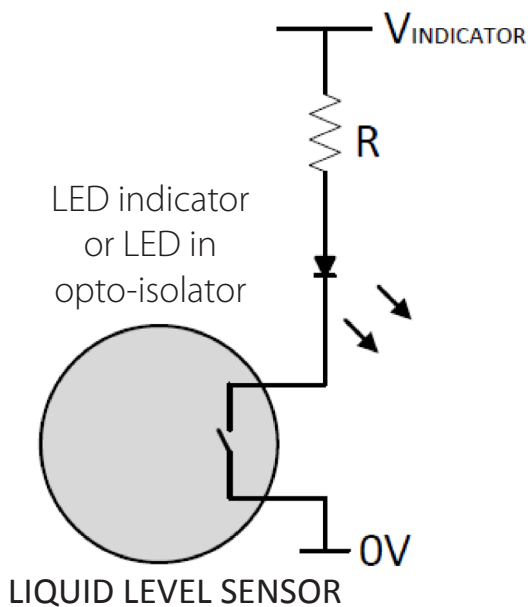


# How-to: Use an open collector output.

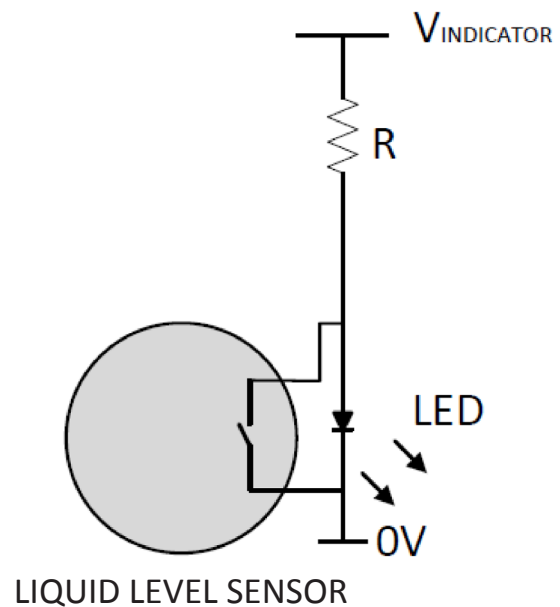
**All new Gill level sensors come with a secondary output function which operates as a high or low level switch. So what is it and how do I use an Open Collector switch output?**

Essentially the level sensor has an on board electronic switch (a Metal–Oxide–Semiconductor Field-Effect Transistor or MOSFET, if you are interested) that can be set-up to open or close at given liquid level conditions. Its exact switch point can be configured by the GS Level configuration tool available for download from our website [www.gillsc.com/support](http://www.gillsc.com/support)

When combined with other components, the Open Collector Output can drive an LED to indicate reserve fuel level, a relay to switch on a pump or an Opto-Isolator to drive any number of other devices.



LED illuminates when switch is closed



LED extinguished when switch is closed

## How do I choose the right value for 'R'?

### Resistor Value - R

$$R = (V_{\text{indicator}} - V_{\text{LED}}) / I_{\text{LED}}$$

$V_{\text{LED}}$  = Voltage drop across LED (Volts)

$I_{\text{LED}}$  = Current flowing through LED (Amps)

$V_{\text{INDICATOR}}$  = Supply Voltage (Volts)

### Resistor Power Rating

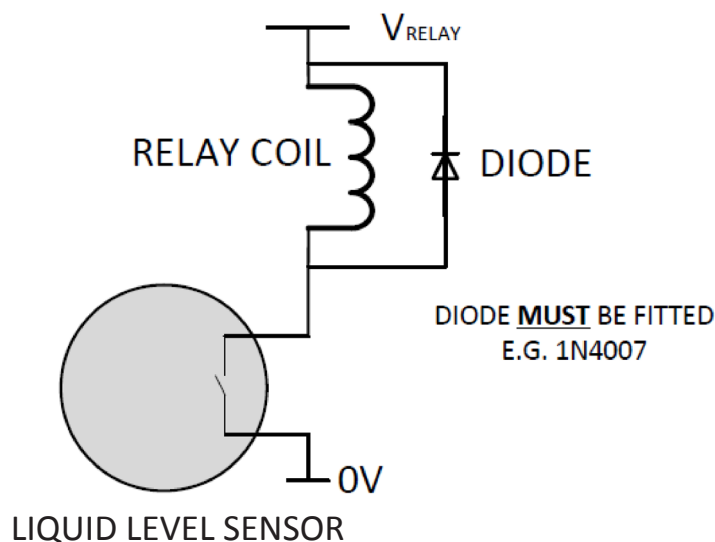
$$W = (V_{\text{indicator}} - V_{\text{LED}})^2 / R$$

### Example Calculation

$V_{\text{LED}}$  = Typically 1.2V for Red LED

$I_{\text{LED}}$  = Typically 0.02 Amps

|  |          |           |
|--|----------|-----------|
| $V_{\text{indicator}}$                                   | 12V      | 24V       |
| R =  | 540 Ohms | 1140 Ohms |
| Nearest preferred values                                 | 560 Ohms | 1200 Ohms |
| Power rating required<br>(using nearest preferred value) | 208mW    | 433mW     |
| Nearest preferred value                                  | 250mW    | 500mW     |



Maximum Value

Maximum current through the switch is 500mA.

Relay activated when switch is closed