



# BOREAL

## STACK/DUCT PROBE

- Small, compact, and robust design
- Align optical path during operation
- No power at the head required

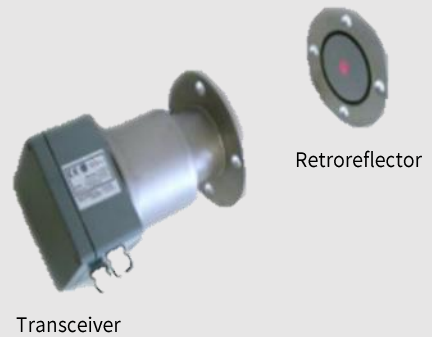
SET

FORGET

DETECT

# BOREAL

## STACK/DUCT PROBE



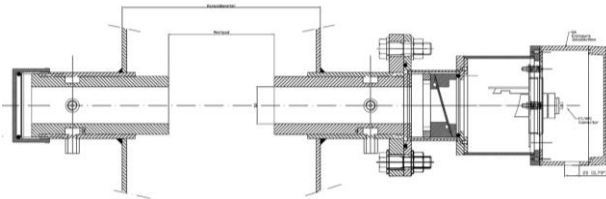
## WHAT IT DOES

- The probe is an engineered solution for our series of GasFinder3-DC analyzers to **remotely monitor the path average concentration** inside of a stack or duct

## HOW IT WORKS

- The analyzer can be **mounted locally or remotely**
- Fibre optic cable** carries the laser light from the GasFinder3-DC to the remotely mounted stack/duct probe (transceiver)
- The **active measurement path** is formed by the laser passing through the stack/duct and being returned by the retroreflector on the opposing flange.
- The laser light is then collected and the signal is carried back to the analyzer via **CAT6 cable**
- The ppm-m concentration is then transferred **from the GasFinder3-DC to the PLC or DCS via 4-20mA or RS-232**

## SCHEMATIC



## AIR PURGE

- In some cases, **condensation and accumulated dust** can cause optical interference or a blocked path.
- For cases of **positive pressure**, instrument air can be tubed in to the spacer flange to provide a flow rate of 1-5 l/min to keep the dust from settling
- In instances of **negative pressure**, the 1/4" NPT port in the spacer flange can be left open to allow air circulation

## OPTICAL ALIGNMENT

- Install the transceiver** and leave the **retro flange off**
- Remove cover plate** on the transceiver
- Connect the **visible laser** from the alignment kit (most stacks and ducts have a particulate load and the beam should easily be seen)
- Adjust the alignment screws** so the visible laser beam is aimed through the opposing flange port
- Install the retro flange**, remove the visible laser, and replace the cover plate on the transceiver

## SPECIFICATIONS

### OPERATIONAL SPECS

- Measurement Principle:** TDLAS
- Open-Path Length:** 0.3 - 20m (1 - 65 ft)
- Gas Temperature:** -40°C - 150°C (-40°F - 302°F)
- Gas Pressure:** Max 300 mbar
- Ambient Temperature:** -45°C - 80°C (-49°F - 176°F)
- Ambient Humidity:** Operating; non-condensing 5-95% RH
- Dust Concentration:** Max 2 g/m<sup>3</sup>

### SIGNAL CONNECTOR SPECS

- Optical Connector:** FC/APC Female (Signal-In)
- CAT6 Connector:** RJ45 Female (Signal-Out)
- Power Supply:** None Needed
- Opening for Gland:** 20mm

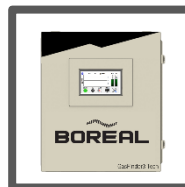
### PHYSICAL SPECS

- Dimensions:** 160 x 160 x 300mm (6.3 x 6.3 x 11.8 in)
- Weight:** 4.5 kg (9.9 lbs)
- Protection:** IP66/NEMA 4x
- Materials:** AISI316
- Housing:** AISI316 with PE or PTFE
- Window:** Borosilicate, fused silica, or sapphire
- Gaskets:** NBR, Viton, or PTFE
- Flange Size:** 3" ANSI 150#

## CONSIDERATIONS

- It is important that the flanges are **welded orthogonally** to the duct and that the two flanges are mounted at the same height
- For **high concentration applications**, we can configure the probe to be "pitch-catch" (transmitter and receiver) to only allow a single pass for the laser.
- In addition to the transmitter and receiver configuration, for **high concentration applications a plenum** can be installed to **reduce the active measurement path**
- For **stack temperatures over 120°C (250°F)**, it is recommended to install a spacer flange

## OTHER COMPONENTS



GasFinder3-DC



Alignment Kit



Response Cell