EQUIPMENT GUIDE

ACCESSORY DECODERS

In the first of a new series of product focussed features **MIKE WILD** investigates the world of solenoid point motor accessory decoders, reviews the main options and explains how to install them.

An impressive range of accessory decoders for use with solenoid motors is available ranging in their capabilities, power, price and appearance. This is the group used for this Equipment Guide test.

IF YOU ARE USING a Digital Command Control (DCC) system and you want to change points using DCC signals then you need an accessory decoder.

Accessory decoders act as a communication point between a controller and equipment such as point motors, signals and lights on a layout. They act in much the same way as a locomotive decoder, translating digital instructions into actions. These decoders tend to come in groups of four on one circuit board allowing control of multiple items.

There are a number of manufacturers producing accessory decoders and in this first Equipment Guide we have concentrated on the most commonly found decoders. There are other choices beyond the scope of this guide including kits to build your own. We have also concentrated on those designed specifically to work with solenoid point motors such as those made by Hornby, Peco and Seep as these are still the most common forms of point motor today. There are additional decoder designs to suit stall motors such as the DCC Concepts Cobalt and Tortoise while DCC Concepts has also developed a Cobalt slow action point motor with a built in accessory decoder.

The range of accessory decoders are similar in their abilities, but in our tests we found some were more reliable than others. Some lack the 'punch' of power required to move a solenoid point motor while others offer a large number of features beyond simply changing a point. All have been tried and tested on *Hornby Magazine's* layouts and we have put together a rating system to help you understand what we have discovered.

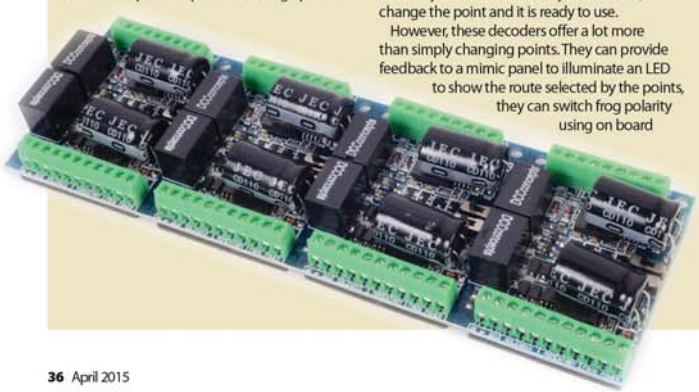
DCC CONCEPTS SOLENOID ACCESSORY DECODER

GUIDE RATINGS	
Reliability:	5/5
Installation:	4/5
Setup:	5/5
Price:	5/5
Availability:	4/5

DCC Concepts introduced its new ADS series accessory decoders in 2014 offering a substantial upgrade over previous versions. Available in eight port and two port formats, each solenoid accessory gets its own capacitor discharge unit which provides reliable and plentiful power to change points on demand using only a DCC power supply.

The decoders are very simple to install for basic point operation – simply link the input terminals together to the main power feed for your points and connect the wires from point motors to the appropriate terminals and you are ready to go. What is more is that each accessory can be programmed individually using DCC Concepts' tried and tested learn button – set it to learn, choose the accessory address you want it to be on your handset, change the point and it is ready to use.

However, these decoders offer a lot more than simply changing points. They can provide feedback to a mimic panel to illuminate an LED to show the route selected by the points, they can switch frog polarity using on board circuitry and – thanks to the massive power output of these decoders – each output can comfortably throw two points at once. This means that these substantial decoders can host up to 16 points (eight port decoder only) making them particularly useful for fiddle yards.



Both the two port and eight port ADS series decoders are currently in service on *Hornby Magazine's* 'OO' gauge office test track Topley Dale where their performance has proved exemplary. With their impressive capabilities and powerful outputs the DCC Concepts ADS series decoders are amongst the best.

THE DETAILS	
Manufacturer:	*www.dccconcepts.com*
Cat No:	DCD-ADS-8fx (eight ports), DCD-ADS-2fx (two ports)
Price:	£74.95 (eight ports), £19.95 (two ports)
No of outputs:	Eight or two

HORNBY FOUR PORT ACCESSORY DECODER

GUIDE RATINGS	
Reliability:	3/5
Installation:	4/5
Setup:	3/5
Price:	4/5
Availability:	3/5

Hornby's accessory decoder was launched alongside its Elite controller and offers a simple workmanlike design dressed in a smart outer casing. Each of the four outputs can control one solenoid point motor, but from our experience with these decoders they can be a little underpowered.

They are designed to work purely using a DCC power supply with no option to add a separate transformer. This means they rely on a plentiful power supply and with a number of locomotives operating on the track available power can be at a premium for these decoders.

In addition the setup procedure means that they can be fiddly to prepare for operation on a layout due to the requirement to programme them through CVs. Whilst this is possible with any DCC system they can feel complex to address due to the high CV numbers used in programming.

That said, when operating with Hornby's own control system, with care and attention, these can be reliable accessory decoders and they will always look smart under your layout too. We've used them with good results on *Hornby Magazine's* Hettle 'N' gauge layout using Hornby's RailMaster software and an Elite or eLink controller. They are one of the best value decoders offering four outputs for under £40 at full retail price.

THE DETAILS	
Manufacturer:	*www.hornby.com*
Cat No:	R8247
Price:	£39.99
Number of outputs:	Four

BACHMANN/ESU SWITCH PILOT

GUIDE RATINGS	
Reliability:	4/5
Installation:	5/5
Setup:	3/5
Price:	4/5
Availability:	5/5

Bachmann's accessory decoder, the ESU SwitchPilot, is a four port decoder with the option to use RailCom feedback. It has been designed to work with the Bachmann Dynamis controller and, while this isn't a problem, it does mean that with other systems it is a little more awkward to operate – primarily because the instructions are totally focused on Dynamis.

However, as an accessory decoder it is very simple to install and the instructions for connecting power and point motors are expressed in terms that everyone will understand. A comprehensive listing of CV values is included too as well as notes about its operation.

Programming of the addresses is taken care of in blocks of four per decoder and this is exercised through the single push button at the rear of the decoder. Also worth noting is that the SwitchPilot is suitable for use with servo motors as well as for operating colour light signals and that its

output can be modified to suit different pulse rates. Three modes are provided to suit solenoid, user defined and colour light signal operation.

One facet which immediately caught our eye is that the CV values have to be changed for reliable operation of Peco point motors – still undoubtedly the most common point motor in British modelling. The instructions here are tailored for Dynamis, but for other systems it is simply a case of connecting the decoder to the programming track and setting four CVs to a new value.

With setup and installation complete we tested the decoder using our office test track. Power supply is adequate for operating free moving point motors, but we found that one of our motors – which, on our part, wasn't perfectly aligned – proved too much for this decoder to handle in one direction. This was overcome by trialling the decoder with a separate transformer feed.

The SwitchPilot is otherwise a simple to install and flexible decoder suitable for use with a range of devices, but perhaps lacks a little in the power department for 100% reliable operation in all circumstances.

THE DETAILS	
Manufacturer:	www.bachmann.co.uk
Cat No:	36-561
Price:	£45.35
No of outputs:	Four

TRAIN TECH QUADPORT DECODER

GUIDE RATINGS	
Reliability:	4/5
Installation:	5/5
Setup:	5/5
Price:	4/5
Availability:	5/5

Train Tech's quadport accessory decoders are proving to be a valuable source of point motor control for digital layouts.

A detailed instruction sheet is provided with each of Train Tech's decoders guiding the user through setup and installation. They use the track power supply to action the accessory ports and offer ample output to effect changing of single solenoid point motors.

The quadport decoder is a simple, reliable and effective piece of equipment which is easy to install, set up and connect to four point motors. It features Train Tech's one touch learning system which means all four decoder

ports can be programmed in one go by selecting the lowest numbered address and changing it on a DCC handset with the learn button switched on.

Once installed we have found these decoders to be reliable in service operating throughout exhibition weekends on our Shortley Bridge and Felton Cement Works layout. Of all the four port accessory decoders in this guide the Train Tech quadport decoder also represents the best value for money.

THE DETAILS	
Manufacturer:	www.train-tech.com
Cat No:	PC2 (four ports), PC1 (single port)
Price:	£38.50 (four ports), £17.00 (single port)
No of outputs:	Four

LENZ LS150 SIX PORT DECODER

GUIDE RATINGS	
Reliability:	5/5
Installation:	4/5
Setup:	5/5
Price:	5/5
Availability:	3/5

German digital control manufacturer Lenz is well respected in all fields of control equipment and as well as its four port LS100 accessory decoder it produces this excellent value for money six port decoder. Out of all the decoders we tested in this survey this offers the highest number of outputs for the lowest cost.

The quality of the product is clear straight from the box and it comes with a comprehensive multilingual manual to installation and operation. A significant point with this decoder is that it will not work simply with a feed from the track output of a DCC control system – the LS150 decoders require a separate transformer and for our tests we used a conventional Gaugemaster twin output 16v AC model to power the decoder.

The upshot of this separate power supply is that the Lenz LS150 is supremely powerful with enough boost in its current to throw even the most stubborn of point motors. Installation is straightforward too with all outputs and inputs

clearly labelled. Addressing can be done in two ways – block addressing for all six outputs in one go or individual addressing of each port on the decoder. This makes this a highly flexible piece of kit with great advantages.

The requirement for a separate power supply could be seen as a negative, but the end result is that the LS150 series accessory decoders are strong, powerful and reliable kit.

THE DETAILS	
Manufacturer:	www.digital-plus.de
Cat No:	LS150
Price:	£46.15
No of outputs:	Six

GAUGEMASTER DCC30 FOUR PORT DECODER

GUIDE RATINGS	
Reliability:	5/5
Installation:	5/5
Setup:	4/5
Price:	3/5
Availability:	5/5

Gaugemaster has a strong reputation for producing hardwearing no frills products and its DCC30 accessory decoder is another striking example of its abilities to produce workmanlike equipment which do exactly what they set out to.

Delivered as a Printed Circuit Board (PCB) without a case, the DCC30 accessory decoder follows the example of Gaugemaster's highly regarded Prodigy DCC control system. It offers the option to choose between power from the DCC controller or the use of an external power supply to power the points which makes it flexible and – with the addition of a 16v AC transformer – a reliable decoder with plenty of power.

The DCC30 accessory decoder features three modes – latching, momentary and flashing – meaning that it can be used to control a range of equipment including lights, level crossing warning flashers, points and more. All of this is controlled through simple adjustments to decoder CV values – fully explained in the detailed instruction leaflet – and, in terms of solenoid point motors, it allows the momentary supply of power for solenoids to be adjusted to suit the requirements of different turnout motors. This is particularly handy if you have difficult motors, such as one of those used in our tests, where we were able to increase the length of time that power was available to the motor to ensure that it changed every time. This basic programming can be done either through the main track or programming track – although it is advisable to use the latter – while more complex programming needs to be done exclusively through a programming track, including setting the address.

Installation was very straightforward and there is only one potential negative to this decoder as, in terms of the number of outputs it offers, it is the most expensive. However, from our experience it will do exactly what you want it to and the flexibility for controlling lights, signals and more with the DCC30 accessory decoder makes it a very worthy choice.

THE DETAILS	
Manufacturer:	www.gaugemaster.com
Cat No:	DCC30
Price:	£59.95
No of outputs:	Four

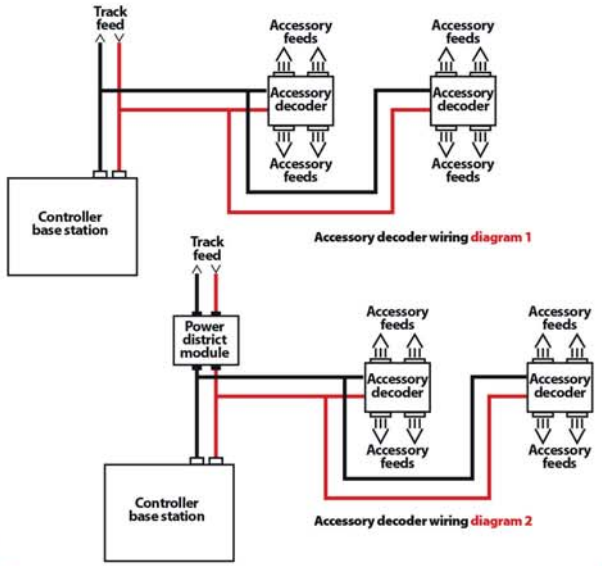
Installation process

Adding accessory decoders to a DCC layout is a very simple process, but when adding them it is worth considering future expansion of your system. The vast majority of accessory decoders use track power to operate, although the Lenz LS150 requires a separate transformer, and these can be wired directly from the main track feed that you use to connect your DCC controller to the track. The downside of this is that all areas of the layout are fed from a common circuit and should a short occur the whole layout will shut down temporarily.

Best practice is to set accessory decoders up with their own separate feed, but connected back to the track feed for power – **Diagram 1**. At this point all track and point accessory decoders are still protected by a single circuit breaker in the command station should a short occur, but we have the option of introducing a separate power district at a later date.

A power district is created by adding a small printed circuit board specially designed to operate as a circuit breaker between your controller and the track feed. It creates an electrically isolated section which, should there be a short, will confine it to the area controlled by the power district module.

By preparing the wiring with two separate routes – one for the track, one for accessories - means that in the future a separate power district can be added either on the main track feed or the feed to the accessory decoders giving them separate protection – **Diagram 2**. The advantage of doing this is that should a short occur on the main running lines – such as a train running through an incorrectly set point – the point and accessory decoder feeds retain power as the power district circuit breaker to the main lines takes ownership of the short leaving the feed from the main command station active. This means points can still be changed even with a short on the main running lines.



OUR PICK

The big question is which would we choose. If it was based purely on cost and ease of installation we would go for the Train Tech PC2 accessory decoder which is a perfect entry level quad port device with plenty of power to operate 99% of the turnouts we have used it with. However, an equally strong contender on price is the Lenz LS150 as this offers the highest number of outputs for the lowest price – the downside being that it requires an additional transformer to provide power.

Based on functionality, power, price and reliability though, our first choice would be the DCC Concepts' ADS series decoders – these are bulletproof and we have found them to be absolutely superb in regular use on our office test track. If your funds can stretch and you have a large number of solenoids to control these are a great choice.