



BOREAL

RESPONSE CELL

- Used as a quality assurance and PM tool
- Challenge system with the actual target gas
- Completely sealed and contained

SET

FORGET

DETECT

BOREAL

RESPONSE CELL



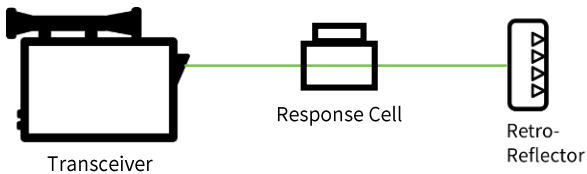
WHAT IT DOES

- The response cell is typically used in **leak detection** installations that are monitoring for a gas that is **not present in the ambient atmosphere**.
- Response cells are used for **quality assurance** purposes to validate that the GasFinder instruments is **responding appropriately to a nominal concentration of the target gas**
- The validation using a response cell is **NOT a field calibration**



PROCEDURE + PLACEMENT

- To “bump” or “challenge” the system, **the response cell needs to be placed in the active measurement path**
- The active measurement path is between the **transceiver** and the **retro-reflector**
 - The Response Cell also has a **flap with a Grey Tape Retro-Reflector attached** to complete the active measurement path if the path length is too long or if there isn't not enough returned laser light



WARNING

- If the GasFinder instrument is connected to Safety Instrumented System (SIS) it is important **to follow your facilities testing/bypass procedure** so that you do not inadvertently execute an unwanted shutdown procedure
- Care should be taken in handling as **to not damage/break the glass** inside of the Response Cell.
- While some of the target gases are combustible or toxic, it is important to remember that the **volumes used are quite small** and if the glass is broken, **the gas concentration should disperse quickly**

HOW IT WORKS

- The response cell is a **completely sealed unit that contains the specific target gas** that the GasFinder Instrument has been configured to detect
- The OP-TDL GasFinder instruments are designed to **“count” the number of molecules** of the target gas in the active measurement path
- Since the response cell has a concentrated number of molecules within the cell it **can replicate or simulate a release of gas that would be similar to a loss of containment**
- The small amount of gas contained in response cell **does not present a health hazard to the user**

REPEATABILITY

- **One cannot expect identical readings** from the response cell every time it is put into the path as it has an anticipated **repeatability around +/- 20%**
- Repeatability of the response cell is effected by two factors:
 - Depending on how the response cell is held in the active measurement path, **the path length through the response cell (and number of counted molecules) can change and therefore so will the indicated reading**
 - **Optical effects from the response cell windows**

DETECTABLE GASES

- **Select one gas** from the list of gases detectable by OP-TDL for use inside of the Response Cell:
 - Methane (**CH₄**)
 - Carbon Monoxide (**CO**)
 - Carbon Dioxide (**CO₂**)
 - Hydrogen Sulfide (**H₂S**)
 - Hydrogen Chloride (**HCl**)
 - Ammonia (**NH₃**)
 - Hydrogen Cyanide (**HCN**)
 - Acetylene (**C₂H₂**)
 - Ethylene (**C₂H₄**)
 - Oxygen (**O₂**)

Note: The exact gas specifications are to be confirmed at the time of an application engineering review.

SPECIFICATIONS

- **Response Cell:**
 - Enclosure Dimension: 118 x 146 mm (4.625 x 5.75 in)
 - Aperture (Window Size): 64 mm (2.5 in)
 - Weight: 1 kg (2.2 lbs.)
- **Carrying Case (w/ Response Cell):**
 - Dimensions: 355 x 266 x 152 (14 x 10 x 6 in)
 - Weight: 3.2 kg (7 lbs.)