

USER GUIDE

TECH-STAR[®] 5

**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 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.

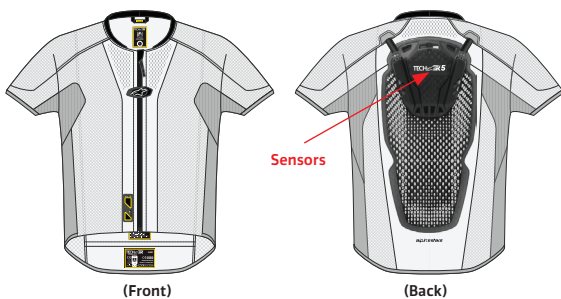


Figure 1 – Sensor Location

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.

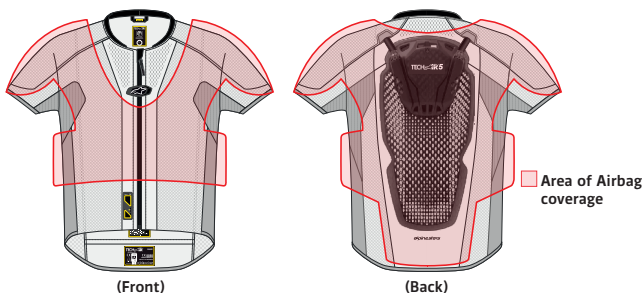


Figure 2

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 to 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.

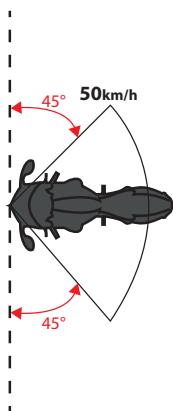


Figure 3

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

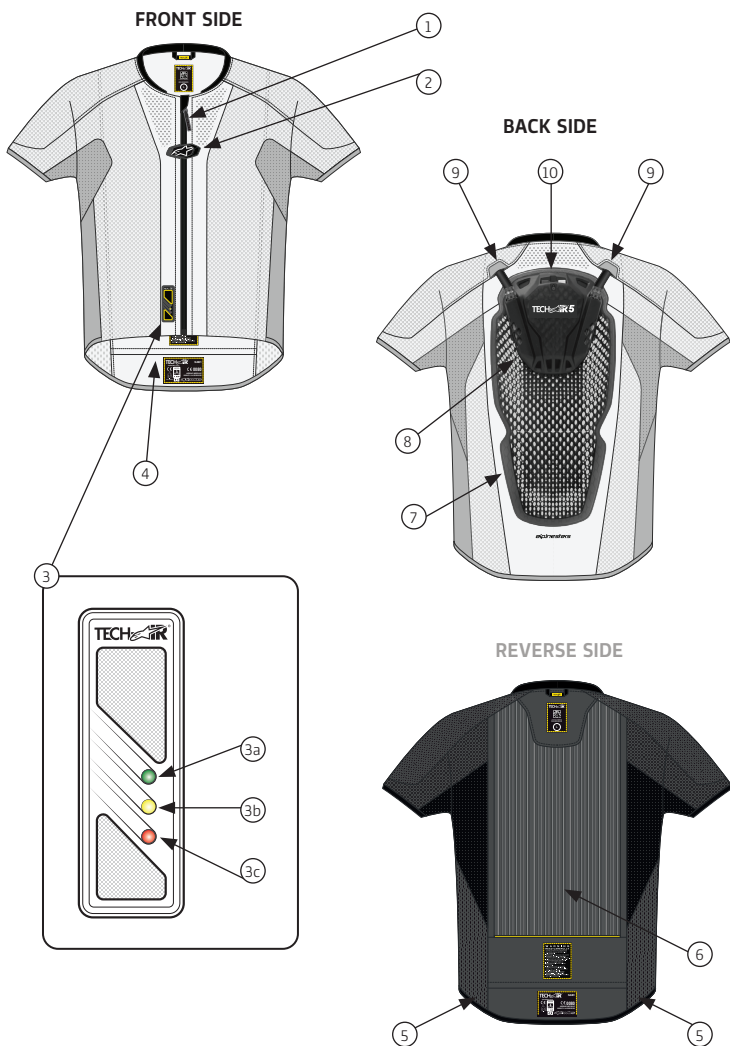


Figure 4

- | | | |
|-------------------------|-------------------|-------------------------|
| 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)

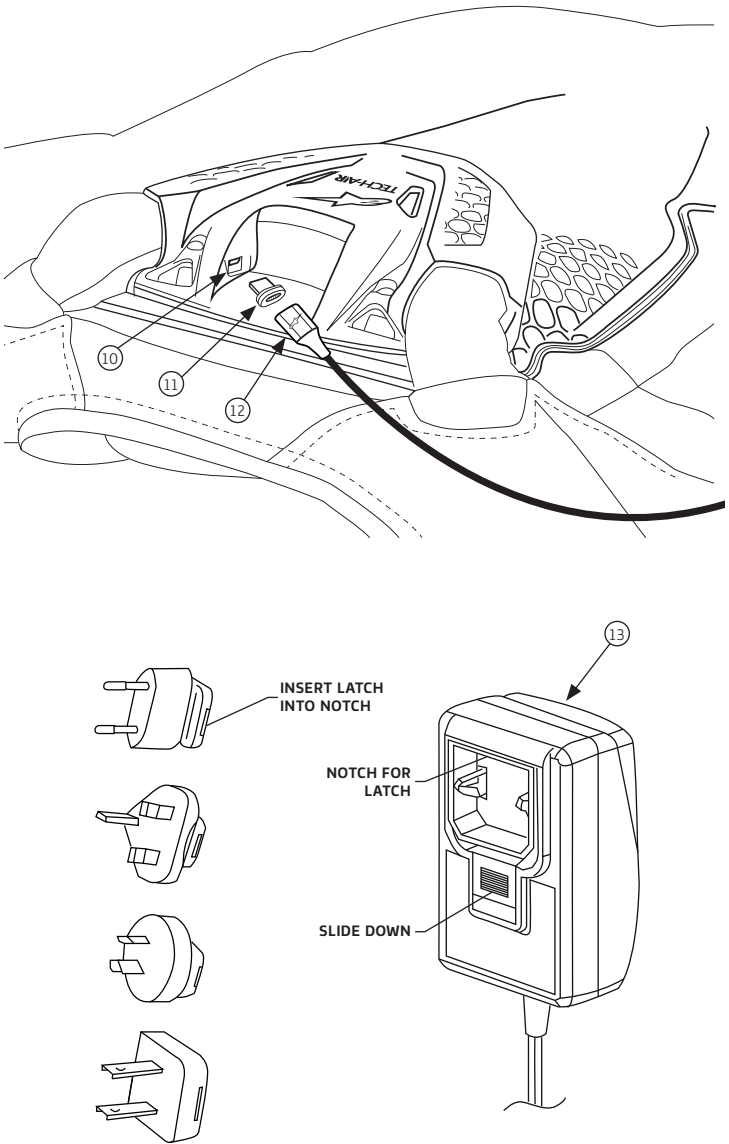


Figure 5

- 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.

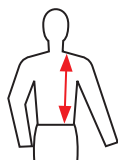


Figure 6

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 (2013/29) 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

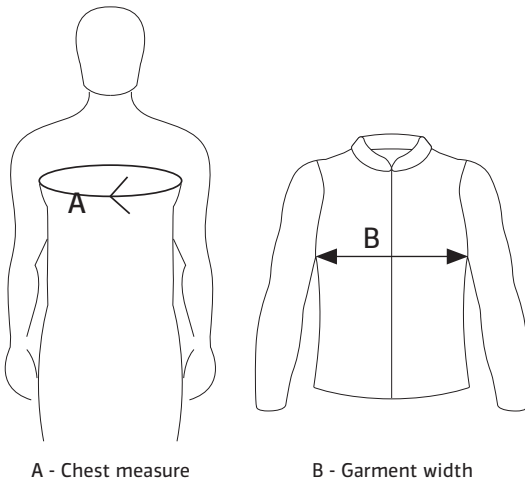


Figure 7

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.

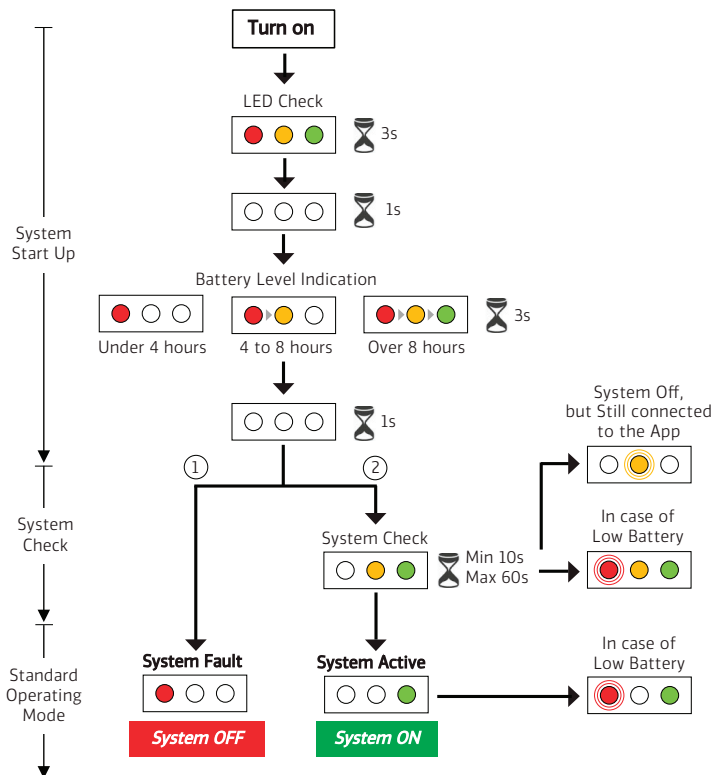
IMPORTANT! Even when the System Check has successfully been completed, the System will automatically turn off should the System detect:

- 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



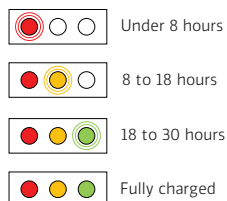
Glossary



- 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 (2013/29/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.

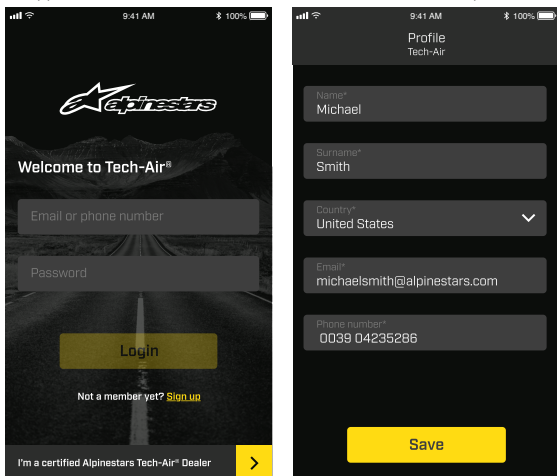


Figure 10

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.

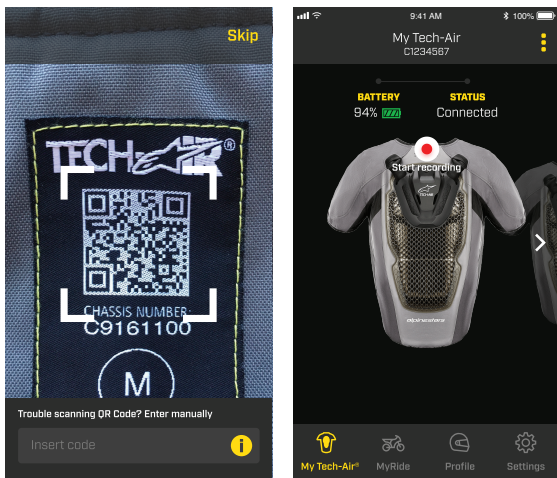


Figure 11

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.

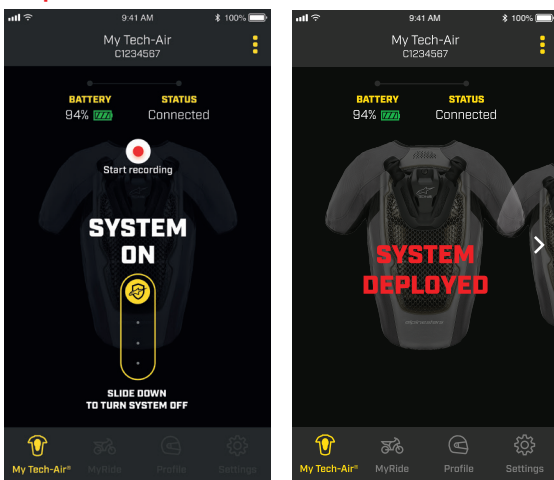


Figure 12

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.

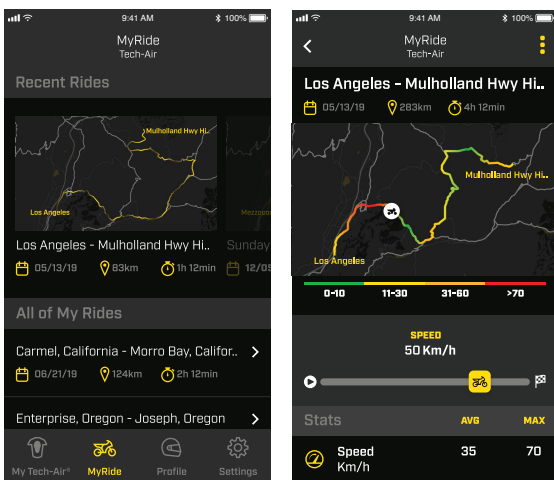


Figure 13

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, or Alpinestars directly:

E-mail: techairsupport@alpinestars.com

Tel: +39 0423 5286 (asking for Tech-Air[®] Support)

20. Certification Information

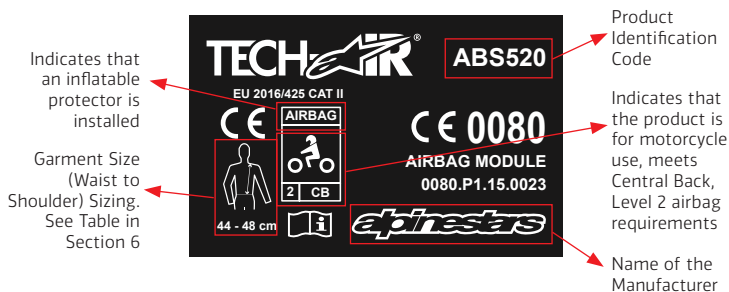
The Tech-Air[®] 5 System is covered by a number of certifications.

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:

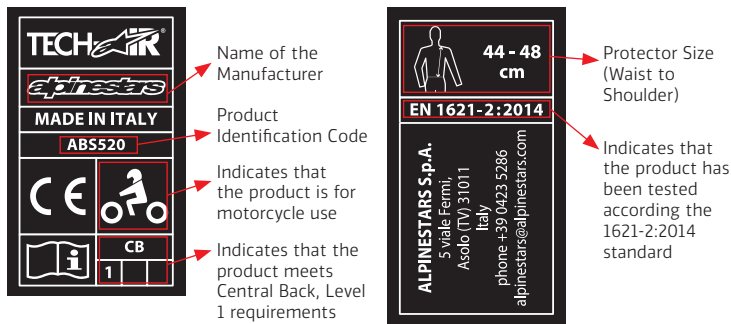
Tested Area	Standard Used for tests	Temperature	Force Transmitted	Level Level 1 requirements: average value ≤ 4.5kN; No impact above 6kN Level 2 requirements: average value ≤ 2.5kN; No impacts above 3kN
Central Back	1621-4:2013	20°	Average 0.9kN Peak 1.24kN	Level 2

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
Central Back	1621-2:2014	20°	Average 10.05kN Peak 18.98kN	Level 1 Level 1 requirements: average value ≤ 18kN; No impact above 24kN Level 2 requirements: average value ≤ 9kN; No impacts above 12kN

The EU Declaration of Conformity of this PPE (as established by the REG. EU 2016/425) can be downloaded at: eudeclaration.alpinestars.com.

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

Alpinestars SpA hereby declares that this wireless device is in compliance with the Directive 2014/53/EU. A copy of the EU Declaration of Conformity is available at eudeclaration.alpinestars.com

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.