

T-SPOILER

Advanced Spoiler Control Unit Porsche 964 and 993

The BERGVILL F/X T-SPOILER Advanced Spoiler Control Unit is a direct replacement for the original spoiler control unit used in all Porsche 964 and 993 models. By default, it operates in the same way as the original module, but with several enhancements. The unit offers the possibility to change the spoiler rise and lower trigger speeds, as well as a very convenient One-Click feature for easy manual operation. It has also a fault code LED that will tell you what is wrong if the spoiler warning light is triggered.



Basic features, similar to the original Porsche unit

- Manual control by using the spoiler switch
- At start, the warning light extinguish at 5 km/h
- Spoiler rise at 80 km/h (50 MPH)
- Spoiler lowering at 5 km/h (3 MPH)
- Timer control in rise and lower movement
- No manual or One-Click lowering of spoiler if above rise speed

T-SPOILER enhanced features

- Microprocessor control
- Solid-state MOSFET motor driver
- Spoiler motor current monitor and automatic shutoff with fault warning
- User programmable One-Click operation, no need to hold switch at manual operation
- User programmable rise and lower trigger speeds
- Safety raising of spoiler at 150 km/h (93 MPH)
- Internal LED fault readout monitor
- Significantly smaller than the original: dim:57x27x16mm, weight 19g (Porsche unit 105x49x28mm, 80g)



Spoiler control switches

The Porsche 964 has a rotary control knob in the centre console for spoiler operation. The Porsche 993 has a toggle switch in the same location. Some early 964 models do not have a spoiler control switch. Turn or press the switch to raise (**UP**) or retract (**DOWN**) the rear spoiler.



Spoiler Warning Light

The spoiler warning light is placed in the clock instrument in the dashboard. The light is lit at ignition on, and extinguishes if all is well after driving over 5km/h. When using the T-SPOILER unit, the warning light will be turned on in the following conditions:

- Spoiler does not reach fully UP position within 12 seconds if triggered by speed
- Spoiler motor overcurrent is detected (motor or mechanism is stalled)



Installation

Locate the original spoiler control unit. In the Porsche 964 the unit is placed under the passenger seat. The Porsche 993 location of this unit is in the passenger foot well, under the dashboard.

Disconnect and remove the original unit. The connector may be a bit tight.

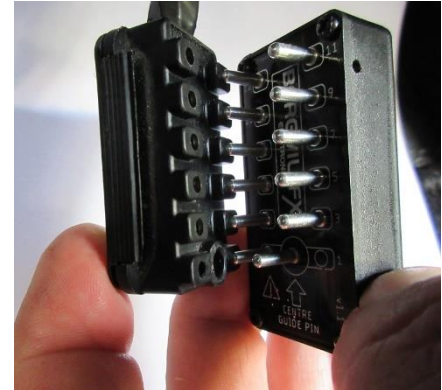


IMPORTANT

Please note the position of the center guide pin, the red arrow on the picture. This center pin on the T-SPOILER unit must fit into the (larger) centre hole in the harness connector.

The T-SPOILER unit will be damaged if you connect it the other way around, or with the pins not in line with the centre pin.

Connect T-Spoiler as shown. Insert connector fully. The unit can be tucked away along with the original control unit. Fasten with a zip tie or similar if needed.



One-Click operation

One-Click operation makes it easy to manually raise or retract the spoiler, avoiding the need to hold the **UP** or **DOWN** switches to move the spoiler. A short press is sufficient. Set to One-Click operation like this:

- Start the car and drive a few meters to extinguish the spoiler warning light. Stop, and leave engine running
- Press and hold spoiler **UP** switch for 30 seconds (ignore the warning light blinks at 15 seconds)
- At 30 seconds, release switch, and spoiler warning light blink 2 times to indicate OK (**Note 1**)

Speed programming

It is possible to change the trigger speeds for spoiler rise and lowering. Be sure to have a working spoiler mechanism before programming, any timeout action due to end switch failure will stop the programming.

- Start the car and drive a few meters to extinguish the spoiler warning light. Stop, and leave engine running
- Press and hold **UP** switch for 15 seconds, release switch
- The spoiler warning light blinks once, release **UP** switch within five seconds
- Start driving to obtain desired spoiler retract trigger speed and press **DOWN** switch
- The spoiler warning light blinks twice to indicate OK (**Note 2**)
- Change driving speed to desired rise trigger speed and press **UP** switch
- The spoiler warning light blinks twice to indicate OK (**Note 2**)

The order of programming of rise and retract speeds does not matter, you can program the rise trigger speed first, (by pressing **UP** switch) then the retract speed. (by pressing the **DOWN** switch) There must be a 10 km/h difference between retract and rise speed. Any attempts to program set a retract trigger speed higher than the rise trigger speed, or with 10km/h or less difference will be ignored.

To ensure proper cooling of the engine as well as rear-end traction, the spoiler **will always** be raised at a speed of 150 km/h. (93 MPH) This is a safety feature, and it is therefore not possible to set a rise trigger speed above this speed.

Please note:

No manual or One-Click lowering of spoiler is possible if the car travels above rise speed. If you drive at 150km/h (93 MPH) or above, the speed programming mode will be cancelled.

Drive safely and keep your eyes at the road. Do not let the button presses or warning light distract you, let your favourite passenger do this for you while you drive!

Factory Reset

The unit can be reset to factory settings as described here:

- Start the car and drive a few meters to extinguish the spoiler warning light. Stop, and leave engine running
- Press and hold spoiler **DOWN** switch for 30 seconds, release switch
- The spoiler warning light blinks twice to indicate OK (**Note 1**)

Factory Settings are: Spoiler rise at 80 km/h (50 MPH), spoiler retract at 5 km/h (3 MPH), no One-Click operation.

LED fault codes

The internal red LED indicator can be seen through a hole in the control unit housing. This light show status of the different programming and control actions, but also several fault codes. A fault code is displayed as a number of 200ms LED blinks, separated by a longer pause. (1.5s) Several fault codes can be shown consecutively.

Note: Any fault codes are removed when turning the ignition off.

- 1 blink: Timeout for rise of spoiler, 12 seconds travel time exceeded
- 2 blinks: Timeout for spoiler retraction (>12s)
- 3 blinks: Both spoiler mechanism end-of-travel microswitches have been activated
- 4 blinks: Both **UP** and **DOWN** spoiler control button switches have been activated
- 5 blinks: Spoiler motor overcurrent protection is activated (> 4,5A motor current)



Fault examples:

One blink indicates that the spoiler mechanism either moves too slowly due to mechanical or motor failure, or that the mechanism microswitch that is supposed to be activated when the spoiler is fully up is not working as it should.

5 blinks: The spoiler motor is stalled for some reason, either by the mechanism/gear box or the motor itself (corrosion?)

Safety spoiler rise

To ensure proper cooling of the engine as well as rear-end traction, the spoiler **will always** be raised by the T-SPOILER control unit at a speed of 150 km/h. (93 MPH) This is a safety feature, and it is therefore not possible to set a rise trigger speed above this speed.

Some Porsche 964 models are equipped with an additional factory-installed spoiler control unit. This was implemented as an additional safety spoiler raise function if the original module would fail.

The T-SPOILER unit can be used in these vehicles without problems, and will not affect the operation of the additional control module. You will then have two control units that ensures spoiler raise at 150km/h.

Note 1: This is also indicated with rapid flashes of the internal LED indicator for six seconds.

Note 2: This is also indicated with rapid flashes of the internal LED indicator for two seconds.

© 2019 Bergvill F/X

This product is meant for Do-It-Yourself installation with proper electronic knowledge. Bergvill F/X assumes no liability for any damage, health risk or malfunction using this product. Changing the spoiler trigger speeds can affect the handling and safety of the vehicle. Use with caution, and at your own risk.