

Auto Chaos for ID1...8

An analog version of Auto Chaos is in preparation.

Anyone who often drives **alone**, but let's 1..6 cars drive autonomously around the racetrack, will quickly come to the conclusion that keeping track of more than one car is a very difficult task!

Also for ID7 (Ghost Car Carrera) and ID8 (Pace Car).

Of course, you could then drive with just 1 car, but the fun of the racetrack quickly disappears, because there is simply little challenge; changing lanes (overtaking) makes little sense, as there are no other cars driving.

Just a quick note:

The autonomous cars drive at a fixed speed over the racetrack (they are equipped with magnets) and are controlled by the "Dual Speed Controller"; each car has its own ID (1..6). Start/stop ensures that the cars start simultaneously. The DRS function can be used on the straight sections; the ID Reader module is necessary for this!

If you are driving yourself—which is even possible with up to 4 participants (ID1...4)—in which case the rear magnets are removed from these cars (possibly the center magnet as well).

In this situation, you can race very competitively! Should the battle turn out to be too much in your favor, you could use the following obstacle by making a Pitstop yourself (Refueling/Polishing tires); the autonomous cars (unfortunately) cannot do this.

How can you create Auto Chaos?

- 1) Using an AddOn in CPX
- 2) A separate system

Solution 1 is possible, but works too slowly (Cars drive quite fast) Especially in combinations of other active Add-ons.

How it works:

Using IR sensors in the racetrack (Max 32), the cars are continuously detected (ID1...8). As soon as a car drives over the IR sensor, the measurement is automatically started. After passing the next IR sensor, the measurement is restarted. As soon as the measurement exceeds a value (adjustable), an output becomes active, Chaos is activated, and the race is stopped. All other measurements are terminated immediately. A car's measurement is restarted as soon as it passes another IR sensor.

In principle, there are 28 IR sensors available for the main track and 4 IR sensors for entering the pit box. These 4 IR sensors ensure that the ongoing measurement is stopped immediately. So, there are 14 IR sensors available per track, but that does not mean you have to use (connect) them all!

However, the more sensors there are, the faster Chaos can be detected?

If you place 2 IR sensors behind every curve in a straight section of the track, this will result in a distance of 2.5 meters in practice. This makes racetrack monitoring of 28...56 meters possible. Assuming a speed of 2...4 meters per second, this allows you to achieve monitoring of 2..3 seconds.

If you compare this response time with your own response time in combination with the Switch ID reader (where you have to activate Chaos yourself), isn't the automatic solution much slower?

Connecting IR sensors to multiple modules:

It is possible to connect an IR sensor to multiple modules simultaneously:

- Auto Chaos module
- ID Reader Module (DRS)
- Arduino 32E/15A board
- USB-Box 12E /4A

Please note: the power supply for these IR sensors may only come from one module, and as soon as the Arduino 32E/15A and/or the Auto Chaos module are connected, the power supply voltage is 3.3 V instead of 5 V!

What is possible without causing Chaos:

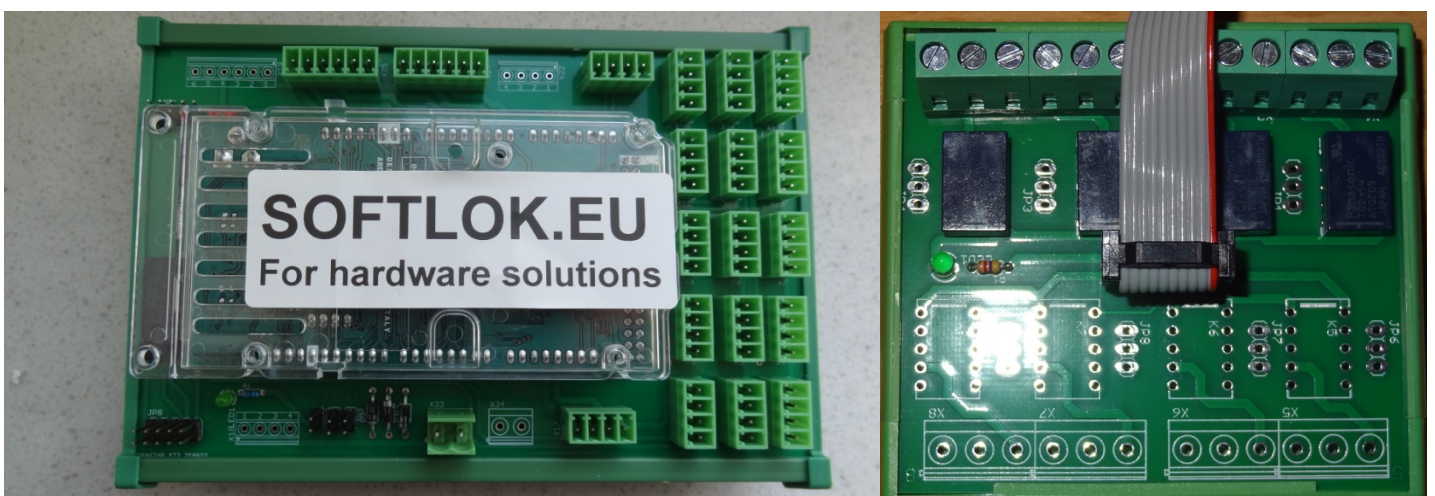
- Pit stop (IR Sensor 29-32)
- VSC/ SC (Virtual Safety Car or Safety Car) cars drive slower (separate setting)

Extra functions:

- Auto start after Chaos (time adjustable separately)
- Auto start with or without traffic lights
- Race stopped notification (red flag)
- VSC/ SC active notification * (yellow flag continuous or flashing)

What exactly do you need if you drive **without** a computer:

- 1) Auto Chaos Module
- 2) IR Sensors (max. 32)
- 3) Relay module (4)
- 4) 3x Potentiometer for time setting
- 5) 9x Switch (on/off)
- 6) Micro USB ⇔ USB A cable + 5V adapter
- 7) 25 cm DIN Rail for mounting module



What exactly do you need when driving **with** a computer and CPX:

- 1) Auto Chaos Module
- 2) IR Sensors (max. 32)
- 3) Relay module (8)
- 4) 2x Potentiometer for time setting
- 5) 1..9 switch (on/off)
- 6) Micro USB ⇔ USB A cable + 5V adapter
- 7) 25 cm DIN Rail for mounting the module



Items 5 & 7 are not included in the standard delivery.

The remaining parts can be found in the price list.

Potentiometer:



Easy to install (drill hole approx. 22 mm)

IR Sensors:

These are available fully built into a standard straight track section with cable cut to length, or available separately for self-installation.

The other parts can be found in the price list.

* If the Pace Car is active (on CU 30352, 2 LEDs light up instead of 1), Chaos is not possible! To make this known, there is a connection to indicate that the Pace Car is active; as soon as Chaos is activated, the Pace Car is recalled first, and Chaos is executed immediately afterwards.