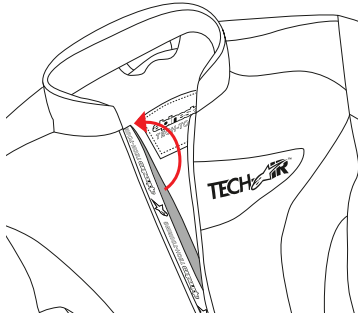


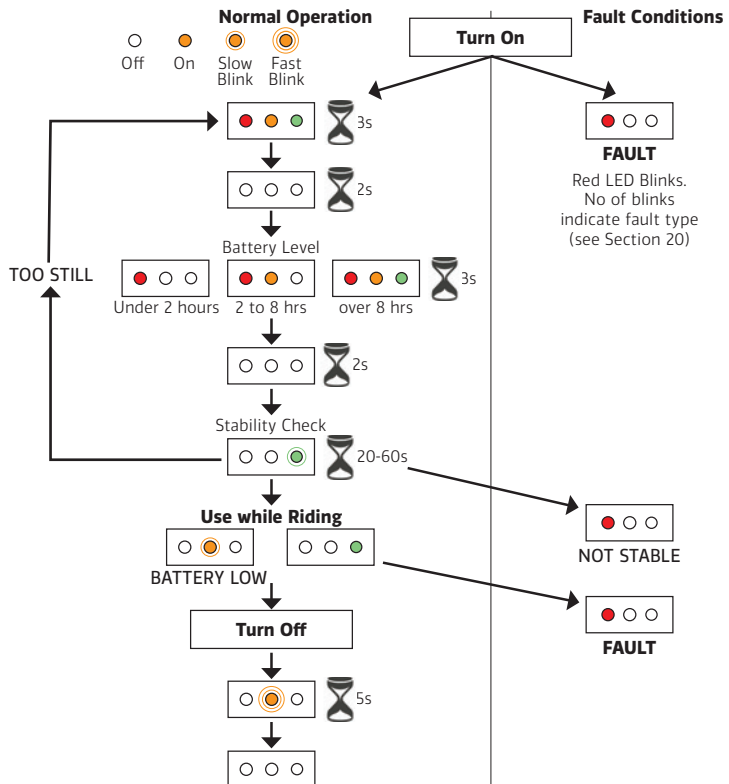
Figure 8

WARNING! When not in use and being stored, transported or shipped, the system must be shut down at the Master Switch. This makes power unavailable to the system, prevents battery drain and possible reduced battery life, as well as inadvertent supplying of power to and powering-up of the system.


13. Display Indications

The LED Display (18) has three colored LEDs which are used to indicate the status of the system.

Indications During Use



IMPORTANT! The solid Green LED  indicates that the system is functioning and will deploy in a crash.

WARNING! A single RED LED  or a flashing green LED indicates that the system will NOT deploy in a crash.



Tip: With a single red indication, the red LED will blink a number of times to indicate the code of the system error for the problem that the system is experiencing. These codes and the corresponding errors are listed in Section 20, and the errors can also be viewed using the Tech-Air™ Connect software (Section 18).

Indications during battery charging

During battery charging the LED Display will show a continuous animation. When the battery is fully charged all 3 LEDs will remain illuminated.

14. Cleaning, Storage and Transportation

Airbag Vest Cleaning

Use only a cloth dampened with water to clean the airbag vest (fabric and plastic parts). Solvents or chemical cleaners must not be used, as they may compromise the integrity of the airbag.

WARNING! Under NO circumstances should the airbag vest be washed in a washing machine, submerged in water, tumble dried or ironed. This may cause permanent damage to the airbag system and cause malfunction.



Tip: As part of the recommended biannual service the airbag vest will be disassembled and washed.

Outer Alpinestars' Compatible Garment/Jacket Cleaning

Once separated from the airbag vest, the outer Alpinestars' Compatible Garment/Jacket may be cleaned and/or washed according to the instructions on the garment. Where machine washing is permitted, the LED Display (18) and Zip Sensor (17) need not be removed, but fabric conditioner must NOT be used.

IMPORTANT! Do not use fabric softeners when cleaning the Alpinestars' Compatible Garment/Jacket as it will cause damage.

Storage

The Tech-Air™ Street airbag system (i.e. airbag vest and outer Alpinestars' Compatible Garment/Jacket) is best stored hung from a rail. It may also be stored flat in a drawer, provided no heavy or sharp objects are placed on top of it. The Tech-Air™ Street airbag system should be stored in a cool, dry place, out of direct sunlight, and the Master Switch (7) should be turned off

If storing the airbag vest only, it is best stored in its original packaging. Likewise, it may be stored flat in a drawer provided that no heavy or sharp objects are placed on top of it. Also, it should be stored in a cool, dry place, out of direct sunlight, and the Master Switch (7) should also be turned off.

The battery of the Tech-Air™ Street airbag system slowly self discharges, even if the system is not operated, in particular if the system is stored in a warm environment. It is thus recommended that even in storage the system be periodically recharged (at least once every 18 months) to prevent deep discharge and non functioning of the battery.

IMPORTANT! If the battery becomes deeply discharged the system will not function even if an attempt is made to recharge it. It is thus important that the system is periodically recharged as indicated.

WARNING! Do NOT leave the airbag vest in direct sunlight inside a closed car or otherwise exposed to high temperatures. High temperatures will damage the battery and possibly the other electronics of the unit.

WARNING! Zipping the Alpinestars' Compatible Garment/Jacket closed will cause the system to activate. To prevent this, it is essential that the Master Switch (7) be turned off or that the inner flap of the Alpinestars' Compatible Garment/Jacket be folded away from the Zip Sensor (17; Figure 8). Failure to do so will cause the unit to remain powered, which will cause the battery to drain. When storing the Alpinestars' Compatible Garment/Jacket with the zip zipped up, check that there are no indicator lights illuminated on the LED Display (18).

Transportation

Users should be aware that the airbag inflators are pyrotechnic devices. Under the European pyrotechnic Directive (2007/23/EC) they are certified safe for transportation, including by air, provided that the airbag vest is checked into the aircraft's hold as checked luggage.

When transporting the vest by air, users are strongly recommended to download and print a copy of the Material Safety Data Sheet (MSDS) in case they are questioned by airport staff. This can be downloaded from the Tech-Air™ Data Portal (Section 17).

Note: Not all countries worldwide permit the import of pyrotechnic devices. Prior to traveling, users should check with the appropriate authorities of countries through which and to which they are traveling to determine if the system will be permitted entry or not.

15. Maintenance, Servicing and Disposal

Garments with electronically activated airbags are critical safety systems which must be maintained in good working order to ensure their correct function. If not, they may not function properly or at all.

Maintenance

Prior to each use, the user should conduct a check of the Tech-Air™ Street airbag system (Alpinestars' Compatible Garment/Jacket and the airbag vest), looking for any signs of wear (loose threads, holes, marks on the airbag surface) or damage. If found, the system should be inspected further by an authorized Alpinestars dealer.

Servicing

Alpinestars recommends that the airbag vest be serviced by Alpinestars or an authorized service provider at least every 2 years. This permits wear of the airbag and the unit's components to be inspected in detail. Service can be requested directly from an Alpinestars Tech-Air™ dealer. The following work is undertaken as part of the standard service:

- All components are removed from the airbag vest and the airbag vest is washed.
- The diagnostics of the electronic unit are checked (and firmware upgraded, if applicable).
- The airbag is inspected for wear and/or damage.
- The system is reassembled into the airbag vest and function checked as per new production items.



Tip: Two years is the maximum recommended period between inspections, however if the airbag vest is used extensively, then the recommended inspection and service interval is 6 months to 1 year.

WARNING! If no service or recharge operation has been conducted after two years of the purchase date, there is the possibility that the system will not always function inside the envelope of protection.

IMPORTANT! Even if serviced regularly, there is the possibility that after 10 years the system will not function within the envelope of protection.

WARNING! There are NO user serviceable parts inside the airbag vest. Under no circumstances should users attempt to open, service, disassemble or modify the airbag vest. Any and all work performed on the airbag vest must be done by Alpinestars or an authorized service provider. Severe injury or damage may result otherwise.

IMPORTANT! The access zip to the airbag vest is sealed (5). Cutting this seal voids the warranty on the product.

Disposal – Alpinestars' Compatible Garment/Jacket

The outer Alpinestars' Compatible Garment/Jacket should be disposed of in accordance with local waste regulations. Note that under the European WEEE regulation, the LED Display and Zip Sensor cannot be disposed of in normal household waste. These must be removed from the airbag garment and disposed of at a suitable facility for the recycling of electronic parts.



Disposal – Deployed Airbag Vest

A deployed airbag vest contains electronic components. Under the European WEEE regulation these must be removed and disposed of at a suitable recycling facility. The remaining airbag vest chassis and used airbag can be disposed of in accordance with local waste regulations.



Tip: A deployed vest can be confirmed by turning on the system and looking for the "Deployed" indicator light on the LED Display (Section 13).

Disposal – Undeployed Airbag Vest

WARNING! An undeployed airbag vest still contains live pyrotechnic charges and thus must NOT be disposed of in household waste or incinerated.

Undeployed airbag vests must be returned to an Alpinestars dealer for subsequent return to Alpinestars who will handle the disposal. This service is free of charge.

16. Actions in the Event of an Accident

Accident WITHOUT Deployment

In the case of minor, low energy and/or low speed accidents, such as those involving speeds below those described in Section 3, Tech-Air™ "Envelope of Protection"5, it is likely that the airbag will not fire. Nonetheless, a thorough inspection of the Tech-Air™ Street airbag system (i.e. Alpinestars' Compatible Garment/Jacket and the airbag vest) should be made to ensure that there is no significant damage (tears, holes, etc.) which could compromise the function of the system, as per the maintenance check outlined in Section 15.



Tip: If the outer Alpinestars' Compatible Garment/Jacket has sustained considerable damage, but the airbag vest is completely undamaged, then it may be more economical and faster to purchase a replacement outer Alpinestars' Compatible Garment/Jacket instead of arranging a repair.

Accident WITHOUT Deployment, BUT Where the User Believes the System Should Have Deployed

IMPORTANT! In these circumstances the system must be turned off IMMEDIATELY after the accident because the electronic unit only holds 2 minutes of data. After that, the crash data will be overwritten and the possibility to analyze the data will be lost.

The airbag vest should be returned to an Alpinestars Tech-Air™ dealer along with a detailed account of the event (including photos, if possible). Alpinestars will then analyze the information and respond.

Accident WITH Deployment

Where the airbag has deployed, a recharge service is available from Tech-Air™ dealers to have the airbag and inflators replaced. During this service, a full inspection will be made of the airbag vest and of its electronic equipment.

The outer Alpinestars' Compatible Garment/Jacket should also be inspected. For an extra fee, the user may have the Alpinestars' Compatible Garment/Jacket inspected for damage and repaired while the airbag vest is being recharged.

Accident or Other Situation WITH Deployment, BUT Where the User Believes the System Should Not Have Deployed

The airbag vest should be returned to an Alpinestars Tech-Air™ dealer along with a detailed account of the event (including photos, if possible). Alpinestars will then analyze the information and respond.

17. Tech-Air™ Data Portal

The Tech-Air™ Data Portal is an online resource which records information on the manufacture and servicing of each individual airbag system. By using the Data Portal users can access the following information:

- The service history of Tech-Air™ system(s) (Street and Race) owned.
- The status of any systems undergoing service.
- Manufacturing information on Tech-Air™ system(s) owned.
- Ask to be sent a reminder when the next service is due.
- Download the Tech-Air™ Connect software (See Section 18).
- Download the Material Safety Data Sheet (See Section 14).
- Locate the nearest Alpinestars dealer who can handle Tech-Air™ Systems.
- Be kept up to date on news relevant to your system.

Similar to a motorcycle, each airbag system has a serial number called the Chassis Number. This can be found under the QR code on the inside of the airbag vest near the collar. Scanning the QR code with a mobile phone will automatically connect to the Data Portal and provide manufacturing and service history for that system.

The Data Portal also records details on the ownership of the system (customer name and a contact e-mail address). Normally ownership is registered by the dealer during purchase of the system, however if this did not happen registration can be executed following the instructions below.

IMPORTANT! It is essential that each owner is correctly registered in the Data Portal. Alpinestars will not use owner information for marketing purposes or pass the information to third parties.

IMPORTANT! Requests made for servicing, recharge, or warranty returns will only be carried out if the system ownership has been registered with Alpinestars.

New User Registration

In order to register ownership there are two steps, first to create a customer record, and then to transfer the ownership.

Click on the "New User Registration" button and a dialogue as shown in Figure 9 below will appear.

Figure 9 – User Registration Dialogue

Complete the details requested and click "Register". A customer number will be assigned, which the customer should note for future reference. Note that at this point this customer does not "own" any systems.

Transfer of Ownership

Ownership of a system can only be assigned by a Tech-Air™ dealer or by Alpinestars Tech-Air™ Support. Transfer of Ownership is applicable for first owners (brand new systems) as well as systems that have then been sold privately, second-hand.

• At a dealership:

The user shall present the airbag vest and provide the dealer their customer number. The dealer will then register ownership of the system.

• By Tech-Air™ support:

The user shall advise the chassis number and (for brand new systems) provide proof of purchase. Alpinestars will then register ownership of the system.



Tip: System ownership can be transferred by any Tech-Air™ dealer, it does not need to be the dealer where the system was purchased. A list of dealers who handle Tech-Air™ systems can also be obtained from the Tech-Air™ web page.

Customer Login

Once registered, customers can login from the Tech-Air™ website. This presents a main screen (Figure 10) where the following information can be seen:

1. Account info: use to verify and update user details.
2. Change Login Password.
3. List of products owned.
4. Download area. (New firmware for your unit may also be downloaded from here.)
5. News Bulletins.

CHASSIS	ITEM	SIZE	LAST SERVICE
C0174475	Tech Air Vest	M	Dec 17, 2014

Figure 10

By clicking on one of the products owned, manufacturing information and the service history can be viewed. If the product has been submitted for servicing, the progress of the service can also be viewed here.

18. Tech-Air™ Connect

Tech-Air™ Connect is a software program for Windows computers which permits the electronic unit to communicate with the computer. With Tech-Air™ Connect you can:

- Use “One Click Diagnostics” to collect diagnostic data and send this to Alpinestars;
- View diagnostic data for the system;
- Read the error history register;
- Update the unit firmware;
- Store ownership details on board.

To connect the unit to the computer a USB to Micro USB cable will be required.

IMPORTANT! A USB 3 cable is not suitable for data communications to the unit (only battery charging).

Tech-Air™ Connect software is only available by download to registered customers from the Tech-Air™ Data Portal. Once downloaded follow these steps to install the software and connect your unit:

1. Run the installation software.
2. Connect your unit to a vacant USB port, and wait until the drivers are installed.
3. Run the Tech-Air™ Connect software. This will present you with the screen in Figure 11.

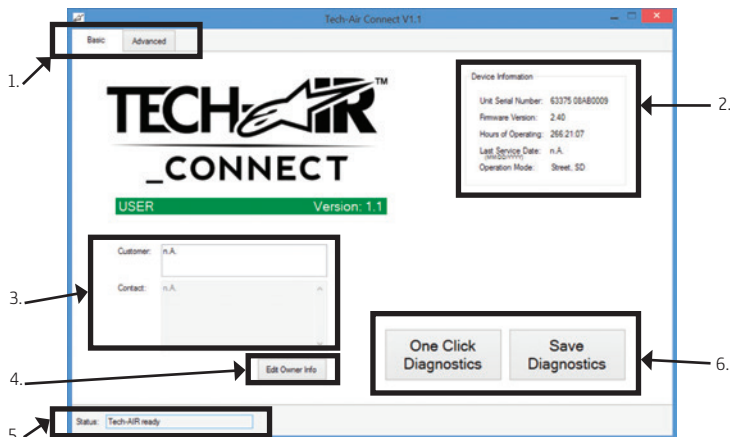


Figure 11 – Tech-Air™ Connect Main Screen

The information presented on the main screen is as follows:

1. Selects between basic or advanced mode.
2. Provides key information on the electronic unit.
3. Shows owner information (if previously inserted, otherwise blank).
4. Click here to update owner information.
5. Shows the status of the connected unit.
6. Diagnostic Buttons.

Owner Information

Inserting owner information here is optional and only provides an additional layer of traceability in the event that systems become mixed up or stolen. It is not connected in any way to the registered owner on the Tech-Air™ data portal.

One Click Diagnostics

Clicking on this button prepares a single text file containing all diagnostic information from the unit. This is then ready for e-mail to Alpinestars’ Tech-Air™ Support who can analyze its contents.

Save Diagnostics

Prepares the same diagnostic file as for One Click Diagnostics, except the file is saved directly to disk, rather than e-mailed.

Advanced Tab

The “advanced” tab (see figure 12) is for use during a direct telephone discussion with Tech-Air™ Support to better understand the behavior of the system, in normal circumstances it is only required when updating the unit firmware.

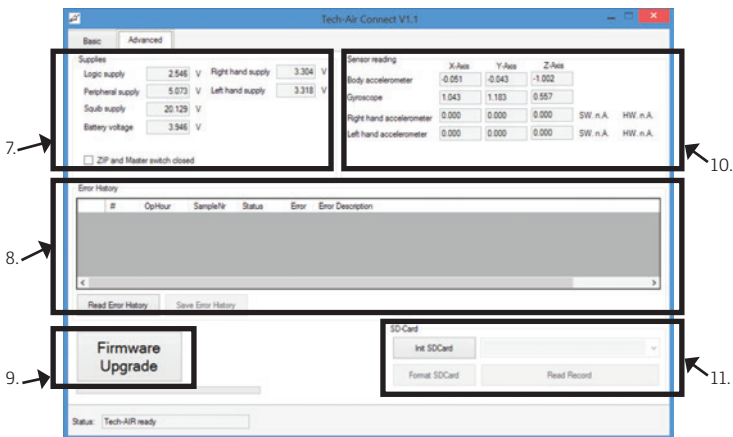


Figure 12 – Tech-Air™ Connect Advanced Screen

From the advanced tab the following information is presented:

7. Information on the battery voltage and unit internal power supplies.
8. The error register.
9. Firmware Upgrade.
10. Information on the internal and external unit sensors.
11. (Where installed) To download data from the SD Card.

Error Register

The error register records any malfunctions of the unit, even if temporary. Each error is recorded with the time stamp of when it occurred. An index of the error codes is provided in Section 20.

Firmware Upgrade

Prior to starting this procedure a new version of firmware is required to be downloaded from the Data Portal. Click the "Firmware Upgrade" button and when instructed to do so select the new firmware file. This will first be uploaded to the unit and then flashed into the memory. Wait for the "Upgrade Successful" message before disconnecting the unit.

IMPORTANT! During the firmware upgrade procedure it is important that the USB cable remain connected. If using a laptop computer check that there is sufficient battery power to cover the upgrade operation (7 minutes). If communication is interrupted at this point the unit may need to be returned to Alpinestars for upgrade.

19. Troubleshooting

Problem	Possible Cause	Possible Solutions
Jacket does not switch on when zipped up	Master Switch not on	Turn on Master Switch (8)
	Battery fully discharged	Recharge battery (Section 11)
	Jacket and vest not connected	Connect jacket wires to unit (Section 8)
	Jacket open	Zip the jacket closed, ensuring the zip runs above the zip sensor
	Zip sensor obstructed	Check that the zip sensor flap is not tucked inside the garment, and that there are no obstructions between the magnetic parts on either side of the zip
Single Red Indication on LED Display	Dependent on error	Consult list of error codes in Section 20 for recommended solution
Immediate Green indication on LED Display without startup sequence and regardless if jacket is open or closed	LED Display and zip switch cables have been crossed over	Invert cables. LED Display will be off, then wear and zip jacket closed to start the system as normal

20. Index of Error Codes

Code Number	Error Description	Possible Solution
001	Firmware Error	Reflash Firmware / Return for Service
002	Power Supply Error	Recharge Battery / Return for Service
003	Battery Voltage Too Low	Recharge Battery
004	Reset Squib Error	Return for Service
005	Squib Configuration Error	Reflash Firmware / Return for Service
006	Squib Diagnosis Fail	Return for Service
007	Inflator 1 error	Return for Service
008	Left Sensor Error	Return for Service
009	Right Sensor Error	Return for Service
010	Central Sensor Error	Return for Service
011	Gyro Sensor Error	Return for Service
012	Squib Arming Error	Return for Service
013	Synchronization Error	Reflash Firmware / Return for Service
015	Load Algorithm Error	Reflash Firmware
018	Inflator 2 Error	Return for Service
019	Left Sensor Power Supply	Return for Service
020	Right Sensor Power Supply	Return for Service
024	Algorithm Not Stable	Switch system off and on, sitting on motorcycle
025	Both Inflators Fired	Return for Service / Dispose of system

21. Tech-Air™ Support

In case of questions or if customers need further information, they may first contact the Tech-Air™ dealer where the product was purchased.



Tip: Remember that a full list of Tech-Air™ dealers in your country is available from the Tech-Air™ Data Portal.

22. Certification Information

The Tech-Air™ Street vest is covered by a number of certifications.

Personal Protective Equipment

The Tech-Air™ Street vest is considered Category 2 Personal Protective Equipment under EU Directive 89/686/EEC. As such a CE Type examination has been conducted. As the motorcyclists' inflatable protectors standard (EN1621-4:2013) is for mechanically triggered systems, this has been used with reference to impact performance and ergonomics only. The examination was conducted by Notified Body #0120 SGS United Kingdom Limited, Park Way, Weston Super Mare, BS22 6WA, UK. The explanation of the product markings are as follows:



Name of the manufacturer

SAB1

Unique identification code



Garment Size (waist to shoulder)
Sizing table in Section 6

37 - 40 cm

AIRBAG

Indicates that an inflatable protector is installed



Indicates that the product is for motorcycle use, meets level 1 airbag requirements and provides protection to the full back of the user

Pyrotechnic Articles

The Tech-Air™ Street Vest contains two pyrotechnically activated cold gas inflators, and as such, the whole item is considered as an "AIRBAG MODULE" category P1 under EU Directive 2007/23. As such a CE Type Examination (Module B) has been conducted on the design of the system, and a CE Type Examination and Audit (Module E) has been conducted on the assembly of the system.

The CE Type Examination and Audit have been conducted by Notified Body #0080, Ineris, Parc Technologique ALATA BP2, Verneuil-en-Halatte, 60550, France.

Electromagnetic Stability

The electronic unit of the Tech-Air™ Street vest has been homologated to ECE R10 04 which dictates minimum requirements for electromagnetic stability, electromagnetic interference, and electrostatic discharge for automotive electronic devices.

Homologation No: **E13 10R - 04 - 12891**

Important Information for Users

WARNING!

The Tech-Air™ System is an active safety protection system that is different from normal motorcycle clothing and as a result requires additional care and precautions. You must read and understand the instruction manual fully before use, as well as pay close attention to the following warnings:

- An airbag system can only provide a limited amount of protection in an accident or event. As such, there always remains a possibility that a serious or fatal injury could occur even when using the airbag system.
- The Tech-Air™ system is designed and developed for street use and limited off-road use only. This product has not been designed for hard off-road use, race use, stunt use or any non-motorcycling applications. Alpinestars does not accept any claims for malfunctions of the system used outside the environments for which its use is intended.
- Certain types of movement could be interpreted as a crash by the Tech-Air™ system and cause a deployment though no crash has occurred.
- The Tech-Air™ system has been designed to deploy in crashes above a minimum energy threshold. This is to prevent wasteful use of the charges in situations where protection typically would not be needed. Thus, in low speed/low energy crashes it is likely and reasonable that the product will not deploy.
- The Tech-Air™ system contains no parts which may be serviced by final customers, and must be serviced and recharged ONLY by approved Alpinestars Service Personnel, in order to ensure this equipment is sealed into the vest. Breaking this seal will void any claims against warranty or system malfunctions.
- Do not attempt to make any modifications or adjustments to the electronics, airbag vest or Alpinestars' Compatible Garment/Jacket of the Tech-Air™ system.
- The Tech-Air™ system must only be used for motorcycle street riding or limited off-roading – it is not to be used for any other purpose, motorcycle-related or otherwise. This includes: Enduro, Motocross, Supermoto, racing of any kind, performing stunts and any type of non-motorcycling activity. Wearing the product during any non-intended activity (with the unit switched on) may cause the system to deploy and cause injury or death to you or others and may cause damage to property.
- When not in use and being stored, transported, or shipped the Tech-Air™ system must be powered off at the Master Switch.
- Prior to each use, the Tech-Air™ system should be inspected for any signs of wear or damage. Additionally, when powered on the LED display must be checked. In the event that the system reports a fault (Red LED is illuminated), users should not use the product and must follow the instructions in this booklet.
- Whenever the LED Display gives a low battery indication the unit MUST be recharged as soon as possible.
- The Tech-Air™ system must never be machine washed, submerged in water, tumble dried or ironed.
- After a deployment, the unit must be returned to the Tech-Air™ Support Team which can arrange for the unit to be recharged.
- Even if the Tech-Air™ system has not been used, or the airbag never fired, it is important that the equipment be serviced at least once every two years, or if the system is used extensively, that it be serviced every 6 months to a year. This can be arranged through a Tech-Air™ authorized dealer.



**Please read the following important
WARNING and LIMITATION of use notice
carefully:**

Motorcycling is an inherently dangerous activity and an ultra-hazardous sport, which may result in serious personal injury, including death. Each individual motorcycle rider must be familiar with motorcycling, recognize the wide range of foreseeable hazards and decide whether to assume the risks inherent in such an activity with the knowledge of the dangers involved and accept any and all risks of injury, including death. While all motorcycle riders should utilize appropriate protective equipment, each rider should exercise extreme care for safety while riding and understand that no product can offer complete protection from injury including death or damage to individuals and property in case of fall, collision, impact, loss of control or otherwise. Riders should ensure that safety products are correctly fitted and used. DO NOT use any product that is worn out, modified or damaged.

Alpinestars makes no guarantees or representations, express or implied, regarding the fitness of its products for any particular purpose.

Alpinestars makes no guarantees or representations, express or implied, regarding the extent to which its products protect individuals or property from injury, death or damage.

ALPINESTARS DISCLAIMS ANY RESPONSIBILITY FOR INJURIES INCURRED WHILE WEARING ANY OF ITS PRODUCTS.

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0. Preliminary Notes

In this manual the following four presentation styles are used to provide information:

WARNING! Provides critical information which, if not followed, may cause injury, death, System malfunction or non-function, and/or an exaggerated expectation of the Tech-Air® 5 System's abilities.

IMPORTANT! Provides important information regarding the limitations of the system.



Tip: Provides useful advice regarding the Tech-Air® 5 System.



Provides information related to Tech-Air® App optional functionalities.

1. Introduction

Dear User, thank you for choosing an Alpinestars Product!

The Tech-Air® 5 System (hereinafter referred to as "System" and/or "Tech-Air® 5 System") is an active safety system for mainstream/recreational motorcycling, which offers protection to a motorcycle user both as a rider or passenger. In the event of an accident or other triggering event, the System provides complete upper body protection as it covers the user's shoulder, chest, ribs and full back, regardless of the type of motorcycle used. The System is designed to function in both road riding and light off-road riding situations (subject to the Off-Road limitations indicated in Section 3 below),

When Race Mode is activated, it can also be used on a closed race track within the conditions and limitations delineated in this Guide.

Tech-Air® 5 System consists of a standalone vest which is designed to protect from impacts occurring during an accident. It does not provide any protection against possible abrasion during an accident, therefore, the System must be always used in combination with an outer protective garment, compatible with the System (for further information see Section 8).

WARNING! The Tech-Air® 5 System does not offer the Dual Charge Concept. Once the airbag has deployed there's no further airbag charge. User is without further airbag protection until the System is serviced.

WARNING! The System, including its components, are technologically advanced pieces of motorcycling safety equipment and should not be treated like a normal motorcycle garment. Similar to one's motorcycle, the System and its components must be cared for, serviced and maintained, so that they may function correctly.

WARNING! The System MUST be used in combination with an outer protective garment, compatible with the System (Section 8).

WARNING! It is essential to read this Guide carefully, to understand it completely and to follow the advice and warnings. If you have any questions regarding the equipment contact Tech-Air® Support (Section 19).

IMPORTANT! Without any additional notice, Alpinestars reserves all rights to, from time to time, update the software and or the electronic components of the Tech-Air® 5 System.

2. Principles of Operation

The System consists of an Airbag Electronic Control Unit (with built-in sensors) integrated into the back protector, (Figure 1). The cluster of sensors consists of 3 accelerometers and 3 gyroscopes. These six sensors monitor the user's body for shocks or unexpected movements. In the event the user's body is subject to a high and/or sudden amount of energy, the System will deploy. This may occur when the motorcycle is involved in an accident, such as when the motorcycle collides with another vehicle or object, when the rider loses control or when the rider falls off the motorcycle.

The System is equipped with a Bluetooth Low Energy (BLE) device located in the electronic control unit. The BLE allows the System to connect directly to a mobile phone in order to receive important information from the System, while also permitting the users to access a number of other functions (for further information see "Tech-Air® App" in Section 17).



To connect the System to the mobile phone via Bluetooth, remember to activate the Bluetooth module within your phone and to download the Tech-Air® App available at Android Play Store or at Apple Store.

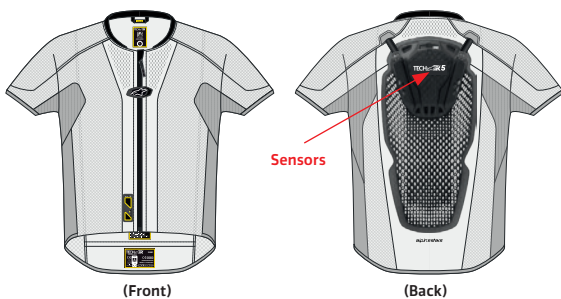


Figure 1 – Sensor Location

RACE MODE: Tech-Air® 5 System comes with two different algorithms that permit the use of the System on both streets and light off-road paths (the "Street Mode") and race tracks (the "Race Mode"). User can easily switch between these two modes by using the Tech-Air® App.



User must always ensure via the App that the System is running the most up to date software release.

WARNING! When the System is in Race Mode it stays active and ready to deploy when riding at 100km/h and above. Should User stop or reduce the speed under 100km/h for an extended period of time, the System will reperform the System Check so it will not activate in case of an accident.

WARNING! System must be used in Street Mode when riding outside race tracks, as Street Mode operation differs from Race Mode and vice versa.

3. Tech-Air® Envelope of Protection

In general, there are three basic factors that determine whether an airbag system will provide protection to a user:

- Whether the forces experienced by the user during an event (such as an accident) occur within an area covered by the airbag; and
- Whether the airbag deploys before the user collides with a vehicle, an obstacle or the ground.
- Whether the airbag deploys before the user collides with parts or accessories of his/her own motorcycle. For example, mirrors, windscreens or tank bags.

To provide protection to a user, an airbag system must be fully deployed. The deployment time consists of the time for the sensors to detect the dangerous event, plus the time it takes to fill the airbag fully with gas, which, for the System is about 40 milliseconds (ms) maximum. The time to deploy the airbag depends on the type of accident, the type of motorcycle (e.g. scooter, custom, sports) and the speed involved, amongst other things.

The “Envelope of Protection” is a term used to generally describe situations and/or circumstances where the System may provide protection denoted as “inside the Envelope”, and those where it will not, denoted as “outside the Envelope”.

The System protects both the rider and the passenger wearing the System in the event of an accident or other triggering events; however, like any other product, there are limitations to the protection it can provide.

WARNING! No product can provide complete protection from injury (or death), or damage to persons or property in the event of a fall, accident, collision, impact, loss of control or other event.

The System provides impact protection for those areas where airbag coverage is shown in Figure 2.

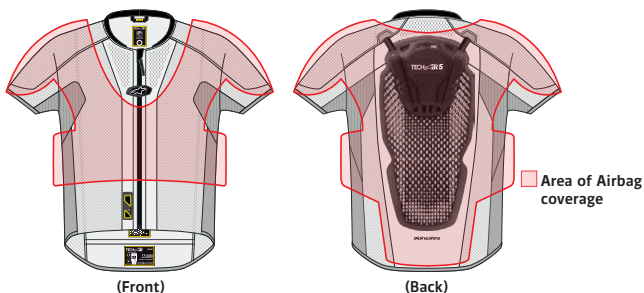


Figure 2

WARNING! The System provides only limited impact protection against forces in the areas of airbag coverage as depicted in Figure 2. No guarantee is given that the System will prevent injuries (including severe or fatal injuries) inside and/or outside the areas of airbag coverage or the Envelope of Protection.

WARNING! The System cannot prevent accidents or injuries to the user.

WARNING! No protective device, including the System, can provide protection against all possible sources of injury and therefore cannot provide complete protection against injuries.

WARNING! Wearing the System is not a substitute for wearing other protective motorcycling clothing and gear. To provide full potential protection, the System must always be worn in conjunction with suitable motorcycling gear and apparel that covers the rider from head to toe, including a helmet, protectors, boots, gloves, and other appropriate protective equipment.

For Tech-Air[®] 5 System the Envelope of Protection includes crashes against obstacles and loss of control crashes (commonly referred as ‘low-side’ and ‘high-side’).

IMPORTANT! If the speed of the vehicle is less than 25km/h (15 mph), the System may not deploy at the time of the collision/crash, but may deploy if the rider or passenger suddenly falls from the motorcycle after the impact.

Envelope of Protection for Loss of Control Crashes

A Loss of Control Crash often results in the motorcycle falling over during riding. This commonly happens when tire grip on the roadway is lost during a turn or heavy braking.

WARNING! The user does not need to be involved in a crash for the System to deploy. For example, the System will deploy if the user falls while wearing the System, such as when dismounting from the motorcycle. These types of “non-riding” deployments are not failures of the System.

IMPORTANT! There are some limitations on the deployment of Tech-Air[®] 5 System even inside the Envelope of Protection (like a high impact angle on a crash against an obstacle, or low impact forces). In general, the System is not expected to deploy if the impact energy is too low.

In Street Mode, Envelope of Protection for Crashes Where a Vehicle Strikes a Stationary Motorcycle:

Arrival Speed	From 25km/h (15mph)
Impact Angle	From 45° to 135°

The above parameters are valid for both rider and passenger.

In Street Mode, Envelope of Protection for Crashes Where a Motorcycle Strikes a Vehicle or Obstacle (Figure 3):

Arrival Speed	From 25km/h (15mph) to 50km/h (31mph)
Impact Angle (Fig 3)	From 45° to 135°

The above parameters are valid for both the rider and passenger.

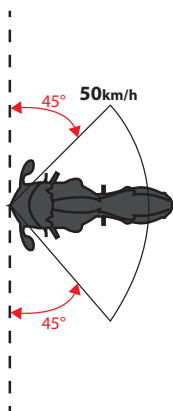


Figure 3

IMPORTANT! Figure 3 outlines the Envelope of Protection where the Tech-Air[®] 5 System is expected to inflate before the user's body contacts an obstacle. At speeds above 25km/h the System will deploy regardless of the impact angle, but outside the Envelope of Protection the System may not be fully inflated before there is contact between the obstacle and the user.

IMPORTANT! **If Race Mode is selected, the System may not deploy before the first impact, but may deploy if the rider suddenly falls from the motorcycle after the impact, regardless of the impact angle.**

WARNING! **Always make sure to select the Street Mode when riding on roads. Only use Race Mode for closed race track use.**

Motorcycle Type

The Tech-Air[®] 5 System can be utilized by riders or passengers on any type of motorcycle, including electric motorcycles.

Light Off-Road Riding

The Tech-Air[®] 5 System may be used off-road IN A LIMITED CAPACITY riding on gravel roads only. For the purpose of using the System off-road, the definition of a gravel road is:

- An unpaved road surfaced with gravel.
- Has a minimum width of 4m (13ft).
- Has no gradients +/-30%.
- Has no ruts, steps or holes greater than 50cm (19.5") in depth.



Tech-Air[®] App permits user to temporarily disable the System protection if, for instance, the user is undertaking heavy off-road riding. The System cannot be turned on again with the App but only by means of simply opening and closing again the Front Flap.

IMPORTANT! The chances of falling off a motorcycle are notably higher when riding off-road, particularly when a rider is inexperienced. Even when stopped, a fall may cause the System to deploy, leaving the user without protection until the System is returned and recharged (see Section 16).

4. Limitations of Use

WARNING! Since the System is sensitive to sudden body movements and shocks, the System is to be used **ONLY** for motorcycling within the conditions and limitations delineated above. The System is **NOT** for use in:

- a. Any racing or competitive events, unless the Race Mode is selected;
- b. Enduro, Motocross, or Supermoto events;
- c. Motorcycle stunts; or
- d. Side skidding, wheelies, etc.;
- e. ANY non-motorcycling activities.

WARNING! Due to shocks, movement and/or other input detected and/or received by the System while in use, although unlikely, the System may deploy even though there is no crash event.

WARNING! Depending on the motorcycle type, for example a scooter or trials bike, it cannot be guaranteed that the System will inflate before the user collides with parts of the motorcycle, or other objects.

WARNING! Wearing the System is not a substitute for wearing other protective motorcycling clothing and gear. To offer full potential protection the System must always be worn in conjunction with suitable motorcycling gear and apparel that covers the rider from head to toe, including a helmet, protectors, boots, gloves, jacket, and other appropriate protective equipment.

WARNING! The System's working temperature is between -20° and +50° (-4°F to 122°F).

WARNING! Do not use the System 4000 meters above sea level as low pressure may damage the internal battery.

5. System Overview

The diagrams below illustrate the different parts of the Tech-Air® 5 System. The numbered parts are used to guide you through this user's guide.

TECH-AIR® 5 SYSTEM

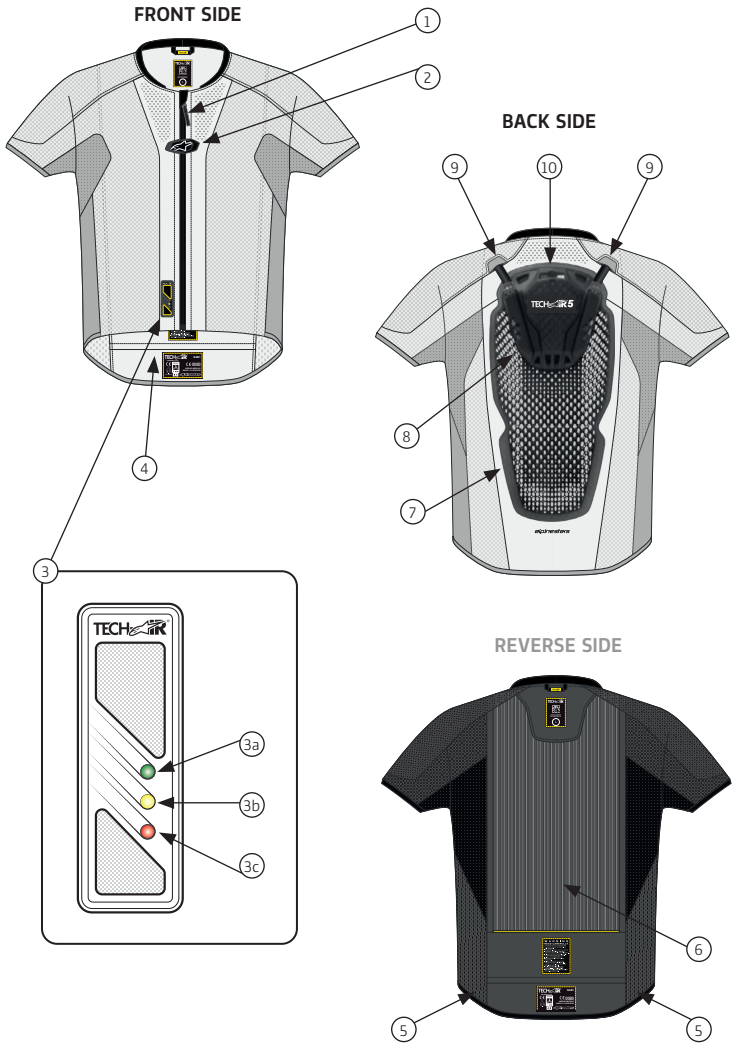


Figure 4

- | | | |
|-------------------------|-------------------|-------------------------|
| 1. Magnetic Zip Closure | 4. Lower Opening | 7. Back Protector |
| 2. Front Flap | 5. Warranty Seals | 8. Airbag Control Unit |
| 3. LED Display | 6. 3D Air Mesh | 9. Inflator Connections |

AIRBAG CONTROL UNIT (8)

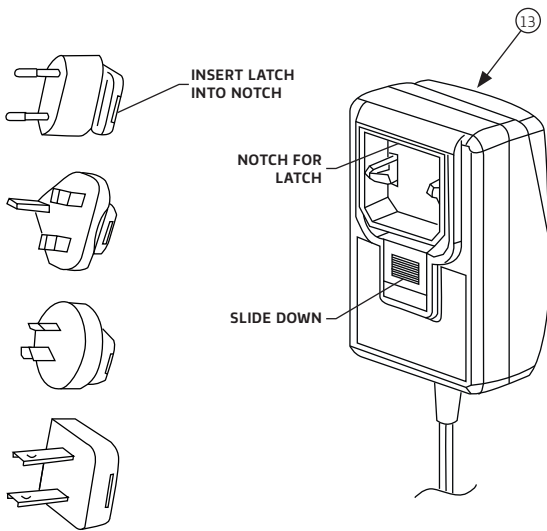
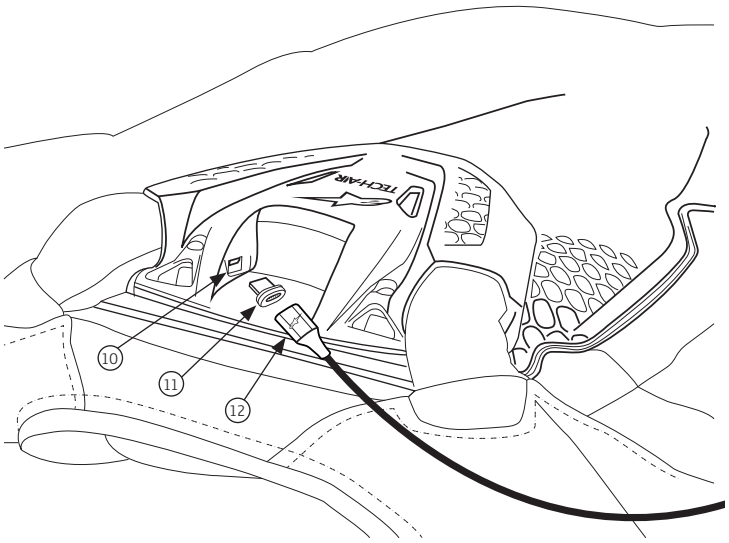


Figure 5

- 10. Micro USB port
- 11. Micro USB Adapter
- 12. Magnetic Charging Cable
- 13. USB Charger

6. Sizing

The System is available in sizes from XS to 4XL. Each size is characterized by a specific waist-to-shoulder length of the user (Figure 6).

Table 1 below lists the sizes of the System, the waist-to-shoulder length and a suggested person height to assist with the selection.

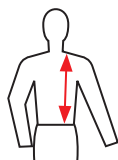


Figure 6

WARNING! The height range suggested is only for reference. Check always the correct waist-to-shoulder length before choosing the size of the System.

Table 1

Vest Size	Int. Size	User's Waist to Shoulder length	Suggested Height Range
XS	38-40	Up to 43cm (16.9")	Up to 164cm
S	42-44	Up to 46cm (18.1")	Up to 175cm
M	46-48	Up to 48cm (18.9")	Up to 182cm
L	50-52	Up to 50cm (19.7")	Up to 190cm
XL	54-56	Up to 50cm (19.7")	Up to 190cm
2XL	58-60	Up to 52cm (20.5")	Up to 198cm
3XL	62	Up to 52cm (20.5")	Up to 198cm
4XL	64	Up to 52cm (20.5")	Up to 198cm

7. Health and Age Restrictions

IMPORTANT! In Europe the Pyrotechnic Directive (2007/23) prohibits the sale of pyrotechnic articles to anyone under the age of 18.

WARNING! The Tech-Air[®] 5 System must not be handled by children at any time.

WARNING! In the event of a crash, inflation of the System will cause sudden pressure across the back and torso. This can cause discomfort and for users in poor health this may cause complications.

WARNING! The Tech-Air[®] 5 System must not be used by persons with a history of heart problems, or other diseases, conditions, afflictions or illnesses which may weaken the heart.

WARNING! The Tech-Air[®] 5 System must not be used by persons fitted with a pacemaker or other implanted electronic medical devices.

WARNING! The Tech-Air[®] 5 System must not be used by persons with neck or back problems.

WARNING! The Tech-Air[®] 5 System must not be used by women during pregnancy.

WARNING! The Tech-Air[®] 5 System must not be used by women with artificial breast implants.

WARNING! Any body piercings which coincide with the airbag coverage area should be removed before electing to use the System, as inflation of the airbag into and against the body piercings may cause discomfort and/or injury.

Allergy Advice

Persons with certain skin allergies to synthetic, rubber or plastic materials, should carefully monitor their skin each time the Tech-Air[®] 5 System is worn. If any irritation of the skin occurs, immediately stop wearing the System and seek medical advice and/or attention.

8. Compatible outer garment

The Tech-Air[®] 5 System must be used with an outer protective garment as the vest is not abrasion resistant. It is generally recommended to the user to choose an outer protective garment so that, when worn over Tech-Air[®] 5 System, it does not cause discomfort and does not prevent the functionality of the System.

The System can be used with any abrasion resistant garment that covers the upper body that is designed for two wheeled motor vehicles provided that the garment has sufficient space to allow for the expansion of the airbag after the deployment.

Alpinestars offers many Tech-Air[®] compatible outer garments (such as Tech-Air[®] Compatible 1 and 2 piece suits, jackets, and the new generation of Tech-Air[®] Ready garments, both of which are specifically designed with stretch panels to accommodate the volume of the inflated airbag after deployment).

Follow the procedure described below to check if your garment is compatible with the System. Remember to ensure that you select an outer garment that has the proper fit and should any protectors be present on such garment, that the protectors are correctly positioned. If the garment you have chosen is a leather garment, it is highly recommended that it has stretch panels to accommodate the inflated airbag after deployment.

Upon inflation, the Tech-Air[®] 5 System's airbag covers the shoulder, chest, ribs and fullback area, accordingly the System must not be used inside of a leather suit or a 2 piece leather suit, unless such leather suit or 2 piece leather suit has sufficient space to accommodate the inflation of the airbag, as shown below, and it's not too tight in the crotch area in order to prevent discomfort in case of deployment.

IMPORTANT! When the System is used with an outer garment, other than those specifically designed for Tech-Air[®] Systems by Alpinestars, the user must verify if the outer garment provides a sufficient inner volume able to contain the deployed airbag as follows:

1. Measure the circumference of the chest
2. Measure the garment width on the chest region

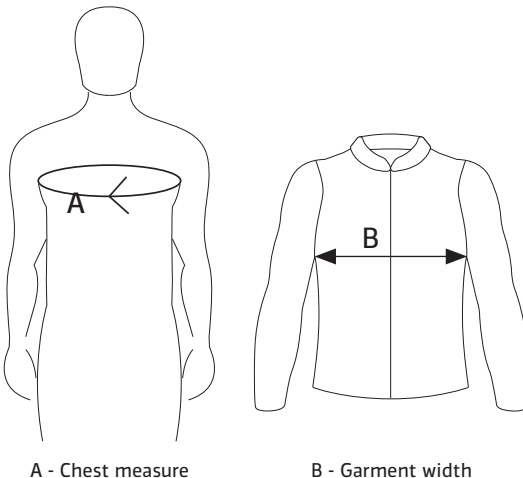


Figure 7

3. The garment is compatible with Tech-Air[®] 5 System if $B > 0.5 \times A + 12$

WARNING! The Tech-Air[®] 5 System must ALWAYS be used with a correctly fitting outer garment of the user's appropriate body size. Use of the System with the incorrect size of an outer garment, or not compliant with the size check recommendations above, may result in the System malfunction or failure and injury, including severe injury and/or death.

9. System Installation and Fitting

To use the Tech-Air® 5 System with an outer garment the user must go through the following steps:

1. Put on the System, close the Magnetic Zip Closure (1) from bottom to the top.
2. Close the Front Flap (2) with the Alpinestars logo taking care to correctly attach the hook-and-loop patches, as shown in Figure 8; the System automatically turns on as soon as the Front Flap is attached to the hook-and-loop patch.
3. Once the Front Flap (2) has been correctly closed, check the LED Display (3) to verify that the System has turned on and that has started correctly (see "Display Indications" in Section 13). In particular, the user must verify that after the System starts-up, no system fault is present.



Figure 8

4. Once verified the regular functioning of the System, signaled by the green (3a) or the yellow (3b) and green (3a) LEDs, the user may proceed to put on the outer garment taking care that the System remains well fitted underneath the outer garment, and that all fits perfectly in place. Particular care must be taken to the shoulder areas of the System which must be correctly positioned within the sleeves of the outer garment.
5. Once the System has been correctly installed, fasten the outer garment.

WARNING! It is imperative that the System is fitted correctly in order to provide the maximum potential protection in an accident. Outer garment which are too small will cause severe discomfort when the System is inflated, outer garment which are too large may not hold the System in place during a fall or accident. In case of doubts or questions regarding fit, seek advice from an Alpinestars dealer.

Once the System is switched on and the System Check has been successfully passed (see "Display Indications" in Section 13), the Tech-Air® 5 System is ready to deploy as explained under Section 3 above. The System also activates if the user experiences a loss of control of the motorcycle which may lead to a fall. A fall from the motorcycle when stopped, may also activate the System.

WARNING! Always ensure that the Front Flap is open when the Tech-Air® 5 System is not worn by the user; check the LED Display (3) to verify that the System is not turned on.

10. Transportation of Objects Inside the outer garment

When using an outer garment, consideration needs to be given to the objects which may be placed inside its pockets. For example:

- Sharp or pointed objects placed in pockets may pierce the airbag and compromise inflation.
- Bulky objects may limit the airbag expansion after deployment, potentially reducing the effectiveness of the airbag and/or making the System feel much tighter when inflated, possibly increasing discomfort or causing distraction or injury.

IMPORTANT! Particular attention should be paid to the contents of the internal outer garment's breast pocket, if any. ONLY flat objects such as wallet or mobile phone should be stored within this pocket.

WARNING! Under NO circumstances should a user attempt to transport objects of ANY size or shape, including sharp or pointed objects, stuffed inside the outer garment, as they may cause injury to the user and/or damage to the airbag. Only blunt objects should be transported in the outer garment provided that they fit completely inside the pockets.



Tip: Users should note that the System has been tested to be safe when used in combination with backpacks (worn over the outer garment) loaded up to a maximum of 6kg (approximately 13 pounds) in weight.

11. Battery Charging

Tech-Air® 5 System is supplied with a wall USB Charger (13), a Magnetic Charging Cable (12) and a Micro USB Adapter (11), for an easy and fast plug-in to the Micro USB Port (10).

Wall USB Charger (13) is supplied with 4 different plugs to adapt to the most common power sources.

IMPORTANT! Always connect the proper plug to USB Charger (13), correctly fitting the power source available; always check that the plug is properly connected to the USB Charger (13) before connecting to the power source.

IMPORTANT! While charging, always be sure that the USB Charger (13) is connected to a power source sufficiently near to Tech-Air® 5 System, and be sure that the power source is always easily accessible.

Fully charge the System before the first use. To do this, connect the supplied Magnetic Charging Cable, or a standard Micro USB charging cable, to the Micro USB Port (10) present on the upper part of System. Once on charge, the LED display (3) will display a different combination of solid and blinking LEDs, according to the description provided in "LED Indications" (Section 13).

IMPORTANT! The battery will only recharge when the ambient temperature is between 0°C and 40°C (32°F – 104°F).

IMPORTANT! If the battery is not periodically charged, it may take longer fully charge.

WARNING! Do not leave the System unattended while charging the battery. Charge only in a dry location with a temperature range of 0°C to 40°C (32°F – 104°F).

Charging and Use Times

Approximately 4 hours are required to recharge a discharged battery with the supplied USB Charger (13), with exception of the first battery charge which may require a longer time (approx. 12 hours). A fully charged battery will provide approximately 30 hours of use. If limited time is available, charging the battery for approximately 1 hour will provide approximately 7 to 8 hours of use.



Tip: The System may be charged by connecting it to a computer, or to an alternative Micro USB charger. However, if the current output is under 1 Ampere, the charging times will be longer than those stated above.

WARNING! In case of use of a charger different from that supplied with the System, for a safe operation always insure that the used USB charger is compliant to EN 62368-1 as a class 1 (ES1) and class 1 (PS1) or 2 (PS2) power source, with a maximum output current of 2 Amperes.

WARNING! The System should be recharged as soon as possible when the red Battery Level LED light (3c) flashes, as this indicates a low battery level.

12. System Operation

a) Turning On "Street Mode" and "Race Mode"

To turn on the System, zip up the Magnetic Zip Closure (1) and close the Front Flap (2) with Alpinestars logo taking care that hook-and-loop patches are correctly attached. An internal magnetic switch will detect that the Front Flap (2) is closed and the System will turn on. At this point, the user MUST check the LED Display (3) to verify that the System starts correctly. See "Display Indications" in Section 13 below for the meanings of the LED indicator lights.



Tip: If the System does not power on (no LED Indications illuminate) first check that the Front Flap (2) has been correctly closed, and be sure that the battery has charge. If the problem persists, contact Tech-Air[®] Support (see Section 19 "Tech-Air[®] Support").

WARNING! In order to activate the Tech-Air[®] 5 System, the Front Flap (2) must be correctly closed taking care that the hook-and-loop patches are correctly attached.

b) System Check and activation for "Street Mode" and "Race Mode"

After the System is turned on correctly, the System starts performing a System Check. This will be indicated by the solid yellow (3b) and green (3a) LED indicator lights. During such a System Check the System will not deploy. This phase may take several seconds.

Whilst the System Check is being performed the System is looking for the body movements to conduct one or all of the following activities:

- Walking (including up and down stairs)
- Mounting the motorcycle
- Riding the motorcycle.

If the System Check is passed a solid green (3a) LED indicator light will illuminate.

Note that the following activities are unlikely to pass the System Check:

- Zipping up the jacket without wearing it
- Standing still
- Sitting down – INCLUDING on the motorcycle with the engine at idle.

STREET MODE ACTIVATION: When the System Check has been correctly performed, and the yellow light turns off, the System must detect a riding condition for at least 10 seconds in order to be ready to deploy in case of an accident.

RACE MODE ACTIVATION: When Race Mode is selected, after the completion of the System Check, the LED Display will show solid green and yellow LED light. The yellow light will turn off only when rider reaches 100km/h (62mph) and only then the System will be ready to deploy. If the rider stops or the speed drops under the 100km/h for an extended period of time, the System will return in the System Check phase (indicated by the solid yellow and green LEDs – see Section 13 below).

IMPORTANT! Should the System detect a situation incompatible with the normal expected usage of the System, the System will automatically turn off and so will the Led Display (3). Open and close the Front Flap (2) to turn the System on again and re- perform the System Check.

WARNING! Always check that the appropriate riding mode is selected either by means of the Tech-Air[®] App and/or checking the LED Display (3) Indications.

WARNING! In Street Mode, you **MUST ALWAYS** check the LED Display (3) after the System Check to confirm you have the solid green (3a) LED illuminated before starting to ride/use the Tech-Air[®] 5 System. The System will not deploy if a solid green LED (3a) is not present on LED display (3).

IMPORTANT! The Front Flap (2) functions using magnets. Magnetically sensitive items (such as credit cards) should be kept at least 1cm away from the switch area.



The status of the Tech-Air[®] System can be checked by connecting the System through the Tech-Air[®] App. When the System Check has been successfully passed and the System is active, the Tech-Air[®] App will display the indication "System On".



System inactivation can also be "forced" directly using the App. This functionality can be useful in case the user wants to turn off the airbag protection, for instance before undertaking some heavy off-road riding [please note that the System cannot be turned on again by means of the App. To do so, open and close the Front Flap (2)].

c) Turning Off

Turn the System off by opening the Front Flap (2). The System will shut down after 1 second approximatively. Confirm that the System is off by checking that there are no indicator lights illuminated in the LED Display (3).

To keep the System turned off, keep the Front Flap (2) open and make sure that Magnetic Zip Closure (1) stays unzipped, as shown in Figure 9. Always keep the System in this condition while stored, transported or shipped.

WARNING! ALWAYS turn the System off [by opening the Front Flap (2)] when you are not riding a motorcycle, even if you continue to wear the System. Although the System has been evaluated for a number of non-riding activities, keeping the System turned on and/or active increases the possibility of an unwanted deployment and drains the battery.



Figure 9

WARNING! When not in use and being stored, transported or shipped, the System must be turned off by leaving the Front Flap (2) open. This prevents System to accidentally turning on and inadvertently deploying, and it will preserve battery and battery life.

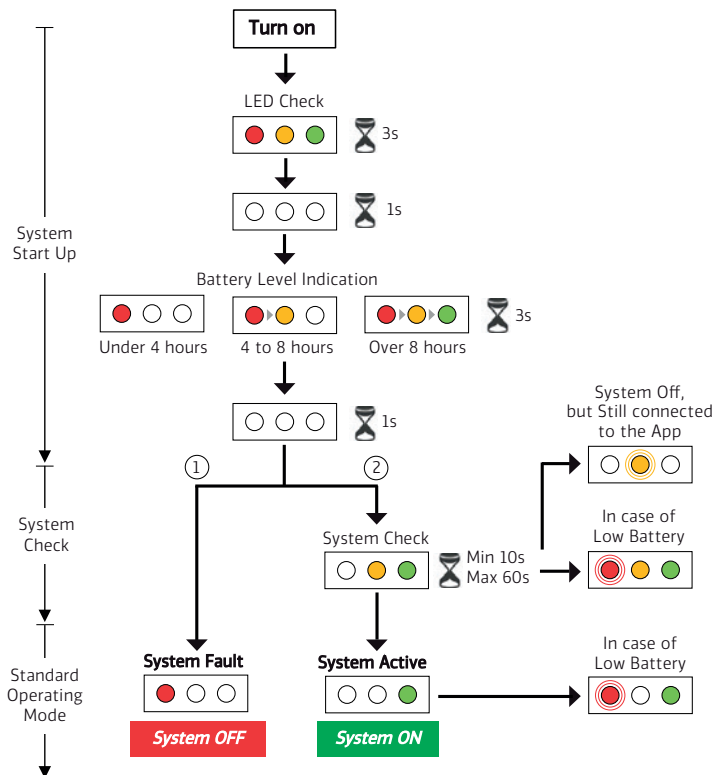
IMPORTANT! Even when the System Check has successfully been completed, the System will automatically turn off should the System detect:

- a rider position incompatible with the normal wearing of the System or
- no movements for more than 10 minutes. When either of the above situations occur, open and close the Front Flap (2) to restart the System and perform a new System Check (for further details on the System Check activity, please check above paragraph 12 b))

13. Display Indications

The LED Display (3) has three colored LEDs which are used to indicate the status of the System.

LED Indications During Normal Use



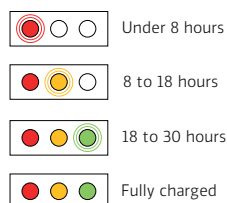
Glossary



- ① System Fault: Operating Mode that verifies in case of "Empty Gas Canister" or "System Error" (see Section 18, "Troubleshooting")
- ② System Active: Operating Mode that verifies in case the System Check is successfully passed (see Section 12, "System Operation")

LED Indications During Recharge

Battery Recharge



Glossary



IMPORTANT! The solid green LED (3a) indicates that the System is on.

WARNING! Any LED indication different from the solid green LED (3a) indicates that the System is not active and accordingly will NOT deploy in a crash.

Indications during battery charging

During battery charging the LED Display (3) will show a continuous flashing. When the battery is fully charged all 3 LEDs will remain illuminated.

14. Cleaning, Storage and Transportation

Vest Cleaning

Use only a cloth dampened with water to clean the vest (fabric and plastic parts). Solvents or chemical cleaners must not be used, as they may compromise the integrity of the System.

WARNING! Under NO circumstances should the vest be washed in a washing machine, submerged in water, tumble dried or ironed. This may cause permanent damage to the System and cause malfunction.



Tip: As part of the recommended two-yearly service the System will be disassembled and washed.

Storage

When not in use it is recommended to store the System in its original packaging. It may be stored flat provided that no heavy or sharp objects are placed on top of it. The System can also be stored hung up from a rail. It should always be stored in a cool, dry place, out of direct sunlight.

The battery of the System slowly self-discharges, even if the System is not turned on, in particular if the System is stored in a warm environment. It is thus recommended that even whilst in storage the System be periodically recharged (at least once every 18 months) to prevent battery drainage and shortening the battery life.

IMPORTANT! If the battery becomes fully drained, the System may require a longer time to recharge. It is thus recommended that the System is periodically recharged as indicated.

WARNING! Do NOT leave the System in direct sunlight inside a closed car or otherwise exposed to high temperatures. High temperatures will damage the battery and possibly the other electronics of the unit.

WARNING! Zipping up the vest and closing the Front Flap (2) will cause the System to turn on. To prevent this, it is essential that the Front Flap (2) is opened, in order to prevent accidental activations of the System. Failure to do so will cause the System to turn on, which will cause the battery to drain. When storing the System remember to keep the Front Flap (2) open and check that there are no indicator lights illuminated on the LED Display (3).

WARNING! The System's storage temperature must be between -20°C and +60°C (-4°F to 140°F). Exposure to a temperature lower than -20°C (-4°F) may cause permanent damages to the battery.

Transportation

Users should be aware that airbag inflators are pyrotechnic devices. Under the European pyrotechnic Directive (2007/23/EC) they are certified safe for transportation, including by air, provided that the System is checked into the aircraft's hold as checked luggage.

When transporting the System by air, users are strongly recommended to download and print a copy of the Product Information Sheet (PIS) in case they are questioned by airport staff. This can be downloaded from the Tech-Air[®] App (Section 17).

Note: Not all countries worldwide permit the import of pyrotechnic devices. Prior to traveling, users should check with the appropriate authorities of countries through which and to which they are traveling to determine if the System will be permitted entry or not.



Product Information Sheet (PIS) can be downloaded using the Tech-Air[®] App.

15. Maintenance, Servicing and Disposal

Garments with electronically activated airbags are critical safety systems which must be maintained in good working order to ensure their correct function. If not, they may not function properly or at all.

Maintenance

Prior to each use, the user should conduct a check of the System, looking for any signs of wear (loose threads, holes, marks) or damage. If any signs of wear are found, the System should be inspected further by an authorized Alpinestars Tech-Air[®] Service Center.

Servicing

Alpinestars recommends that the System be routinely serviced at least every 2 years or after 500 hours of functioning by Alpinestars or an authorized Alpinestars Tech-Air[®] Service Center. During the routine service the airbag and the unit's components will be inspected. Routine can be requested directly at an Alpinestars Tech-Air[®] Dealer. The following work is undertaken as part of the routine service:

- All components are removed from the System and the vest is washed.
- The diagnostics of the electronic unit are checked (and firmware upgraded, if applicable).
- The airbag is inspected for any sign of wear and/or damage.
- The System is reassembled into the vest and checked functionally.



Tip: Two years or 500 hours of functioning is the maximum recommended period between inspections.

WARNING! If no service or recharge operation has been conducted after two years or 500 hours of functioning from the purchase date, there is the possibility that the System will not function inside the Envelope of Protection.

IMPORTANT! The access zip to the airbag is partially sealed. Cutting these Warranty Seals (5) voids the warranty on the product.

WARNING! There are NO user serviceable parts inside the System. Under no circumstances should users attempt to open, service, disassemble or modify the System. Do not remove or change the internal battery. Any and all work performed on the System must be done by Alpinestars or an authorized Alpinestars Tech-Air[®] Service Center. Severe injury or damage may result otherwise.

IMPORTANT! The access zip to the airbag is partially sealed. Cutting these Warranty Seals (5) voids the warranty on the product.

Disposal of the System at the end of life span



Deployed System

IMPORTANT! The System contains electronic components, accordingly, at the end of its working life, the System must be disposed following the European Directive 2012/19/EU requirements. The symbol of the crossed bin displayed on the System indicates the electronic parts of the System which, at the end of its life span, must be separately disposed from other waste, for appropriate waste processing and recycling. The user must therefore take the Electronic Unit (8), Magnetic Cable (12) and all other electronic parts marked with the crossed bin, to those sites assigned for the disposal of electrical and electronic waste or return the System to an Alpinestars Tech-Air[®] Dealer for disposal in accordance with the local waste requirements.

An adequate waste disposal System allows for a correct and environmentally-friendly recycling, processing and disposal of the System itself, thus avoiding the dispersion of dangerous substances and any negative effects on the environment and health and favoring the reuse and/or recycle of the materials which the System is made of. The unauthorized disposal of the System on behalf of the user, entails application of fines pursuant to the current law. We urge you to check the current legislation and the measures adopted by the public services operating in your territory.



Tip: A deployed airbag can be confirmed by turning on the System and looking for the red LED (3c) on the LED Display (3) (Section 13) or checking the System status using the Tech-Air[®] App (Section 17).

Undeployed System

WARNING! An undeployed System still contains live pyrotechnic charges and thus must NOT be disposed of in household waste or incinerated.

Undeployed System must be returned to an Alpinestars Tech-Air[®] Dealer for subsequent return to Alpinestars who will handle the disposal. This service is free of charge.

16. Actions in the Event of an Accident

Whenever the System deploys, a service must be undertaken by an authorized Alpinestars Tech-Air[®] Service Center that will check the status of the System and consequently advise on the type of service needed.

The Tech-Air[®] 5 System features an airbag that is certified for upto three-inflations, meaning that after a deployment, and when the System is received for service, the authorized Alpinestars Tech-Air[®] Service Center will perform an inflation test of the airbag to check if the airbag was damaged during the deployment.

- If such inflation test is passed, the airbag was not damaged during the deployment and accordingly the service will involve the replacement of the gas inflators only.
- If such inflation test is not passed, the airbag was damaged during the deployment and accordingly the System will undergo a full service that will involve the replacement of the gas inflators and the airbag.

At the third deployment, the System must undergo a full service as indicated in point b. above.

IMPORTANT! Tech-Air[®] 5 Electronic Control Unit registers the number of deployments. After the third deployment, the System will indicate permanently a System Fault (steady red light on LED Display (3)). The System will remain blocked until a full service is performed by a Tech-Air[®] Authorized Service Center.

In case of deployment in situation where the user believes the System should not have deployed, the System should be returned to an Alpinestars Tech-Air[®] Dealer along with a detailed report of the event (including photos, if possible).

Accident WITHOUT Deployment

In the case of minor, low energy and/or low speed accidents, such as those involving speeds below those described in Section 3 ("Tech-Air[®] Envelope of Protection") it is likely that the System will not deploy. Nonetheless, a thorough inspection of the System should be made to ensure that there is no significant damage (tears, holes, etc.) which could compromise the function of the System, as per the maintenance check outlined in Section 15.

In case of situations where the user believes the System should have deployed, a feedback can be sent to Alpinestars through the Tech-Air[®] App and/or contacting Tech-Air[®] Support. If the System is returned to an Alpinestars Tech-Air[®] Service Center for an inspection, a detailed description of the event (including photos where possible) must be included.



The user can notify any feedback related to deployment events to Alpinestars through Tech-Air[®] App and/or contacting Tech-Air[®] Support (see Section 19).

17. Tech-Air[®] App

Tech-Air[®] 5 System is equipped with a Bluetooth Low Energy (BLE) device which allows to directly connect the user's mobile phone to the System, in order to get certain information from the System and have access to several functions, such as:

- monitor the status of the System;
- verify the installed software and, eventually, perform the latest software updates;
- send feedback related to the System and its performances;
- and many others.

WARNING! Alpinestars is not responsible for reporting possible accidents or for providing any assistance to those involved. User agrees that Alpinestars has no duty or responsibility to report any accidents or the possibility of any accidents based on the data transmitted to Alpinestars. Users assumes the risk of any accidents or injuries whether or not data is being transmitted to Alpinestars.

The Tech-Air[®] App is available for download in the Android Play Store and in the Apple Store.

IMPORTANT! Tech-Air[®] App is not necessary for Tech-Air[®] 5 System to work as an impact protector. Tech-Air[®] 5 System will protect the user as described in sections 2 to 13 even if Tech-Air[®] App is not installed or not running on the user's mobile phone.

User Registration

To have access to the Tech-Air® App, the user must log in or, if not, sign up. In order to configure the Tech-Air® App Bluetooth must be turned on within the user's mobile phone.

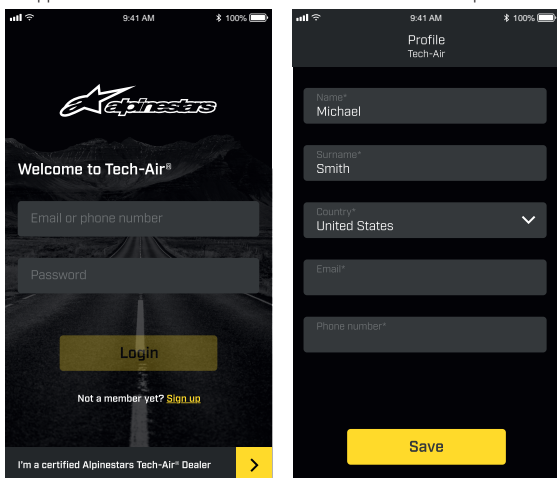


Figure 10

Pair the System

Once the Bluetooth is turned on, the App will automatically attempt to establish a connection with an available Tech-Air® 5 System, if already paired with the System. Should no Tech-Air® System have been already paired to the App, the System can be easily paired to the App by scanning the QR code present inside the System's internal neck liner. Once the System has been correctly paired the App, it will be possible to visualize the overall status of the System, such as battery level and installed software, and enabling or disabling some of the functions provided by the App. When the Tech-Air® 5 System turns off, the Bluetooth® connection will stay active to allow the dialogue between the System and the mobile phone, provided that the System is in the vicinity. In this case, the active connection with the App is indicated by the blinking yellow light (3b) on the LED display (3) and the User can interact with the App. The LED display will definitively turn off when the System doesn't detect any connection with the App.

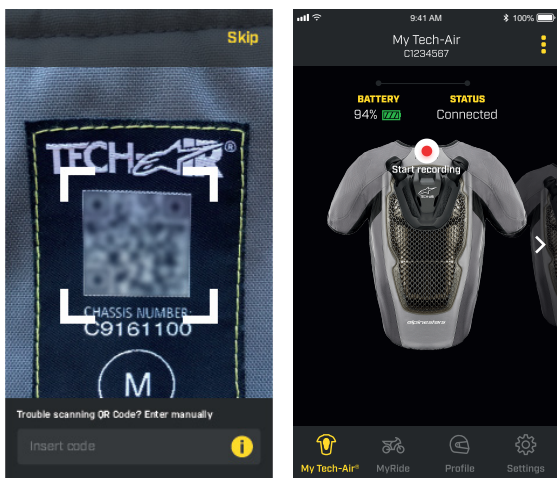


Figure 11

Monitoring the System Status

The App provides information about the actual operating mode of the System, verifying if the System is functioning correctly or not. The indication "System On" displayed on the screen indicates that the System Check has been successfully passed and that the System is active.

While riding "System On" mode is active and, accordingly, for safety reasons, the user cannot access most of the App functions. In case the System needs to be disabled by the user, such as during a heavy off-road riding session, the System can be turned off using the slide icon on the App (as shown in Figure 12). To reactivate open and close the Front Flap (2). In case of deployment, the App will show the relevant status with wording SYSTEM DEPLOYED as depicted in Figure 12.

WARNING! On every such notification the System must be sent for a service in order that the gas inflators are replaced and the airbag is checked as explained in Section 16 above.

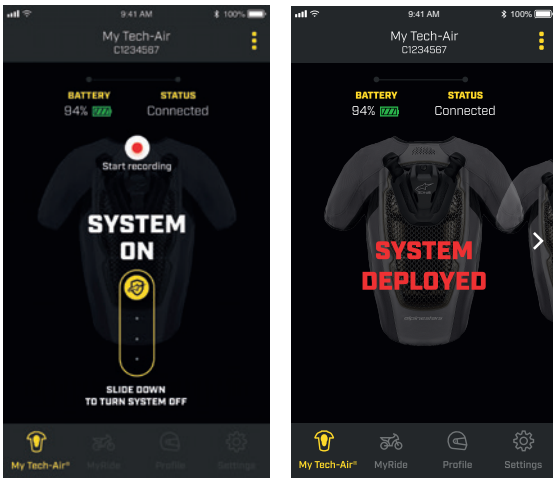


Figure 12

As indicated in Section 16 above, the System's airbag is certified for upto 3 deployments, after which the airbag needs to be changed during the service. The App will inform the user when there is one deployment left. Once the airbag has deployed for the third time, during the service the airbag will be replaced together with the gas inflators

Enjoy the Ride with MyRide

Tech-Air® App contains the MyRide function which displays information about the ride, such as duration, distance and speed related to the ride. MyRide can also be used to send feedback regards any events that occurred during the use of the System.

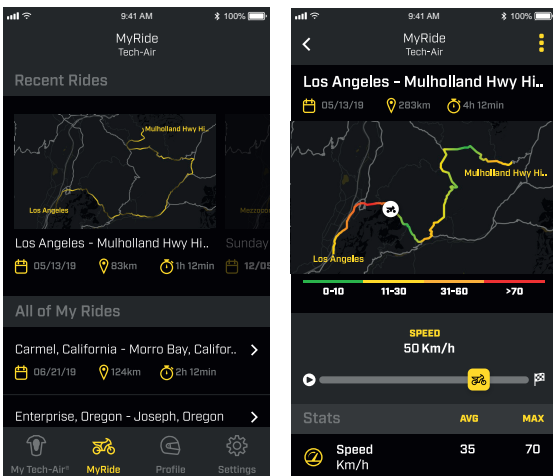


Figure 13

18. Troubleshooting

Problem	Possible Cause	Possible Solutions
LED Display (3) does not switch on when Front Flap (2) is closed	Battery fully discharged	Recharge battery (Section 11) and check the correct LED behavior during the recharge.
	Front Flap (2) not correctly positioned on the hook-and-loop patch	Check the correct alignment between Front Flap (2) and hook-and-loop patch.
SOLID red LED (3c) on the LED Display (3)	Gas inflators empty and/or airbag must be replaced	After a deployment, the gas inflators must be replaced. Until such replacing, the System will not work even though the battery is charged and the LED display (3) will show the red light until the gas inflators are replaced. If the same airbag has deployed more than 3 times, the red LED (3c) will signal a System fault even after the gas inflators replacement. In this case, the airbag itself must be replaced and the System reactivated by an Authorized Tech-Air® 5 Service Center.
	System Error	The System has an error. Contact an Authorized Alpinestars Tech-Air® Service Center to check the System.
Flashing red LED (3c), while green LED is on (3a)	Battery Low	Remaining battery level is lower than 4 hours. Recharge the battery as soon as possible.
SOLID yellow LED (3b), while green LED is on (3a)	Tech-Air® 5 is performing the System Check.	Normal operation to enter in the protecting airbag mode.

19. Tech-Air[®] Support

In case of questions or should the users need further information, they may first contact Tech-Air[®] Dealer where the System was purchased.

20. Certification Information

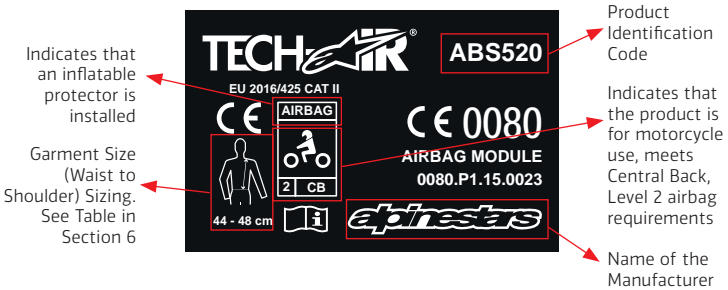
The Tech-Air[®] 5 System is covered by a number of certifications.

Personal Protective Equipment

The Tech-Air[®] 5 System is considered Category 2 Personal Protective Equipment under EU Regulation 2016/425. As such a EU Type examination has been conducted. As the motorcyclists' inflatable protectors standard (EN1621-4:2013) is for mechanically triggered systems, this has been used with reference to impact performance and ergonomics only. The examination was conducted by:

- Notified Body #0598 SGS Fimko Oy, Takomotie 8, 00380, Helsinki, Finland

The explanation of the product markings are as follows:



Protection Level

The following table summarize and explain the performance level reported on the product marking as an inflatable impact protector:

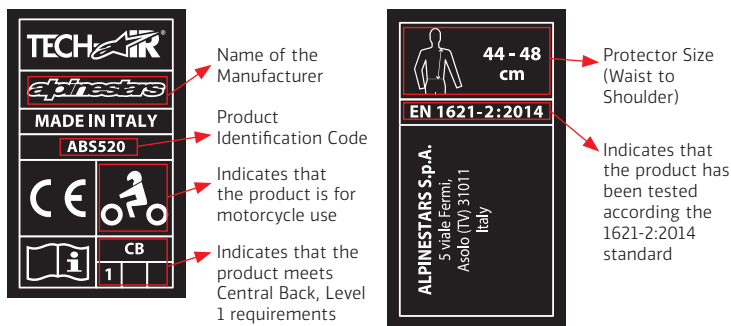
Tested Area	Standard Used for tests	Temperature	Force Transmitted	Level Level 1 requirements: average value \leq 4.5kN; No impact above 6kN Level 2 requirements: average value \leq 2.5kN; No impacts above 3kN
Central Back	1621-4:2013	20°	Average 0.9kN Peak 1.24kN	Level 2

Passive Back Protector

Tech-Air[®] 5 System, is equipped with a passive back protector that provides protection to the back area even if the System should not deploy. This back protector is certified as a Personal Protective Equipment Category 2, Level 1, under the Regulation EU 2016/425, according to the 1621-2:2014 standard. The examination was conducted by:

- Notified Body #0120 SGS United Kingdom Limited, Park Way, Weston Super Mare, BS22 6WA, UK

For this kind of certification, the product markings are as follows:



Protection Level

The following table summarize and explain the performance level reported on the product marking as a passive impact protector:

Tested Area	Standard Used for tests	Temperature	Force Transmitted	Level Level 1 requirements: average value \leq 18kN; No impact above 24kN Level 2 requirements: average value \leq 9kN; No impacts above 12kN
Central Back	1621-2:2014	20°	Average 10.05kN Peak 18.98kN	Level 1

Pyrotechnic Articles

The Tech-Air[®] 5 System contains two pyrotechnically activated cold gas inflators, and as such, the whole item is considered as an "AIRBAG MODULE" category P1 under EU Directive 2013/29. As such a EU Type Examination (Module B) has been conducted on the design of the System, and a EU Type Examination and Audit (Module E) has been conducted on the assembly of the System.

The EU Type Examination and Audit have been conducted by Notified Body #0080, Ineris, Parc Technologique ALATA BP2, Verneuil-en-Halatte, 60550, France.

Electromagnetic Stability

The Electronic Unit of the Tech-Air[®] 5 System has been tested according to different regulations for electronic and radio devices.

FCC compliance Statement:

The System has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can

be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! Changes or modifications not expressly approved by Alpinestars could void the user's authority to operate the equipment. (Part. 15.21).

FCC ID: **RFR-550**

Canadian compliance Statement:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to RSS-210 of the IC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. (RSS-210)

IC: **4957A-550**

EU compliance Statement:

Tech-Air[®] 5 System contains a Bluetooth Low Energy Radio Module, with the following characteristics:

Frequency Band	2402÷2480 Mhz
Rated Output Power	0.002344 Watts

21. Important Information for Users **WARNING!**

The Tech-Air[®] 5 System is an active safety protection system that is different from normal motorcycle clothing and as a result requires additional care and precautions. You must read and understand the instruction manual fully before use, as well as pay close attention to the following warnings:

- The System can only provide a limited amount of protection in an accident or event. As such, there always remains a possibility that a serious or fatal injury could occur even when using the System.
- The System is designed and developed for street use when in Street Mode, race use when in Race Mode and limited off-road use only. This System has not been designed for hard off-road use, stunt use or any non-motorcycling applications. Alpinestars does not accept any claims for malfunctions of the System used outside the environments for which its use is intended.
- Certain types of movement could be interpreted as a crash by the System and cause a deployment though no crash has occurred.
- The System has been designed to deploy in crashes above a minimum energy threshold. This is to prevent wasteful use of the charges in situations where protection typically would not be needed. Thus, in low speed/low energy crashes it is likely and reasonable that the System will not deploy.
- The System contains no parts which may be serviced by final customers, and must be serviced and recharged **ONLY** by approved Alpinestars Service Personnel, in order to ensure this equipment is sealed into the vest. Breaking these seals will void any claims against warranty or system malfunctions.
- Do not attempt to make any modifications or adjustments to the electronics and to the vest of the System.
- The System must only be used for motorcycle street riding in Street Mode or race use when in race mode or limited off-roading – it is not to be used for any other purpose, motorcycle-related or otherwise. This includes: Enduro, Motocross, Supermoto, performing stunts and any type of non-motorcycling activity. Wearing the System during any non-intended activity (with the unit switched on) may cause the System to deploy and cause injury or death to you or others and may cause damage to property.
- When not in use and being stored, transported, or shipped the System must be turned off by keeping the Front Flap (2) open.
- Prior to each use, the System should be inspected for any signs of wear or damage. Additionally, when turned on the LED display (3) must be checked. In the event that the System reports a fault (red LED is illuminated), users should not use the System and must follow the instructions in this booklet.
- Whenever the LED Display (3) gives a low battery indication the System **MUST** be recharged as soon as possible.
- The System must never be machine washed, submerged in water, tumble dried or ironed.
- After a deployment, the System must be returned to either an Alpinestars Tech-Air[®] Dealer which can arrange for the System to be recharged or directly to an Alpinestars Tech-Air[®] Service Center.
- Even if the System has not been used, or the airbag has never fired, it is important that the System be serviced at least once every two years or 500 hours of functioning. This can be arranged through an Alpinestars Tech-Air[®] Dealer or directly by an Alpinestars Tech-Air[®] Service Center.