



# BA GUIDE:

## UK E-Bike Regulations

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# Welcome

**The BA Guides are a series of concise documents aiming to offer definitive information on matters of interest to the UK cycle industry. BA Guides are available as free downloads on the Bicycle Association website for reference by the wider industry, media and general public, while more detailed and specific material is reserved for Bicycle Association member companies.**

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# INTRODUCTION

E-bikes are a fast-growing sector of the cycling market, and this is largely because they are treated in law very much the same as conventional cycles.

## If an e-bike complies with the relevant regulations:

- It can be **placed on the market** legally, as long as it meets relevant product safety regulations.
- And customers can simply buy one and (as long as they've over 14 years of age) **use it legally** wherever it's legal to ride a pedal cycle, and under the same rules of the road.

This document will explore the UK e-bike regulations in these two key areas, and also address some 'edge cases'.

We'll also note any areas where the rules in Northern Ireland differ from those in Great Britain.

# SUMMARY

An e-bike is classed as an "Electrically Assisted Pedal Cycle" (EAPC) and is legal to sell and use basically like a normal bike (except the rider must be 14+) if:

- it has functional pedals
- max motor assist speed is 25 km/h (15.5 mph)
- motor power rating is max 250W
- and the rider must pedal for the assist motor to operate.

If it meets the first three criteria above but has a throttle control which enables the motor to operate without the rider pedaling (at above 6 km/h or 4 mph) then the e-bike is known as a "Twist and go EAPC" and it must be type approved before sale - which we'll explain in detail later.

If any of the first three criteria listed above are not met, then the vehicle is not an e-bike in law - it will generally be treated instead as a moped, with potentially serious consequences for the user and, possibly, the seller.

# Placing on the market

The BA has further detailed guidance for e-bike importers, but end users and retailers should also be aware of what to expect from suppliers when they buy a new e-bike..

Before placing an e-bike on the market, suppliers must among other things:

1. Check whether the e-bike is exempt from **type approval** or not - and if not, obtain type approval before sale. Type approval is normally only needed for “Twist and go” e-bikes.
2. Otherwise, ensure that it is a “safe” product in accordance with the **UKCA** (for Great Britain) **and/or CE** (for Northern Ireland) **conformity assessment and marking processes**.
3. Ensure that the name and address of the manufacturer and (if different) UK importer are on the e-bike.

For safety reasons we very strongly recommend that suppliers also:

- **Ensure that the right hand operates the front brake(s), as is the UK convention.**

This is not a specific legal requirement for e-bikes (as it is for most normal bikes), but in our view it is very important to provide the configuration most riders expect (unless there’s a good reason otherwise - for example, when adapting a cycle for a disabled.rider).

The e-bike should be accompanied by user instructions, on paper and in English, and any charger supplied must have a UK three-pin plug fitted.

Suppliers will also have to comply with regulations around electrical waste and end-of-life batteries - again the BA has separate detailed guidance available for members.

# CE/UKCA marking (for almost all e-bikes)

Because they have electrical parts and motors, e-bikes fall under a raft of product safety regulations which do not apply to conventional cycles.

These include regulations relating to safety of machinery, electromagnetic compatibility, the chemical content of electrical parts, and others.

Like conventional cycles, e-bikes are also subject to the provisions of the General Product Safety regulations.

The upshot of all of these regulations is that the manufacturer must declare (in a “Declaration of Conformity”) that the product is “safe” - meaning that it meets the requirements of all of these regulations.

Then they can affix a UKCA mark (for Great Britain) and/or a CE mark (for Northern Ireland and the EU) to the e-bike and place it on the market.

They must back up their declaration of safety by keeping a “technical file” of test reports and other documentation.

For almost all e-bikes, a key part of this will be evidence of compliance with the product safety standard BS EN 15194:2017. So when you buy an e-bike, you should see EN 15194 mentioned on the main product label.

# Type approval (for “twist and go” e-bikes only)

Type approval is the official approval process used for almost all vehicles with a motor for propulsion (e.g. cars and motorcycles), and since 2017, only e-bikes which do not allow the motor to operate without the rider pedalling (above 4 mph or 6 km/h) have been exempt.

So “Twist and go” e-bikes which allow the motor to operate up to the full 25 km/h (or 15.5 mph) limit are not exempt from needing type approval, and do require this to be obtained before sale, even if they meet all other EAPC criteria. This approval can come in one of two forms:

Whole vehicle approval. This is intended for large production runs, has many requirements and is very expensive. We are not aware of any UK e-bikes with this form of approval.

Motorcycle Single Vehicle Approval (MSVA). As the name suggests, this is an approval scheme for individual vehicles, which must each be taken to a DVSA test station, pay a £55 fee, and be individually approved under the “250W LPM” category. This is logistically difficult for suppliers, and to date we are only aware of one supplier offering properly type-approved “twist and go” EAPCs.

Because neither of these processes is straightforward for manufacturers, currently there are very few twist and go e-bikes available on the UK market.

# Legal usage

## EAPCs - the basics

To be legally used as cycles (rather than as motor vehicles), e-bikes must meet the criteria to be classed as “Electrically Assisted Pedal Cycles” (EAPCs):

- functional pedals
- max motor assist speed 25 km/h (15.5 mph)
- motor power rating max 250 W

## More specific requirements

There are certain specific requirements for e-bikes detailed in the Pedal Cycles (Construction and Use) Regulations:

- Nameplate requirements: to be used legally as an EAPC, e-bikes must have a label stating the motor rated power and the motor assist cut-off speed (normally 250W and 25 km/h respectively) Some older e-bikes can show different info including nominal voltage, but this is increasingly rare.
- Braking requirements: There are performance requirements for braking similar to those which apply for all other cycles - and generally there must be separate brakes on both front and rear wheels.
- For legal use on roads, the e-bike must be fitted with a battery that “does not leak so as to be a source of danger”.
- For legal use on roads, the e-bike must be fitted with “a device biased to the off position which allows power to come from the motor only when the device is operated to achieve that result”. This is taken to mean that for throttle-type controls, they must be spring-loaded to the off position. For e-bikes which sense pedal pressure to control the assist motor, the default position of “no power unless leg input commands it” is generally understood to satisfy this requirement.



# Specific cases

## Cargo cycles

Electric assist has become popular for cargo cycles - heavy duty e-bikes designed to carry goods or people. These are treated just like any other EAPC (assuming they comply with the rules) and the regulations do not limit wheel count, size or weight.

## E-bike conversion kits

Adding a kit to a conventional bike, to turn it into an e-bike, may seem to be an attractive proposition, but there are a number of considerations, around safety and liability, that people should be aware of before going down this route (rather than purchasing a complete e-bike). These are set out in a separate BA Guide.

## “Off road” e-bikes

Some e-bikes which exceed the maximum power (250W) or speed (25 km/h) for a road-legal EAPC are marketed for “off-road use only”. It should be made clear that these vehicles can only be used legally on private land to which the public do not have unrestricted access, and with the landowner’s permission. They cannot be used legally on road or on public rights of way (on or off road). See below for more detail on the possible consequences of such use. The Department for Transport have also indicated that vehicles with both an ‘EAPC mode’ and a higher power or speed “off-road mode” will be classified according to the higher mode. In other words, they will be classed as mopeds rather than as EAPCs, even if the rider states that they only use EAPC mode on road...

## Series hybrids / Digital drive

There are an increasing range of vehicles marketed as EAPCs which do not have any form of mechanical transmission between the pedals and wheels. Instead, there’s a generator at the pedals and this transmits power electrically to a motor at the wheel, often with some extra assistance coming from a battery pack.

These are known as “series hybrids” or “digital drive” bikes.

Whether series hybrids can be EAPCs is not entirely clear, and the detailed consideration of this is too long to include here (BA member companies can access separate guidance).

But the upshot is that in our view, nothing in the regulations prevents them meeting all of the EAPC criteria, provided of that the total power delivered to the motor (including transmitted human power) does not exceed 250W, and that all motor propulsion has a cut-off speed of 25 km/h.

However, it is important to note that discussions are ongoing at both UK and EU levels to clarify the status of these vehicles. And as with the multiple-motors issue, to our knowledge the EAPC classification (or otherwise) of a series hybrid has not been tested in law.

# Specific cases

## More than one motor?

Can an EAPC have more than one motor, if the total power output of all motors combined remains within the 250 W limit?

The answer to this is unclear. There is a line in the regulations to the effect that an EAPC must “be fitted with no motor other than an electric motor”, which is written in the singular, but that could be interpreted as just meaning that other types of motor (e.g. small petrol engines) cannot be used.

The BA is seeking official clarification on this, but it is our view that as long as the total motor output does not exceed 250 W, splitting that across multiple motors is within the spirit and arguably also the letter of the regulations. But this has yet to be tested legally, to our knowledge.

## Electric unicycles, tricycles, quadricycles, tandems?

The UK regulations state that EAPCs must have two or more wheels, so electric unicycles cannot qualify. But all of the other types are OK.

And there’s no mention of EAPCs being limited to a single rider, so tandems (and other multi-rider cycles) can also be EAPCs.

## Electric-assisted trailers

There are cycle trailers on the market which include electric-assist - the effect of which is to reduce the drag on the towing cycle.

We understand that when coupled to a towing cycle, the assembly is considered as a single vehicle for the purposes of road traffic law. So the cycle and trailer as a whole must meet the EAPC regulations.

So if the trailer has a 250W motor, it can be towed only by an unassisted cycle if it is to remain under EAPC rules. If it were instead towed by a 250W e-bike, the combination would be legally a moped and could not be ridden effectively as a bicycle.

## Speed pedelecs

In some EU countries there is a class of vehicle called the “speed pedelec” or “S-pedelec” which is sort of like a beefed-up e-bike with a 45 km/h (ca 30 mph) cut-off speed.

In the UK these must have type approval and meet moped regulations to be used legally, and cannot use cycle paths. Riders must wear a motorcycle helmet.

# Adding throttles, dongles, tampering

The Bicycle Association and many of our member companies are pleased to have joined a Europe-wide campaign against e-bike tampering.

“Tampering” is unauthorised modification of the vehicle which generally increases speed or power. It’s also known as tuning, de-restricting, chipping or dongling. Suppliers take technical measures to deter such actions, but it is impossible to stop completely by this means.

For users, tampering will turn a legal EAPC into an unregistered motor vehicle, leaving them open to legal and liability issues as explained below.

For the wider e-bike community and industry, tampering puts at risk the bicycle-like status of e-bikes, and risks damaging their image and reputation with the public and policymakers.



# What if it's not an EAPC?

If it's a vehicle with motor but it's not an EAPC then it will be legally classified as one of the following::

- **THE DEFAULT: A motor vehicle** (and it can be legally used on the public highway only if it can obtain type approval in the relevant category, and meets other requirements, such as tax, insurance, driving license etc. are met): [Vehicle approval: Overview - GOV.UK](#)
- **A mobility scooter/invalid carriage** (limited to 4 or 8 mph, on roads or pavement only depending on type): [Mobility scooters and powered wheelchairs: the rules: Overview - GOV.UK](#)
- **Anything else, like an e-scooter, will be a “powered transporter”** (no type approval possible, so no route to legal public use currently): [Powered transporters - GOV.UK](#)

# Implications and risks of riding non-EAPC e-bikes

The BA strongly recommends that end users choose fully legal e-bikes (EAPCs), from reputable UK suppliers.

If, either deliberately or inadvertently, a rider uses a non-EAPC vehicle on the road as they would an EAPC or bicycle, there are potentially serious negative consequences:

## Legal

- Legal offences may include:
- Driving an unregistered motor vehicle
- Riding a motorbike without a proper helmet
- Driving otherwise than in accordance with a licence
- Type approval offences

Penalties for these offences include fines and points on a driving licence.

## Personal liability

Potentially even more life-changing than the legal aspect is the risk of personal liability.

If a rider of an illegal (non-EAPC) vehicle were to injure a third party, or damage property, it is highly likely that any insurance cover they may have which covers third party liability will be invalid.

The result could be life-changing personal liabilities (e.g. the lifetime cost of medical care for an injured third party).

For this reason the BA again very strongly recommends that riders use only road-legal EAPCs from reputable suppliers.

# E-bikes in Northern Ireland

Traffic law is a devolved matter, so Northern Ireland has a separate set of legislation to that which applies in Great Britain.

Historically, the EAPC category had not been legally implemented in Northern Ireland, but in 2022 the legislation was aligned with Great Britain.

The only significant difference in regulatory terms is around product safety. Under the terms agreed as part of Brexit, Northern Ireland remains in the EU Single Market for goods. So e-bikes must feature the CE mark rather than the UKCA mark.

In practice, most e-bikes sold will be marked with both CE and UKCA, so that they can be sold in either territory, and this is completely acceptable under the regulations.

# Links to official guidance

## For Great Britain:

- A brief summary of the rules is at: [Electric bikes: licensing, tax and insurance - GOV.UK](#)
- Comprehensive official guidance: [Electrically assisted pedal cycles \(EAPCs\) in Great Britain: information sheet - GOV.UK](#)
- Further info on type approval is in this note: [European type approval for certain electrically assisted pedal cycles \(EAPC\) - GOV.UK](#)
- There's really detailed advice for businesses at the Business Companion website (guidance from Trading Standards) titled [Electrically assisted pedal cycles | Business Companion](#)

## For Northern Ireland:

- There's a summary on nidirect.gov.uk: [Electric bikes \(electrically-assisted pedal cycles\) | nidirect](#)



# THANK YOU!