

CYPRES

Reliability made in Germany

CYPRES

Static Line System

Manual



This **CYPRES Static Line System** manual

is applicable for:

- Jumpmasters
- Parachute Rigger
- Pilots
- Aircrew

**A white flashing LED light on the control unit
verifies the unit is functioning correctly.
A red flashing LED light indicates an error
and should not be jumped.**

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Preface

In 1991, Airtec generated a revolution in the world of parachuting by introducing the first ever reliable Automatic Activation Device.

A properly maintained CYPRES has never failed to activate and cut the reserve closing loop into two parts once the activation conditions were met. Airtec is committed to producing one of reliable piece of parachuting equipment ever produced.

In 2014, 23 years later, Airtec generated a second revolution in the parachuting world, by introducing the first ever Automatic Activation Devices for low level static line parachute operations.

A device designed for this purpose has never existed before because it is a very difficult technological task. In the past there have been industry surveys and attempts made but none with any success.

Airtec had their first thoughts about this concept in the year 2000. At this time though suitable core technology was not available on the market to start the project. When the technological progress provided the means, it took another 7 years of research and development until market release.

The result is the CYPRES Static Line System.

1. The CYPRES Static Line System



SLS Unit
the Static Line AAD



SLS Aircraft Module
communicates with all
SLS Units in the aircraft



SLS Self-test Module
performs function test on
all SLS Units

The purpose of the SLS is to initiate the reserve opening of a low level static line parachutist typically 500 to 600 feet below the dispatching aircraft if the main parachute fails to deploy or does not fully deploy allowing the jumpers vertical speed to exceed 13 meters per second.

The SLS does not require any interaction with the jumper to include the initial power up. There are no options for manual handling or settings by the parachutist!

1.1 The SLS Unit

installed inside the reserve container.

Typical installation in a chest mounted reserve:



The control unit mounts in a clear pocket and is visible from outside the reserve container.

The control unit only displays a white and a red LED light.



From the moment of the SLS Unit's installation there is no handling required by the parachutist. The only action required by the jumper is a visual check on the status of the LED light.

If unit **flashes white**, it **can be used**.

If unit **flashes red**, it **can not be used**. **DO NOT JUMP!**

Technically: The SLS Unit will always flash every 2 minutes throughout it's lifetime.

If a self-test has been done, the unit will flash in 5 second intervals for a duration of 14 hours.

Once connected to the SLS Aircraft Module, the unit flashes every 2 seconds, indicating that it is ready for operation.

2 minutes after the unit has lost contact with the SLS Aircraft Module, it will revert back to flashing every 5 seconds.

If the SLS Unit detects an error, the LED will change from flashing white to flashing red. In the case of a flashing red light, a secondary self-test should be performed.

Practically: The SLS-CYPRES equipped reserve parachute can be used as usual, as if no AAD has been installed.

1.1.1 Specifications of the SLS Unit

Activation altitude	approx. 500 ft to 600 ft below jump aircraft
Activation speed	approx. > 13 m/s / 29 mph
Lowest dispatching altitude	reserve opening plus 500 to 600 feet plus safety
Size of the processing unit	approx. 3 1/3 x 2 2/3 x 1 1/4 inch
.....	(85 x 43 x 32 mm)
Cable length of the display unit	approx. 25 inch (635 mm)
Cable length of the release unit.....	approx. 20 inch (500 mm)
Volume.....	approx. 8,9 cubic inch (146 cm ³)
Weight	approx. 4,66 ounces (165 grams)
Workingtemperature*	+145° F to -25° F * (+ 63° to - 32° centigrade)
Storage temperature:.....	+160° F to -58° F (+71° to -50° centigrade)
Waterproof.....	up to 24 hours down to a depth of 8 feet
Maximum allowable humidity.....	up to 99,9 % rel. humidity
Operating range**	- 2,140 feet to + 65,000 feet MSL (-650 m to +20,000 m)
Voluntary maintenance	5 and 10 years from date of manufacture +/- 6 months
Total service life	15.5 years from date of manufacture
Total warranty time	see chapter 3

* These temperature limits do not mean the outside (ambient) temperatures but rather temperatures inside the processing unit. Therefore, these limits won't have any meaning until the processing unit itself has reached the temperatures in question. In actual fact, these limits will rarely be reached due to the location of the SLS unit in the reserve container, and the insulating properties of the processing unit pouch and parachute canopies.

** These are the technical capabilities and limits of the SLS Unit. The SLS Unit is made though to be a life saving system for low level dispatching. That, and because of other aspects, limits the use to low level static line dispatching.

1.2 The SLS Aircraft Module (AM)

Requirements

1) to be placed inside the jump aircraft at a specific location (for specifications see chapter 1.2.3)



container with AM inside



AM front view



AM back view

2) The Aircraft Module will need to be switched to the "ON" position **approximately 2 minutes prior to jumpers exiting the aircraft.**

There is no need to turn on the Aircraft Module earlier.

If possible, have a second person verify the green light on the control unit of the Aircraft Module.

3) The Aircraft Module should be switched to the "OFF" position 15 seconds or not much later after the **last jumper has exited the aircraft.** In the event of multiple passes, do not turn the Aircraft Module OFF until the end of the last pass.

Use the Aircraft Module only in the aircraft.

Technically: After the SLS Aircraft Module is switched on, it will indicate that it is

operational by displaying a **permanent green LED light**.

If a **problem** is detected, a **permanent red LED light** will be displayed.

If a red light error is displayed, switch the unit off and on again to verify.

If the Aircraft Module displays the yellow LED light (Change Battery) a battery replacement will be necessary before the next day of use. Follow the instructions as given in Art.No.: 991032 "CYPRES SLS aircraft unit battery change" (the laminated sheet, which is in the accessories bag).

Practically: Switch the Aircraft Module to the "ON" position shortly before the drop (no less than 1 minute before) and switch it "OFF" 15 seconds or not much later after the last jumper has exited the Aircraft. .

Exception: If you have a towed parachutist hanging underneath the aircraft, do not switch the Aircraft Module off before the case is resolved.

The Aircraft Module is designed to be switched on and off only during flight. Do not switch the unit on while on the ground or at take off.

Do not switch the Aircraft Module to the "ON" position earlier than necessary. In the event the aircraft does multiple jump parachute drops the Aircraft Module can permanently stay switched to the "ON" position until the last drop is completed.

1.2.1 Specifications of the SLS Aircraft Module

Dimension of Aircraft Module casing.....	approx. 6 2/3 x 6 1/3 x 1 1/6 inch (17 x 16 x 3 cm)
Dimension of control unit.....	approx. 5 x 2,5 x 1 2/3 inch (12,5 x 6,5 x 4 cm)
Cable length of the control unit.....	approx. 17 feet, (5,10 meter)
Weight of the complete assembly.....	approx. 7 lbs. (3 Kg)
Working temperature.....	+145° F to -25° F (+ 63° to - 32° centigrade)
Storage temperature:.....	+160° F to -58° F (+71° to -50° centigrade)
Maximum allowable humidity.....	up to 99 % rel. humidity
Operating range*	- 2,140 feet to + 65,500 feet MSL (-650 m to +20,000 m)
Working frequency.....	433 MHz
Output.....	1milliwatt(0dBm)
Working duration, when one battery is installed.....	approx. 100 active hours
Voluntary maintenance	5 and 10 years from date of manufacture +/- 6 months
Total service life.....	15.5 years from date of manufacture
Total warranty time.....	see chapter 3

* These are the technical capabilities and limits of the SLS Aircraft Module. The SLS Aircraft Module is made though to be a part of life saving system for low level dispatching. That, and because of other aspects, limit its use to low level static line dispatching.

1.2.2 Battery in the SLS Aircraft Module

There are 8 slots for battery packs available inside the Aircraft Module casing.
The more battery packs installed, the longer the unit will operate before the yellow light of the control unit will indicate a low battery status.

Replace all installed battery packs once the yellow light of the Aircraft Module's control unit indicates low battery status.

The Aircraft Module will operate for more than 100 active hours on a new battery pack.

To install or replace a battery pack, please follow instructions in Art.No.: 991032 "CYPRES SLS Aircraft Module battery change" (the laminated sheet, which is in the accessories bag).

1.2.3 Positioning inside the aircraft

Depending on the size of the jump aircraft, there are different position that we recommend for mounting the Aircraft Module

We recommend positioning the Aircraft Module container on the ceiling, centered (left / right) if the ceiling height allows enough space for a fully equipped parachutist to walk underneath.

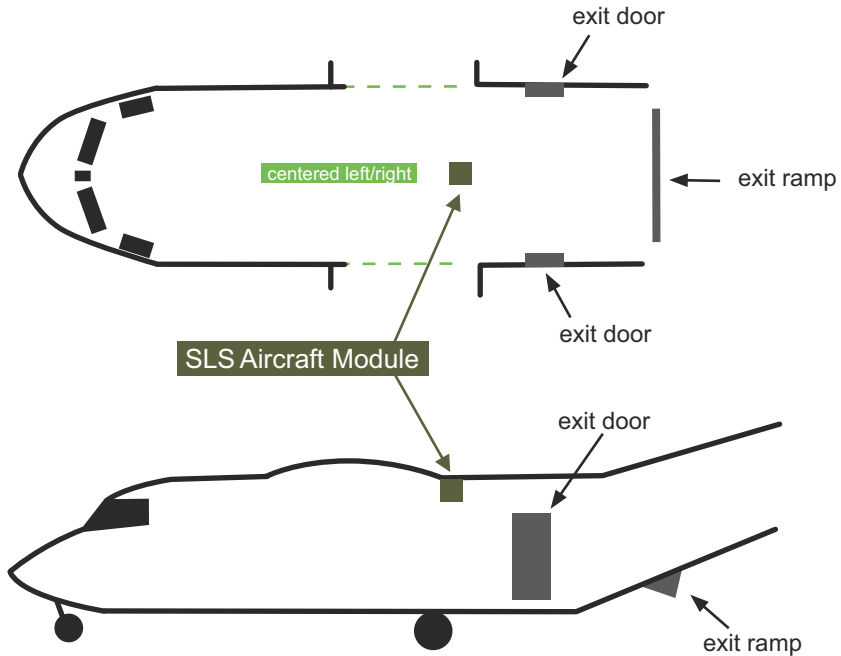
This position can also be used for ramp exits.

For this kind of attachment at the ceiling, the control unit can be separated from the Aircraft Module. Take the control unit out of its slot, uncoil as much of the green cable as needed to position the control unit at an easily accessible location for the jumpmaster. To tie down the green cable to the ceiling and the side wall, you will find Velcro straps in one of the side pockets of the Aircraft Module container. In the other side pocket you will find a nylon protection cover for the control unit.

This applies to aircraft like e.g.
C160 (Transall),
C130 (Hercules) or similar.

See drawing on next page.





This location of the Aircraft Module can also be used for ramp exits.

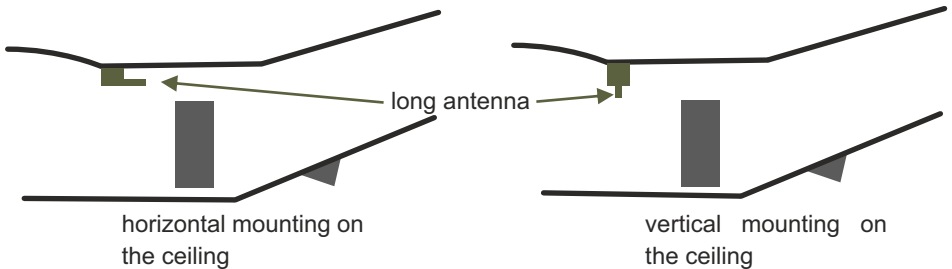
Jump aircraft with lower ceilings please follow these guidelines.

For mounting on side walls we recommend the Aircraft Module to be positioned as follows:

- In small aircraft like Cessna 172, 182, 206, Beaver, Pack750, Porter, Caravan, Twin Otter or similar, install the Aircraft Module on the side wall opposite of the jump door and close to the ceiling.
- In larger aircraft with a tail gate to exit from, such as CASA, Skyvan, AN-12, AN-26, etc., the Aircraft Module should be located at the ceiling, approx. 4 meters before the ramp or above the jump door.
- For helicopters such as NH90, Huey, Eurocopter, Blackhawk, Lynx, etc., the Aircraft Module should be close to the ceiling.

- In helicopters like the CH47 (Chinook), CH-53, Mi-8/17, etc. the Aircraft Module should be mounted on the ceiling, approx. 4 meters before the ramp or approximately 2 meters before the jump door.

In case the ceiling height is not adequate to hang the Aircraft Module container vertically, then the Aircraft Module container can be fastened to the ceiling horizontally so that the long (10 cm) antenna points towards the tail of the aircraft.



1.3 The SLS Self-test Module

The Self-test Module is designed to check the status of the SLS Units on the ground. Use only on the ground.

The device is used by riggers or Jumpmasters.



Just one click on its push button triggers the SLS Units within range to execute a selftest. Every unit will self-test by flashing white 10 times.

After the self-test is complete, every SLS Unit will flash white in an interval of 5 seconds, indicating the successful self-test. The SLS Units will flash white in the 5 second interval for 14 hours. After 14 hours the units will revert back to 2 minute flash intervals.

If a SLS Unit detects a problem, it will light up a red LED permanently for 3 minutes and thereafter flash red in 5 second intervals.

The LED flashes will remain red until the issue is resolved.

Perform a self-test prior to reserve use.

Technically: When the button is pushed on the self-test module, the green light will be displayed for 16 seconds. Once the test is initiated all of the SLS Units will conduct a self-test.

This procedure can be repeated as often as necessary.

The SLS Self-test Module should “virtually” never need a battery replacement.

Practically: The rigging loft manager can trigger a self-test of the CYPRES SLS Units early in the morning on a mission day in the parachute loft.

All reserve parachutes that flash white are operational.

If a SLS unit should flash red, it should not be used.

1.3.1 Specifications of the SLS Self-test Module

Dimension of casing	approx. 6 x 4 x 1 3/4 inch (15 x 10 x 4 cm)
Weight of module.....	approx. 650 grams
Working temperature	+145° F to -25° F (+ 63° to - 32° centigrade)
Maximum allowable humidity.....	up to 99 % rel. humidity
Operating range*	2,140 feet to + 65,500 feet MSL (-650 m to +20,000 m)
Working frequency.....	433 MHz
Output.....	1 milliwatt (0 dBm)
Battery change	virtually never
Voluntary maintenance	5 and 10 years from date of manufacture +/- 6 months
Total service life	15.5 years from date of manufacture
Total warranty time	see chapter 3

* These are the technical capabilities and limits of the SLS Self-test Module. The SLS Self-test Module is made though to be a part of life saving system for low level dispatching. That, and because of other aspects, limit its use to low level static line dispatching.

1.4 Easy overview of the SLS Unit's flashing scheme

always

flashes white every 2 minutes

if a self-test has been performed via the SLS Self-test Module

flashes white every 5 seconds

for 14 hours

if the SLS Unit is in contact with the SLS Aircraft Module

flashes white every 2 seconds

2 minutes after losing contact with the SLS Aircraft Module,
the units will flash in 5 second intervals

error detection

**In the event of an error the SLS Unit LED will light red permanently
for 3 minutes. Thereafter it will flash in red until the error is resolved.**

2. Guidelines for the pilot

1. The purpose of the SLS system is to enhance safety on low level (above the ground) static line dispatching of parachutists.
2. Fly horizontal for at least 15 seconds before dropping
3. Fly horizontal during the entire time of dropping.

4. After dropping, fly horizontal for at least 15 seconds.
Thereafter do not exceed a descent rate of 2000 feet per minute until wheels are on the ground.*

Please know that sometimes a Jumpmaster has replacement reserve parachutes with installed SLS Units in the aircraft.

Or, sometimes one or more parachutists have not been dispatched, meaning that they are still in the aircraft.

Or, the entire dispatching has been cancelled, meaning that all static line parachutists are still in the aircraft.

5. In case of a towed jumper, reduce speed right away.
Do not descend. Fly horizontal.
Possibly the Jumpmaster will release the jumper.

* The restricted descent rate (of 2000 feet per minute) only applies if there are still SLS devices in the aircraft. No SLS devices in the aircraft means no restricted descent rate.

If more than 2 minutes have passed by since the SLS Aircraft module has been switched off by the Jumpmaster, then the restricted descent rate (of 2000 feet per minute) does **no longer** apply.

3. Warranty

Airtec GmbH & Co. KG grants the legally prescribed warranty of two years. Provided it is technically possible and economically justifiable, we intend to carry out repairs free of charge on a voluntary basis for a further three years for all non-intentional or non-negligent damage.

Provided it is technically feasible and economically justifiable, and the affected device has been regularly maintained on schedule, Airtec will thereafter, at its sole discretion, consider repair or replacement free of charge for all non-intentional or non-negligent damage. This has been a long-standing Airtec practice since 1991.

The manufacturer reserves the right to decide whether the unit will be repaired or replaced. Neither repair nor replacement will affect the original warranty.

When a CYPRES 2 unit is returned to the manufacturer or service center, it must be packed in the original box or an equivalent shipping package including a fully completed service form/proper documentation for billing purposes, return shipping information, contact information, and any other relevant notes.

No claims will be accepted if the unit has been damaged or opened by an unauthorized individual or if an attempt has been made to open the processing unit, release unit (cutter) or control unit.

4. Disclaimer

In designing and manufacturing CYPRES, the aim of Airtec GmbH & Co. KG Safety Systems, is that the device should not accidentally sever the loop but should try to sever the reserve closing loop when the activation criteria are met. All investigations and experiments performed during the product's development and all laboratory and field tests accompanying trial and production phases have indicated that CYPRES meets both these goals.

However, as an electro-mechanical device the possibility of CYPRES malfunctioning cannot be excluded. Such may cause injuries or death. We accept no responsibility for damages and consequences resulting from any malfunction. Airtec GmbH & Co. KG Safety Systems also accepts no responsibility for damages or problems which are caused by the use of non-original Airtec parts and supplies.

The use of CYPRES is voluntary, and does not automatically prevent injury or death. Risk can be reduced by assuring that each component has been installed in strict compliance with the manufacturer's instructions, by obtaining proper instruction in the use of this system and by operating each component of the system in strict compliance with this User's Guide / Manual.

If used in the United States, the use of CYPRES shall be in accordance with USPA BSRs.

Automatic activation devices (AADs) sometimes display a wrong status, fail to operate or operate properly and sometimes activate when they should not, even when properly installed and operated. Therefore the user risks serious injury or even death to themselves and others during each use of a CYPRES.

By using or allowing others to use CYPRES, you acknowledge that you accept responsibility for the proper use of the device, as well as accepting the consequences of any and all use of this device.

Airtec GmbH & Co. KG Safety Systems, their Dealers, Service Centers, and Agents total and complete responsibility is limited to the repair or replacement of any defective device.

CYPRES is strictly a backup device, and is not intended to replace proper training or timely execution of appropriate emergency procedures. If you, your friends, or family are not in agreement of this disclaimer please do not use CYPRES. Please note that even though CYPRES has an extraordinary track record, your results may vary.

5. Trade Marks

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If questions

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or e-mail Airtec under info@cypres.aero

Note questions and answers here:

This is a small hint for people who have to deal with altitude and pressure.

If you have to determine what pressure is existing at a given altitude, or if you have to find out which altitude is equivalent to a certain pressure or similar, you can make use of the “Military CYPRES Calculator”.

This item is available as a hardware device which is illuminated and shuts itself off. It is also available as an app for Apple and Android smartphones and tablets.

The apps are available free of charge.



Scan to navigate to

<https://military.cypres.aero/#download>



Note questions and answers here:

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