

## Elero Regular Motor Limit Switch Setting and Adjustment Guide

\* For Elero 9/1, 9/1.8, 9/2.5, 9/4, 11/6, 11/8, 11/10, 15/15 & 15/18 Limit Motors

**Warning:** Do not attempt to adjust the limit switches without reading these instructions! There is a considerable chance that parts within the motor will be broken if adjustment procedures are not followed. Limit switch adjustments with a tester cable can be done by you, but any kind of hook-up to electrical switching systems must be performed by a licenced electrician.

### General: Motors with Limit Switches

Electrical rollshutters are operated by tubular motors housed inside the rollshutter's shaft. You can locate the motor by looking for the wires leading to the rollshutter.

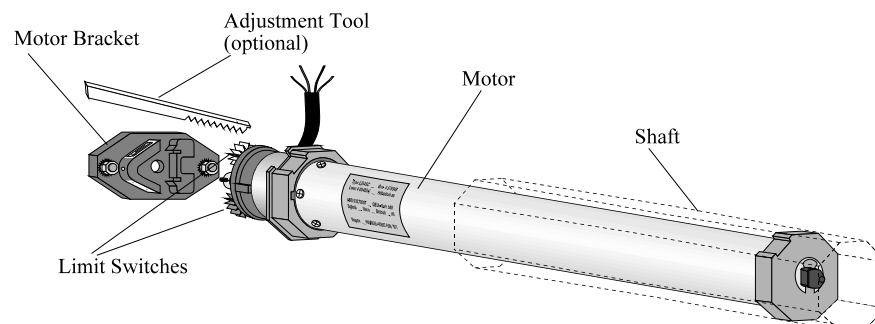
Each motor has two internal limit switches. The function of the "upper" limit switch is to cut off power to the motor when the rollshutter curtain has reached the completely rolled up position.

The function of the "lower" limit switch is to cut off power to the motor when the rollshutter curtain has reached the completely rolled down position.

Since every rollshutter is different it is necessary for you to adjust the limit switches according to the following instructions.

### Identifying The Limit Switches

The two limit switches are located on the motor. You will find two knurled wheels on the end of the motor casing with printed arrows next to them.



### General location of Limit Switches on Elero 9, 11 & 15 - Series Regular Motors (similar to illustration)

**Note:** One general hint for the following instructions: If you have a problem understanding which direction of the shaft means "up" or "down", imagine how the curtain will roll up onto the shaft once it is attached. Facing your rollshutter unit during installation, the curtain will come from below the shaft, then behind it, then up and over towards you as it rolls up.

## The Turnable Limit Switch

Next to each limit switch you will find a large arrow, plus two smaller arrows of which one is labelled with a "+" sign and one with a "-" sign.

The large arrow corresponds to the rotation of the shaft in that direction ("up" or "down" direction of the rollshutter curtain). It means that the limit switch next to that large arrow is responsible for shutting off the motor in that direction.

### Lower Limit Adjustment:

- Note:**
- Your rollshutter curtain is attached to the shaft at this time and somewhere near the fully closed position.
  - In this section you will only work with the limit switch that corresponds to the "down" direction.

Switch and hold your tester cable so that the motor has power for running the shaft in the "down" direction. The motor will not actually move since the lower limit switch has cut off power previously. Even though the motor has now stopped you should continue to apply power through the tester cable. Turn the limit switch towards the "+" sign. After a little bit of turning your motor will start and then come to a stop. Continue turning the limit switch towards the "+" sign until the curtain is fully closed. Stop applying power. Your lower limit is set.

**Problem:** You decide that the "down" limit is actually set further than desired.

**Solution:** Switch the tester cable to the "up" direction and run the curtain up about 2 feet. Stop the rollshutter by switching the tester cable to "stop". Turn your "down" limit switch towards the "-" sign for 3 to 5 rotations. Switch the tester cable to "down". Let the rollshutter go down until the limit switch stops it. Continue to apply power. Your rollshutter should stop sooner than you require it. Now turn the limit switch towards the "+" sign and let the motor follow you in small jumps until you reach the desired position.

**Warning:** You will break parts in the motor and will cause catastrophic future destruction of the rollshutter in this situation:

Your motor is stopped at the limit and you turn the limit switch towards the "-" sign. If you do this, parts inside the motor will be cracked and the damage may not become apparent until quite some time later when the limit fails and the rollshutter continues to run indefinitely.

### Upper Limit Adjustment:

- Note:** In this section you will only work with the limit switch that corresponds to the "up" direction.

Turn the limit switch towards the "-" sign about 15 times. Then switch your tester cable so that the motor starts running the shaft in the "up" direction. Let the motor run until it reaches the limit and stops on its own. At this point the rollshutter curtain should be somewhere between fully "up" and fully "down". If the motor didn't stop before the curtain reached the fully "up" position, stop the motor with the tester cable, run the curtain down again and turn the limit switch 5 - 10 more times towards the "-" sign. Then repeat running the motor up again. Even though the motor has now stopped you should continue to apply power through the tester cable. Turn the limit switch towards the "+" sign. After a little bit of turning your motor will start and then come to a stop. Continue turning the limit switch towards the "+" sign until you reach the point where the bottom profile is just fully inserted in the guide rails. Stop applying power. Your upper limit is set.

**Problem:** After you have finished you decide that the "up" limit is actually set higher than desired.

**Solution:** Switch the tester cable to the "down" direction and run the curtain down about 2 feet. Stop the rollshutter by switching the tester cable to "stop". Turn your "up" limit switch towards the "-" sign for 3 to 5 rotations. Switch the tester cable to "up". Let the rollshutter go up until the limit switch stops it. Continue to

apply power. Your rollshutter should stop sooner than you require it. Now turn the limit switch towards the "+" sign and let the motor follow you in small jumps until you reach the desired position.

**Warning:** You will break parts in the motor and will cause eventual catastrophic destruction of the rollshutter in this situation:

Your motor is stopped at the limit and you turn the limit switch towards the "-" sign. If you do this, parts inside the motor will be cracked and the damage may not become apparent until quite some time later when the limit fails and the rollshutter continues to run indefinitely.

Run your rollshutter up and down at least twice. The limits take some setting into place and may move slightly during that procedure. You might consider readjusting them slightly. After that is done, there will be no more adjustments necessary.

**Problem:** The motor stops and will not move under any circumstances.

**Explanation:** The motor has overheated. The internal thermal protection switch has cut off power and will restore it automatically in 30 to 45 minutes. Motors are designed to run for short intervals only. During limit switch adjustments they tend to be operated almost continuously and can overheat. You do not harm the motor by overheating it. While waiting for the reset, make sure that power to the motor has been shut off!

**Problem:** The limit switch stops the motor at a markedly different position (more than 1" difference) every time you check it. Trying to adjust it seems not to help. Sometimes it appears to be in order but a few days later the customer reports that it has moved again.

**Explanation:** This very frustrating problem has only one cause. The limit switch was slightly damaged during initial adjustment due to ignoring the warnings shown in the section on turnable limit switches. This problem will get worse with time. Eventually the limit will be lost altogether. The motor needs to be replaced. You should contact the factory.

**Problem:** The rollshutter comes to a stop at the upper limit. Soon you hear the click, that the unit normally makes when it shuts off, several times.

**Explanation:** A faulty brake in the motor lets the rollshutter slide down slightly, almost unnoticeably. The limit switch eventually gets released and supplies the motor with power, provided the tester cable or switching mechanism has remained switched in the "up" direction. The motor runs up momentarily until the limit switch cuts off power again. Then the circle repeats. Contact the factory and request a new motor.

**Problem:** The motor makes a grinding sound and/or it chatters when it reaches any one of its limits.

**Explanation:** This is the case when your installation includes more than one motor. All warnings on the electrical switching mechanisms and motors have been ignored, and more than one motor has been hooked up to one switching mechanism. All motors connected to one switch will experience capacitor feedback. **Cut all power immediately!** You may only hook up one motor to one switching mechanism. Try again with the correct hook-up and verify that motors run properly now.

**Note:** It is highly probable that the limit switches and/or capacitors in the motors were damaged due to the initial faulty hook-up. You should notify the factory of the incident and discuss the problem. In any case you must anticipate that these motors will fail in the future either by not running at all or losing one or both of their limit switches. Without limits, the customer may experience catastrophic destruction of the rollshutter units as the motors turn indefinitely. It is highly advisable to exchange the motors now in order to avoid very costly repairs later.