

# Application Note

## Field replacement of a defective Slate module

In one of those rare occasions, a SLATE module becomes defective and needs replaced.

Just reloading the configuration into a new replacement module or using a pre-configured module is not enough, because a module serial number mismatch error will occur. The SLATE system uses the module serial numbers as a safety precaution to prevent the accidental use of incorrectly (pre) configured modules.

Some different scenarios exist to replace each of the SLATE modules:

- a. Base module. Replacing a Base module needs a different approach than replacing the other modules. Mainly because the Base module contains the powersupply and is like the “brains” of the SLATE BMS. The Base module may need a firmware update before use. See par. I and beyond of this application note how to replace the Base module.



- b. BC (burner control), F/A (fuel/air), LM (limit) modules. These are safety modules with configurations, and may need a firmware update before use.



Loading configurations into these modules need safety verification using the generic pages of the web interface.

< SLATE		Module Pages	Login
Module Pages	MODULE INFORMATION View/Edit information about any Module.	DIGITAL View/Control Digital I/O Modules	
Register Tools	BASE View/Edit Base Module	ANNUNCIATOR View/Edit Annunciator Modules	
System Tools			
Logger Tools	BURNER View/Edit Burner Modules		
Language	FUEL AIR View/Edit/Commission Fuel Air Modules		
Help	LIMIT View/Edit Limit Modules		
	ANALOG View/Edit Analog I/O Modules		

- c. DIO (digital I/O), AIO (analogue I/O) and AN (annunciator) module. These are non-safety modules, and may need a firmware update before usable. Configuration changes (if applicable) do not require safety verification.



- d. FL (flame amplifier) module. This is a specific device and is an accessory of the BC module. There are no configurations. Firmware is fixed and cannot update.

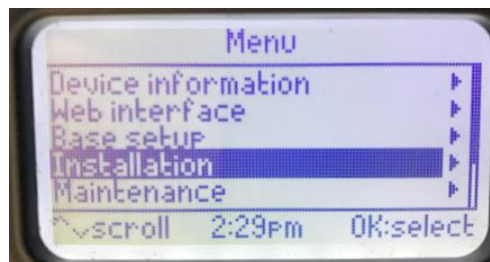
## Module exchange (except Base module)

### A. Saving current configurations (incl. module configuration and wire sheet)

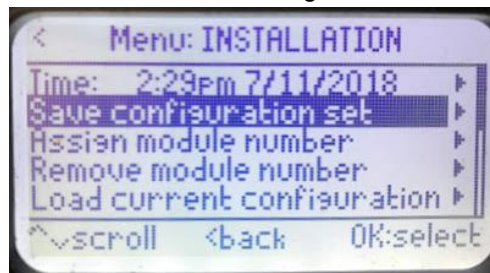
Exchanging a module needs some preparation, using the configuration menu on the Base module.



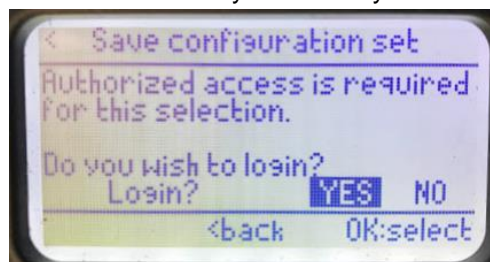
1. Push the MENU button and scroll down to INSTALLATION using the UP/DOWN arrow keys on the Base module and push OK.



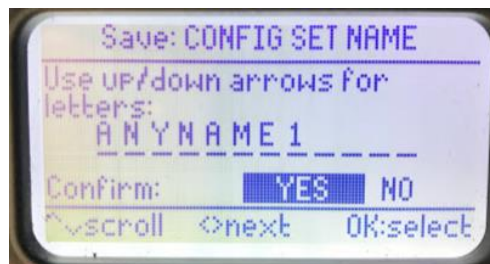
2. In the INSTALLATION menu scroll down to "Save configuration set" and push OK



3. If requested, accept the warning and login using the device's 4-digit passcode (factory default passcode is 1111) using the UP/DOWN arrow keys and finally select Login.



4. Give the configuration set a recognizable name (avoid spaces) using the UP/DOWN arrow keys and confirm by selecting YES.



This creates a full backup of the SLATE configuration on the micro SD card of the Base module, and contains all information previously loaded via configuration kit, including program tweaks made after loading the kit, for example during commissioning.

## B. Saving combustion curves (Fuel Air module only)

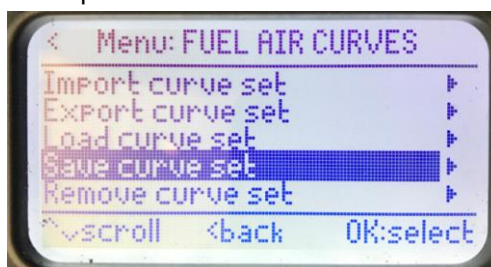
When replacing an F/A module, also make a backup of the fuel/air curves if not already done. Insert a USB flash drive into the Base module for doing this backup of curves.

Skip the steps 4-9 when replacing other modules, although saving good working curves is never a bad idea and may be useful for future use.

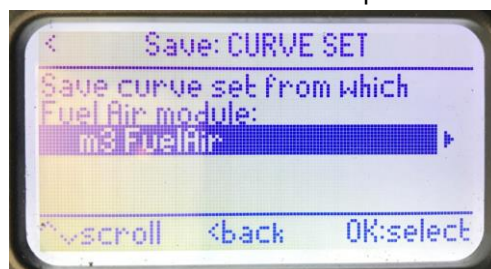
5. In the INSTALLATION menu scroll down to “Fuel Air curves” and push OK.



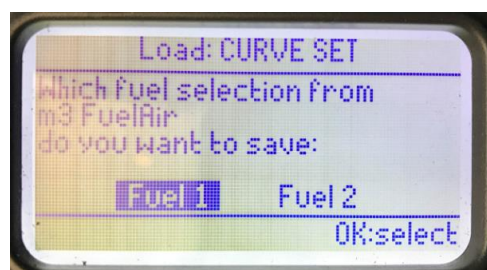
6. Scroll down to “Save curve set” and push OK.



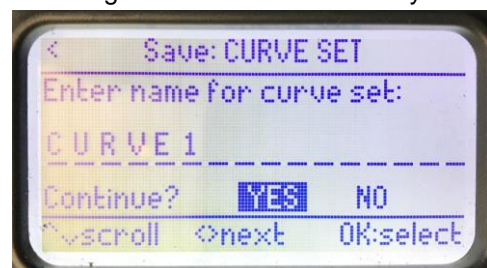
7. Select the F/A module for which the curves need saved and push OK.



8. Select Fuel 1 and push OK



9. Give the set a recognizable name using the UP/DOWN arrow keys and select YES to continue.

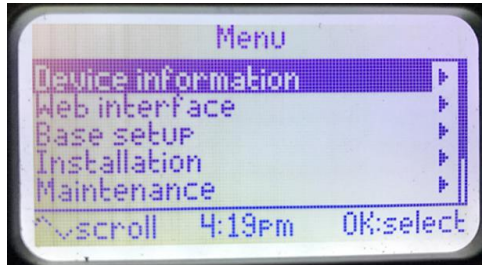


10. If applicable, repeat the steps 4 – 9 for Fuel 2.

### C. Verify firmware revision

To check whether the new device has the correct firmware, check the firmware revision of the defective module as follows:

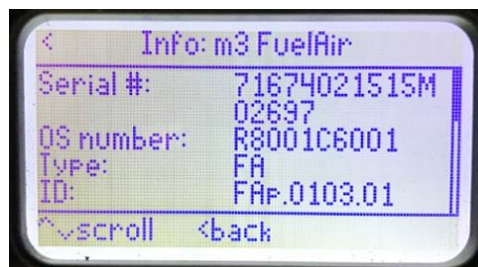
1. In the main menu scroll down to “Device information” using the UP/DOWN arrow keys and push OK



2. Scroll down using the UP/DOWN arrow keys to the defective module and push OK



3. At ID: you see the firmware revision of the module. For example, FAp.0103.01 indicates that the firmware of this F/A module is of revision 0103.



4. Make a note of the firmware revision number.

### D. Replacing the module

Now it is time to replace the module: power down the SLATE device completely by the on/off switch on the front of the Base module or by the cabinet main switch and replace the defective module.

1. Loosen the screws on the top-right and bottom-left side of the module using the correct slotted drive (5/32" / 4mm) or Phillips drive (size 2) screwdriver (the screw accepts both).
2. Pull the defective module off its sub base
3. Place the new module on the sub base and tighten the screws. Do not overtight.
4. Switch on the SLATE BMS and wait until the unit is fully started. The SLATE BMS will start up in locked out condition.



### E. Firmware update (optional)

It might be that at this stage the firmware of the replacement module needs an update first before the original configuration can be loaded. Although modules leave Honeywell's factory with the most recent firmware, it will sometimes happen that a spare replacement module is used that has been stored on a shelf for some time.

To check the firmware of the replacement module that has just been installed, do the following:

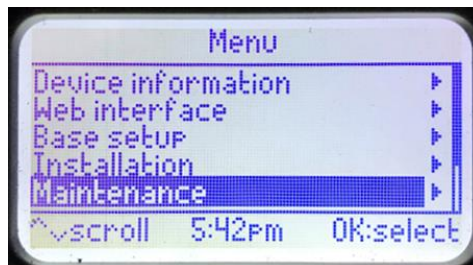
1. Repeat the steps as described under par. C and compare the firmware revision of the defective and replacement modules.

#### Notes:

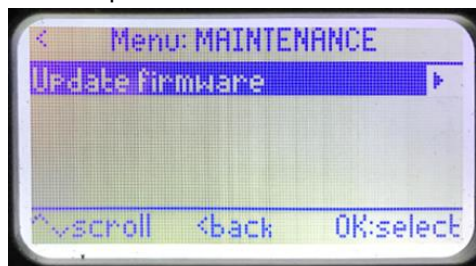
- i. Replacement modules with newer firmware (like BCp.0104.01) can replace defective modules with older firmware (like BCp.0102.01) right away.
- ii. Replacement modules with older firmware (like BCp.0102.01) can be used to replace defective modules with newer firmware (like BCp.0104.01) only if the defective module is configured with the same or earlier configuration software.
- iii. Only if the replacement module has an older revision firmware than the version of the configuration software, the module needs updated first before to proceed.
- iv. Most likely, the firmware update is already available in the Base memory and only needs loaded into the replacement module.  
Otherwise, a firmware update package is available via our website at <https://combustion.honeywell.com/slate>.

Proceed to next paragraph when the firmware update is not necessary.

2. On the Base module push the MENU button and scroll down to MAINTENANCE and push OK

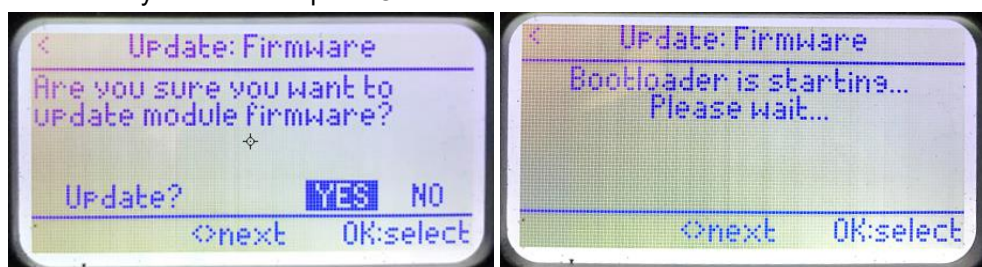


3. Scroll down to "Update Firmware" and push OK

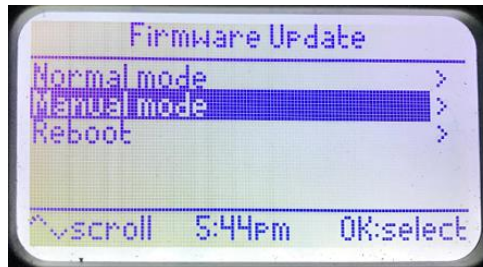


Next steps need login using the 4-digit passcode. Refer to previous paragraphs how to login.

4. Select YES on "Are you sure" and push OK. This will start the Bootloader.



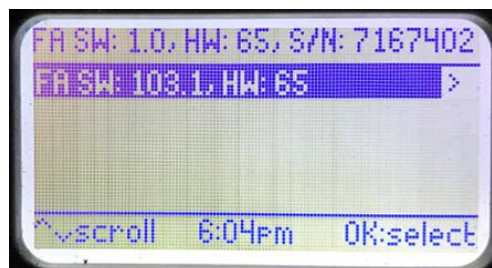
5. In the next menu select “Manual Mode” and push OK



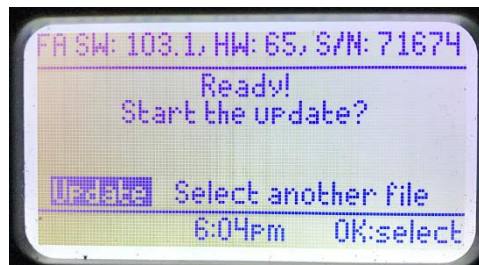
6. Push the reset button on the front of the new module that needs the update.



7. The most recent firmware revision that was previously loaded in this SLATE system shows up. Push OK.

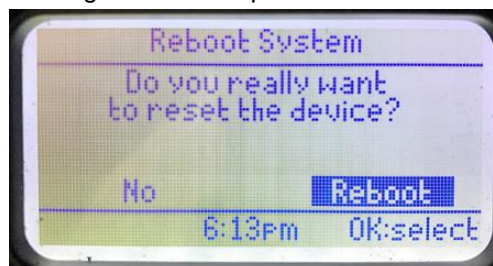


8. Do the update by pushing OK.



Notes:

- i. The update will run even if the module is already up-to-date.
  - ii. Running an update will erase all configurations of the module.
9. Quit the update process by selecting Reboot and push OK.



### F. Load configuration

A brand new replacement module as well as a module that was just updated with new firmware will show “m--” on its front display, indicating that it’s non-configured.

When a non-configured module is installed, the SLATE BMS cannot operate and is non-resettable. The fault LED of the new module will remain illuminated.

1. Push the MENU button and scroll down to INSTALLATION using the UP/DOWN arrow keys on the Base module and push OK.
2. Scroll down to “**Load recent config set**” and push OK
3. Accept the warning and login using the device’s 4-digit passcode (factory default passcode is 1111)
4. Now a message appears: This selection loads the “XYZ” config set into all modules. Where “XYZ” is the recognizable name created under step 3.
5. Select YES to confirm. Remark: during this stage, also the new module’s serial number is loaded.
6. Exit by selecting NO.

### G. Safety verification

Now the original configuration is loaded, all new parameters need verification via the web interface generic pages of the SLATE BMS.

Depending on the module, up to a 100 registers may need safety verification for brand new modules. For preconfigured modules, only a few parameters may need verified.

All need accepted step-by-step for safety reasons.

1. Log in as Designer or Installer.
2. Refer to Appendix II for a step-by-step description of the safety verification procedure.
3. Reset the module by pressing the reset button on the front of the module.

### H. Fuel air curves (for F/A module exchange only)

Only when replacing a F/A module, also the curve set(s) needs to be reloaded.

1. Insert the USB flash drive with the saved curves from steps A.4 – A.9.
2. Push the MENU button and scroll down to INSTALLATION using the UP/DOWN arrow keys on the Base module and push OK.
3. Scroll down to “Fuel Air curves” and push OK
4. Scroll down to “Load curve set” and push OK
5. Select the curve saved with the recognizable name under step 8
6. Select the Fuel Air module for which the curve needs loaded and push OK
7. Select the applicable fuel set (Fuel 1 or Fuel 2) and push OK
8. Exit by selecting NO.

### I. Enable fuel air control (for F/A module exchange only)

Via the web interface Fuel Air control must be enabled.

1. Log in as Designer or Installer.
2. Refer to Appendix III for a step-by-step description of the procedure.

Remark: for firmware revisions prior to FAp.0103.01, enabling fuel air control needs safety verification. Refer to Appendix II for the procedure.

### J. Reset

1. Finally hard reset all devices that are in lockout condition (red Fault LED is illuminated), by pushing the integrated reset button at the front of the module.

## Module exchange (only Base module R8001A1001)

### K. Replacing Base module

- After replacement of the Base module, check the condition of the CR2032 lithium battery (voltage should be around 3Vc) or place a new one. Especially when a Base was stored for a longer period without being powered, the condition of the lithium cell could be deteriorated.  
The battery only keeps the internal real time clock running. If the battery is empty, the Base will start with the defaulted date of 1-1-2007 0:00 after power up.  
Note that you will not be able to login as designer, installer or operator when the clock of the Base is too far off of the date and time of the connected MMI (R8001K display or a PC with Chrome browser).

After replacing the lithium cell and setting the clock to the actual date and time, you may have to perform a soft reset to validate the new date and time. Refer to the User Guide how to perform a soft reboot. This is not the same as switching off and on the power, which will generate a hard reboot that will not validate the new date and time.

- Make the correct settings for the local network via the MENU push button.  
A new, fresh Base module will have the default network address 192.168.92.10 which might not be the correct address for this system.



Go into the Base setup submenu and select Network and then Ethernet



Make the correct settings that are valid for your local Slate network. The new Base must be in the same sub net as the R8001K display.



3. Check the firmware revision:  
Press the MENU button



4. The value after "ID" shows the current firmware revision of the Base module. This should at least be the same or newer than that of the firmware of the other modules, otherwise the configuration and wiresheet of the system will not work as expected.

If the Base firmware needs updated, refer to the instructions contained in the Slate Firmware update package, which can be downloaded from the Slate web pages at <https://combustion.honeywell/slate/resources>

5. Open the home page of the Base module via the web interface and login as Designer or Installer and load the configuration and web kit files from a back-up USB flash drive.  
For details, refer to the Slate User Guide.  
On the USB flash drive there should be either:
  - both the wire sheet / configuration kit file and web pages files:  
**your\_project\_name\_wireconfig.swk** and **your\_project\_name\_web.swk**
  - or the combined fit file containing both the wire sheet, configuration and web pages:  
**your\_project\_name\_combined.swk**

#### Remarks:

- Sometimes the kit file does not load correctly the first time. If so, then load it again.
  - A successfully loaded kit file is stored on the Micro SD card. However if the last kit was the web kit, the configuration is not available. Therefore, always keep a backup of the USB flash drive available, that contain the most recent kit files.
6. Because the Base Module has no safety functions, in normal conditions the Safety Verification procedure for the BC, F/A and LM modules is not needed.

The combustion curves are stored in the F/A module. Replacing the Base Module will not affect the validity of the curves, so a "rewalk" of is not needed. Note that any backups stored in the Base module sit on the internal micro SD card. To keep the backups, including the faults and events history, reuse the micro SD card of the defective Base module.

Only if any of the safety parameters in the wireconfig kit file from the USB stick is different from what was previously loaded, a safety verification and rewalk of the combustion curves is needed.

### 7. Modbus RTU/TCP and BACNET communication settings:

Some SLATE systems communicate with a PLC, DCS or Thermal IQ via Modbus RTU (RS485) or via Modbus TCP with a PLC or DCS.

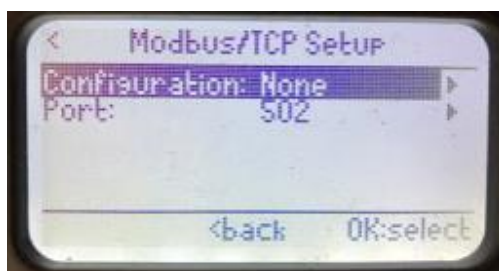
Also BACNET communication with other Base Modules in the network might be present.

In that case, enter the correct addressing parameters for Modbus and BACNET manually via the MENU on the Base module.

#### a. Modbus TCP and BACNET settings:

Go to the Network and Ethernet settings like described under point 2.

Now select Modbus TCP or BACnet and enter the parameters applicable for the application.



#### b. Modbus RTU settings:

Go to the Network settings as described under point 2.

Now select RS-485 and enter the parameters applicable for the application.



For more details, refer to the SLATE User Guide