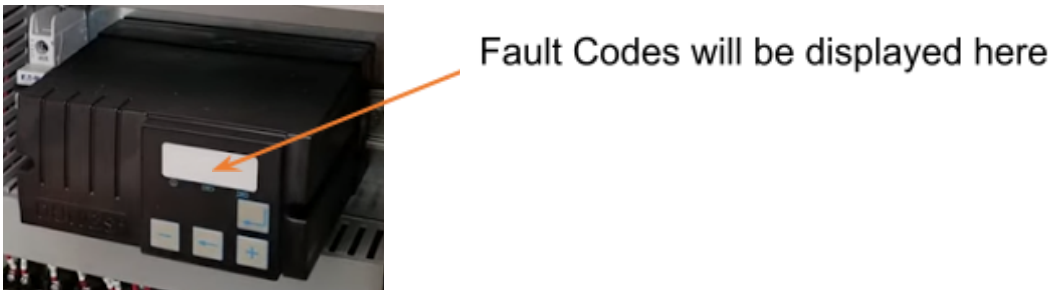
Dungs MPA-4112 Flame Management

The Dungs Flame Management, model number MPA-4112, is used with the Heat Injector System. The information regarding the Display along with and the definition of the State and Functions are included in the Owner's Manual. The digital file includes the entire MPA Manual which identifies all the features, parameters, and options.

The following is a listing of the most common Fault Codes. For more information on a specific Fault Code, go to MPA Manual and search (F8) for the 2 digit Fault Code. The following are the most common that might appear.



Common MPA Fault Codes (F__)

04: If the Reset is used 5 times within a 15-minute window the F 04 fault will appear. You can reset the counter by pressing and holding the Enter button until the display flashes or wait until time passes.

A2: The safety chain is broken before the heat enables has been removed. This fault indicates that one of the interlocks in the safety chain "fell out" while the heat was enabled. This might include a momentary bounce in a pressure switch or a tripped high temp limit. The fault alarm might appear after the heat enable was removed.

F 13 error code *(in Manual as 0x13 if doing a search)* If there is a bouncing contact on a pressure switch in the safety chain, it might also produce the F 13 error code which usually means the unit is sensing the external voltage on terminals 9 or 10. To test, remove any field wiring and install a jumper between 9 & 10. If the fault continues the internal safety chain circuit of the MPA is damaged and needs to be replaced.

D1: This indicates the safety chain was broken while the "heat enables" signal was present. The safety chain is made of the pre-ignition interlocks that need to be in place before closing the contacts between 9 and 10 on the MPA. These interlocks are typically high temp limits, the confirmation of airflow, low gas, and high gas pressure switches. The most likely cause is a bouncing contact on the pressure switch that confirms airflow in the injection chamber.

A6: There is a problem with the confirmation of the combustion air. The power should remain on after the heat enable signal has been removed. The fault will be produced if the pressure switch "falls out" before the heat enable is removed OR if the state of the pressure switch doesn't change (as in the case of a jumper).

A7: No Flame detected during trial for ignition. Press reset if all safeties are in place and try again.

A8: Flame goes out during operation. This could be the result of air in the line, the low fire is set too low, or the flame rod is producing a poor/intermittent signal (see following Flame Rod Maintenance section).

A9: Flame failure after ignition and before it was stabilized (within the first few seconds) which produces the Flame ON signal. This could be the result of air in the line during start-up or the low fire position is too low.

Fb6: Error with POC(Proof of Closure) on valve#2. There is a set screw coming in from the side that holds it on the spindle which has a groove that the set screw sets in. **Do not** turn the switch when the set screw is tightened. If it lost it could sag a bit and not let it indicate closed. When the POC switch is closed, closed when the power is off and valves are closed, the light is red, and when open it is green.

FAA: This error is indicating that the combustion air pressure switch did not “open” before the Heat was enabled. This could mean the pressure switch is not adjusted properly, the pressure is defective or jumped out of the circuit, or the Heat Injector was restated without letting the blowers fully stop spinning.

Stored Error Codes – The last 10 error codes can be viewed at the MPA display by pressing the BACK and PLUS Buttons at the same time.

The ENTER button toggles through the history of error codes, the BACK goes the other direction.

More info on each error can be obtained by pressing:

+ Button (the state is displayed as long as the button is pressed)

– Button (additional error note is displayed as long as the button is pressed)

Flame Rod Maintenance: The signal strength from the flame rod can be seen by pressing the ENTER and Plus (+) buttons at the same time. After the flame has been stabilized, as indicated by the Flame ON indication, you should see a strong signal, in the 50 – 58 range. If less than that, the flame rod needs to be cleaned.

When the signal strength falls below 50, the flame rod should be removed and cleaned with something abrasive (Emory cloth, scotch bite, steel wool, etc.). The signal strength can be impacted if there is enough carbon buildup or corrosion on the exterior of the flame rod. If the cleaning process didn’t increase the strength reading, a replacement flame rod should be purchased.

If the burner is longer than 3', there may be an additional flame rod to sense the flame on both ends of the Burner and there is an additional Module (the FLW-41i) to sense the 2nd flame rod. The parameters on the MPA are modified to monitor both flame rods.

There is an indicator on the MPA and the FLW-41i to reflect the sensed flame…if it is flickering, observe the flame to ensure there isn't turbulence affecting the flame.

Flame Management System – Error Zones

During the sequence of operations, there are 4 zones that would produce an error on the Flame Management System.

- Zone 1 – Any errors that can occur after the "call for heat" signal is received. This zone is also known as the safety chain interlocks. (Error Displayed: A2, F13, D1)
- Zone 2 – The errors that can occur in this zone will be issued with the combustion confirmation interlocks. This primarily will be something with the pressure switches on the combustion blower. (Error Displayed: A6)
- Zone 3 – After the previous zone is cleared, the flame management system will confirm that the valves are closed by physically monitoring the valve body with a POC (proof of closure) switch. (Error Displayed: Fb6)
- Zone 4 – If the process makes it to this zone, all of the safeties have been confirmed. (Error Displayed: A7) The system will be running in normal operation mode, If the burner loses any of the interlocks or the flame is extinguished an Error or A8, or A9 will appear.