UV Sterilizer Troubleshooting: Determine Lamp or Ballast Fault

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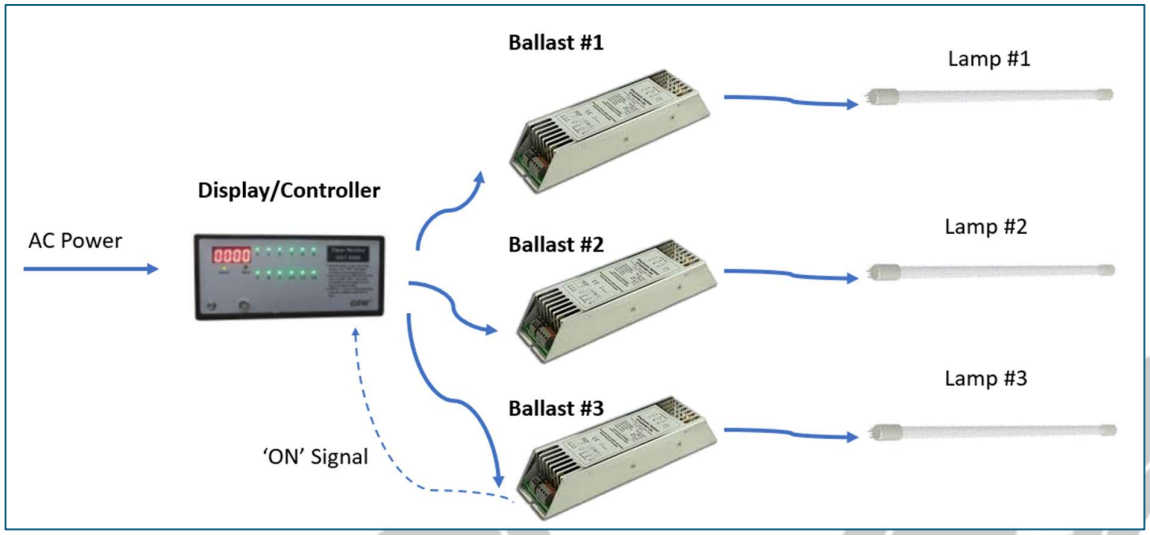
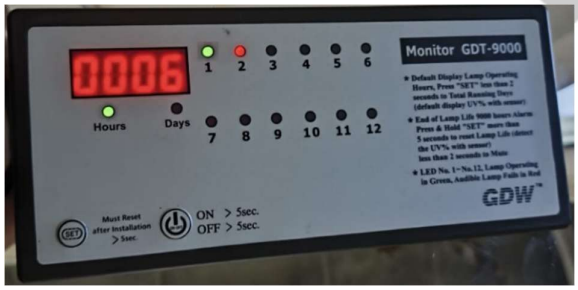
Firstly, operator must understand how a UV lamp works. Refer diagram below, the UV Controller distribute AC power to individual ballast, and energize the respective lamp. Upon successful energization, ballast will emit a 'lamp ON' signal back to the controller.

Whenever the controller failed to read the 'lamp ON' signal, it indicates either the ballast, or lamp, or both parts are malfunction. In the next part we shall discuss how to pinpoint the root cause.



Case Study 1:



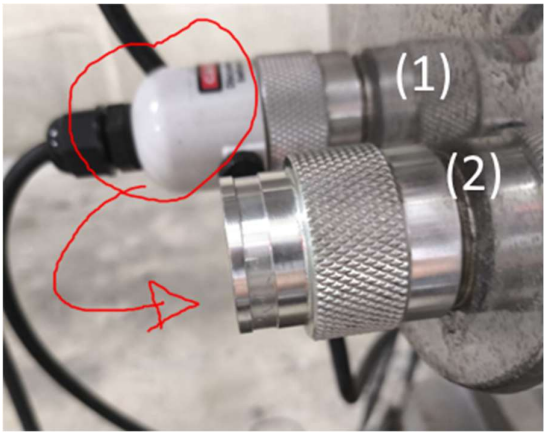
Here we have a case where Lamp #1 is normal, Lamp #2 is showing error

>> From here we can be certain that **the pair of (Lamp #1 & Ballast #1) are in good condition**

Further tests are required to determine the condition of the pair of (Lamp #2 & Ballast #2)

Next step: Swapping cables/socket between Lamp #1 & Lamp #2

The purpose of swapping cables is to let the healthy Ballast #1 to energize Lamp #2



There can be only 2 outcomes:

i) Lamp #2 is OK after swapping:

>> We can conclude ***ballast #2 is faulty***

ii) Lamp #2 is still not OK after swapping:

>> We can conclude ***Lamp #2 is faulty***

The same concept can be used to verify the ballast condition.

Let back to Case Study 1, we already knew the Lamp #1 is healthy, Ballast #2 is unknown

Let's swap the cables to allow Ballast #2 to energize Lamp #1

Outcome 1: Lamp # 1 is showing error >> *we can conclude Ballast #2 is faulty*

Outcome 2: Lamp # 1 is OK >> *we can conclude Ballast #2 is OK*

Key Takeaways:

Do not panic when the UV Sterilizer is showing error. Stay calm, apply the cable swapping technique, record the outcome and analyse which component is at fault.

Keep in mind only when the both the ballast and lamp are healthy, only it can be energized and return 'no error' signal to the UV Controller.