

## M500 Day Tank Advanced Functions

### High Temperature Correction

OmniPlex controllers integrate fuel temperature transmitters for a variety of applications. Industrial grade RTD type transmitters elements are installed into tanks or piping systems to provide inputs to the OmniPlex controller.

The most common application is for day tank temperature monitoring where there is a concern for excessive heat buildup. Generator engines draw fuel from a day tank and return about 2 / 3 of the flow to the day tank at a higher temperature accumulated from the engine fuel rail. Typically fuel oil radiators, integral to the generator coolant radiator, reduce the temperature of the fuel to a safe level.

In certain hot weather locations or in buildings with remote engine coolant radiators, temperature buildup can be difficult to control. Fuel temperatures above 120 F can be a problem because some engines rely on relatively cool fuel to cool mechanical elements of the engine fuel system. And importantly the safety hazards of fuel will increase with increased temperature.

The high temperature problem can be addressed in a number of ways:

- (a) The return flow from the generator may be directed back to the bulk storage tank where it cools, rather than to the day tank. This method works where gravity return flow to the bulk tank is possible. The day tank is re-filled with cooler fuel from the bulk tank. An important note is that this method will require a fuel transfer system to the day tank that is about 3 times the maximum generator consumption rate, to allow for the engine discharge back to the bulk tank.
- (b) The day tank may be equipped with a return flow pump, activated when the temperature is over 110 degrees F. The return flow pump operates to lower the day tank level down to the normal refill level to initiate faster cycling of the re-fill function with cooler fuel reducing the temperature.
- (c) The fuel can be cooled using a fuel oil cooler fan / radiator device, that is independent of the generator.



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