Use of Credit Box for Devices in the 'Paid ISP Support' Category Using Dataman Device Programmers

Application Note

July, 2013
Dataman_credit_box, version 1.10

Introduction

Programmable devices are becoming increasingly complex and the range of programmable devices growing ever wider. As a result, we - as a device programmer manufacturer – have to provide considerably more resources for the implementation of new programmable device support than in the past. This is because complex device support is more difficult to implement and the number of devices we need to support has also increased.

What We Have Changed and How It Works

In order to keep software updates free of charge for devices supported in ISPmode, we came to the decision to apply a small fee for programming these devices but only where the implementation of the ISP support takes considerable time and/or is for low demand devices. We are adding support for over 5,000 new devices per year, more than 25% of them are supported in ISPmode and only a small number, currently less than 5%, are in the category of “paid ISP support”. The support of other ISPmode devices remains free of charge.

The system we have implemented is quite simple. In order to work with paid ISP support devices, it is necessary to have a 'Credit box' attached to the same PC that the device programmer is connected to. The Credit box is a small dongle which connects to a USB port and contains a certain amount of credits, from 25,000 to 500,000, depending on the model chosen. The micro-payment for each operation with the device is performed by decreasing the credit amount in the Credit box. The number of credits used for programming one device is typically 1 credit but for some devices where the implementation is particularly complicated and the device is not commonly used, it can be 2 or more credits per operation. A “program” operation which can include erase, blank check, program and verify operations is counted as 1 operation. A single blank check, read, or erase operation on its own is also counted as 1 operation and credits would be “spent”.

The Credit box is valid for use with up to 10 consecutive software versions. This means that once the Credit box is activated at the time of first use, it can be used by the current and also by the next 9 consecutive versions of the control software. Example: activated on v2.90 of the software and can be used with v2.90, v2.91, ... and v2.99. There is no time limitation on the Credit box usage. The credit box can remain on software v2.99 until all the credits are used up.

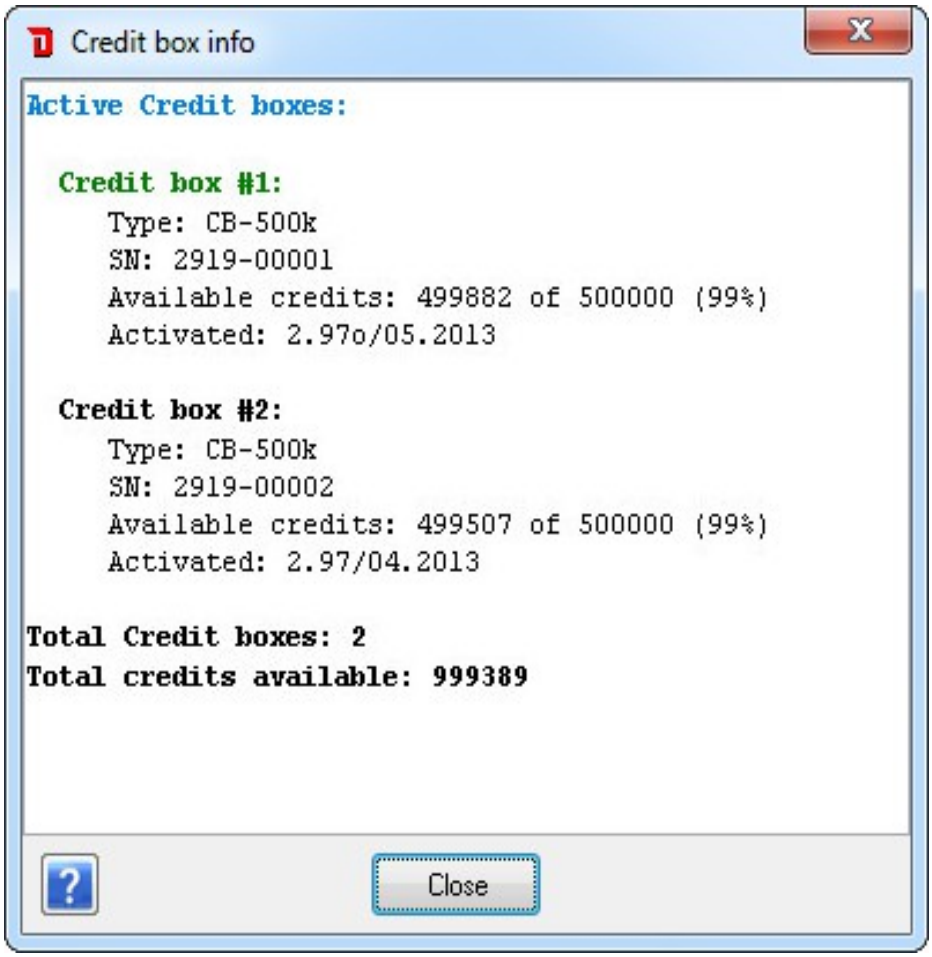
The validity of the Credit box for 10 software versions also means that the Credit box allows the user free software updates for new and existing ISP programmed devices for a period of (approximately) one year.

There are 3 versions of the Credit box available: the CreditBox25k version (25,000 credits) is suitable mainly for developers, the CreditBox100k version (100,000 credits) is intended for small production while the CreditBox500k version (500,000 credits) is for mass-production. Please see the Credit box description for additional information.

The real fee for credit is extremely low, it starts at £0.008 GBP / $0.01 USD per credit for the CreditBox25k version of the Credit box (= 25,000 credits) and drops to £0.002 GBP / $0.003 USD per credit for the CreditBox500k version of the Credit box (= 500,000 credits).

The requirement of a Credit box is indicated in the control software in the "Device info" section of the selected device. During programming the log window indicates the status of the attached Credit box, this allows the status of the programming and the remaining credits to be clearly visible.

In order to work continuously with the Credit box, for example with programmers built into an automatic handler system, it is possible to have 2 or more Credit boxes attached to the same PC. The first Credit box is active and used as the credit storage whilst the others are inactive. When the credits on the active Credit box are depleted, the next credit box is activated and used as the credit storage causing no disruption to the programming flow.

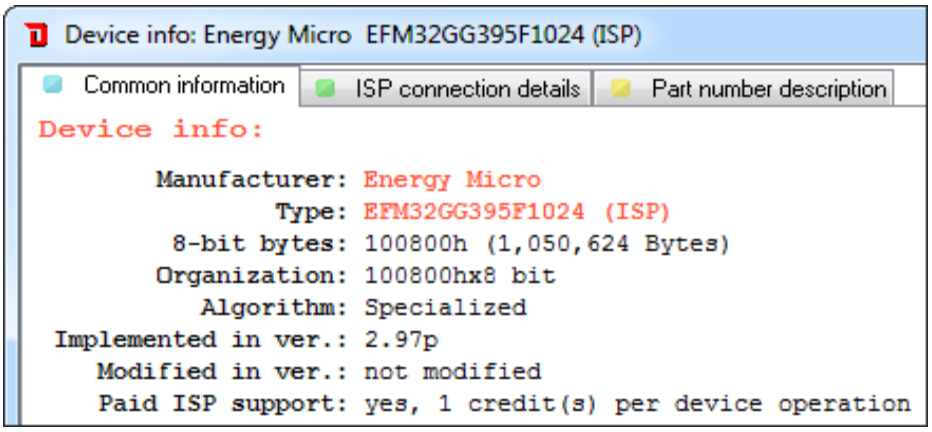


Background and Further Details

Different companies use different models to cover the costs for new device support and software updates. For example, annual fees for all supported devices or only for a certain group/family. There are also many indirect, hidden methods like a short warranty period (1 year for example) combined with high out-of-warranty repair fees or termination of the software support soon after discontinuation of a programmer model forcing users to purchase newer model(s), ... We feel that the Credit box method is the best and fairest solution.

The price of a Credit box consists of a fee for the free software updates and the credits. The credits are used as micropayments for programming devices. For customers who program only small quantities the CreditBox25k model is most suitable. The CreditBox500k model is intended for mass production. The 25,000 to 500,000 credits ratio is 1:20, but the price ratio of CreditBox25k to CreditBox500k is approximately 1:6 in favour of mass production.

How do we set the conditions for ISP support of devices to determine if it will be implemented for free or if the Credit box has to be used? To make a proper decision it is necessary to take into account several aspects, both external and internal. For example, how popular the device is (wide, average, specialty), how many of our customers are asking for the implementation, how complicated is the implementation of the support (= how long does it take), whether the ISP implementation can re-use the source code used for off-line programming of the same device (inZIF socket), and whether the newly added device can share parts of the source code with other devices already supported in ISP mode, ...



As mentioned above, for easy-to-implement and widely-used devices - like IIC EEPROMs – support is free of charge. However if implementation takes considerable engineering time - like complex serial Data Flash - due to passwords, locks, special registers, etc., then ISP support can not be provided free of charge even if it is a common device. This system is flexible however and if a rare or special device becomes very popular, the amount of credits required for programming can be decreased (2 ->1).