

## Introduction

Sustainable entrepreneurship is becoming increasingly important in the Netherlands. Companies are obliged to meet CO<sub>2</sub> targets from European legislation and regulations. The rung achieved on the CO<sub>2</sub> Performance Ladder is determinative for contract award benefits for (inter)national tendering. In other words, without sustainable entrepreneurship, your company turnover can fall significantly. Partly as a result of this legislation it has been decided to fit this vehicle with the ECOdrive®. This product ensures a positive contribution to achieving the sustainability aims of the company that employs you. In addition to the reduction in CO<sub>2</sub> emissions, the ECOdrive increases your driving comfort and safety. The ECOdrive makes a positive contribution to safe driving behaviour, fuel saving, less damage and wear, reduction of noise pollution and reduction in the emission of harmful substances. The ECOdrive helps you to drive according to "The New Driving" technique and to make an immediate contribution to the CSR (Corporate Social Responsibility) aims that have been set in the field of environmental impact, stimulating safer driving behaviour, image enhancement and saving costs on fuel and maintenance.

**The descriptions below apply to the vehicles in the organization:**

### What do you notice while driving with ECOdrive?

If you have a driving style where you change gear early, at low RPM and display a controlled and steady driving behaviour, you will not notice the ECOdrive. The ECOdrive ensures that the set end speed, the RPM per gear and the reversing speed are adapted so as not to exceed the limit. The product helps you to drive according to the "The New Driving" concepts. When the limits are exceeded, the product springs into action and immediately intervenes by limiting the ability to accelerate further and by encouraging you to change up to a higher gear.

### Pulling a trailer

The ECOdrive detects when a trailer is hitched to your vehicle and automatically switches to the trailer mode in which the end speed is lowered to the speed desired by your company. To give you sufficient pulling power and maintain your acceleration speed, the ECOdrive ensures that the gear change points are at higher RPM.

### Automatic transmission

The gear-change points are optimised/adapted per gear for automatic transmissions. Even if the accelerator is fully floored, the automatic gearbox will change gear smoothly at the maximum desired gear-change points. The use of manual gear changing is strongly discouraged as in this case significantly less power is available. This is because of the set demotivation control. This control has been implemented because manual gear changing with an automatic transmission is not good for the engine or the gear box. To optimally use your vehicle's power and provide a comfortable ride at the same time, we recommend that you only use the vehicle in the automatic setting.

### Manual gear box

The RPM are limited per gear for a manual gearbox. You will notice this as you will feel that you can no longer increase the RPM above the set limit. This is to stimulate you to drive more economically and to change up sooner to reach the desired speed.

### Engine warm-up phase

Most engine damage occurs because the engine is not driven gently to warm it up before the engine delivers higher RPM. The ECOdrive has an engine warm-up phase to significantly extend the service life of your vehicle's engine. The gear-change point will be at a lower RPM when the engine is cold. *The ECOdrive automatically reads the engine temperature from the CAN bus and will automatically switch to the normal settings when the engine temperature is 75° because the engine has been warmed-up sufficiently at this point.*

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This temperature will normally be reached after approximately five minutes. You will, of course, notice this from the power that the vehicle delivers, but you can also tell from the LED display, when the green LED lamp stops flashing gently.



### Code box

Depending on the settings, the code box can be used for personalised logging-in of drivers, Foot-On cruise control and Foot-Off cruise control. If the personalised log-in function is used, then you must have a personal code key which authorises you to drive the vehicle off. The code key must be placed against the circular opening in the code box after the vehicle has been started. You can only drive off without logging-in with the engine at idling speed because the ECOdrive does not allow the accelerator to be used without the driver being logged-in. You will hear a long beep and then a short beep at the end to confirm that the code key has been accepted. The ECOdrive now automatically ensures that you can use the accelerator and are free to drive off. If you should hear different beep signals, please try again.



### Vehicle cruise control

Does your vehicle have a factory-fitted cruise control function? If so, you should set the desired speed using this cruise control. If the cruise control frequently disengages automatically, we recommend that you set the cruise speed 1 or 2 km/h lower.

If your vehicle does not have an original cruise control then it is usually possible to have the ECOdrive provide cruise control. The cruise control can then be operated using the plus and minus buttons on the code box that is fitted to your dashboard. Operating the code box (toward the green area) allows drivers to voluntarily limit the maximum speed, otherwise known as Foot-On cruise control. With the Foot-On function you are free to accelerate until the set maximum speed has been reached. Operating the code box (toward the orange area) allows you to set your vehicle to maintain a set speed automatically, also known as Foot-Off cruise control. Here the vehicle maintains the set speed automatically; you can increase your speed simply by applying the accelerator.

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### **With flashing lights and siren**

Under normal circumstances, civilian service providers can drive under the limitation, without reaching high RPM or speeds. Emergency situation? The ECOdrive automatically switches to different settings where the full/necessary power is immediately available, as soon as the flashing lights have been activated.

### **Increased idle RPM (PTO control)**

Do you want to charge electrical/electronic equipment/facilities from your vehicle's battery while you are busy working? While your vehicle is standing still, the ECOdrive ensures that the vehicle continuously provides sufficient battery voltage by temporarily increasing the idling speed of the vehicle during your activities. You therefore do not need to worry when using your electrical/electronic equipment/facilities that this will deplete the charge in your battery.

### **Engine off control**

Idling the engine unnecessarily is bad for the engine and for the particulate filter on your vehicle too. In addition, this increases fuel consumption. The ECOdrive ensures that the engine switches off automatically when the engine is idling unnecessarily. This will happen using a time period that has been set in advance, which automatically activates the function.

### **Code key concept**

This optional concept allows you to personalise your vehicles. The code key concept is ideal for drive-off protection for your vehicle. When this function is used it is important that the code key is pressed against the code box until you hear an audible signal that you are logged-in.



### **Clutch protection**

This function means that the ECOdrive detects if you are driving with too much or a slipping clutch when changing from one gear to another. If this is the case, the orange LED will light up and the power will be reduced automatically to prevent the clutch slipping. At that time your vehicle will not be able to accelerate. You can resolve this by releasing the accelerator and the clutch, after which you can try to change gear again, without a slipping clutch. If you change gear properly/normally, you will not be troubled by this function. As an additional function the clutch protection also ensures that you can only pull away in first gear or in reverse. If you pull away in a higher gear, power will not be available, as a result of which it is impossible to pull away in this gear. This automatically stimulates drivers to pull away in the right gear from a stationary position.

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