

# Fluke Flash Utilities Notes

This set of utilities will save and restore the flash memory contents and calibration array from early Fluke Scopemeters in the 90-105 range and possibly others.

Be aware that the information needed to create these programs was obtained purely by trial and error, without any knowledge of the correct procedure, so there may be issues. **Use of these utilities is entirely at your own risk.**

These Scopemeters include a ROM based kernel in the microprocessor which cannot be altered so it should always be possible to recover an instrument when the flash contents have been erased.

There are two versions of this kernel. The first version was used in 93-95 Scopemeters up to software version 4. These instruments have the keyboard integrated onto the digital PCB. The later version, known as UHM 1.0 (Universal Host Mask software version 1.0), was used in version 5 of the 93-95 Scopemeters and most other early Scopemeters. These instruments use a separate flexible membrane keyboard.

These utilities run from a Windows Command Prompt and have been tested on Windows 7 64-bit and Windows 10 64-bit.

**The process for flashing early 93-95 Scopemeters is as follows:**

<b>flukesavecal</b>	comX filename	- save the calibration array
<b>flukev4dump</b>	comX filename	- save the flash contents
<b>flukev4flash</b>	comX filename < calibration file>	- restore flash contents and calibration

<> Indicates the calibration file is optional. If this is not included the calibration array can optionally be extracted from the code file. If this option is also not chosen the instrument will not be calibrated. In this state it will not run but will emit 5 beeps and remain in the kernel. It is then possible to restore the calibration array with the following command:

<b>flukev4writecal</b>	comX filename	- restore the calibration array
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examples:

```
flukesavecal com2 cal.bin
flukev4dump com2 flash.bin
flukev4flash com2 flash.bin cal.bin
```

or...

```
flukesavecal com2 cal.bin
flukev4dump com2 flash.bin
flukev4flash com2 flash.bin
flukev4writecal com2 cal.bin
```

Note that if you are updating the software version you need to save the calibration array from the old version and restore it to the new version. However there does appear to be an issue when using a version 3 calibration array on a version 4 instrument. In this case it may be necessary to recalibrate the Scopemeter.

**The process for flashing later Scopemeters running UHM V1.0 is as follows:**

<b>flukesavecal</b>	comX filename	- save the calibration array
<b>flukeuhmdump</b>	comX filename	- save the flash contents
<b>flukeuhmflash</b>	comX filename	- restore flash contents
<b>flukeuhmwritecal</b>	comX filename	- restore the calibration array

Note that unlike in the earlier versions the later instruments will run when uncalibrated, presumably with default calibration

example:

flukesavecal	com2 cal.bin
flukeuhmdump	com2 flash.bin
flukeuhmflash	com2 flash.bin
flukeuhmwritecal	com2 cal.bin

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