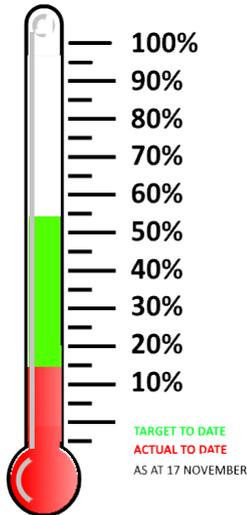
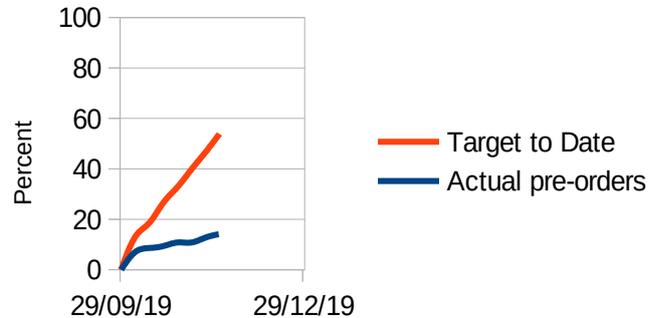


## New Product Pre-Orders Update



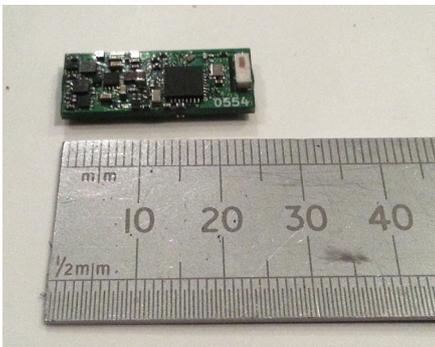
The pre-orders are coming in steadily but are still below the level that we would like at this stage in order to be assured of being able to move forward. With Warley coming up this weekend, we hope that a new audience will be viewing the new products and the demonstrations of Protocab in operation. We have a number of Owners joining us on stand A17 and showing others how they have converted their locos to Protocab operation!



## The New Locomotive Control Units

In this second in the series of newsletters covering the new products, currently inviting pre-orders, we take a look at the new Locomotive Control Units (LCUs). There are two new LCUs in the announcement:

- 0505
- 0554



The 0505 is designed to offer an advance on the existing 0502 LCU which has been available since October 2015 and from which we have gained much experience leading to the design of the new LCUs. The 0554 addresses a frequent request for the installation of Acc+Ess Protocab in smaller 4mm/ft (e.g. OO) locomotives and, when installed with the new 9611 Contact Charging/Collection Unit has been proven to fit in the sidetanks of very small steam outline profiles.

In this newsletter, we will firstly describe the new LCUs in detail and then compare them with the existing 0502 so that you can see the advances that have been made since the 0502 was first introduced in 2015.

As a result of listening to our Owners and our own experiences, we carried out research to address the requests, suggestions and issues with the Pilot Series.

The result are the new product LCUs, which commence with the 0505 and the 0554 and which are planned to be enhanced with support for higher current motors in due course.

The key differences are:

- the Locoswitch is removed and the 0505/0554 are now switched on from the 0241 Touch Controller. (There is presently no means to switch them on from the 0201 Direct Controller). The auto-off is retained, but the time delay to the auto-off can be set by the operator, rather than being hard coded in the firmware, as with the 0502
- the output voltage boost circuit has been revised to accommodate a smaller

footprint. However, to obtain a design objective of a 24mm x 11mm footprint, the 0554 reduces the output voltage booster significantly, the compromise as mentioned earlier, being the maximum voltage output of 5V dc. This will provide virtually full speed on a 5V or 6V dc motor and a reduced output maximum on 12V dc motors, assuming that these motors will start to rotate at below 5V! The 0505, however, is designed to accommodate higher voltage output and the compromise to achieve a slight reduction of the footprint over the 0502 is a maximum out put of 9Volts dc. The resulting footprint is 24mm x 16mm, 14% smaller than the 0502.

- a revised radio circuit has enabled a smaller chip antenna to be included, reducing the overall thickness of both LCUs to 6mm (from 8mm of the 0502).

*Continued...*

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There are also functional enhancements in the 0505 and 0554.:

- 'glide control' is standard. This provides for a smoother start and stop of the locomotive motor by judging the required motor speed against the actual speed of rotation and automatically adjusting output power to compensate
- data transfer: the 0502 is programmed to send information back to the 0201 Direct Controller on the state of the communications between them,

to ensure that the network has not failed or the 0502 cannot receive control data from the 0201. The new 0505/0554 LCUs extends this to provide a range of data that can be sent back to the 0241 Touch Controller. Initially, this will comprise battery charge and motor speed data but will be extended over time to provide a significant amount of status and other data that will enhance the model control experience and more closely follow prototype

practice. Remember, we cannot operate a locomotive in our scales from within the cab of the locomotive, so we have to take the controls that the driver would normally have, outside the loco and into our hands. So, the same data to which a driver of the prototype loco would have access can be replicated in model form on your Acc+Ess Protocab controller - in due course!

This first part assumes that you have no experience of using the existing 0502, so existing Owners can skip this section, if you wish!

The Protocab Locomotive Control Unit is the 'nerve centre' of the Protocab control system which, because it is impractical to operate the controls inside the locomotives at the scales that we are typically modelling to, requires that the 'human interface' between the locomotive's functions and the 'driver' has to be taken outside of the locomotive. Therefore, not only does the

Protocab LCU manage the voltage passing between the battery and the motor (and, in due course, other functions such as light, sound etc), it also handles the transmission of messages to and from the Protocab controller to which it is 'adopted'. By adopting the LCU to only one Protocab controller, using *globally* unique addresses which the Acc+Ess factory burns permanently into the memories in the LCUs and controllers, it is not possible for a different controller to control the LCU(s) adopted to your Protocab controller.

Many modellers we have spoken to would like to adopt Protocab but have expressed worry about having to learn how to program Protocab LCUs and controllers. It's a very easy answer = you don't need to! By 'programming', they usually means complexity in getting the controller to 'talk' to the LCUs, but Protocab doesn't work like that. The adoption process is well known in modern radio control systems - often called 'binding'.

### *Now, existing Owners read on from here!* **A New Adoption Process**

With the existing 0502, you put the Protocab 0201 Direct Controller into a state where it is ready to be 'discovered' by a new LCU, and determine the unused button on the controller to which you want to adopt the LCU. You press the Locoswitch on the 0502 and the adoption

is complete. With the new 0241 Touch Controller, the process is even easier! The 0554 and 0505 LCUs remove the need for a Locoswitch (as included on the 0502 to switch on the loco), so to adopt these LCUs to the 0241, you note the serial number of the LCU (there is a label on it as well as on the packaging). You put the 0241 into Discovery Mode and, with the new LCU connected to its battery, you select its serial number from the list

presented to you on the 0241's touch screen. You can then personalise the newly adopted LCU with, e.g. a meaningful name or number for the selection button on the touch screen and all sorts of additional information to be stored on the LCU. We'll cover this in a bit more detail later.

### **Switching on the new LCUS**

The new 0554 and 0505 LCUs are switched on from the 0241 Touch Controller. The LCU will automatically switch off when not used for a period of time and this period can be set by the

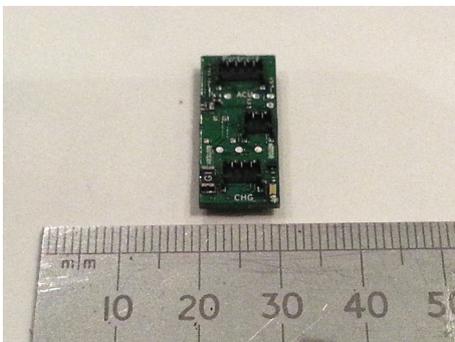
Owner in the 0241. We'll cover the 0241's various functions in the next Club Protocab newsletter. When the new LCUs are installed with the 9611 Contact Charging and Collection Unit described in the last newsletter, you

need never touch the locomotive at all! (Ok, one day in the future, you'll need to replace the battery!)

### **A Tour Around the New LCUS**

The 0554 and 0505 contains a number of sockets:

- the three pin charging socket connects to one of either the 9601 Plug Charging Unit, the 9611 Contact Charging and Collection Unit or the 9651-1500RX wireless induction charging receiver.
- the two pin motor socket connects the LCU to the terminals of the locomotive's motor through the 9953 two wire cable included with the LCU. The two bare wires that are connected to the motor is the only requirement for soldering.



- the battery connection socket will come in two sizes depending on the LCU, so that a battery that is too powerful for the 0554, for instance, cannot be connected to it, and one which is too small to drive the 0505's output cannot be connected.
- the auxiliary control unit socket will come into its own with the new LCUs with the ability to 'daisy-chain' a variety of devices that Acc+Ess has in plan to introduce in due course.

We'll continue with the details of the new LCUs in the next Newsletter, which will come to you shortly after we return from.....

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**Warley this weekend!**