**SAM™ Smart Nozzle With N2P Technology Detailed Specifications**

**SYSTEM FUNCTIONALITY**

A SAM Smart Nozzle system shall be provided. The wireless, battery-operated Smart Control Console is an integrated unit mounted to the inlet of the Akron nozzle. The system shall include the following components:

* Two SAM Smart Nozzles – Available with Akron’s Turbojet™, Assault, and Smooth Bore Nozzles
* Truck installed radio interface and antenna
* Batteries, spare set of batteries and a USB charger

The Smart Nozzle shall include space for two batteries that are easily removeable to facilitate charging. Two additional batteries and charger shall be included with each SAM Smart Nozzle.

The SAM Smart Nozzle shall be designed to work with SAM automated systems. The nozzle will include an easy-to-read incorporated tank level gauge. When the system is operating off the apparatus tank the gauge will work as a normal tank level gauge with green (full tank), yellow (partially filled tank), and red (low tank) lights indicating the tank level. The tank level gauge will flash red when running out of water is imminent. When the apparatus transitions to a permanent water source besides the tank the tank level gauge will switch to a blue light indicating the transition has been made.

The SAM Smart Nozzle will include two function buttons on each side of the Smart Control Console. When the two buttons are pressed simultaneously, for a minimum of 2 seconds, the SAM Smart Nozzle communicates with the SAM system to charge the line. The SAM system will open the valve corresponding to the preconnect and set it a pressure level to achieve the calibrated nozzle pressure.

The SAM Smart Nozzle uses wireless technology that allows it to operate up to 300 feet of preconnected hose into structures.

The SAM Smart Nozzle shall include an integrated pressure transducer. The pressure transducer feeds pressures back to the SAM system in a continuous closed loop system. This closed loop system automatically maintains the proper nozzle calibrated pressure of the nozzle. The SAM Smart Nozzle maintains the calibrated pressure during elevation changes of up to five (5) floors above and two (2) floors below grade. If communication is lost between the SAM Smart Nozzle and the SAM system, the system will maintain the last known setting of the valve and the nozzle will still function as a normal handline nozzle.

When used with a SAM system the SAM Smart Nozzle allows for kinked hose detection. When the system sees low pressure at the nozzle the system triggers an increase of pressure at the valve on the apparatus. If the nozzle pressure does not rise, the pressure in the line is increased, up to 20 psi, to overcome the kink. Once the kink is overcome the system transitions to the normal line pressure required to attain the correct nozzle pressure.

With the SAM Smart Nozzle installed, the pump operator will be able to see valve pressure, rated nozzle pressure, actual nozzle pressure, hose/friction loss, battery life and signal strength for each discharge on the SAM display.

The system requires that the following components be specified:

* SAM System
* SAM BOOST System