

# API-Cecom Group n'fo

## Technical & Application Note A186

Application: Over temperature alarm for motor operation

Type Of company: Public Utility

Location: Ohio

**Problem:** The customer is a sewage treatment facility. Sewage comes from several sources such as residences, institutions, hospitals, and commercial and industrial establishments. Raw influent (sewage) includes household and industrial waste as well as input from the local storm sewers, all of which must be treated before it can be released back into the water system. Conventional sewage treatment involves multiple stages that separate the solids from the liquid, then process the liquid so the final water product can be discharged into a stream, river, bay, lagoon, or wetland or be used for the irrigation of golf courses, greenways, or parks. As you can imagine, it is critical a sewage treatment plant continue to run uninterrupted.

*Note: For additional information on wastewater treatment see [http://en.wikipedia.org/wiki/Sewage\\_treatment](http://en.wikipedia.org/wiki/Sewage_treatment)*

When it first arrives at the facility, the sewage goes to the primary clarifier stage that separates the solids from the liquids. It then goes to the aeration tanks that provide a location where biological treatment of the wastewater by aerobic bacteria takes place. In an air-through-water aeration tank, the aeration system is a fine bubble diffusion system consisting of blowers that send heated air to an air mixing manifold system in the bottom of the tank. The blower nozzles force the heated air through the wastewater creating a turbulent mixing action and a perfect environment for bacterial action to take place. Since the blower motors are critical to the process, they are designed to shut down should they exceed a maximum operating temperature, thus preventing a catastrophic motor failure. Should a blower motor shut down, it is vital the operators/technicians be notified in order to resolve the problem and get the system back up and running as quickly as possible. The engineer desires two inputs to his alarm panel – one to notify them that the motor is beginning to overheat and the other to tell them that the motor has shut down due to an overheated condition.

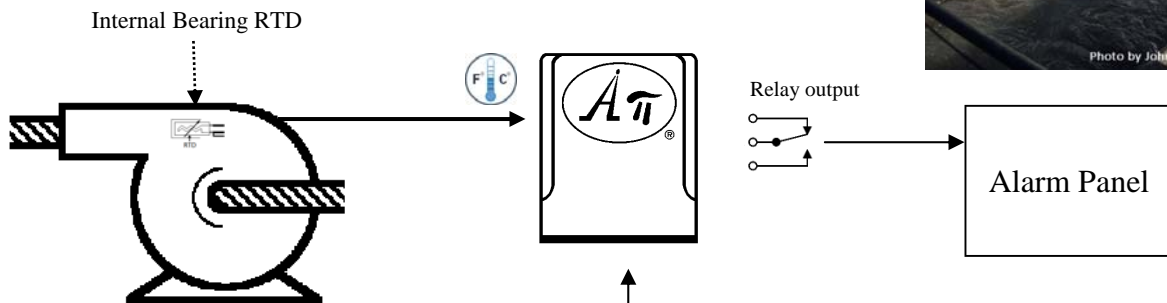
**Solution:** : The customer chose to use an API 1420 G (RTD Dual Alarm) to monitor the internal RTD attached to the blower motor bearings. The API 1420 G has “failsafe” relay operation, is easy to replace in the field, and it has two independent setpoints – one for the initial over temperature warning (HI) and the second for the motor shut down alarm (HI/LO). The API 1420 G meets all the requirements and is the perfect solution for the application.



API 1420 G  
RTD Input Alarm



Photo by John Rostron



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