



Protocab

NEWSLETTER

THE NEWSLETTER OF CLUB PROTOCAB MANAGED BY ACC+ESS LIMITED- MANUFACTURERS OF THE PROTOCAB WIRELESS MODEL RAILWAY CONTROL SYSTEM

Great response to pre-orders!

Thank you to every Club Protocab member who has pre-ordered the Pilot Series of Protocab products. We are really gratified by the response that has justified the last four years development time.

The majority of customers ordering have opted for the pre-payment which has enabled us to introduce our second battery that much earlier, as described below. This new battery will fit into a

wide range of 4mm locos, in particular, and responds to requests from many modellers for Protocab to fit into smaller locos than can be accommodated by the initial battery. We are keeping our customers up to date with progress of their orders. There has been a slight delay due to a change of battery as outlined below, and we are now scheduling first deliveries for mid-July.

Pre-order deadline extended

The deadline for pre-ordering the Pilot Series was to be 31st May but a number of members have said that they would like more time to be able to decide about adopting Protocab, many being on holiday around this time.

In view of the delay in obtaining the initial battery from our overseas suppliers, we have extended the deadline for pre-ordering to midnight on **Monday 15 June**.

Customers pre-ordering components

will be contacted for payment when the products are ready to be despatched. Customers who have opted for pre-payment will be contacted approximately six weeks before the goods are ready to be despatched, because at that time we will be certain of the delivery date. Consequently, we have moved the date on which we will request payment by the fortnight's delay on the batteries.

Guarantees

We are pleased to offer our customers a FIVE year guarantee on Acc+Ess Protocab products as follows:

- 050xLocomotive Control Units
- 9601 Plug Charging Unit
- 0201 Direct Controller

All other components are guaranteed for one year, because they are Other Equipment Manufacturer (OEM) products and we are passing on the guarantee that we get from them. However, we will go a step further...

Our Try-and-Buy Money Back Guarantee

Many of our modeller customers will know how they intend to fit the Protocab components into their locomotives, while other modellers are interested in Protocab, but not sure if it is right for them. Our aim is to help you to make the decision and therefore we are making this offer to you. If, having purchased a Protocab system (comprising a 0201 Direct Controller, 0502 LCU, 9601 Plug

Charging Unit and 1902- series battery) and having fitted it into your locomotive you decide that the system is not for you, return it to us in the original packaging within one month of having purchased it and we will refund your money in full. You'll understand that Terms and Conditions apply and these are shown on the protocab.com/moneyback webpage.

HD3R Corner

We have just bought a second user (third? fourth?? aka 'preloved') locomotive in the Hornby Dublo 3 rail range, built probably in the 1950s but the HD3R collectors will be able to advise on the dates that these locos in this livery were produced. The 0502 fits perfectly into the coal space but will need a dummy coal load added to hide the LCU. We are going to try the new smaller battery, but this all depends on the current draw of the motor.



More details of this conversion soon...

Battery Update

Firstly, the news of the first battery in the Protocab range. The Protocab batteries are sourced from China and our suppliers have told us that the 1000mAh 1902-703048 battery is going to be delayed by sixteen weeks, which is unacceptable to us. We have therefore taken the decision to order instead the 850mAh 1902-653042 battery which has less capacity, but still enough for an acceptable running time. This reduces the effective output to the motor from the 450mA of the larger battery to around 420mA. It has the benefit of being 6mm shorter than the 1902-703048 and we believe that this will enable it to be fitted in a wider range of locomotives that do not require the higher current. We have written to everyone who has pre-ordered the 1902-703048 to offer the alternative battery.

The next battery in the Protocab Pilot Series
Now some positive developments. We showed a 250mAh battery at Scalefour North, which has the small dimensions of 5mm thick, 21mm wide and 32mm long.. *Continued on page 2*

"Preconfigs"

Several of our Club Protocab members have asked us whether the Pilot Series will fit inside their particular locomotive, and one or two members have suggested that we create a list of ready-to-run locomotives and which Protocab components to use for each. We are going a step further than that and buying off-the-shelf locomotives and fitting the components inside. We will not only write up the installation, but video it for our Acc+Ess Protocab *YouTube* channel. We will sell most of the locomotives as ready-to-run Protocab-fitted locos, and keep specific ones for demonstration purposes. If you let us know which locomotives you are interested in, we can install components for you, although in the early days until we build up the team to undertake the conversion, we will limit ourselves to a range of different models.

Ready to run?

In the 'Other' box in our survey and in a number of emails we have received, we have been asked if we can supply locomotives ready-to-run with Protocab fitted. The answer is 'yes' and we also hope that a local retailers will provide a similar service. Please let us know if this is a service which would be of interest to you. In the early days of Protocab development, not every locomotive will be convertible to Protocab, so we can produce a list of those locomotives we have already converted.

Battery Update,

continued from page 1

over the protection circuit.

Since Wakefield, a number of modellers have asked whether this battery will work with the popular Mashima 1224 motor. We tested it recently with the 0502 LCU and, although it worked fine at the lower motor speeds, when the motor was stressed to near its stall, the LCU did what it is designed to and cut the current. This was because the battery was not able to supply the current demanded by the motor at the upper end of its current curve. Although it's highly unlikely that you would normally run a small loco at anything even approaching stall current (the wheels would likely start spinning before the motor stalled), we can't offer a battery with restrictions like that. Therefore, we have sourced a higher current battery which is 9mm thick and provides 500mAh, while retaining the 21mm width and 32mm

length over protection circuit. It will be catalogued as the 1902-902030 and we have ordered a batch for availability in around four months. We have offered existing pre-order customers to swap this with the 1902-653042, if the smaller battery is preferred.

We have not yet had final confirmation from China, but the battery does have the essential UN38.3 and UL1642 certification (the cause of the delay to the 1902-703048 which did not have the UN38.3 tests completed when we ordered them).

The 1902-902030 will fit a wide range of locomotives, particularly tank locos and we plan to fit it into a Perseverance GWR 14xx with a Portescap motor and will report on this in the next newsletter.

We will update the website with the new battery when we have final confirmation from China.

0502 LCU Update

We have just received the final 0502 PCBs from our supplier, with the adjustments from our last batch which have been in test since Christmas. We now have to upload and test the firmware before we can make the 0502 available for beta test.

Up to now, our LCUs have been preconfigured in that the addresses of our demo LCUs have been hard-coded into the firmware. Our production firmware implements the additional functions of the IEEE 802.15.4 standard used for the Pilot Series, including the *adoption* process which connects the 0502 to your 0201 Direct Controller and means that you don't have to explicitly connect them together every time you use them. It also means that no one can accidentally or maliciously drive your loco, and your controller cannot control other users' Protocab locos.

We expect the firmware to work well (we couldn't test it until we had received the 0502 PCBs) and we will report progress in the next newsletter.

One thing we have changed from our last report is that we consider that the

LocoSwitch is actually required, not as we thought before, an optional extra. The 0502 connected to its battery is in a sleep mode when not being used, but it does wake up from time to time to see if it's wanted. We now consider that to be an unnecessary drain on the battery, if your loco is stored on the shelf for long periods (although we recommend removing the battery if it's going to be out of use for several months). So we now have *two* sleep modes, a *deep sleep* mode where the 0502 doesn't wake up by itself and a *doze* mode which is activated by you touching the LocoSwitch. If you take the loco off the shelf in deep sleep mode, it won't appear on your 0201 controller until you touch the LocoSwitch, in which case the loco will show its red light (see last issue!) against the respective selection button. When you press the selection button, the light changes to *green* and the 0502 is now in '*wide-awake*' mode, ready for you to drive!

All this is described in the User Guides which we include with the 0201 and 0502.

Acc+Ess Protocab on the road

With the impending release of the Pilot Series this summer, we will be spending the time in preparing for the product despatch launch and commencing work on the next developments. We will, therefore, be bringing Protocab to you at the September Scaleforum in Aylesbury. We have been asked if we will be making Protocab available through model shops (providing also fitting facilities) and we are pleased to say that we are in discussions with partners to bring you Protocab in your local area.

More details as discussions proceed.....

If you would like Acc+Ess to be represented at your local exhibition or to visit your local club next year, please let

us know where and when you would like us to attend. We'll speak with the organisers.



Work proceeds on 75A Brighton with the track being laid *in situ* on the external shed roads. Now we can run a loco the whole length of the layout! Main shed board next..

Photo by Tony Hagon

What is UN38.3 and UL1642?

The lithium battery revolution has been spectacular, thanks to the use of these batteries in a wide range of consumer products. Although when used in accordance with guidelines they are inherently safe, they can be dangerous if misused, and stories of them catching fire or even exploding have captured the headlines, even though the risk is very small. They are most at risk when the cells are overheated and this can occur if overcharged. This is why it is essential that all lithium ion and lithium ion polymer batteries have inbuilt protection circuitry to prevent overcharging. All Protocab batteries have this circuitry.

The airlines and postal and courier organisations are very concerned about lithium ion batteries catching fire in transit and the United Nations have stepped up to the plate and declared a range of tests to be applied, under the heading UN38.3, eight in total covering altitude, vibration, and other effects that may cause risk to the battery. Some of these tests can only be applied over time as they test deterioration. Authorised test houses charge several thousand pounds/dollars to test each batch of a particular size of battery, which is why we are limited by the range of batteries that have current test facilities obtained by our suppliers.

The Royal Mail, which is our preferred carrier within the UK limits us to sending a maximum of four batteries in any one mailing and then only if they are attached to the devices they are intended for (i.e. the 0201 Direct Controller or 0502 LCU). For that reason, we cannot send loose Protocab batteries through the post but we will, of course, be pleased to sell them to you at exhibitions we attend.

In the EU, the IEC62281:2004 standard is similar to UN38.3 but provides for more stringent regulated tests.

The Underwriters' Laboratories, as their name suggests, provide test standards, traditionally for the insurance industry in the USA, but now for a wide range of industries and around the world.

The UL1642 standard provides tests not just for transportation but for user orientation where the batteries can be handled (e.g. replaced) by the user (the case where the Protocab battery will need replacing after several years of typical usage but also needs handling to install them in locomotives).

These tests are usually harmonised under regulation IEC62213.

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