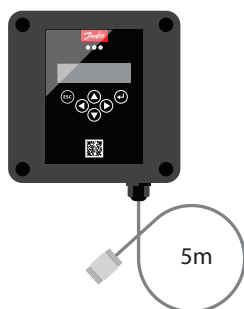


Application guide

## **GD vent line application**

Ammonia gas detection on safety valve  
discharge lines



### Ammonia gas detection on safety valve discharge lines

Gas detection on safety valve discharge lines is used to provide an alarm when a safety valve has released refrigerant due to un-intended overpressure in the system. The alarm setpoint for gas detectors in discharge lines is recommended to be at least above 5000 ppm, to avoid false alarms due to leaking safety valves or to cross sensitivity of the sensor to oils used in u-traps.

The reason that lower setpoints are not recommended is because even small amounts of refrigerant released due to leaks on the safety valves can cause high gas concentration given the volume of the release header; and because the sensor could have some cross sensitivity to the oils used in case there are u-traps filled with oil in the vent line.

Danfoss offers Gas Detection units with remote sensors for safety relief valve discharge line monitoring. The recommended sensor for Ammonia is a Semiconductor sensor on the range 0 – 10000 ppm.

### Recommended sensor for vent lines

- Semiconductor (Solid state) 10000 ppm

Semiconductor sensors are not as accurate as Electrochemical sensors; nevertheless, the life time of electrochemical sensors is highly affected(reduced) by the constant presence of the target gas. For that reason, electrochemical sensors are not the best type of sensor for discharge lines application, due to the risk of a reduced lifetime caused by the constant presence of small concentrations of ammonia.

### Recommended alarm set point

- 9000 ppm

To avoid false alarms due to safety valves leaks, the accumulation of ammonia in the discharge line and the cross sensitivity of the sensor, it is not recommended to use alarm setpoints below 5000 ppm.

### Location and installation guidelines

- Vent line sensor must be mounted no further than 0,6 m (2 ft) from discharge of vent line
- Must be mounted on a vertical pipe
- The sensor should be mounted so it does not restrict the flow in the pipe, e.g by mounting it in a weld-on pipe, as shown in figure 1.

### Safety valve discharge line gas detection recommendations

*Safety valve discharge line discharge to the atmosphere:*

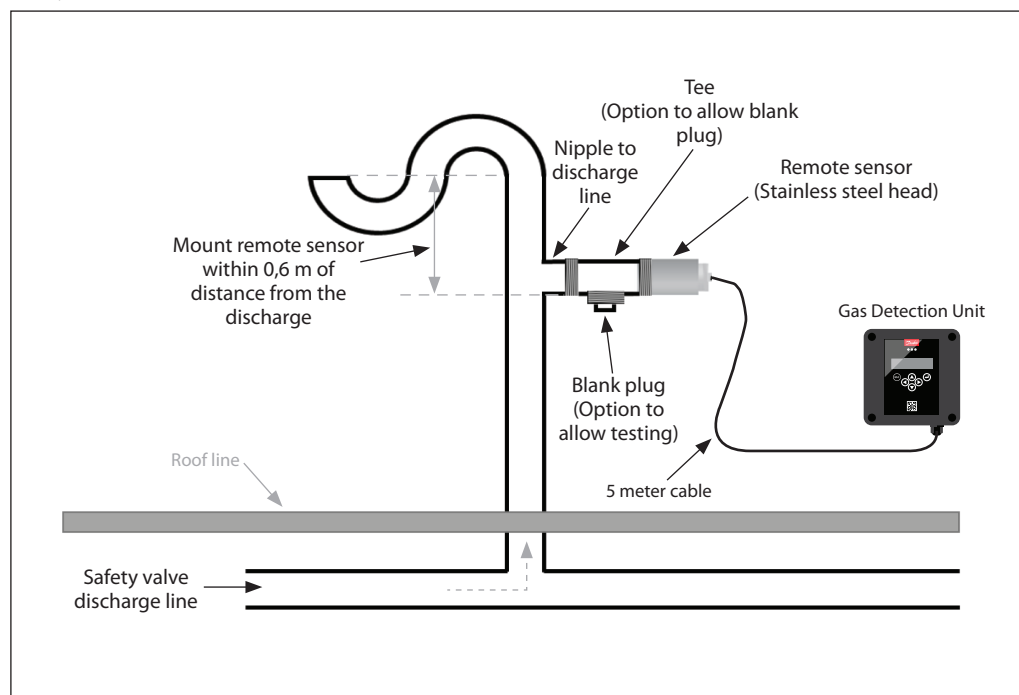


Figure 1.

