8.0 Main Electronics Firmware / Configuration Loading procedures

This procedure is used to upload new firmware for the BREWER Electronics or to update the configuration files stored in flash memory.
The only time this procedure is required is if the firmware has been corrupted due to electrical surges or the memory had been replaced or if the configuration has changed due to some physical changes to the sensor settings or position stops.

8.1 Installation of BrewCMDW Software

Before using any of the procedures in this section the BrewCMDW software must be installed and properly configured.
Exit out of the BREWER operating program.

Edit the file brewcmd.ini within the BrewCMDW V2.2 directory on the desktop of the computer. Ensure that the com port setting indicated matches the comport setting for your Brewer.

8.2 Restore Back to COSMAC Mode

In certain circumstances where the signal line is placed in a permanent Break signal condition, the BREWER will continually try to reset but eventually it has determined that there is a problem and it will halt trying to reset and go into Loadmode. This fault can happen when the RS422 cable has been incorrectly wired or has shorted together to simulate a break condition. To confirrm that the processor is actually in loadmode, remove the weather proof cover of the BREWER and look down into the Main electronics board between the cover plate and the microprocessor board. You should see a flashing LED light and if it is in loadmode, it will be flashing quickly in 1/4 second intervals. The procedure to restore the system back to the Cosmac mode of operation is as follows:

Change to the BrewCMDW V2.2 directory on the desktop.

Run the program BrewCMDW by double clicking on **`BrewCMDW.exe.`** This program is a utility to allow the user to communicate to the BREWER Microprocessor and change operating modes or upload files.

If all the connections are correct, the display will reply that BREWER responded and at what baud rate it is communicating at.

```
[Using load mode at 9600 baud, on com 1; tracing is off]
```

It is expected that it will be in Loadmode but it could be in Opmode as well.

To return it to its normal operating mode, type **`cosmacmode`**↵

The instrument will reset itself by resetting all of its motors and the display will display the following with other status information.

`Motors Initializing`.

When the instrument has completed resetting all of the motors, the display will now respond to low level commands.

Exit out of the BrewCMDW program by typing **`quit`**↵ and the computer will have returned to the dos prompt.

Run the BREWER operating program and then ensure the time and date is correct.

8.3 New Configuration Upload

If hardware changes have been made such as removing the zenith drive gear or adjusting the micrometer drive sensor mask, then correct values for zero offset and other parameters must be uploaded to the instrument for it to operate correctly. The procedure to upload the new configuration file is listed below:

The configuration file that describes the characteristics of the instrument is named BREWnnn.cfg. The nnn will be the instrument number. This file is an ASCII text file that describes all the technical parameters of this particular instrument. This very same file should be uploaded to any replacement BREWER Main Electronics board following the physical installation of the board. A spare BREWER Main Electronics board will normally be sent with the latest configuration file stored at Kipp & Zonen. If the customer has changed any parameters in the field, it will not be configured into that board and the customer will have to upload the latest file as described below:

Change to the BrewCMDW V2.2 directory on the desktop

Run the program BrewCMDW by double clicking on **`BrewCMDW.exe`**

`[using cosmac mode at 1200 baud, on com 1: tracing is off ]`should be displayed

Type **`loadmode`**↵ to change modes.

`Waiting for the mode change to complete` and when complete, the display will display [**`using load mode at 1200 baud, on 1: tracing is off ]`**

Go into Opmode by typing **`opmode 9600`**↵

`Trying Operating mode at 9600 baud` is displayed until the display will display **`[using operating mode at 9600 baud; on port 1; tracing is off ]`**

Send the configuration file to the microprocessor by typing **`putcfg brewnnn.cfg`** ↵
(nnn is the instrument number)
Wait approximately one minute to transfer

Type **`readlog`**↵ to clear the log buffer

Type **`useconfig`**↵ motors should now reset

When complete **`readlog`**↵ to see if errors were encountered. Contact Kipp & Zonen if the log displays a problem.

Type **`save`**↵ a number should appear. This tell you how many configuration writes you have left.

If the number is '**`1`**' then the next time a configuration is sent, the top firmware must be written to Flash memory and the configuration area is cleared to allow another 4 blocks of configuration files for older SB model Brewers or 32 blocks for the newest SB Brewers.

Go to Load mode by typing **`loadmode`**↵

`Waiting for mode change to complete` and **`Trying load mode at 9600 baud`** is displayed until the display will display **`[using load mode at 9600 baud, on com 1: tracing is off ]`**

Go into Cosmac mode by typing **`cosmacmode`**↵

`Reading Cosmac mode reset message Waiting for mode change to complete`

Trying Cosmac mode at 1200 baud

Motors Initializing

These are some of the messages seen while going into the Cosmac mode.

Motors should reset and it is ready to run the BREWER operating program

type **quit** to get out of BrewCMDW

To run the BREWER operating program, click on the DosBox icon on the desktop for the instrument of interest

8.4 Uploading new Firmware and configuration files

As Kipp & Zonen develops new firmware and features, it is now possible for the customer to upgrade the firmware without having to open the cover to the BREWER. The New Electronics has incorporated Flash electrically erasable program memory and the system is capable of being updated from the PC. The procedure below will provide a step by step process to upload the firmware and also upload the configuration file which is erased when the new firmware is loaded.

This media is supplied with the instrument when first delivered or will be sent out to the customer when firmware updates are done.

Copy the new top.bin (V1R3A.bin/V2R2C.bin) firmware file received from Kipp & Zonen to the **\Br#nnn\nnn** subdirectory.

Change to the directory \Br#nnn\nnn by typing the command

cd \ Br#nnn\nnn

Run the program BrewCMDW by double clicking on **BrewCMDW.exe**

Eventually the following statement is displayed:

[using cosmac mode at 1200 baud, on com 1; tracing is off]should be displayed. If the command **help** is entered, a list of available commands will be displayed.
Type **loadmode** to change modes.
Eventually the following statement is displayed:
[using loadmode at 1200 baud, on com 1: tracing is off]

Type **loadmode 4800**

Eventually the following statement is displayed:

[using loadmode at 4800 baud, on com 1: tracing is off]

Type **load top.bin** or **topv#r#.bin**
(# will depend on the version number of the firmware.)
Wait until this task is completed (this will take a few minutes).

The display will display some messages below:
Erasing Flash memory

Writing file top.bin to flash ……

The display will show 112 moving dots to show its progress

Turn off the power of the instrument for approximately 10 seconds and turn it back on.

Go into Opmode by typing **opmode 9600**↵

Waiting for mode change to complete is displayed and eventually the fan turns on if the heater option is ordered and the display will eventually display **[using operating mode at 9600 baud, on com 1: tracing is off]**
Type **readlog**↵to display any errors encountered.

Send the configuration file to the microprocessor by typing **putcfg brewnnn.cfg**↵
Wait a 1.5 minutes to transfer

Type **readlog**↵ to clear the log buffer and see if any errors occurred during the configuration installation.

Type **useconfig**↵ motors should now initialize.

When complete **readlog**↵ to confirm everything is okay.

Type **save**↵ a number should appear. This tell you how many configuration writes you had left when the save command was issued. The number of configuration writes left is one less then the number displayed.

The number is '**4**' or '**32**' should be displayed, depending on the SB model.

Go to Load mode by typing **loadmode**↵

The display will eventually display **[using load mode at 9600 baud, on com 1: tracing is off]**

Go into Cosmac mode by typing **cosmacmode**↵

A number of messages will appear and eventually the motors should initialize and it is ready to run the BREWER operating program and display **[using cosmac mode at 1200 baud, on com 1: tracing is off]**

type **quit**↵ to get out of BrewCMDW

To run the BREWER operating program, click on the DosBox icon on the desktop for the instrument of interest.