Applications located in regions with very cold or very hot climates face unique challenges dealing with the effects of temperature on equipment. Hydro Instruments' GA-180 gas alarm is capable of monitoring the ambient air temperature and provide early warnings to problems that could lead to equipment damage and/or potentially dangerous situations.

## Applications

### Cold Weather Climates

Water treatment installations in regions where temperatures can be very cold generally need to install thermostat controlled heaters in the same room as the chemical and chemical feed equipment.

The thermostat that controls these heaters can fail due to corrosion or other factors. Should the thermostat fail the following possibilities could occur.

The heater will not turn on and the temperature of the room will drop. This can lead to:
- Water lines freezing
- Equipment operation complications
- Chemical supply issues
  *Note that the reliable withdraw rate of 150 lbs. upright chlorine cylinders is ~1 PPD per deg. Fahrenheit and ~8 PPD per deg. Fahrenheit for ton containers.*
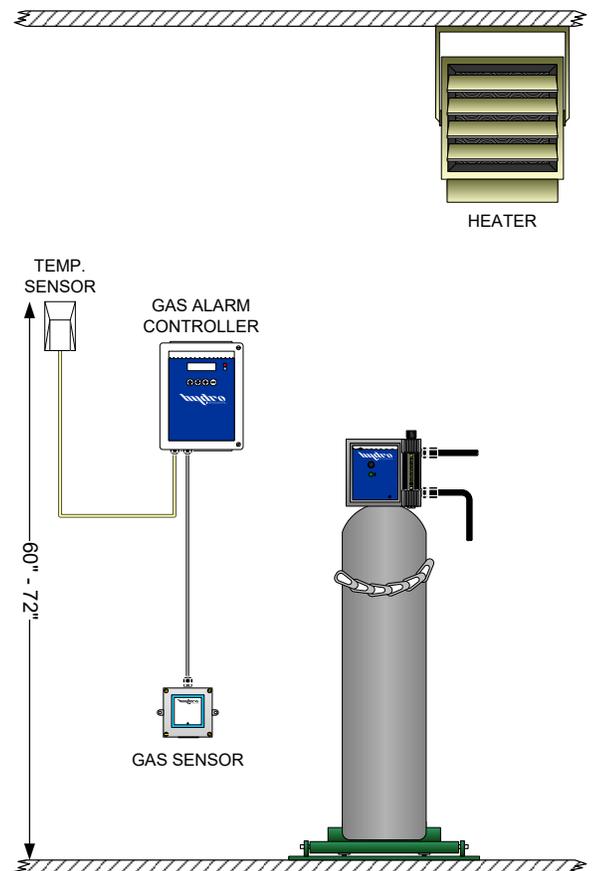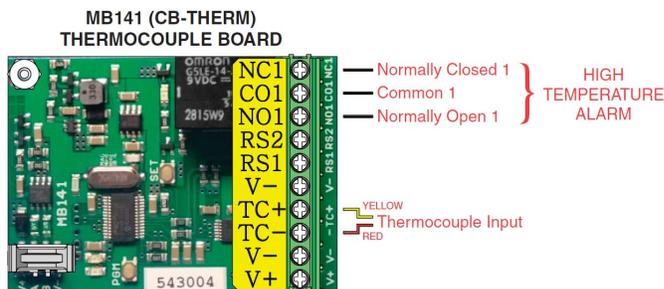
The other and often more dangerous scenario is if the thermostat does not shutdown the heater. This can lead to very high air temperatures, sometimes in excess of 160° F (71° C) that could:
- Soften or melt plastics
  *Note that PVC is a commonly used material in water treatment and has a maximum temperature rating of 140° F (60° C).*
- Cause equipment operation complications
- Melt fusible plugs in chlorine or sulfur dioxide cylinders and/or ton containers resulting in a critical chemical gas leak.
  *Note that fusible plugs are designed to melt at ~158° F (70° C).*



HEATER

### Hot Weather Climates

Water treatment installations in regions where temperatures can be very hot may need to consider monitoring the ambient room temperature to prevent damage to equipment and/or to prevent heat related equipment complications.



MB141 (CB-THERM)
THERMOCOUPLE BOARD

Normally Closed 1
Common 1
Normally Open 1
HIGH TEMPERATURE ALARM

YELLOW
Thermocouple Input
RED



TEMP. SENSOR
GAS ALARM CONTROLLER
60" - 72"
GAS SENSOR

## Basic Specifications

The GA-180 gas alarm is capable of monitoring and displaying air temperature with up to two (2) Type-K thermocouples.

The monitor has two (2) adjustable temperature alarm points:

- One rising alarm for high temperatures—Should the air temperature rise and exceed this point the monitor will indicate a "High Temp" alarm status.
- One falling alarm for low temperatures—Should the air temperature fall below this point the monitor will indicate a "Low Temp" alarm status.

There is one dedicated SPDT alarm relay for high temperature alarms. The common SPDT alarm relays can be programmed to also indicate a high temperature alarm or a low temperature alarm.

## Installation

The Type-K thermocouple is attached to the GA-180 monitors MB141 circuit board with a 10 ft. (3.0 m) shielded, solid copper cable.

*WARNING: It is very important to note that this cable cannot be cut or spliced into (i.e. cannot be shortened or elongated). Longer cable lengths are available and should be specified when ordering.*

The thermocouple should be installed on a wall approximately 60-72 in. off the floor in a location where hot air from the heater is not blowing directly onto the thermocouple. Additionally, the thermocouple should be out of direct exposure to sunlight. Following these installation points will help alieve false high temperature alarms. Installing the thermocouple near ventilation ducts where cold air may cause false low temperature alarms should be avoided as well.

600 Emlen Way, Telford, PA 18969 ● Telephone: (215) 799-0980 ● Fax: (215) 799-0984

US Toll Free: (888) 38-HYDRO ● www.hydroinstruments.com ● sales@hydroinstruments.com

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