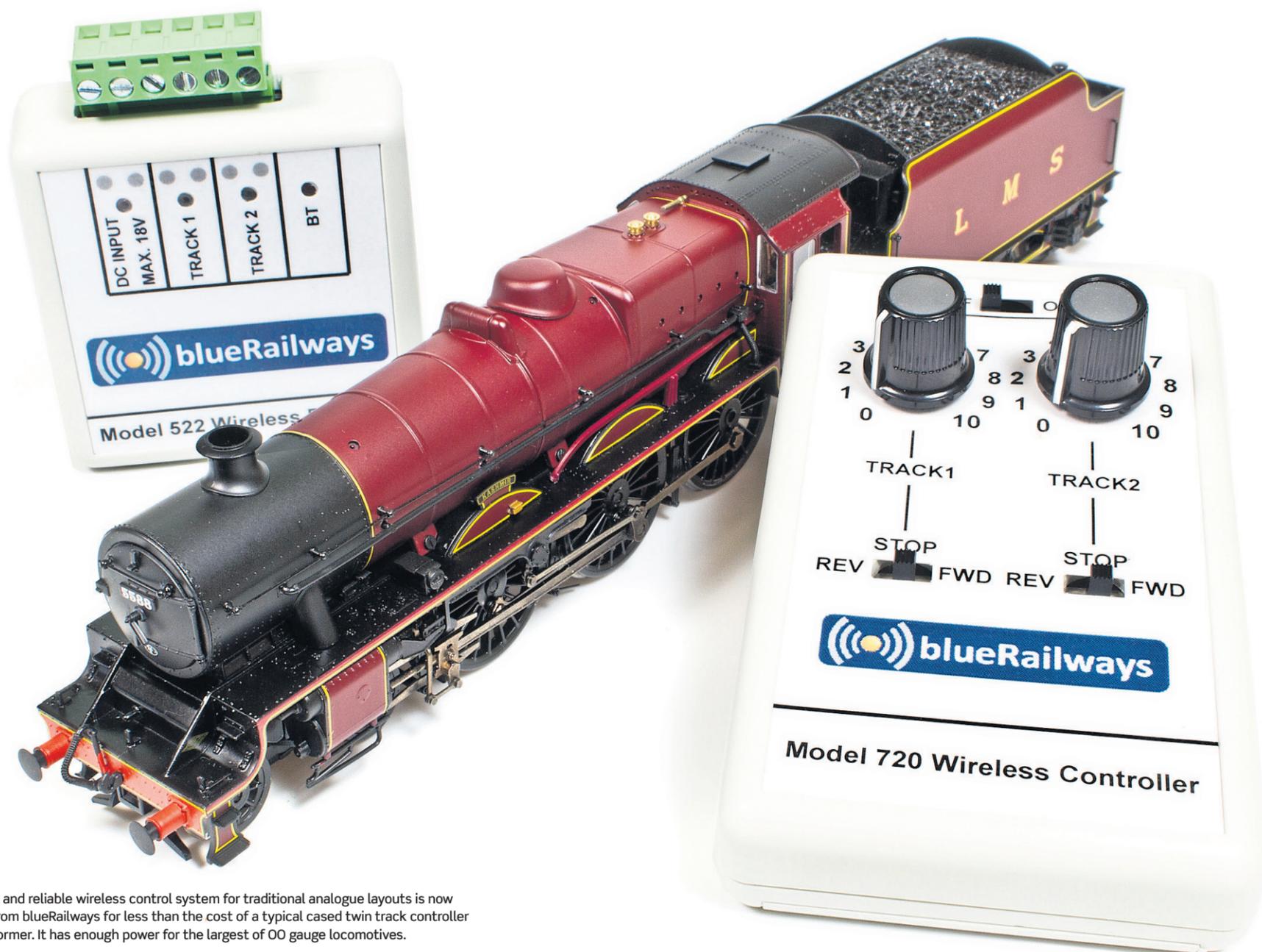


What's *in the* shops



A powerful and reliable wireless control system for traditional analogue layouts is now available from blueRailways for less than the cost of a typical cased twin track controller and transformer. It has enough power for the largest of OO gauge locomotives.

Simple wireless model railway controller

blueRailways has brought conventional analogue control up to date with a smart but simple-to-use wireless control system. **Nigel Burkin** takes a good look at the system and its benefits.

IT IS EASY TO FORGET THAT THERE have been major developments in traditional analogue (DC) control in recent years with advances in the design and functionality of controllers to include wireless handsets and advanced levels of control. Finesse has come to traditional analogue control and blueRailways has been a leader in this field with some innovative product development.

So why is there a continued interest in traditional analogue control? It is fair

to say that analogue control remains a valid choice and a logical one for many modellers, partly for reasons of cost and partly for simplicity in setting up a layout. I have come to recognise that traditional analogue control remains a good choice for those making a start in the hobby too. Being able to run trains straight from the box without having to first install decoders is something that the newcomer to the hobby is likely to embrace and the blueRailways' system brings contemporary control to the

layout with the use of mobile devices, apps and a wireless handset with traditional tactile controls.

blueRailways realised that the demand for quality analogue control systems had not died out and DCC has not swept the board in the manner that many have expected. It has also recognised the growing interest in using smartphones and portable devices as controllers, making the operating experience more enjoyable for analogue layouts. In reality, the blueRailways' system has brought one of the hitherto exclusive-to-DCC controller interfaces to traditional analogue control and it has done it well. Furthermore, the power output used by blueRailways' devices is Pulse Width Modulation (PWM) instead of a variable-voltage output, which is an ideal way of controlling the power to motors in model locomotives. It will do a great deal to bring out the best in your older models with less sophisticated motors.

Wireless control

Wireless control using traditional model railway electronics of powering the rails of a layout (both analogue control and DCC use this basic concept) comes in two forms: radio control using transmitters and receivers (sometimes using exposed

dongles) together with infrared. The former is generally preferred by most modellers because it does not require 'line of sight' and generally has a greater range than infrared-control systems. The key benefit of wireless control is not being 'tethered' to the layout and it is this key benefit that prompted blueRailways to explore the use of mobile devices to work as wireless controllers on analogue layouts.

blueRailways' system

blueRailways first experimented with wireless on-board locomotive controllers designed to work with analogue control but found that the idea suffered from many of the same challenges as DCC decoders – miniaturisation and installation issues. The controller receiver was relocated to a simple control box called the Model 601, which needs an external power source to power the layout, usually from a wall-mounted transformer. It is connected to the layout wiring in the same manner as any other analogue controller. In addition to working as a receiver for commands transmitted from mobile devices for which a dedicated app has been written, it is a traditional analogue controller



Battery power is usually an issue with wireless controllers because there is no connection to the layout for a source of power. The Model 720 is designed to be very economical with power and battery life can be as long as 1000 hours. The handset has an on-off switch to conserve power between operating sessions.

in its own right with a control knob and selector switches. The concept of wireless control has come to analogue control and the use of mobile devices made it a very economical way to control a model railway.

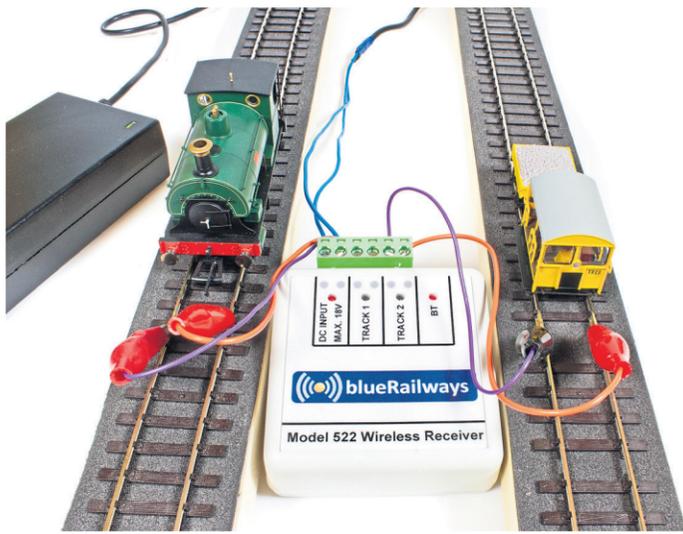
Perhaps one of the most interesting features of the Model 601 controller-receiver is the ability to 'programme' cvs for acceleration, deceleration, start voltage and maximum voltage, or maximum speed if you like. Changing these settings can be achieved for individual locomotives and is undertaken through the use of the app.



The system is based around a wireless receiver that will communicate with a dedicated handset or mobile devices. This is the Model 522 which is a twin-track receiver.



For those modellers who do not wish to use mobile devices, a conventional-style handset is available. The Model 720 wireless controller is a transmitter with controls for two-track operation that will communicate with a Model 522 or two Model 601 receivers.



The two track outputs can be wired into a layout with block sections which allow two-train 'cab control' operation using switching to power each block from either one. Common rail return is not recommended for this type of controller because there is only one power source for both track outputs.

Perhaps one of the surprises encountered by blueRailways during the development of this system is the realisation that not everyone wants to use a mobile device such as a smartphone or tablet for model railway control. This saw the development of the Model 720 twin-track wireless controller handset that independently controls two locomotives at the same time as long as they are separated by electrical blocks. In reality, the Model 720 is a transmitter that sends control instructions to either two Model 601s or the new twin-track receiver: the Model 522. It is the dual-track combination of Model 522 and Model 720 that are reviewed in this article.

Model 720 twin controller/transmitter handset

Weighing just 120g including a set of batteries, the Model 720 wireless controller is not going to fatigue your hand during a long operating session. It is designed to operate with either two Model 601 receivers or a Model 522 receiver to control a layout. The controls are simple and consist of two tactile control knobs, which are smooth to use and offer a high level of controllability. Reversing switches are also fitted together with an on-off switch to conserve battery power.

The Model 720 is not tethered to the layout like a conventional handset and has no source of power other than two AAA batteries fitted to a conventional battery compartment in the rear of the handset. Power consumption is so low that a fresh set of batteries will last between 500 to 1000 hours depending on the battery type – as long as you remember to switch the unit off after playing trains! I particularly like the fact that the handset is compact and fits neatly in the hand. There is no antennae to get tangled up in your layout scenery and the box in which the controls are



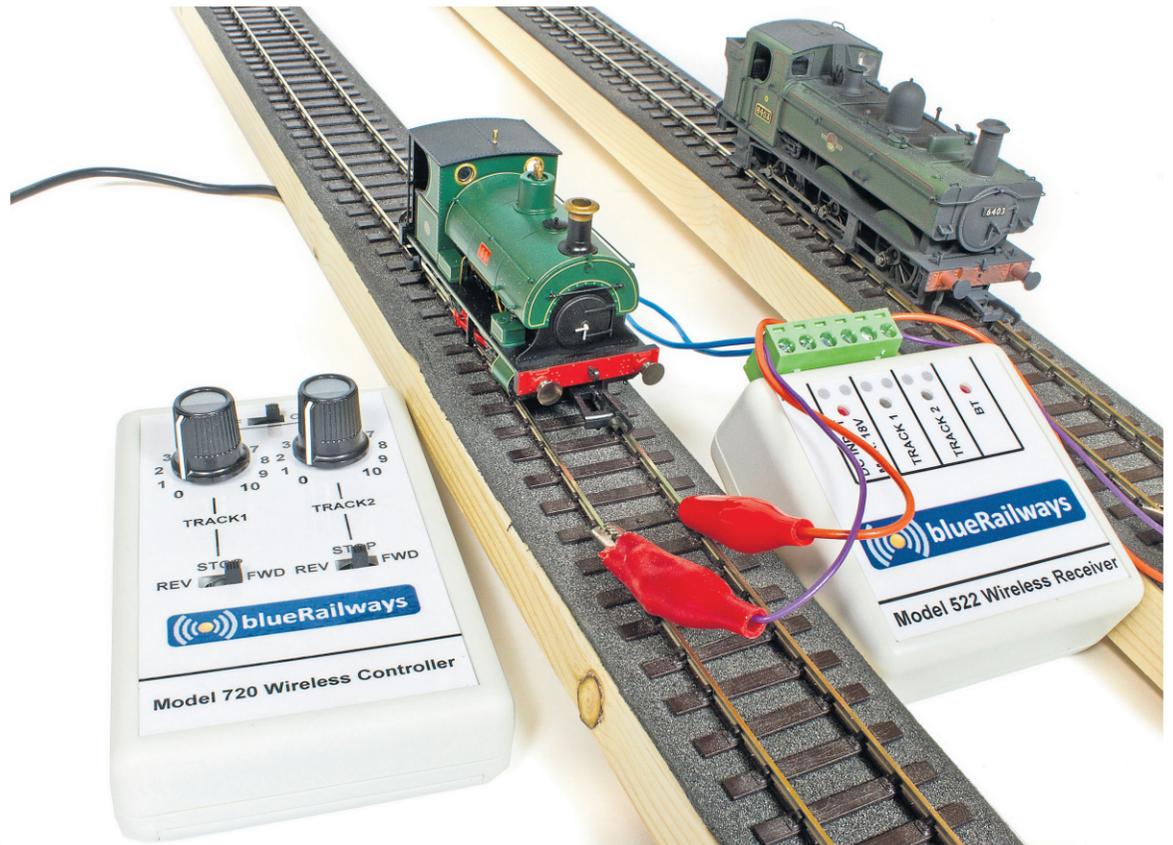
There are only six terminals at the rear of the Model 522 receiver unit: one for a power supply, usually from a low-cost wall socket transformer. The other two pairs are for track 1 and track 2 respectively.

mounted is composed of tough plastic. While you should avoid dropping it during an operating session, the box will be very durable with normal handling.

On the face of the handset is a single status indicator LED located beside the on-off switch. When the handset is switched on, it will indicate whether it has established a link with a receiver. A red indication tells you it is searching for a receiver while a flashing red indicates that it has failed to make a connection with a receiver. The transformer powering the receiver should be powered before turning the handset on to ensure a connection is made. When a connection is established, the LED flashes green at four-second intervals to show everything is running normally. A more rapid flash and lack of any locomotive movement on the track means that a direction switch has been changed before the control knob was turned to the zero position.

Model 522 receiver

The power for the layout is connected from a wall-mounted transformer or similar through the Model 522 receiver, which has six screw terminal connections in the rear of the unit. Two



Simple testing of the Model 522 and Model 720 combination using a variety of models. All ran smoothly on the Pulse Width Modulation power output.

accept incoming power and four are for the two track outputs. The instructions are very clear about the importance of keeping all of the terminals completely separate from each other and the Model 522 is not suitable for common rail wiring. Two-rail wiring should be adopted as standard.

One indicator LED is used to show the status of each of the outputs and to show that power is connected. When a controller is set to reverse, the track output LEDs will glow orange while a forward setting will see a green indication. An LED marked 'BT' also shows the status of the two-way communication between the receiver and handset, be it a Model 720 or a mobile device. The box itself is quite small and discreet, measuring 75mm by 65mm and 28mm thick, presenting few difficulties in incorporating it into the smallest layout concept. Yet that small box is quite a package of functionality and it too has the same CV setting capability as the Model 601 to enhance the performance of individual models.

Setting up:

blueRailways does not provide a transformer to suit either the Model 601 or Model 522, which leaves it to the modeller to find a suitable power source. That is far from a bad thing because there are so many suitable and very low-cost transformer units available for technology devices and small appliances that will do the job admirably. I keep transformers from old devices just in case they should come in useful for ancillary model railway use and I powered the Model 522 using a 4A, 12v transformer once used to recharge an old Sony laptop. Wall socket transformers are cheap to buy and as long as your choice of transformer will supply 12 to 15v (ideally) and a minimum current of 100mA, it will do the job!

Having found a power source, connecting the Model 522 to a test track was simple. The Model 522 is powered up first before the handset is switched on so it has a receiver with which to make a connection. Once paired, the connection will be strong and unlikely to be affected by other devices in the room.

On investigation into the use of multiple Model 522s for operations involving more than two independently operated trains, it is possible for there to be more than one in use on a layout. Connection is achieved on a 'nearest

first' basis when the system is powered up. The practical reality is that one Model 522 is powered up first and one handset switched on beside it. The second Model 522 is then powered up and its handset switched and so on, thus pairing them up.

The Model 720 handsets should remain powered throughout the operating session or the connection will be lost. The pairing will remain in place until the Model 522s are powered down or in the unlikely event that the handset goes out of range.

Speaking of range, I was interested to see how much the Model 720 handset remained powered throughout the connection was lost. blueRailways states that a range of up to 50m of 'free air' is possible. I found myself standing well into the garden, watching the test locomotive run over the test track (with the help of an open window) before there was any hint of a disconnection. This means that the range of the wireless connection is well within the size of a typical layout room.

Driving trains

blueRailways' wireless control brings a completely new driving experience to a model railway. While controller handsets have been available for analogue layouts for a long time, they have had to be plugged into the layout at locations equipped with a suitable connection – usually a DIN socket set into the layout fascia. Although multiple plug-in locations can be set up around a layout, 'plug and chug' can be a cumbersome way of driving a train!

Tetherless control is liberating: you can operate a train from any position around the layout and be on top of the action at all times. Shunting a yard? Be there with an uncoupler and your



There are indicator LEDs fitted to the compact wireless receiver that show the status of the power supply, communication with the handset or mobile device and track power. Green shows the power is set for forward running and orange is for reverse.

PRODUCT DETAILS:
Wireless control system with two-way communication and apps for conventional analogue layouts.

Manufacturer:
blueRailways

Scale:
Suitable for any scale up to and including O gauge (note maximum output current track).

Power output per track:
Model 522: 500mA.
Model 601: 750mA.

Web:
www.bluerailways.co.uk

App:
https://play.google.com/store/apps/details?id=com.bluerailways.ian.bluerailways&hl=en_GB
Not suitable for iPhone or iPad.

Suggested retail prices:
Model 522 receiver: £39.50.
Model 601 receiver/controller: £49.50.
Model 720 Twin track transmitter/controller: £44.50.
Model 522 and Model 720 package as reviewed: £79.50.

shunting lists. Mainline action? Follow the train around the layout, from scene to scene, and enjoy it from different angles rather than from a small number of fixed points. Finally, a wireless controller is perfect for undertaking repairs and maintenance to the layout – you can have controls right where you need them when testing new or repaired track or looking for the cause of a persistent derailment.

The beauty of the blueRailways' system is that it brings affordable wireless control with two-way communication together with refined PWM power output for refined operation to analogue layout control. Use a mobile device and the Android app (not iPhone or iPad) and the cost of adopting the system is limited to buying Model 601s or Model 522 together with a suitable power supply. Add the Model 720 twin track handset and the cost is still competitive with the price of a quality cased multiple track analogue controller and transformer and with considerably more refinement.



Models as small as the Hornby 'Peckett' and the Bachmann 'Wickham' trolley performed well with the blueRailways' control system. The Model 522 receiver may be programmed in the same manner as the Model 601 using the app to change CVs such as start voltage and maximum speed.