

Troubleshooting steps for the CAP-300 Series of Sensors

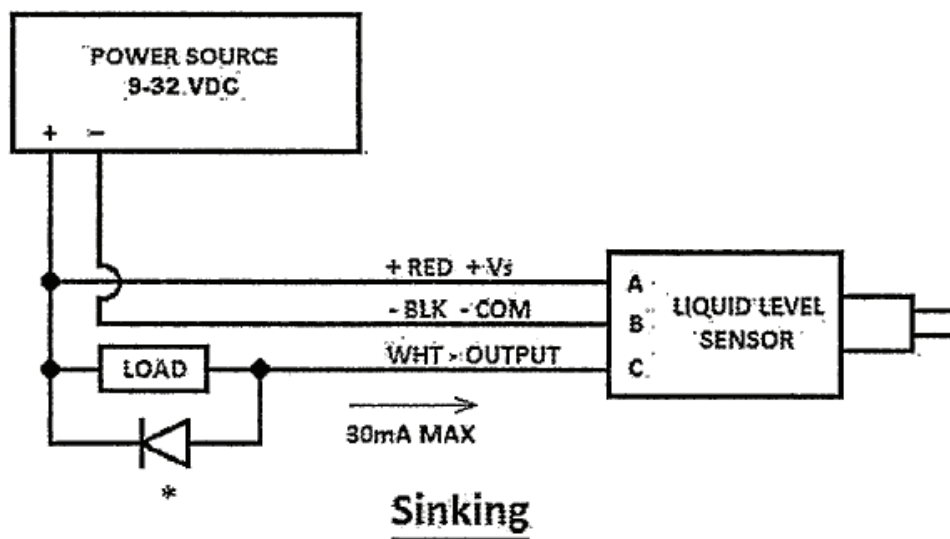
If your Gems' CAP-300 Series Capacitive Level Sensor is not performing as expected, please use the steps below to troubleshoot your sensor.

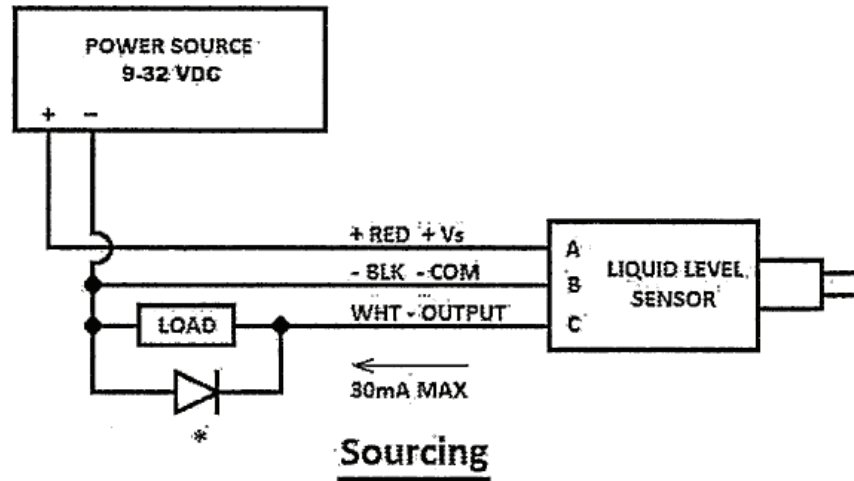


- Is the power supply correct?
 - o Standard sensors require a 9 to 32 VDC input.

- Is the wiring correct?
 - o Wiring schematics can be found in the bulletin (and below), click here: [Gems Sensors CAP-300 Instructions Bulletin No.240646](#)

 - o Double check that your wire colors/pinouts match correctly.





- Orientation and mounting:
 - o The CAP-300 is designed to work in any orientation
 - o The black plastic tips should be kept at least 0.1" (2.5mm) away from any surface
 - o Is the CAP-300 probe tip fully exposed to the media, and not installed in a port or tube where media can get trapped?
- Cleanliness:
 - o Is the port/tip clean?
 - o Any dried-on debris that could cause a false reading?
- Liquid/Media:
 - o The CAP-300 relies on the Dielectric Constant (Dk) of your fluid in order to detect the difference between fluid present and no fluid present.
 - o The sensor switching threshold is factory set at a value of 30.
 - o Media with a Dk greater than 30 will be detected as "WET". Conversely, media with a Dk less than 30 will be detected as "DRY".
 - o Some common Dk values:

Fluid	Dk (>30 is Good)	Good Target Fluid / Bad Target Fluid
Air	1	Bad
Oxygen	1.5	Bad
Water, +25C	80	Good
Water, +125C	50	Good
Coolant (Antifreeze)	80	Good
Oil, Hydraulic	2	Bad
Oil, Transmission Fluid	2.2	Bad
Oil, Fish	2.6	Bad
Alcohol, Isopropyl	18	Bad
Coffee, liquid	43-64	Good
Ketchup	24	Bad

- o Are you trying to detect foam? The CAP-300 was designed to ignore foam and will not detect it as wet.

- Best Practices for Troubleshooting:
 - o Test with room temp tap water.
 - o This way, it is a good known target fluid.

 - o Remove the sensor completely from your mechanical and electrical system.
 - o This will isolate any variable in the circuitry.
 - o Use a known good power supply as well as a known good voltmeter and see if the sensor responds to water.

- If these steps do not yield favorable results, please contact Gems via:
<https://www.gemssensors.com/contact-us/technical-support>