

This document supports the service technician with the firmware update of RP-Technik components. It should be kept up-to-date regularly by downloading from http://www.rptechnik.de/index.php/de/component/docman/cat_view/6-modulemodules/429-dcm.html?Itemid

Here you can also find the firmware files for the individual components.

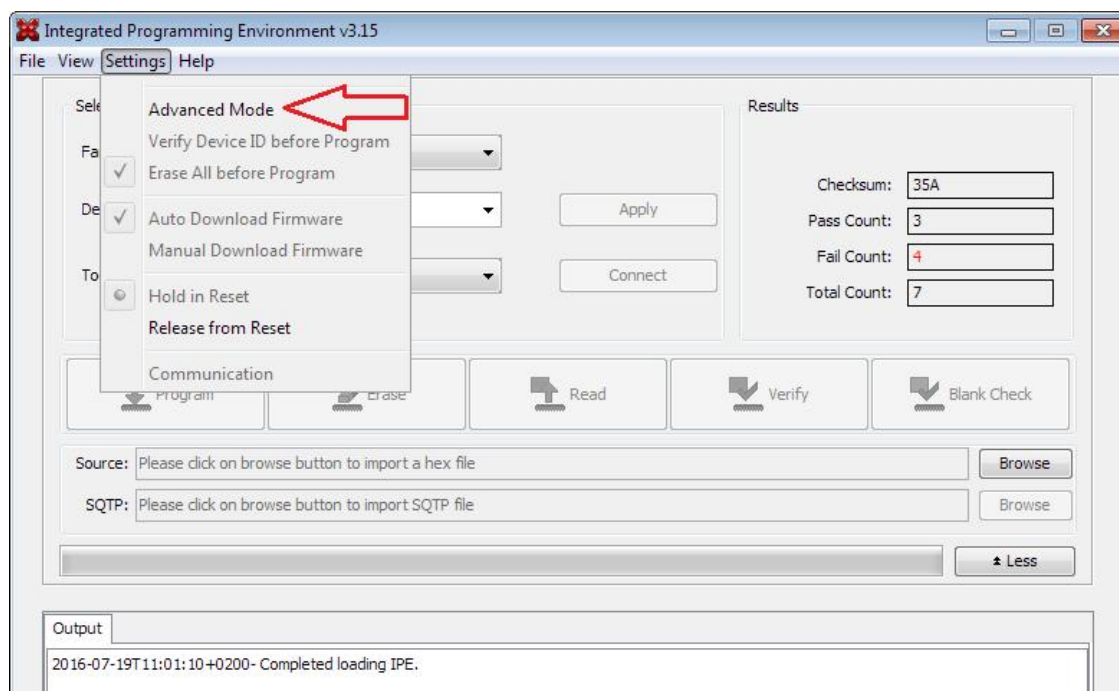
The free software MPLAB IPE has to be used as programming software. It can be downloaded for free from the microchip website. This instruction refers to Version 3.15:

<http://ww1.microchip.com/downloads/en/DeviceDoc/MPLABX-v3.15-windows-installer.exe>

Note: Choose "IPE" only during the installation; the "IDE" part is not needed.

1. Presetting of the programming software MPLAB IPE

1. Activate *Advanced Mode*:

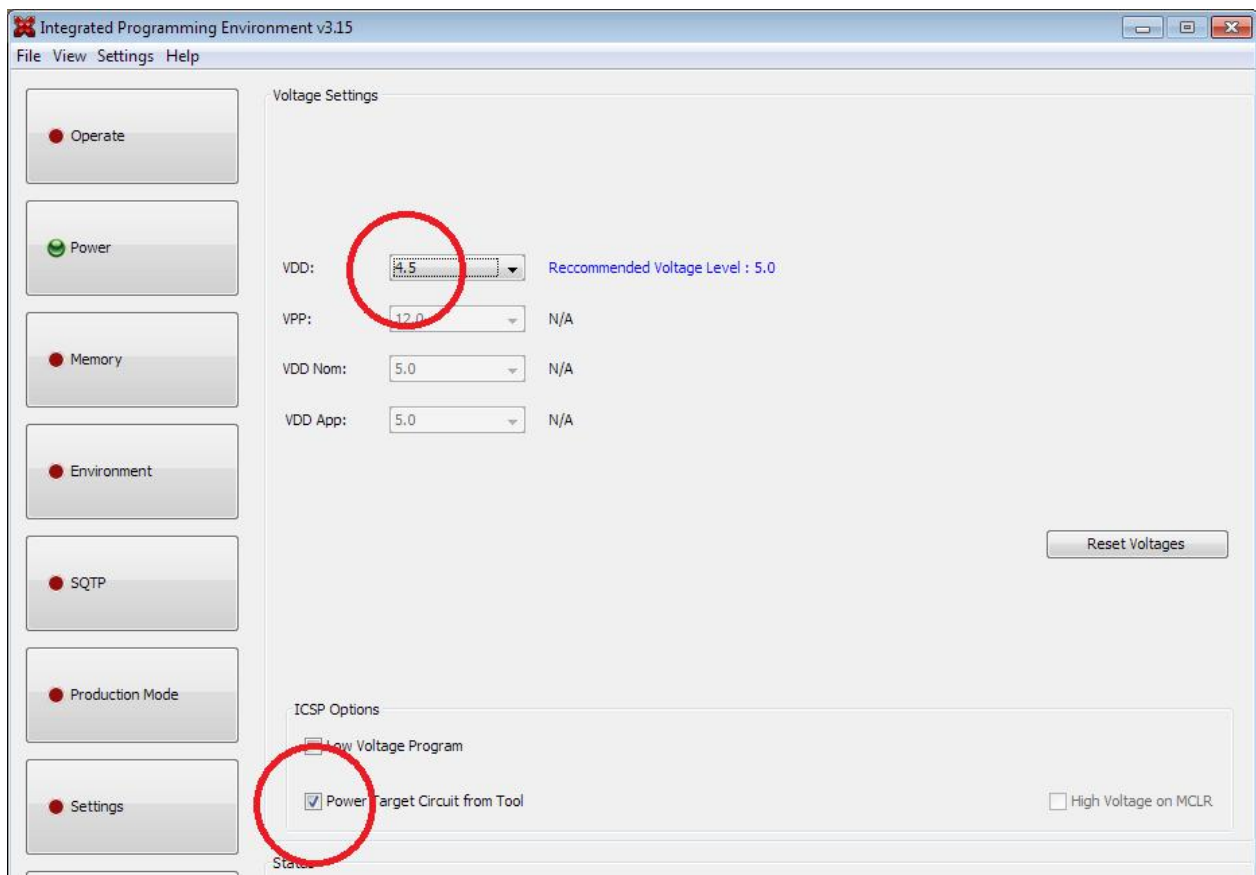


2. - enter password *microchip* and tick *Remember Password* (spares re-entering later)
- click on *Log on* for confirmation:

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3. - select *Power* on the left
 - tick *Power Target Circuit from Tool*, this supplies the processor to be programmed with voltage from the programming adapter (PICKit3)
 - VDD: select 4.5V
 - these settings are assumed without confirmation
 - go back to the page *Operate*



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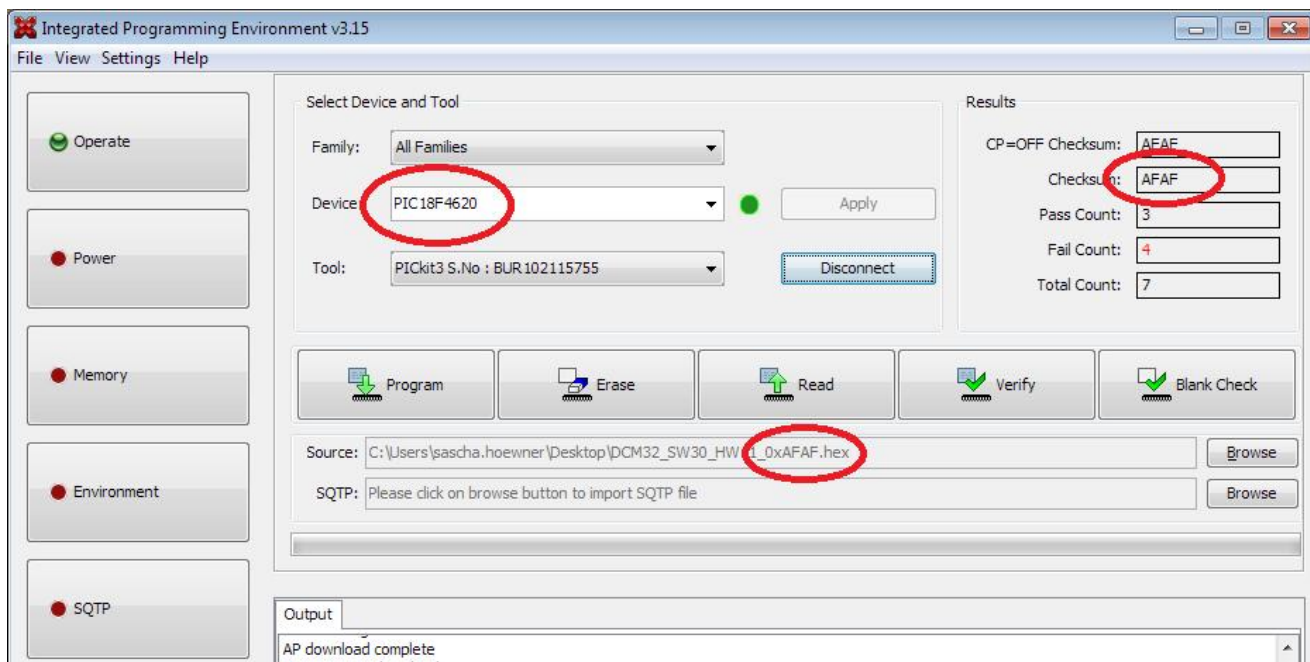
2. Selection of processor type and firmware

The module DCM is based on the controller

PIC18F4620

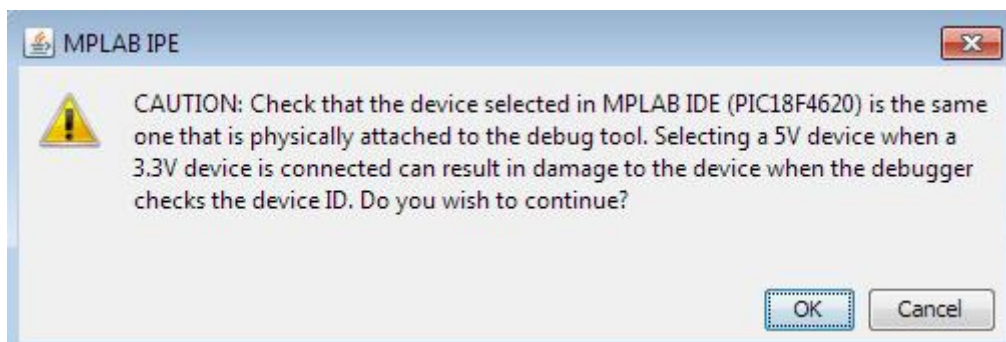
Select **PIC18F4620** in the *Device* drop down list.

Now load a firmware file (*.hex) via *Source:* → *Browse*. At the end of the file name you can see a 4-digit check sum. After loading the file, this number must be readable the file in the field *Checksum:*



If the PICKit3 is already connected to the PC, it is shown in the field *Tool*. Otherwise connect it now. Then select the PICKit3 by clicking on *Connect*.

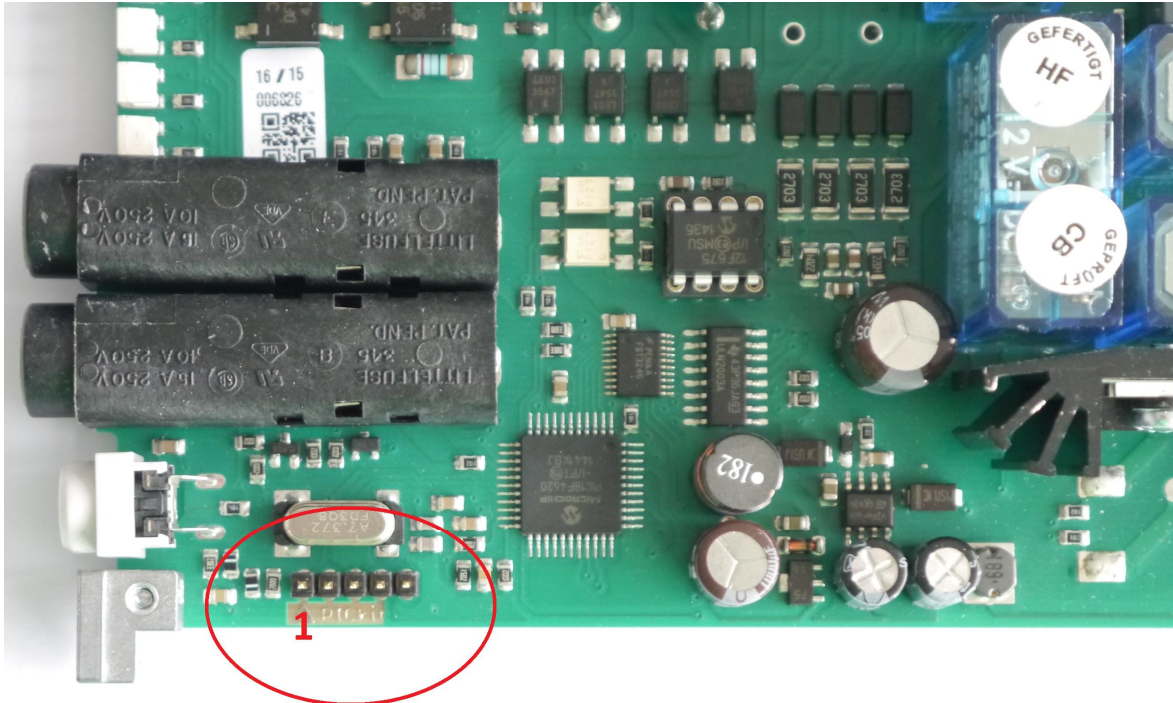
If the following error message appears, click on *OK*:



If this error message also appears during other process steps, it does not indicate a faulty operation. Just click on *OK* then.

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3. Localisation of the programming interface on the module



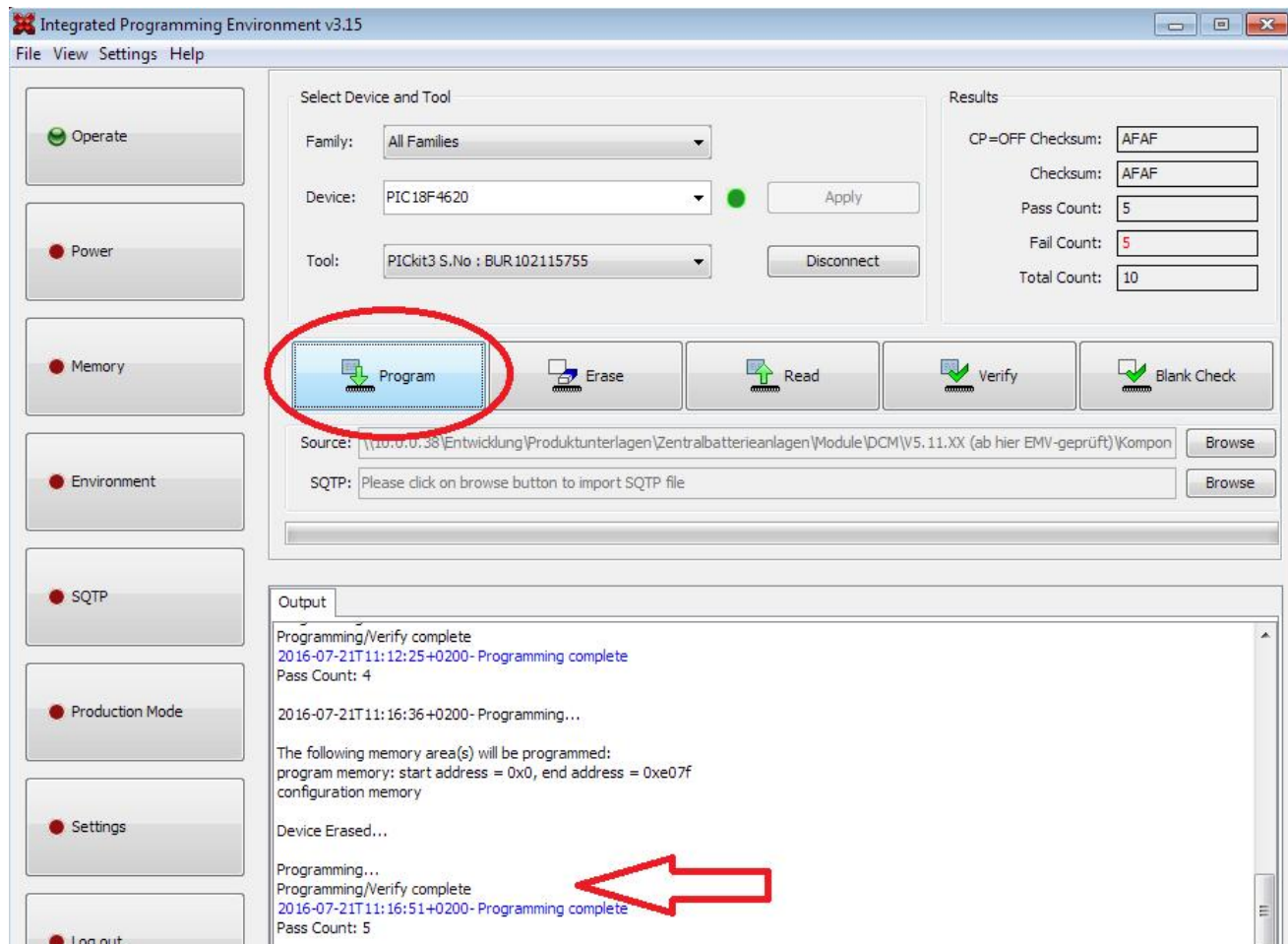
Now connect the PICKit3 with the circled interface on the module. It is recommended to use an adapter cable 5-5 which reduces the mechanical stress on the connector strip.

IMPORTANT: Pin 1 of the module must match with Pin 1 on the PICKit3 (indicated by the white arrow)!

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4. Start programming and verify

The programming of the module is started by clicking on *Program*:



The written data are automatically checked after the programming. The successful completion of the programming is indicated by the line *Programming/Verify complete* or *Programming complete*.

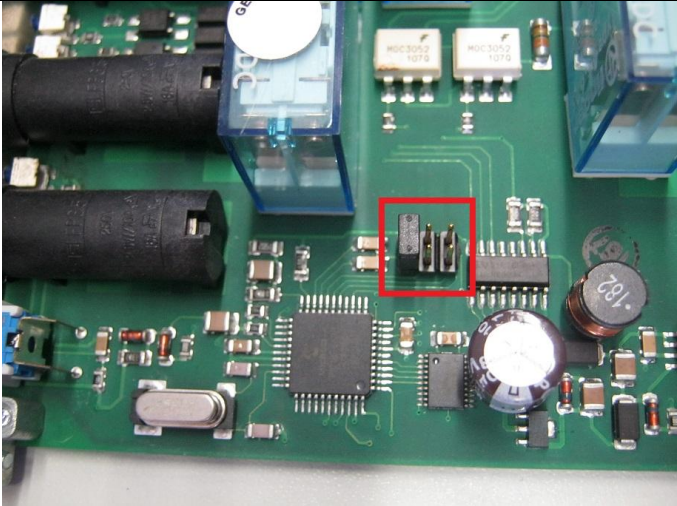

When the programming failed:

- Has the correct processor type been selected?
- Check the settings on the page *Power* (→ 1.3)
- The settings shown in chapter 1.3 have to be made again after changing the processor type

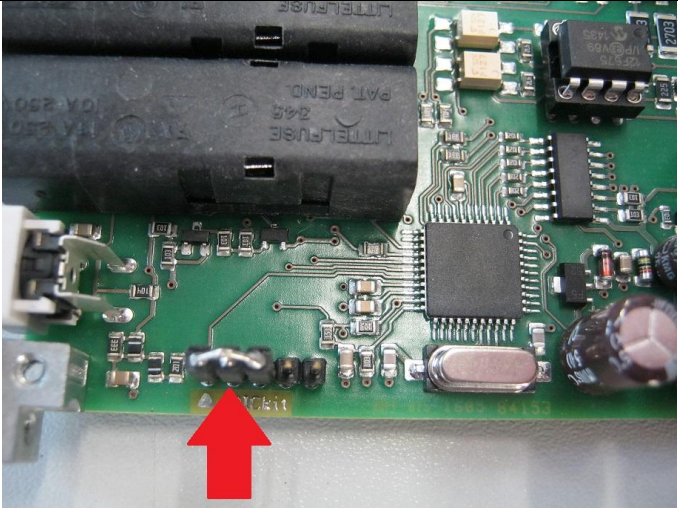
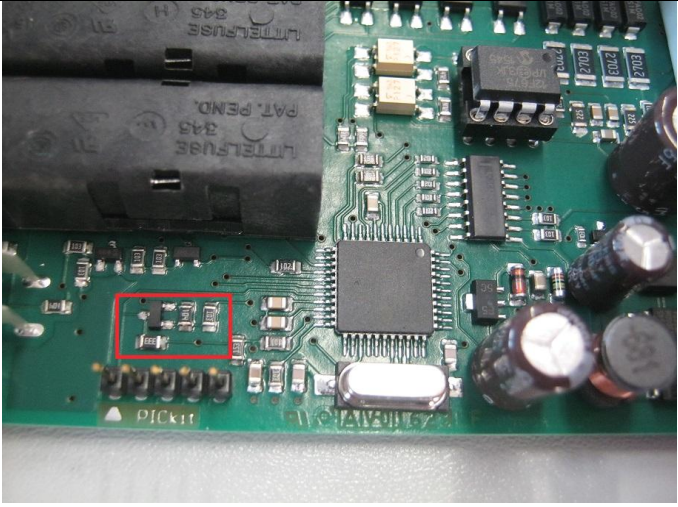
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5. Compatibility of different firmware versions with hardware revisions

Due to continuous development on hard- as well as on software, limitations in backward compatibility of several firmware versions have to be considered during updating process. Refer to the following compatibility-table:

hardware revision	compatible firmware version	how to identify hardware revision?
HW4,5,8	up to SW27	 <p>pin header 2x3</p>
HW6,7,9,10	up to SW27	 <p>crystal above 5-pin header</p>

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<p>HW11-13</p>	<p>SW30-34</p>	 <p>crystal right of 5-pin header, factory installed triple Jumper (reinstall after programming!)</p>
<p>HW15</p>	<p>from SW35</p>	 <p>crystal right of 5-pin header, additional components compared to previous versions (see marking)</p>

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