KELCO Engineering Pump Controller FAQ

1. **My F60-MK3 controller is showing ‘run dry’.**

The F60 identifies ‘dry run’ as a combination of no flow and a pressure less than its set starting pressure at the end of its run on. Meaning that if the pump loses flow it will continue to run but its flow light will turn **red** and it will run its run-on timer for whatever you have it set to, 10 seconds for example. At the end of that run-on, given flow has not recovered (the flow light remains **red**), the F60 looks at the pressure and if that pressure is less than the pressure you have set as your starting pressure, then the pump will be stopped and the F60 will display “pump ran dry”. If this happens, check and make sure your pump is primed and, if fitted, the suction pipe strainer is not blocked. Press the reset button on the F60. The pump should immediately start. Watch the flow light. The flow light must turn **green** before the start up timer times out. If the flow light remains **red**, it indicates flow has not been detected. Do not proceed past this point until you establish why flow is not being detected.

Common reasons are:

* Pump not primed or is damaged in some way.
* On bore pumps, the start time is not set long enough for the riser pipe to fill.
* Flow is too low to be detected by the F60.
* Paddle on the F60 is damaged or broken.
* Sensitivity screw on the F60 not correctly adjusted.

Once you establish a stable flow, as indicated by a continuous **green** flow light on the F60, observe the line pressure as displayed on the F60. Slowly shut off the discharge, observing the displayed pressure as you do so. The pressure should rise as you do this and must be above the set starting pressure once the discharge is fully shut off. Failure to get this right will result in the F60 displaying “pump ran dry” once again. If required lower the starting pressure until it is only marginally above the system’s static pressure. The object is to ensure the line pressure is above the starting pressure when the discharge from the pump is shut off, i.e., when the taps are all turned off.

1. **F60-MK3 controller will not shut down the pump on low/high pressure?**

Ensure the F60 is set to operate in Mode 2 or Mode 3. Mode 2 is for pressure start flow stop applications and Mode 3 is for pressure start pressure stop applications, i.e., standard pressure system operation. Operating the F60 in Mode 1, basic flow control mode may cause the pump to continue to run because pump operation is not based on pressure. Modes 4 and 5 are also not appropriate for normal single pump applications. The F60 has a pump light that indicates the pump is running by displaying it in **green**. A **red** pump light indicates the pump is stopped. If the pump continues to run, observe the pump light, it should be **green**. If it is **red** then there is more than likely a wiring issue with the system, that is, the F60 or an associated control device is not wired up correctly. If the pump is running and the pump light is **green**, and you think the pump should have shut down because the pressure is too high or too low then the issue is most likely associated with incorrect programming. If this is the situation, purge the F60, as per Page 1 of the Installation Book and re-program it correctly for your application.

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1. **I have input the delay timer settings, but the controller starts before the set timer period is up.**

Depending on the mode you are operating in and how the whole system is set up it is possible for the pump to start before a set delay times out. For example, in delayed restart or in cyclic running the F60 will terminate the delay and start the pump if flow is detected by its paddle and the pressure is below the set stopping pressure. If the F60 is installed downstream of an air cell or in an application where there is an elevated tank supplying the system and a discharge Valve is opened it is possible for flow to push the paddle of the F60 into the ‘flow’ position. Doing so will override any time delay and may start the pump. To prevent starting before the delay ends consider plumbing the system in such a way as to ensure there is no flow past the F60 while the delay is in operation.

1. **What do I do if my Pump Controllers keeps cycling?**

In all modes except Mode 1 the F60 responds to pressure. If the pressure falls, the pump starts at its low set point, if the pressure rises the pump stops at its high set point. Unless a delayed restart is implemented, the F60 will respond to a falling pressure and start the pump immediately. The system must include something to delay such cycling, either a delayed restart in the F60 itself (see the installation book) or an air cell to provide the whole system with some hysteresis. If your system cycles on and off, check for leaks that might be causing a rapid loss of pressure and consider installing an air cell in the system to provide a buffer against rapid changes in pressure.

1. **My pump controller will not turn the pump on.**

Normally when power is switched on and with no pressure in the system the F60 will immediately start the pump and run it for whatever the startup timer is set to. It should do this even if flow is not detected. Ensure the start timer is not set to zero, set it to at least 5 seconds. Ensure the discharge line pressure is not above whatever you have the stopping pressure on the F60 set to if operating in Mode 3, pressure start, pressure stop mode. The pump will not start on power up unless the pressure is below the set starting pressure in Modes 2 or 3. If the pump fails to start on power up, try opening a discharge valve and dropping the line pressure to below whatever you have the starting pressure set to.

1. **Controller will not shut down on no flow / or with flow.**

If the stopping pressure is set higher than the pump can reach the pump will continue to run. The solution is to lower the stopping pressure to a point that is lower than the pump’s shutoff head. If operating in Modes 1 or 2, the shutoff of the pump is determined by loss of flow. Ensure the flow has actually stopped, the flow light on the F60 should be **red** to indicate this. If the pump discharge is off and the pump continues to run as indicated by a **green** pump light, check the flow light on the F60. If it is **green**, it may be the paddle on the controller is jammed in the on position or there are leaks in the discharge pipework.

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1. **The paddle on my controller is sticking.**

This generally happens on a new installation, and it is normally because the paddle has not been trimmed so it clears the bottom of the pipe, or it binds against the sides of the pipe fitting in which it is installed. The solution is to remove the F60 from the pipe and ensure its paddle can pivot freely and springs back to the ‘off’ position when released. Check the paddle length and ensure it clears the bottom of the pipe by at least 3mm. Check the paddle width and ensure it doesn’t bind on the sides of the pipe socket into which it is screwed. If, on inspection, the paddle or its pivot are damaged, replacement kits are available from Kelco or your supplier.