Isolating signals with a hot swappable unit

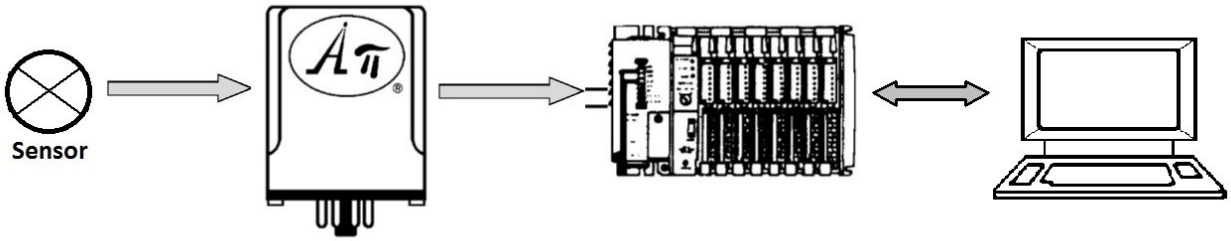
APPLICATION A161

Type of Company: Public Utility
Location: Florida

The customer is a public utility that uses unmanned pumping stations (or lift stations) in its sewage collection system. Lift stations handle gravity-fed underground pits (commonly called wet wells) which store raw sewage. Wet wells are equipped with electrical instrumentation to detect sewage levels. When levels rise to a predetermined point, the lift station pump will be started to lift the sewage upward through a pressurized pipe system where the sewage is discharged into a gravity manhole. From here the cycle starts all over again until the sewage reaches its point of destination, usually a treatment plant.

The Engineering Issue

- The engineer has a requirement for a “hot swappable” device to that will:
  - ◊ Isolate all the instrumentation signals (pump motor, level sensors, etc.) to the custom PLC input card and the main control motherboard.
  - ◊ Eliminate large spikes, often generated by lightning in this zone, thereby protecting the input cards of the customer’s application-specific expensive custom PLC.



The engineer used an API 4380 G. This allowed the use of a standard off-the-shelf module that is field range-able and since it is a “plug-in” module it gives the “hot swap-ability” that is required. It allows the service trucks to carry “spare ice cubes” (our modules are clear) and replace any “blown” module to minimize system down time.

Problem. Solved.

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